# 1. Basic Diagnostic Procedure

## A: PROCEDURE

**CAUTION:**
**• Subaru Select Monitor is required for reading DTC, performing diagnosis and reading current data.**
**• Remove foreign matter (dust, water, oil, etc.) from the body integrated unit connector during removal and installation.**
**• Registration of immobilizer may be needed after the replacement of control modules, etc. For detailed procedure, refer to the "REGISTRATION MANUAL FOR IMMOBILIZER".**

NOTE:
• To check harness for open or short circuits, shake the suspected trouble spot or connector.
• Check List for Interview <Ref. to BC(diag)-3, Check List for Interview.>

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK PRE-INSPECTION.**<br>Ask the customer when and how the trouble occurred using the interview check list. <Ref. to BC(diag)-3, Check List for Interview.> | Did you interview the customer? | Go to step **2**. | Interview the customer. |
| 2 | **BASIC INSPECTION.**<br>Check components which might affect body control. <Ref. to BC(diag)-4, INSPECTION, General Description.> | Is the component that might influence the body control problem normal? | Go to step **3**. | Repair or replace each component. |
| 3 | **CHECK DTC.**<br>1) Read the DTC. <Ref. to BC(diag)-10, OPERATION, Read Diagnostic Trouble Code (DTC).><br>NOTE:<br>If the communication function of the Subaru Select Monitor cannot be executed properly, check the communication circuit. <Ref. to LAN(w/o HEV)(diag)-10, COMMUNICATION FOR INITIALIZING IMPOSSIBLE, Subaru Select Monitor.> <Ref. to LAN(HEV)(diag)-10, COMMUNICATION FOR INITIALIZING IMPOSSIBLE, Subaru Select Monitor.><br>2) Record all DTCs, time stamp and freeze frame data.<br>NOTE:<br>For time stamp, refer to "LAN SYSTEM". <Ref. to LAN(w/o HEV)(diag)-6, TIME STAMP, CAUTION, General Description.> <Ref. to LAN(HEV)(diag)-6, TIME STAMP, CAUTION, General Description.> | Is DTC displayed on Subaru Select Monitor? | Go to step **5**. | Go to step **4**. |
| 4 | **PERFORM GENERAL DIAGNOSTICS.**<br>Inspect using the "General Diagnostic Table". <Ref. to BC(diag)-45, General Diagnostic Table.> | Is result of inspection OK? | The body control system is normal. | Go to step **5**. |
| 5 | **PERFORM DIAGNOSIS.**<br>1) Correct the cause of trouble.<br>2) Perform the Clear Memory Mode. <Ref. to BC(diag)-11, OPERATION, Clear Memory Mode.><br>3) Read the DTC. <Ref. to BC(diag)-10, OPERATION, Read Diagnostic Trouble Code (DTC).> | Is DTC displayed on Subaru Select Monitor? | Repeat step 5 until DTC is not shown. | Finish the diagnosis. |

# 2. Check List for Interview

## A: CHECK

Inspect the following items regarding the vehicle's state.

| Body Control System Check List for Interview | | Date of Vehicle Bring-in | Year Month Day |
|---|---|---|---|
| Customer's name | | Registration No. | Initial year of registration<br>Year Month Date |
| | | Vehicle model | Frame number |
| Interviewer | Inspector | Engine type | Odometer reading |
| Customer specified content | | | |
| Date and time when the trouble occurred | | Frequency of trouble occurrence | |
| Condition of trouble occurrence | | Weather | |
| Road conditions | | Occurrence location | |
| Accessory installation condition | | | |
| Trouble condition | | | |
| ❑ Diagnostic code | | | ❑ ( ) |

# 3. General Description

## A: CAUTION

### 1. SRS AIRBAG SYSTEM

Airbag system wiring harness is routed near the body integrated unit and body control circuits.

**CAUTION:**
- **Do not use the electrical test equipment on all airbag system wiring harnesses and connectors.**
- **Be careful not to damage the airbag system wiring harness, when servicing the body control system.**

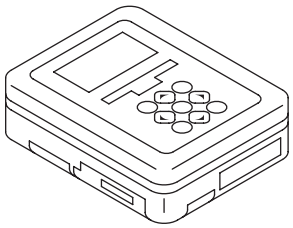
## B: INSPECTION

Before performing diagnosis, check the following items which might affect body control system problems.
1) Check the battery. <Ref. to SC(H4DO(w/o HEV))-52, Battery.>

NOTE:
For HEV model, check the 12 volt auxiliary battery. <Ref. to SC(H4DO(HEV))-39, Battery.>
2) Check the fuse condition.
Make sure that ampere of the fuse is setting value, and it is not blown out.
3) Check the connecting condition of harness and harness connector.
4) Confirm settings of body integrated unit are corresponded to vehicle equipment. <Ref. to BC(diag)-21, OPERATION, Registration Body Integrated Unit.>
5) Make sure that the User Customizing of the body integrated unit matches the vehicle equipment. <Ref. to BC(diag)-18, OPERATION, User Customizing.>
6) Confirm “Factory initial setting” of body integrated unit registrations is “Market”.

## C: PREPARATION TOOL

### 1. SPECIAL TOOL

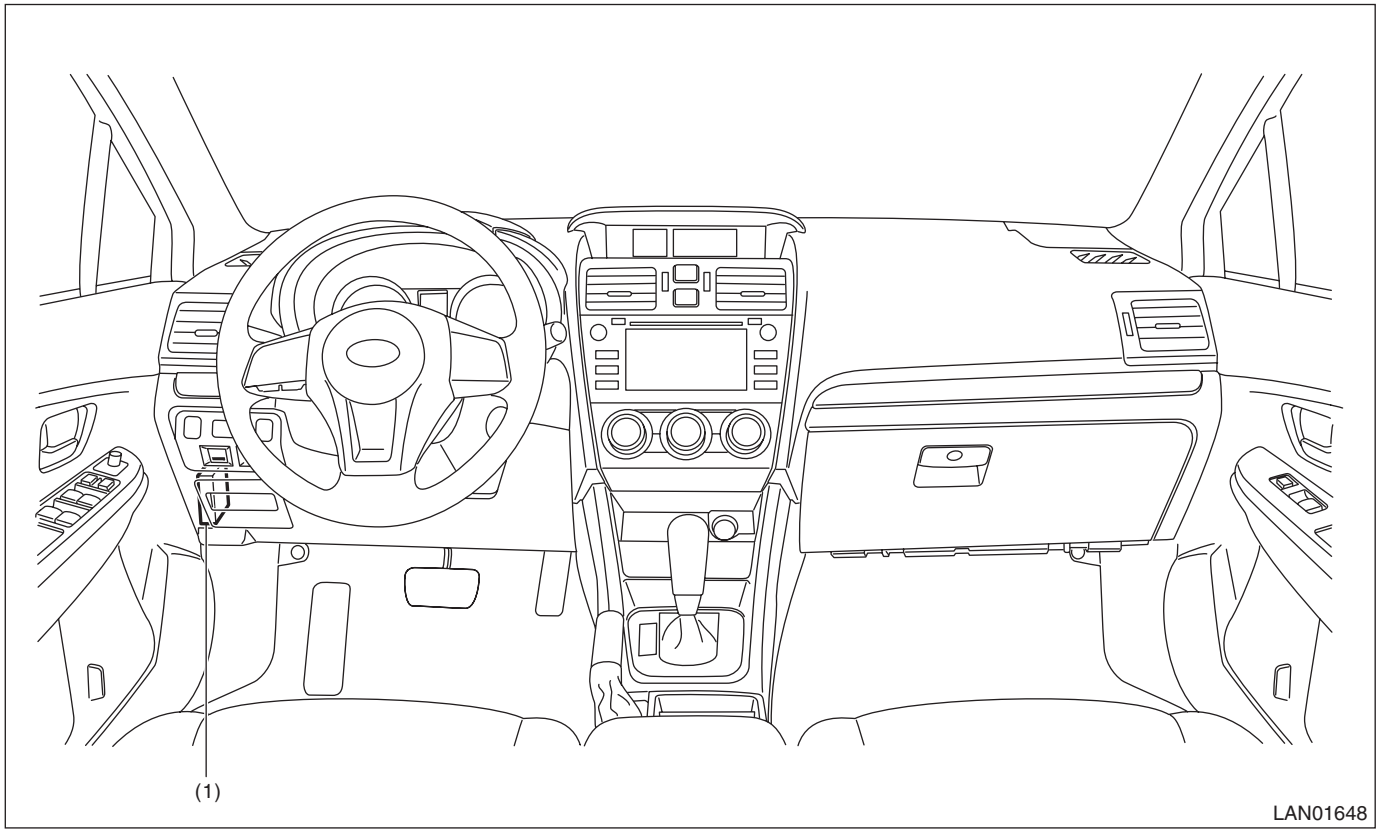
| ILLUSTRATION | TOOL NUMBER | DESCRIPTION | REMARKS |
|---|---|---|---|
|  ST1B022XU0 | 1B022XU0 | SUBARU SELECT MONITOR III KIT | Used for setting of each function and trouble-shooting for electrical system.<br>NOTE:<br>For detailed operation procedures of SUBARU SELECT MONITOR III, refer to “PC application help for Subaru Select Monitor”. |

### 2. GENERAL TOOL

| TOOL NAME | REMARKS |
|---|---|
| Circuit tester | Used for measuring resistance, voltage and current. |

# 4. Electrical Component Location

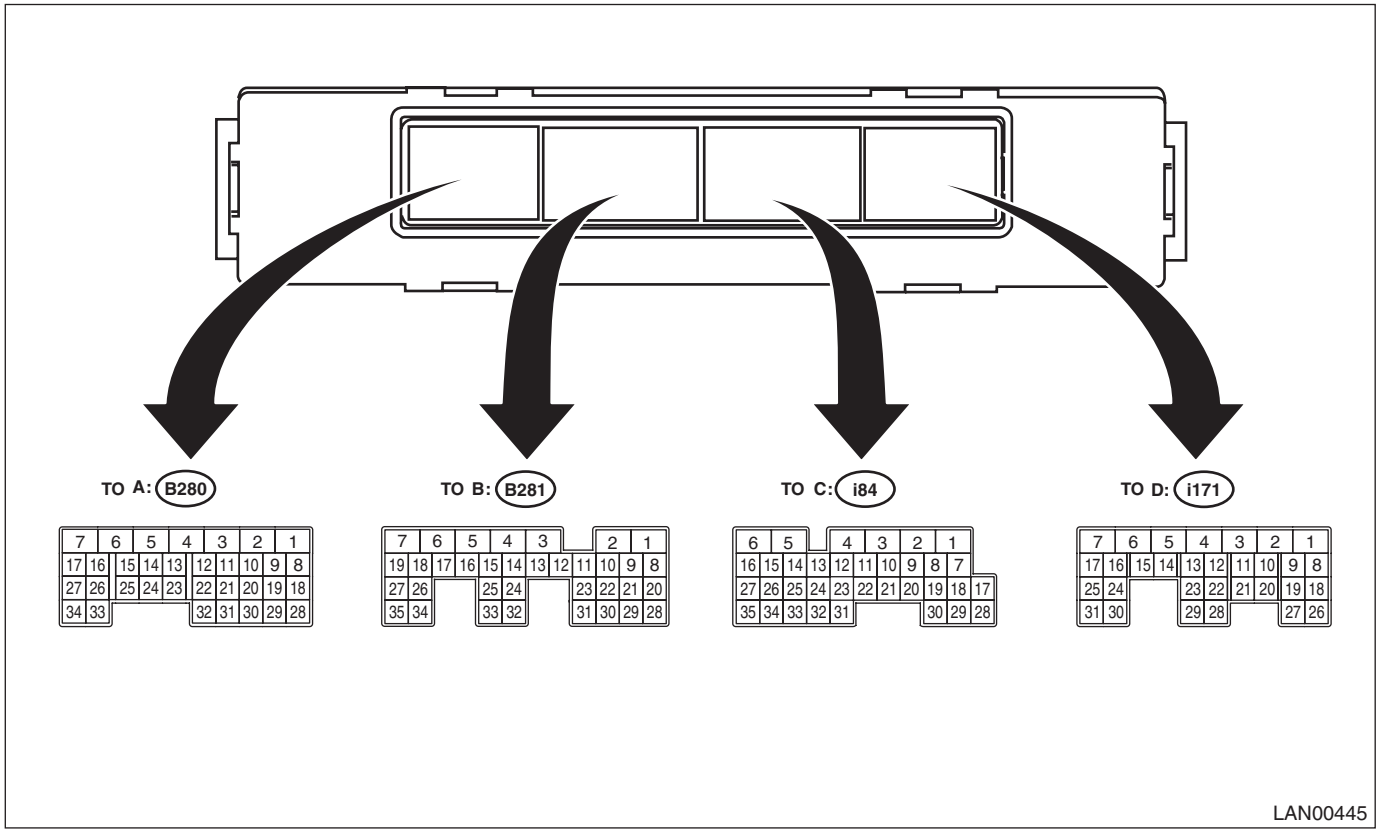
## A: LOCATION




(1) Body integrated unit

# 5. Control Module I/O Signal

## A: ELECTRICAL SPECIFICATION




| Description | Terminal No. | Signal (V or Ω) | Note |
|---|---|---|---|
| | | Ignition switch ON (engine OFF) | |
| Ignition power supply (rear wiper) | A5 ←→ Chassis ground | Less than 1.5 V → 10 — 13 V | Ignition switch OFF → ON |
| Battery power supply (shift lock/key lock) | B6 ←→ Chassis ground | 10 — 13 V | Always |
| Battery power supply (door lock) | D1 ←→ Chassis ground | 10 — 13 V | Always |
| Battery power supply (control) | C6 ←→ Chassis ground | 10 — 13 V | Always |
| Ground | A1 ←→ Chassis ground | Less than 1.5 V | Always |
| | C1 ←→ Chassis ground | | |
| Battery power supply (back-up) | B7 ←→ Chassis ground | 10 — 13 V | Always |
| Ignition power supply | B3 ←→ Chassis ground | Less than 1.5 V → 10 — 13 V | Ignition switch OFF → ON |
| ACC power supply | A32 ←→ Chassis ground | Less than 1.5 V → 10 — 13 V | Ignition switch OFF → Accessory ON |
| Key-in switch | A4 ←→ Chassis ground | Less than 1.5 V → 10 — 13 V | Key insertion (model without the keyless access with push button start system) |
| ACC input | A4 ←→ Chassis ground | Less than 1.5 V → 10 — 13 V | ACC ON (model with the keyless access with push button start system) |
| P range SW | B18 ←→ Chassis ground | 8 V or more → less than 1.5 V | P range to other than P range |
| Stop light SW | A10 ←→ Chassis ground | Less than 1.5 V → 8 V | Stop light switch OFF → ON |
| Door SW (driver's) | C14 ←→ Chassis ground | 8 V or more → less than 1.5 V | Front right door closed → open |

| Description | Terminal No. | Signal (V or Ω) | Note |
|---|---|---|---|
| | | Ignition switch ON (engine OFF) | |
| Door SW (passenger's) | C13 ←→ Chassis ground | 8 V or more → less than 1.5 V | Front left door closed → open |
| Door SW (rear right) | C25 ←→ Chassis ground | 8 V or more → less than 1.5 V | Rear right door closed → open |
| Door SW (rear left) | C24 ←→ Chassis ground | 8 V or more → less than 1.5 V | Rear left door closed → open |
| Rear gate SW/trunk SW | C33 ←→ Chassis ground | 8 V or more → less than 1.5 V | Rear gate/trunk closed → open |
| Opener SW (trunk/rear gate) | C10 ←→ Chassis ground | 8 V or more → less than 1.5 V | Rear gate/trunk opener switch ON |
| Manual switch (LOCK) | C9 ←→ Chassis ground | 8 V or more → less than 1.5 V | Door lock switch ON |
| Manual switch (UNLOCK) | C20 ←→ Chassis ground | 8 V or more → less than 1.5 V | Door unlock switch ON |
| Lighting AUTO | B16 ←→ Chassis ground | 8 V or more → less than 1.5 V | Switch at AUTO position |
| Lighting II | A34 ←→ Chassis ground | 8 V or more → less than 1.5 V | Switch at II position |
| | B34 ←→ Chassis ground | | |
| Lighting I | B17 ←→ Chassis ground | 8 V or more → less than 1.5 V | Switch at I position |
| Dimmer passing | B25 ←→ Chassis ground | 8 V or more → less than 1.5 V | Switch at passing position |
| Dimmer Hi beam | B15 ←→ Chassis ground | 8 V or more → less than 1.5 V | Switch at Hi beam position |
| Front fog light SW | B26 ←→ Chassis ground | 8 V or more → less than 1.5 V | Front fog light switch ON |
| Illumination sensor power supply | B1 ←→ A29 | Less than 1.5 V → 4.5 V or more | Ignition switch OFF → ON |
| Illumination sensor signal | A19 | 0.2 — 4.5 V | Ignition switch OFF → ON |
| Ground (illumination sensor) | A29 ←→ Chassis ground | Less than 1.5 V | Always |
| Rear wiper SW ON | A12 ←→ Chassis ground | 8 V or more → less than 1.5 V | Switch at ON position |
| Rear wiper SW INT | A22 ←→ Chassis ground | 8 V or more → less than 1.5 V | Switch at INT position |
| Rear washer SW | A30 ←→ Chassis ground | 8 V or more → less than 1.5 V | Switch at ON position |
| Illumination SW (Vi1) | D12 ←→ Chassis ground | Approx. 5 V | While clearance light illuminates |
| Illumination SW (Vi2) | D22 ←→ Chassis ground | 0.5 — 4.8 V | |
| Illumination SW (Vi3) | D28 ←→ Chassis ground | Less than 1.5 V | Always |
| Bright SW | C21 ←→ Chassis ground | 8 V or more → less than 1.5 V | Switch at ON position |
| Reverse SW (MT) | B12 ←→ Chassis ground | Less than 1.5 V → 8 V or more | Reverse SW ON |
| Impact sensor | A11 ←→ Chassis ground | 8 V or more | Apply an impact |
| Hi-speed CAN communication circuit 1 (Hi) | B20 | Serial communication | Except for sleep status*1 |
| Hi-speed CAN communication circuit 1 (Lo) | B28 | | |
| Hi-speed CAN communication circuit 2 (Hi) | C27 | Serial communication | Except for sleep status*1 |
| Hi-speed CAN communication circuit 2 (Lo) | C35 | | |
| Immobilizer antenna (B) | B22 | Serial communication | Communication with ignition key in progress (Without keyless access with push button start system) |
| Immobilizer antenna (A) | B10 | | |
| Immobilizer antenna amplifier GND | B30 ←→ Chassis ground | Less than 1.5 V | Always (Without keyless access with push button start system) |

| Description | Terminal No. | Signal (V or Ω) | Note |
|---|---|---|---|
| | | Ignition switch ON (engine OFF) | |
| Immobilizer antenna amplifier power supply | B2 ←→ B30 | 4.5 — 5.5 V | Communication with ignition key in progress (Without keyless access with push button start system) |
| Security UART | A21 | Serial communication | Always (Without keyless access with push button start system) |
| Front wiper return | A2 ←→ Chassis ground | 8 V | When front wiper is operated |
| Door UNLOCK (driver's seat) output | D4 ←→ Chassis ground | Less than 0.5 V → 8 V or more | When driver's side door unlock is output |
| Keyless entry/TPMS communication line | D11 | Serial communication | When door lock/unlock is operated with the keyless transmitter, or when TPMS is operated |
| Rear defogger switch | C18 ←→ Chassis ground | Less than 1.5 V → 8 V or more | When the rear defogger switch is ON |
| Parking brake switch | C32 ←→ Chassis ground | 8 V or more → less than 1.5 V | When parking brake is ON |
| Shift lock solenoid | B5 ←→ Chassis ground | Less than 1.5 V → 8 V or more | When shift lock is operating (AT models) |
| Key lock solenoid | B4 ←→ Chassis ground | Less than 1.5 V → 8 V or more | LOCK status is ON (AT model without the keyless access with push button start system) |
| Rear wiper ON output | A7 ←→ Chassis ground | Less than 0.5 V → 8 V or more | Rear wiper operation in progress |
| Rear wiper return | A6 ←→ Chassis ground | Less than 0.5 V → 8 V or more | Rear wiper operation in progress |
| Door LOCK output | D2 ←→ Chassis ground | Less than 0.5 V → 8 V or more | When LOCK signal is output |
| Door UNLOCK output | D3 ←→ Chassis ground | Less than 0.5 V → 8 V or more | When UNLOCK signal is output |
| Rear gate/trunk UNLOCK output | D7 ←→ Chassis ground | Less than 0.5 V → 8 V or more | When UNLOCK signal is output |
| Lighting relay power supply | A3 ←→ Chassis ground | 10 — 13 V | ACC or key-in SW ON |
| | B19 ←→ Chassis ground | 10 — 13 V | ACC or key-in SW ON |
| Lighting relay Hi output | A17 ←→ Chassis ground | 8 V or more → less than 1.0 V | Dimmer SW at Hi position |
| Lighting relay Lo output | B35 ←→ Chassis ground | 8 V or more → less than 1.0 V | Lighting II SW at ON position |
| Lighting Lo relay output 2 | A27 ←→ Chassis ground | 8 V or more → less than 1.0 V | Lighting II SW at ON position |
| Lighting relay I output | A16 ←→ Chassis ground | 8 V or more → less than 1.0 V | Lighting I SW at ON position |
| Front fog light output | A15 ←→ Chassis ground | 8 V or more → less than 1.0 V | Front fog light SW at ON position |
| DRL cancel output | D10 ←→ Chassis ground | 8 V or more → less than 1.0 V | Headlight switch ON or Hi beam ON, passing switch ON |
| Illumination output | B8 | Pulse output | Illumination ON |
| | C16 | Pulse output | Illumination ON |
| Key ring illumination | A25 | Pulse output | Illumination ON (Without keyless access with push button start system) |
| Room light output | C4 | Pulse output | Room light ON (doors inter-locked) |
| Map light output | D8 | Pulse output | Map light ON (keyless answer-back, etc.) |

| Description | Terminal No. | Signal (V or Ω) | Note |
|---|---|---|---|
| | | Ignition switch ON (engine OFF) | |
| Luggage/trunk light output | C3 | Pulse output | Luggage/trunk at open state |
| Rear defogger relay output | A26 ←→ Chassis ground | 8 V or more → less than 1.0 V | Rear defogger SW ON |
| Wiper deicer relay output | D9 ←→ Chassis ground | 8 V or more → less than 1.0 V | Wiper deicer SW ON |
| Turn/hazard output | D18 ←→ Chassis ground | 8 V or more → less than 1.0 V | When answer-back is output |
| Security horn output | A24 ←→ Chassis ground | 8 V or more → less than 1.0 V | When security is operating |
| Security light | D26 | Pulse control | When security light is illuminating |
| Answer-back buzzer output | A20 ←→ Chassis ground | 8 V or more → less than 1.0 V | When answer-back operates |
| Immobilizer communication | A31 | Serial communication | (Models without the keyless access with push button start system) |
| Turn signal RH | B9 ←→ Chassis ground | 8 V or more → less than 1.5 V | Turn signal switch right ON |
| Drive mode SW (economy/X mode) | B14 ←→ Chassis ground | 8 V or more → less than 1.5 V | Mode SW OFF → ON |
| Turn signal LH | B21 ←→ Chassis ground | 8 V or more → less than 1.5 V | Turn signal switch left ON |
| Accessory connector | B29 ←→ Chassis ground | 8 V or more → less than 1.5 V | Rear gate/trunk closed → open |
| Door lock state SW driver's | C12 ←→ Chassis ground | 8 V or more → less than 1.5 V | Driver's inner remote lock → unlock |
| Door lock state SW passenger's | C23 ←→ Chassis ground | 8 V or more → less than 1.5 V | Passenger's inner remote lock → unlock |
| SRF OFF SW input | D14 ←→ Chassis ground | 8 V or more → less than 1.5 V | SRF OFF SW pressed |
| LIN communication line | D16 | Serial communication | Except for sleep status*1 |
| SRF relay output (R) | D20 ←→ Chassis ground | Less than 1.5 V → 8 V or more | SRF right side FOG activated |
| SRF relay output (L) | D21 ←→ Chassis ground | Less than 1.5 V → 8 V or more | SRF left side FOG activated |

*1: For CAN sleep state, hold on for approx. one minute with ignition OFF and the doors, trunk, and rear gate all closed.

# 6. Read Diagnostic Trouble Code (DTC)

## A: OPERATION

For details concerning the work procedure, refer to the “PC application help for Subaru Select Monitor”.

NOTE:
For details concerning DTC, refer to List of Diagnostic Trouble Code (DTC). <Ref. to BC(diag)-26, List of Diagnostic Trouble Code (DTC).>

# 7. Clear Memory Mode

## A: OPERATION

For details concerning the work procedure, refer to the “PC application help for Subaru Select Monitor”.

# 8. Read Current Data

## A: OPERATION

For details concerning the work procedure, refer to the “PC application help for Subaru Select Monitor”.

## B: LIST

| Items to be displayed | Unit of measure | Content | Note |
|---|---|---|---|
| BATT voltage (control) | 10 — 15 V | Body integrated unit input value | Always |
| BATT voltage (BACKUP) | 10 — 15 V | Body integrated unit input value | Always |
| IGN voltage | 10 — 15 V | Body integrated unit input value | Ignition switch ON |
| ACC voltage | 10 — 15 V | Body integrated unit input value | Ignition switch ACC |
| Illumination VR Voltage | 0 — 5 V | Body integrated unit input value | Input value from illumination volume |
| Illumination output d-ratio | 0 — 100% | Body integrated unit output value | Small light ON<br>Illumination volume is other than bright. |
| number of regist. | 0 — 4 | Number of keyless key registered | |
| Front Wheel Speed | km/h | CAN data input value | Reception from VDC module |
| Fuel consumption | cc/s | CAN data input value | Reception from ECM |
| Coolant Temperature | –40 — 215°C | CAN data input value | Reception from ECM |
| Shift Position | 1 — 3, D — S, D, N, R, P | CAN data input value | Reception from TCM |
| Buzzer beeping request | Status for ’beeping deactivated’<br>Reverse warning<br>Key warning buzzer<br>Light Remained Buzzer<br>Customize 1<br>Customize 2<br>Registration completed 1<br>Registration completed 2<br>Registered<br>Registration NG | CAN data output value | Reception from body integrated unit |
| Destination Code | JPN<br>U4, U5, U6<br>C0<br>EC, EA, E2, EL<br>K4, C4, C6<br>KS<br>EK<br>ER, EN<br>KA, KC<br>EH<br>C6 | CAN data input value | — |
| Illumination Sensor Output | 0 — 5 V | CAN data input value | — |
| Off delay time | OFF<br>10s<br>20s<br>30s | Body integrated unit setting value | Customize setting |
| Auto Light Sensitivity Adjustment | Dull<br>Normal<br>Sensitive<br>Very sensitive | Body integrated unit setting value | Customize setting |

| Items to be displayed | Unit of measure | Content | Note |
|---|---|---|---|
| key-lock warning SW Input | ON/OFF | Body integrated unit input value | ON when ignition key inserted |
| Stop light SW | ON/OFF | Body integrated unit input value | ON when brake pedal is depressed |
| Front fog lamp SW input | ON/OFF | Body integrated unit input value | When front fog light switch is ON |
| Rear fog lamp SW input | ON/OFF | Body integrated unit input value | When rear fog light switch is ON |
| Driver's door SW input | ON/OFF | Body integrated unit input value | ON when driver's door is open |
| P-door SW input | ON/OFF | Body integrated unit input value | ON when passenger's door is open |
| Rear right door SW input | ON/OFF | Body integrated unit input value | ON when rear right door is open |
| Rear left door SW input | ON/OFF | Body integrated unit input value | ON when rear left door is open |
| R Gate SW input | ON/OFF | Body integrated unit input value | ON when rear gate/trunk open |
| Manual lock SW input | ON/OFF | Body integrated unit input value | Manual lock switch ON |
| Manual unlock SW input | ON/OFF | Body integrated unit input value | Manual unlock switch ON |
| Bright SW input | ON/OFF | Body integrated unit input value | Bright switch ON |
| P SW | ON/OFF | Body integrated unit input value | ON when shift range is in parking<br>Shift lever P switch signal |
| MT Reverse Switch | ON/OFF | Body integrated unit input value | Reverse switch ON (for MT vehicle only) |
| R wiper ON SW input | ON/OFF | Body integrated unit input value | Rear wiper switch ON |
| R wiper INT SW input | ON/OFF | Body integrated unit input value | Rear wiper switch (INT ON) |
| R washer SW input | ON/OFF | Body integrated unit input value | Rear washer switch ON |
| Rr Defogger SW | ON/OFF | Body integrated unit input value | Rear defogger switch ON |
| Fr wiper input | ON/OFF | Body integrated unit input value | ON when front wiper is operating |
| Parking Brake SW | ON/OFF | Body integrated unit input value | Parking brake ON |
| Driver's seat lock status SW input | ON/OFF | Body integrated unit input value | Displays latch state, ON when locked |
| Passenger's seat lock status SW input | ON/OFF | Body integrated unit input value | Displays latch state, ON when locked |
| R gate lock status SW input | ON/OFF | Body integrated unit input value | Displays latch state, ON when locked |
| R Gate Release SW input | ON/OFF | Body integrated unit input value | Rear gate release switch ON |
| Rr Defogger output | ON/OFF | Body integrated unit output value | ON when rear defogger relay is operating |
| lock actuator LOCK output | ON/OFF | Body integrated unit output value | ON when LOCK signal is output |
| All seat UNLOCK output | ON/OFF | Body integrated unit output value | ON when unlock signal is output |

| Items to be displayed | Unit of measure | Content | Note |
|---|---|---|---|
| D-seat UNLOCK output | ON/OFF | Body integrated unit output value | ON when unlock signal is output |
| R gate/trunk UNLK output | ON/OFF | Body integrated unit output value | ON when rear gate/trunk unlock signal is output |
| Rear Wiper Output | ON/OFF | Body integrated unit output value | ON when rear wiper motor is operating |
| Shift Lock Solenoid | ON/OFF | Body integrated unit output value | ON when shift lock solenoid is operating (only AT) |
| Key lock solenoid output | ON/OFF | Body integrated unit output value | ON when key-lock status |
| wiper deicer output | ON/OFF | Body integrated unit output value | ON when wiper deicer relay is operating |
| Hazard Output | ON/OFF | Body integrated unit output value | ON when answer-back signal is received or when hazard is operating |
| Keyless Buzzer Output | ON/OFF | Body integrated unit output value | ON when lock/unlock signal is received |
| Horn Output | ON/OFF | Body integrated unit output value | ON when security warning is operating |
| Illumination Light Output | ON/OFF | Body integrated unit output value | ON when illumination is illuminated |
| Room lamp output | ON/OFF | Body integrated unit output value | ON when keyless lock/unlock signal is received, or when opening or closing the door |
| Key Illumination Light Output | ON/OFF | Body integrated unit output value | ON when key illumination light is illuminated |
| R fog Light output | ON/OFF | Body integrated unit output value | ON when rear fog light is ON |
| Immobilizer Light output | ON/OFF | Body integrated unit output value | ON when immobilizer pilot light blinks |
| Keyless operation 1 | Regist./Normal | Body integrated unit input value | When keyless ID is registered |
| Keyless operation 2 | Deletion/Normal | Body integrated unit input value | When keyless ID is deleted |
| Small Lamp SW | ON/OFF | Body integrated unit input value | ON when small light is illuminated |
| Headlight | ON/OFF | Body integrated unit input value | ON when headlight Lo is illuminated |
| High Beam | ON/OFF | Body integrated unit input value | ON when headlight Hi is illuminated |
| Blower fan information | ON/OFF | CAN data input value | Reception from ECM |
| Power rear gate setting | ON/OFF | Body integrated unit setting value | Not applicable (OFF fixed) |
| Lane change signal setting | ON/OFF | Body integrated unit setting value | Customize setting |
| Rear wiper auto setting | ON/OFF | Body integrated unit setting value | Customize setting |
| Xmode SW setting | ON/OFF | Body integrated unit setting value | Not applicable (OFF fixed) |
| Left turn signal input | ON/OFF | Body integrated unit input value | ON when turn signal switch is ON |
| Right turn signal input | ON/OFF | Body integrated unit input value | ON when turn signal switch is ON |
| Left turn signal output | ON/OFF | Body integrated unit output value | ON when turn signal is output |

| Items to be displayed | Unit of measure | Content | Note |
|---|---|---|---|
| Right turn signal output | ON/OFF | Body integrated unit output value | ON when turn signal is output |
| XmodeSW input | ON/OFF | Body integrated unit input value | Not applicable (OFF fixed) |
| XmodeSW output | ON/OFF | Body integrated unit output value | Not applicable (OFF fixed) |
| TPMS Setting | TPMS/No TPMS | Body integrated unit setting value | Customize setting |
| Driver's Door Unlock Setting | Selection/ALL | Body integrated unit setting value | Customize setting |
| Rear Gate Unlock Setting | Selection/ALL | Body integrated unit setting value | Customize setting |
| One-touch Turn Signal System Setup | ON/OFF | Body integrated unit setting value | Customize setting |
| Auto Wiper System (Rear) Setup | ON/OFF | Body integrated unit setting value | Customize setting |
| Steering Responsive Fog Lamp Setting | ON/OFF | Body integrated unit setting value | Customize setting |
| Steering Responsive Fog Lamp OFF SW Input | ON/OFF | Body integrated unit input value | ON when SRF OFF switch is ON |
| Steering Angle Sensor | -3276.8 — 3276.8deg | CAN data input value | Reception from VDC module |
| Steering Responsive Fog Lamp Mode | OFF/ON/Fail | SRF status | OFF in an SRF OFF mode<br>ON in an SRF ON mode<br>Fail at the time of SRF failure |
| Steering Responsive Fog Lamp (Right) Output | ON/OFF | Body integrated unit output value | ON when SRF (R) is illuminated |
| Steering Responsive Fog Lamp (Left) Output | ON/OFF | Body integrated unit output value | ON when SRF (L) is illuminated |
| SRF(R) CAN Output | ON/OFF | CAN data output value | ON when SRF (R) is illuminated |
| SRF(L) CAN Output | ON/OFF | CAN data output value | ON when SRF (L) is illuminated |
| Steering Responsive Fog Lamp Indicator Signal | OFF/ON/Blink | CAN data output value | Goes off in an SRF ON mode<br>Lights up in an SRF OFF mode<br>Flashes at the time of SRF failure |
| Lighting I Switch Input | ON/OFF | Body integrated unit input value | Small light switch ON |
| Lighting II Switch Input | ON/OFF | Body integrated unit input value | Headlight switch ON |
| Lighting AUTO input | ON/OFF | Body integrated unit input value | Headlight AUTO switch ON |
| Dimmer Hi Switch Input | ON/OFF | Body integrated unit input value | Dimmer Hi switch ON |
| Dimmer Passing Switch Input | ON/OFF | Body integrated unit input value | Dimmer Pass switch ON |
| Illumination sensor flag | ON/OFF | Body integrated unit setting value | Shows the existence of illumination sensor |
| Lighting I light Output | ON/OFF | Relay drive | ON when small light is illuminated |
| Lighting II Light Output | ON/OFF | Relay drive | ON when headlight is illuminated |
| Lighting Hi Light Output | ON/OFF | Relay drive | ON when headlight Hi is illuminated |
| Front Fog Light Output | ON/OFF | Relay drive | When front fog light relay ON output |
| DRL Cancel Output | ON/OFF | Relay drive | When DRL cancel relay ON output |
| Power Supply Tr | ON/OFF | Inner Tr drive | Headlight auxiliary power supply ON |
| Map Light output | ON/OFF | Body integrated unit output value | ON when map light is illuminated |

| Items to be displayed | Unit of measure | Content | Note |
|---|---|---|---|
| Luggage/Trunk lamp output | ON/OFF | Body integrated unit output value | ON when luggage/trunk light is illuminated |
| Front wiper Low switch input | ON/OFF | Body integrated unit input value | Front wiper Lo switch ON |
| Front wiper High switch input | ON/OFF | Body integrated unit input value | Front wiper Hi switch ON |
| Front washer switch input | ON/OFF | Body integrated unit input value | Front wiper washer switch ON |
| Front wiper Low output | ON/OFF | Body integrated unit output value | ON when front wiper Lo is operating |
| Front wiper High output | ON/OFF | Body integrated unit output value | ON when front wiper Hi is operating |
| Rear defogger operation mode | Continuous/Normal | Body integrated unit setting value | Customize setting |
| Security Alarm Setup | ON/OFF | Body integrated unit setting value | Customize setting |
| Impact Sensor Setup | ON/OFF | Body integrated unit setting value | Customize setting |
| Alarm delay setup | ON/OFF | Body integrated unit setting value | Customize setting |
| Lockout prevention | ON/OFF | Body integrated unit setting value | Customize setting |
| Impact sensor | ON/OFF | Body integrated unit setting value | Customize setting |
| Buzzer sounding setting | ON/OFF | Body integrated unit setting value | Customize setting |
| Abnormal warning lamp flashing setting | ON/OFF | Body integrated unit setting value | Customize setting |
| Ans.-back Buzzer | ON/OFF | Body integrated unit setting value | Fixed to ON |
| Passive Alarm | ON/OFF | Body integrated unit setting value | Customize setting |
| Door open warning | ON/OFF | Body integrated unit setting value | Customize setting |
| Dome Light Alarm Setting | ON/OFF | Body integrated unit setting value | Customize setting |
| Auto A/C ECU Setting | ON/OFF | Body integrated unit setting value | Customize setting |
| wiper deicer | ON/OFF | Body integrated unit setting value | Customize setting |
| Illumination Control On/Off | ON/OFF | Body integrated unit setting value | Customize setting |
| Sedan/Wagon Setting | Sedan/Wagon | Body integrated unit setting value | Customize setting |
| MT/AT Setting | MT/AT | Body integrated unit setting value | Customize setting |
| Destination Setting | JPN<br>KA, KC<br>KS<br>For Europe LHD other than KS<br>C0,C5<br>U4, U5, U6, C6<br>EK, ER | Body integrated unit setting value | Displays body integrated unit customizing |

| Items to be displayed | Unit of measure | Content | Note |
|---|---|---|---|
| Illumination Sensor Setting | ON/OFF | Body integrated unit setting value | Customize setting |
| Factory initial setting | Market/Factory | Body integrated unit setting value | Displays body integrated unit customizing |
| Ambient temperature sensor trouble | Abnormal/Normal | Body integrated unit input value | — |
| Welcome Light Off Delay Time(Exiting) | OFF/30s/60s/90s | Body integrated unit setting value | Customize setting |
| Welcome Light Off Delay Time(Approaching) | OFF/30s/60s/90s | Body integrated unit setting value | Customize setting |
| Keyless Buzzer Volume | 1 — 7 | Body integrated unit setting value | Customize setting |

NOTE:
For detailed operation procedures, refer to “PC application help for Subaru Select Monitor”.

# 9. User Customizing

## A: OPERATION

1) On «Main Menu» display, select {Each System Check}.
2) On «System Selection Menu» display, select {Integ. unit mode}.
3) On «Integ. unit mode failure diag.» display, select {Work Support}.
4) On «Work Support» display, select {Unit customizing}.
5) Change the setting with UP/DOWN key and set with the [OK] key.

List of User Customizing item

| Data | Initial setting value | Customize setting | Remarks |
|---|---|---|---|
| Off delay time | 30s | OFF | Room light off delay time can be selected. |
| | | 10s | |
| | | 20s | |
| | | 30s | |
| Auto Light Sensitivity Adjustment | Normal | Dull | Slow response |
| | | Normal | Standard |
| | | Sensitive | Quick response |
| | | Very sensitive | Fairly quick response |
| Power rear gate setting | — (*1) | ON | Fixed at OFF because this is not applicable. |
| | | OFF | |
| Lane change signal setting | ON | ON | One-touch blinker control is performed. |
| | | OFF | One-touch blinker control is not performed. |
| Rear wiper auto setting | — | ON | Existence of a rear wiper linked with reverse operation can be set. |
| | | OFF | |
| TPMS Setting | — (*1) | TPMS | Set to “ON” for model with TPMS. |
| | | No TPMS | |
| Driver’s Door Unlock Setting | Selection | Selection | The door to be unlocked when you touch the driver’s door can be set. |
| | | ALL | |
| Rear Gate Unlock Setting | Selection | Selection | The door to be unlocked when you touch the R gate switch can be set. |
| | | ALL | |
| One-touch Turn Signal System Setup | ON | ON | ON/OFF of the one-touch blinker can be set. |
| | | OFF | |
| Auto Wiper System (Rear) Setup | OFF | ON | ON/OFF of the rear wiper linked with reverse operation can be set. |
| | | OFF | |
| Steering Responsive Fog Lamp Setting | OFF | ON | SRF control is performed. |
| | | OFF | SRF control is not performed. |
| Rear defogger operation mode | Normal | Normal | Automatically stops in 15 minutes after the switch is turned to ON. |
| | | Continuous | Repeats activated for 15 minutes and deactivated for 2 minutes until the switch is turned to OFF. |
| Security Alarm Setup | ON | ON | Security alarm (hazard, horn or siren) becomes activated. |
| | | OFF | Security alarm becomes deactivated. |
| Impact Sensor Setup | OFF | ON | Workable when the Impact Sensor Setup is set to “ON”. Impact sensor function becomes activated. |
| | | OFF | Impact sensor function becomes deactivated. (Be sure to set to “OFF” for models without sensors.) |
| Alarm delay setup | ON | | After the keyless lock operation, the alarm monitor starts after the following delay time has passed. |
| | | ON | Delay time is 30 seconds. |
| | | OFF | Delay time is 0 seconds. |

| Data | Initial setting value | Customize setting | Remarks |
|---|---|---|---|
| Lockout prevention | ON | ON | Key lockout prevention function is activated. (This function does not operate if safety knob is locked by hand.) |
| | | OFF | Key lockout prevention function is deactivated. |
| Impact sensor (OP) | OFF | ON | Vehicle is controlled in impact sensor equipped mode. (Make sure to set to “OFF” for models without the impact sensor. When set to “ON”, hazard, horn or siren become activated by keyless lock (alarm monitor start).) |
| | | OFF | Vehicle is controlled in impact sensor non-equipped mode. |
| Buzzer sounding setting | ON | ON | Buzzer operates when lock/unlock is selected by keyless entry system operation. |
| | | OFF | Buzzer does not operate when lock/unlock is selected by keyless entry system operation. |
| Abnormal warning lamp flashing setting | ON | ON | Hazard blinks when lock/unlock is selected by keyless entry system operation. |
| | | OFF | Hazard is not interlocked when lock/unlock is selected by keyless entry system operation. |
| Passive Alarm | OFF | ON | |
| | | OFF | |
| Door open warning | ON | ON | |
| | | OFF | |
| Dome Light Alarm Setting | OFF | ON | Room light illuminates interlocking with alarm. |
| | | OFF | Room light does not illuminate interlocking with alarm. |
| Auto A/C ECU Setting | — (*1) | ON | Diagnoses with auto A/C CM. |
| | | OFF | Diagnoses without auto A/C CM. |
| wiper deicer | — (*1) | ON | Wiper deicer control is performed. |
| | | OFF | Wiper deicer control is not performed. |
| Illumination Control On/Off | ON | ON | |
| | | OFF | |
| Sedan/Wagon Setting | — (*1) | SEDAN | Body control is performed for Sedan. |
| | | WAGON | Body control is performed for Wagon. |
| MT/AT Setting | — (*1) | MT | Body control is performed for MT. |
| | | AT | Body control is performed for AT. |
| 6MT Setting | — (*1) | 6MT | Body control is performed for 6MT. |
| | | Other than 6MT | Body control is performed for other than 6MT. |
| Illumination Sensor Setting | — (*1) | ON | Set to “ON” for model with auto light. |
| | | OFF | |
| Factory initial setting | Market | Market | Customize setting is reset when mode is switched from Market to Factory. |
| | | Factory | |
| Welcome Light Off Delay Time(Exiting) | 30s | OFF | Length of the lighting time can be set. |
| | | 30s | |
| | | 60s | |
| | | 90s | |
| Welcome Light Off Delay Time(Approaching) | 30s | OFF | Length of the lighting time can be set. |
| | | 30s | |
| | | 60s | |
| | | 90s | |
| Keyless Buzzer Volume | 5 | 1 — 7 | Buzzer volume can be set. |

*1: Customization item according to the actual vehicle equipment

6) After setting, make sure that the setting changed in the {Current Data Display & Save} is same as vehicle equipment.

**CAUTION:**
- **The above settings must match the actual vehicle equipment.**
- **Do not change settings except for setting above while setting the functions.**
- **Be sure not to change Factory initial setting except when installing a new body integrated unit.**

NOTE:
For detailed operation procedures, refer to “PC application help for Subaru Select Monitor”.

# 10.Registration Body Integrated Unit

## A: OPERATION

### 1. CONFIRM CURRENT SETTING

1) On «Main Menu» display, select {Others}.
2) On «Others» display, select {Customized Setting}.
3) Save the setting.

Required items for new registration. (Except for system not equipped)

| Item | Item to confirm | | | | Remarks |
|---|---|---|---|---|---|
| number of regist. | 1 | 2 | 3 | 4 | Number of registered ID |
| Off delay time | OFF | 10s | 20s | 30s | Setting for lighting off time |
| Auto Light Sensitivity Adjustment | Dull | Normal (Standard) | Sensitive | Very sensitive | 1st (slow) — 4th (fairly quick) |
| Power rear gate setting | ON | | OFF | | N/A |
| Lane change signal setting | ON | | OFF | | |
| Rear wiper auto setting | ON | | OFF | | |
| TPMS Setting | TPMS | | No TPMS | | |
| Driver's Door Unlock Setting | ALL | | Selection | | |
| Rear Gate Unlock Setting | ALL | | Selection | | |
| One-touch Turn Signal System Setup | ON | | OFF | | |
| Auto Wiper System (Rear) Setup | ON | | OFF | | |
| Steering Responsive Fog Lamp Setting | ON | | OFF | | |
| Rear defogger operation mode | Normal | | Continuous | | |
| Security Alarm Setup | ON | | OFF | | |
| Impact Sensor Setup | ON | | OFF | | Option setting |
| Alarm delay setup | ON | | OFF | | |
| Lockout prevention | ON | | OFF | | |
| Impact sensor | ON | | OFF | | Option setting |
| Buzzer sounding setting | ON | | OFF | | |
| Abnormal warning lamp flashing setting | ON | | OFF | | |
| Passive Alarm | ON | | OFF | | |
| Door open warning | ON | | OFF | | |
| Dome Light Alarm Setting | ON | | OFF | | |
| Auto A/C ECU Setting | ON | | OFF | | |
| wiper deicer | ON | | OFF | | Option setting |
| Illumination Control On/Off | ON | | OFF | | |
| Sedan/Wagon Setting | WAGON | | SEDAN | | |
| MT/AT Setting | MT | | AT | | |
| Illumination Sensor Setting | ON | | OFF | | |
| Factory initial setting | Factory | | Market | | Do not change to factory mode. |
| Welcome Light Off Delay Time(Exiting) | OFF | 30s | 60s | 90s | |
| Welcome Light Off Delay Time(Approaching) | OFF | 30s | 60s | 90s | |
| Keyless Buzzer Volume | 1 2 3 4 5 6 7 | | | | |

## 2. REGISTRATION BODY INTEGRATED UNIT (FUNCTION SETTING)

**CAUTION:**
**For the body integrated unit, function selection is available to control the entire vehicle systems. It is possible to control the original functions of vehicle when registrations of body integrated unit and function setting are corresponded to vehicle equipment.**
**If registrations and function setting are different from vehicle equipment, vehicle system does not operate normally and diagnosis cannot be performed correctly. Pay attention to following item.**
- **Be sure to correspond registrations, or User Customizing settings to vehicle equipment.**
- **Do not change the settings of vehicle improperly.**
- **Make sure that the key illumination does not blink with ignition switch ON, or that the body integrated unit registration item "Factory initial setting" is set to "Market". If "Factory initial setting" is set to "Factory", key illumination blinks when the ignition switch is turned ON, to notify that the settings are not confirmed. (Except for model with the keyless access with push button start system)**
- **Key illumination does not blink with ignition switch turned to ON and go off with door closed. (Except for model with the keyless access with push button start system)**
- **Be sure to register immobilizer if body integrated unit is replaced with a new part. (Except for model with the keyless access with push button start system)**
- **Make a registration of immobilizer when the parts related to immobilizer have been replaced. Refer to the "REGISTRATION MANUAL FOR IMMOBILIZER". (Except for model with the keyless access with push button start system)**

1) On «Main Menu» display, select {Each System Check}.
2) On «System Selection Menu» display, select {Integ. unit mode}.
3) Click the [OK] button after the control module name (integrated unit) is displayed.
4) On «Integ. unit mode failure diag.» display, select {Work Support}.
5) On «Work Support» display, select {Unit customizing}.

NOTE:
For the vehicle requiring the destination setting, if the destination setting is not finished, display can not be shifted into customizing screen. <Ref. to BC(diag)-23, DESTINATION SETTING, OPERATION, Registration Body Integrated Unit.>

6) Change the setting to the contents saved at confirmation of current setting.

**CAUTION:**
- **To perform normal operation of vehicle and diagnosis, the above settings must match the actual vehicle equipment.**
- **When the body integrated unit is new or in Factory mode, the key illumination blinks, and user customizing is incomplete. Check the user customizing settings. (For models with keyless access with push button start system, the room light illuminates.)**
- **Be sure not to change Factory initial setting except when installing a new body integrated unit.**

NOTE:
"Factory" mode:
- Body integrated unit has not been set yet. It can be recognized by key illumination blinking with ignition switch turned to ON. For model with keyless access with push button start system, it can be recognized when the room light blinks with ignition switch turned to ON.
- All replacement body integrated units are set to "Factory" mode. When replacing a body integrated unit, be sure to perform the registration operation.

"Market" mode:
- Each settings have been set. It can be recognized by key ring illumination coming on in concocting with room light and going off with ignition switch turned to ON. For model with keyless access with push button start system, it can be recognized when the room light does not blink with ignition switch turned to ON.

7) Perform the Factory initial setting. On the «Unit customizing» display screen of Subaru Select Monitor, select the {Factory initial setting}.
8) Change the mode from Factory to Market.
9) Turn the ignition switch to OFF to settle the setting.
10) Change the Subaru Select Monitor system selection to «Immobilizer» to register the immobilizer key. (Except for model with the keyless access with push button start system)

11) Perform the registration according to the procedures of the “REGISTRATION MANUAL FOR IMMOBILIZER”. (Except for model with the keyless access with push button start system)
12) For a vehicle equipped with remote engine starter, register the remote engine starter according to “REGISTRATION MANUAL FOR IMMOBILIZER”. (Except for model with the keyless access with push button start system)
13) Perform the User Customizing. <Ref. to BC(diag)-18, OPERATION, User Customizing.>

NOTE:
For detailed operation procedures, refer to “PC application help for Subaru Select Monitor”.

## 3. DESTINATION SETTING

NOTE:
For the vehicle requiring the destination setting, if the destination setting is not finished, display can not be shifted into customizing screen.

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CONFIRM CURRENT SETTING.**<br>Always perform confirmation of current setting before replacing the module.<br>Record the contents of the “Destination Setting”.<br>NOTE:<br>Refer to the “Read Current Data” and “CONFIRMATION OF CURRENT SETTING” to confirm the current setting. <Ref. to BC(diag)-21, CONFIRM CURRENT SETTING, OPERATION, Registration Body Integrated Unit.> <Ref. to BC(diag)-12, OPERATION, Read Current Data.> | Is the current setting recorded? | Go to step **2**. | Confirm the current setting. Go to step **1**. |
| 2 | **CONFIRM DESTINATION SETTING.**<br>1) Connect the Subaru Select Monitor, and run the application.<br>2) On «Main Menu» display, select {Each System Check}.<br>3) On the «System Selection Menu» display, select {Integ. unit mode}.<br>4) On «Integ. unit mode» display, select {Work Support}.<br>5) On «Work Support» display, select {Unit customizing}.<br>6) The vehicle destination screen is displayed. | Is the vehicle destination setting screen displayed? | Go to step **3**. | Go to step **4**. |
| 3 | **CONFIRM DESTINATION SETTING.**<br>Confirm the screen displayed on Subaru Select Monitor and the actual vehicle destination. | Is it necessary to change the destination setting? | Select [Yes], Go to step **4**. | Select [No], Go to step **5**. |
| 4 | **ENTER DESTINATION CODE.**<br>Enter the appropriate code in the screen.<br>JPN: JP00<br>KA, KC: KA00<br>KS: KS00<br>U4, U5, U6, C6 and C0, C5 (with the keyless access with push button start system): U400<br>C0, C5 (without the keyless access with push button start system): C000<br>EK, ER: EK00<br>Except above: EC00 | Is the appropriate code entered? | Select [OK]. Go to step **5**. | Enter the destination code. Go to step **5**. |
| 5 | **REGISTER VEHICLE EQUIPMENT.**<br>Customizing screen is displayed.<br>NOTE:<br>Match the each item setting of body integrated unit registration item list with the vehicle equipment. | Do all setting contents match with the vehicle equipment specification? | Go to step **6**. | Change the items until each content setting match with the vehicle equipment specification. Go to step **6**. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 6 | **CONFIRM MARKET MODE.**<br>1) Customizing screen, select the {Factory initial setting} to change the setting from "Factory" mode to "Market" mode.<br>2) Turn the ignition switch to OFF.<br>NOTE:<br>When the setting is changed from "Factory" mode to "Market" mode, turning the ignition switch from ON → OFF confirms the setting.<br>3) Turn the ignition switch to ON, and check the contents of settings. | Is the mode changed to "Market" mode? | Go to step **7**. | Perform the destination setting from the first step. Go to step **1**. |
| 7 | **CONFIRM MARKET MODE.**<br>Check the following.<br>Make sure that the "Destination Setting" in the current data display is the same as the one you confirmed in step 1. | Is the display the same as indicated? | Registration of body integrated unit is finished. | It is possible that harness malfunction may occur. Perform the diagnosis. |

# 11.Function Check

## A: OPERATION

NOTE:
In order to check the body integrated unit function, inspect the body integrated unit and actuator using Subaru Select Monitor without operating switches.
1) On «Main Menu» display, select {Each System Check}.
2) On «System Selection Menu» display, select {Integ. unit mode}.
3) On «Integ. unit mode failure diag.» display, select {Work Support}.
4) On «Work Support» display, select {Active Test}.
5) Select an item to be operated on «Active Test» display, and press the [OK] button.
6) Pressing [Next] starts, [End] cancels the operation and [OK] returns to the System Operation Check Mode display screen.

NOTE:
• If not equipped (based on area or condition), process will not go on.
• Because the model with keyless access with push button start system is not equipped with key lock solenoid, the operation is disabled.
• For detailed operation procedures, refer to “PC application help for Subaru Select Monitor”.

# 12.List of Diagnostic Trouble Code (DTC)

## A: LIST

| DTC | Item | Content of diagnosis | Note |
|---|---|---|---|
| None | Communication for initializing impossible | Subaru Select Monitor communication is open or shorted. | <Ref. to LAN(w/o HEV)(diag)-10, COMMUNICATION FOR INITIALIZING IMPOSSIBLE, Subaru Select Monitor.> |
| B1010 | Integ. Unit System Error | Body integrated unit internal error | <Ref. to BC(diag)-27, DTC B1010 INTEG. UNIT SYSTEM ERROR, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| B1011 | BATT P/Supply Malfunction Cont | Voltage malfunction caused by poor contact of battery power supply control circuits | <Ref. to BC(diag)-28, DTC B1011 BATT P/SUPPLY MALFUNCTION CONT, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| B1012 | BATT P/Supply Malfunction Backup | Voltage malfunction caused by poor contact of battery power supply backup circuits | <Ref. to BC(diag)-30, DTC B1012 BATT P/SUPPLY MALFUNCTION BACKUP, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| B1013 | Ignition Power Failure | Voltage malfunction caused by poor contact of IGN power supply circuits | <Ref. to BC(diag)-32, DTC B1013 IGNITION POWER FAILURE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| B1014 | ACC Power Failure | Voltage malfunction caused by poor contact of ACC power supply circuits | <Ref. to BC(diag)-34, DTC B1014 ACC POWER FAILURE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| B1015 | Key Interlock Circuit Abnormal | GND-output short of key interlock circuit | <Ref. to BC(diag)-36, DTC B1015 KEY INTERLOCK CIRCUIT ABNORMAL, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| B1016 | Shift Lock Circuit Failure | Voltage malfunction caused by poor contact of shift lock circuits | <Ref. to BC(diag)-38, DTC B1016 SHIFT LOCK CIRCUIT FAILURE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| B1401 | M Collation NG | Malfunction related immobilizer | <Ref. to BC(diag)-40, DTC B1401 M COLLATION NG, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| B1402 | Immobilizer Key Collation NG | Malfunction related immobilizer | <Ref. to BC(diag)-40, DTC B1402 IMMOBILIZER KEY COLLATION NG, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| B1405 | SCU Collation NG | Malfunction related immobilizer | <Ref. to BC(diag)-40, DTC B1405 SCU COLLATION NG, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| B1406 | SCU_EEPROM_NG | Malfunction of security control module | <Ref. to BC(diag)-40, DTC B1406 SCU_EEPROM_NG, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| B1407 | M Communication Abnormal | Communication failure between body integrated unit and combination meter | <Ref. to BC(diag)-40, DTC B1407 M COMMUNICATION ABNORMAL, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| B1408 | Meter EEPROM Abnormal | Combination meter malfunction | <Ref. to BC(diag)-40, DTC B1408 METER EEPROM ABNORMAL, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| B1409 | SCU Communication Abnormal | Communication failure between body integrated unit and security control module | <Ref. to BC(diag)-40, DTC B1409 SCU COMMUNICATION ABNORMAL, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| B1410 | Transponder Communication Abnormal | Communication failure between key and body integrated unit | <Ref. to BC(diag)-40, DTC B1410 TRANSPONDER COMMUNICATION ABNORMAL, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| B1411 | Immobilizer Antenna Abnormal | Faulty antenna | <Ref. to BC(diag)-40, DTC B1411 IMMOBILIZER ANTENNA ABNORMAL, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| U1500 | Keyless UART Com. Malfunction | Open or short circuit in keyless UART circuit | <Ref. to BC(diag)-41, DTC U1500 KEYLESS UART COM. MALFUNCTION, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |

# 13.Diagnostic Procedure with Diagnostic Trouble Code (DTC)

## A: DTC B1010 INTEG. UNIT SYSTEM ERROR

**DTC DETECTING CONDITION:**
System error in body integrated unit
**TROUBLE SYMPTOM:**
LAN communication immobilizer function may not be executed normally.

| Step | | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK DTC.**<br>Check DTC indicated by body integrated unit. | Is B1010 current malfunction? | Go to step **2**. | Temporary EEPROM access error occurred. |
| 2 | **CHECK CONNECTOR.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the body integrated unit connector.<br>3) Connect the disconnected connectors.<br>4) Read the DTC of body integrated unit using Subaru Select Monitor. | Is B1010 current malfunction? | Replace the body integrated unit. <Ref. to SL-87, REMOVAL, Body Integrated Unit.> | Temporary EEPROM access error occurred. |

## B: DTC B1011 BATT P/SUPPLY MALFUNCTION CONT

**DTC DETECTING CONDITION:**

- Voltage malfunction caused by poor contact of battery power supply control circuit
- Battery voltage of body integrated unit is not within the 8.5 — 16.5 V range.

**TROUBLE SYMPTOM:**

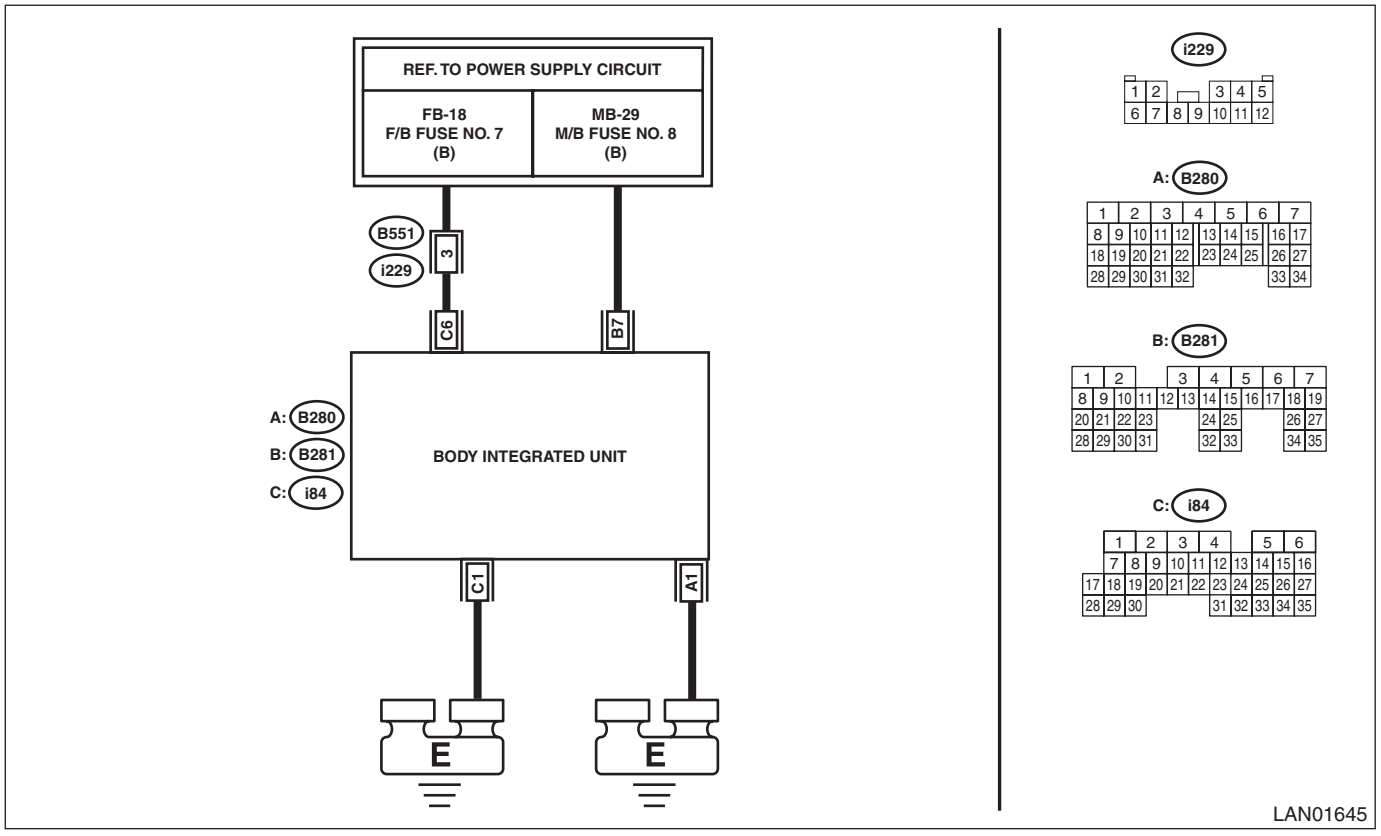
Functions of body integrated unit stop.

NOTE:

When B1012 BATT P/SUPPLY MALFUNCTION BACKUP is output at the same time, all the function of body integrated unit may not operate.

**WIRING DIAGRAM:**

Immobilizer system <Ref. to WI(w/o HEV)-143, WIRING DIAGRAM, Immobilizer System.> <Ref. to WI(HEV)-151, WIRING DIAGRAM, Immobilizer System.>




| Step | | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK DTC.**<br>Read the DTC of body integrated unit using Subaru Select Monitor. | Is B1011 current malfunction? | Go to step **2**. | Go to step **5**. |
| 2 | **CHECK DTC.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect and then connect the body integrated unit connector.<br>3) Wait approx. 2 minutes.<br>4) Turn the ignition switch to ON.<br>5) Read the DTC of body integrated unit using Subaru Select Monitor. | Is B1011 current malfunction? | Go to step **3**. | Go to step **5**. |
| 3 | **CHECK FUSE.**<br>1) Turn the ignition switch to OFF.<br>2) Check the fuse. | Is the fuse OK? | Go to step **4**. | Replace the defective fuse. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 4 | **CHECK HARNESS.**<br>1) Disconnect the body integrated unit connector.<br>2) Using the tester, measure the voltage between terminals.<br>***Connector & terminal***<br>***(i84) No. 6 (+) — Chassis ground (–):*** | Is the voltage 8.5 — 16.5 V? | Replace the body integrated unit. <Ref. to SL-87, REMOVAL, Body Integrated Unit.> | Repair the harness between body integrated unit and fuse. |
| 5 | **CHECK CONNECTOR.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the body integrated unit connector. | Is there poor contact of connector? | Repair or replace the poor contact of connector. | A temporary change of voltage occurred. |

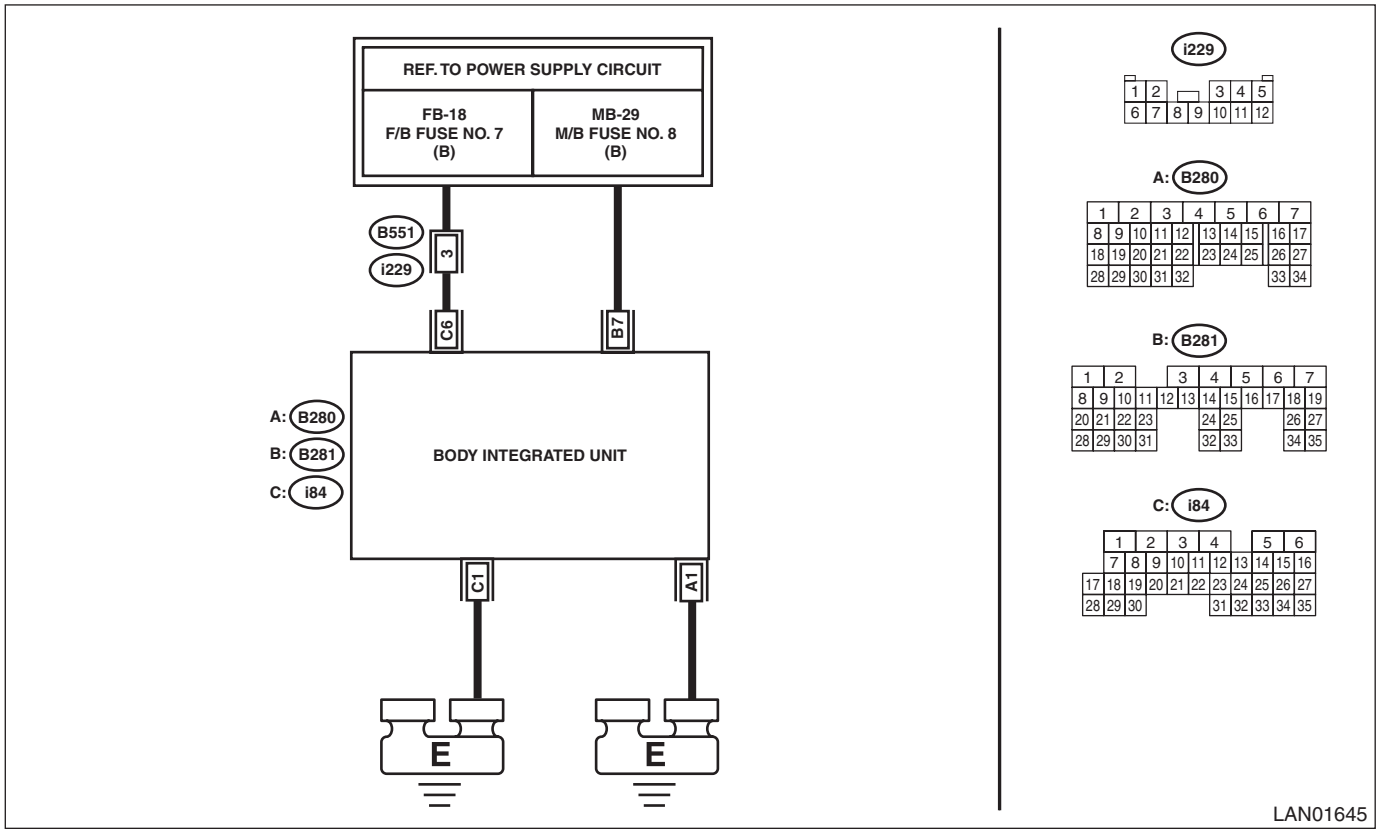
## C: DTC B1012 BATT P/SUPPLY MALFUNCTION BACKUP

**DTC DETECTING CONDITION:**
Voltage malfunction caused by poor contact of battery power supply backup circuits

**TROUBLE SYMPTOM:**
Illuminations for the keyless entry, map light, luggage light, trunk light, room light, and ignition switch do not turn on.

NOTE:
When B1011 BATT P/SUPPLY MALFUNCTION CONT. is output at the same time, all function of body integrated unit may not operate.

**WIRING DIAGRAM:**
Immobilizer system <Ref. to WI(w/o HEV)-143, WIRING DIAGRAM, Immobilizer System.> <Ref. to WI(HEV)-151, WIRING DIAGRAM, Immobilizer System.>

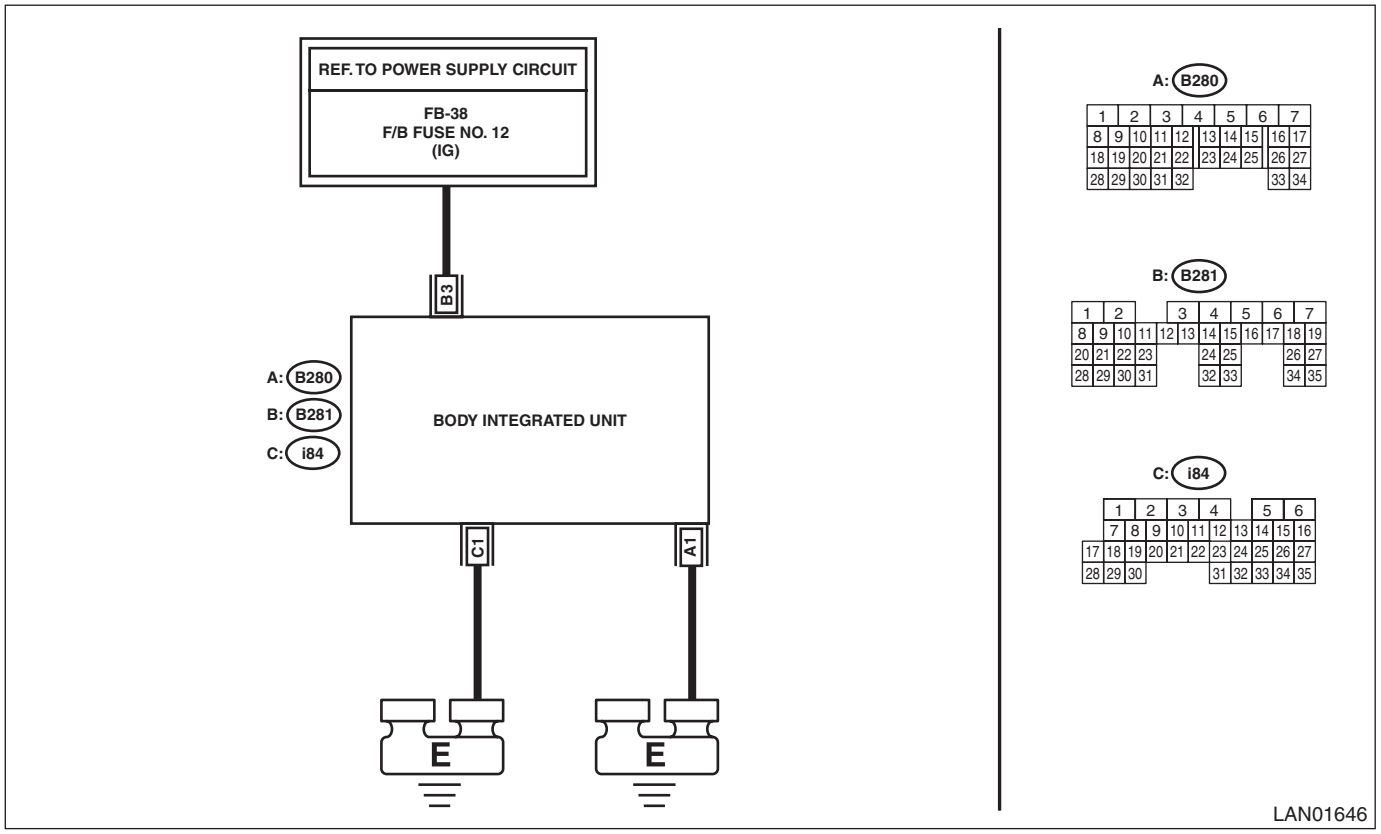



| Step | | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK DTC.**<br>Read the DTC of body integrated unit using Subaru Select Monitor. | Is B1012 current malfunction? | Go to step **2**. | Go to step **5**. |
| 2 | **CHECK DTC.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect and then connect the body integrated unit connector.<br>3) Wait approx. 2 minutes.<br>4) Turn the ignition switch to ON.<br>5) Read the DTC of body integrated unit using Subaru Select Monitor. | Is B1012 current malfunction? | Go to step **3**. | Go to step **5**. |
| 3 | **CHECK FUSE.**<br>1) Turn the ignition switch to OFF.<br>2) Check the fuse. | Is the fuse OK? | Go to step **4**. | Replace the defective fuse. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 4 | **CHECK HARNESS.**<br>1) Disconnect the body integrated unit connector.<br>2) Using the tester, measure the voltage between terminals.<br>***Connector & terminal***<br>***(B281) No. 7 (+) — Chassis ground (–):*** | Is the voltage 8.5 — 16.5 V? | Replace the body integrated unit. <Ref. to SL-87, REMOVAL, Body Integrated Unit.> | Repair the harness between body integrated unit and fuse. |
| 5 | **CHECK CONNECTOR.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the body integrated unit connector. | Is there poor contact of connector? | Repair or replace the poor contact of connector. | A temporary change of voltage occurred. |

## D: DTC B1013 IGNITION POWER FAILURE

**DTC DETECTING CONDITION:**
Voltage malfunction caused by poor contact of IGN power supply circuits
**TROUBLE SYMPTOM:**
Symptoms such as shift lock or wiper not operating may occur.
**WIRING DIAGRAM:**
Shift lock control system <Ref. to WI(w/o HEV)-207, WIRING DIAGRAM, Shift Lock Control System.> <Ref. to WI(HEV)-207, WIRING DIAGRAM, Shift Lock Control System.>

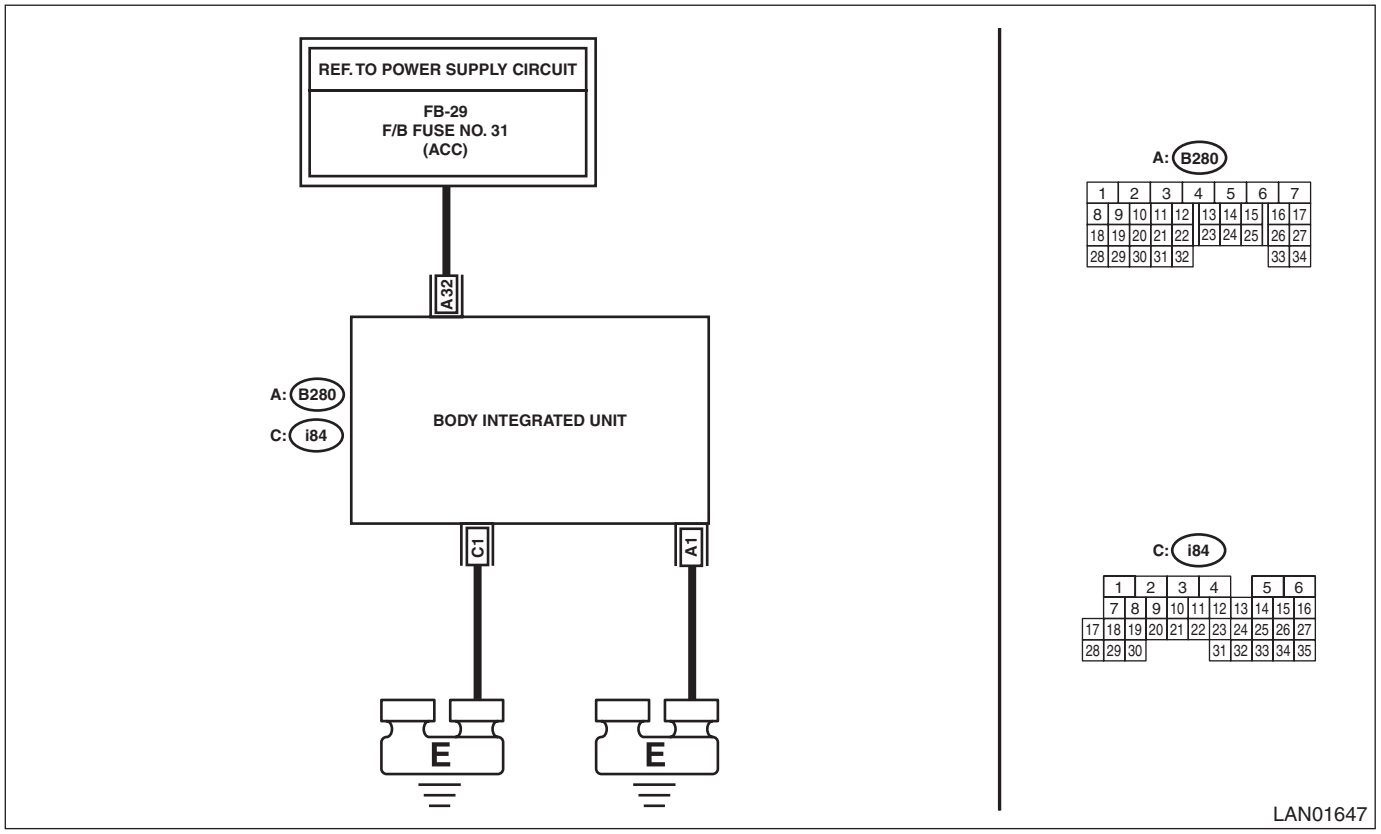



| Step | | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK DTC.**<br>Read the DTC of body integrated unit using Subaru Select Monitor. | Is B1013 current malfunction? | Go to step **2**. | Go to step **5**. |
| 2 | **CHECK DTC.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect and then connect the body integrated unit connector.<br>3) Wait approx. 2 minutes.<br>4) Turn the ignition switch to ON.<br>5) Read the DTC of body integrated unit using Subaru Select Monitor. | Is B1013 current malfunction? | Go to step **3**. | Go to step **5**. |
| 3 | **CHECK FUSE.**<br>1) Turn the ignition switch to OFF.<br>2) Check the fuse. | Is the fuse OK? | Go to step **4**. | Replace the defective fuse. |
| 4 | **CHECK HARNESS.**<br>1) Disconnect the body integrated unit connector.<br>2) Using the tester, measure the voltage between terminals.<br>***Connector & terminal***<br>***(B281) No. 3 (+) — Chassis ground (–):*** | Is the voltage 8.5 — 16.5 V? | Replace the body integrated unit. <Ref. to SL-87, REMOVAL, Body Integrated Unit.> | Repair the harness between body integrated unit and fuse. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 5 | **CHECK CONNECTOR.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the body integrated unit connector. | Is there poor contact of connector? | Repair or replace the poor contact of connector. | A temporary change of voltage occurred. |

## E: DTC B1014 ACC POWER FAILURE

**DTC DETECTING CONDITION:**
Voltage malfunction caused by poor contact of ACC power supply circuit
**TROUBLE SYMPTOM:**
DRL may not illuminate.
**WIRING DIAGRAM:**
Shift lock control system <Ref. to WI(w/o HEV)-207, WIRING DIAGRAM, Shift Lock Control System.> <Ref. to WI(HEV)-207, WIRING DIAGRAM, Shift Lock Control System.>

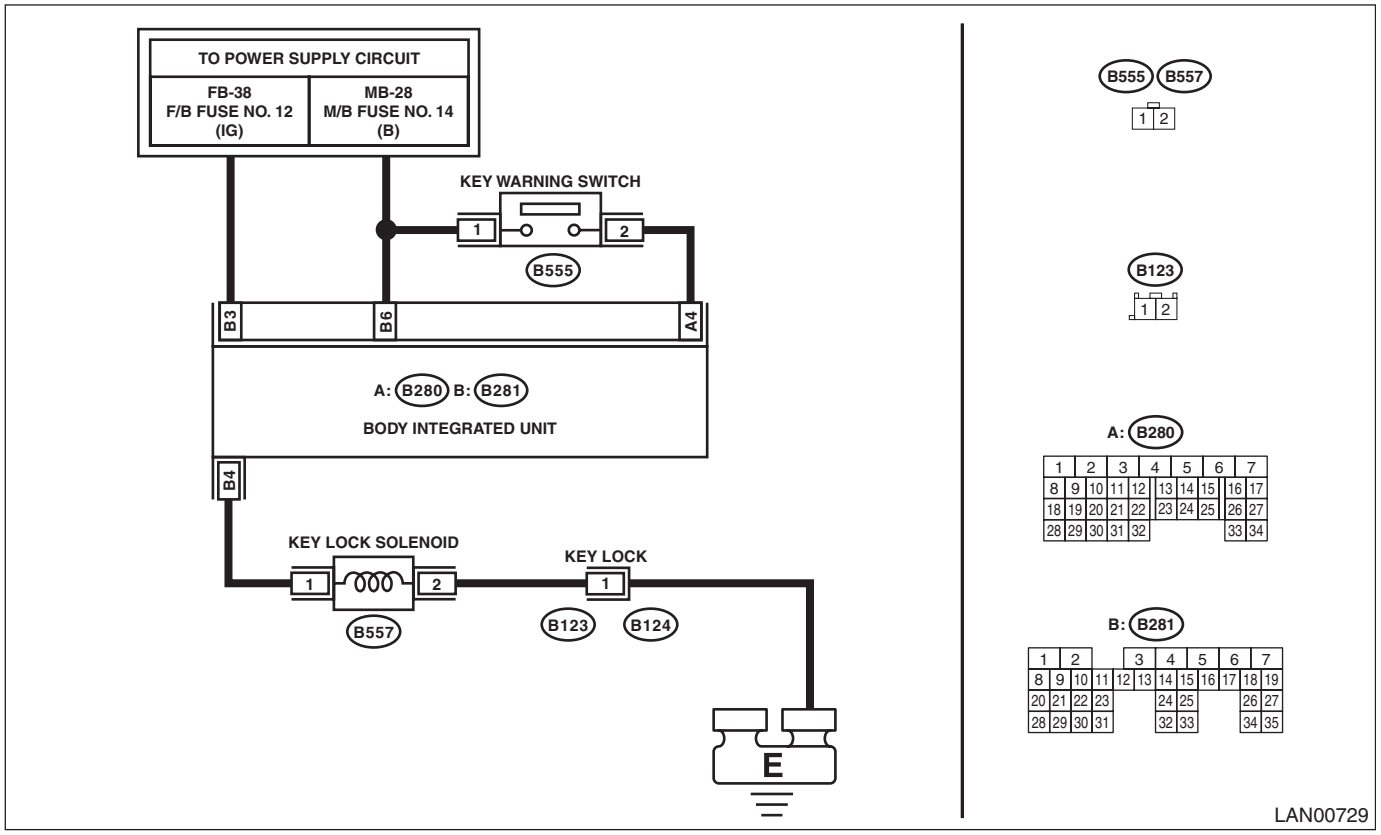



| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK DTC.**<br>Read the DTC of body integrated unit using Subaru Select Monitor. | Is B1014 current malfunction? | Go to step **2**. | Go to step **5**. |
| 2 | **CHECK DTC.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect and then connect the body integrated unit connector.<br>3) Wait approx. 2 minutes.<br>4) Turn the ignition switch to ON.<br>5) Read the DTC of body integrated unit using Subaru Select Monitor. | Is B1014 current malfunction? | Go to step **3**. | Go to step **5**. |
| 3 | **CHECK FUSE.**<br>1) Turn the ignition switch to OFF.<br>2) Check the fuse. | Is the fuse OK? | Go to step **4**. | Replace the defective fuse. |
| 4 | **CHECK HARNESS.**<br>1) Disconnect the body integrated unit connector.<br>2) Using the tester, measure the voltage between terminals.<br>***Connector & terminal***<br>***(B280) No. 32 (+) — Chassis ground (–):*** | Is the voltage 8.5 — 16.5 V? | Replace the body integrated unit. <Ref. to SL-87, REMOVAL, Body Integrated Unit.> | Repair the harness between body integrated unit and fuse. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 5 | **CHECK CONNECTOR.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the body integrated unit connector. | Is there poor contact of connector? | Repair or replace the poor contact of connector. | A temporary change of voltage occurred. |

# F: DTC B1015 KEY INTERLOCK CIRCUIT ABNORMAL

**DTC DETECTING CONDITION:**
Ground short of key interlock circuit
**TROUBLE SYMPTOM:**
Key interlock does not keep lock condition.
**WIRING DIAGRAM:**
Shift lock control system <Ref. to WI(w/o HEV)-207, WIRING DIAGRAM, Shift Lock Control System.> <Ref. to WI(HEV)-207, WIRING DIAGRAM, Shift Lock Control System.>

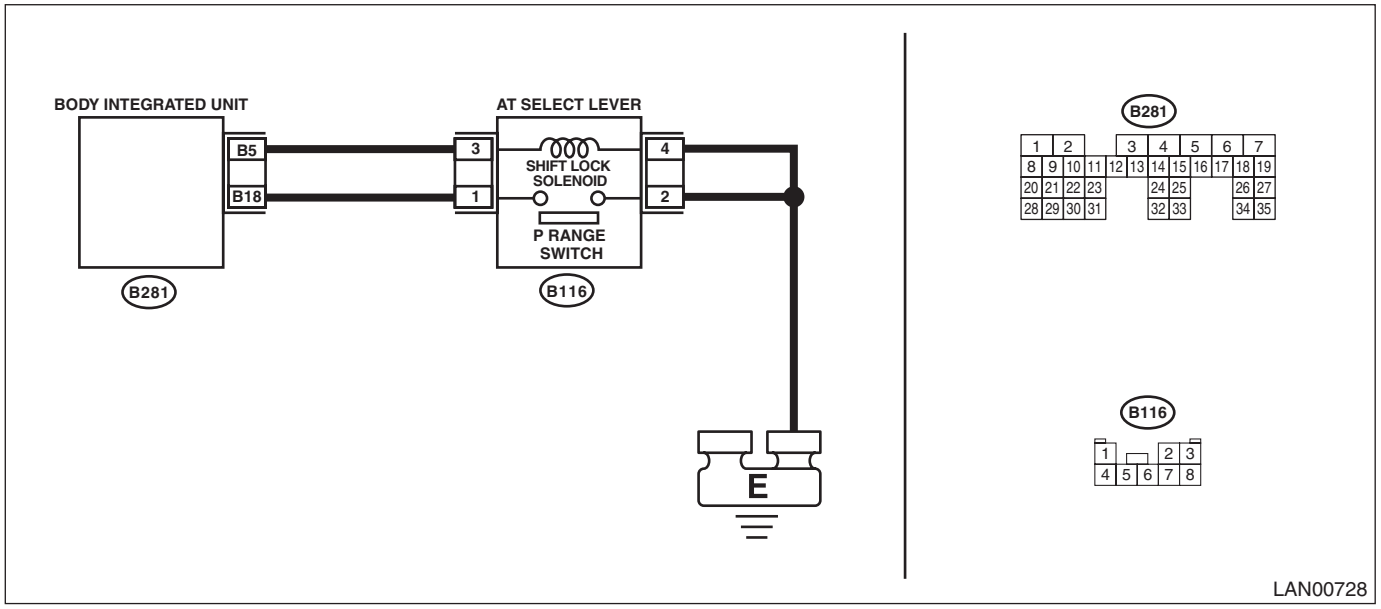



| Step | | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK DTC.**<br>1) Insert the ignition key.<br>2) Turn the ignition switch to ON.<br>3) Shift to the Neutral range.<br>4) Shift into P range.<br>5) Shift to the Neutral range.<br>6) Shift into P range.<br>7) Shift to the Neutral range.<br>8) Read the DTC of body integrated unit using Subaru Select Monitor. | Is B1015 current malfunction? | Go to step **2**. | Go to step **8**. |
| 2 | **CHECK DTC.**<br>1) Shift the select lever to P range.<br>2) Remove the ignition key.<br>3) Disconnect the key actuator connector (B557) and body integrated unit connector (B281).<br>4) Connect the disconnected connectors.<br>5) Insert the ignition key.<br>6) Turn the ignition switch to ON and shift into Neutral.<br>7) Read the DTC of body integrated unit using Subaru Select Monitor. | Is B1015 current malfunction? | Go to step **3**. | Go to step **8**. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 3 | **CHECK KEY ACTUATOR.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the key actuator connector (B557).<br>3) Measure the resistance between key actuator connectors.<br>***Connector & terminal***<br>***(B557) No. 1 — No. 2:*** | Is the resistance 103 — 115 Ω? | Go to step **4**. | Replace the key actuator. |
| 4 | **CHECK KEY ACTUATOR.**<br>Connect the battery terminals to the key actuator.<br>***Terminals***<br>***(B557) No. 2 — positive terminal:***<br>***(B557) No. 1 — ground terminal:*** | Is the actuator activated and then key locked? | Go to step **5**. | Replace the key actuator. |
| 5 | **CHECK HARNESS.**<br>1) Disconnect the body integrated unit connector (B281).<br>2) Measure the resistance between body integrated unit and key actuator using tester.<br>***Connector & terminal***<br>***(B557) No. 1 — (B281) No. 4:*** | Is the resistance less than 10 Ω? | Go to step **6**. | Repair or replace the open circuit of harness. |
| 6 | **CHECK HARNESS.**<br>Measure the resistance between body integrated unit and chassis ground using tester.<br>***Connector & terminal***<br>***(B281) No. 4 — Chassis ground:*** | Is the resistance 1 MΩ or more? | Go to step **7**. | Repair or replace the short circuit of the harness. |
| 7 | **CHECK HARNESS.**<br>1) Connect the body integrated unit.<br>2) Turn the ignition switch to ON.<br>3) Measure the voltage between body integrated unit and chassis ground using tester.<br>***Connector & terminal***<br>***(B281) No. 4 (+) — Chassis ground (–):*** | Is the voltage 6 V or more? | Repair or replace the short circuit of the harness. | Replace the body integrated unit. <Ref. to SL-87, REMOVAL, Body Integrated Unit.> |
| 8 | **CHECK CONNECTOR.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the body integrated unit connector (B281) and key actuator connector (B557). | Is there poor contact at disconnected connector terminal? | Repair the terminal where poor contact exists, or replace harness. | It is possible that temporary poor contact occurs. |

## G: DTC B1016 SHIFT LOCK CIRCUIT FAILURE

**DTC DETECTING CONDITION:**
Open or power supply-output short, GND-output short in shift lock circuit.
**TROUBLE SYMPTOM:**
Shift lock does not be released or remain locked.
**WIRING DIAGRAM:**
Shift lock control system <Ref. to WI(w/o HEV)-207, WIRING DIAGRAM, Shift Lock Control System.> <Ref. to WI(HEV)-207, WIRING DIAGRAM, Shift Lock Control System.>




| Step | | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK DTC.**<br>1) Turn the ignition switch to ON.<br>2) Keep the Parking range for approx. 5 seconds.<br>3) Read the DTC of body integrated unit using Subaru Select Monitor. | Is B1016 current malfunction? | Go to step **6**. | Go to step **2**. |
| 2 | **CHECK DTC.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the shift lock solenoid connector.<br>3) Connect the disconnected connectors.<br>4) Turn the ignition switch to ON, then keep the Parking range for approx. 5 seconds.<br>5) Read the DTC of body integrated unit using Subaru Select Monitor. | Is B1016 current malfunction? | Go to step **3**. | Go to step **7**. |
| 3 | **CHECK HARNESS.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the shift lock solenoid connector.<br>3) Using the tester, measure the resistance between terminals.<br>***Connector & terminal***<br>***(B116) No. 4 — Chassis ground:*** | Is the resistance less than 10 Ω? | Go to step **4**. | Repair or replace the open circuit of harness. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 4 | **CHECK SHIFT LOCK SOLENOID.**<br>Using a tester, measure the resistance between shift lock solenoid terminals.<br>***Connector & terminal***<br>***(B116) No. 4 — No. 3:*** | Is the resistance less than 27 — 31 Ω? | Go to step **5**. | Replace the shift lock solenoid. <Ref. to CS-59, REMOVAL, AT Shift Lock Solenoid and "P" Range Switch.> |
| 5 | **CHECK SHIFT LOCK SOLENOID.**<br>Connect the battery terminal to shift lock solenoid.<br>***Connector & terminal***<br>***(B116) No. 3 — positive terminal:***<br>***(B116) No. 4 — ground terminal:*** | Does the shift lock solenoid operate and then release the lock? | Go to step **6**. | Replace the shift lock solenoid. <Ref. to CS-59, REMOVAL, AT Shift Lock Solenoid and "P" Range Switch.> |
| 6 | **CHECK HARNESS.**<br>Use a tester to measure the resistance between harness terminals.<br>***Connector & terminal***<br>***(B116) No. 3 — (B281) No. 5:***<br>NOTE:<br>If body integrated unit and shift lock connector are not disconnected, disconnect them first and then perform measurement. | Is the resistance less than 10 Ω? | Replace the body integrated unit. <Ref. to SL-87, Body Integrated Unit.> | Repair or replace the open circuit of harness. |
| 7 | **CHECK DTC.**<br>1) Depress the brake pedal at the parking range.<br>2) Read the DTC of body integrated unit using Subaru Select Monitor. | Is B1016 current malfunction? | Go to step **8**. | Go to step **9**. |
| 8 | **CHECK DTC.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the body integrated unit connector and shift lock connector.<br>3) Connect the disconnected connectors.<br>4) Turn the ignition switch to ON.<br>5) Depress the brake pedal at the parking range.<br>6) Read the DTC of body integrated unit using Subaru Select Monitor. | Is B1016 current malfunction? | Go to step **4**. | Go to step **9**. |
| 9 | **CHECK CONNECTOR.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the body integrated unit connector and shift lock connector. | Is there poor contact of connector terminal? | Repair or replace the poor contact of terminal. | It is possible that temporary poor contact occurs. |

## H: DTC B1401 M COLLATION NG

For detailed diagnosis procedure, refer to IMMOBILIZER (DIAG). <Ref. to IM(diag)-24, DTC B1401 M COLLATION NG, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

## I: DTC B1402 IMMOBILIZER KEY COLLATION NG

For detailed diagnosis procedure, refer to IMMOBILIZER (DIAG). <Ref. to IM(diag)-25, DTC B1402 IMMOBILIZER KEY COLLATION NG, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

## J: DTC B1405 SCU COLLATION NG

For detailed diagnosis procedure, refer to IMMOBILIZER (DIAG). <Ref. to IM(diag)-25, DTC B1405 SCU COLLATION NG, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

## K: DTC B1406 SCU_EEPROM_NG

For detailed diagnosis procedure, refer to IMMOBILIZER (DIAG). <Ref. to IM(diag)-25, DTC B1406 SCU_EEPROM_NG, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

## L: DTC B1407 M COMMUNICATION ABNORMAL

For detailed diagnosis procedure, refer to IMMOBILIZER (DIAGNOSTICS). <Ref. to IM(diag)-26, DTC B1407 M COMMUNICATION ABNORMAL, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

## M: DTC B1408 METER EEPROM ABNORMAL

For detailed diagnosis procedure, refer to IMMOBILIZER (DIAGNOSTICS). <Ref. to IM(diag)-26, DTC B1408 METER EEPROM ABNORMAL, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

## N: DTC B1409 SCU COMMUNICATION ABNORMAL

For detailed diagnosis procedure, refer to IMMOBILIZER (DIAGNOSTICS). <Ref. to IM(diag)-27, DTC B1409 SCU COMMUNICATION ABNORMAL, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

## O: DTC B1410 TRANSPONDER COMMUNICATION ABNORMAL

For detailed diagnosis procedure, refer to IMMOBILIZER (DIAGNOSTICS). <Ref. to IM(diag)-29, DTC B1410 TRANSPONDER COMMUNICATION ABNORMAL, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

## P: DTC B1411 IMMOBILIZER ANTENNA ABNORMAL

For detailed diagnosis procedure, refer to IMMOBILIZER (DIAGNOSTICS). <Ref. to IM(diag)-29, DTC B1411 IMMOBILIZER ANTENNA ABNORMAL, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

# Q: DTC U1500 KEYLESS UART COM. MALFUNCTION

## 1. MODEL WITHOUT KEYLESS ACCESS WITH PUSH BUTTON START SYSTEM

**DTC DETECTING CONDITION:**

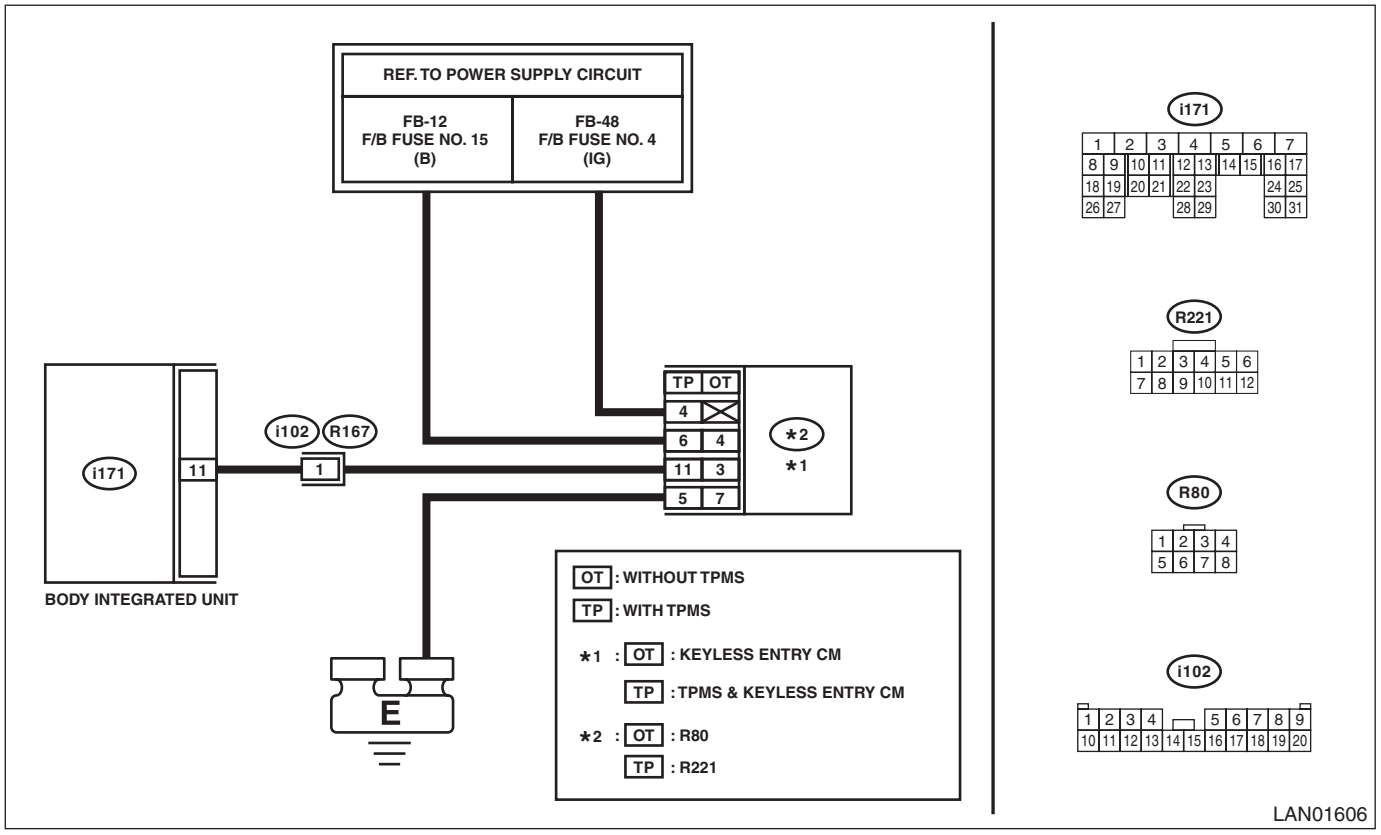
UART between the TPMS & keyless control module or keyless entry CM and the body integrated unit is open or shorted, or has communication failure.

**TROUBLE SYMPTOM:**

Door lock does not operate with keyless.

**WIRING DIAGRAM:**

Keyless entry system <Ref. to WI(w/o HEV)-160, WIRING DIAGRAM, Keyless Entry System.>




| Step | | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK DTC.**<br>1) Insert the ignition key to the ignition key cylinder and remove.<br>2) Read the DTC of body integrated unit using Subaru Select Monitor. | Is U1500 a current malfunction? | Go to step **2**. | Go to step **7**. |
| 2 | **CHECK DTC.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the body integrated unit and the TPMS & keyless control module or keyless entry CM connector.<br>3) Connect the disconnected connectors.<br>4) Insert the ignition key to the ignition key cylinder and remove.<br>5) Read the DTC of body integrated unit using Subaru Select Monitor. | Is U1500 a current malfunction? | Go to step **3**. | Go to step **7**. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 3 | **CHECK HARNESS.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the body integrated unit and the TPMS & keyless control module or keyless entry CM connector.<br>3) Using the tester, measure the resistance between terminals.<br>***Connector & terminal***<br>***With TPMS***<br>***(i171) No. 11 — (R221) No. 11:***<br>***Without TPMS***<br>***(i171) No. 11 — (R80) No. 3:*** | Is the resistance 10 Ω or less? | Go to step **4**. | Repair the open circuit of harness or replace harness. |
| 4 | **CHECK HARNESS.**<br>1) Turn the ignition switch to ON.<br>2) Use a tester to measure the voltage between the terminals.<br>***Connector & terminal***<br>***With TPMS***<br>***(R221) No. 6 (+) — Chassis ground (–):***<br>***(R221) No. 4 (+) — Chassis ground (–):***<br>***Without TPMS***<br>***(R80) No. 4 (+) — Chassis ground (–):*** | Is the voltage 10 V or more? | Go to step **5**. | Repair the power supply circuit. |
| 5 | **CHECK HARNESS.**<br>Using the tester, measure the resistance between terminals.<br>***Connector & terminal***<br>***With TPMS***<br>***(R221) No. 5 — Chassis ground:***<br>***Without TPMS***<br>***(R80) No. 7 — Chassis ground:*** | Is the resistance 10 Ω or less? | Go to step **6**. | Repair the ground circuit. |
| 6 | **CHECK CONTROL MODULE.**<br>1) Turn the ignition switch to OFF.<br>2) Remove the TPMS & keyless control module or keyless entry CM.<br>3) Install a TPMS & keyless control module or keyless entry CM that was operating normally on another vehicle. | Does it operate with the remote control key of another vehicle? | Replace the TPMS & keyless control module or keyless entry CM. <Ref. to SL-83, REMOVAL, Keyless Entry Control Module.> <Ref. to WT-8, REMOVAL, Tire Pressure Monitoring System.> | Replace the body integrated unit. <Ref. to SL-87, Body Integrated Unit.> |
| 7 | **CHECK CONNECTOR.**<br>Check the connector used for keyless communication for poor contact. | Is there poor contact of connector? | Repair the connector that has poor contact, or replace harness. | It is possible that temporary poor communication occurs. Delete the DTC. |

## 2. MODEL WITH KEYLESS ACCESS WITH PUSH BUTTON START SYSTEM

**DTC DETECTING CONDITION:**

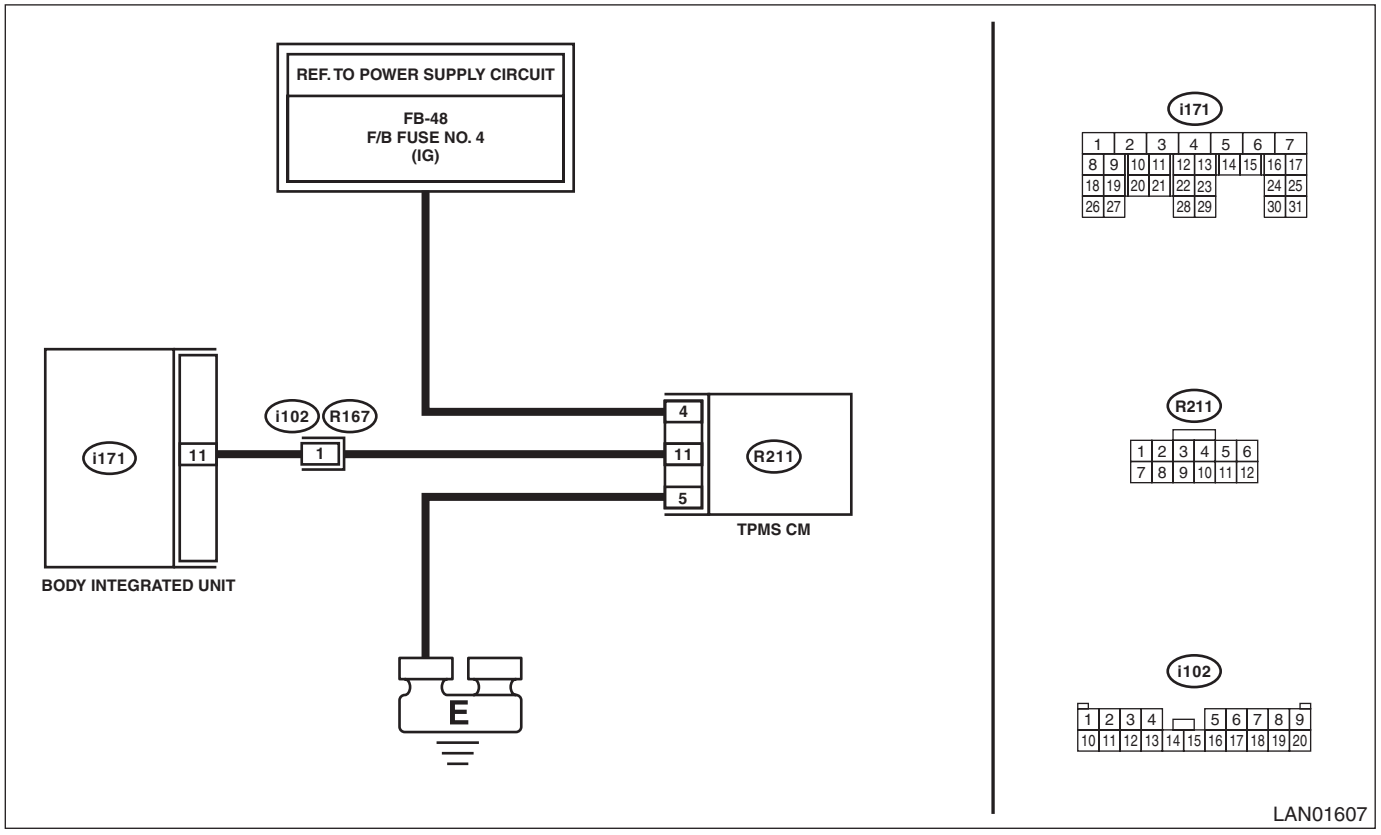
UART between the TPMS CM and the body integrated unit is open or shorted, or has communication failure.

**TROUBLE SYMPTOM:**

Communication with the TPMS CM is impossible.

**WIRING DIAGRAM:**

Tire Pressure Monitoring System <Ref. to WI(w/o HEV)-218, WIRING DIAGRAM, Tire Pressure Monitoring System.>




| Step | | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK DTC.**<br>1) With the access key in the vehicle, press the push button ignition switch twice without depressing the brake to turn the ignition switch to ON.<br>2) Read the DTC of body integrated unit using Subaru Select Monitor. | Is U1500 a current malfunction? | Go to step **2**. | Go to step **7**. |
| 2 | **CHECK DTC.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the body integrated unit and the TPMS CM connector.<br>3) Connect the disconnected connectors.<br>4) With the access key in the vehicle, press the push button ignition switch twice without depressing the brake to turn the ignition switch to ON.<br>5) Read the DTC of body integrated unit using Subaru Select Monitor. | Is U1500 a current malfunction? | Go to step **3**. | Go to step **7**. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 3 | **CHECK HARNESS.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the body integrated unit and the TPMS CM connector.<br>3) Using the tester, measure the resistance between terminals.<br>***Connector & terminal***<br>***(i171) No. 11 — (R211) No. 11:*** | Is the resistance 10 Ω or less? | Go to step **4**. | Repair the open circuit of harness or replace harness. |
| 4 | **CHECK HARNESS.**<br>1) Turn the ignition switch to ON.<br>2) Use a tester to measure the voltage between the terminals.<br>***Connector & terminal***<br>***(R211) No. 4 (+) — Chassis ground (–):*** | Is the voltage 10 V or more? | Go to step **5**. | Repair the power supply circuit. |
| 5 | **CHECK HARNESS.**<br>Using the tester, measure the resistance between terminals.<br>***Connector & terminal***<br>***(R211) No. 5 — Chassis ground:*** | Is the resistance 10 Ω or less? | Go to step **6**. | Repair the ground circuit. |
| 6 | **CHECK CONTROL MODULE.**<br>1) Turn the ignition switch to OFF.<br>2) Remove the TPMS CM.<br>3) Install a TPMS CM that was operating normally on another vehicle. | Does it operate with the remote control key of another vehicle? | Replace the TPMS CM. <Ref. to WT-8, REMOVAL, Tire Pressure Monitoring System.> | Replace the body integrated unit. <Ref. to SL-87, Body Integrated Unit.> |
| 7 | **CHECK CONNECTOR.**<br>Check the connector used for keyless communication for poor contact. | Is there poor contact of connector? | Repair the connector that has poor contact, or replace harness. | It is possible that temporary poor communication occurs. Delete the DTC. |

# 14.General Diagnostic Table

## A: INSPECTION

Using the Subaru Select Monitor, read DTC, or check the following data on the current data display to make judgments.

| Item | Operation | Specifications | | Note |
|---|---|---|---|---|
| | | YES | NO | |
| Diagnostic code | DTC is not displayed when inspecting all DTCs. | DTC is not displayed. | Perform the diagnosis according to DTC. | — |
| Clearance light<br>(Low beam)<br>(High beam) | Clearance light and low/high beams illuminate normally when the switch is operated. Indicator in the meter illuminates at the same time. | System is normal. | Check the lighting system, combination meter system and LAN system. | — |
| Auto light | When the area around the light control sensor is darkened after the ignition switch and the lighting switch (AUTO) are turned to ON, the clearance light and the low beam illuminate after 5 seconds. Indicator in the combination meter illuminates at the same time. | System is normal. | Check the lighting system, combination meter system and LAN system. | — |
| | When the ignition switch and the lighting switch (AUTO) are turned to ON after the area around the light control sensor is darkened, the clearance light and the low beam illuminate immediately. Indicator in the combination meter illuminates at the same time. | | | — |
| Fog light | Front and rear fog lights illuminate when the switch is operated. Indicator in the meter illuminates at the same time. | System is normal. | Check the lighting system, combination meter system and LAN system. | Rear fog light operates when “Rear fog light setting” of the body integrated unit is set to on. |
| Rear defogger | Rear defogger operates when the switch is operated. The indicator illuminates at the same time. | System is normal. | Check the rear window defogger system and A/C system. | — |
| Wiper deicer | Wiper deicer operates by operating the switch. The indicator illuminates at the same time.<br>When the ambient temperature is 5°C (41°F) or higher, press the switch 3 seconds or more to forcibly activate the system. | System is normal. | Check the wiper deicer system and A/C system. | Wiper deicer operates when “Wiper deicer setting” of the body integrated unit is set to on. |
| DRL | After starting the engine and releasing the parking brake, the DRL illuminates. | System is normal. | Check the lighting system and LAN system. | — |
| Rear wiper | Rear wiper operates when the switch is operated. | System is normal. | Check wiper or washer system. | Depending on user customizing “Sedan/Wagon Setting” of the body integrated unit, vehicle sensory time varies. |
| Key interlock | • Key cannot be removed in other than P range.<br>• Key can be removed in other than P range. | System is normal. | Check the body control system. | — |

# General Diagnostic Table

| Item | Operation | Specifications | | Note |
|---|---|---|---|---|
| | | YES | NO | |
| Shift lock | The select lever can be moved from the P range to other ranges only when the brake pedal is depressed with IG ON. | System is normal. | Check the body control system. | — |
| Key warning switch alarm | When the driver's door is open without the key removed, the buzzer sounds. | System is normal. | Check the combination meter and body control system. | — |
| Door lock | The doors lock/unlock when the door switch is operated. Rear gate/ trunk opens when the rear gate/ trunk release switch is operated. | System is normal. | Check the security & lock and body control system. | If user customizing "Sedan/Wagon Setting" is different, trunk and rear gate do not open. |
| Keyless entry | The lock locks/unlocks when the keyless transmitter is operated. Trunk/rear gate unlocks when trunk/ rear gate unlock button is operated. | System is normal. | Check the keyless entry and body control system. | — |
| Keyless access with push button start system | The lock locks/unlocks when the access key is operated. With the access key held, the touch sensor (lock) operation locks/touch sensor (unlock) operation unlocks. Rear gate unlocks when the rear gate unlock button is operated. | System is normal. | Check the keyless access with push button start system and the body control system. | — |
| Answer back | Answer-back operates when the keyless entry / keyless access with push button start system locks/ unlocks. | System is normal. | Check the security & lock, keyless access with push button start system, and LAN system. | — |
| Room light | Turns ON/OFF according to the door open/close operation, the lock/ unlock operation with the keyless entry/keyless access with push button start system, and the ignition operation. | System is normal. | Check the room light system, security & lock, keyless access with push button start system, and LAN system. | For vehicle with the keyless access with push button start system, the room light blinks when "Factory mode" is selected. For vehicles with the keyless entry, the room light blinks when the keyless registration mode connector is connected. |
| Map light | Turns ON/OFF according to the door open/close operation, the lock/ unlock operation with the keyless entry/keyless access with push button start system, and the ignition operation. (Except for rear gate) | System is normal. | Check the spot map light, security & lock, keyless access with push button start system, and LAN system. | For vehicle with the keyless access with push button start system, the map light blinks when "Factory mode" is selected. For vehicles with the keyless entry, the map light blinks when the keyless registration mode connector is connected. |

| Item | Operation | Specifications | | Note |
|---|---|---|---|---|
| | | YES | NO | |
| Luggage/trunk light | The light illuminates/goes off according to the rear gate open/close.<br>The light goes off when the doors are locked with the keyless entry/keyless access with push button start system and the ignition is turned ON while the luggage light is dimming after the rear gate is closed. | System is normal. | Check the luggage/trunk light, security & lock, keyless access with push button start system, and LAN system. | For vehicles with the keyless access with push button start system, the luggage/trunk light blinks when “Factory” mode is selected.<br>For vehicles with the keyless entry, the luggage/trunk light blinks when the keyless registration mode connector is connected. |
| Key illumination | The light illuminates/goes off according to the driver’s door open/close.<br>The light goes off, when the doors are locked with the keyless entry/keyless access with push button start system and the ignition is turned ON while illuminating. | System is normal. | Check the ignition switch illumination, security & lock, and LAN system. | For vehicles with keyless entry, the key illumination blinks when “Factory” mode is selected. |
| Illumination control | Illumination volume control is available. | System is normal. | Check the illumination control switch, combination meter, and body control system. | Illumination volume control is not available when user customizing “Illumination Control On/Off” of the body integrated unit is set to off. |
| Engine start | Engine starts. | System is normal. | Check the engine system, immobilizer, and LAN system. | — |
| Vehicle security | Security monitoring/security canceling can be performed by operating the keyless entry/keyless access with push button start system. | System is normal. | Check the security & lock, keyless access with push button start system, and LAN system. | Security monitoring starts and at the same time the warning buzzer sounds, when impact sensor is not connected and user customizing “Impact Sensor” of the body integrated unit is set to on. |

# WIRING SYSTEM SECTION


| | |
|---|---|
| WIRING SYSTEM | WI(w/o HEV) |
| WIRING SYSTEM | WI(HEV) |


This service manual has been prepared to provide SUBARU service personnel with the necessary information and data for the correct maintenance and repair of SUBARU vehicles.
This manual includes the procedures for maintenance, disassembling, reassembling, inspection and adjustment of components and diagnostics for guidance of experienced mechanics.
Please peruse and utilize this manual fully to ensure complete repair work for satisfying our customers by keeping their vehicle in optimum condition. When replacement of parts during repair work is needed, be sure to use SUBARU genuine parts.

All information, illustration and specifications contained in this manual are based on the latest product information available at the time of publication approval.

FUJI HEAVY INDUSTRIES LTD. G1210BE8

# WIRING SYSTEM

# WI(w/o HEV)


| | | Page |
|---|---|---|
| 1. | Basic Diagnostic Procedure | 3 |
| 2. | Working Precautions | 14 |
| 3. | Power Supply Circuit | 16 |
| 4. | Ground Circuit | 33 |
| 5. | Airbag System | 40 |
| 6. | Air Conditioning System | 45 |
| 7. | Audio System | 52 |
| 8. | Back-up Light System | 64 |
| 9. | CAN Communication System | 65 |
| 10. | Charging System | 67 |
| 11. | Clearance Light and Illumination Light System | 68 |
| 12. | Combination Meter System | 73 |
| 13. | Coolant Temperature System | 84 |
| 14. | Cruise Control System | 86 |
| 15. | CVT Control System | 90 |
| 16. | Electric Power Steering System | 97 |
| 17. | Engine Electrical System | 98 |
| 18. | EyeSight System | 126 |
| 19. | Front Accessory Power Supply Socket System | 130 |
| 20. | Front Fog Light System | 131 |
| 21. | Front Wiper and Washer System | 133 |
| 22. | Fuel Gauge System | 135 |
| 23. | Headlight Beam Leveler System | 136 |
| 24. | Headlight System | 138 |
| 25. | Horn System | 142 |
| 26. | Immobilizer System | 143 |
| 27. | Interior Light System | 147 |
| 28. | Keyless Access System | 153 |
| 29. | Keyless Entry System | 160 |
| 30. | Multi-function Display (MFD) System | 164 |
| 31. | Navigation System | 166 |
| 32. | Occupant Detection System | 172 |
| 33. | Oil Pressure Warning Light System | 173 |
| 34. | Parking Brake / Brake Fluid Level Warning Light System | 174 |
| 35. | Power Window System | 175 |
| 36. | Push Button Start System | 179 |
| 37. | Radiator Fan System | 183 |
| 38. | Rear Accessory Power Supply Socket System | 184 |
| 39. | Rear Defogger System | 185 |
| 40. | Rearview Camera System | 186 |
| 41. | Rearview Mirror System | 190 |
| 42. | Rear Wiper and Washer System | 191 |
| 43. | Remote Control Mirror System | 193 |
| 44. | Remote Engine Start System | 194 |
| 45. | Seat Belt Warning System | 197 |

46. Seat Heater System .....198
47. Security System .....199
48. Shift Lock Control System .....207
49. Speedometer System .....208
50. Starter System .....209
51. Stop Light System .....211
52. Sunroof Control System .....217
53. Tire Pressure Monitoring System .....218
54. Turn Signal Light and Hazard Light System .....219
55. Vehicle Dynamics Control System .....222
56. Wiper Deicer System .....232
57. Harness Components Location .....233
58. Front Wiring Harness .....235
59. Bulkhead Wiring Harness (In Engine Compartment) .....237
60. Bulkhead Wiring Harness (In Compartment) .....239
61. Engine Wiring Harness and Transmission Cord .....242
62. Instrument Panel Wiring Harness .....245
63. Rear Wiring Harness .....247
64. Door Cord .....249
65. Rear Wiring Harness and Trunk Lid Cord .....251
66. Rear Wiring Harness and Rear Gate Cord .....253

# 1. General Description

## A: LOCATION

Refer to “LOCATION” of “CRUISE CONTROL SYSTEM (DIAGNOSTICS)” section.
- Gasoline engine model: <Ref. to CC(w/o HEV)(diag)-6, LOCATION, Electrical Component Location.>
- HEV model: <Ref. to CC(HEV)(diag)-6, LOCATION, Electrical Component Location.>

## B: CAUTION

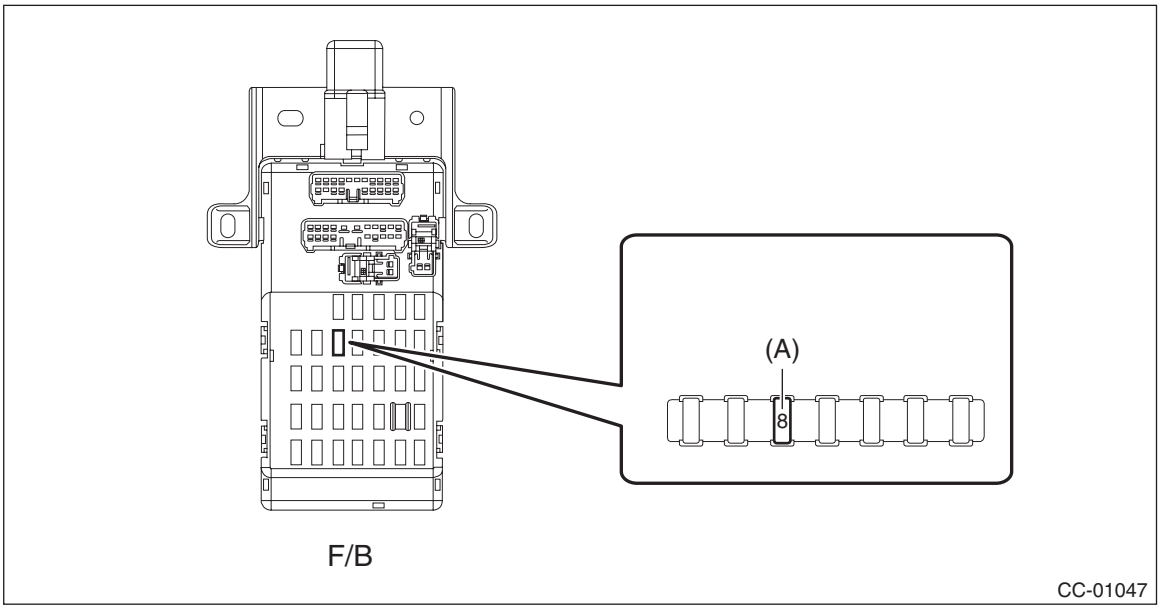
- Before disassembling or reassembling parts, always disconnect the battery ground cable from battery. When replacing the audio, control module and other parts provided with memory functions, record the memory contents before disconnecting the battery ground cable. Otherwise, the memory is cleared.
- Reassemble the parts in the reverse order of disassembly procedure unless otherwise indicated.
- Adjust parts to the given specifications.
- Connect the connectors securely during reassembly.
- After reassembly, make sure that the each component operates normally.
- Yellow connectors and harnesses with yellow tapes around them are the connectors and harnesses for the airbag system. Using a tester above such circuits may cause malfunction of airbag system. Follow the cautions of “AIRBAG SYSTEM” in this case. <Ref. to AB-10, CAUTION, General Description.>
- Be careful not to damage the airbag system wiring harness when servicing electrical parts and switches.
- When removing, installing or replacing the VDCCM&H/U, VDCCM&H/U bracket, steering wheel or steering angle sensor (steering roll connector), perform the VDC setting mode. <Ref. to VDC-26, ADJUSTMENT, VDC Control Module and Hydraulic Control Unit (VDCCM&H/U).>

## C: PREPARATION TOOL

| TOOL NAME | REMARKS |
|---|---|
| Circuit tester | Used for measuring resistance and voltage. |

# 2. Relay and Fuse

## A: LOCATION




| | | |
|---|---|---|
| Relay & fuse box | Fuse 15 A (stop light and brake switch, brake relay) | (A) |

NOTE:
For other related fuses, refer to the wiring diagram.
- Gasoline engine model: <Ref. to WI(w/o HEV)-16, Power Supply Circuit.>
- HEV model: <Ref. to WI(HEV)-21, Power Supply Circuit.>

## B: INSPECTION

### 1. CHECK FUSE

1) Remove the fuse and inspect visually.
2) If the fuse is blown out, replace the fuse.

NOTE:
If the fuse is blown again, check the system wiring harness.

# 3. Cruise Control System

## A: WIRING DIAGRAM

Refer to “Cruise Control System” in the wiring diagram.
- Gasoline engine model: <Ref. to WI(w/o HEV)-86, WIRING DIAGRAM, Cruise Control System.>
- HEV model: <Ref. to WI(HEV)-82, WIRING DIAGRAM, Cruise Control System.>

## B: INSPECTION

Refer to “Basic Diagnostic Procedure” of “CRUISE CONTROL SYSTEM (DIAGNOSTICS)”.
- Gasoline engine model: <Ref. to CC(w/o HEV)(diag)-2, Basic Diagnostic Procedure.>
- HEV model: <Ref. to CC(HEV)(diag)-2, Basic Diagnostic Procedure.>

## C: NOTE

For operation procedures of each component of the cruise control system, refer to the respective section.
- Cruise control module: <Ref. to CC-5, Cruise Control Module.>
- Cruise control command switch: <Ref. to CC-6, Cruise Control Command Switch.>
- Combination meter: <Ref. to CC-8, Combination Meter.>
- Stop light and brake switch: <Ref. to CC-9, Stop Light & Brake Switch.>
- Clutch switch: <Ref. to CC-10, Clutch Switch.>
- Inhibitor switch: <Ref. to CC-11, Inhibitor Switch.>
- Transmission control module (TCM): <Ref. to CC-12, Transmission Control Module (TCM).>
- Neutral position switch: <Ref. to CC-13, Neutral Position Switch.>
- Hybrid powertrain control module (HEV model): <Ref. to CC-14, Hybrid Powertrain Control Module.>
- Brake stroke sensor (HEV model): <Ref. to BR-70, Brake Pedal.>

# 4. Cruise Control Module

## A: NOTE

Cruise control system is controlled by the following modules.
- Engine control module (ECM)
- Hybrid powertrain control module (HEV model)

## B: REMOVAL

For removal, refer to the removal procedure of each module.
- Engine control module (ECM)

Gasoline engine model: <Ref. to FU(H4DO(w/o HEV))-100, REMOVAL, Engine Control Module (ECM).>
HEV model: <Ref. to FU(H4DO(HEV))-85, REMOVAL, Engine Control Module (ECM).>
- Hybrid powertrain control module (HEV model): <Ref. to HEV-37, NOTE, Hybrid Powertrain Control Module.>

## C: INSTALLATION

For installation, refer to the installation procedure of each module.
- Engine control module (ECM)

Gasoline engine model: <Ref. to FU(H4DO(w/o HEV))-101, INSTALLATION, Engine Control Module (ECM).>
HEV model: <Ref. to FU(H4DO(HEV))-87, INSTALLATION, Engine Control Module (ECM).>
- Hybrid powertrain control module (HEV model): <Ref. to HEV-37, NOTE, Hybrid Powertrain Control Module.>

# 5. Cruise Control Command Switch

## A: REMOVAL

1) Position the front wheels straight ahead. (After moving a vehicle 5 m (16 ft) or more with front wheels positioned straight ahead, make sure that the vehicle moves straight ahead.)
2) Turn the ignition to OFF.
3) Disconnect the ground cable from battery and wait for at least 60 seconds before starting work. <Ref. to NT-5, BATTERY, NOTE, Note.>

NOTE:
For the 12 volt engine restart battery of HEV model, disconnect the ground terminal from 12V engine restart battery sensor.
4) Remove the driver's airbag module. <Ref. to AB-32, REMOVAL, Driver's Airbag Module.>
5) Remove the steering wheel. <Ref. to PS-8, REMOVAL, Steering Wheel.>
6) Remove the cruise control command switch assembly. <Ref. to PS-10, DISASSEMBLY, Steering Wheel.>

## B: INSTALLATION

**CAUTION:**
**• Before handling the airbag module, refer to "CAUTION" of "General Description" in "AIRBAG SYSTEM". <Ref. to AB-10, CAUTION, General Description.>**
**• Do not allow harness and connectors to interfere or get tangled up with other parts.**
**• If the steering wheel has been removed, make sure that the steering roll connector is not turned from the original position.**
**• If the steering wheel and steering angle sensor (steering roll connector) are removed, perform the VDC setting mode. <Ref. to VDC-26, ADJUSTMENT, VDC Control Module and Hydraulic Control Unit (VDCCM&H/U).>**
**• Securely install the switch. Improper insertion of the pin or claw of the switch may cause improper installation.**
1) Align the center position of the steering roll connector. <Ref. to AB-98, ADJUSTMENT, Roll Connector.>
2) Install each part in the reverse order of removal.

NOTE:
Align the alignment marks on the steering wheel and the column assembly - steering.

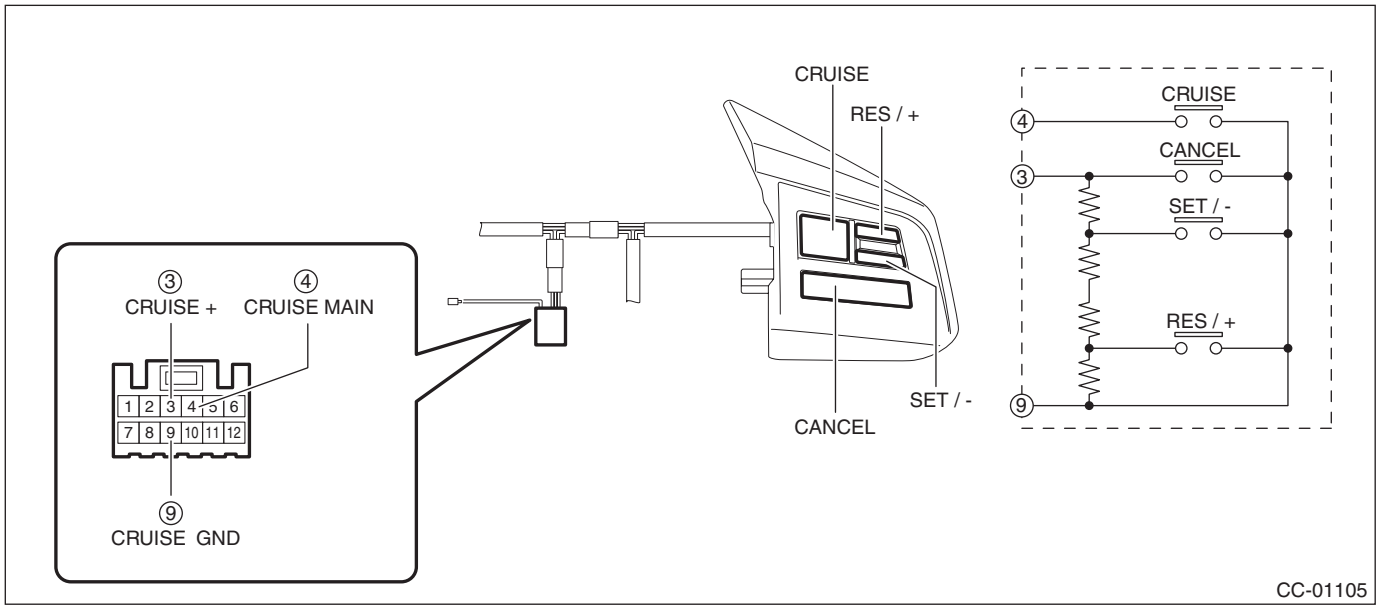
***Tightening torque:***
***Steering wheel: 39 N·m (3.98 kgf-m, 28.8 ft-lb)***

***Clearance:***
***Between cover assembly - column and steering wheel: 4 — 6 mm (0.16 — 0.24 in)***

## C: INSPECTION

1) Measure the resistance between connector terminals.

***Preparation tool:***
***Circuit tester***




| Terminal No. | Inspection conditions | | Standard |
|---|---|---|---|
| 3 — 9 | CANCEL<br>SET/–<br>RES/+ | All OFF | Approx. 4020 Ω |
| | CANCEL | ON | Less than 1 Ω |
| | SET/– | ON | Approx. 250 Ω |
| | RES/+ | ON | Approx. 1470 Ω |
| 4 — 9 | CRUISE<br>(MAIN) | OFF | 1 MΩ or more |
| | | ON | Less than 1 Ω |

2) Apply battery voltage between the connector terminals to check lighting condition of illumination inside the switch.

| Terminal No. | Inspection conditions | Specification |
|---|---|---|
| 10 (+) — 11 (–) | Apply battery voltage. | Light ON |

3) Replace the cruise control command switch assembly if the inspection result is not within the standard.

# 6. Combination Meter

## A: NOTE

For the combination meter, refer to “INSTRUMENTATION/DRIVER INFO” section. <Ref. to IDI-20, Combination Meter.>

# 7. Stop Light & Brake Switch

## A: NOTE

For stop light and brake switch, refer to “BRAKE” section. <Ref. to BR-74, Stop Light Switch.>

# 8. Clutch Switch

## A: NOTE

For clutch switch, refer to “CLUTCH SYSTEM” section. <Ref. to CL-28, Clutch Switch.>

# 9. Inhibitor Switch

## A: NOTE

For inhibitor switch, refer to “CONTINUOUSLY VARIABLE TRANSMISSION” section.

- Gasoline engine model: <Ref. to CVT(TR580)-146, Transmission Control Module (TCM).>
- HEV model: <Ref. to CVT(TH58A)-158, Transmission Control Module (TCM).>

# 10.Transmission Control Module (TCM)

## A: NOTE

For transmission control module (TCM), refer to “CONTINUOUSLY VARIABLE TRANSMISSION” section.

- Gasoline engine model: <Ref. to CVT(TR580)-146, Transmission Control Module (TCM).>
- HEV model: <Ref. to CVT(TH58A)-158, Transmission Control Module (TCM).>

# 11.Neutral Position Switch

## A: NOTE

For neutral position switch, refer to “MANUAL TRANSMISSION AND DIFFERENTIAL” section. <Ref. to 5MT-35, Switches and Harness.>

# 12.Hybrid Powertrain Control Module

## A: NOTE

For hybrid powertrain control module, refer to “HYBRID ELECTRIC VEHICLE” section. <Ref. to HEV-37, Hybrid Powertrain Control Module.>

# 13.Diagnostics with Phenomenon

## A: INSPECTION

Refer to “Diagnostics with Phenomenon” of “CRUISE CONTROL SYSTEM (DIAGNOSTICS)” section.

- Gasoline engine model: <Ref. to CC(w/o HEV)(diag)-11, Diagnostics with Phenomenon.>
- HEV model: <Ref. to CC(HEV)(diag)-11, Diagnostics with Phenomenon.>

# CRUISE CONTROL SYSTEM (DIAGNOSTICS)

# *CC(w/o HEV)(diag)*


| | | Page |
|---|---|---|
| 1. | Basic Diagnostic Procedure | 2 |
| 2. | General Description | 5 |
| 3. | Electrical Component Location | 6 |
| 4. | Engine Control Module (ECM) I/O Signal | 7 |
| 5. | Subaru Select Monitor | 8 |
| 6. | Read Cancel Code | 9 |
| 7. | Real-time Diagnosis | 10 |
| 8. | Diagnostics with Phenomenon | 11 |
| 9. | List of Cancel Code | 14 |
| 10. | Diagnostic Procedure with Cancel Code | 17 |

# 1. Basic Diagnostic Procedure

## A: PROCEDURE

**CAUTION:**
**• When performing the entire diagnosis or cruise control diagnosis, first start the engine and wait until initial illumination of the ABS/VDC warning light completes. (If you start the diagnostics before performing the above procedures, the cancel code "43" is recorded and CRUISE indicator does not illuminate even though the CRUISE switch is pressed.)**
**• When performing diagnosis, observe the legal speed limit on the road.**
**• The cancel code will also appear when the cruise control is cancelled by the driver's operation. Do not confuse them.**
**• Be sure to get an assistant to support the diagnosis while driving, and have him/her operate the select monitor.**

| Step | | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK HYBRID FAIL LAMP.**<br>Make sure the hybrid fail lamp illuminates. | Does the hybrid fail lamp illuminate? | Go to step **6**. | Go to step **2**. |
| 2 | **CHECK MALFUNCTION INDICATOR LIGHT.**<br>Make sure the malfunction indicator light illuminates. | Does the malfunction indicator light illuminate? | Go to step **6**. | Go to step **3**. |
| 3 | **CHECK CRUISE INDICATOR LIGHT.**<br>Make sure the cruise indicator light blinks. | Does the cruise indicator light blink? | Go to step **8**. | Go to step **4**. |
| 4 | **CHECK CRUISE SWITCH OPERATION.**<br>Check the CRUISE switch operation. (Check the illumination of the CRUISE indicator.) | Is the CRUISE switch turned on? (Does the CRUISE indicator illuminate?) | Go to step **5**. | Go to phenomenon 1. <Ref. to CC(HEV)(diag)-11, DIAGNOSTIC PROCEDURE WITH PHENOMENON, Diagnostics with Phenomenon.> |
| 5 | **CHECK CRUISE CONTROL SET OPERATION.**<br>Check the cruise control setting operation. | Can the cruise control be set while driving at 40 km/h (25 MPH) or more? | Go to step **9**. | Go to step **8**. |
| 6 | **CHECK DTC.**<br>Read all DTCs using the Subaru Select Monitor. | Is engine, HEV or VDC related DTC displayed? | Record the DTC.<br>Go to step **7**. | Go to phenomenon 2. <Ref. to CC(HEV)(diag)-11, DIAGNOSTIC PROCEDURE WITH PHENOMENON, Diagnostics with Phenomenon.> |
| 7 | **CHECK FREEZE FRAME DATA.**<br>Using the Subaru Select Monitor, check the Freeze Frame Data or Information in Trouble State. | Was the Freeze Frame Data or Information in Trouble State recorded? | Record the data.<br>Perform the diagnosis according to the engine, HEV, or VDC related DTC. | Perform the diagnosis according to the engine, HEV, or VDC related DTC. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 8 | **CHECK CANCEL CODE.**<br>Using the Subaru Select Monitor, read the cancel codes of the hybrid powertrain control module. <Ref. to CC(HEV)(diag)-9, Read Cancel Code.><br>NOTE:<br>• Do not turn the ignition switch to OFF after the cruise control is deactivated.<br>• Do not operate the cruise control command switch after the cruise control is deactivated.<br>If the above is performed, the cancel code will be cleared. | Is it possible to read the cancel codes? | Perform the diagnosis according to the cancel code. <Ref. to CC(HEV)(diag)-13, LIST, List of Cancel Code.> | Go to step **9**. |
| 9 | **CHECK SET INDICATOR.**<br>Check the illumination of the SET indicator. | Does the SET indicator illuminate? | Go to step **10**. | Go to phenomenon 3. <Ref. to CC(HEV)(diag)-11, DIAGNOSTIC PROCEDURE WITH PHENOMENON, Diagnostics with Phenomenon.> |
| 10 | **CHECK VEHICLE SPEED IS HELD WITHIN SET SPEED.**<br>Make sure the vehicle speed is held within set speed. | Is the vehicle speed kept within setting speed ±3 km/h (±2 MPH)? (Make sure that on a level road.) | Go to step **11**. | Go to phenomenon 4. <Ref. to CC(HEV)(diag)-11, DIAGNOSTIC PROCEDURE WITH PHENOMENON, Diagnostics with Phenomenon.> |
| 11 | **CHECK RES/+ OPERATION.**<br>Check the RES/+ switch operation. | Does the vehicle speed increase or return to set speed after RES/+ switch has been pressed? | Go to step **12**. | Go to phenomenon 5. <Ref. to CC(HEV)(diag)-11, DIAGNOSTIC PROCEDURE WITH PHENOMENON, Diagnostics with Phenomenon.> |
| 12 | **CHECK SET/– OPERATION.**<br>Check the SET/– switch operation. | Does the vehicle speed decrease after SET/– switch has been pressed? | Go to step **13**. | Go to phenomenon 6. <Ref. to CC(HEV)(diag)-11, DIAGNOSTIC PROCEDURE WITH PHENOMENON, Diagnostics with Phenomenon.> |
| 13 | **CANCEL OPERATION CHECK.**<br>Check the CANCEL switch operation. | Is the cruise control released after CANCEL switch has been pressed? | Go to step **14**. | Go to phenomenon 7. <Ref. to CC(HEV)(diag)-11, DIAGNOSTIC PROCEDURE WITH PHENOMENON, Diagnostics with Phenomenon.> |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 14 | **CHECK CRUISE CONTROL RELEASE OPERATION.**<br>Check the cruise control release operation. | Is the cruise control released after brake pedal has been depressed? | Go to step **15**. | Go to phenomenon 8. <Ref. to CC(HEV)(diag)-11, DIAGNOSTIC PROCEDURE WITH PHENOMENON, Diagnostics with Phenomenon.> |
| 15 | **CHECK CRUISE CONTROL RELEASE OPERATION.**<br>Check the cruise control release operation. | Is the cruise control released after shifting to the neutral position? | Finish the diagnosis. | Go to phenomenon 9. <Ref. to CC(HEV)(diag)-11, DIAGNOSTIC PROCEDURE WITH PHENOMENON, Diagnostics with Phenomenon.> |

# 2. General Description

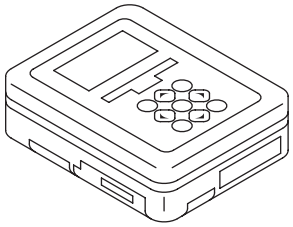
## A: CAUTION

Airbag system wiring harness is routed near the cruise control command switch.

**CAUTION:**
**• Do not use the electrical test equipment on the airbag system wiring harnesses and connector circuits.**
**• Be careful not to damage the airbag system wiring harness when servicing the cruise control command switch. Airbag system wiring harness is routed near the cruise control command switch.**

## B: PREPARATION TOOL

### 1. SPECIAL TOOL

| ILLUSTRATION | TOOL NUMBER | DESCRIPTION | REMARKS |
|---|---|---|---|
|  ST1B022XU0 | 1B022XU0 | SUBARU SELECT MONITOR III KIT | Used for setting of each function and trouble-shooting for electrical system.<br>NOTE:<br>For detailed operation procedures of Subaru Select Monitor III, refer to “PC application help for Subaru Select Monitor”. |

### 2. GENERAL TOOL

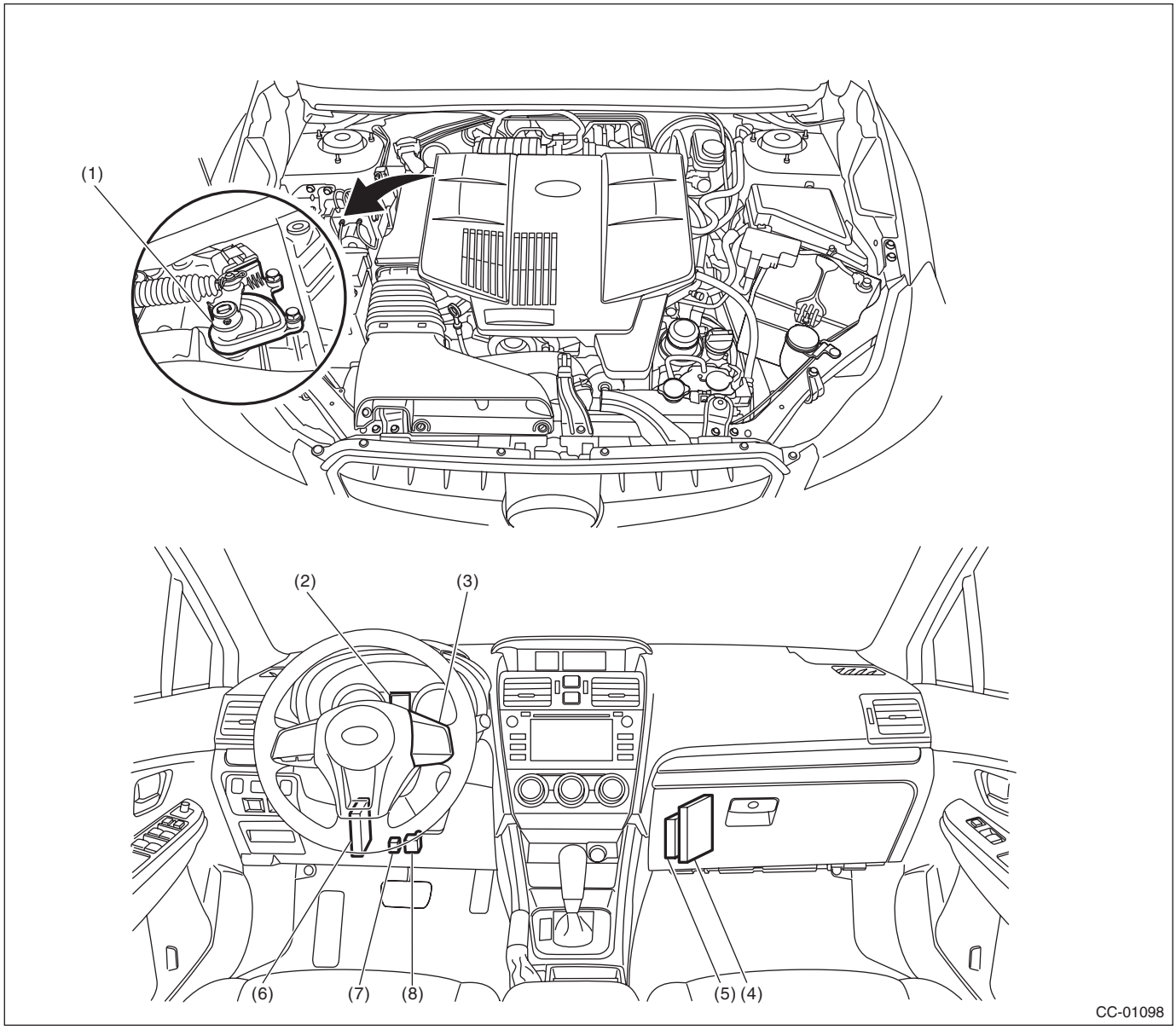
| TOOL NAME | REMARKS |
|---|---|
| Circuit tester | Used for measuring resistance, voltage and current. |

## C: INSPECTION

Check 12 volt auxiliary battery. <Ref. to SC(H4DO(HEV))-43, INSPECTION, Battery.>

# 3. Electrical Component Location

## A: LOCATION




| | | | | | |
|---|---|---|---|---|---|
| (1) | Inhibitor switch | (4) | Engine control module (ECM) | (7) | Brake stroke sensor (brake pedal ASSY) |
| (2) | Cruise indicator light and cruise set indicator light | (5) | Hybrid powertrain control module (HPCM) | (8) | Stop light and brake switch |
| (3) | Cruise control command switch | (6) | Transmission control module (TCM) | | |

NOTE:
Brake stroke sensor cannot be disassembled from the brake pedal assembly.

# 4. Control Module I/O Signal

## A: ELECTRICAL SPECIFICATION

### 1. ENGINE CONTROL MODULE (ECM)

For details on the input/output signals for the engine control module, refer to ENGINE (DIAGNOSTICS). <Ref. to EN(H4DO HEV)(diag)-19, ELECTRICAL SPECIFICATION, Control Module I/O Signal.>

### 2. HYBRID POWERTRAIN CONTROL MODULE (HPCM)

For details on the input/output signals of the hybrid powertrain control module, refer to HEV (DIAGNOSTICS). <Ref. to HEV(diag)-10, HYBRID POWERTRAIN CONTROL MODULE (HPCM), ELECTRICAL SPECIFICATION, Control Module I/O Signal.>

## B: WIRING DIAGRAM

Refer to “Cruise Control System” in the wiring diagram. <Ref. to WI(HEV)-82, WIRING DIAGRAM, Cruise Control System.>

# 5. Subaru Select Monitor

## A: OPERATION

### 1. GENERAL DESCRIPTION

The on-board diagnosis function of the cruise control system uses Subaru Select Monitor.
The on-board diagnosis function operates in two categories, which are used depending on the type of problems;
1) Cruise Control Cancel Conditions Diagnosis:
(1) This category of diagnosis requires actual vehicle driving in order to determine the cause, as when cruise speed is cancelled during driving although cruise cancel condition is not entered.
(2) Cruise control memory in the hybrid powertrain control module stores the cancel code which occurred during driving. When there are multiple cancel code, they are shown on the Subaru Select Monitor.

**CAUTION:**
**• In the cruise control memory, not only the cruise control "cancel" occurred (although the "cancel" operation is not entered by the driver), but also the "cancel" condition input by the driver is stored.**
**• The latest memory content (latest code) is cleared when ignition switch is turned to OFF. However, memory contents set by the diagnosis of faulty switches related to the system and cruise control will remain as trouble history (memory code) after the ignition switch is turned to OFF.**
2) Real-time Diagnosis:
Real-time diagnosis function is used to determine whether or not the input signal system is in good order, according to signal emitted from switches, sensors, etc.
(1) Vehicle cannot be driven at cruise speed when the problem occurs in the cruise control system or relevant circuits.
(2) Monitor the signal conditions from switches and sensors.

### 2. BASIC OPERATION

For operation procedures, refer to the "PC application help for Subaru Select Monitor".

# 6. Read Cancel Code

## A: OPERATION

1) On «Main Menu» display, select {Each System Check}.
On «System Selection Menu» display, select {Hybrid Powertrain Control System} and select the [OK].
2) Drive vehicle at 40 km/h (25 MPH) or more and set the cruise control.

NOTE:
When performing the entire diagnosis or cruise control diagnosis, first start the engine and wait until initial illumination of the ABS/VDC warning light completes. (If you start the diagnostics before performing the above procedures, the cancel code “43” is recorded and CRUISE indicator does not illuminate even though the CRUISE switch is pressed.)

**CAUTION:**
**• When performing diagnosis, observe the legal speed limit on the road.**
**• The cancel code will also appear when the cruise control is cancelled by the driver’s operation. Do not confuse them.**
**• Be sure to get an assistant to support the diagnosis while driving, and have him/her operate the select monitor.**
3) When the set speed is cancelled by itself (without any cancel operations such as applying brake) or when the cruise control could not be set by performing the setting operation, selecting the {Cancel Code(s) Display} on the diagnostic screen for the hybrid powertrain control system will display the cancel code on the select monitor display.

NOTE:
The {Latest Cancel Code(s)} and {Memorized Cancel Code(s)} are contained in the cancel code. The latest code recognized during current test drive is displayed in {Latest Cancel Code(s)}. Cancel codes resulting from fault diagnosis of switches relating to the system and cruise control are also displayed in {Memorized Cancel Code(s)}.
4) Perform DTC clear memory operation for hybrid powertrain control system.
Cancel codes for switches relating to the system and cruise control are deleted by clearing memory on the hybrid powertrain control system side.

NOTE:
• The latest code will be cleared by turning ignition switch to OFF.
• For detailed operation procedures, refer to “PC application help for Subaru Select Monitor”.
• For details on cancel codes, refer to List of Cancel Code. <Ref. to CC(HEV)(diag)-13, List of Cancel Code.>

# 7. Real-time Diagnosis

## A: OPERATION

1) On «Hybrid Powertrain Control System» display, select {Current Data Display & Save}. <Ref. to HEV(diag)-40, HYBRID POWERTRAIN CONTROL SYSTEM, OPERATION, Read Current Data.>
2) Make sure that normal display is shown when operated as follows:
- Turn the “CRUISE” switch to ON.
- Turn the “CANCEL” switch to ON.
- Turn the “SET/–” switch to ON.
- Turn the “RES/+” switch to ON.
- Depress and release the brake pedal. (The stop light switch and brake switch are turned on, and accordingly the brake stroke sensor value changes.)
- Place the shift lever in any position other than neutral.

If normal display will not appear, go to the next step.
3) Select {Current Data Display & Save} in «Engine Control System» display screen. <Ref. to EN(H4DO HEV)(diag)-36, DISPLAY CURRENT ENGINE DATA, OPERATION, Subaru Select Monitor.>
4) Make sure that normal display is shown when operated as follows:
- Depress and release the brake pedal. (Stop light switch and brake switch turn ON.)
- Turn the “CRUISE” switch to ON.
- Turn the “CANCEL” switch to ON.
- Turn the “SET/–” switch to ON.
- Turn the “RES/+” switch to ON.
- Place the shift lever in any position other than neutral.

NOTE:
For detailed operation procedures, refer to “PC application help for Subaru Select Monitor”.

# 8. Diagnostics with Phenomenon

## A: DIAGNOSTIC PROCEDURE WITH PHENOMENON

| Phenomenon | | Check Item | Note |
|---|---|---|---|
| 1 | CRUISE switch is not turned ON. (CRUISE indicator does not illuminate.) Or the cruise control is cancelled without CRUISE switch operation. | (1) Perform cruise cancel conditions diagnosis. | Perform the diagnosis according to displayed cancel code. |
| | | (2) Perform the real-time diagnosis. | Check the input signal of cruise control system. |
| | | (3) Check the cruise control command switch. | <Ref. to CC(HEV)(diag)-15, 11, Diagnostic Procedure with Cancel Code.> |
| | | (4) Check the CRUISE indicator. | <Ref. to CC(HEV)(diag)-12, CHECK CRUISE INDICATOR LIGHT AND CRUISE SET INDICATOR LIGHT, Diagnostics with Phenomenon.> |
| 2 | Cruise control cannot be set. Or cruise control is cancelled without releasing operation. | (1) Perform cruise cancel conditions diagnosis. | Perform the diagnosis according to displayed cancel code. |
| | | (2) Perform the real-time diagnosis. | Check the input signal of cruise control system. |
| | | (3) Check the cruise control command switch. | <Ref. to CC(HEV)(diag)-15, 11, Diagnostic Procedure with Cancel Code.> |
| | | (4) Check stop light switch and brake switch.<br>Check the brake stroke sensor. | <Ref. to BR-74, Stop Light Switch.> <Ref. to CC(HEV)(diag)-17, 12, Diagnostic Procedure with Cancel Code.><br><Ref. to HEV(diag)-2, PROCEDURE, Basic Diagnostic Procedure.> |
| | | (5) Check the neutral position switch. | <Ref. to HEV(diag)-2, PROCEDURE, Basic Diagnostic Procedure.> |
| | | (6) Check vehicle speed sensor. | <Ref. to CC(HEV)(diag)-20, 22, Diagnostic Procedure with Cancel Code.> |
| 3 | SET indicator does not illuminate. | Check the SET indicator. | <Ref. to CC(HEV)(diag)-12, CHECK CRUISE INDICATOR LIGHT AND CRUISE SET INDICATOR LIGHT, Diagnostics with Phenomenon.> |
| 4 | Vehicle speed is not held within set speed ±3 km/h (±2 MPH). | Check the vehicle speed sensor. | <Ref. to CC(HEV)(diag)-20, 22, Diagnostic Procedure with Cancel Code.> |
| 5 | Vehicle speed does not increase or does not return to set speed after RES/+ switch has been pressed. | (1) Perform the real-time diagnosis. | Check the input signal of cruise control system. |
| | | (2) Check the RES/+ switch. | <Ref. to CC(HEV)(diag)-15, 11, Diagnostic Procedure with Cancel Code.> |
| 6 | Vehicle speed does not decrease after SET/– switch has been pressed. | (1) Perform the real-time diagnosis. | Check the input signal of cruise control system. |
| | | (2) Check the SET/– switch. | <Ref. to CC(HEV)(diag)-15, 11, Diagnostic Procedure with Cancel Code.> |
| 7 | Cruise control is not released after CANCEL switch has been pressed. | (1) Perform the real-time diagnosis. | Check the input signal of cruise control system. |
| | | (2) Check the CANCEL switch. | <Ref. to CC(HEV)(diag)-15, 11, Diagnostic Procedure with Cancel Code.> |
| 8 | Cruise control is not released after brake pedal has been depressed. | (1) Perform the real-time diagnosis. | Check the input signal of cruise control system. |
| | | (2) Check stop light switch and brake switch.<br>Check the brake stroke sensor. | <Ref. to CC(HEV)(diag)-17, 12, Diagnostic Procedure with Cancel Code.> <Ref. to BR-75, INSTALLATION, Stop Light Switch.><br><Ref. to HEV(diag)-2, PROCEDURE, Basic Diagnostic Procedure.> |
| 9 | Cruise control is not released after shifting to the neutral position. | (1) Perform the real-time diagnosis. | Check the input signal of cruise control system. |
| | | (2) Check the neutral position switch. | <Ref. to HEV(diag)-2, PROCEDURE, Basic Diagnostic Procedure.> |

## B: CHECK CRUISE INDICATOR LIGHT AND CRUISE SET INDICATOR LIGHT

**TROUBLE SYMPTOM:**

Cruise control can be set, but the CRUISE indicator and SET indicator do not illuminate.

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK CRUISE INDICATOR LIGHT AND CRUISE SET INDICATOR LIGHT.**<br>Perform the combination meter operation check. <Ref. to IDI(diag)-21, OPERATION, System Operation Check Mode.> | Do the CRUISE & SET indicators illuminate? | Go to step **2**. | Replace the meter case assembly. <Ref. to IDI-20, Combination Meter.> |
| 2 | **CHECK LAN SYSTEM.**<br>Perform the diagnosis for LAN system. <Ref. to LAN(HEV)(diag)-2, Basic Diagnostic Procedure.> | Is a DTC of the LAN system detected? | Perform the diagnosis according to DTC for LAN system. | Replace the hybrid powertrain CM. <Ref. to HEV-37, Hybrid Powertrain Control Module.> |

# 9. List of Cancel Code

## A: LIST

NOTE:
- The cancel code is registered even when cancel is performed intentionally by the driver.
- Cancel codes are cleared if the ignition switch is turned to OFF.
- If a different cancel code is input after a cancel code (latest code) has been input, the latest code is overwritten.
- If the cruise indicator light is flashing, a malfunction is occurring in the system or cruise control related switch. The cancel code at this time is saved even after ignition switch is OFF as a memory code of a past malfunction.
- To display a cancel code, use the Subaru Select Monitor to read the code after the cruise control is deactivated during a driving test.

| Cancel code | Item | Contents of diagnosis | Note |
|---|---|---|---|
| 11 | Main switch | CRUISE switch of cruise control command switch is turned to OFF, and then the cruise control is released. | This code is displayed without operating the CRUISE switch. <Ref. to CC(HEV)(diag)-15, 11, Diagnostic Procedure with Cancel Code.> |
| 12 | Stop & Brake switch | Stop light switch or brake switch is turned to ON, and then the cruise control is released.<br>The cruise control is released by brake stroke sensor. | This code is displayed without depressing the brake pedal. <Ref. to CC(HEV)(diag)-17, 12, Diagnostic Procedure with Cancel Code.> |
| 14 | Neutral switch | Neutral position switch is turned to ON, and then the cruise control is released. | This code is displayed without shifting to neutral position. <Ref. to CC(HEV)(diag)-18, 14, Diagnostic Procedure with Cancel Code.> |
| 15 | Cancel switch | Cancel switch is turned to ON, and then the cruise control is released. | This code is displayed without operating the cancel switch. <Ref. to CC(HEV)(diag)-18, 15, Diagnostic Procedure with Cancel Code.> |
| 16 | Ignition switch | Ignition switch is turned to OFF, and then the cruise control is released. | This code is displayed without operating the ignition switch. <Ref. to CC(HEV)(diag)-19, 16, Diagnostic Procedure with Cancel Code.> |
| 22 | Abnormality of change in vehicle speed | Malfunction of vehicle speed signal variation is detected. | <Ref. to CC(HEV)(diag)-20, 22, Diagnostic Procedure with Cancel Code.> |
| 24 | Abnormality of switches related to cruise control | Open circuit of the cruise control switch is detected during cruise driving. (The system is judged as model without cruise control.) | This code is displayed with normal operation. <Ref. to CC(HEV)(diag)-20, 24, Diagnostic Procedure with Cancel Code.> |
| 31 | Engine Speed | • Abnormal increase of engine speed is detected.<br>• Gear is placed in Neutral, 1st or Reverse position. | Cruise in 2nd shift position or more. <Ref. to CC(HEV)(diag)-20, 31, Diagnostic Procedure with Cancel Code.> |

| Cancel code | Item | Contents of diagnosis | Note |
|---|---|---|---|
| 32 | Out of Cruise Control Operation Vehicle Speed Range | • Controlled vehicle speed decreased under the limit during cruising.<br>• Set operation was performed at vehicle speed unavailable for setting.<br>• RESUME operation was performed without memorized vehicle speed. | This code is displayed, though the vehicle speed is increased to the speed available for cruise set and set operation was performed again. <Ref. to CC(HEV)(diag)-20, 32, Diagnostic Procedure with Cancel Code.> |
| 34 | Prohibition of cruise control at continuing big Accel. angle | The vehicle has been driven at higher speed than set vehicle speed for an abnormally long time (approximately 10 minutes) during cruise driving. | <Ref. to CC(HEV)(diag)-20, 34, Diagnostic Procedure with Cancel Code.> |
| 35 | Prohibition of cruise control at vehicle speed F/B malfunction | Set vehicle speed cannot be kept because of some reasons (steep uphill, parking brake, abnormal decrease of engine output, etc.) during cruise driving. | This code is displayed when driving condition is not suitable for cruise control. Perform cruise set operation again after clearing the possible cause. <Ref. to CC(HEV)(diag)-21, 35, Diagnostic Procedure with Cancel Code.> |
| 41 | VDC/TCS Operation | VDC or TCS is activated during cruise driving or cruise setting. | This code is displayed when driving condition is not suitable for cruise control. Perform cruise set operation again after clearing the possible cause. <Ref. to CC(HEV)(diag)-21, 41, Diagnostic Procedure with Cancel Code.> |
| 43 | ABS/VDC Failure | • Detected the situation that some or all functions of ABS or VDC can not be activated during cruise driving or cruise setting.<br>• The CRUISE switch was pressed before starting the engine, but the CRUISE indicator did not illuminate. | <Ref. to CC(HEV)(diag)-21, 43, Diagnostic Procedure with Cancel Code.> |
| 44 | Integrated Unit Failure | Body integrated unit system malfunction is detected during cruise driving or cruise setting. | <Ref. to CC(HEV)(diag)-21, 44, Diagnostic Procedure with Cancel Code.> |
| 45 | Meter Failure | Combination meter malfunction is detected during cruise driving or cruise setting. | <Ref. to CC(HEV)(diag)-21, 45, Diagnostic Procedure with Cancel Code.> |
| 49 | TCM Failure | Transmission control module (TCM) malfunction is detected during cruise driving or cruise setting. | <Ref. to CC(HEV)(diag)-21, 49, Diagnostic Procedure with Cancel Code.> |
| 50 | HEV System Failure | Hybrid system malfunction is detected during cruise driving or cruise setting. | <Ref. to CC(HEV)(diag)-21, 50, Diagnostic Procedure with Cancel Code.> |
| 61 | Brake Switch Failure | Malfunction in the stop light & brake switch is detected. | <Ref. to CC(HEV)(diag)-21, 61, Diagnostic Procedure with Cancel Code.> |
| 63 | Abnormality 1 of change in vehicle speed | Malfunction of vehicle speed signal variation is detected. | <Ref. to CC(HEV)(diag)-22, 63, Diagnostic Procedure with Cancel Code.> |
| 64 | Engine Sensor Failure 1 | Malfunction related to engine is detected. | <Ref. to CC(HEV)(diag)-22, 64, Diagnostic Procedure with Cancel Code.> |
| 65 | Abnormality 1 of switches related to cruise control | Cruise control command switch malfunction is detected. (When the switch is pressed ON for a long time (approximately two minutes), stuck ON condition is detected.) | <Ref. to CC(HEV)(diag)-22, 65, Diagnostic Procedure with Cancel Code.> |

# 10.Diagnostic Procedure with Cancel Code

## A: 11

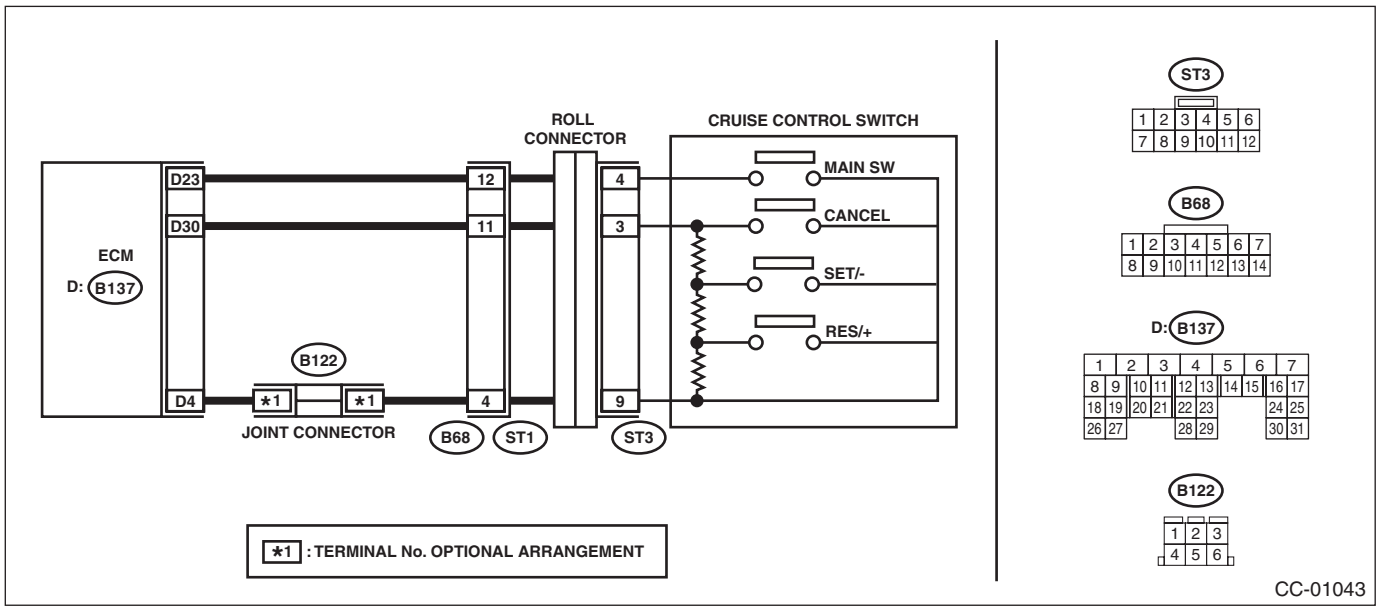
When CRUISE switch is pressed, or a malfunction related to CRUISE switch occurs, this is detected.

**TROUBLE SYMPTOM:**

- Cruise control cannot be set. (Cancelled immediately.)
- Cruise control cannot be released.

**WIRING DIAGRAM:**

Cruise control system <Ref. to WI(HEV)-82, WIRING DIAGRAM, Cruise Control System.>




| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK CRUISE CONTROL COMMAND SWITCH CIRCUIT.**<br>1) Remove the driver's airbag module. <Ref. to AB-32, REMOVAL, Driver's Airbag Module.><br>2) Disconnect the cruise control command switch connector.<br>3) Turn the ignition switch to ON.<br>4) Measure the voltage between cruise control command switch connector and chassis ground.<br>***Connector & terminal***<br>***(ST3) No. 4 (+) — Chassis ground (–):***<br>***(ST3) No. 3 (+) — Chassis ground (–):*** | Is the voltage 5 V or more? | Go to step **2**. | Check the harness between cruise control command switch and ECM, and the steering roll connector for open or short circuit, or for poor contact. |
| 2 | **CHECK CRUISE CONTROL COMMAND SWITCH CIRCUIT.**<br>1) Turn the ignition switch to OFF.<br>2) Remove the cruise control command switch. <Ref. to CC-6, REMOVAL, Cruise Control Command Switch.><br>3) Measure the resistance between cruise control command switch connector and chassis ground.<br>***Connector & terminal***<br>***(ST3) No. 9 — Chassis ground:*** | Is the resistance less than 10 Ω? | Go to step **3**. | Check for open circuit between cruise control command switch, ECM, and chassis ground and check the ECM. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 3 | **CHECK CRUISE CONTROL COMMAND SWITCH.**<br>Measure the resistance between switch terminals when the cruise control command switch is not depressed.<br>***Terminals***<br>***No. 3 — No. 9:*** | Is the resistance approx. 4 kΩ? | Go to step **4**. | Replace the cruise control command switch.<br><Ref. to CC-6, Cruise Control Command Switch.> |
| 4 | **CHECK CANCEL SWITCH.**<br>1) Turn the ignition switch to OFF.<br>2) Remove the cruise control command switch. <Ref. to CC-6, REMOVAL, Cruise Control Command Switch.><br>3) Measure the resistance between switch terminals with the CANCEL switch pressed.<br>***Terminals***<br>***No. 3 — No. 9:*** | Is the resistance approx. less than 1 Ω when the CANCEL switch is pressed? | Go to step **5**. | Replace the cruise control command switch.<br><Ref. to CC-6, Cruise Control Command Switch.> |
| 5 | **CHECK SET/– SWITCH.**<br>Measure the resistance between the switch terminals with the SET/– switch pressed.<br>***Terminals***<br>***No. 3 — No. 9:*** | Is the resistance approx. 250 Ω when the SET/– switch is pressed? | Go to step **6**. | Replace the cruise control command switch. <Ref. to CC-6, Cruise Control Command Switch.> |
| 6 | **CHECK RES/+ SWITCH.**<br>Measure the resistance between the switch terminals with the RES/+ switch pressed.<br>***Terminals***<br>***No. 3 — No. 9:*** | Is the resistance approx. 1,500 Ω when the RES/+ switch is pressed? | Replace the ECM. <Ref. to FU(H4DO(HEV))-85, Engine Control Module (ECM).> | Replace the cruise control command switch. <Ref. to CC-6, Cruise Control Command Switch.> |

## B: 12

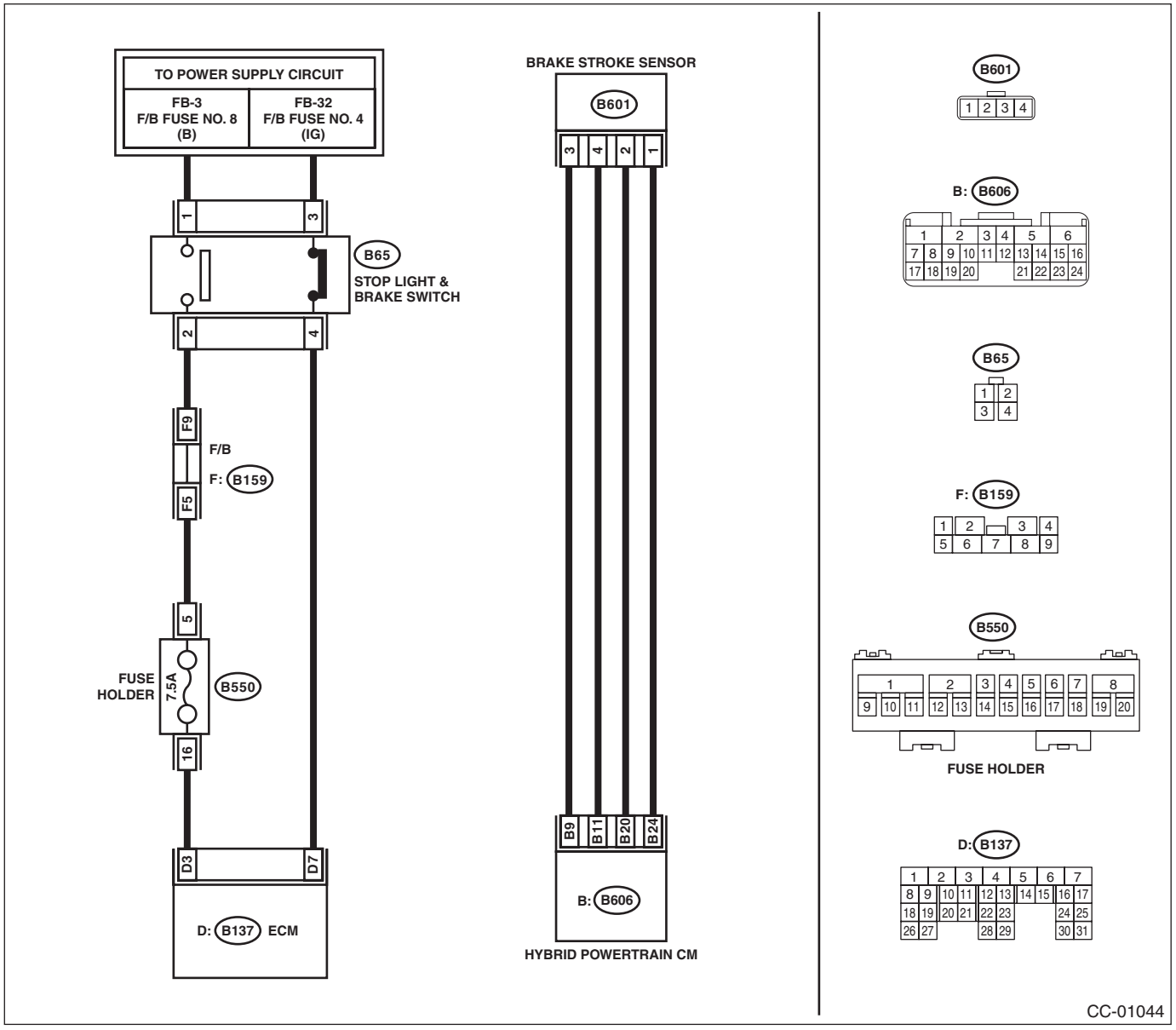
Detected when brake pedal is depressed or malfunction related to stop light & brake switch and brake stroke sensor occurs.

**TROUBLE SYMPTOM:**

- Cruise control cannot be set.
- Cruise control cannot be released.

**WIRING DIAGRAM:**

Cruise control system <Ref. to WI(HEV)-82, WIRING DIAGRAM, Cruise Control System.>
Hybrid system <Ref. to WI(HEV)-140, WIRING DIAGRAM, Hybrid Electric Vehicle System.>




| Step | | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK BRAKE STROKE SENSOR.**<br>Check the brake stroke sensor. (Check the hybrid system.) <Ref. to HEV(diag)-2, PROCEDURE, Basic Diagnostic Procedure.> | Is there any fault? | Perform the inspection according to the diagnosis for hybrid system. | Go to step **2**. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 2 | **CHECK STOP LIGHT & BRAKE SWITCH.**<br>Check the stop light & brake switch. <Ref. to CC-9, Stop Light & Brake Switch.> | Is the stop light & brake switch and installation position OK? | Go to step **3**. | Replace the stop light & brake switch. Or adjust the installation position. |
| 3 | **CHECK STOP LIGHT & BRAKE SWITCH CIRCUIT.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the stop light & brake switch connector.<br>3) Turn the ignition switch to ON.<br>4) Measure the voltage between the stop light & brake switch connector and chassis ground.<br>***Connector & terminal***<br>***(B65) No. 1 (+) — Chassis ground (–):*** | Is the voltage 10 V or more? | Go to step **4**. | • Check fuse No. 8 (in fuse & relay box).<br>• Check for open or short in the harness between stop light & brake switch and fuse & relay box. |
| 4 | **CHECK STOP LIGHT & BRAKE SWITCH CIRCUIT.**<br>Measure the voltage between the stop light & brake switch connector and chassis ground.<br>***Connector & terminal***<br>***(B65) No. 3 (+) — Chassis ground (–):*** | Is the voltage 10 V or more? | Go to step **5**. | • Check fuse No. 4 (in fuse & relay box).<br>• Check for open or short in the harness between stop light & brake switch and fuse & relay box. |
| 5 | **CHECK STOP LIGHT & BRAKE SWITCH CIRCUIT.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the ECM connector.<br>3) Measure the resistance between the ECM connector and stop light & brake switch connector.<br>***Connector & terminal***<br>***(B137) No. 7 — (B65) No. 4:***<br>***(B137) No. 3 — (B65) No. 2:*** | Is the resistance less than 10 Ω? | Replace the ECM. <Ref. to FU(H4DO(HEV))-85, Engine Control Module (ECM).> | Repair the harness. |

## C: 14

Detected when select lever is set in the neutral position, or when malfunction related to neutral position switch occurs.

**TROUBLE SYMPTOM:**

Cruise control cannot be set.

For diagnostic procedures, check the hybrid system. <Ref. to HEV(diag)-2, PROCEDURE, Basic Diagnostic Procedure.>

## D: 15

Detected when CANCEL switch is pressed or malfunction related to CRUISE switch occurs.

**TROUBLE SYMPTOM:**

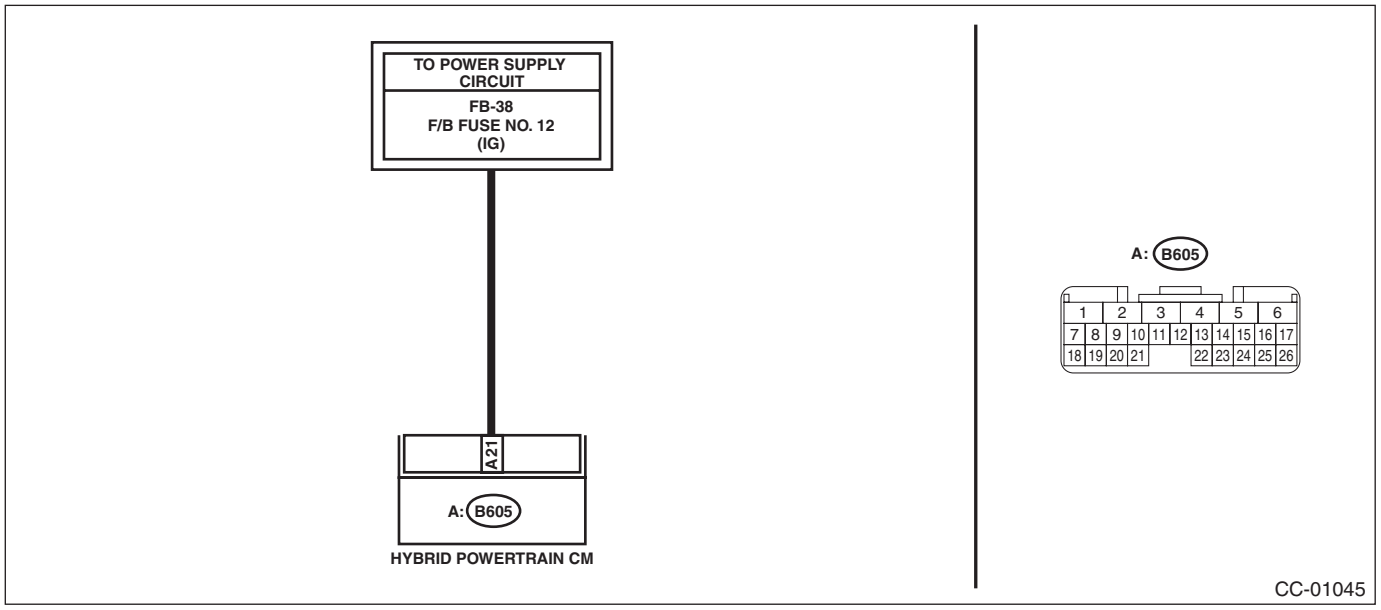
- Cruise control cannot be set. (Cancelled immediately.)
- Cruise control cannot be released.

Refer to DTC 11 for diagnostic procedure.

<Ref. to CC(HEV)(diag)-15, 11, Diagnostic Procedure with Cancel Code.>

## E: 16

Detected when ignition switch is turned to OFF or malfunction related to the ignition switch occurs.
**TROUBLE SYMPTOM:**
Cruise control cannot be set.
**WIRING DIAGRAM:**
Hybrid system <Ref. to WI(HEV)-140, WIRING DIAGRAM, Hybrid Electric Vehicle System.>




| Step | | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK IGNITION SWITCH CIRCUIT.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the hybrid powertrain CM connector.<br>3) Turn the ignition switch to ON.<br>4) Measure the voltage between the hybrid powertrain CM connector and chassis ground.<br>***Connector & terminal***<br>***(B605) No. 21 (+) — Chassis ground (–):*** | Is the voltage 10 V or more? | Check the hybrid powertrain CM connector for poor contact. | • Check fuse No. 12 (in fuse & relay box).<br>• Check the harness for open or short circuit between ignition switch and hybrid powertrain CM. |

## F: 22

Malfunction related to vehicle speed sensor is detected.
**DIAGNOSIS:**
Open or shorted circuit in vehicle speed sensor system.
**TROUBLE SYMPTOM:**
Cruise control cannot be set. (Cancelled immediately.)

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK ABS OR VDC WARNING LIGHT.**<br>1) Turn the ignition switch to ON.<br>2) After the initial operation of combination meter is completed, check if ABS or VDC warning light continues to illuminate. | Does the warning light continue to illuminate? | Check the VDCCM. <Ref. to VDC(diag)-2, Basic Diagnostic Procedure.> | Go to step **2**. |
| 2 | **CHECK DTC OF LAN COMMUNICATION CIRCUIT.**<br>Read the DTC of body integrated unit using Subaru Select Monitor. | Is DTC displayed? | Perform inspection according to DTC. | Replace the hybrid powertrain CM. <Ref. to HEV-37, Hybrid Powertrain Control Module.> |

## G: 24

Malfunction in cruise control-related switch is detected.
**TROUBLE SYMPTOM:**
- Cruise control cannot be set. (Cancelled immediately.)
- Cruise control cannot be released.

Refer to DTC 11 for diagnostic procedure.
<Ref. to CC(HEV)(diag)-15, 11, Diagnostic Procedure with Cancel Code.>

## H: 31

Engine speed signal malfunction is detected.
Abnormal increase of engine speed is detected.
Gear is placed in 1st or Reverse position.
After driving at the 2nd gear position or higher, perform the cruise setting again. If a cancel code is not detected, it is normal.

## I: 32

Detected when the vehicle speed is out of the system controllable range.
Increase vehicle speed high enough to allow the cruise control to function, and then perform setting operation again.
If cancel code is still detected after setting cruise again, perform the diagnosis for DTC 22.
Refer to DTC 22 for diagnostic procedure.
<Ref. to CC(HEV)(diag)-20, 22, Diagnostic Procedure with Cancel Code.>

## J: 34

The vehicle has been driven at a speed higher than set speed for a long time (approximately 10 minutes) during cruise driving.
Perform the cruise control setting operation again. If the cancel code is not detected, it is normal.

## K: 35

Detected when it is impossible to perform the vehicle speed feedback.
Set vehicle speed cannot be kept for some reasons (steep uphill, unreleased parking brake, etc.) during cruise driving.
Cancel code is detected when driving condition is not suitable for cruise control.
Perform cruise set operation again after clearing the possible cause.

## L: 41

VDC/TCS has operated.
Vehicle dynamics control (VDC) or TCS is operated during cruise driving or cruise setting.
<Ref. to VDC(diag)-2, PROCEDURE, Basic Diagnostic Procedure.>

## M: 43

- The situation that some or all functions for ABS/VDC can not work is detected.

During cruise driving or cruise setting, the situation that some or all functions for ABS/VDC can not work is detected. <Ref. to VDC(diag)-2, PROCEDURE, Basic Diagnostic Procedure.>

- CRUISE indicator does not illuminate even though you pressed the CRUISE switch before starting the engine.

Detected when the CRUISE switch is pressed during the initial diagnosis of ABS/VDC.
It is normal if the CRUISE indicator illuminates when you press the CRUISE switch again after starting the engine and confirming that the initial illumination of the ABS/VDC warning light has been ended.

## N: 44

Body integrated unit malfunction is detected.
Body integrated unit system malfunction is detected during cruise driving or cruise setting.
<Ref. to LAN(HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.>

## O: 45

Combination meter malfunction is detected.
Combination meter malfunction is detected during cruise driving or cruise setting.
<Ref. to LAN(HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.>

## P: 49

Automatic transmission malfunction is detected.
Automatic transmission malfunction is detected during cruise driving or cruise control setting.
<Ref. to CVT(w/o HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.>

## Q: 50

Hybrid system malfunction is detected.
Hybrid system malfunction is detected during cruise driving or cruise setting.
<Ref. to HEV(diag)-2, PROCEDURE, Basic Diagnostic Procedure.>

## R: 61

Malfunction in the stop light & brake switch is detected.
**TROUBLE SYMPTOM:**

- Cruise control cannot be set.
- Cruise control cannot be released.

Refer to DTC 12 for diagnostic procedure.
<Ref. to CC(HEV)(diag)-17, 12, Diagnostic Procedure with Cancel Code.>

## S: 63

Malfunction of vehicle speed signal variation is detected.
**TROUBLE SYMPTOM:**
Cruise control cannot be set. (Cancelled immediately.)
Refer to DTC 22 for diagnostic procedure.
<Ref. to CC(HEV)(diag)-20, 22, Diagnostic Procedure with Cancel Code.>

NOTE:
When the vehicle was suddenly accelerated on low μ road surface while VDC is OFF, this cancel code may be stored. In this case, restart the engine and perform the cruise control setting operation again. If the cancel code is not detected, it is normal.

## T: 64

Malfunction related to engine is detected.
Refer to the Engine Diagnostic Procedure for diagnostic procedure.
<Ref. to EN(H4DO HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.>

## U: 65

Cruise control command switch malfunction is detected.
While the command switch is pressed ON for a long time (approximately two minutes), stuck ON condition is detected.
**TROUBLE SYMPTOM:**
- Cruise control cannot be set. (Cancelled immediately.)
- Cruise control cannot be released.

Refer to DTC 11 for diagnostic procedure.
<Ref. to CC(HEV)(diag)-15, 11, Diagnostic Procedure with Cancel Code.>

# IMMOBILIZER (DIAGNOSTICS)

# IM(diag)


Page

1. Basic Diagnostic Procedure .....2
2. General Description .....4
3. Electrical Component Location .....6
4. Immobilizer Control Module I/O Signal .....7
5. Subaru Select Monitor .....8
6. Read Diagnostic Trouble Code (DTC) .....9
7. Clear Memory Mode .....10
8. Diagnostics Chart for Security Indicator Light .....11
9. List of Diagnostic Trouble Code (DTC) .....14
10. Diagnostic Procedure with Diagnostic Trouble Code (DTC) .....16

# 1. Basic Diagnostic Procedure

## A: PROCEDURE

**CAUTION:**
**• Before performing all diagnostics or cruise control diagnostics, always start the engine and make sure that the initial illumination of the ABS/VDC warning light has been ended. (If you start the diagnostics before performing the above procedures, the cancel code "43" is recorded and CRUISE indicator does not illuminate even though the CRUISE switch is pressed.)**
**• When performing diagnosis, observe the legal speed limit on the road.**
**• The cancel code will be also appear when cruise control is cancelled by the driver's operation. Do not confuse them.**
**• Be sure to get an assistant to support the diagnosis while driving, and have him/her operate the select monitor.**

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK MALFUNCTION INDICATOR LIGHT.**<br>Make sure the malfunction indicator light illuminates. | Does the malfunction indicator light illuminate? | Go to step **5**. | Go to step **2**. |
| 2 | **CHECK CRUISE INDICATOR LIGHT.**<br>Make sure the cruise indicator light blinks. | Does the cruise indicator light blink? | Go to step **7**. | Go to step **3**. |
| 3 | **CHECK CRUISE SWITCH OPERATION.**<br>Check the CRUISE switch operation. (Check the illumination of the CRUISE indicator.) | Is the CRUISE switch turned on? (Does the CRUISE indicator illuminate?) | Go to step **4**. | Go to phenomenon 1. <Ref. to CC(w/o HEV)(diag)-11, DIAGNOSTIC PROCEDURE WITH PHENOMENON, Diagnostics with Phenomenon.> |
| 4 | **CHECK CRUISE CONTROL SET OPERATION.**<br>Check the cruise control setting operation. | Can the cruise control be set while driving at 40 km/h (25 MPH) or more? | Go to step **8**. | Go to step **7**. |
| 5 | **CHECK DTC.**<br>Read all DTCs using the Subaru Select Monitor. | Is an engine or ABS/VDC related DTC displayed? | Record the DTC.<br>Go to step **6**. | Go to phenomenon 2. <Ref. to CC(w/o HEV)(diag)-11, DIAGNOSTIC PROCEDURE WITH PHENOMENON, Diagnostics with Phenomenon.> |
| 6 | **CHECK FREEZE FRAME DATA.**<br>Using the Subaru Select Monitor, check the Freeze Frame Data or Information in Trouble State. | Was the Freeze Frame Data or Information in Trouble State recorded? | Record the data.<br>Perform the diagnosis according to the engine or ABS/VDC related DTC. | Perform the diagnosis according to the engine or ABS/VDC related DTC. |
| 7 | **CHECK CANCEL CODE.**<br>Using the Subaru Select Monitor, read the cancel codes.<br>NOTE:<br>• Do not turn the ignition switch to OFF after the cruise control is deactivated.<br>• Do not operate the cruise control command switch after the cruise control is deactivated.<br>If the above is performed, the cancel code will be cleared. | Is it possible to read the cancel codes? | Perform the diagnosis according to the cancel code. <Ref. to CC(w/o HEV)(diag)-14, LIST, List of Cancel Code.> | Go to step **8**. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 8 | **CHECK SET INDICATOR.**<br>Check the illumination of the SET indicator. | Does the SET indicator illuminate? | Go to step **9**. | Go to phenomenon 3. <Ref. to CC(w/o HEV)(diag)-11, DIAGNOSTIC PROCEDURE WITH PHENOMENON, Diagnostics with Phenomenon.> |
| 9 | **CHECK VEHICLE SPEED IS HELD WITHIN SET SPEED.**<br>Make sure the vehicle speed is held within set speed. | Is the vehicle speed kept within setting speed ±3 km/h (±2 MPH)? (Make sure that on a level road.) | Go to step **10**. | Go to phenomenon 4. <Ref. to CC(w/o HEV)(diag)-11, DIAGNOSTIC PROCEDURE WITH PHENOMENON, Diagnostics with Phenomenon.> |
| 10 | **CHECK RES/+ OPERATION.**<br>Check the RES/+ switch operation. | Does the vehicle speed increase or return to set speed after RES/+ switch has been pressed? | Go to step **11**. | Go to phenomenon 5. <Ref. to CC(w/o HEV)(diag)-11, DIAGNOSTIC PROCEDURE WITH PHENOMENON, Diagnostics with Phenomenon.> |
| 11 | **CHECK SET/– OPERATION.**<br>Check the SET/– switch operation. | Does the vehicle speed decrease after SET/– switch has been pressed? | Go to step **12**. | Go to phenomenon 6. <Ref. to CC(w/o HEV)(diag)-11, DIAGNOSTIC PROCEDURE WITH PHENOMENON, Diagnostics with Phenomenon.> |
| 12 | **CANCEL OPERATION CHECK.**<br>Check the CANCEL switch operation. | Is the cruise control released after CANCEL switch has been pressed? | Go to step **13**. | Go to phenomenon 7. <Ref. to CC(w/o HEV)(diag)-11, DIAGNOSTIC PROCEDURE WITH PHENOMENON, Diagnostics with Phenomenon.> |
| 13 | **CHECK CRUISE CONTROL RELEASE OPERATION.**<br>Check the cruise control release operation. | Is the cruise control released after brake pedal has been depressed? | Go to step **14**. | Go to phenomenon 8. <Ref. to CC(w/o HEV)(diag)-11, DIAGNOSTIC PROCEDURE WITH PHENOMENON, Diagnostics with Phenomenon.> |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 14 | **CHECK CRUISE CONTROL RELEASE OPERATION.**<br>Check the cruise control release operation. | Is the cruise control released after shifting to the neutral position? | Go to step **15**. | Go to phenomenon 9. <Ref. to CC(w/o HEV)(diag)-11, DIAGNOSTIC PROCEDURE WITH PHENOMENON, Diagnostics with Phenomenon.> |
| 15 | **CHECK CRUISE CONTROL RELEASE OPERATION.**<br>Check the cruise control release operation. | Is the cruise control released after depressing the clutch pedal? | Finish the diagnosis. | Go to phenomenon 10. <Ref. to CC(w/o HEV)(diag)-11, DIAGNOSTIC PROCEDURE WITH PHENOMENON, Diagnostics with Phenomenon.> |

# 2. General Description

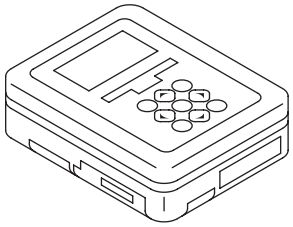
## A: CAUTION

Airbag system wiring harness is routed near the cruise control command switch.

**CAUTION:**
**• Do not use the electrical test equipment on the airbag system wiring harnesses and connector circuits.**
**• Be careful not to damage the airbag system wiring harness when servicing the cruise control command switch. Airbag system wiring harness is routed near the cruise control command switch.**

## B: PREPARATION TOOL

### 1. SPECIAL TOOL

| ILLUSTRATION | TOOL NUMBER | DESCRIPTION | REMARKS |
|---|---|---|---|
|  ST1B022XU0 | 1B022XU0 | SUBARU SELECT MONITOR III KIT | Used for setting of each function and trouble-shooting for electrical system.<br>NOTE:<br>For detailed operation procedures of SUBARU SELECT MONITOR III, refer to “PC application help for Subaru Select Monitor”. |

### 2. GENERAL TOOL

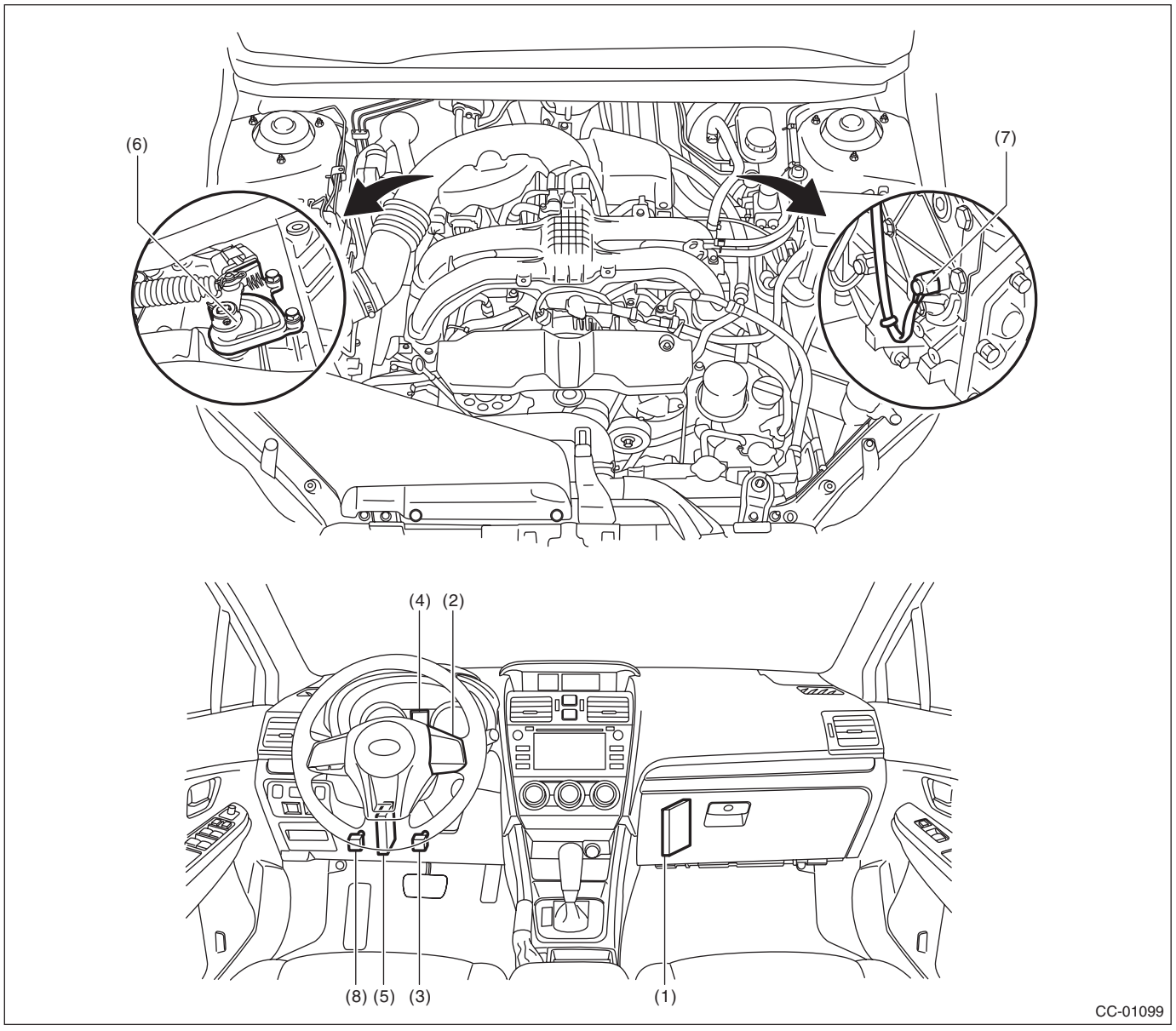
| TOOL NAME | REMARKS |
|---|---|
| Circuit tester | Used for measuring resistance, voltage and current. |

## C: INSPECTION

Check the battery. <Ref. to SC(H4DO(w/o HEV))-53, INSPECTION, Battery.>

# 3. Electrical Component Location

## A: LOCATION




| | | | | | |
|---|---|---|---|---|---|
| (1) | Engine control module (ECM) | (4) | Cruise indicator light and cruise set indicator light | (7) | Neutral position switch (MT model) |
| (2) | Cruise control command switch | (5) | Transmission control module (TCM) (CVT model) | (8) | Clutch switch (MT model) |
| (3) | Stop light and brake switch | (6) | Inhibitor switch (CVT model) | | |

# 4. Engine Control Module (ECM) I/O Signal

## A: ELECTRICAL SPECIFICATION

For details on the input/output signals for the engine control module, refer to ENGINE (DIAGNOSTICS). <Ref. to EN(H4DO w/o HEV)(diag)-19, ELECTRICAL SPECIFICATION, Engine Control Module (ECM) I/O Signal.>

## B: WIRING DIAGRAM

Refer to “Cruise Control System” in the wiring diagram. <Ref. to WI(w/o HEV)-86, WIRING DIAGRAM, Cruise Control System.>

# 5. Subaru Select Monitor

## A: OPERATION

### 1. GENERAL DESCRIPTION

The on-board diagnosis function of the cruise control system uses Subaru Select Monitor.
The on-board diagnosis function operates in two categories, which are used depending on the type of problems;
1) Cruise Control Cancel Conditions Diagnosis:
(1) This category of diagnosis requires actual vehicle driving in order to determine the cause, as when cruise speed is cancelled during driving although cruise cancel condition is not entered.
(2) Cruise control memory in ECM stores the cancel code which occurred during driving. When there are multiple cancel code, they are shown on the Subaru Select Monitor.

**CAUTION:**
**• The cruise control memory stores not only the cruise "cancel" which occurred (although "cancel" operation is not entered by the driver), but also the "cancel" condition input by the driver.**
**• The content of the latest memory (the latest code) is cleared when the ignition switch is turned to OFF. However, memory contents set by the diagnosis of faulty switches related to the system and cruise control will remain as trouble history (memory code) after the ignition switch is turned to OFF.**
2) Real-time Diagnosis:
Real-time diagnosis function is used to determine whether or not the input signal system is in good order, according to signal emitted from switches, sensors, etc.
(1) Vehicle cannot be driven at cruise speed when the problem occurs in the cruise control system or relevant circuits.
(2) Monitor the signal conditions from switches and sensors.

### 2. BASIC OPERATION

For the operation procedure, refer to the "PC application help for Subaru Select Monitor".

# 6. Read Cancel Code

## A: OPERATION

1) On «Main Menu» display, select {Each System Check}.
On «System Selection Menu» display, select {Engine Control System} and select the [OK]. Select [OK] after the engine type information is displayed.
2) Drive vehicle at 40 km/h (25 MPH) or more and set the cruise control.

**CAUTION:**
**• When performing diagnosis, observe the legal speed limit on the road.**
**• The cancel code will be also appear when cruise control is cancelled by the driver's operation. Do not confuse them.**
**• Be sure to get an assistant to support the diagnosis while driving, and have him/her operate the select monitor.**
3) When the set speed is cancelled by itself (without any cancel operations such as applying brake) or when the cruise control could not be set by performing the setting operation, selecting the {Cancel Code(s) Display} on the engine malfunction diagnosis screen will display the cancel code on the select monitor display.

NOTE:
The {Latest Diagnostic Code(s)} and {Memorized Diagnostic Code(s)} are contained in the cancel code. The latest code recognized during current test drive is displayed in {Latest Diagnostic Code(s)}. Cancel codes resulting from fault diagnosis of switches relating to the system and cruise control are also displayed in {Memorized Diagnostic Code(s)}.
4) Perform Engine DTC Clear Memory operation. <Ref. to EN(H4DO w/o HEV)(diag)-65, OPERATION, Clear Memory Mode.>
Cancel codes for switches relating to the system and cruise control are deleted by clearing memory on the engine side.

NOTE:
• The latest code will be cleared by turning ignition switch to OFF.
• For detailed operation procedures, refer to "PC application help for Subaru Select Monitor".
• For details on cancel codes, refer to List of Cancel Code. <Ref. to CC(w/o HEV)(diag)-14, List of Cancel Code.>

# 7. Real-time Diagnosis

## A: OPERATION

1) Select {Current Data Display & Save} in «Engine Diagnosis» display screen.
2) Make sure that normal display is shown when operated as follows:
- Depress and release the brake pedal. (Stop light switch and brake switch are turned ON.)
- Turn the “CRUISE” switch to ON.
- Turn the “CANCEL” switch to ON.
- Turn the “SET/–” switch to ON.
- Turn the “RES/+” switch to ON.
- Depress or release the clutch switch.
- Place the shift lever in any position other than neutral.

NOTE:
For detailed operation procedures, refer to “PC application help for Subaru Select Monitor”.

# 8. Diagnostics with Phenomenon

## A: DIAGNOSTIC PROCEDURE WITH PHENOMENON

| Phenomenon | | Check item | Reference |
|---|---|---|---|
| 1 | CRUISE switch is not turned ON. (CRUISE indicator does not illuminate.) Or the cruise control is cancelled without CRUISE switch operation. | (1) Perform cruise cancel conditions diagnosis. | Perform the diagnosis according to displayed cancel code. |
| | | (2) Perform the real-time diagnosis. | Check the input signal of cruise control system. |
| | | (3) Check the cruise control command switch. | <Ref. to CC(w/o HEV)(diag)-17, 11, Diagnostic Procedure with Cancel Code.> |
| | | (4) Check the CRUISE indicator. | <Ref. to CC(w/o HEV)(diag)-13, CHECK CRUISE INDICATOR LIGHT AND CRUISE SET INDICATOR LIGHT, Diagnostics with Phenomenon.> |
| 2 | Cruise control cannot be set. Or the cruise control is cancelled without canceling operation. | (1) Perform cruise cancel conditions diagnosis. | Perform the diagnosis according to displayed cancel code. |
| | | (2) Perform the real-time diagnosis. | Check the input signal of cruise control system. |
| | | (3) Check the cruise control command switch. | <Ref. to CC(w/o HEV)(diag)-17, 11, Diagnostic Procedure with Cancel Code.> |
| | | (4) Check stop light switch and brake switch. | <Ref. to BR-74, Stop Light Switch.> <Ref. to CC(w/o HEV)(diag)-19, 12, Diagnostic Procedure with Cancel Code.> |
| | | (5) Check clutch switch. | <Ref. to CL-28, Clutch Switch.> <Ref. to CC(w/o HEV)(diag)-21, 13, Diagnostic Procedure with Cancel Code.> |
| | | (6) Check the neutral position switch. | <Ref. to CC(w/o HEV)(diag)-22, 14, Diagnostic Procedure with Cancel Code.> <Ref. to CC(w/o HEV)(diag)-26, 62, Diagnostic Procedure with Cancel Code.> |
| | | (7) Check vehicle speed sensor. | <Ref. to CC(w/o HEV)(diag)-25, 22, Diagnostic Procedure with Cancel Code.> |
| 3 | SET indicator does not illuminate. | Check the SET indicator. | <Ref. to CC(w/o HEV)(diag)-13, CHECK CRUISE INDICATOR LIGHT AND CRUISE SET INDICATOR LIGHT, Diagnostics with Phenomenon.> |
| 4 | Vehicle speed is not held within set speed ±3 km/h (±2 MPH). | Check the vehicle speed sensor. | <Ref. to CC(w/o HEV)(diag)-25, 22, Diagnostic Procedure with Cancel Code.> |
| 5 | Vehicle speed does not increase or does not return to set speed after RES/+ switch has been pressed. | (1) Perform the real-time diagnosis. | Check the input signal of cruise control system. |
| | | (2) Check the RES/+ switch. | <Ref. to CC(w/o HEV)(diag)-17, 11, Diagnostic Procedure with Cancel Code.> |
| 6 | Vehicle speed does not decrease after SET/– switch has been pressed. | (1) Perform the real-time diagnosis. | Check the input signal of cruise control system. |
| | | (2) Check the SET/– switch. | <Ref. to CC(w/o HEV)(diag)-17, 11, Diagnostic Procedure with Cancel Code.> |
| 7 | Cruise control is not released after CANCEL switch has been pressed. | (1) Perform the real-time diagnosis. | Check the input signal of cruise control system. |
| | | (2) Check the CANCEL switch. | <Ref. to CC(w/o HEV)(diag)-17, 11, Diagnostic Procedure with Cancel Code.> |
| 8 | Cruise control is not released after brake pedal has been depressed. | (1) Perform the real-time diagnosis. | Check the input signal of cruise control system. |
| | | (2) Check stop light switch and brake switch. | <Ref. to CC(w/o HEV)(diag)-19, 12, Diagnostic Procedure with Cancel Code.> <Ref. to BR-75, INSTALLATION, Stop Light Switch.> |

| Phenomenon | | Check item | Reference |
|---|---|---|---|
| 9 | Cruise control is not released after shifting to the neutral position. | (1) Perform the real-time diagnosis. | Check the input signal of cruise control system. |
| | | (2) Check the neutral position switch. | <Ref. to CC(w/o HEV)(diag)-22, 14, Diagnostic Procedure with Cancel Code.> <Ref. to CC-13, Neutral Position Switch.> |
| 10 | Cruise control is not released after clutch pedal has been depressed. | (1) Perform the real-time diagnosis. | Check the input signal of cruise control system. |
| | | (2) Check clutch switch. | <Ref. to CC(w/o HEV)(diag)-21, 13, Diagnostic Procedure with Cancel Code.> <Ref. to CL-28, CLUTCH SWITCH, INSTALLATION, Clutch Switch.> |

## B: CHECK CRUISE INDICATOR LIGHT AND CRUISE SET INDICATOR LIGHT

**TROUBLE SYMPTOM:**

Cruise control can be set, but the CRUISE indicator and SET indicator do not illuminate.

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK CRUISE INDICATOR LIGHT AND CRUISE SET INDICATOR LIGHT.**<br>Check the combination meter. <Ref. to IDI-8, OPERATION, Combination Meter System.> | Do the CRUISE & SET indicators illuminate? | Go to step **2**. | Replace the meter case assembly. <Ref. to IDI-20, Combination Meter.> |
| 2 | **CHECK LAN SYSTEM.**<br>Perform the diagnosis for LAN system. <Ref. to LAN(w/o HEV)(diag)-2, Basic Diagnostic Procedure.> | Is a DTC of the LAN system detected? | Perform the diagnosis according to DTC for LAN system. | Replace the ECM. <Ref. to FU(H4DO(w/o HEV))-100, Engine Control Module (ECM).> |

# 9. List of Cancel Code

## A: LIST

NOTE:
- The cancel code is registered even when cancel is performed intentionally by the driver.
- Cancel codes are cleared if the ignition switch is turned to OFF.
- If a different cancel code is input after a cancel code (latest code) has been input, the latest code is overwritten.
- If the cruise indicator light is flashing, a malfunction is occurring in the system or cruise control related switch. The cancel code at this time is saved even after ignition switch is OFF as a memory code of a past malfunction.
- To display a cancel code, use the Subaru Select Monitor to read the code after the cruise control is deactivated during a driving test.

| Cancel code | Item | Contents of diagnosis | Note |
|---|---|---|---|
| 11 | Main switch | CRUISE switch of cruise control command switch is turned to OFF, and then the cruise control is released. | This code is displayed without operating the CRUISE switch. <Ref. to CC(w/o HEV)(diag)-17, 11, Diagnostic Procedure with Cancel Code.> |
| 12 | Stop & brake switch | Stop light switch or brake switch is turned to ON, and then the cruise control is released. | This code is displayed without depressing the brake pedal. <Ref. to CC(w/o HEV)(diag)-19, 12, Diagnostic Procedure with Cancel Code.> |
| 13 | Clutch switch | Clutch switch is turned to ON, and then the cruise control is released. | This code is displayed without depressing the clutch pedal. <Ref. to CC(w/o HEV)(diag)-21, 13, Diagnostic Procedure with Cancel Code.> |
| 14 | Neutral switch | Neutral position switch is turned to ON, and then the cruise control is released. | This code is displayed without shifting to neutral position. <Ref. to CC(w/o HEV)(diag)-22, 14, Diagnostic Procedure with Cancel Code.> |
| 15 | Cancel switch | Cancel switch is turned to ON, and then the cruise control is released. | This code is displayed without operating the cancel switch. <Ref. to CC(w/o HEV)(diag)-23, 15, Diagnostic Procedure with Cancel Code.> |
| 16 | Ignition switch | Ignition switch is turned to OFF, and then the cruise control is released. | This code is displayed without operating the ignition switch. <Ref. to CC(w/o HEV)(diag)-24, 16, Diagnostic Procedure with Cancel Code.> |
| 21 | Cruise control switch malfunction when the ignition switch is ON | When the ignition switch is turned to ON, each switch of cruise control command switch is already turned to ON. | This code is displayed when the ignition switch is turned to ON without operating the cruise control command switch. <Ref. to CC(w/o HEV)(diag)-24, 21, Diagnostic Procedure with Cancel Code.> |
| 22 | Abnormality of change in vehicle speed | Malfunction of vehicle speed signal variation is detected. | <Ref. to CC(w/o HEV)(diag)-25, 22, Diagnostic Procedure with Cancel Code.> |

# List of Cancel Code

| Cancel code | Item | Contents of diagnosis | Note |
|---|---|---|---|
| 24 | Abnormality of switches related to cruise control | Open circuit of the cruise control switch is detected during cruise driving. (The system is judged as model without cruise control.) | This code is displayed with normal operation. <Ref. to CC(w/o HEV)(diag)-25, 24, Diagnostic Procedure with Cancel Code.> |
| 31 | Abnormal engine speed Signal | • Abnormal increase of engine speed is detected.<br>• Gear is placed in Neutral, 1st (MT model only) or Reverse position. | Cruise in 2nd shift position or more. <Ref. to CC(w/o HEV)(diag)-25, 31, Diagnostic Procedure with Cancel Code.> |
| 32 | Cruse Control out of Range | • Controlled vehicle speed decreased under the limit during cruising.<br>• Set operation was performed at vehicle speed unavailable for setting.<br>• RESUME operation was performed without memorized vehicle speed. | This code is displayed, though the vehicle speed is increased to the speed available for cruise set and set operation was performed again. <Ref. to CC(w/o HEV)(diag)-25, 32, Diagnostic Procedure with Cancel Code.> |
| 34 | Prohibition of cruise control at continuing big Accel. angle | The vehicle has been driven at higher speed than set vehicle speed for an abnormally long time (approximately 10 minutes) during cruise driving. | This code is displayed when driving for a long period of time at higher speed than appropriate cruise set vehicle speed by operating accelerator pedal. In this case, the cruise setting is deactivated. <Ref. to CC(w/o HEV)(diag)-25, 34, Diagnostic Procedure with Cancel Code.> |
| 35 | Prohibition of cruise control at vehicle speed F/B malfunction | Set vehicle speed cannot be kept because of some reasons (steep uphill, parking brake, abnormal decrease of engine output, etc.) during cruise driving. | This code is displayed when driving condition is not suitable for cruise control. Perform cruise set operation again after clearing the possible cause. <Ref. to CC(w/o HEV)(diag)-26, 35, Diagnostic Procedure with Cancel Code.> |
| 41 | VDC/TCS/EPB Operating | Vehicle dynamics control (VDC), TCS or EPB is operated during cruise driving or cruise setting. | This code is displayed when driving condition is not suitable for cruise control. Perform cruise set operation again after clearing the possible cause. <Ref. to CC(w/o HEV)(diag)-26, 41, Diagnostic Procedure with Cancel Code.> |
| 43 | ABS/VDC Failure | • During cruise driving or cruise setting, the situation that some or all functions for ABS or VDC can not work is detected.<br>• CRUISE indicator does not illuminate even though you pressed the CRUISE switch before starting the engine. | <Ref. to CC(w/o HEV)(diag)-26, 43, Diagnostic Procedure with Cancel Code.> |
| 44 | Body Integrated unit Failure | Body integrated unit system malfunction is detected during cruise driving or cruise setting. | <Ref. to CC(w/o HEV)(diag)-26, 44, Diagnostic Procedure with Cancel Code.> |
| 45 | Meter Failure | Combination meter malfunction is detected during cruise driving or cruise setting. | <Ref. to CC(w/o HEV)(diag)-26, 45, Diagnostic Procedure with Cancel Code.> |
| 49 | TCM Failure | Transmission control module (TCM) malfunction is detected during cruise driving or cruise setting. | <Ref. to CC(w/o HEV)(diag)-26, 49, Diagnostic Procedure with Cancel Code.> |
| 61 | Brake switch abnormal | Malfunction in the stop light & brake switch is detected. | <Ref. to CC(w/o HEV)(diag)-26, 61, Diagnostic Procedure with Cancel Code.> |

# List of Cancel Code



| Cancel code | Item | Contents of diagnosis | Note |
|---|---|---|---|
| 62 | Neutral switch abnormal | Neutral position switch malfunction is detected. | <Ref. to CC(w/o HEV)(diag)-26, 62, Diagnostic Procedure with Cancel Code.> |
| 63 | Abnormality 1 of change in vehicle speed | Malfunction of vehicle speed signal variation is detected. | <Ref. to CC(w/o HEV)(diag)-27, 63, Diagnostic Procedure with Cancel Code.> |
| 64 | Engine Sensor Failure 1 | Malfunction related to engine is detected. | <Ref. to CC(w/o HEV)(diag)-27, 64, Diagnostic Procedure with Cancel Code.> |
| 65 | Abnormality of switches related to cruise control 1 | Cruise control command switch malfunction is detected. (When the switch is pressed ON for a long time (approximately two minutes), stuck ON condition is detected.) | <Ref. to CC(w/o HEV)(diag)-27, 65, Diagnostic Procedure with Cancel Code.> |
| 66 | Cruise Control Calculation Error | Cruise control calculation (microcomputer) malfunction is detected. | <Ref. to CC(w/o HEV)(diag)-27, 66, Diagnostic Procedure with Cancel Code.> |

# 10.Diagnostic Procedure with Cancel Code

## A: 11

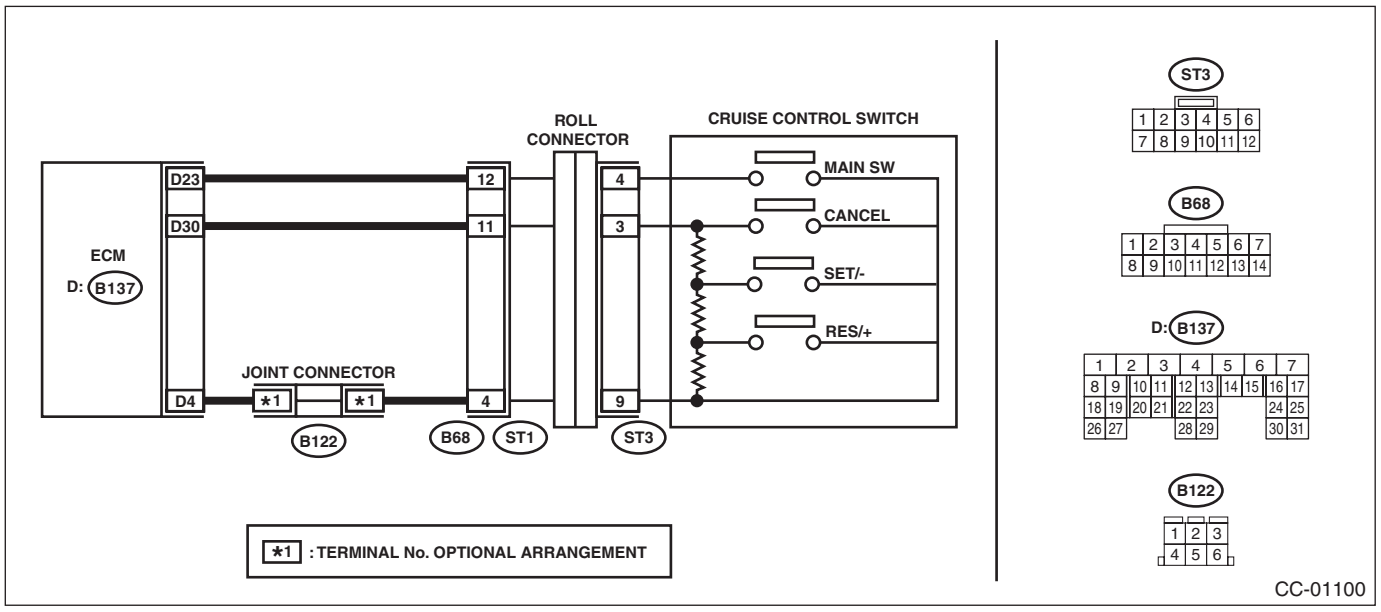
When CRUISE switch is pressed, or a malfunction related to CRUISE switch occurs, this is detected.

**TROUBLE SYMPTOM:**

- Cruise control cannot be set. (Cancelled immediately.)
- Cruise control cannot be released.

**WIRING DIAGRAM:**

Cruise control system <Ref. to WI(w/o HEV)-86, WIRING DIAGRAM, Cruise Control System.>




| Step | | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK CRUISE CONTROL COMMAND SWITCH CIRCUIT.**<br>1) Remove the driver's airbag module. <Ref. to AB-32, REMOVAL, Driver's Airbag Module.><br>2) Disconnect the harness connector of cruise control command switch.<br>3) Turn the ignition switch to ON.<br>4) Measure the voltage between harness connector terminal and chassis ground.<br>***Connector & terminal***<br>***(ST3) No. 4 (+) — Chassis ground (–):***<br>***(ST3) No. 3 (+) — Chassis ground (–):*** | Is the voltage 5 V or more? | Go to step **2**. | Check the harness between cruise control command switch and ECM, and the steering roll connector for open or short circuit, or for poor contact. |
| 2 | **CHECK CRUISE CONTROL COMMAND SWITCH CIRCUIT.**<br>1) Turn the ignition switch to OFF.<br>2) Remove the cruise control command switch. <Ref. to CC-6, REMOVAL, Cruise Control Command Switch.><br>3) Measure the resistance between harness connector terminal and chassis ground.<br>***Connector & terminal***<br>***(ST3) No. 9 — Chassis ground:*** | Is the resistance less than 10 Ω? | Go to step **3**. | Check for open circuit between cruise control command switch, ECM, and chassis ground and check the ECM. |
| 3 | **CHECK CRUISE CONTROL COMMAND SWITCH.**<br>Measure the resistance between switch terminals when the cruise control command switch is not depressed.<br>***Terminals***<br>***No. 3 — No. 9:*** | Is the resistance approx. 4 kΩ? | Go to step **4**. | Replace the cruise control command switch.<br><Ref. to CC-6, Cruise Control Command Switch.> |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 4 | **CHECK CANCEL SWITCH.**<br>1) Turn the ignition switch to OFF.<br>2) Remove the cruise control command switch. <Ref. to CC-6, REMOVAL, Cruise Control Command Switch.><br>3) Measure the resistance between switch terminals with the CANCEL switch pressed.<br>***Terminals***<br>***No. 3 — No. 9:*** | Is the resistance approx. less than 1 Ω when the CANCEL switch is pressed? | Go to step **5**. | Replace the cruise control command switch. <Ref. to CC-6, Cruise Control Command Switch.> |
| 5 | **CHECK SET/– SWITCH.**<br>Measure the resistance between the switch terminals with the SET/– switch pressed.<br>***Terminals***<br>***No. 3 — No. 9:*** | Is the resistance approx. 250 Ω when the SET/– switch is pressed? | Go to step **6**. | Replace the cruise control command switch. <Ref. to CC-6, Cruise Control Command Switch.> |
| 6 | **CHECK RES/+ SWITCH.**<br>Measure the resistance between the switch terminals with the RES/+ switch pressed.<br>***Terminals***<br>***No. 3 — No. 9:*** | Is the resistance approx. 1,500 Ω when the RES/+ switch is pressed? | Replace the ECM. <Ref. to FU(H4DO(w/o HEV))-100, Engine Control Module (ECM).> | Replace the cruise control command switch. <Ref. to CC-6, Cruise Control Command Switch.> |

## B: 12

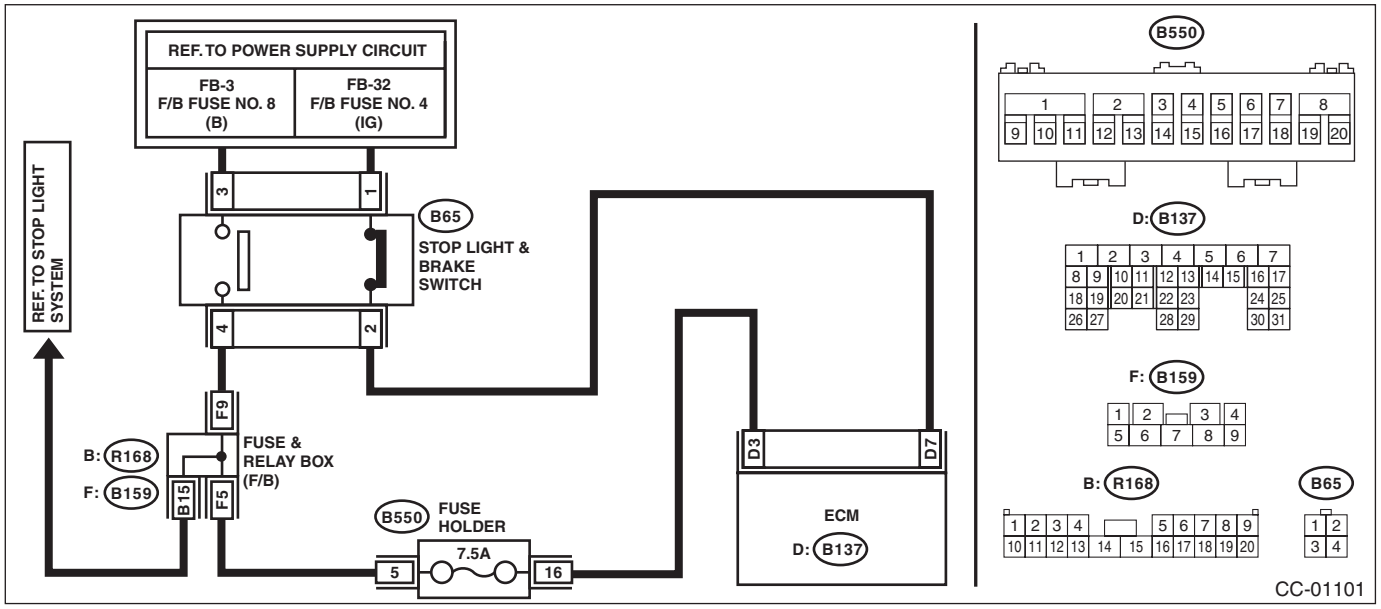
Detected when brake pedal is depressed or malfunction related to stop light & brake switch occurs.

**TROUBLE SYMPTOM:**

- Cruise control cannot be set.
- Cruise control cannot be released.

**WIRING DIAGRAM:**

Cruise control system <Ref. to WI(w/o HEV)-86, WIRING DIAGRAM, Cruise Control System.>




| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK STOP LIGHT & BRAKE SWITCH.**<br>Check the stop light & brake switch. <Ref. to CC-9, Stop Light & Brake Switch.> | Is the stop light & brake switch and installation position OK? | Go to step **2**. | Replace the stop light & brake switch. Or adjust the installation position. |
| 2 | **CHECK STOP LIGHT & BRAKE SWITCH CIRCUIT.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the stop light & brake switch harness connector.<br>3) Turn the ignition switch to ON.<br>4) Measure the voltage between harness connector terminal and chassis ground.<br>***Connector & terminal***<br>***(B65) No. 3 (+) — Chassis ground (–):*** | Is the voltage 10 V or more? | Go to step **3**. | • Check fuse No. 8 (in fuse & relay box).<br>• Check for open or short in the harness between stop light & brake switch and fuse & relay box. |
| 3 | **CHECK STOP LIGHT & BRAKE SWITCH CIRCUIT.**<br>Measure the voltage between harness connector terminal and chassis ground.<br>***Connector & terminal***<br>***(B65) No. 1 (+) — Chassis ground (–):*** | Is the voltage 10 V or more? | Go to step **4**. | • Check fuse No. 4 (in fuse & relay box).<br>• Check for open or short in the harness between stop light & brake switch and fuse & relay box. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 4 | **CHECK STOP LIGHT & BRAKE SWITCH CIRCUIT.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the harness connector of ECM.<br>3) Measure the resistance between ECM harness connector terminal and stop light & brake switch harness connector terminal.<br>***Connector & terminal***<br>***(B137) No. 3 — (B65) No. 4:***<br>***(B137) No. 7 — (B65) No. 2:*** | Is the resistance less than 10 Ω? | Replace the ECM. <Ref. to FU(H4DO(w/o HEV))-100, Engine Control Module (ECM).> | Repair the harness. |

## C: 13

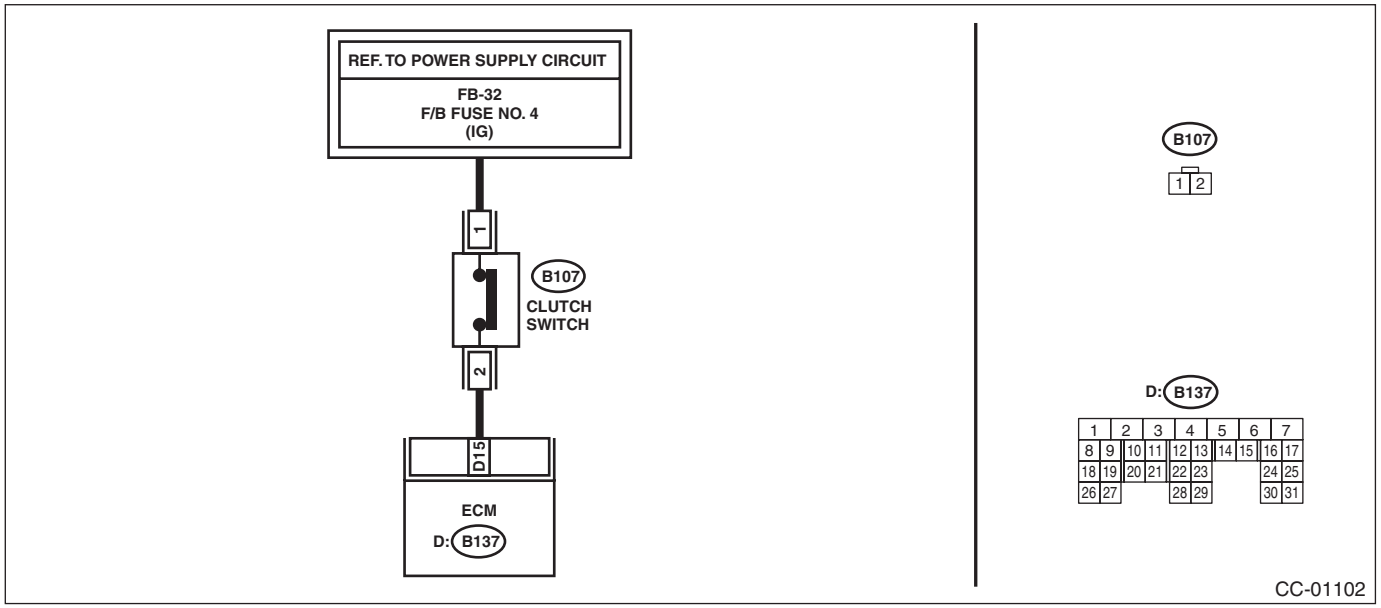
Detected when clutch pedal is depressed or malfunction related to clutch switch occurs.

**TROUBLE SYMPTOM:**

- Cruise control cannot be set.
- Cruise control cannot be released.

**WIRING DIAGRAM:**

Cruise control system <Ref. to WI(w/o HEV)-86, WIRING DIAGRAM, Cruise Control System.>




| Step | | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK CLUTCH SWITCH.**<br>Check the clutch switch. <Ref. to CC-10, Clutch Switch.> | Is the clutch switch and installation position OK? | Go to step **2**. | Replace the clutch switch. Or adjust the installation position. |
| 2 | **CHECK CLUTCH SWITCH CIRCUIT.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the clutch switch harness connector.<br>3) Turn the ignition switch to ON.<br>4) Measure the voltage between harness connector terminal and chassis ground.<br>***Connector & terminal***<br>***(B107) No. 1 (+) — Chassis ground (–):*** | Is the voltage 10 V or more? | Go to step **3**. | • Check fuse No. 4 (in fuse & relay box).<br>• Check open or shorted circuit of harness between clutch switch and fuse & relay box. |
| 3 | **CHECK CLUTCH SWITCH CIRCUIT.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the harness connector of ECM.<br>3) Measure the resistance between clutch switch harness connector terminal and ECM harness connector terminal.<br>***Connector & terminal***<br>***(B107) No. 2 — (B137) No. 15:*** | Is the resistance less than 10 Ω? | Replace the ECM. <Ref. to FU(H4DO(w/o HEV))-100, Engine Control Module (ECM).> | Repair the harness. |

## D: 14

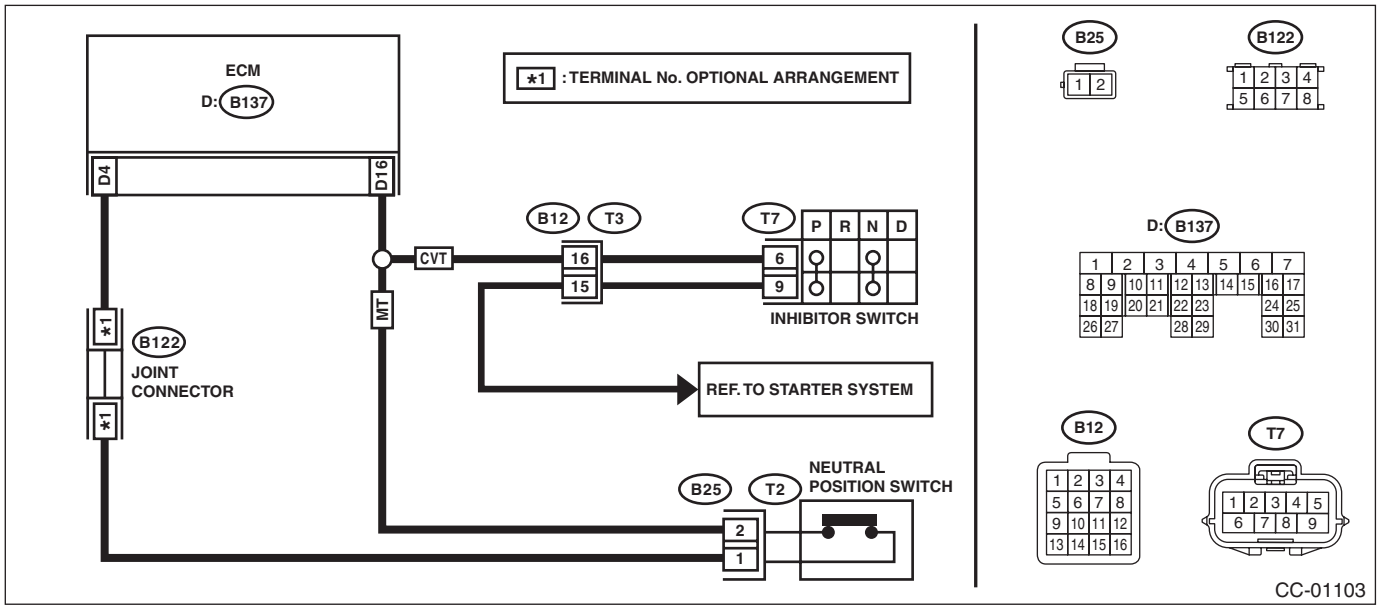
Detected when select lever is set in the neutral position, or when malfunction related to neutral position switch occurs.

**TROUBLE SYMPTOM:**

Cruise control cannot be set.

**WIRING DIAGRAM:**

Cruise control system <Ref. to WI(w/o HEV)-86, WIRING DIAGRAM, Cruise Control System.>




| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK TRANSMISSION TYPE.** | Is the transmission type CVT? | Go to step **2**. | Go to step **5**. (MT model) |
| 2 | **CHECK INHIBITOR SWITCH CIRCUIT.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the inhibitor switch harness connector.<br>3) Turn the ignition switch to ON.<br>4) Measure the voltage between harness connector terminal and chassis ground.<br>***Connector & terminal***<br>***(T7) No. 6 (+) — Chassis ground (–):*** | Is the voltage 10 V or more? | Go to step **3**. | Check for open or short in the harness between inhibitor switch and ECM. |
| 3 | **CHECK INHIBITOR SWITCH CIRCUIT.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the starter motor harness connector.<br>3) Measure the resistance between inhibitor switch harness connector terminal and starter motor.<br>***Connector & terminal***<br>***(T7) No. 9 — Starter motor:*** | Is the resistance less than 10 Ω? | Go to step **4**. | Repair the harness. |
| 4 | **CHECK INHIBITOR SWITCH.**<br>Remove and check the inhibitor switch. <Ref. to CC-11, Inhibitor Switch.> | Is the inhibitor switch working normal? | Replace the ECM. <Ref. to FU(H4DO(w/o HEV))-100, Engine Control Module (ECM).> | Replace the inhibitor switch. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 5 | **CHECK NEUTRAL POSITION SWITCH CIRCUIT.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the neutral position switch harness connector.<br>3) Turn the ignition switch to ON.<br>4) Measure the voltage between harness connector terminal and chassis ground.<br>***Connector & terminal***<br>***(B25) No. 2 (+) — Chassis ground (–):*** | Is the voltage 10 V or more? | Go to step **6**. | Check for open or short in the harness between neutral position switch and ECM. |
| 6 | **CHECK NEUTRAL POSITION SWITCH CIRCUIT.**<br>1) Turn the ignition switch to OFF.<br>2) Measure resistance between harness connector terminal of neutral position switch and chassis ground.<br>***Connector & terminal***<br>***(B25) No. 1 — Chassis ground:*** | Is the resistance less than 10 Ω? | Go to step **7**. | Repair the harness. |
| 7 | **CHECK NEUTRAL POSITION SWITCH.**<br>Remove and check the neutral position switch. <Ref. to CC-13, Neutral Position Switch.> | Is the neutral position switch OK? | Replace the ECM. <Ref. to FU(H4DO(w/o HEV))-100, Engine Control Module (ECM).> | Replace the neutral position switch. |

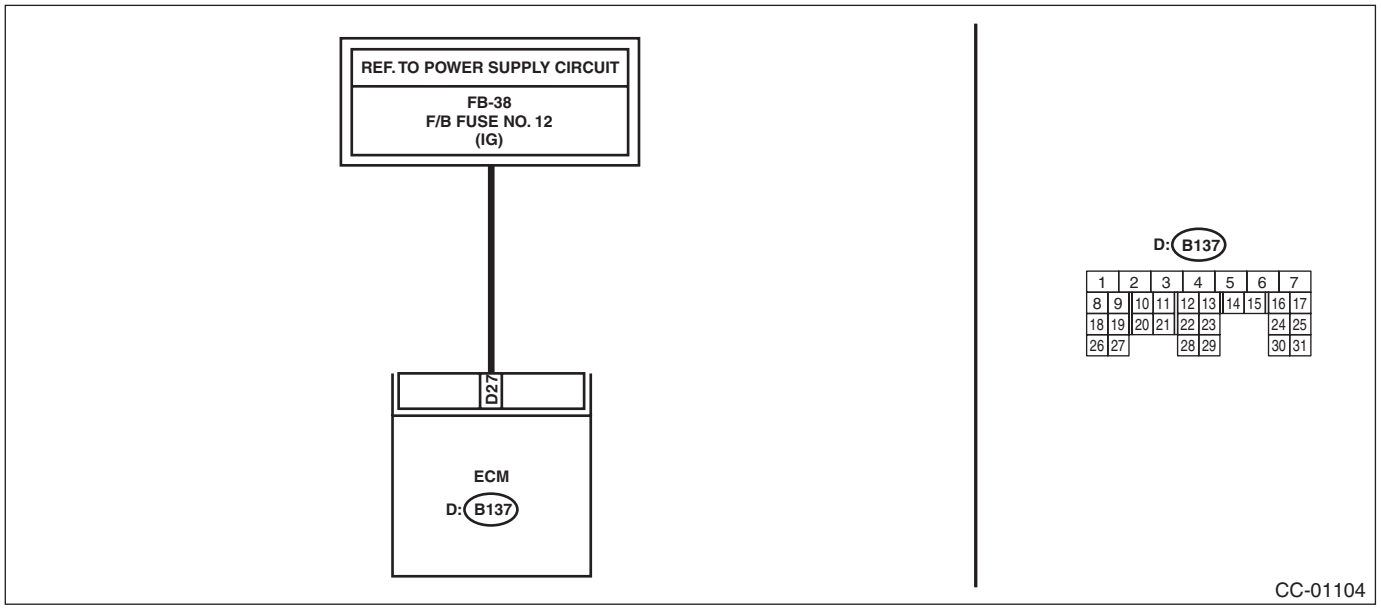
## E: 15

Detected when CANCEL switch is pressed or malfunction related to CRUISE switch occurs.
**TROUBLE SYMPTOM:**
- Cruise control cannot be set. (Cancelled immediately.)
- Cruise control cannot be released.

Refer to DTC 11 for diagnostic procedure.
<Ref. to CC(w/o HEV)(diag)-17, 11, Diagnostic Procedure with Cancel Code.>

## F: 16

Detected when ignition switch is turned to OFF or malfunction related to the ignition switch occurs.
**TROUBLE SYMPTOM:**
Cruise control cannot be set.
**WIRING DIAGRAM:**
Cruise control system <Ref. to WI(w/o HEV)-86, WIRING DIAGRAM, Cruise Control System.>




| Step | | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK IGNITION SWITCH CIRCUIT.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the ECM harness connector.<br>3) Turn the ignition switch to ON.<br>4) Measure the voltage between harness connector terminal and chassis ground.<br>***Connector & terminal***<br>***(B137) No. 27 (+) — Chassis ground (–):*** | Is the voltage 10 V or more? | Check for poor contact of ECM connector. | • Check fuse No. 12 (in fuse & relay box).<br>• Check the harness for open or short circuit between ignition switch and ECM. |

## G: 21

Cruise control command switch malfunction is detected.
**TROUBLE SYMPTOM:**
- Cruise control cannot be set. (Cancelled immediately.)
- Cruise control cannot be released.

Refer to DTC 11 for diagnostic procedure.
<Ref. to CC(w/o HEV)(diag)-17, 11, Diagnostic Procedure with Cancel Code.>

## H: 22

Malfunction related to vehicle speed sensor is detected.
**DIAGNOSIS:**
Open or shorted circuit in vehicle speed sensor system.
**TROUBLE SYMPTOM:**
Cruise control cannot be set. (Cancelled immediately.)

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK ABS OR VDC WARNING LIGHT.**<br>1) Turn the ignition switch to ON.<br>2) After the initial operation of combination meter is completed, check if ABS or VDC warning light continues to illuminate. | Does the warning light continue to illuminate? | Check the VDCCM. <Ref. to VDC(diag)-2, Basic Diagnostic Procedure.> | Go to step **2**. |
| 2 | **CHECK DTC OF LAN COMMUNICATION CIRCUIT.**<br>Read the DTC of body integrated unit using Subaru Select Monitor. | Is DTC displayed? | Perform inspection according to DTC. | Replace the ECM. <Ref. to FU(H4DO(w/o HEV))-100, Engine Control Module (ECM).> |

## I: 24

Malfunction in cruise control-related switch is detected.
**TROUBLE SYMPTOM:**
- Cruise control cannot be set. (Cancelled immediately.)
- Cruise control cannot be released.

Refer to DTC 11 for diagnostic procedure.
<Ref. to CC(w/o HEV)(diag)-17, 11, Diagnostic Procedure with Cancel Code.>

## J: 31

Engine speed signal malfunction is detected.
Abnormal increase of engine speed is detected.
Gear is placed in 1st or Reverse position.
After driving at the 2nd gear position or higher, perform the cruise setting again. If a cancel code is not detected, it is normal.

## K: 32

This DTC is detected out of vehicle speed range.
Increase vehicle speed high enough to allow the cruise control to function, and then perform setting operation again.
If cancel code is still detected after setting cruise again, perform the diagnosis for DTC 22.
Refer to DTC 22 for diagnostic procedure.
<Ref. to CC(w/o HEV)(diag)-25, 22, Diagnostic Procedure with Cancel Code.>

## L: 34

The vehicle has been driven at a speed higher than set speed for a long time (approximately 10 minutes) during cruise driving.
This cancel code is detected when driving for a long period of time at a speed higher than appropriate for cruise control setting by operating the accelerator pedal.
Perform the cruise control setting operation again. If the cancel code is not detected, it is normal.

## M: 35

Detected when it is impossible to perform the vehicle speed feedback.
Set vehicle speed cannot be kept for some reasons (steep uphill, unreleased parking brake, etc.) during cruise driving.
Cancel code is detected when driving conditions are not suitable for cruise control.
Perform cruise set operation again after clearing the possible cause.

## N: 41

VDC/TCS/EPB is operated.
Vehicle dynamics control (VDC) or TCS/EPB is operated during cruise driving or cruise setting.
<Ref. to VDC(diag)-2, PROCEDURE, Basic Diagnostic Procedure.>

## O: 43

- The situation that some or all functions for ABS/VDC can not work is detected.

During cruise driving or cruise setting, the situation that some or all functions for ABS/VDC can not work is detected.
<Ref. to VDC(diag)-2, PROCEDURE, Basic Diagnostic Procedure.>

- CRUISE indicator does not illuminate even though you pressed the CRUISE switch before starting the engine.

Detected when the CRUISE switch is pressed during the initial diagnosis of ABS/VDC. It is normal if the CRUISE indicator illuminates when you press the CRUISE switch again after starting the engine and confirming that the initial illumination of the ABS/VDC warning light has been ended.

## P: 44

Body integrated unit malfunction is detected.
Body integrated unit system malfunction is detected during cruise driving or cruise setting.
<Ref. to LAN(w/o HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.>

## Q: 45

Malfunction of the combination meter is detected.
Combination meter malfunction is detected during cruise driving or cruise setting.
<Ref. to LAN(w/o HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.>

## R: 49

Automatic transmission malfunction is detected.
Automatic transmission malfunction is detected during cruise driving or cruise control setting.
<Ref. to CVT(w/o HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.>

## S: 61

Malfunction in the stop light & brake switch is detected.
**TROUBLE SYMPTOM:**

- Cruise control cannot be set.
- Cruise control cannot be released.

Refer to DTC 12 for diagnostic procedure.
<Ref. to CC(w/o HEV)(diag)-19, 12, Diagnostic Procedure with Cancel Code.>

## T: 62

Neutral position switch malfunction is detected.
**TROUBLE SYMPTOM:**
Cruise control cannot be set.
Refer to DTC 14 for diagnostic procedure.
<Ref. to CC(w/o HEV)(diag)-22, 14, Diagnostic Procedure with Cancel Code.>

## U: 63

Malfunction of vehicle speed signal variation is detected.
**TROUBLE SYMPTOM:**
Cruise control cannot be set. (Cancelled immediately.)
Refer to DTC 22 for diagnostic procedure.
<Ref. to CC(w/o HEV)(diag)-25, 22, Diagnostic Procedure with Cancel Code.>

NOTE:
When the vehicle was suddenly accelerated on low μ road surface while VDC is OFF, this cancel code may be stored. In this case, restart the engine and perform the cruise control setting operation again. If the cancel code is not detected, it is normal.

## V: 64

Malfunction related to engine is detected.
Refer to the Engine Diagnostic Procedure for diagnostic procedure.
<Ref. to EN(H4DO w/o HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.>

## W: 65

Cruise control command switch malfunction is detected.
While the command switch is pressed ON for a long time (approximately two minutes), stuck ON condition is detected.
**TROUBLE SYMPTOM:**
- Cruise control cannot be set. (Cancelled immediately.)
- Cruise control cannot be released.

Refer to DTC 11 for diagnostic procedure.
<Ref. to CC(w/o HEV)(diag)-17, 11, Diagnostic Procedure with Cancel Code.>

## X: 66

Cruise control calculation malfunction is detected.
Refer to the Engine Diagnostic Procedure for diagnostic procedure.
<Ref. to EN(H4DO w/o HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.>

# CRUISE CONTROL SYSTEM (DIAGNOSTICS)

# CC(HEV)(diag)


| | | Page |
|---|---|---|
| 1. | Basic Diagnostic Procedure | 2 |
| 2. | General Description | 5 |
| 3. | Electrical Component Location | 6 |
| 4. | Control Module I/O Signal | 7 |
| 5. | Subaru Select Monitor | 8 |
| 6. | Read Cancel Code | 9 |
| 7. | Real-time Diagnosis | 10 |
| 8. | Diagnostics with Phenomenon | 11 |
| 9. | List of Cancel Code | 13 |
| 10. | Diagnostic Procedure with Cancel Code | 15 |

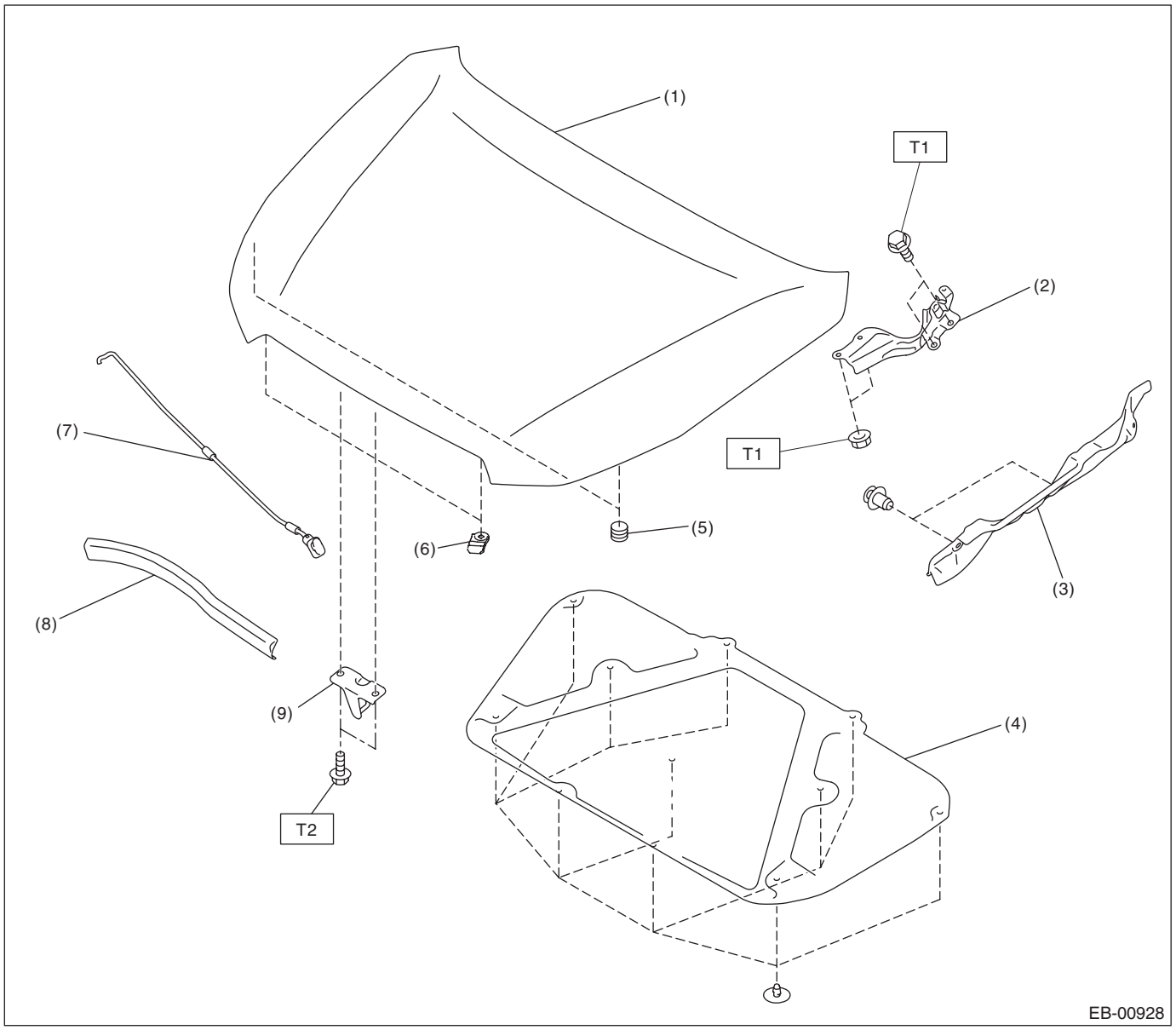
# 1. General Description

## A: SPECIFICATION

Refer to Body Repair Manual for the dimensions of the body.

## B: COMPONENT

### 1. FRONT HOOD

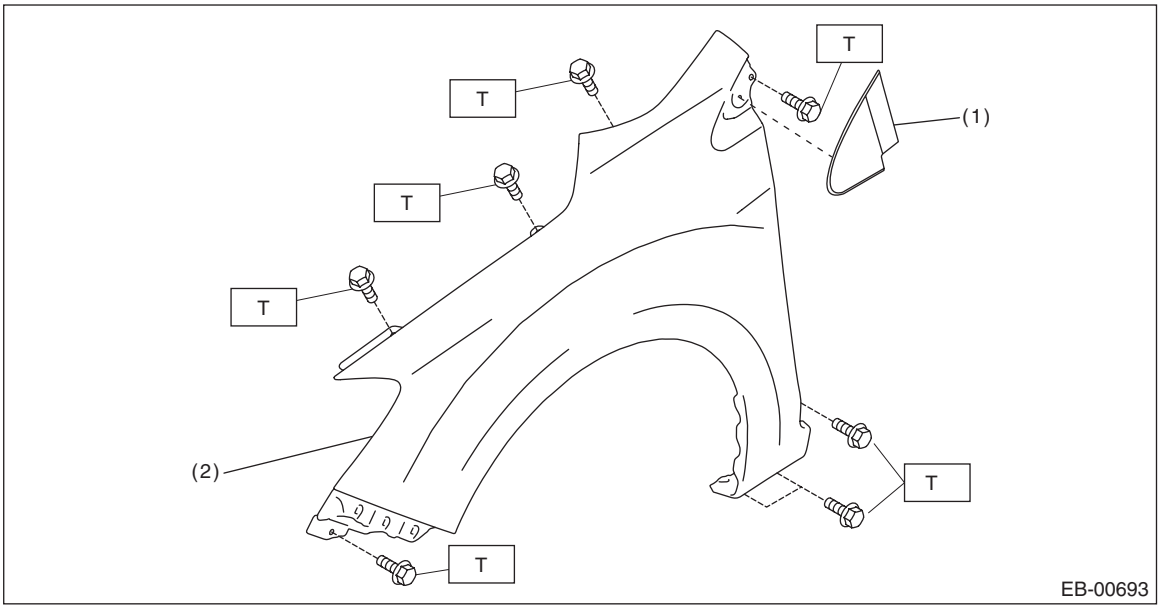



(1) Hood COMPL - front
(2) Hinge COMPL - front hood
(3) Cover - front fender
(4) Insulator - front hood
(5) Buffer - front hood
(6) Stopper - front hood
(7) Stay - hood support
(8) Seal - front duct
(9) Striker - front hood

***Tightening torque: N·m (kgf-m, ft-lb)***
***T1: 25 (2.55, 18.4)***
***T2: 33 (3.36, 24.5)***

## 2. FRONT FENDER

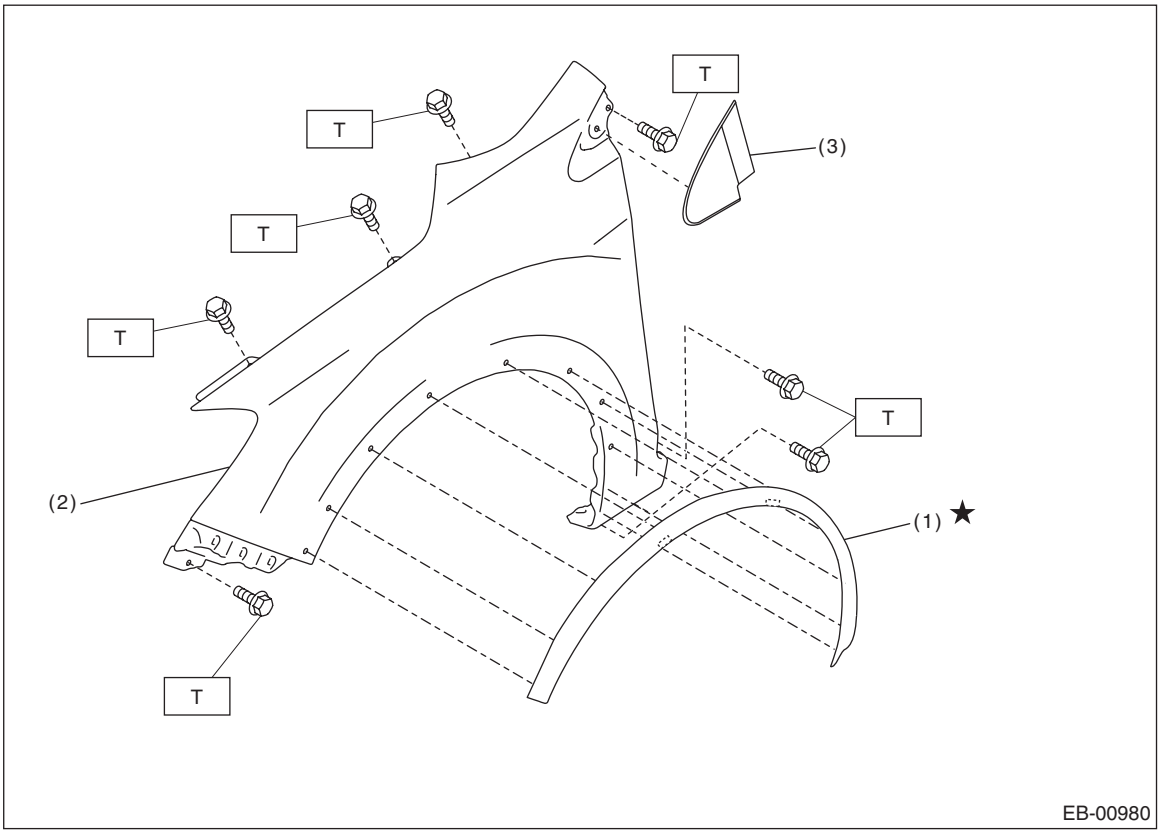
- Except for XV model




(1) Cover - front pillar ASSY
(2) Fender COMPL - front

***Tightening torque: N·m (kgf-m, ft-lb)***
***T: 7.5 (0.76, 5.5)***

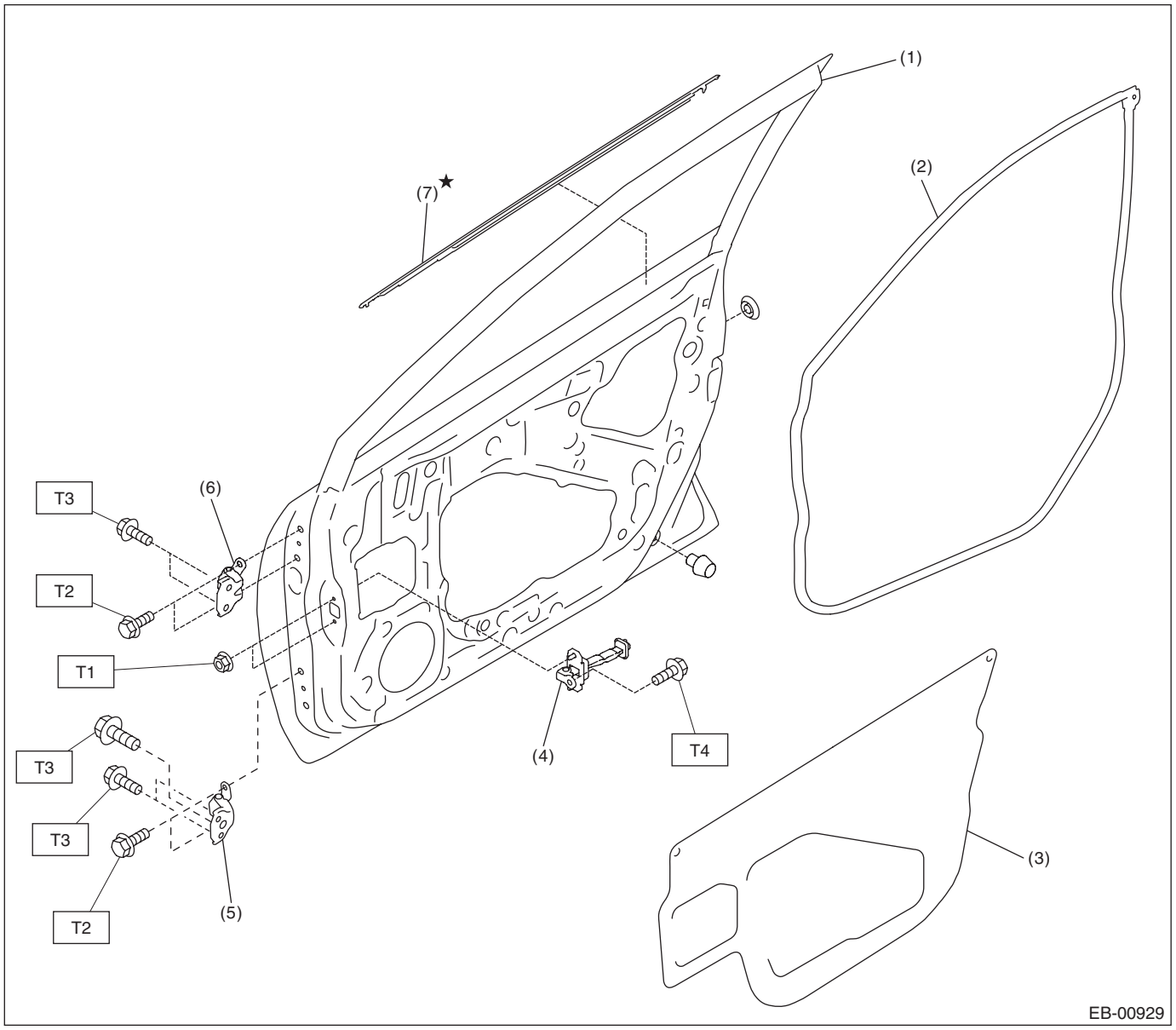
- XV model




(1) Garnish ASSY - front fender
(2) Fender COMPL - front
(3) Cover - front pillar ASSY

***Tightening torque: N·m (kgf-m, ft-lb)***
***T: 7.5 (0.76, 5.5)***

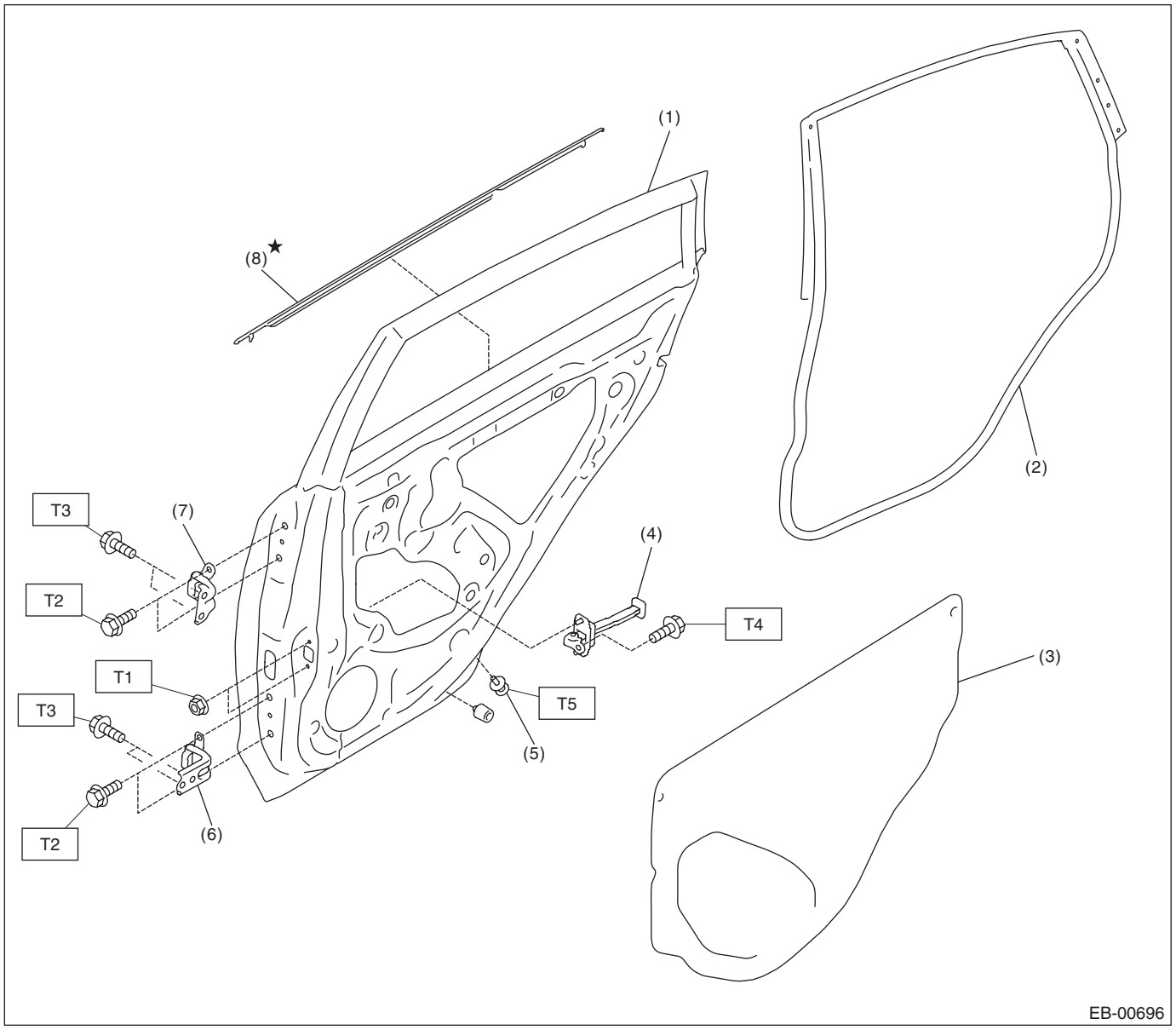
## 3. FRONT DOOR




(1) Panel ASSY - front door
(2) Weather strip - front door
(3) Sealing cover - front door
(4) Checker ASSY - front door
(5) Lower hinge - front door
(6) Upper hinge - front door
(7) Weather strip outer - front door

***Tightening torque: N·m (kgf-m, ft-lb)***
***T1: 7.5 (0.76, 5.5)***
***T2: 25 (2.55, 18.4)***
***T3: 30 (3.06, 22.1)***
***T4: 33 (3.36, 24.3)***

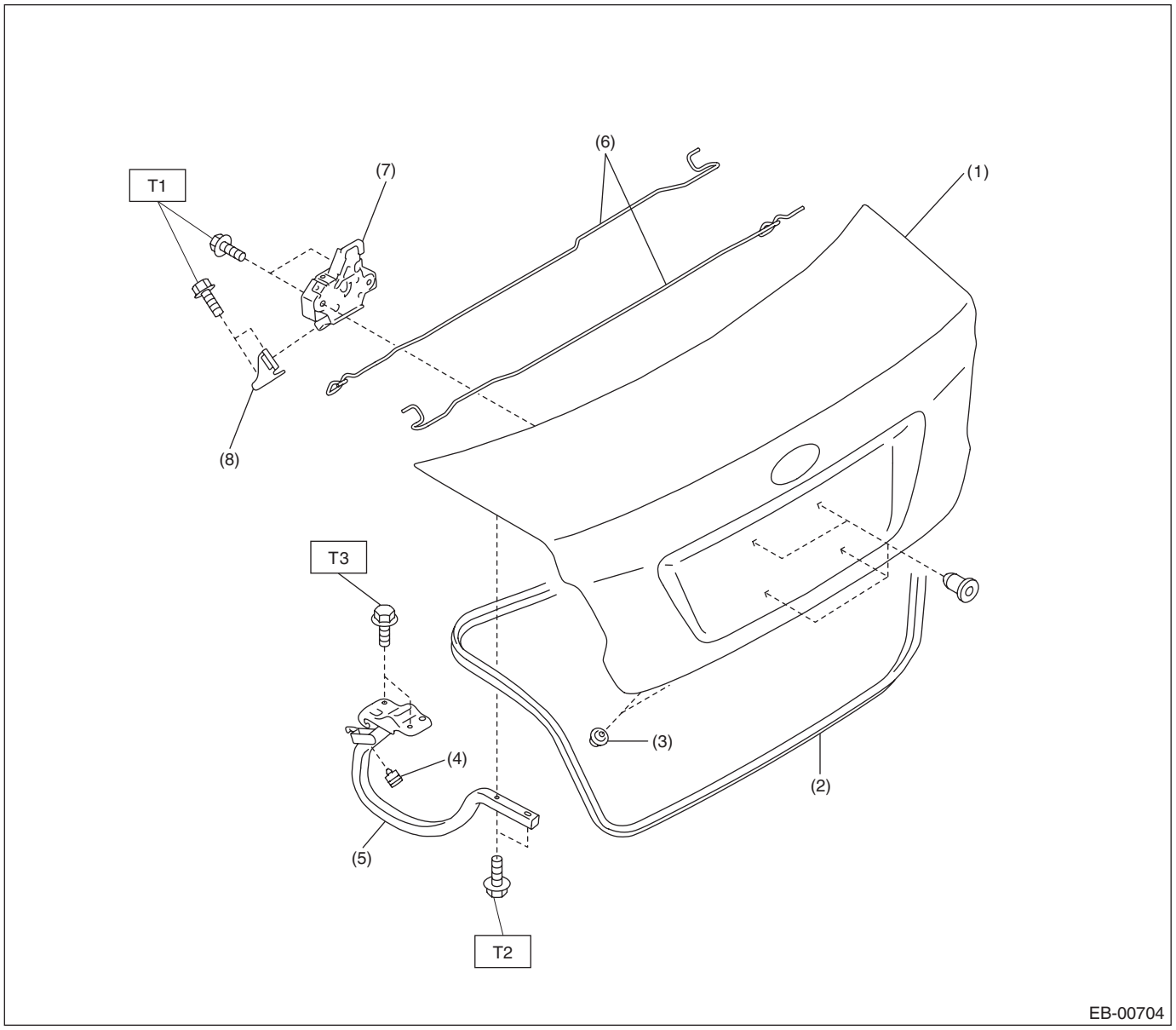
## 4. REAR DOOR




(1) Panel ASSY - rear door
(2) Weather strip - rear door
(3) Sealing cover - rear door
(4) Checker ASSY - rear door
(5) Catcher - rear door
(6) Lower hinge - rear door
(7) Upper hinge - rear door
(8) Weather strip outer - rear door

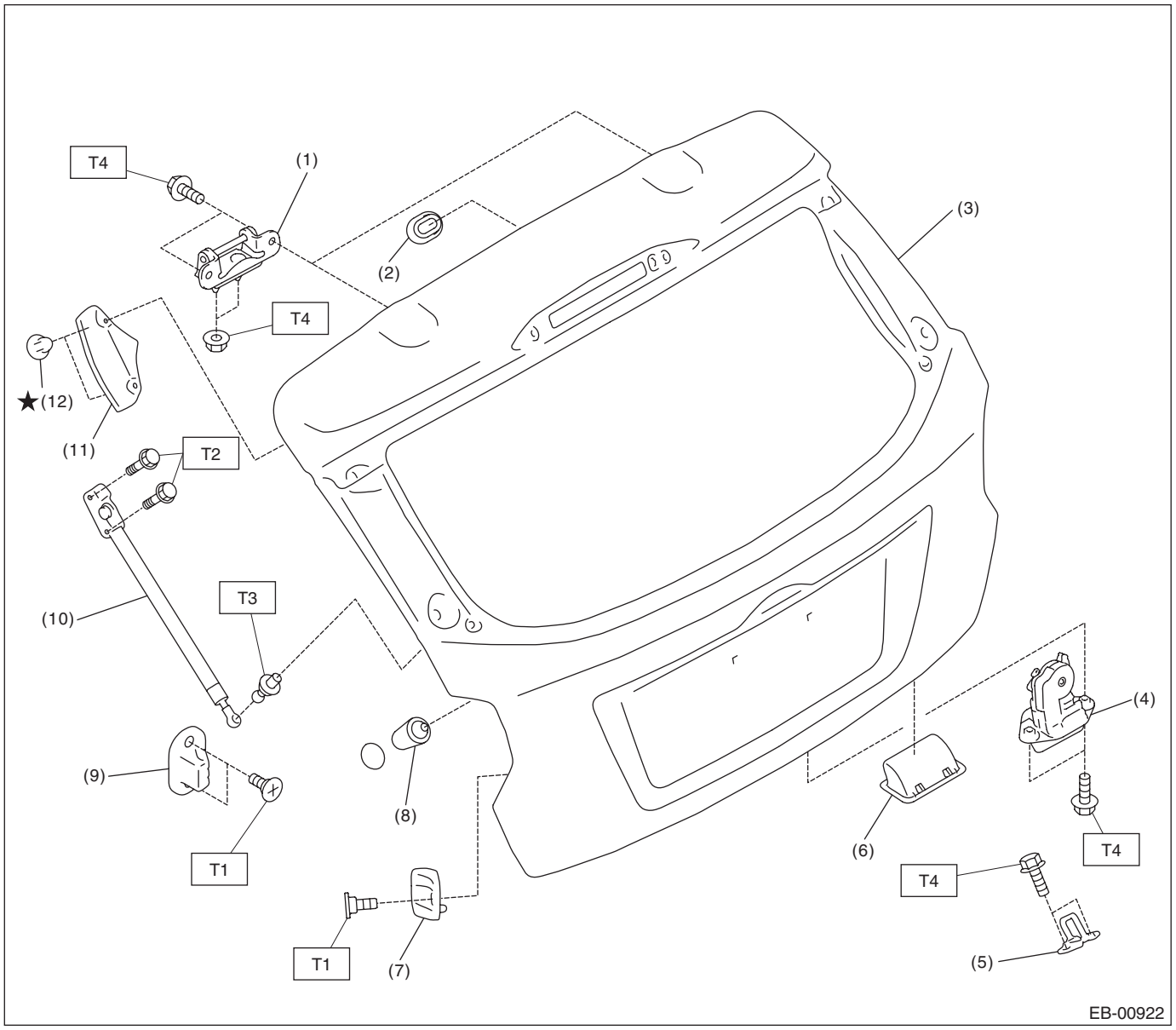
***Tightening torque: N·m (kgf-m, ft-lb)***
***T1: 7.5 (0.76, 5.5)***
***T2: 25 (2.55, 18.4)***
***T3: 30 (3.06, 22.1)***
***T4: 33 (3.36, 24.3)***
***T5: 38 (3.87, 28.0)***

## 5. TRUNK LID PANEL




| | | | | |
|---|---|---|---|---|
| (1) | Trunk lid COMPL | (5) | Trunk lid arm ASSY | ***Tightening torque: N·m (kgf-m, ft-lb)*** |
| (2) | Weather strip - trunk lid | (6) | Torsion bar - trunk lid | ***T1: 7.5 (0.76, 5.5)*** |
| (3) | Stopper - trunk lid | (7) | Lock ASSY - trunk lid | ***T2: 14 (1.43, 10.3)*** |
| (4) | Stopper - trunk | (8) | Striker - trunk | ***T3: 18 (1.84, 13.3)*** |

## 6. REAR GATE




| | | | | |
|---|---|---|---|---|
| (1) | Hinge - rear gate | (7) | Buffer - rear gate | |
| (2) | Plug - hole | (8) | Stopper - rear gate | |
| (3) | Panel - rear gate | (9) | Buffer - body side | |
| (4) | Latch & actuator - rear gate | (10) | Stay ASSY - rear gate | |
| (5) | Striker - rear gate | (11) | Drip - rear gate | |
| (6) | Handle - rear gate | (12) | Clip | |

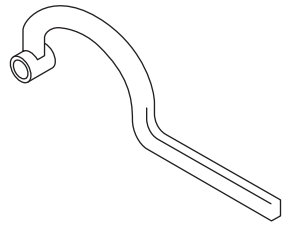
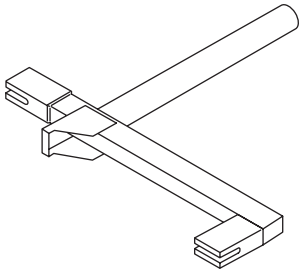
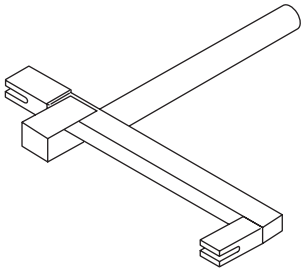
***Tightening torque: N·m (kgf-m, ft-lb)***
***T1: 7.5 (0.76, 5.5)***
***T2: 13 (1.33, 9.6)***
***T3: 20 (2.04, 14.8)***
***T4: 25 (2.55, 18.4)***

## C: CAUTION

Exterior body panels are heavy. When removing and installing them, do not drop and damage the panels. Also, be careful not to scratch the coated surfaces of the panels.

# D: PREPARATION TOOL

## 1. SPECIAL TOOL

| ILLUSTRATION | TOOL NUMBER | DESCRIPTION | REMARKS |
|---|---|---|---|
|  ST-925610000 | 925610000 | WRENCH | Used for removing and installing door hinge. |
|  ST-927780000 | 927780000 | REMOVER | • Used for removing and installing the trunk torsion bar.<br>• REMOVER (99099FJ000) can also be used. |
|  ST99099FJ000 | 99099FJ000 | REMOVER | • Used for removing and installing the trunk torsion bar.<br>• REMOVER (927780000) can also be used. |

## 2. GENERAL TOOL

| TOOL NAME | REMARKS |
|---|---|
| Support jack | Used for supporting door panel. |
| Clip remover | Used for removing various types of clips |

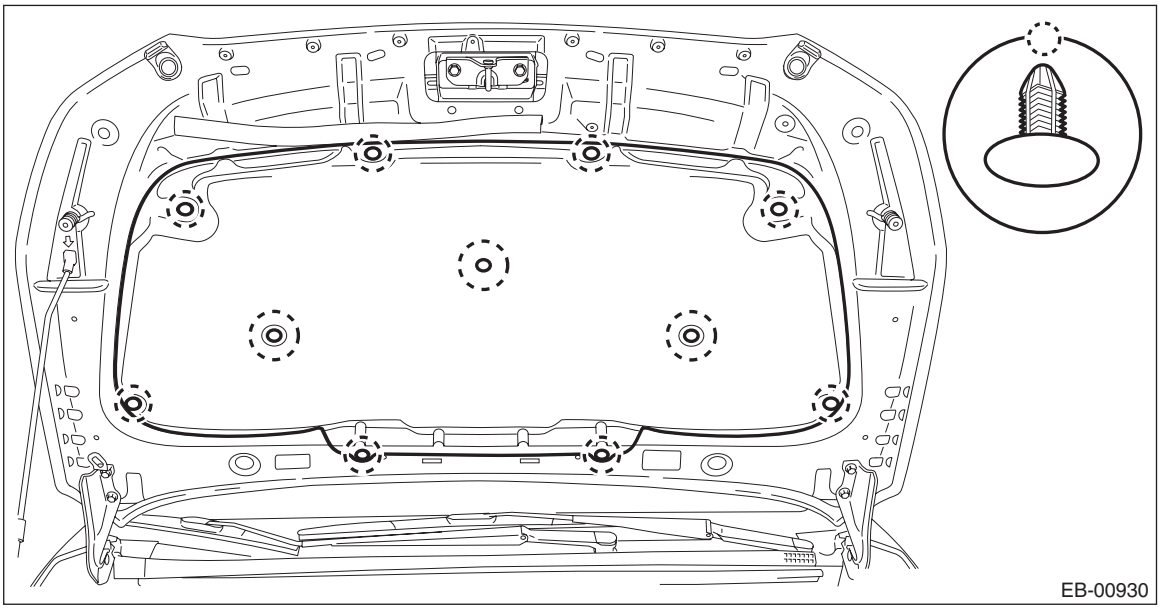
# 2. Front Hood

## A: REMOVAL

### 1. FRONT HOOD PANEL

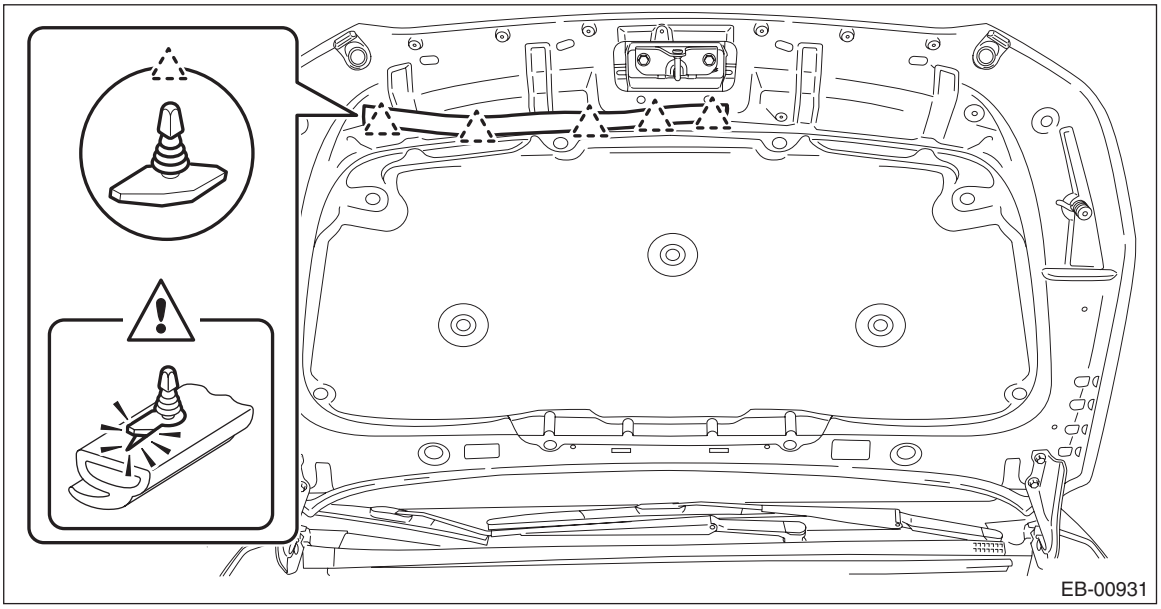
**CAUTION:**
**The hood COMPL - front is heavy. When removing or installing the hinge COMPL - front hood, be sure to work in a group of two or more.**

1) Open the hood COMPL - front.
2) Remove the clips, and remove the insulator - front hood.

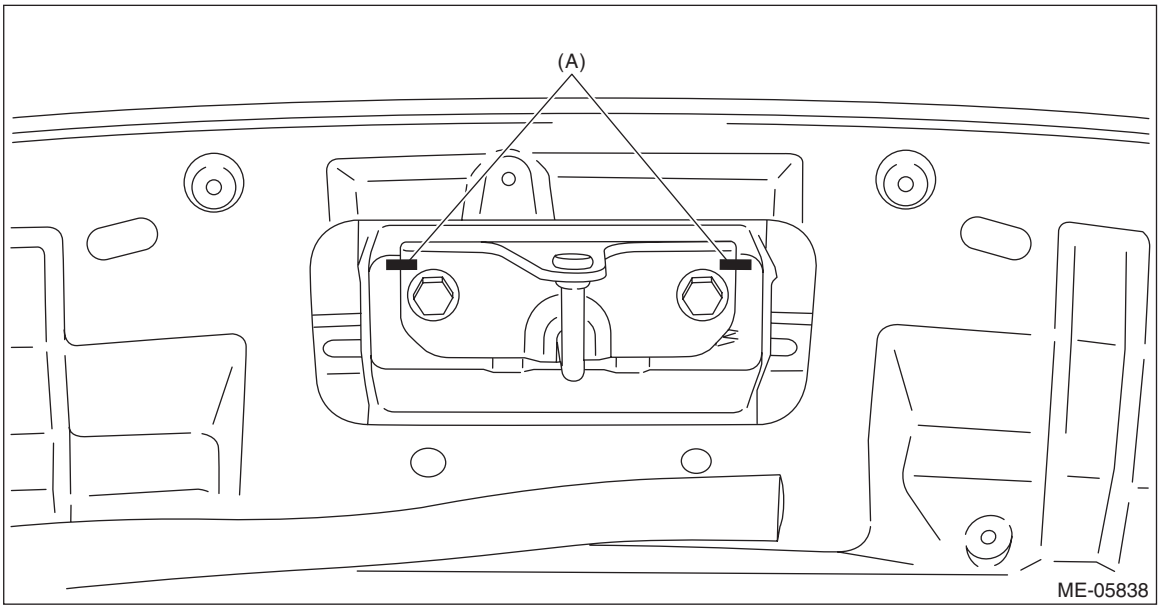



3) Remove the clip, and remove the seal - front duct.

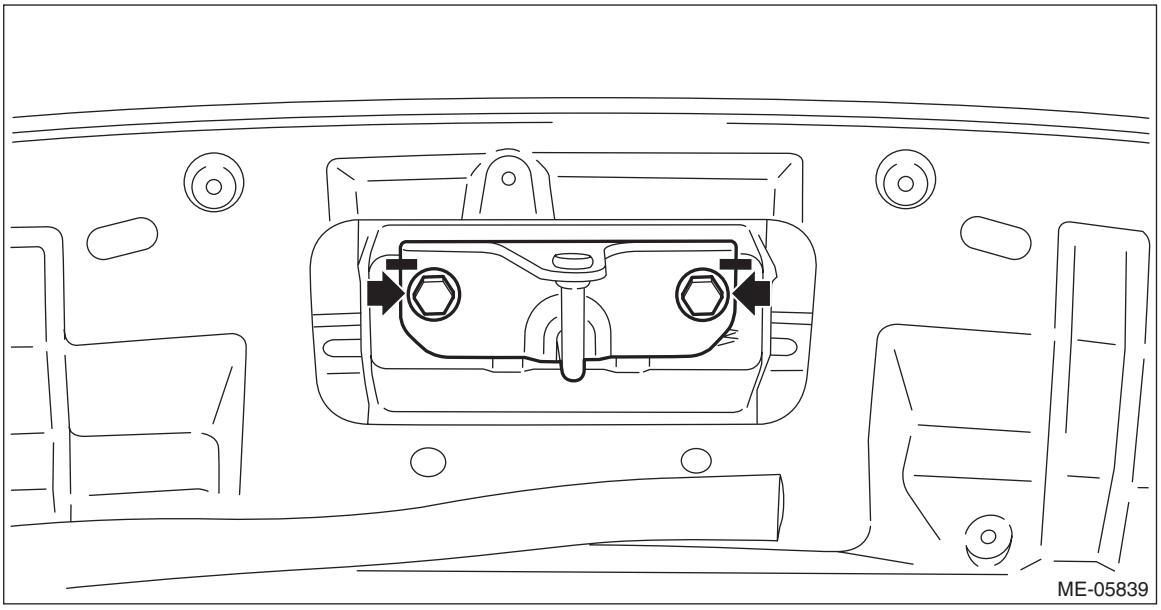
**CAUTION:**
**If the weather strip clip is removed with excessive force, the seal - front duct may be damaged. Be sure to use clip remover, etc. to remove.**



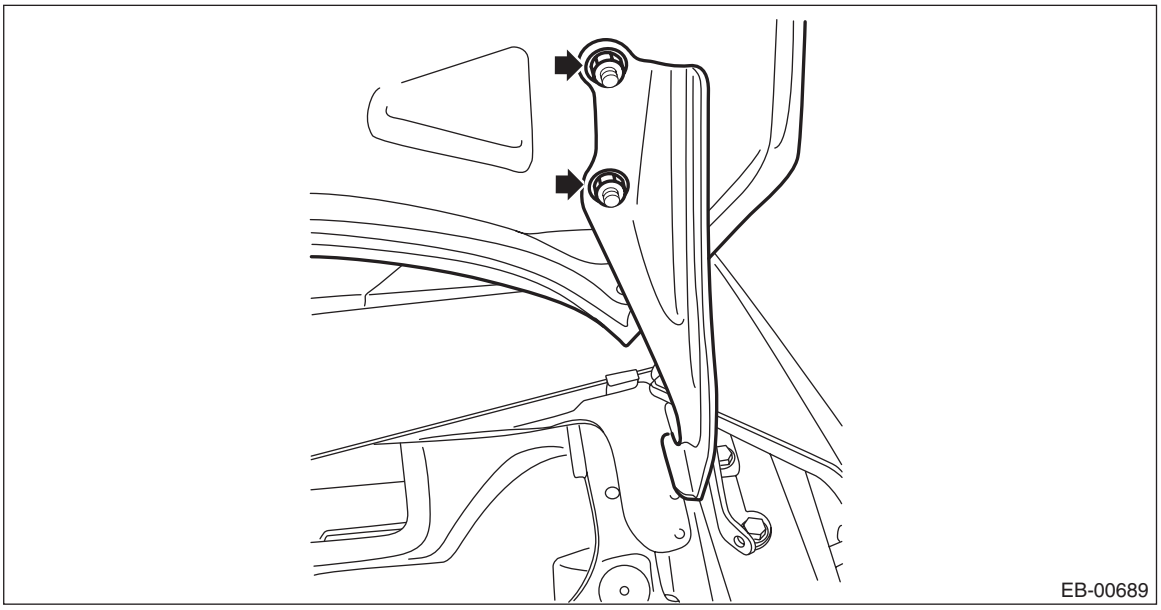
4) Using a marker pen, make alignment marks (A) on the hood COMPL - front and the striker - front hood.




5) Remove the striker - front hood from the hood COMPL - front.



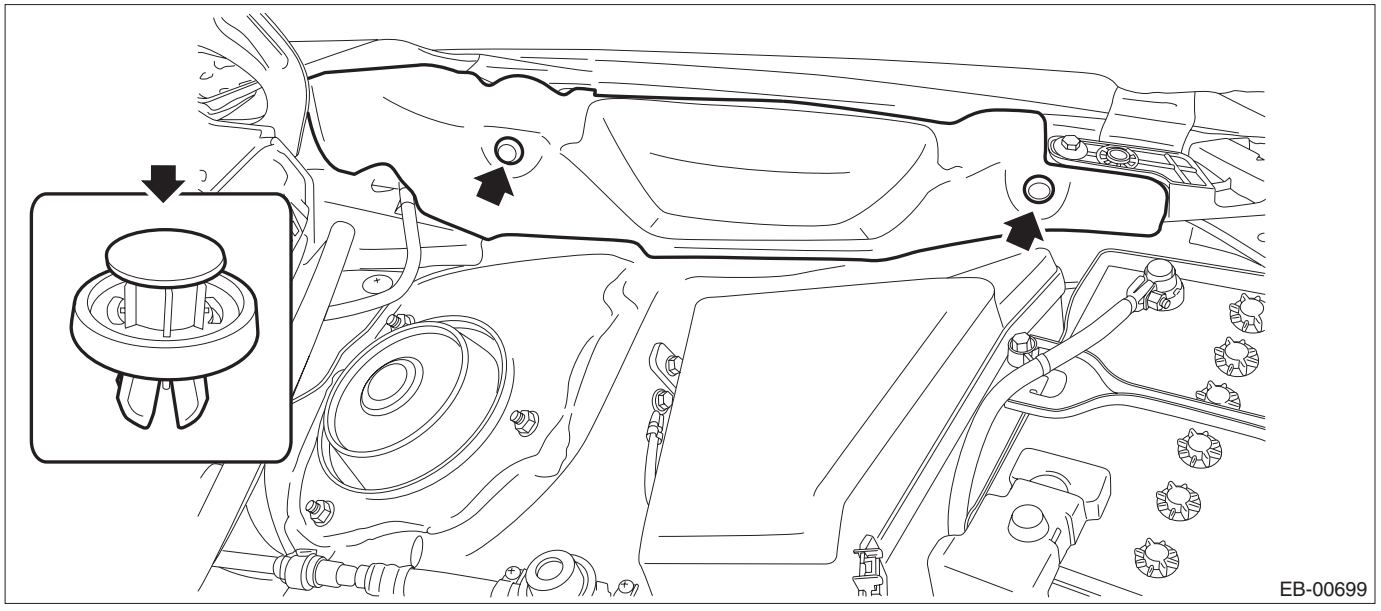
6) Remove the nut on the hood COMPL - front side, and remove the hood COMPL - front.




## 2. FRONT HOOD HINGE

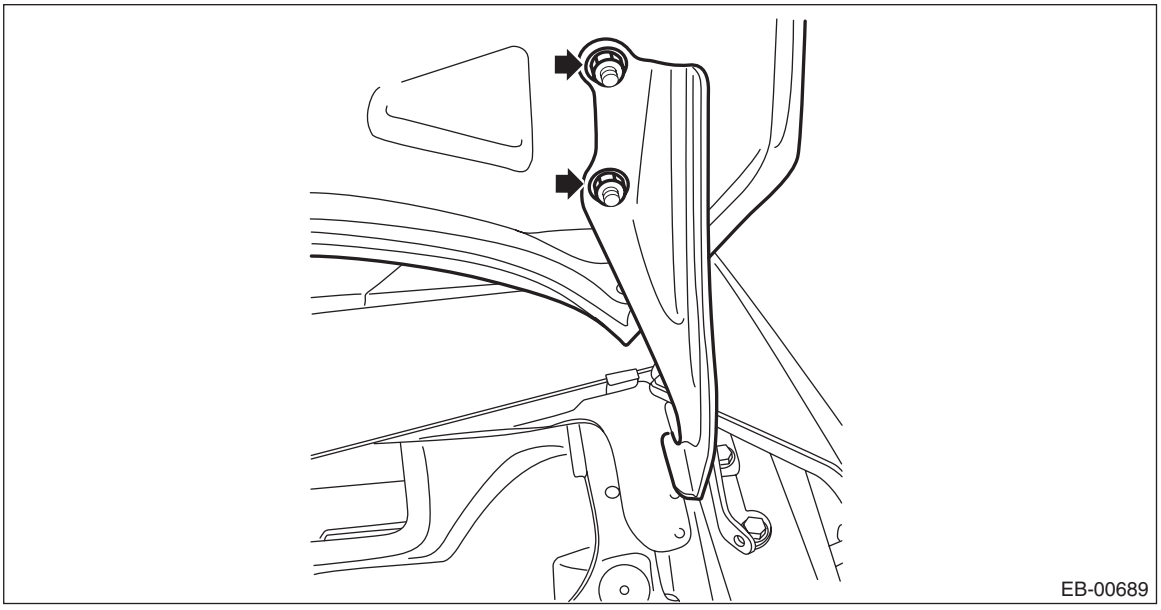
**CAUTION:**
**The hood COMPL - front is heavy. When removing or installing the hinge COMPL - front hood, be sure to work in a group of two or more.**

1) Remove the cover - front fender.
   (1) Remove the clip.
   (2) Release the claws by pulling them forward, and remove the cover - front fender.

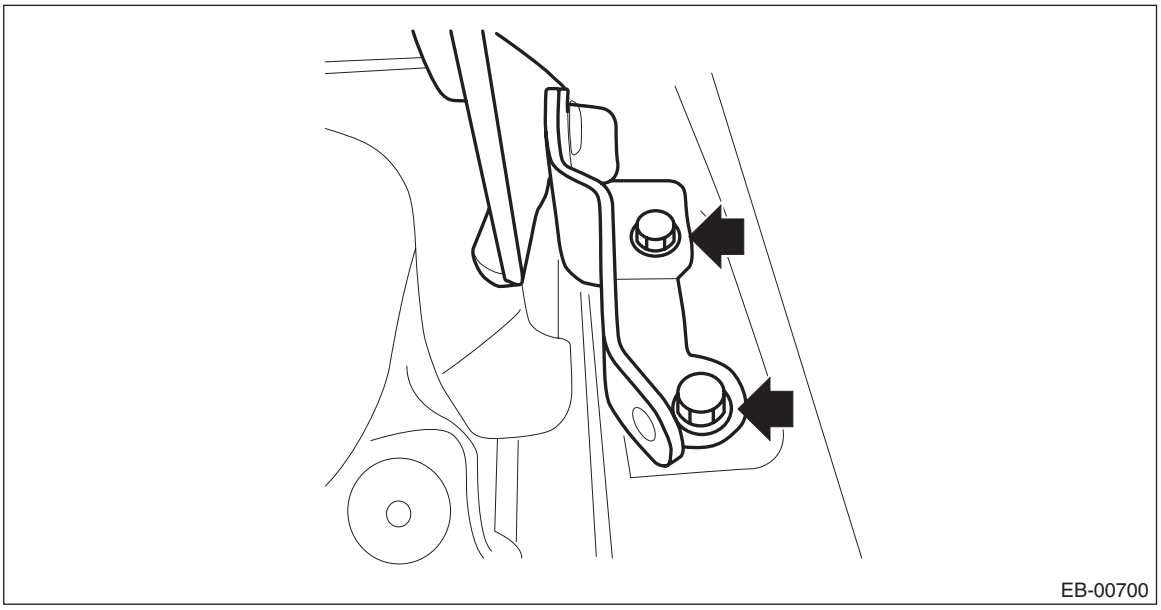



2) Remove the fender COMPL - front. <Ref. to EB-16, REMOVAL, Front Fender.>

3) Remove the hood COMPL - front.
(1) Remove the nuts on the hood panel side, and remove the hood COMPL - front.




4) Remove the bolts, and remove the hinge COMPL - front hood.



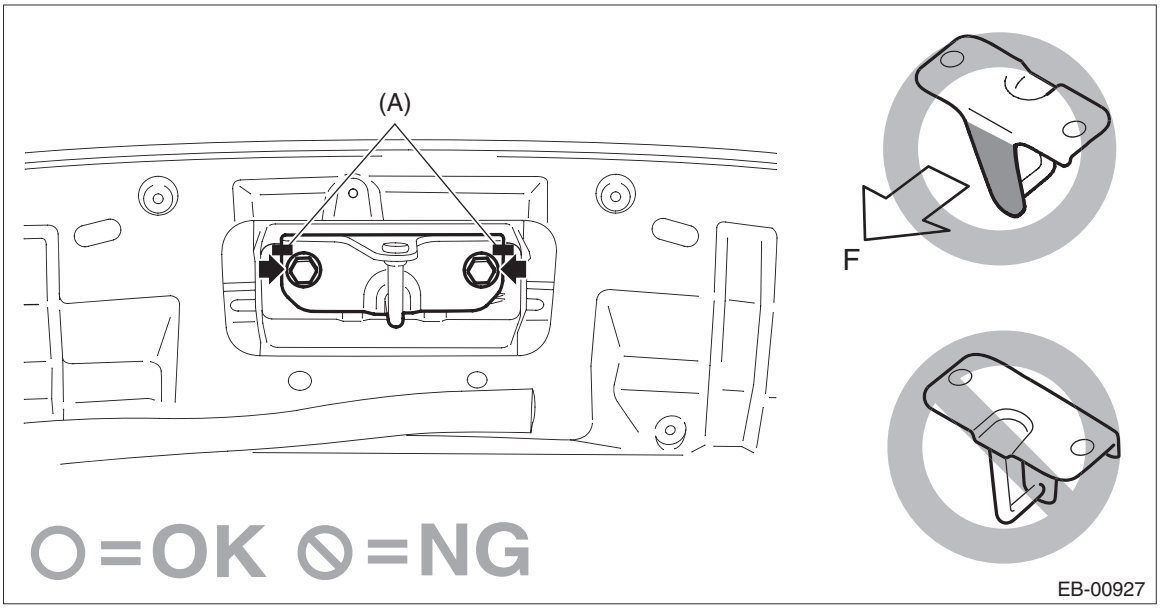
## B: INSTALLATION

**CAUTION:**
**The hood COMPL - front is heavy. When removing or installing the hinge COMPL - front hood, be sure to work in a group of two or more.**

1) To install the insulator - front hood and the seal - front duct, follow the removal procedure in the reverse order.
2) Align the alignment marks (A), and install the striker - front hood to the hood COMPL - front.

**CAUTION:**
**When installing the striker - front hood, make sure that the front and rear sides are positioned in a correct direction.**

***Tightening torque:***
***33 N·m (3.36 kgf-m, 24.3 ft-lb)***




(A) Alignment mark F Front side of vehicle

NOTE:
It is not necessary to adjust the striker - front hood because there is no span of adjustable range.

3) Install the hinge COMPL - front hood to the vehicle body. (When the hinge COMPL - front hood is removed)
4) Temporarily install the hood COMPL - front to the hinge COMPL - front hood.

NOTE:
When installing the hood COMPL - front, make sure that a uniform clearance is created around it.

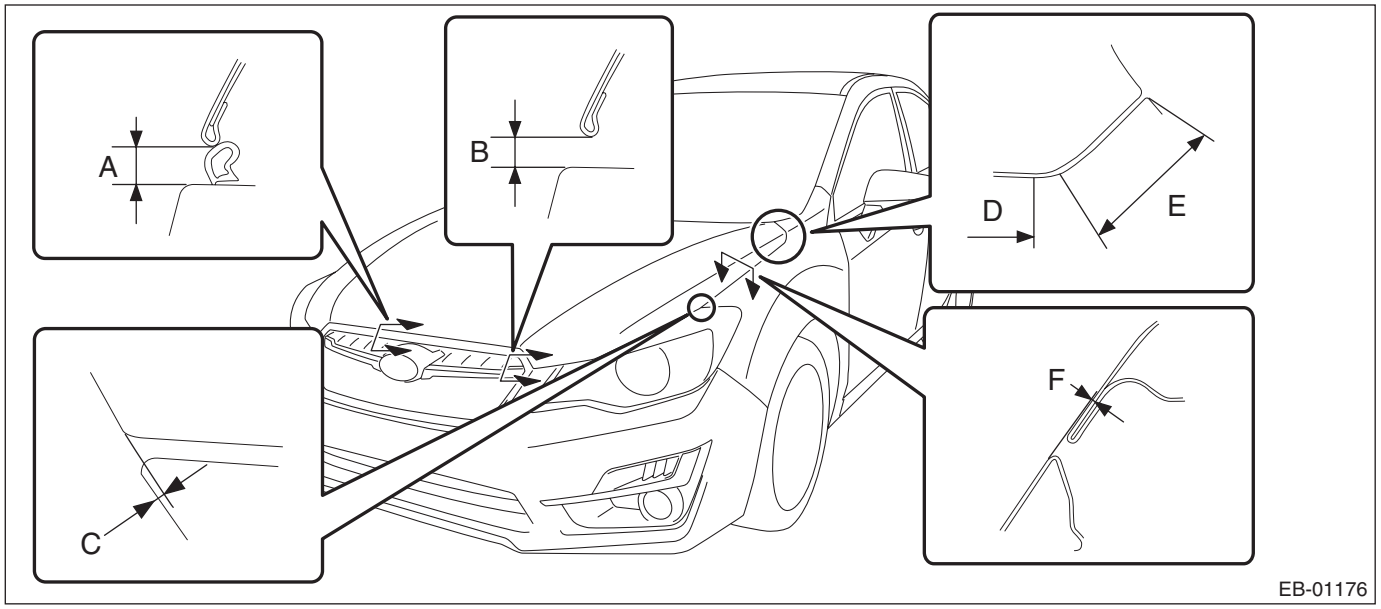
5) Adjust the clearance around the hood COMPL - front. <Ref. to EB-14, ADJUSTMENT, Front Hood.>
6) Tighten the bolts and nuts of the hinge COMPL - front hood.

***Tightening torque:***
***25 N·m (2.55 kgf-m, 18.4 ft-lb)***

7) Install each part of the hood COMPL - front in the reverse order of removal.
- Insulator - front hood
- Seal - front duct

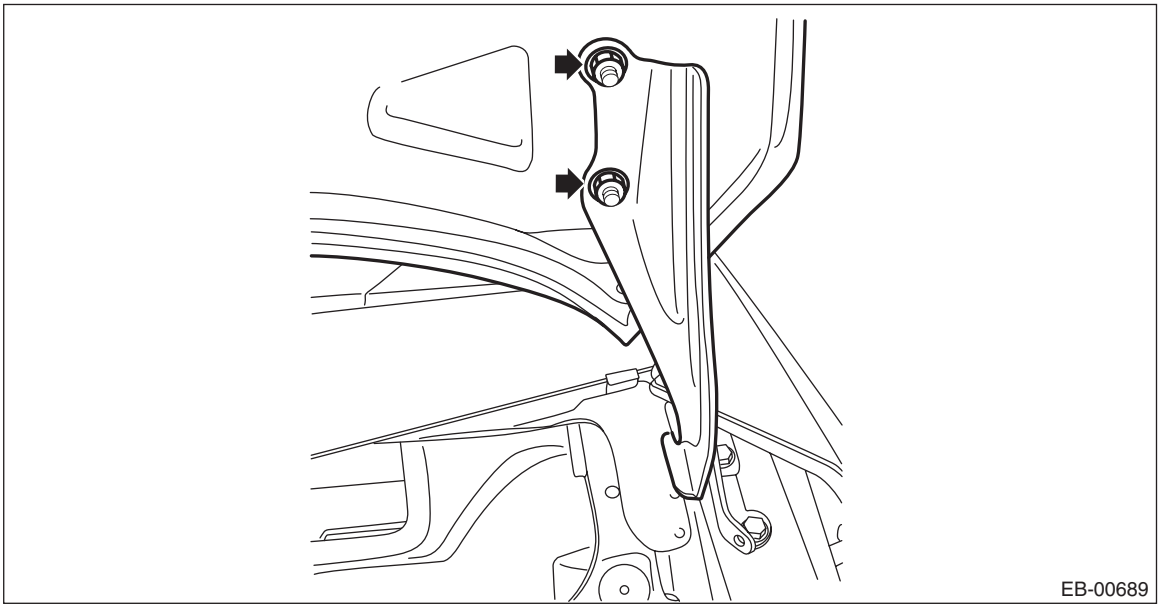
## C: ADJUSTMENT

Adjust the clearance around the hood COMPL - front as follows.




| Part | | Standard |
|---|---|---|
| A | Hood COMPL - front to Front grille | 7.5±1.0 mm (0.30±0.04 in) |
| B | Hood COMPL - front to Bumper face - front | 6.0+2.0, –1.0 mm (0.24+0.08, –0.04 in) |
| C | Offset value: Hood COMPL - front to Front end of fender COMPL - front | 0+0.5, –1.0 mm (0+0.02, –0.04 in) |
| D | Hood COMPL - front to Fender COMPL - front (from front end to just before curved portion) | 3.5±1.0 mm (0.14±0.04 in) |
| E | Hood COMPL - front to Fender COMPL - front (from rear end to just before curved portion) | 4.5±1.0 mm (0.18±0.04 in) |
| F | Surface level gap: Hood COMPL - front to Fender COMPL - front | 0.5+0.5, –1.0 mm (0.02+0.02, –0.04 in) |

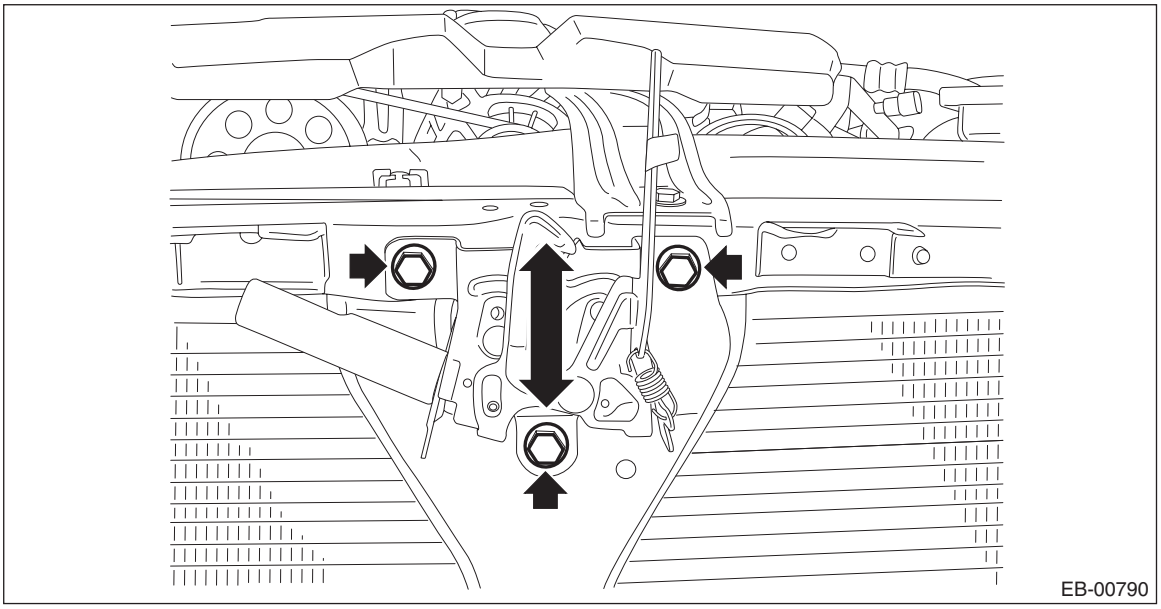
1) Adjust the horizontal position of the hood COMPL - front.
   (1) Loosen the attaching nuts of the hinge COMPL - front hood on the left and right sides.



(2) Adjust the horizontal clearance of the hood COMPL - front, and tighten the attaching nuts of the hinge COMPL - front hood.

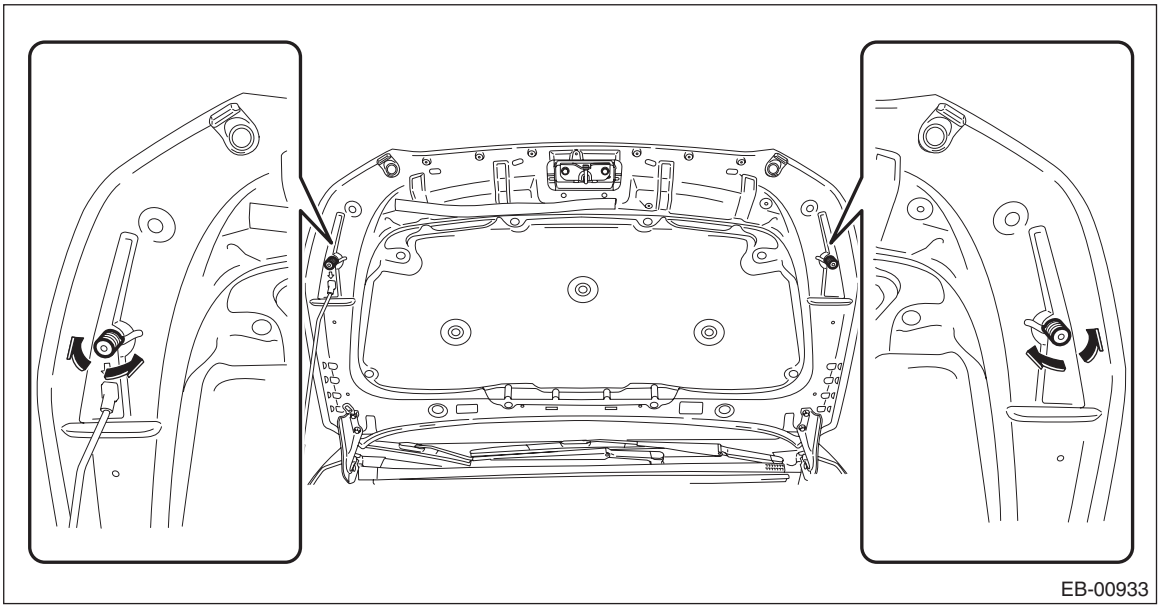
***Tightening torque:***
***25 N·m (2.55 kgf-m, 18.4 ft-lb)***

2) Adjust the front end height of the hood COMPL - front.
(1) Loosen the bolts on the lock assembly - front hood.
(2) Adjust the lock assembly - front hood by moving it up and down.


EB-00790

***Tightening torque:***
***33 N·m (3.36 kgf-m, 24.3 ft-lb)***

3) Rotate the buffer - front hood of the hood COMPL - front to adjust the height.


EB-00933

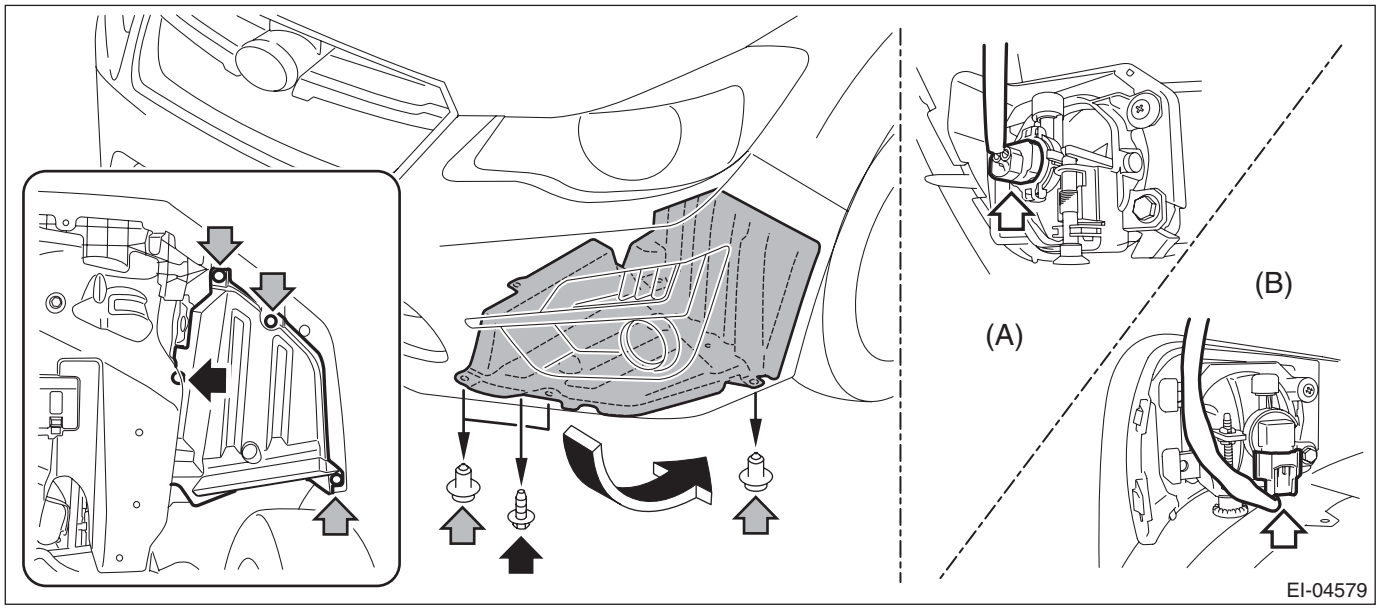
# 3. Front Fender

## A: REMOVAL

1) Disconnect the ground cable from battery. <Ref. to NT-5, BATTERY, NOTE, Note.>

NOTE:
For the 12 volt engine restart battery of HEV model, disconnect the ground terminal from 12V engine restart battery sensor.

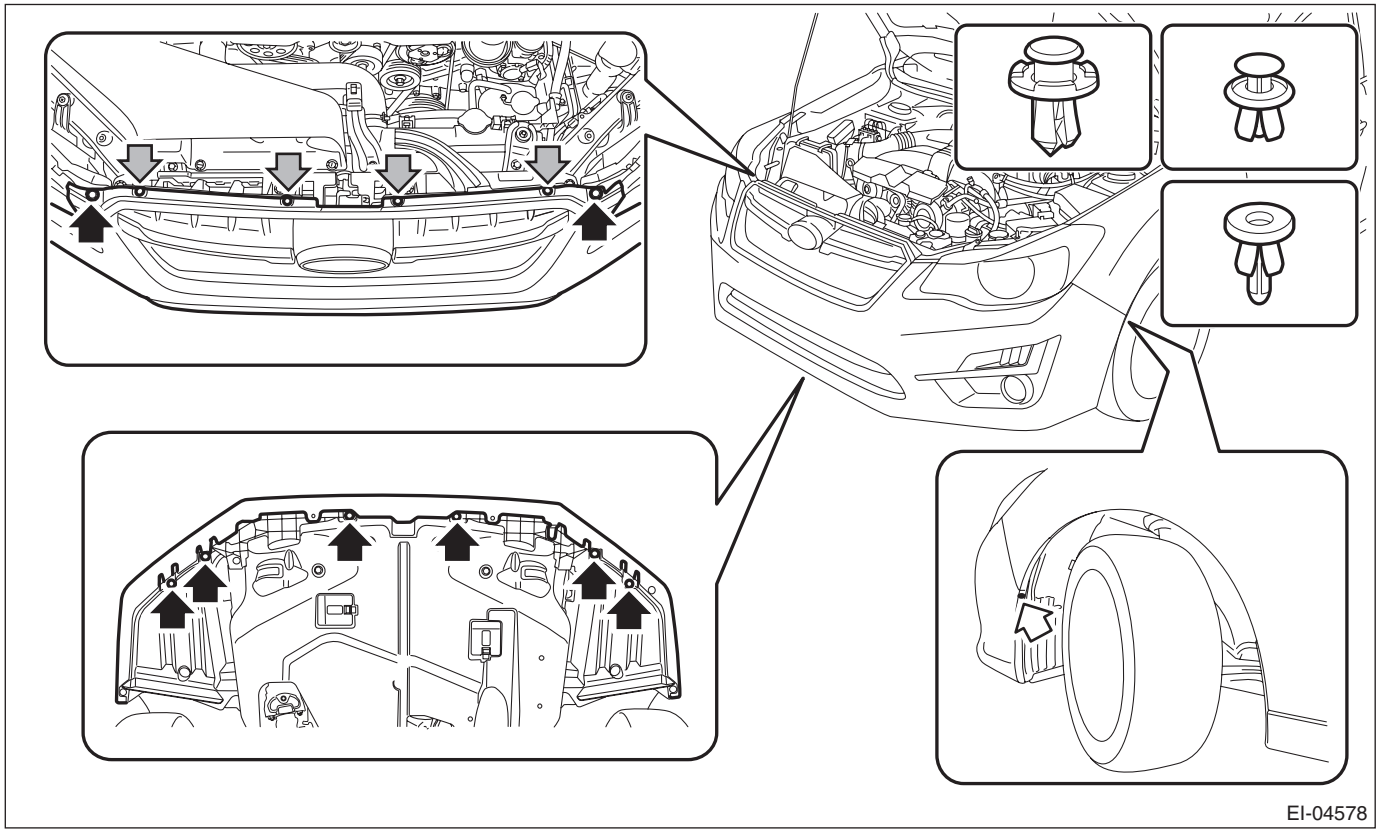
2) Remove the bumper face - front.
   (1) Remove the screw and clips, and turn over the mud guard - front.
   (2) Disconnect the connectors of the left and right fog light assembly - front. (Model with fog light)




(A) Type without SRF (B) Type with SRF

   (3) Remove the clips at the upper side of the bumper face - front.
   (4) Remove the clips from the fender.

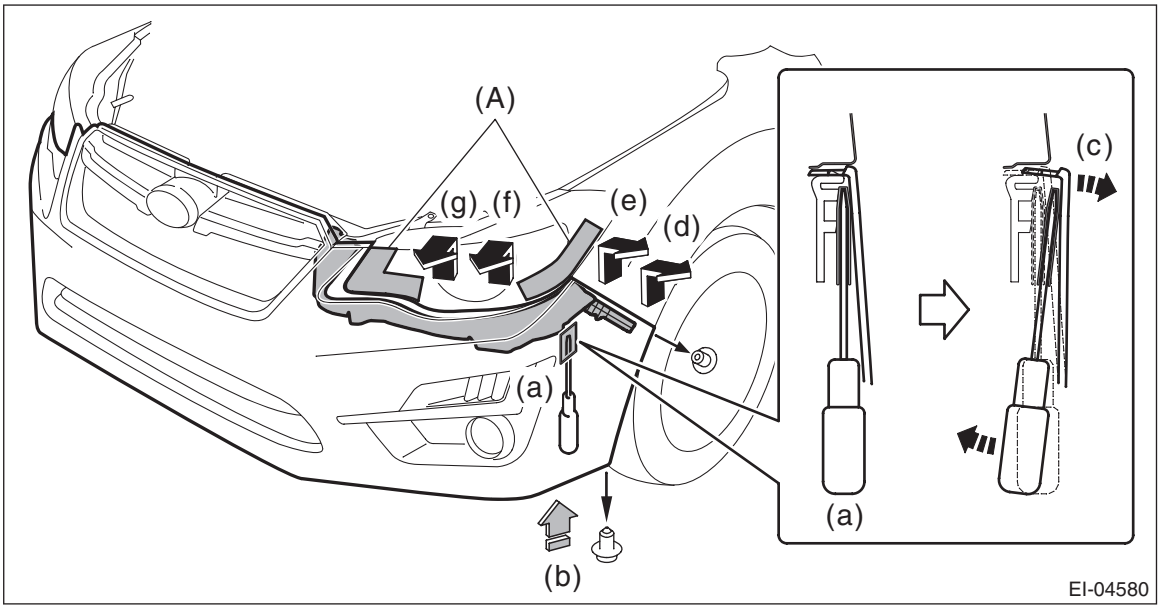
(5) Remove the clips at the lower side of the bumper face - front.



(6) Apply protective tape (A) to the light assembly - head.
(7) Detach the flange section on the bumper face side from the bracket - front bumper side.

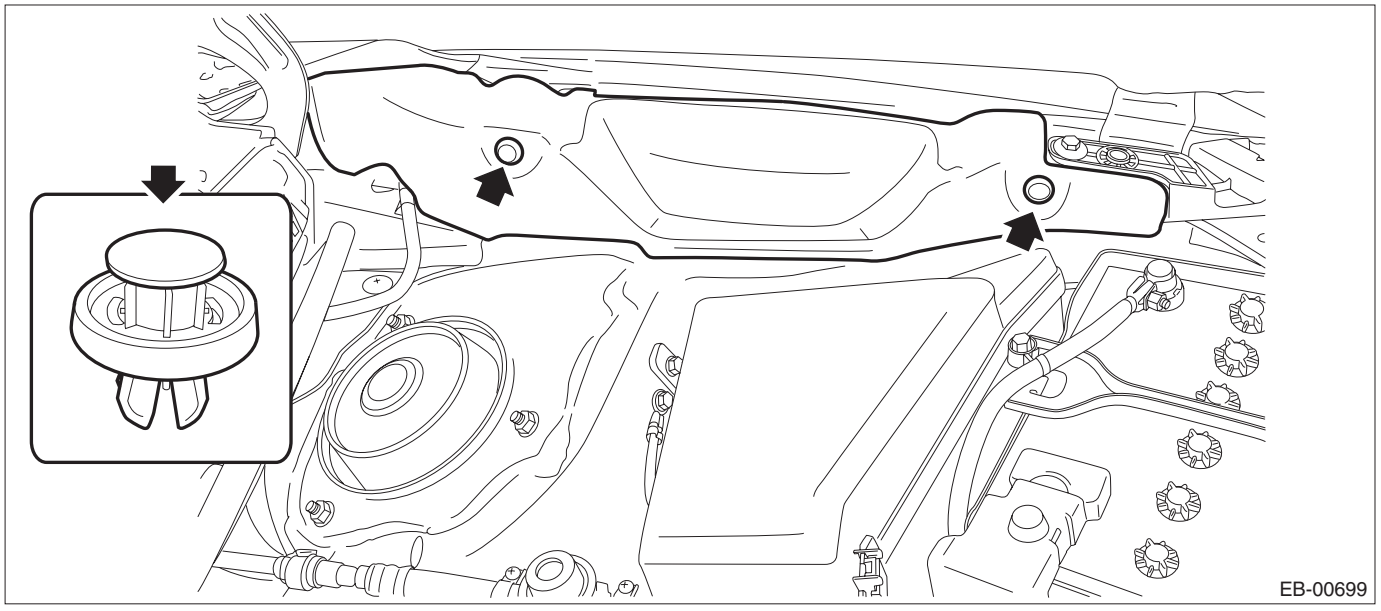
**CAUTION:**
**Do not pull forcibly. It may damage the flange section on the bumper face - front side when it comes off from the claws of the bracket - front bumper.**

NOTE:
Remove the bumper face - front according to the following procedures.



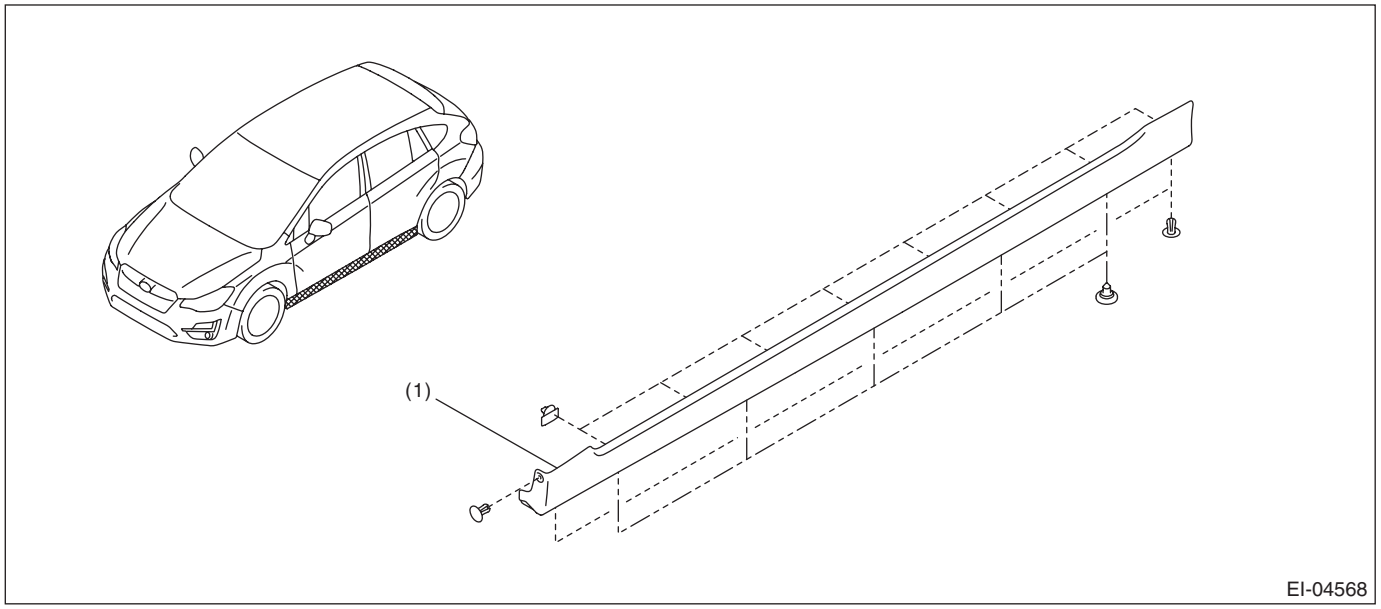

1. Remove the clips, turn over the mud guard, and insert a flat tip screwdriver with protection for damage prevention into the clearance between bumper and bracket. (a)
2. Push out the bumper with the flat tip screwdriver while pushing up the bumper from below. (b), (c)
3. Release the engagement of clips in the order of (d) to (g) while pushing up the bumper from below.
4. Perform the same procedures to remove the opposite side.

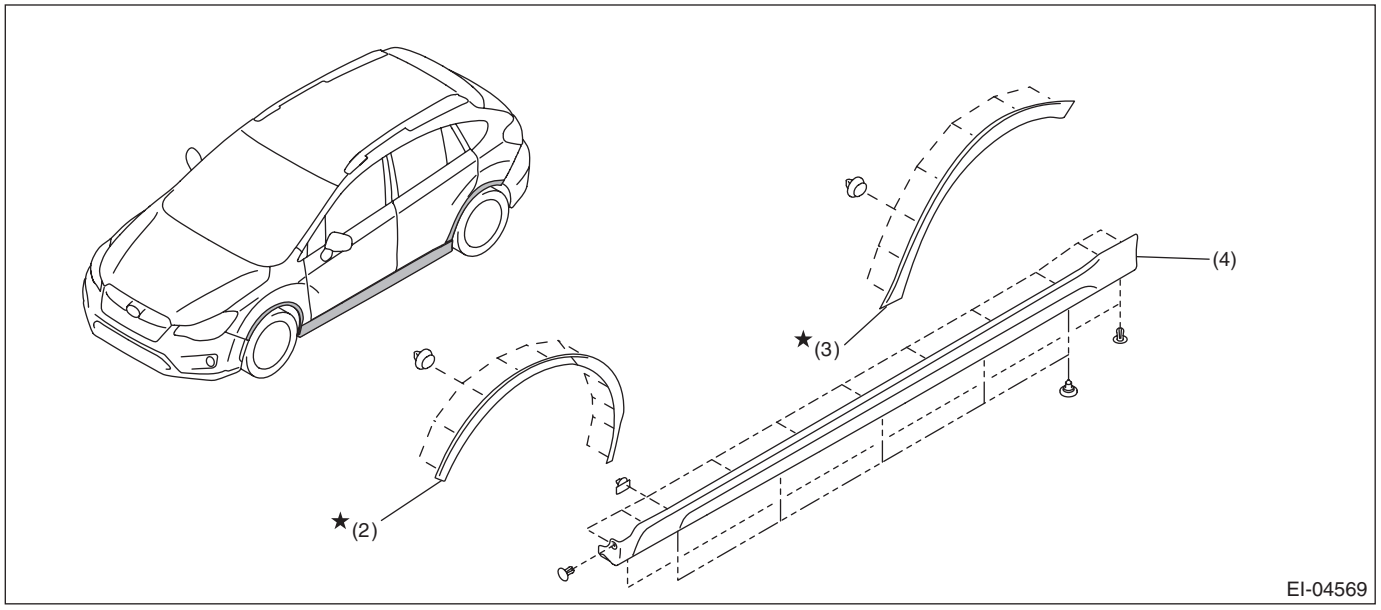
3) Remove the cover - front fender.
(1) Remove the clip.
(2) Release the claws by pulling them forward, and remove the cover - front fender.




(3) Remove the light assembly - head. <Ref. to LI-29, REMOVAL, Headlight Assembly.>

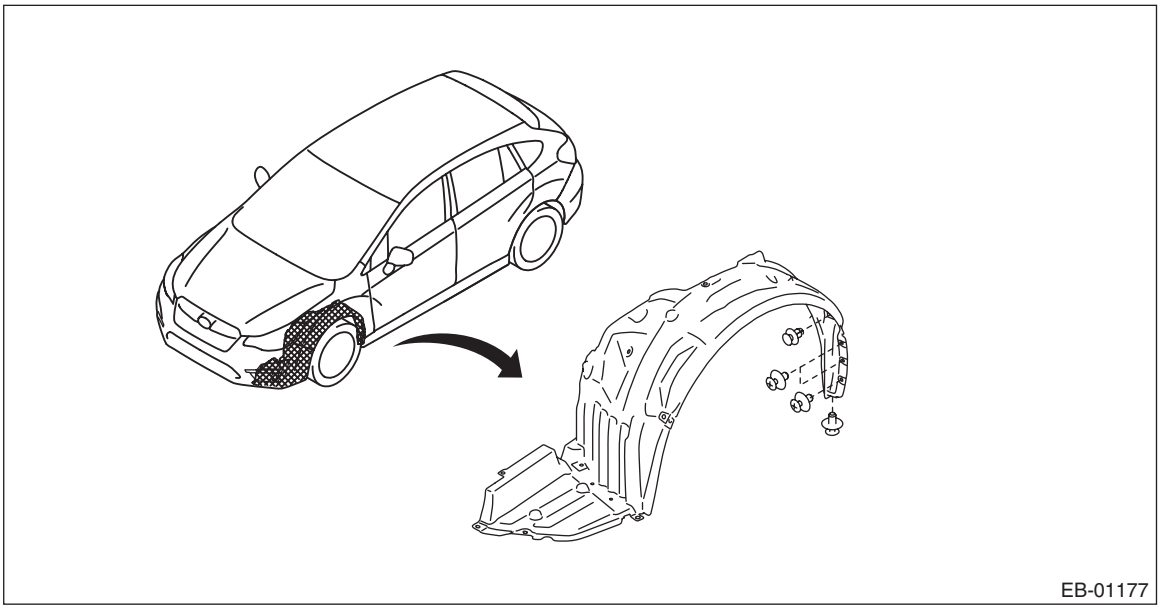
4) Remove the clips and detach the side garnish assembly.



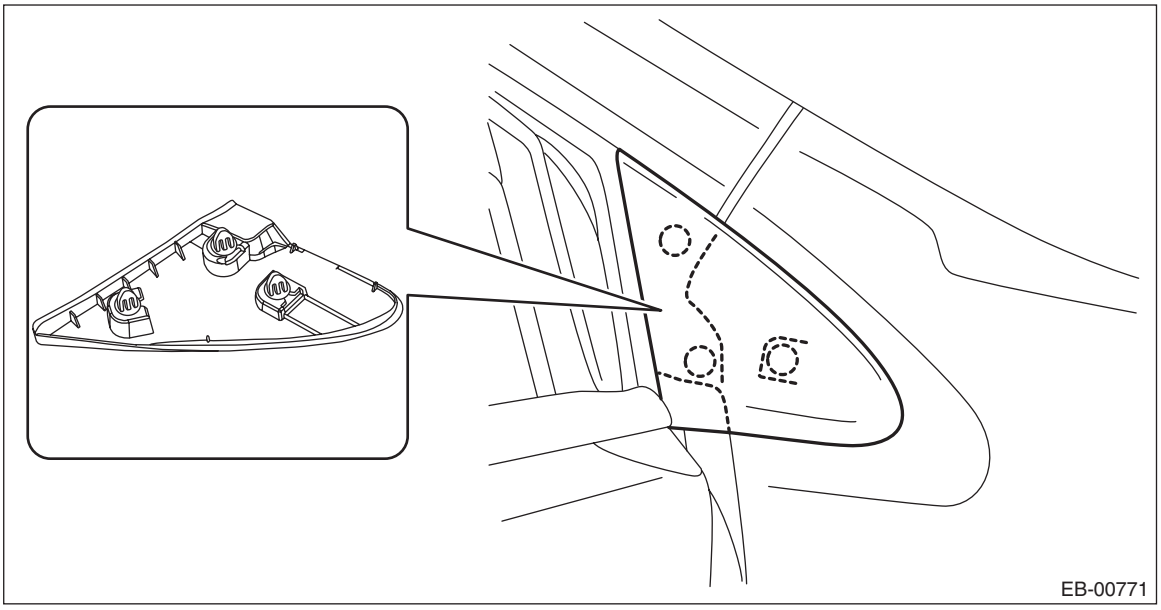




(1) Garnish ASSY - side sill (except for XV model)
(2) Garnish ASSY - fender (XV model)
(3) Garnish ASSY - rear quarter (XV model)
(4) Garnish ASSY - side sill (XV model)

5) Remove the clips, and turn over the mud guard - front.

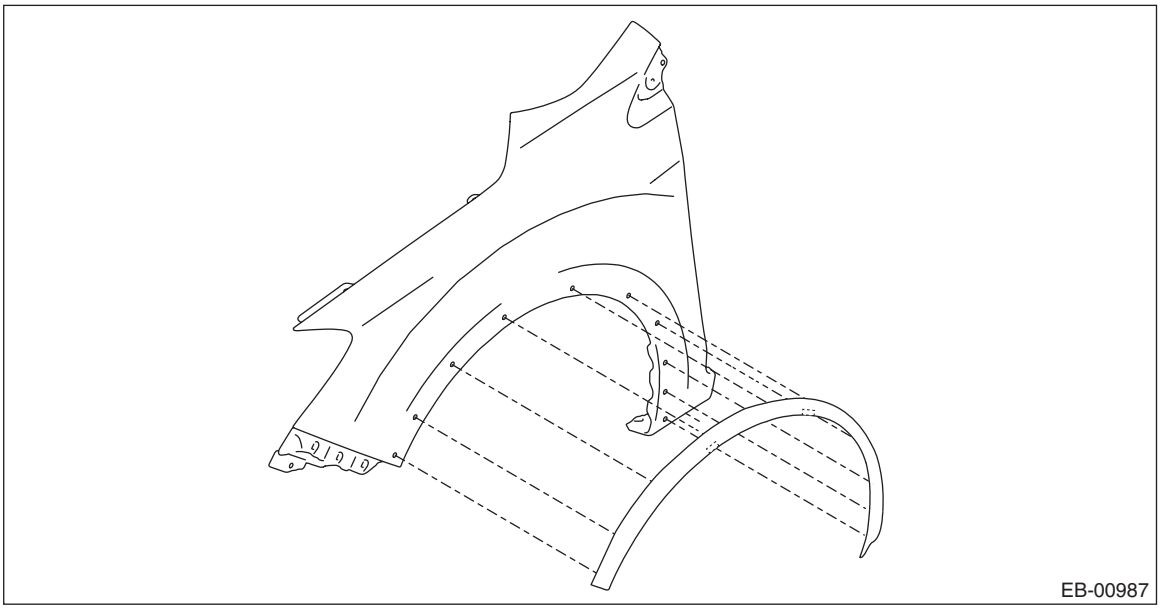



6) Remove the cover - front pillar assembly.

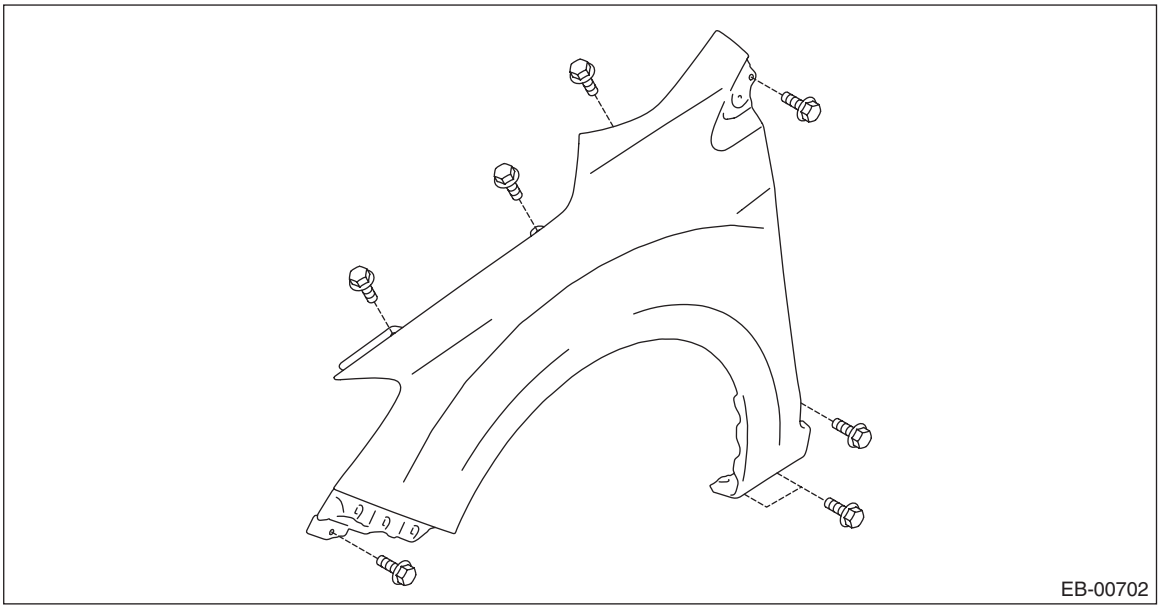


7) Remove the fender COMPL - front.
(1) Remove the garnish assembly - front fender. (XV model)

**CAUTION:**
**Do not reuse the garnish assembly - front fender. Always replace with a new part.**


EB-00987

(2) Remove the bolts, and remove the fender COMPL - front.

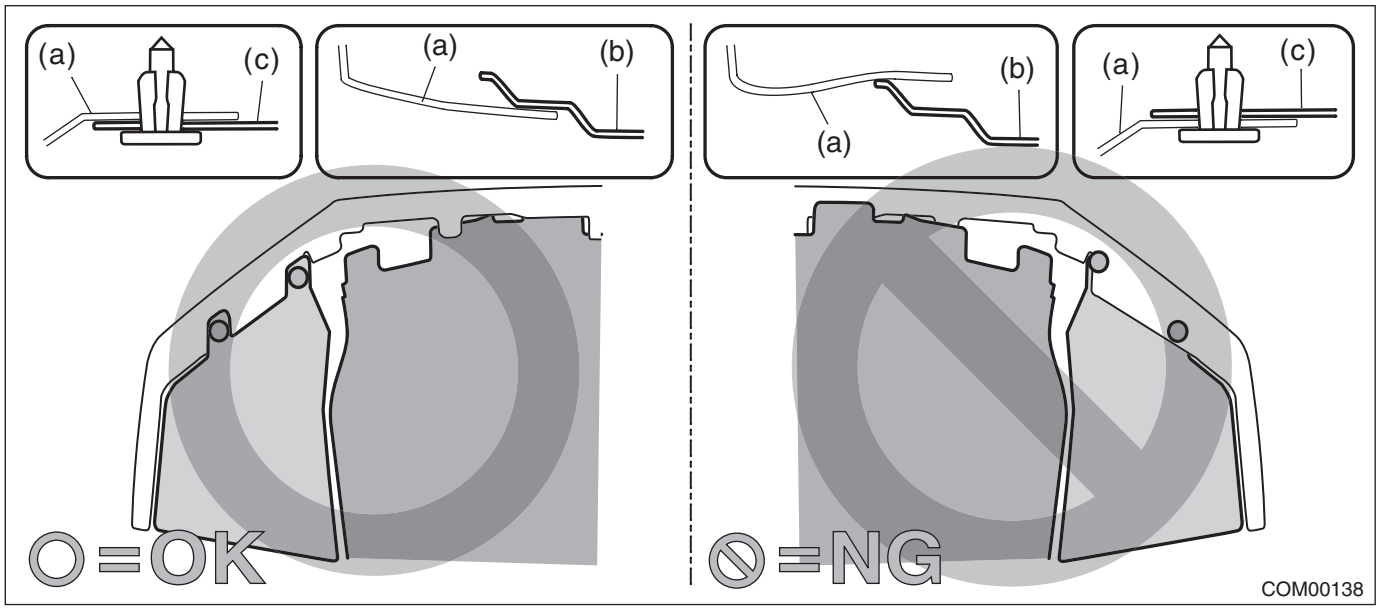

EB-00702

## B: INSTALLATION

1) Install each part in the reverse order of removal.

**CAUTION:**

**• Install the bumper face - front so that the front end of the under cover (b) comes inside the bumper face - front (a), and the front end of the mud guard (c) comes outside the bumper face - front (a).**




**• Before installing the bumper face, match the claws on the bracket - front bumper with the engaging position of flange section on the bumper face side. If the engaging position is not correct, the flange section may be broken or the clearance between fender panel and bumper face may not be uniform.**

***Tightening torque:***

***Fender COMPL - front: 7.5 N·m (0.76 kgf-m, 5.5 ft-lb)***

***Light assembly - head: 7.5 N·m (0.76 kgf-m, 5.5 ft-lb)***

NOTE:

When installing the fender COMPL - front, make sure that a uniform clearance is created around it.

- Fender COMPL - front to Hood COMPL - front: <Ref. to EB-14, ADJUSTMENT, Front Hood.>
- Fender COMPL - front to Panel assembly - front door: <Ref. to EB-31, ADJUSTMENT, Front Door.>

2) Adjust the headlight beam and fog light beam.

- Adjust the headlight beam. <Ref. to LI-34, HEADLIGHT BEAM ADJUSTMENT, ADJUSTMENT, Headlight Assembly.>
- Adjust the fog light beam. (Model with fog light) <Ref. to LI-55, FOG LIGHT AIMING, ADJUSTMENT, Front Fog Light Assembly.>

# 4. Front Door

## A: REMOVAL

### 1. FRONT DOOR PANEL

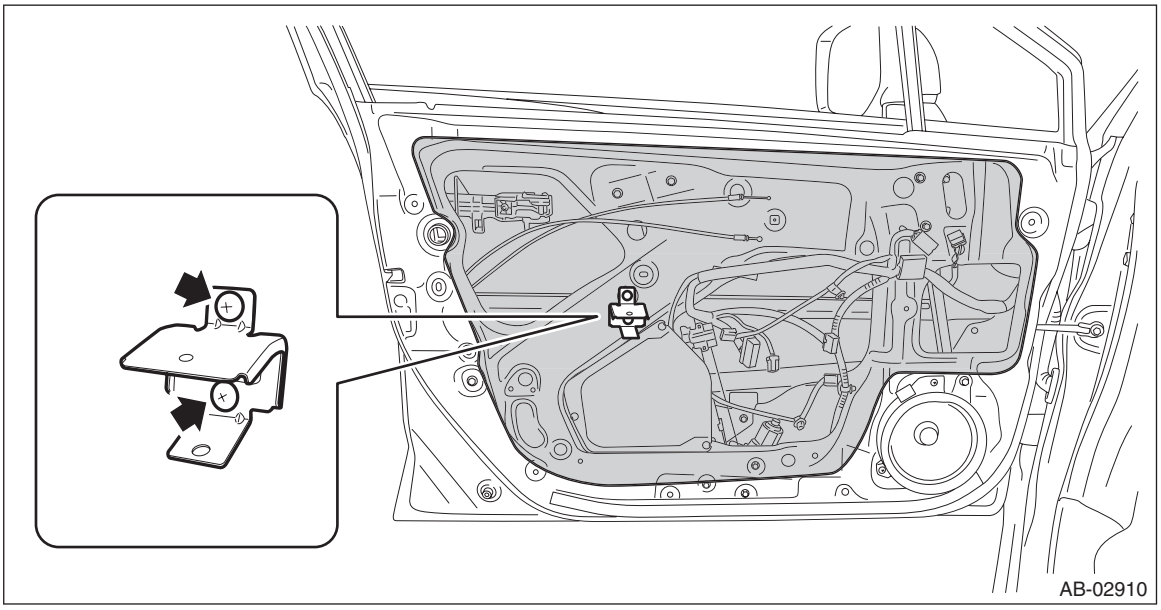
1) Disconnect the ground cable from battery and wait for at least 60 seconds before starting work. <Ref. to NT-5, BATTERY, NOTE, Note.>

NOTE:
For the 12 volt engine restart battery of HEV model, disconnect the ground terminal from 12V engine restart battery sensor.

2) Remove the trim panel - front door. <Ref. to EI-72, FRONT DOOR, REMOVAL, Door Trim.>

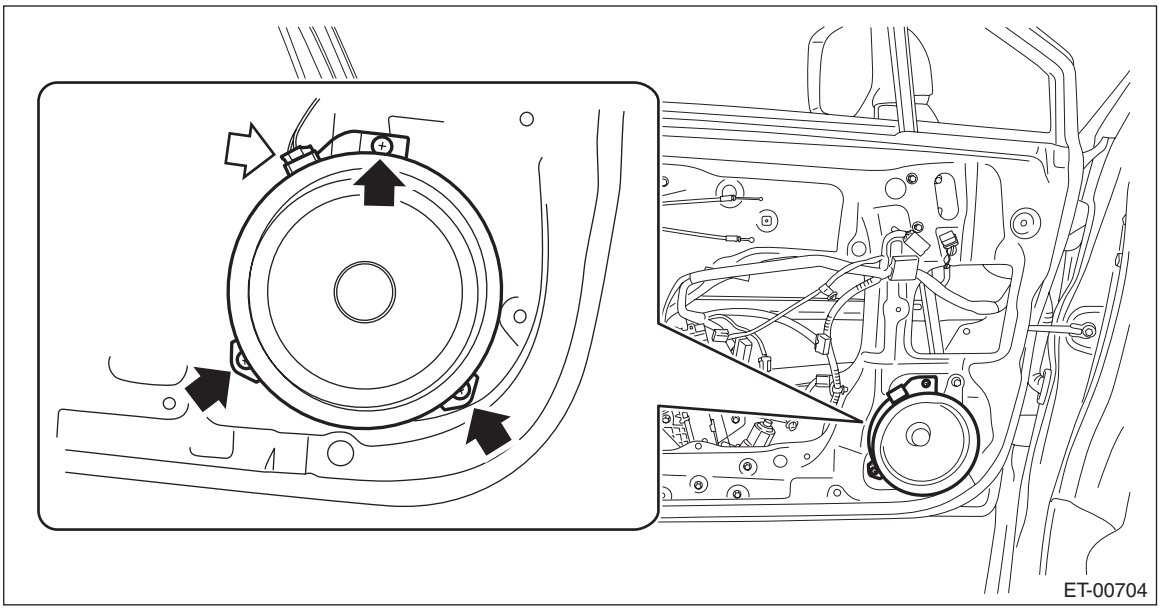
3) Remove the sealing cover - front door.

**CAUTION:**
- **Carefully remove the butyl tape. Excessive force will easily break the cover.**
- **If the sealing cover - front door gets broken, replace it with a new part.**
  (1) Remove the screw to remove the bracket - door trim front.
  (2) Carefully remove the butyl tape to remove the sealing cover - front door.

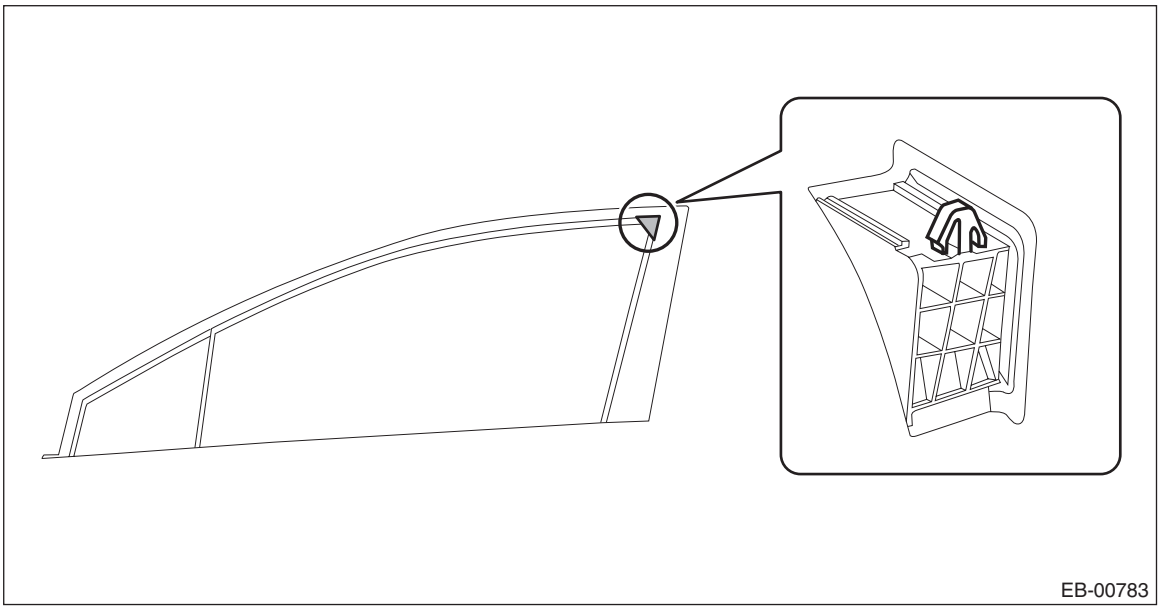



4) Remove the outer mirror assembly. <Ref. to GW-24, REMOVAL, Outer Mirror Assembly.>

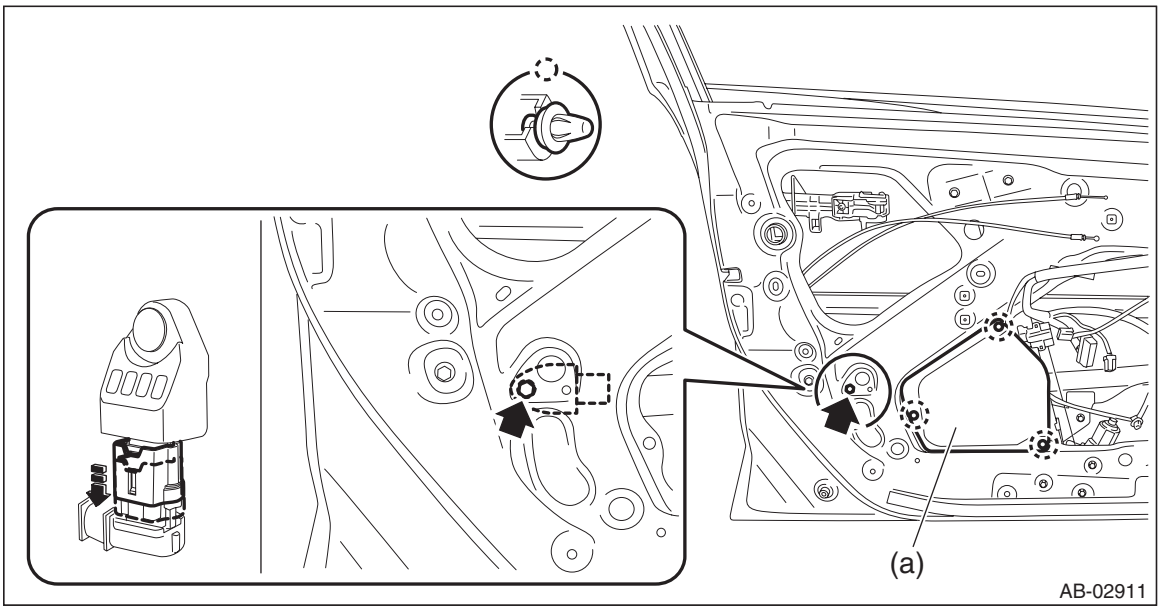
5) Remove the front door speaker assembly.
(1) Remove the screws.
(2) Disconnect the connector and remove the front speaker assembly.




6) Remove the B pillar upper clip.

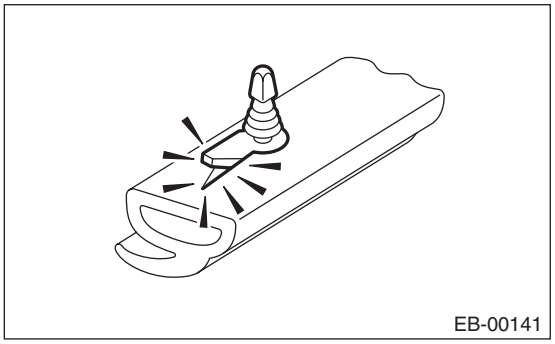


7) Remove the front door impact sensor assembly.
(1) Remove the front door inner pad (a).
(2) Remove the nuts and then remove the front door impact sensor assembly.
(3) Disconnect the airbag connector and remove the airbag door sensor assembly. <Ref. to AB-20, FRONT DOOR IMPACT SENSOR AND SATELLITE SAFING SENSOR, PROCEDURE, Airbag Connector.>

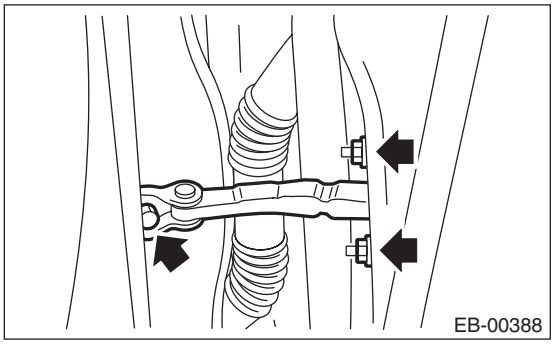



8) Remove the glass assembly - front door and the glass - front door partition. <Ref. to GW-18, REMOVAL, Front Door Glass.>
9) Remove the regulator & motor assembly - front of the front door. <Ref. to GW-21, REMOVAL, Front Regulator and Motor Assembly.>
10) Remove the latch and actuator assembly - front. <Ref. to SL-44, REMOVAL, Front Door Latch and Door Lock Actuator Assembly.>
11) Remove the handle - door outer and the cover - handle front outer. <Ref. to SL-40, REMOVAL, Front Outer Handle.>
12) Remove the weather strip - front door.

**CAUTION:**
**If the weather strip clip is removed with excessive force, the weather strip may be damaged. Be sure to use clip remover to remove.**

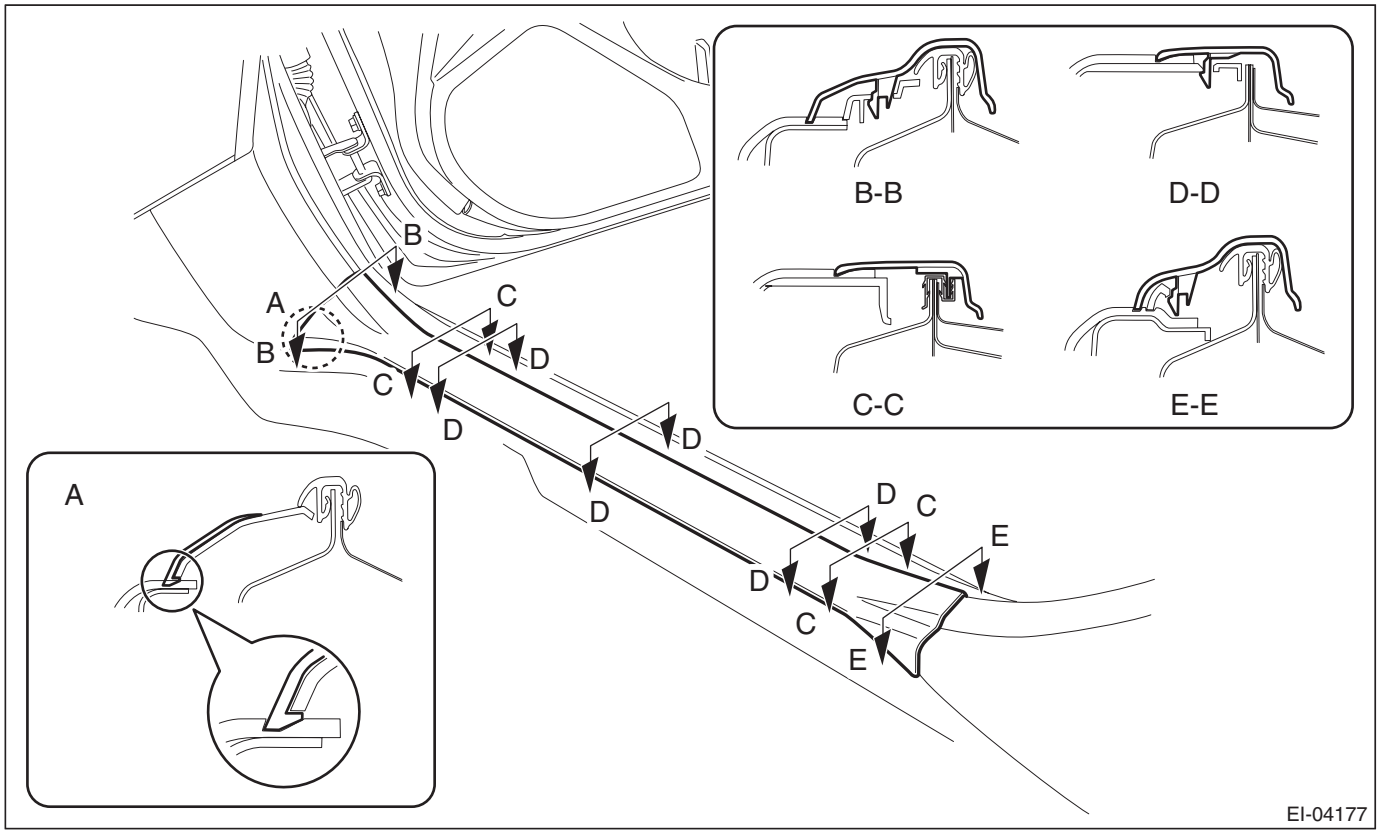


13) Remove the bolts and nuts, and then detach the checker assembly - front door.

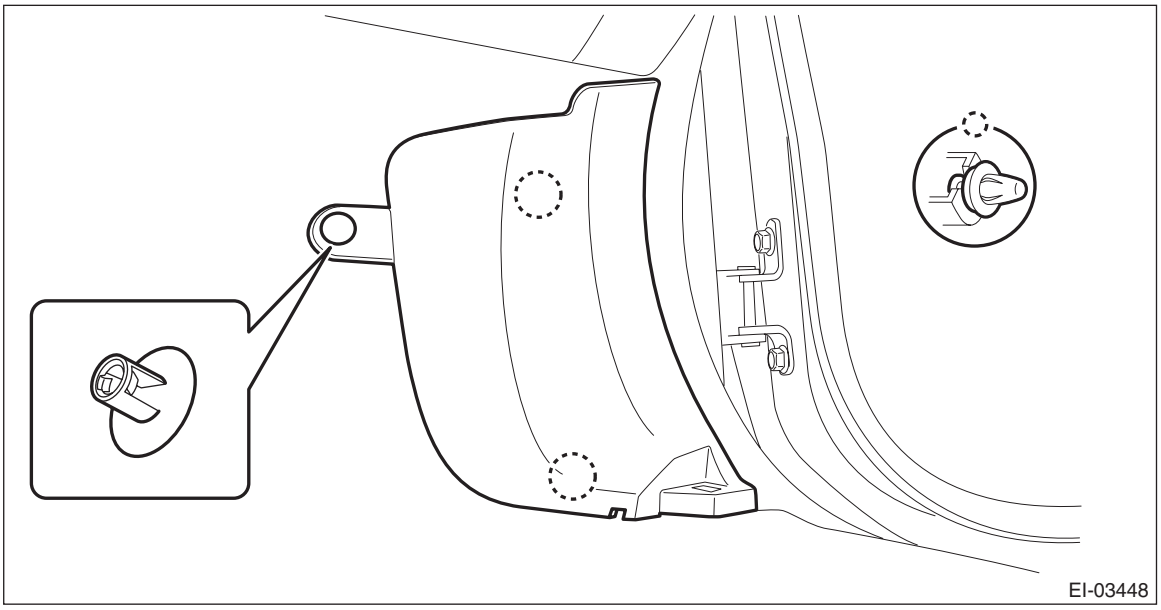



14) Release the claws, and then remove the cover side sill - front INN.

**CAUTION:**
**Do not pull with excessive force. Doing so may damage the claws of the cover side sill - front INN.**



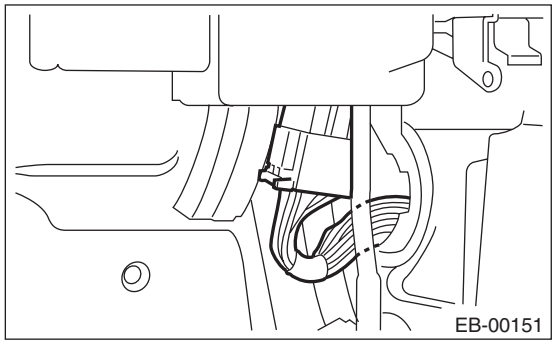
15) Remove the clips, and remove the cover side sill - front.



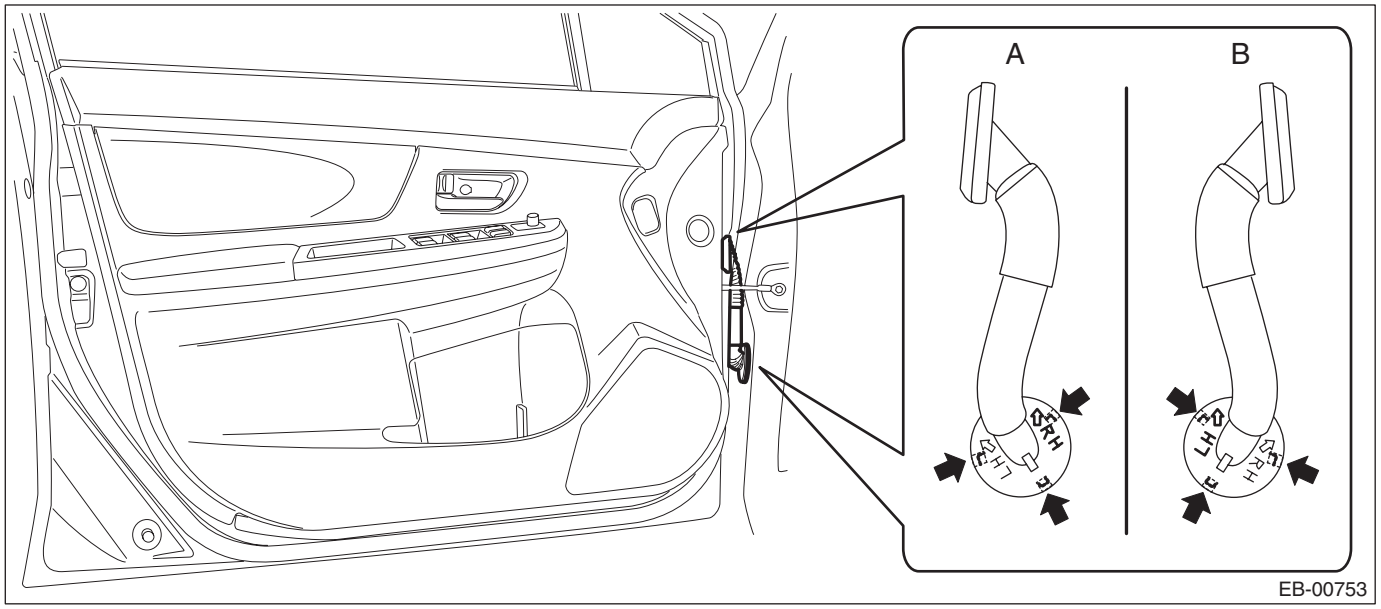

16) Disconnect the front door impact sensor harness connector. <Ref. to AB-21, FRONT DOOR IMPACT SENSOR (BETWEEN AIRBAG REAR HARNESS AND DOOR HARNESS), PROCEDURE, Airbag Connector.>

**CAUTION:**
**Always refer to "CAUTION" of "General Description" in the "AIRBAG SYSTEM" before performing any service that handles the airbag connectors. <Ref. to AB-10, CAUTION, General Description.>**

17) Disconnect the front door harness connectors.
(1) Disconnect the connector of door harness from body harness.

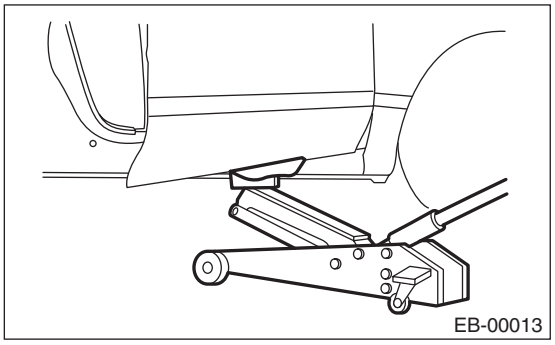


(2) Push in the claws to remove the grommet, and pull out the door harness connector.




| | |
|---|---|
| A | Driver's side |
| B | Passenger's side |

18) Before removing the panel assembly - front door, make the following preparations.

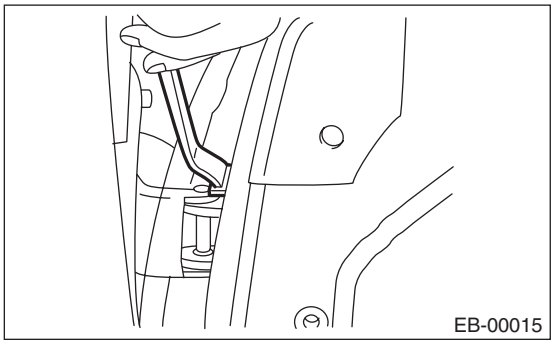



(1) Put a wooden block on a floor jack and place the jack under the panel assembly - front door.
(2) Support the panel assembly - front door with the jack to protect it from damage.

**CAUTION:**
**Do not excessively lift the panel assembly - front door with the floor jack. The door hinges may be damaged.**

19) Remove the door-side bolts for the upper hinge - front door and the lower hinge - front door to remove the panel assembly - front door.

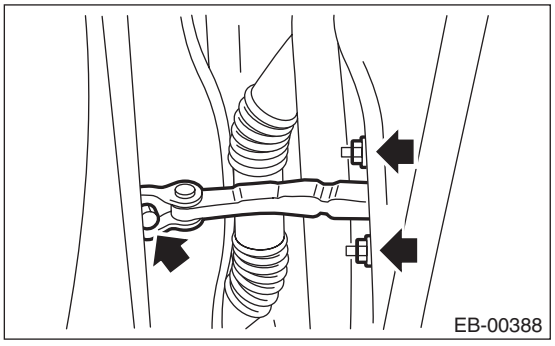
**CAUTION:**
**The panel assembly - front door is heavy. When removing and installing it, always work in a team of two or more persons.**



20) Remove the door hinge from vehicle.

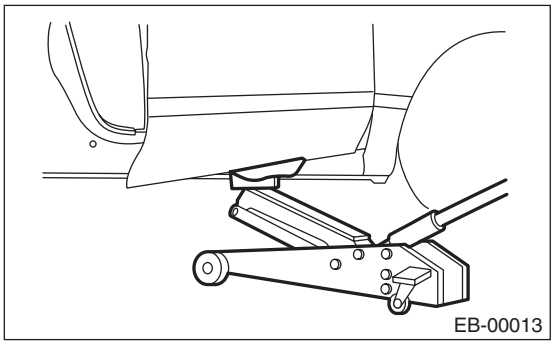
## 2. FRONT DOOR HINGE

1) Remove the bolts from the vehicle side to disconnect the checker assembly - front door.



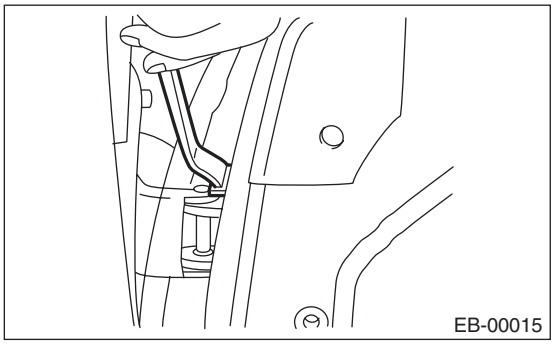

2) Before removing the door hinge, make the following preparations.
   (1) Put a wooden block on a floor jack and place the jack under the panel assembly - front door.
   (2) Support the panel assembly - front door with the jack to protect it from damage.

**CAUTION:**
**Do not excessively lift the panel assembly - front door with the floor jack. The door hinges may be damaged.**




3) Remove the bolts of the upper hinge - front door or the lower hinge - front door.

**CAUTION:**
**Do not remove the upper hinge - front door and the lower hinge - front door at the same time.**

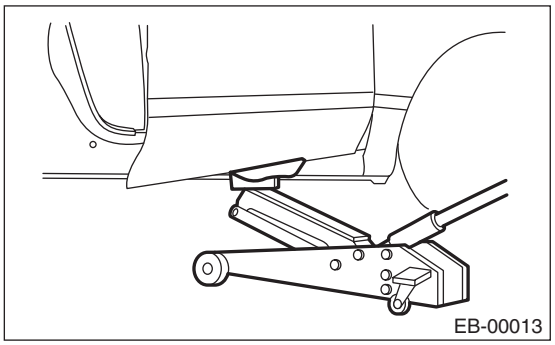



4) Remove the hinge - front door from the vehicle.

# B: INSTALLATION

## 1. FRONT DOOR PANEL

1) Put a wooden block on a jack and place the panel assembly - front door on it.




2) Apply grease to the sliding area of door hinges, and install the door hinge to vehicle.
3) Adjust the height by the jack, and temporarily install the panel assembly - front door to the upper hinge - front door and the lower hinge - front door.

NOTE:
- When installing the panel assembly - front door, make sure that a uniform clearance is created around the panel.
- Perform installation while paying attention to the assembly direction of the grommet.

4) Adjust the clearance around the panel assembly - front door. <Ref. to EB-31, ADJUSTMENT, Front Door.>
5) Tighten the bolts and nuts of the door hinge and the checker assembly - front door.

***Tightening torque:***
***Refer to "COMPONENT" of "General Description". <Ref. to EB-4, FRONT DOOR, COMPONENT, General Description.>***

6) Install door internal parts in the reverse order of removal.

NOTE:
Before installation, check the following items.
- Remote cable is free from deformation such as fray.
- Grease is applied sufficiently to remote cable joints.

If grease is insufficient, add it as necessary before assembling the remote cable.
7) Connect door harness connector, and install the cover side sill - front.

## 2. FRONT DOOR HINGE

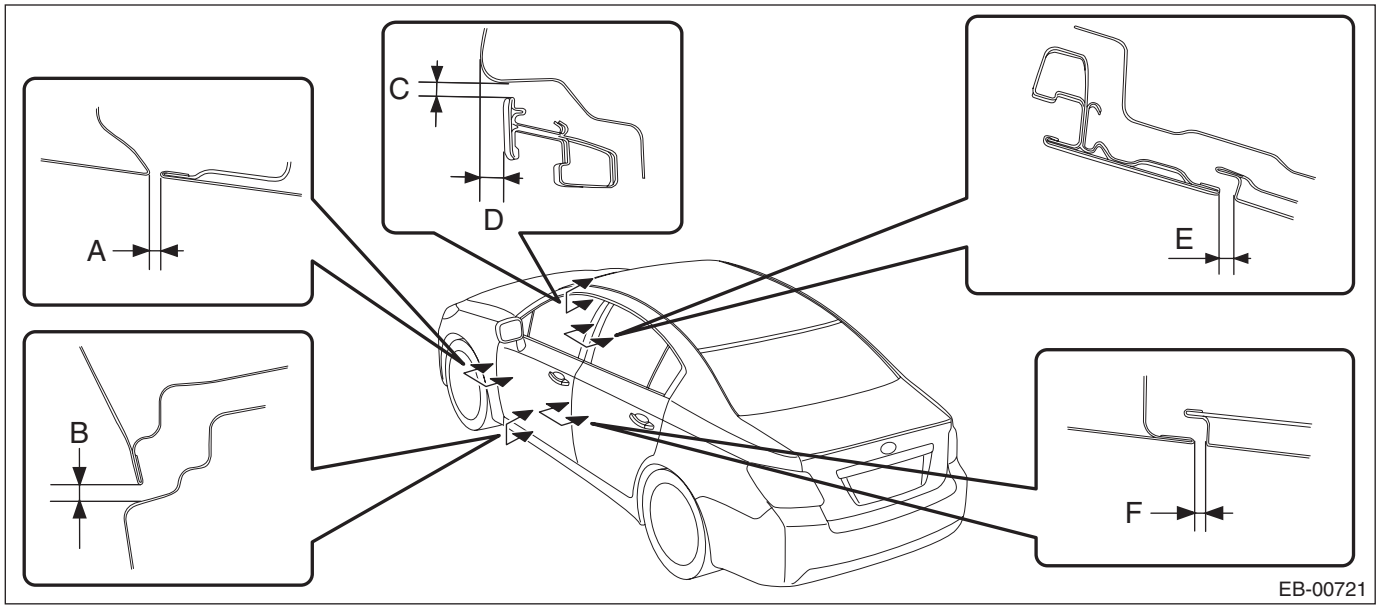
1) Apply grease to the sliding area of door hinges, and install the door hinge to vehicle.
2) Adjust the height by the jack, and temporarily install the panel assembly - front door to the upper hinge - front door and the lower hinge - front door.

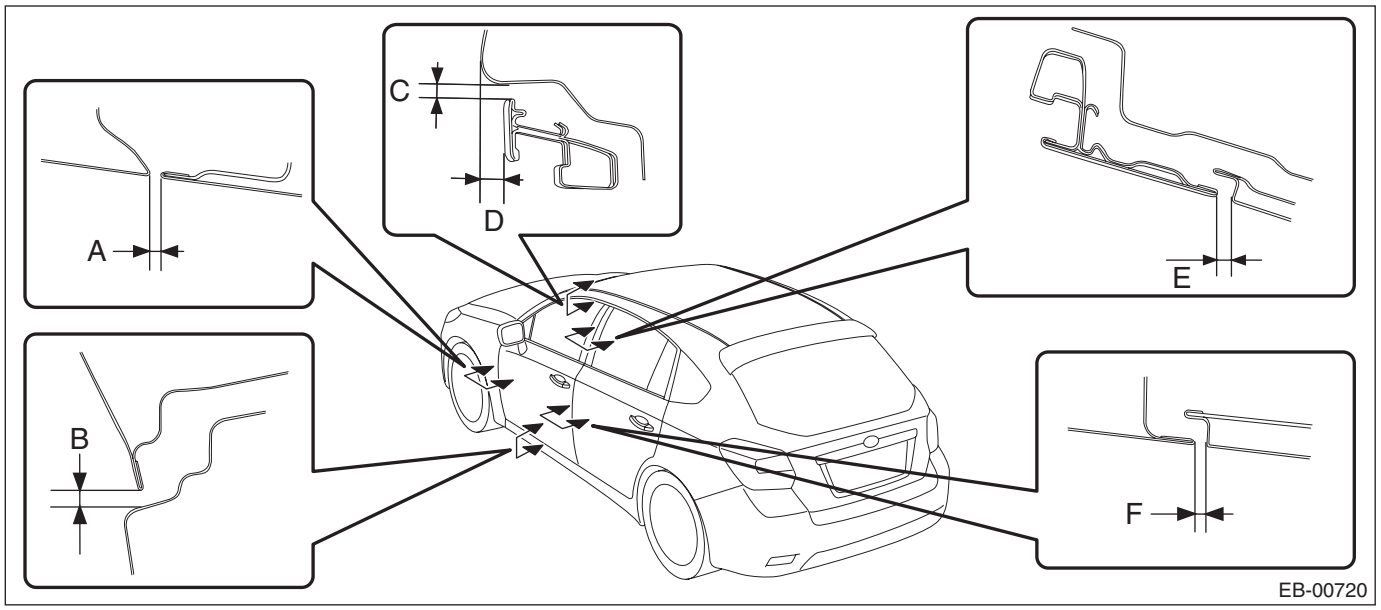
NOTE:
When installing the panel assembly - front door, make sure that a uniform clearance is created around the panel.
3) Adjust the clearance around the panel assembly - front door. <Ref. to EB-31, ADJUSTMENT, Front Door.>
4) Tighten the bolts and nuts of the door hinge and the checker assembly - front door.

***Tightening torque:***
***Refer to "COMPONENT" of "General Description". <Ref. to EB-4, FRONT DOOR, COMPONENT, General Description.>***

## C: ADJUSTMENT

Adjust the clearance around the panel assembly - front door as follows.



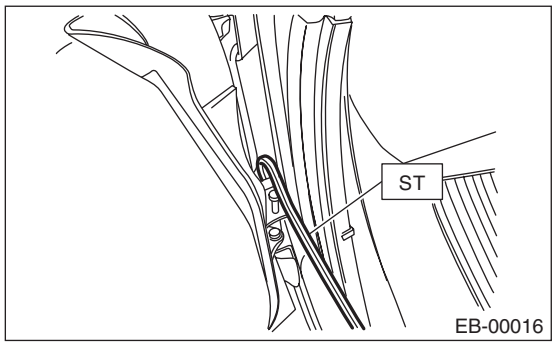




| Part | | Standard |
|---|---|---|
| A | Fender COMPL - front to Panel assembly - front door | 4.5±1.0 mm (0.18±0.04 in) |
| B | Panel assembly - front door to Side sill | 6.0+1.5, –1.0 mm (0.24+0.06, –0.04 in) |
| C | Roof panel to Front door sash | 5.1+1.5, –1.0 mm (0.20+0.06, –0.04 in) |
| D | Surface level gap between roof panel and front door sash | 7±1.5 mm (0.28±0.06 in) |
| E | Front door sash to Rear door sash | 5.5+1.5, –1.0 mm (0.22+0.06, –0.04 in) |
| F | Panel assembly - front door to Panel assembly - rear door | 4.5±1.0 mm (0.18±0.04 in) |

NOTE:
Common to 4 door model and 5 door model/XV model

1) Adjust the vertical and horizontal positions of the panel assembly - front door.

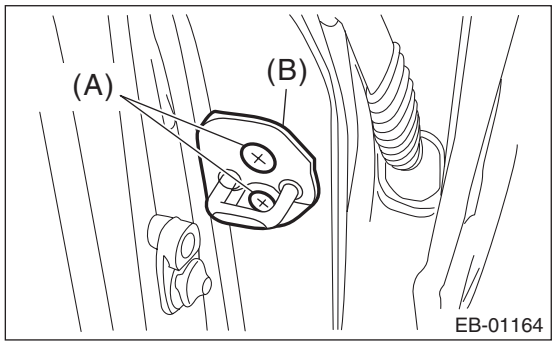
***Preparation tool:***
***ST: WRENCH (925610000)***




(1) Using ST, loosen the body side bolts of the upper hinge - front door and the lower hinge - front door.
(2) Adjust the vertical and horizontal clearance of the panel assembly - front door.

2) Adjust the surface level gap between the panel assembly - front door and the panel assembly - rear door.

**CAUTION:**
**Do not use an impact wrench. Welding area on the striker nut plate is easily broken.**




(1) Loosen the screws (A).
(2) Tap the striker - front door (B) using a plastic hammer to adjust the surface level gap between the rear end of the panel assembly - front door and the front end of the panel assembly - rear door.

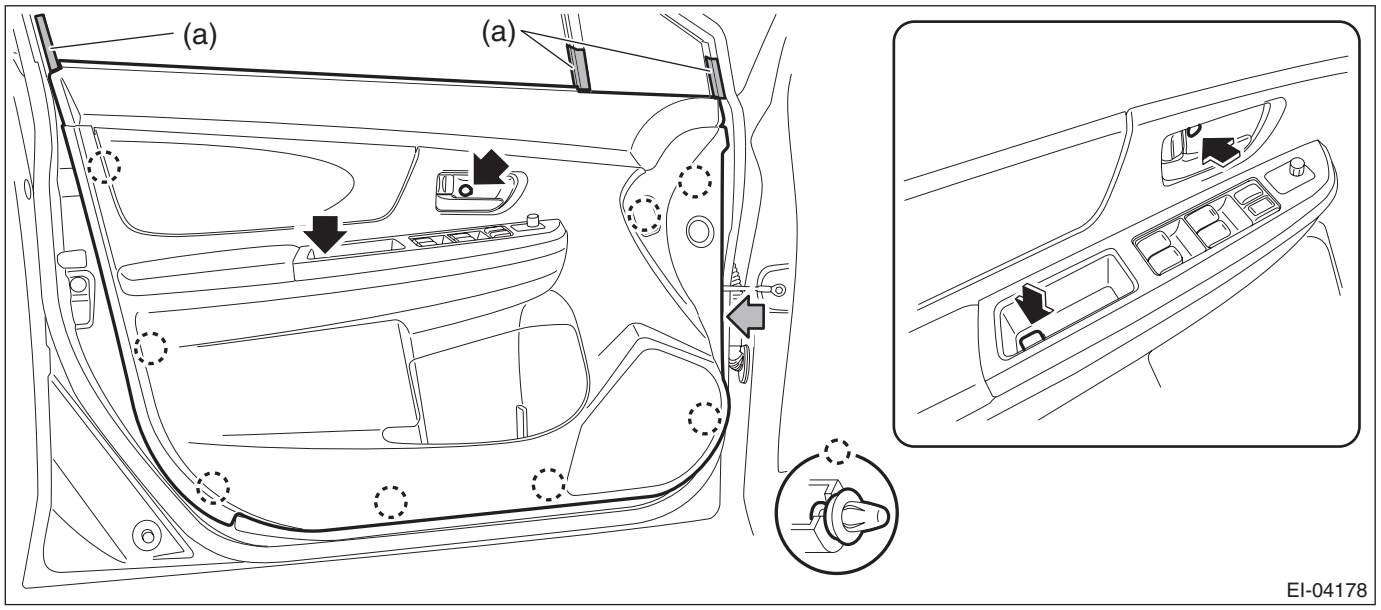
# 5. Front Sealing Cover

## A: REMOVAL

1) Disconnect the ground cable from battery and wait for at least 60 seconds before starting work. <Ref. to NT-5, BATTERY, NOTE, Note.>

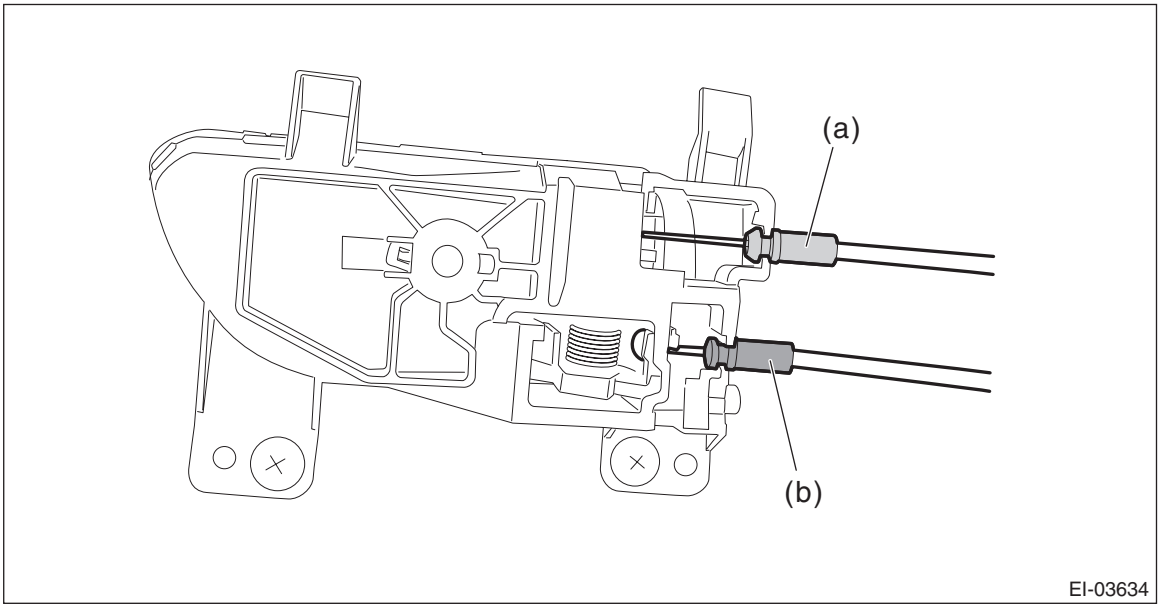
NOTE:
For the 12 volt engine restart battery of HEV model, disconnect the ground terminal from 12V engine restart battery sensor.

2) Remove the trim panel - front door.
   (1) Attach the protective tape (a).
   (2) Open the cover and remove the screw.
   (3) Remove the clips, and remove the trim panel - front door from the panel assembly - front door.




NOTE:
It is easier to remove the trim panel - front door if the removal is performed from the gray arrow section.

   (4) Detach the door lock cable (a) and door open cable (b) from the remote assembly - door.

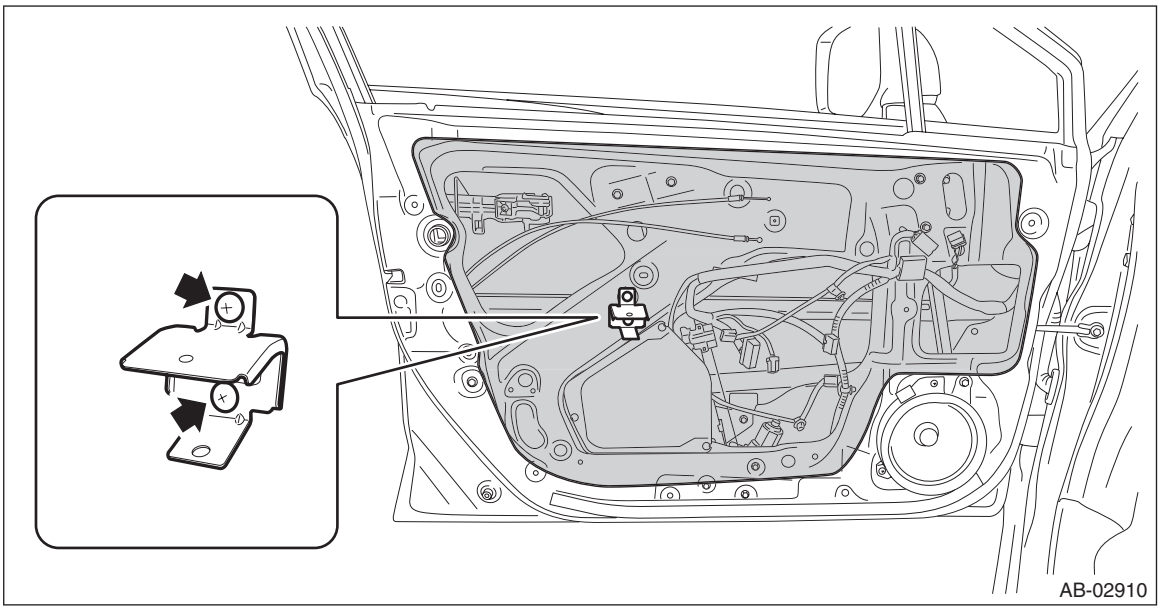



   (5) Disconnect the harness connector and remove the trim panel - front door.

3) Remove the sealing cover - front door.

**CAUTION:**
- **Carefully remove the butyl tape. Excessive force will easily break the cover.**
- **If the sealing cover - front door gets broken, replace it with a new part.**

(1) Remove the screw to remove the bracket - door trim front.
(2) Carefully remove the butyl tape to remove the sealing cover - front door.




## B: INSTALLATION

**CAUTION:**
- **If the sealing cover - front door gets broken, replace it with a new part.**
- **Apply a uniform bead of butyl tape.**
- **Attach the sealing cover - front door, keeping it from becoming wrinkled.**
- **Breaks in the bead will allow water leakage and contamination.**

1) When replacing the sealing cover - front door, use the butyl tape.
2) Press the butyl tape-applied area firmly to prevent any floating on surface.

***Butyl tape:***
***3M Butyl Rubber 8626 or equivalent***

3) Install each part in the reverse order of removal.

NOTE:
Before installation, check the following items.
- Remote cable is free from deformation such as fray.
- Grease is applied sufficiently to remote cable joints.

If grease is insufficient, add it as necessary before assembling the remote cable.

## C: INSPECTION

If the sealing cover - front door is broken, replace it with a new part.

# 6. Rear Door

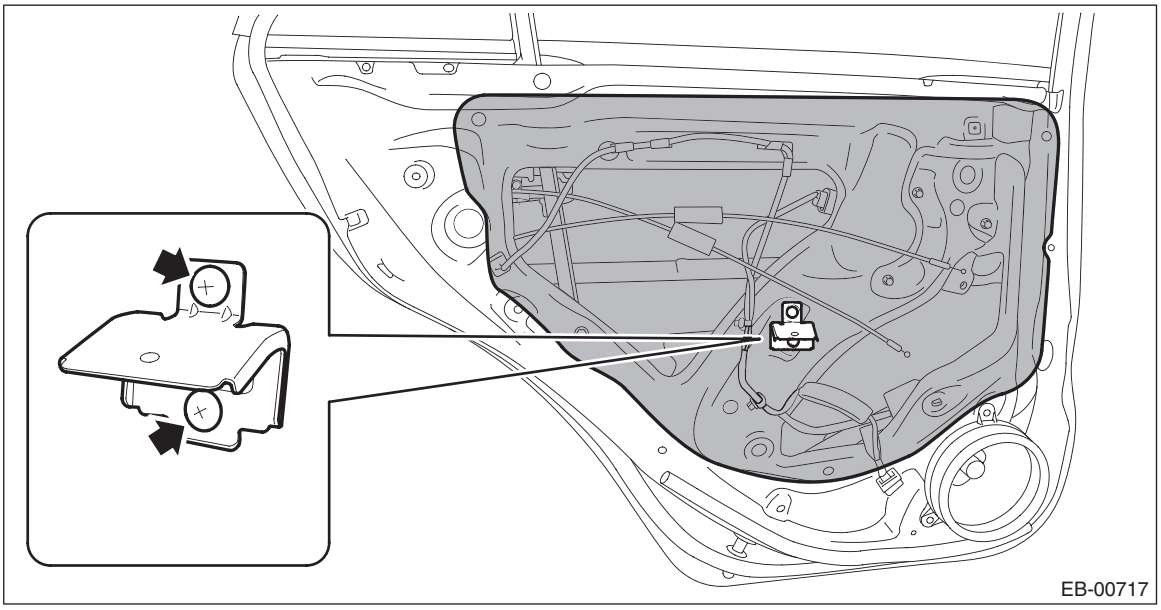
## A: REMOVAL

### 1. REAR DOOR PANEL

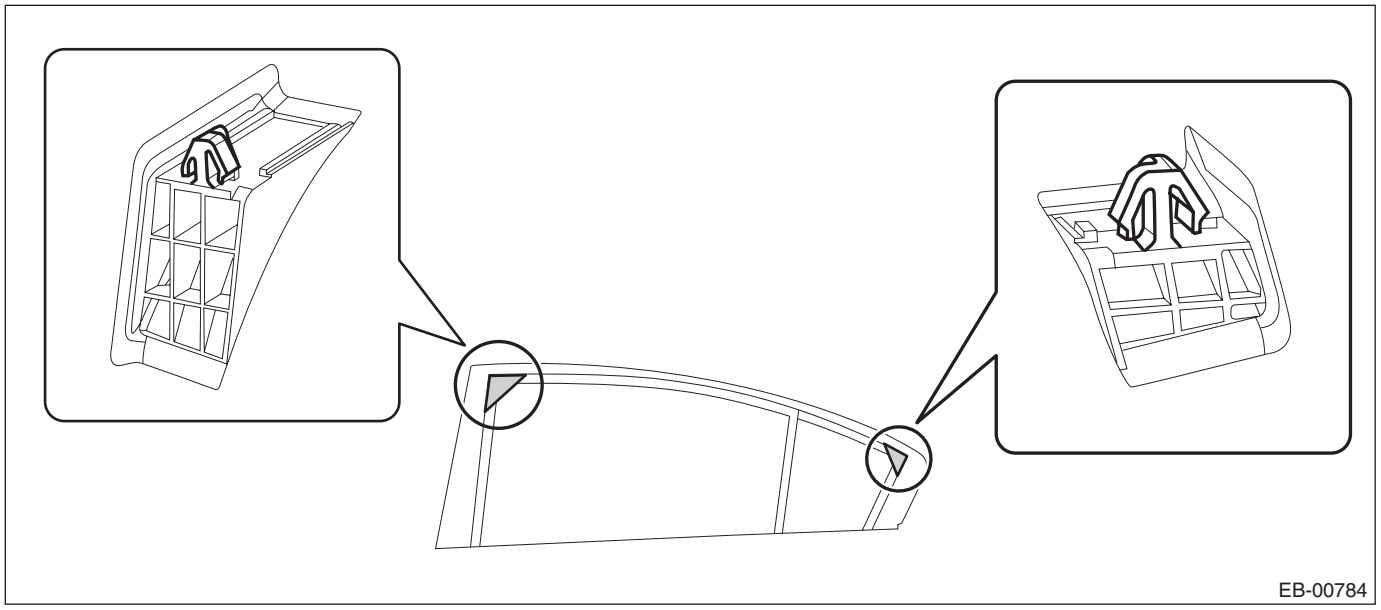
1) Disconnect the ground cable from battery. <Ref. to NT-5, BATTERY, NOTE, Note.>

NOTE:
For the 12 volt engine restart battery of HEV model, disconnect the ground terminal from 12V engine restart battery sensor.
2) Remove the trim panel - rear door. <Ref. to EI-73, REAR DOOR, REMOVAL, Door Trim.>
3) Remove the sealing cover - rear door.

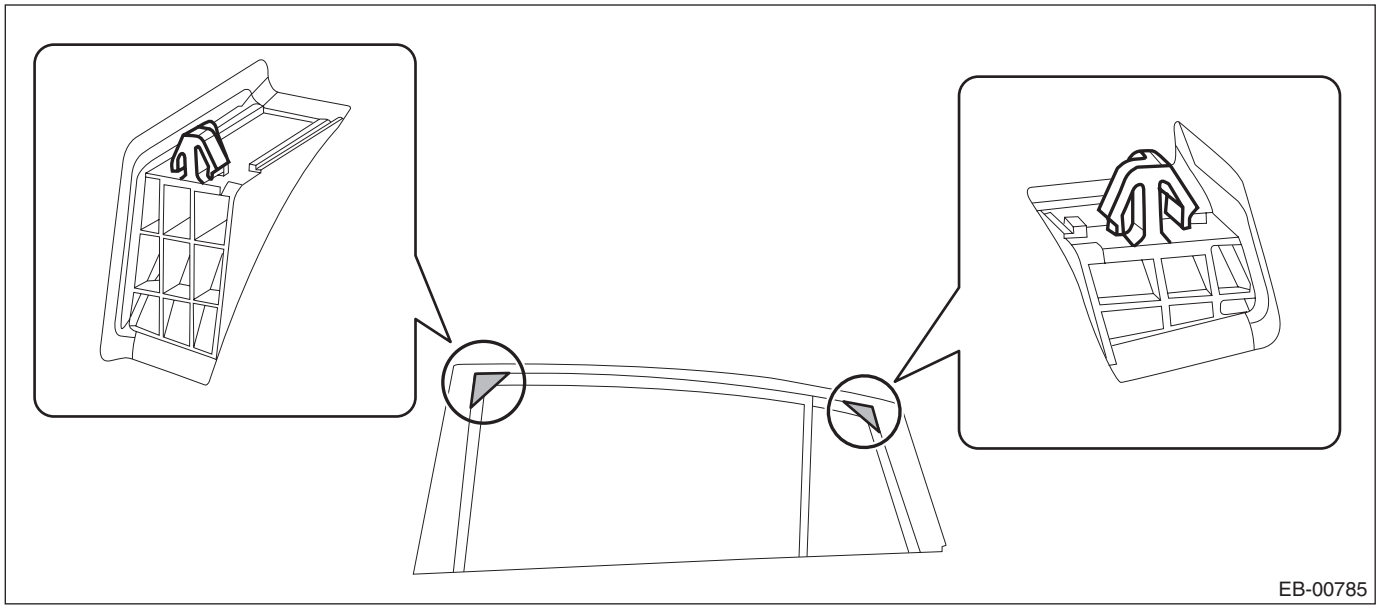
**CAUTION:**
- **Carefully remove the butyl tape. Excessive force will easily break the cover.**
- **If the sealing cover - rear door gets broken, replace it with a new part.**
  (1) Remove the screw to remove the bracket - door trim rear.
  (2) Carefully remove the butyl tape to remove the sealing cover - rear door.



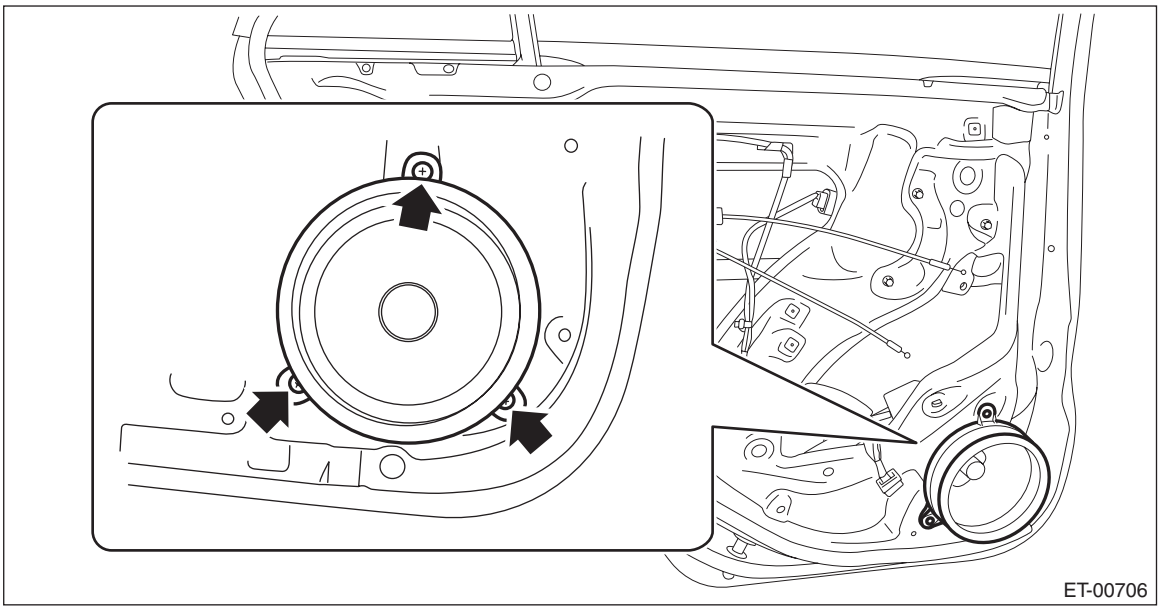
4) Remove the B and C pillar upper clips.
- 4 door model




- 5 door model/XV model

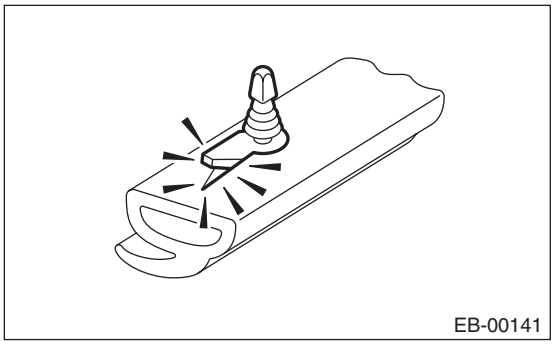


5) Remove the rear door speaker assembly.
(1) Remove the screws.
(2) Disconnect the connector behind the speaker and remove the rear speaker assembly.

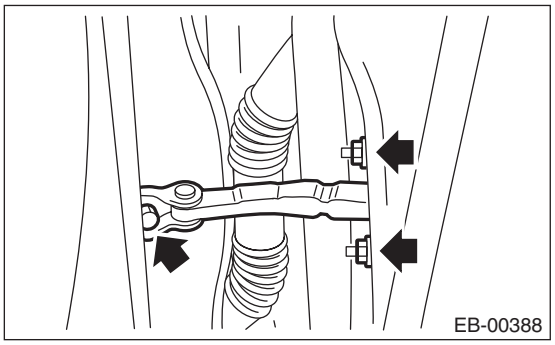



6) Remove the sash COMPL - rear partition and the glass assembly - rear door. <Ref. to GW-31, REMOVAL, Rear Door Glass.>
7) Remove the regulator - rear. <Ref. to GW-33, REMOVAL, Rear Regulator and Motor Assembly.>
8) Remove the latch and actuator assembly - rear. <Ref. to SL-52, REMOVAL, Rear Door Latch and Door Lock Actuator Assembly.>
9) Remove the handle - door outer and the cover - handle rear outer. <Ref. to SL-48, REMOVAL, Rear Outer Handle.>
10) Remove the weather strip - rear door.

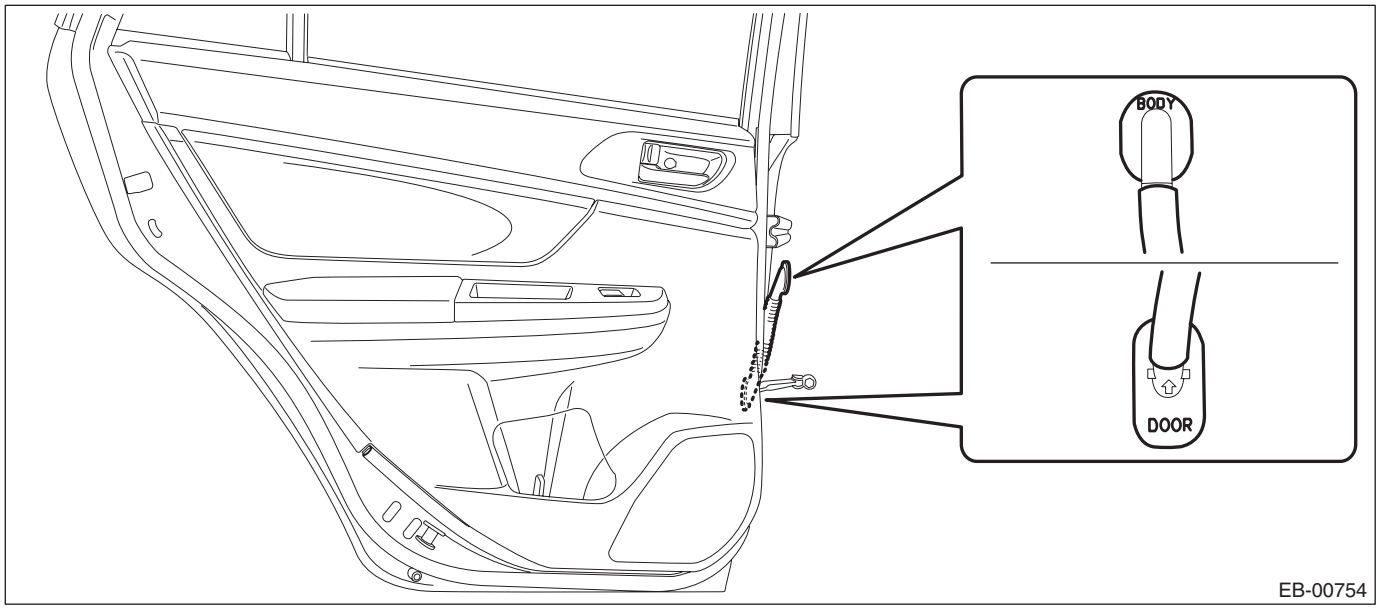
**CAUTION:**
**If the weather strip clip is removed with excessive force, the weather strip may be damaged. Be sure to use clip remover to remove.**



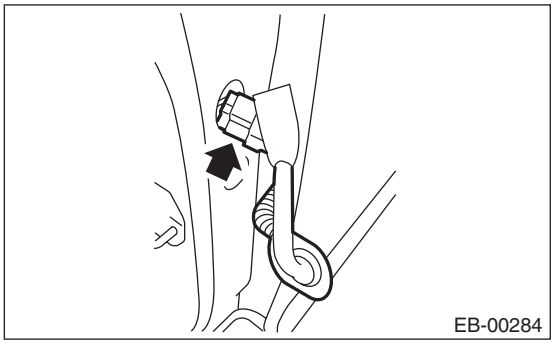

11) Remove the bolts and nuts, and then detach the checker assembly - rear door.



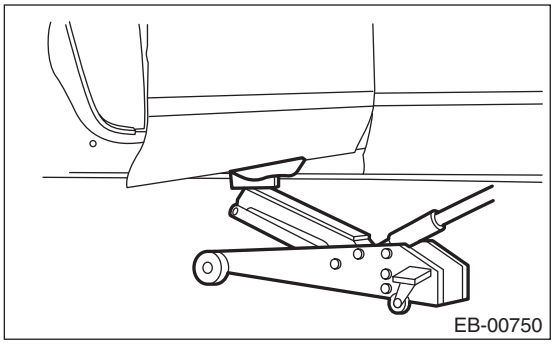
12) Disconnect the rear door harness connectors.
(1) Remove the grommet and pull out the rear door harness connector from inside the center pillar.




(2) Disconnect the rear door harness connectors.




13) Before removing the panel assembly - rear door, make the following preparations.

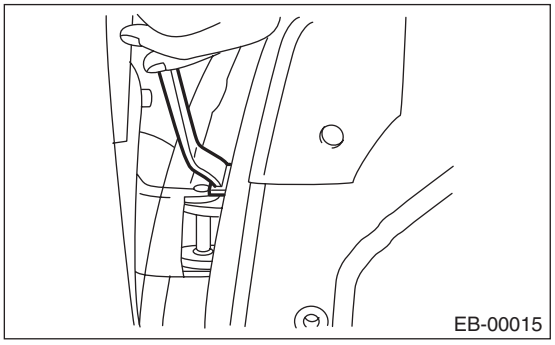



(1) Put a wooden block on a floor jack and place the jack under the panel assembly - rear door.
(2) Support the panel assembly - rear door with the jack to protect it from damage.

**CAUTION:**
**Do not excessively lift the panel assembly - rear door with the floor jack. The door hinges may be damaged.**

14) Remove the door-side bolts for the upper hinge - rear door and the lower hinge - rear door to remove the panel assembly - rear door.

**CAUTION:**
**The panel assembly - rear door is heavy. When removing and installing it, always work in a team of two or more persons.**




15) Remove the door hinge from vehicle. <Ref. to EB-39, REAR DOOR HINGE, REMOVAL, Rear Door.>

## 2. REAR DOOR HINGE

1) Open the panel assembly - front door, and remove the bolts of the upper hinge - rear door or the lower hinge - rear door.

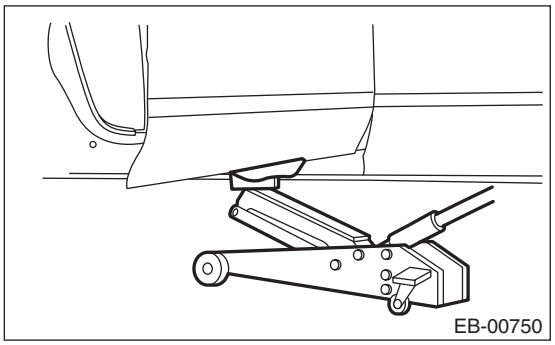
**CAUTION:**
- **Do not remove the upper hinge - rear door and the lower hinge - rear door at the same time.**
- **Removal and installation of the panel assembly - rear door must be performed with the door closed.**

2) Remove the rear door hinge from vehicle.

# B: INSTALLATION

## 1. REAR DOOR PANEL

1) Put a wooden block on a jack and place the panel assembly - rear door on it.




2) Apply grease to the moving part of door hinges.
3) Adjust the height by the jack, and temporarily install the panel assembly - rear door to the upper hinge - rear door and the lower hinge - rear door.

NOTE:
• When installing the panel assembly - rear door, make sure that a uniform clearance is created around the panel.
• Perform installation while paying attention to the assembly direction of the grommet.

4) Adjust the clearance around the panel assembly - rear door. <Ref. to EB-41, ADJUSTMENT, Rear Door.>
5) Tighten the bolts and nuts of the door hinge and the checker assembly - rear door.

***Tightening torque:***
***Refer to "COMPONENT" of "General Description". <Ref. to EB-5, REAR DOOR, COMPONENT, General Description.>***

6) Install door internal parts in the reverse order of removal.

NOTE:
Before installation, check the following items.
• Remote cable is free from deformation such as fray.
• Grease is applied sufficiently to remote cable joints.

If grease is insufficient, add it as necessary before assembling the remote cable.
7) Connect the door harness connector, and install the harness grommet.

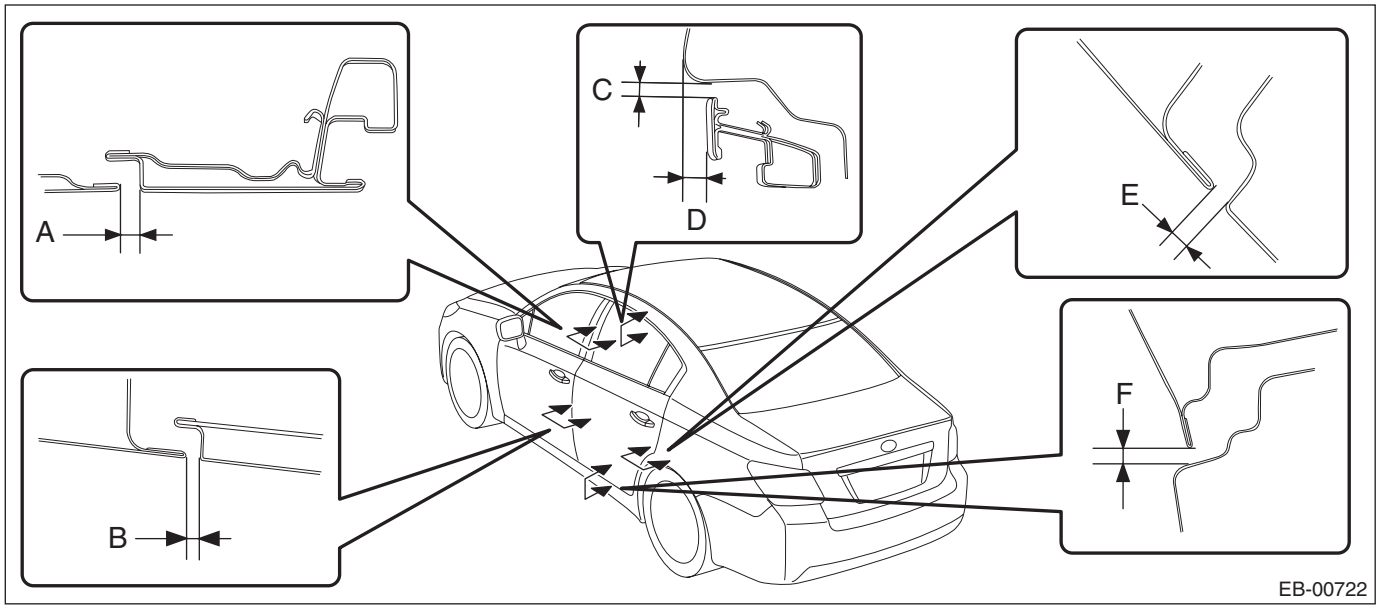
## 2. REAR DOOR HINGE

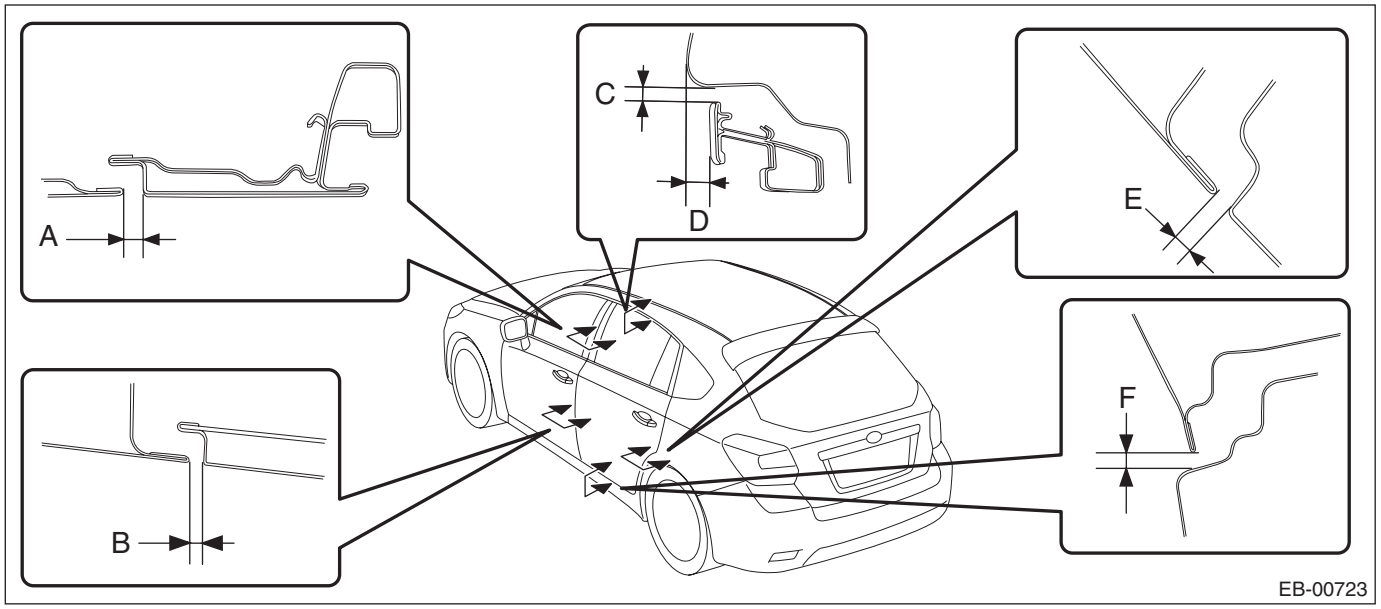
1) Apply grease to the moving part of door hinges.
2) Adjust the clearance around the panel assembly - rear door. <Ref. to EB-41, ADJUSTMENT, Rear Door.>
3) Tighten the door hinge bolts.

***Tightening torque:***
***Refer to "COMPONENT" of "General Description". <Ref. to EB-5, REAR DOOR, COMPONENT, General Description.>***

## C: ADJUSTMENT

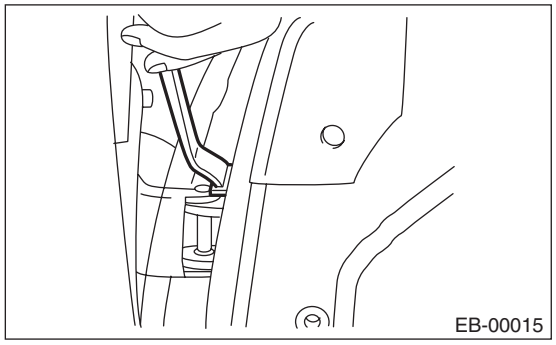
Adjust the clearance around the panel assembly - rear door as follows.




| Part | | Standard |
|---|---|---|
| A | Front door sash to Rear door sash | 5.5+1.5, –1.0 mm (0.22+0.06, –0.04 in) |
| B | Panel assembly - front door to Panel assembly - rear door | 4.5±1.0 mm (0.18±0.04 in) |
| C | Roof panel to Rear door sash | 5.1+1.5, –1.0 mm (0.20+0.06, –0.04 in) |
| D | Surface level gap between roof panel and rear door sash | 6.6±1.5 mm (0.26±0.06 in) |
| E | Panel assembly - rear door to Rear quarter panel | 4.1±1.0 mm (0.16±0.04 in) |
| F | Panel assembly - rear door to Side sill | 6.0±1.5 mm (0.24±0.06 in) |

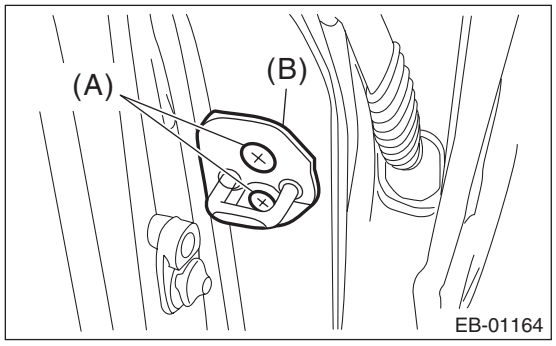
1) Adjust the vertical and horizontal positions of the panel assembly - rear door.




(1) Loosen the body side bolts of the upper hinge - rear door and the lower hinge - rear door.
(2) Adjust the vertical and horizontal clearance of the panel assembly - rear door.

2) Adjust the surface level gap between the panel assembly - rear door and the body.

**CAUTION:**
**Do not use an impact wrench. Welding area on the striker nut plate is easily broken.**




(1) Loosen the screws (A).
(2) Tap the striker - rear door (B) using a plastic hammer to adjust the surface level gap between the rear end of the panel assembly - rear door and the rear quarter.

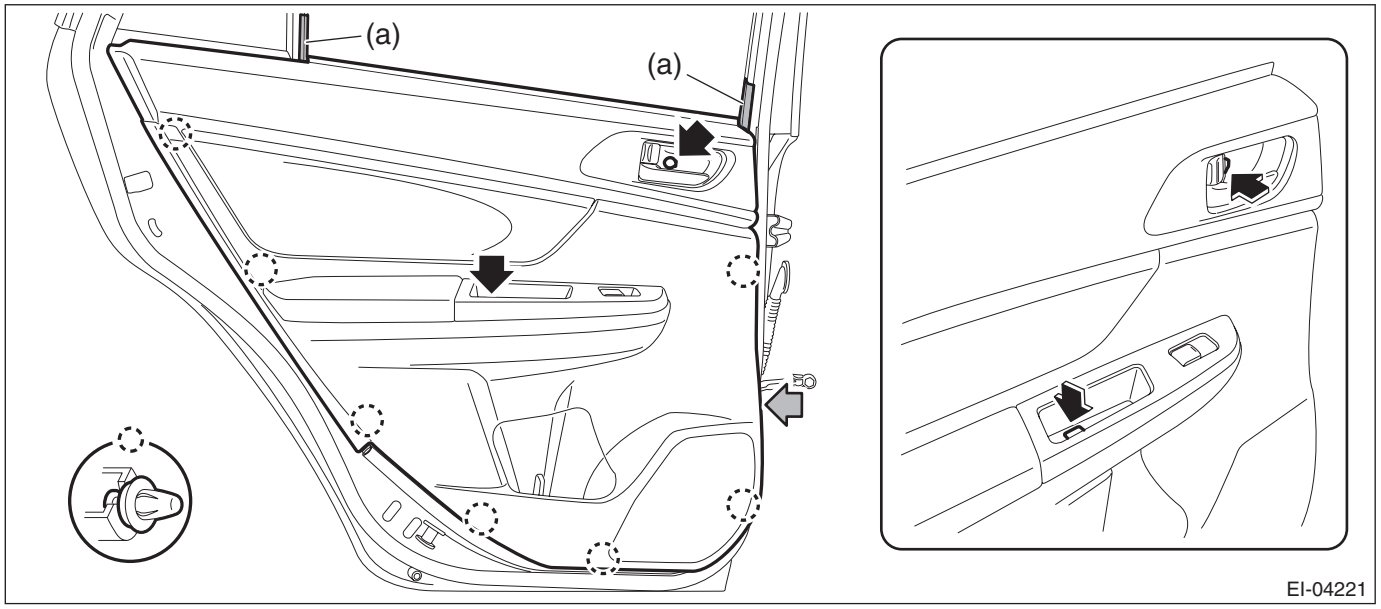
# 7. Rear Sealing Cover

## A: REMOVAL

1) Disconnect the ground cable from battery. <Ref. to NT-5, BATTERY, NOTE, Note.>

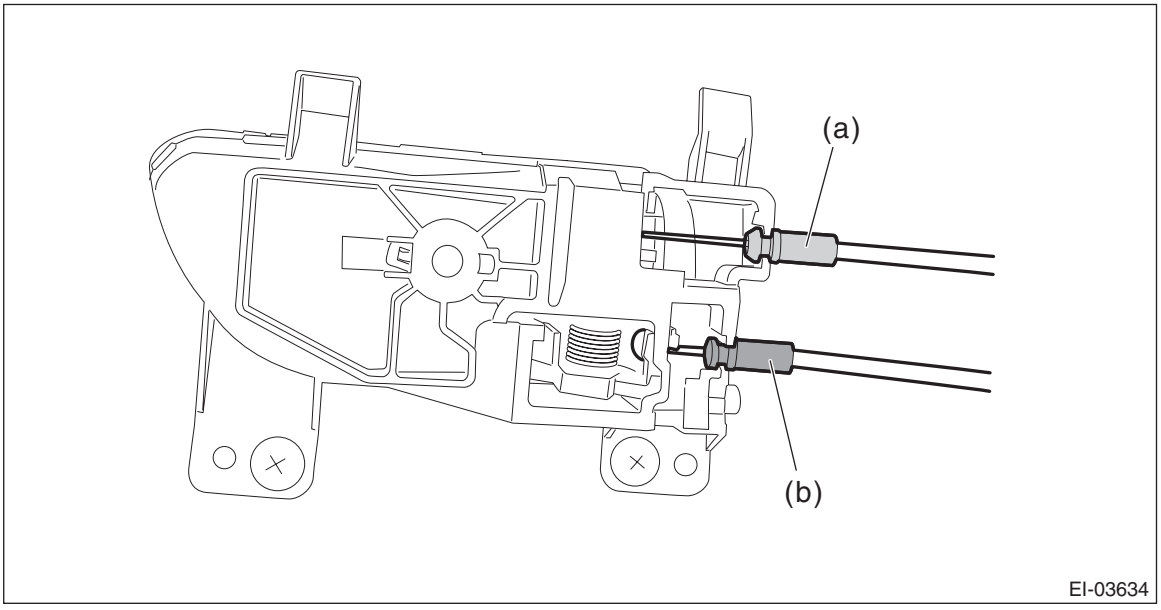
NOTE:
For the 12 volt engine restart battery of HEV model, disconnect the ground terminal from 12V engine restart battery sensor.

2) Remove the trim panel - rear door.
   (1) Attach the protective tape (a).
   (2) Open the cover and remove the screw.
   (3) Remove the clips, and remove the trim panel - rear door from the panel assembly - rear door.




NOTE:
It is easier to remove the door trim if the removal is performed from the gray arrow section.

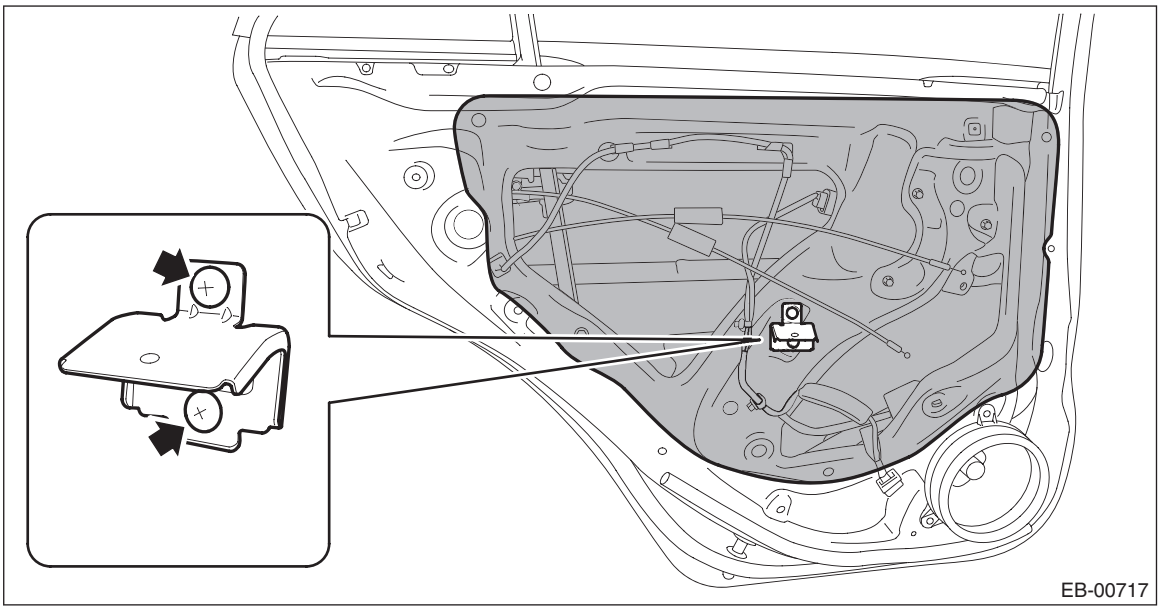
   (4) Detach the door lock cable (a) and door open cable (b) from the remote assembly - door.




   (5) Disconnect the harness connector and remove the trim panel - rear door.

3) Remove the sealing cover - rear door.

**CAUTION:**
- **Carefully remove the butyl tape. Excessive force will easily break the cover.**
- **If the sealing cover - rear door gets broken, replace it with a new part.**
  (1) Remove the screw to remove the bracket - door trim rear.
  (2) Carefully remove the butyl tape to remove the sealing cover - rear door.




## B: INSTALLATION

**CAUTION:**
- **If the sealing cover - rear door gets broken, replace it with a new part.**
- **Apply a butyl tape evenly.**
- **Attach the sealing cover - rear door, keeping it from becoming wrinkled.**
- **If the butyl tape is applied unevenly, it will cause water leakage and soiling.**

1) When replacing the sealing cover - rear door, use the butyl tape.
2) Press the butyl tape-applied area firmly to prevent any floating on surface.

***Butyl tape:***
***3M Butyl Rubber 8626 or equivalent***

3) Install each part in the reverse order of removal.

NOTE:
Before installation, check the following items.
- Remote cable is free from deformation such as fray.
- Grease is applied sufficiently to remote cable joints.

If grease is insufficient, add it as necessary before assembling the remote cable.

## C: INSPECTION

If the sealing cover - rear door is broken, replace it with a new part.

# 8. Door Sash Tape

## A: REMOVAL

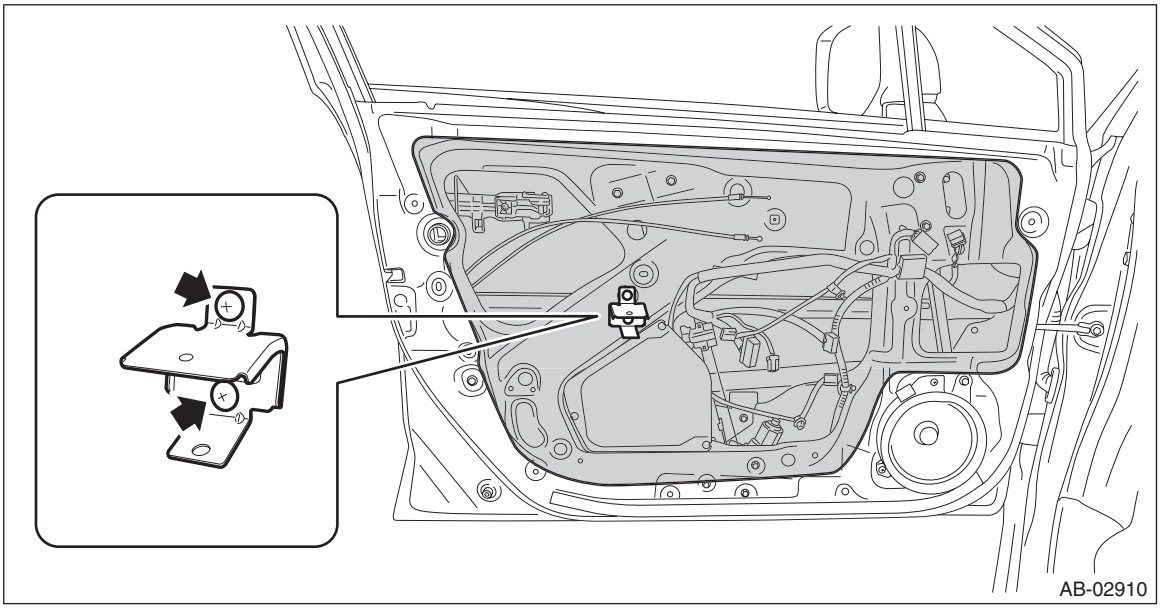
### 1. FRONT DOOR

1) Disconnect the ground cable from battery and wait for at least 60 seconds before starting work. <Ref. to NT-5, BATTERY, NOTE, Note.>

NOTE:
For the 12 volt engine restart battery of HEV model, disconnect the ground terminal from 12V engine restart battery sensor.

2) Remove the trim panel - front door. <Ref. to EI-72, FRONT DOOR, REMOVAL, Door Trim.>
3) Remove the outer mirror assembly. <Ref. to GW-24, REMOVAL, Outer Mirror Assembly.>
4) Remove the sealing cover - front door.

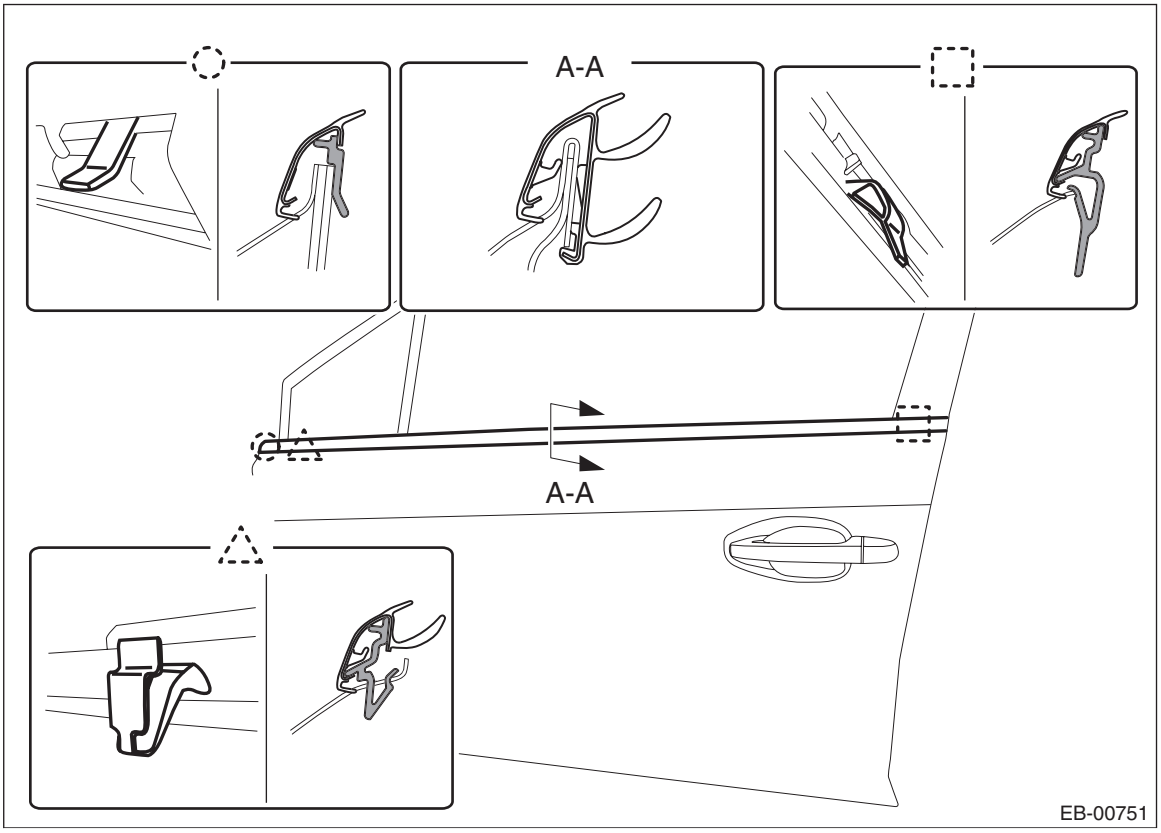
**CAUTION:**
- **Carefully remove the butyl tape. Excessive force will easily break the cover.**
- **If the sealing cover - front door gets broken, replace it with a new part.**




5) Remove the glass assembly - front door. <Ref. to GW-18, REMOVAL, Front Door Glass.>
6) Remove the running channel - front door.

7) Remove the weather strip outer - front door.

**CAUTION:**
- **When removing the weather strip outer, be careful not to damage the vehicle.**
- **Do not reuse the weather strip outer. Always replace with a new part.**




8) Peel the door sash tape from the door sash.

NOTE:
- If the tape is difficult to detach, warm it by a hot air drier.

Use a household hairdryer. Do not use industrial dryers.
- If tape residue is remaining on the door sash, wipe clean.

## 2. REAR DOOR

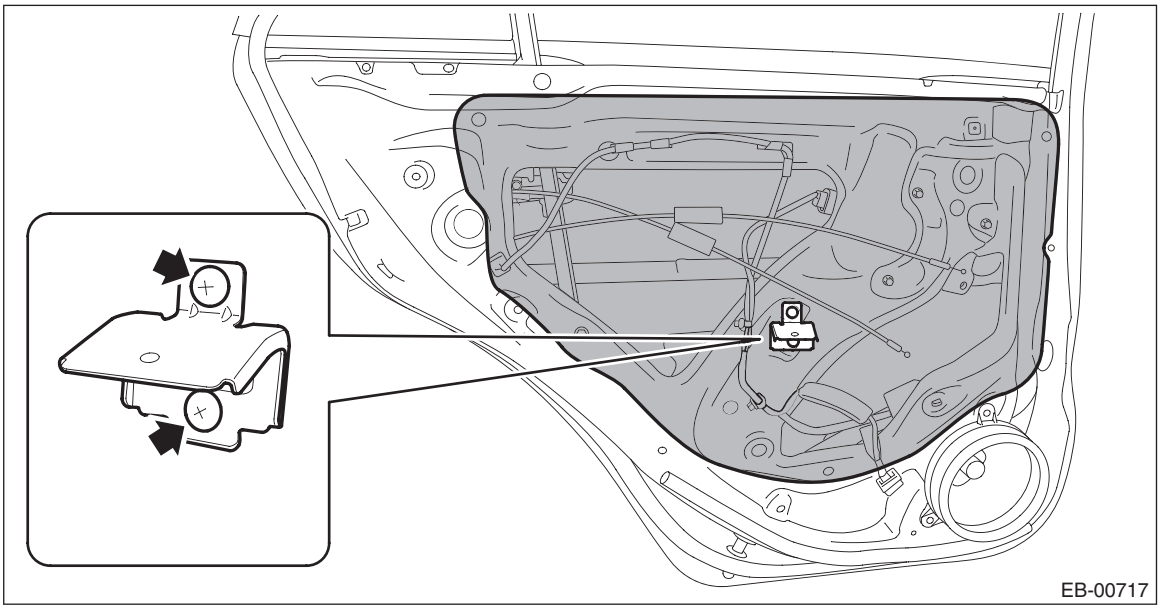
1) Disconnect the ground cable from battery. <Ref. to NT-5, BATTERY, NOTE, Note.>

NOTE:
For the 12 volt engine restart battery of HEV model, disconnect the ground terminal from 12V engine restart battery sensor.

2) Remove the trim panel - rear door. <Ref. to EI-73, REAR DOOR, REMOVAL, Door Trim.>

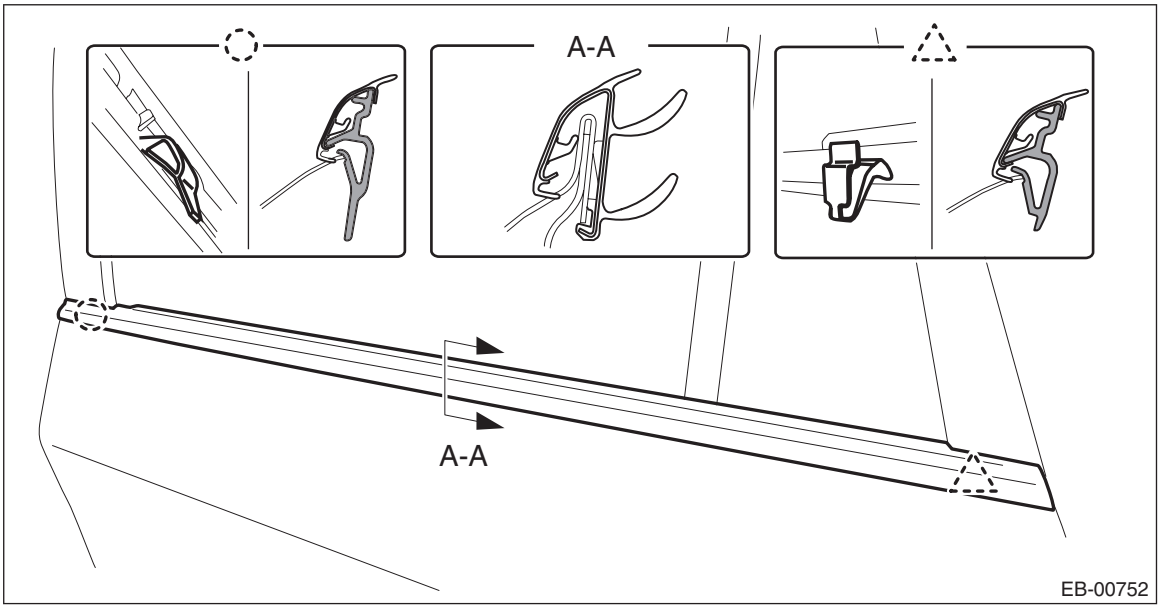
3) Remove the sealing cover - rear door.

**CAUTION:**
- **Carefully remove the butyl tape. Excessive force will easily break the cover.**
- **If the sealing cover - rear door gets broken, replace it with a new part.**




4) Remove the glass assembly - rear door. <Ref. to GW-31, REMOVAL, Rear Door Glass.>
5) Remove the running channel - rear door.
6) Remove the weather strip outer - rear door.

**CAUTION:**
- **When removing the weather strip outer, be careful not to damage the vehicle.**
- **Do not reuse the weather strip outer. Always replace with a new part.**




7) Peel the door sash tape from the door sash.

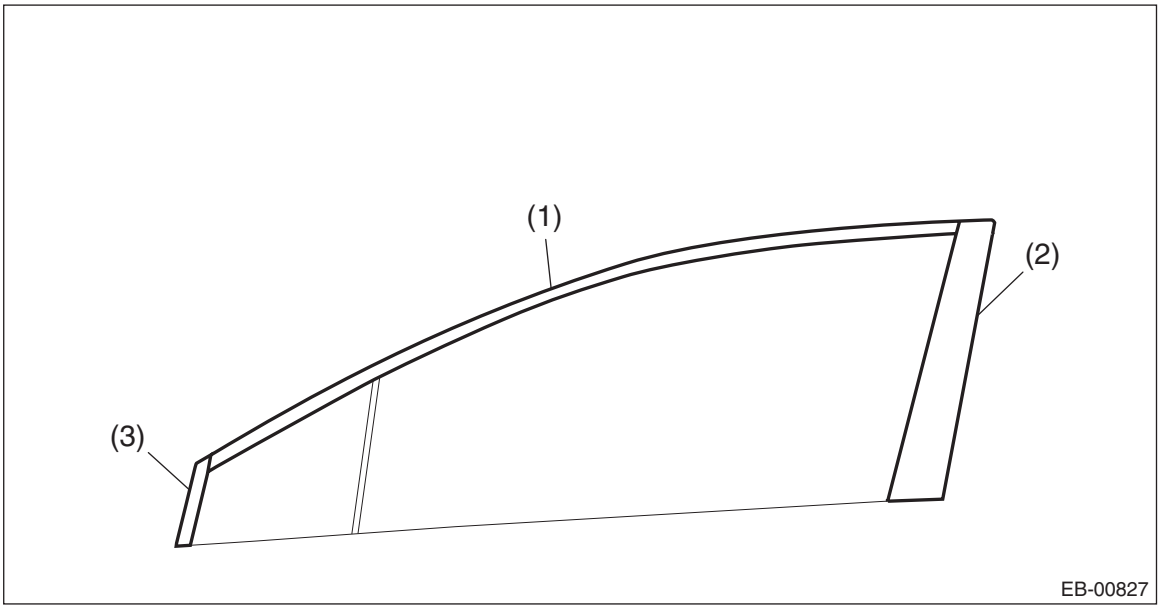
NOTE:
- If the tape is difficult to detach, warm it by a hot air drier.

Use a household hairdryer. Do not use industrial dryers.
- If tape residue is remaining on the door sash, wipe clean.

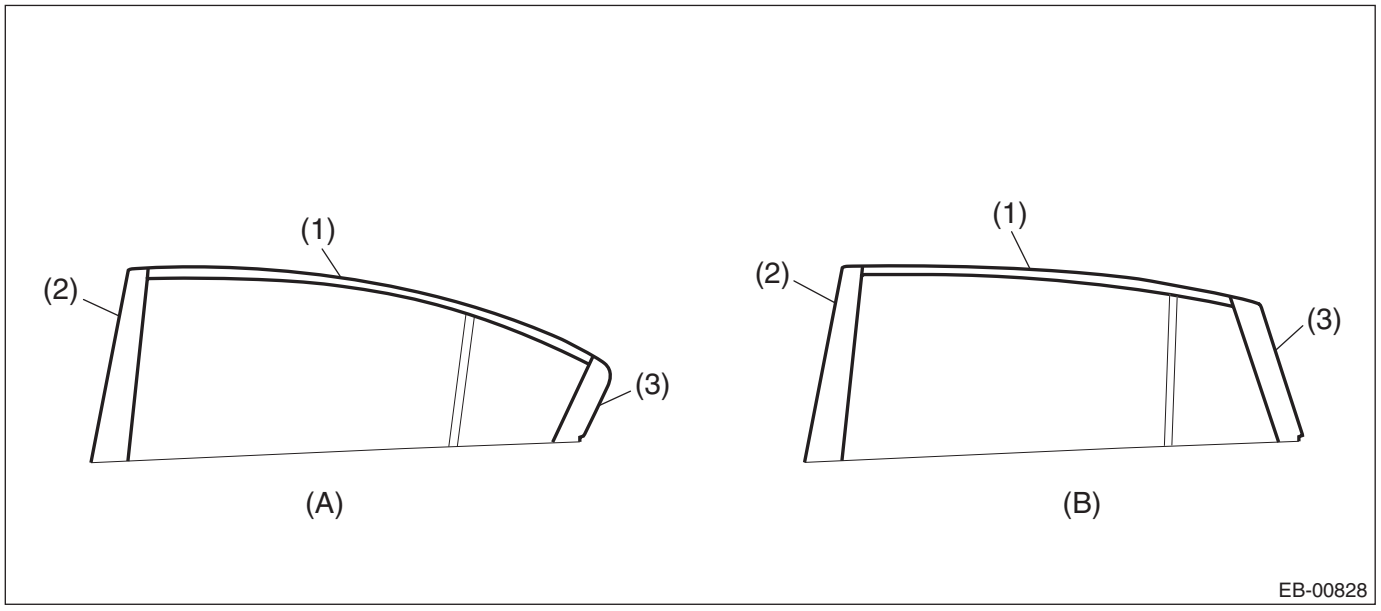
## B: INSTALLATION

**CAUTION:**
- **Do not reuse the removed door sash tape. Replace it with a new tape.**
- **Press evenly along the sash when applying the tape using a spatula or similar object to make sure no bubbles are formed.**

**If air bubbles are formed, reapply the tape.**
- **If the tape is wrinkled, etc. during application, replace the tape.**
- **Be sure to press the ends of the tape firmly to adhere securely. If the tape comes off at the ends or where folded, the adhesive strength is weakened and the tape may peel off.**
- **There are locations where the tape ends will overlap each other. When applying the tape, be careful of the order of their application.**
  - **Front**




  - **Rear**

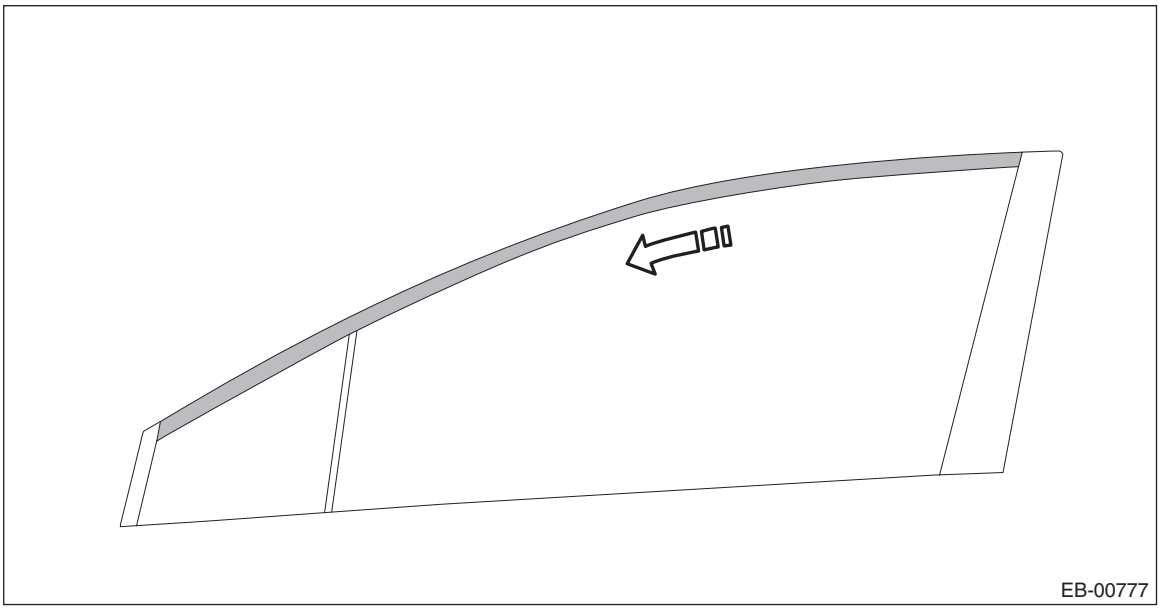



(A) 4 door model (B) 5 door model/XV model

## 1. FRONT DOOR

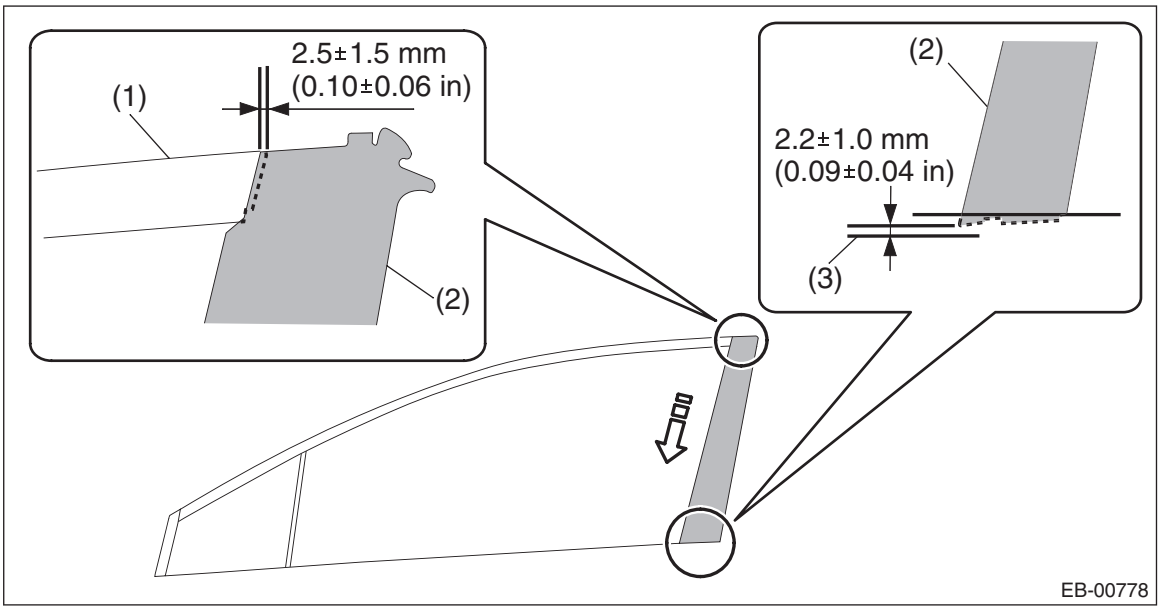
1) Apply the front door sash tape - medium from the rear of the vehicle towards the front.

NOTE:
Apply the end of the tape to the position shown in the figure.



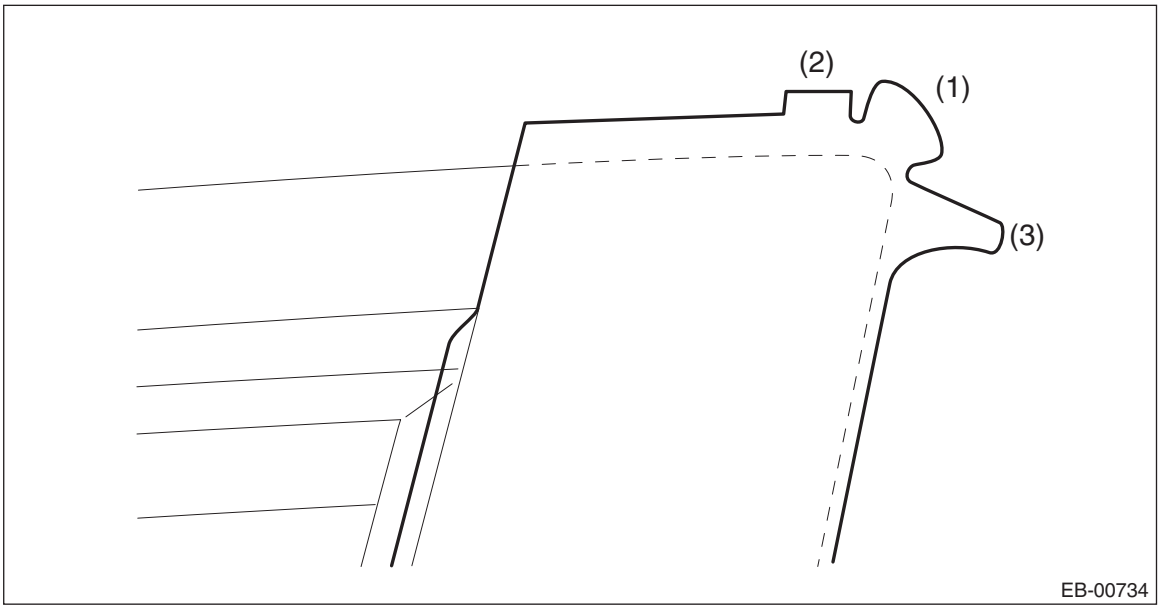

2) Apply the front door sash tape - rear from the top of the vehicle towards the bottom.

NOTE:
Apply the end of the tape to the position shown in the figure.



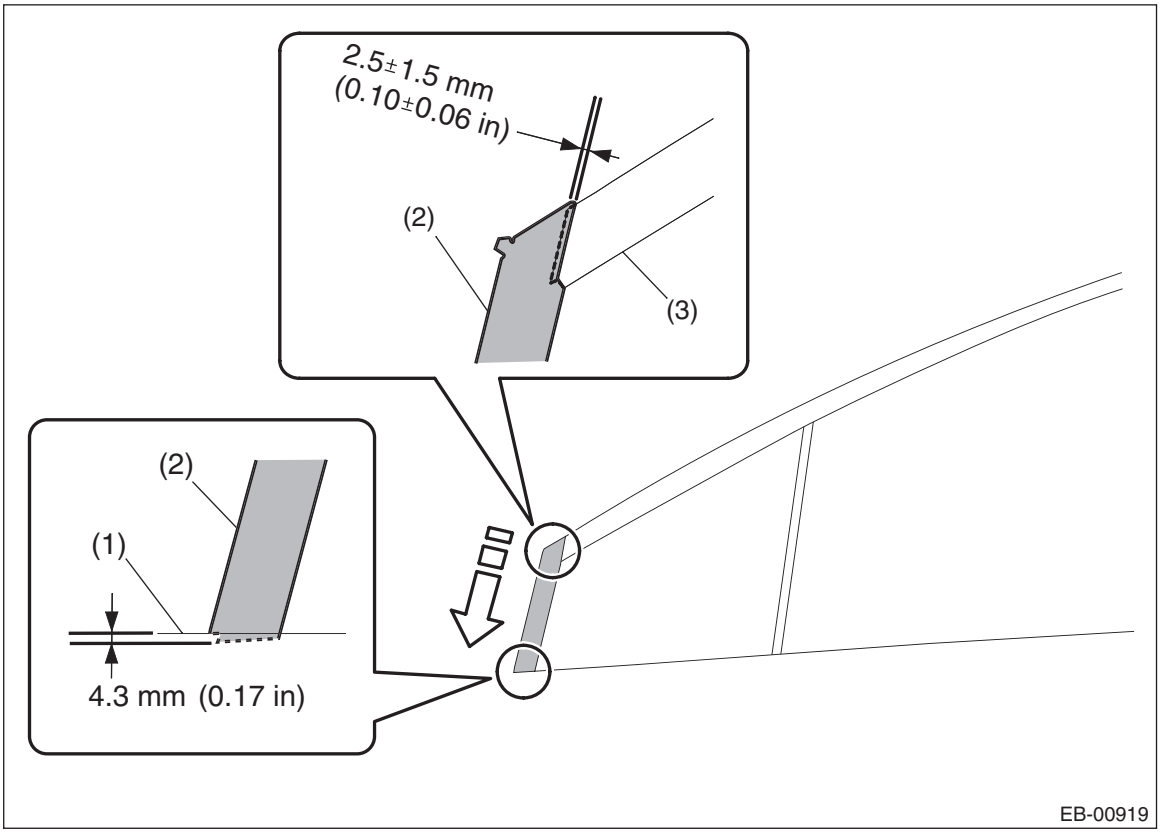

(1) Front door sash tape - medium (2) Front door sash tape - rear (3) End of panel outer

3) Fold the corners at the door upper end area in the order of (1) — (3).



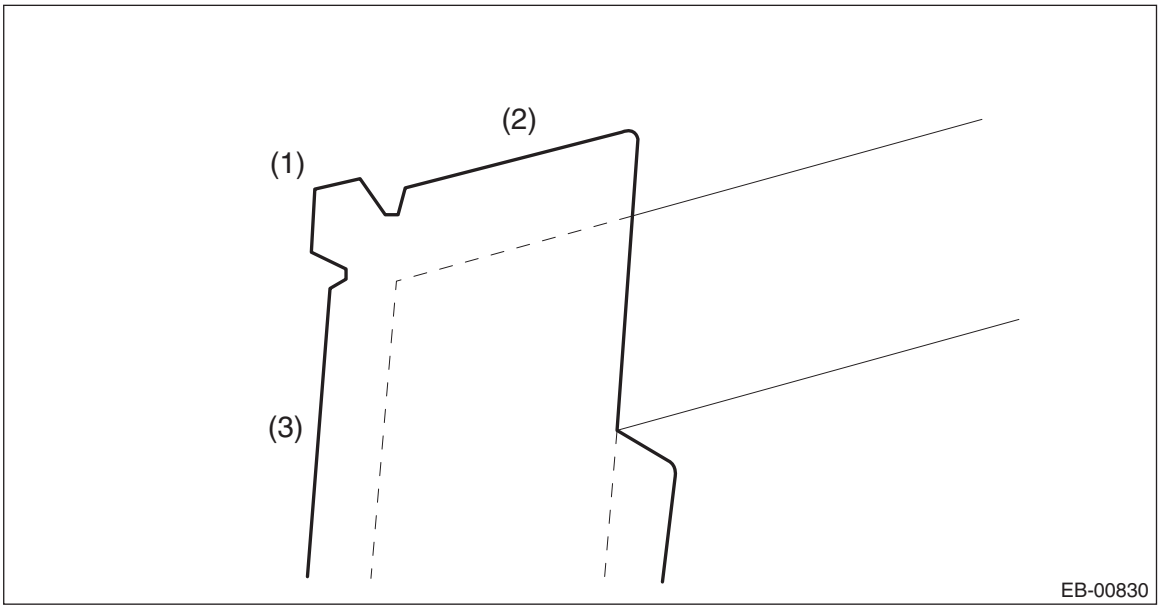

4) Apply the front door sash tape - front from the top of the vehicle towards the bottom.

NOTE:
Apply the end of the tape to the position shown in the figure.




(1) Upper end of weather strip (2) Front door sash tape - front (3) Front door sash tape - medium

5) Fold the corners at the door upper end area in the order of (1) — (3).




6) Thereafter, install door parts in the reverse order of removal.

NOTE:
Before installation, check the following items.
- Remote cable is free from deformation such as fray.
- Grease is applied sufficiently to remote cable joints.

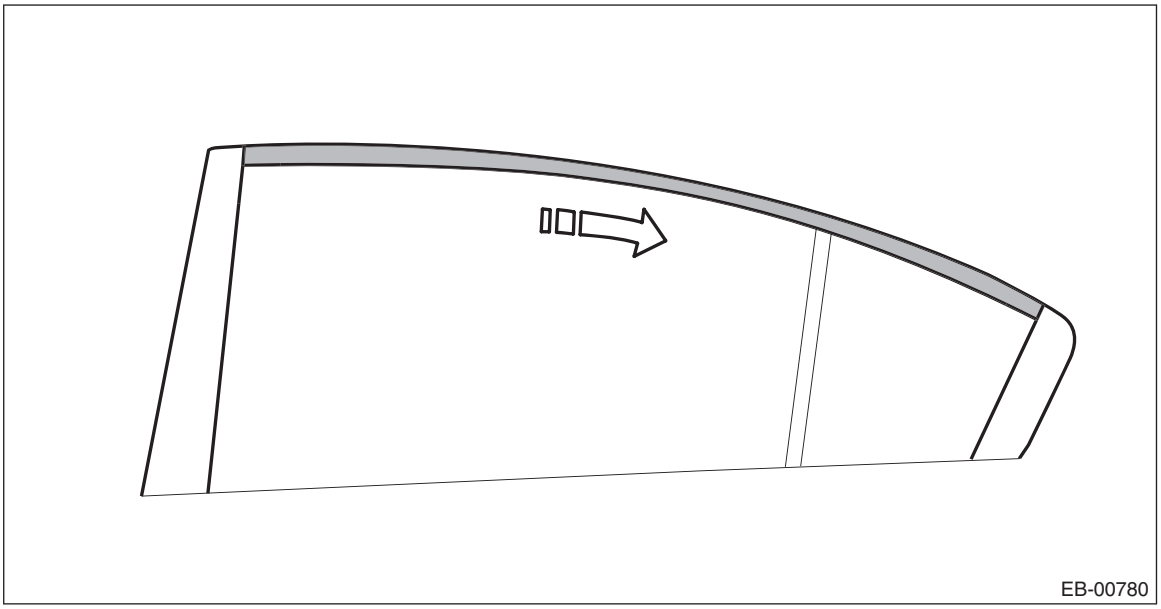
If grease is insufficient, add it as necessary before assembling the remote cable.
7) When installing the panel assembly - front door, make sure that a uniform clearance is created around the panel. For the dimension of clearance, refer to “SPECIFICATION” in “General Description”. <Ref. to EB-2, SPECIFICATION, General Description.>

## 2. REAR DOOR

**4 door model**

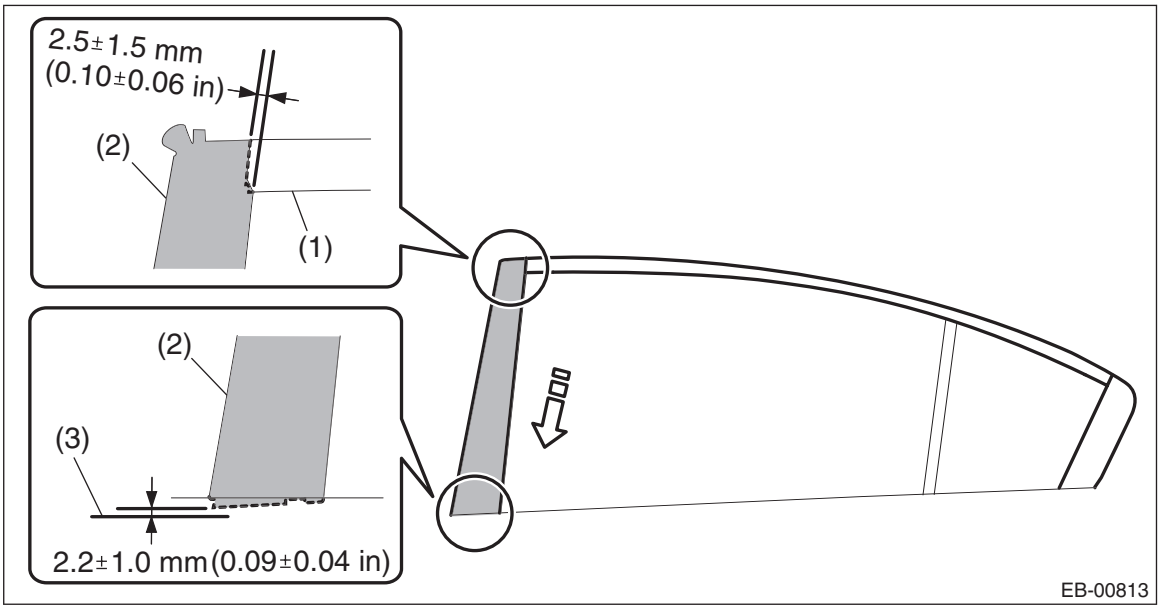
1) Apply the rear door sash tape - medium from the front of the vehicle towards the rear.

NOTE:
Apply the end of the tape to the position shown in the figure.



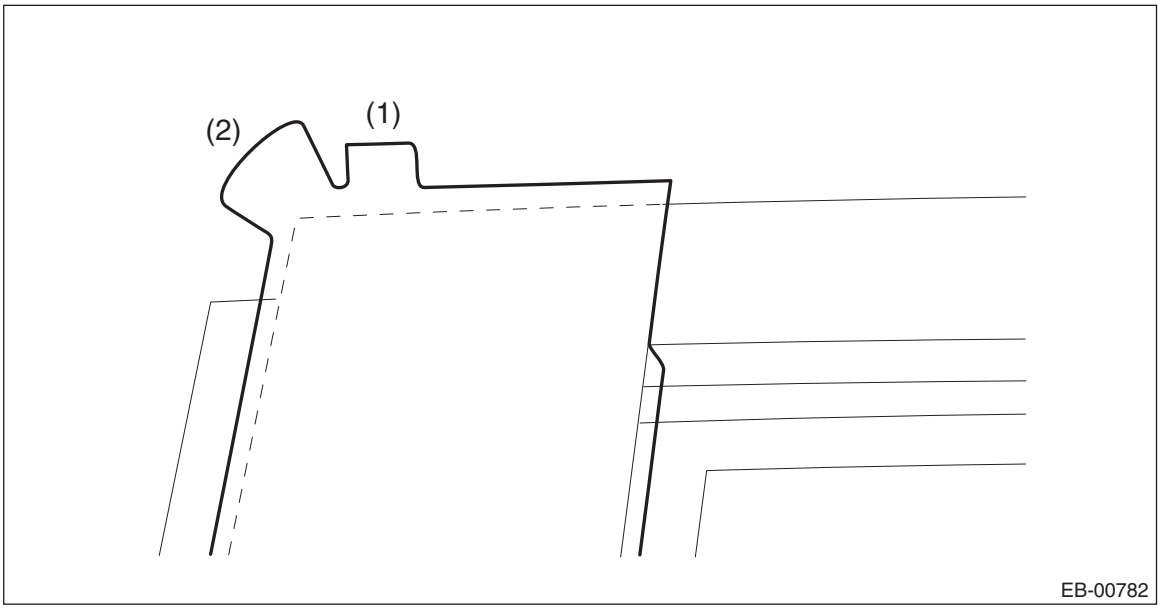

2) Apply the rear door sash tape - front from the top of the vehicle towards the bottom.

NOTE:
Apply the end of the tape to the position shown in the figure.



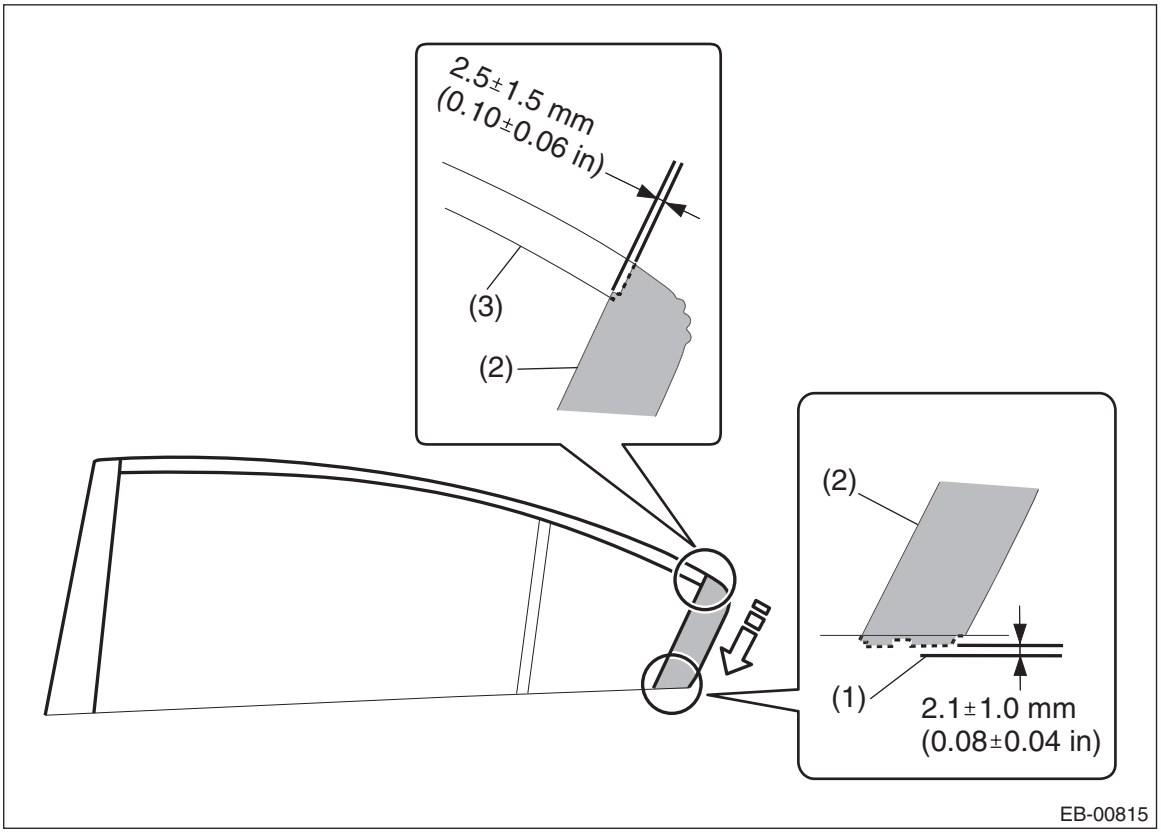

(1) Rear door sash tape - medium (2) Rear door sash tape - front (3) End of panel outer

3) Fold the corners at the door upper end area in the order of (1) — (2).



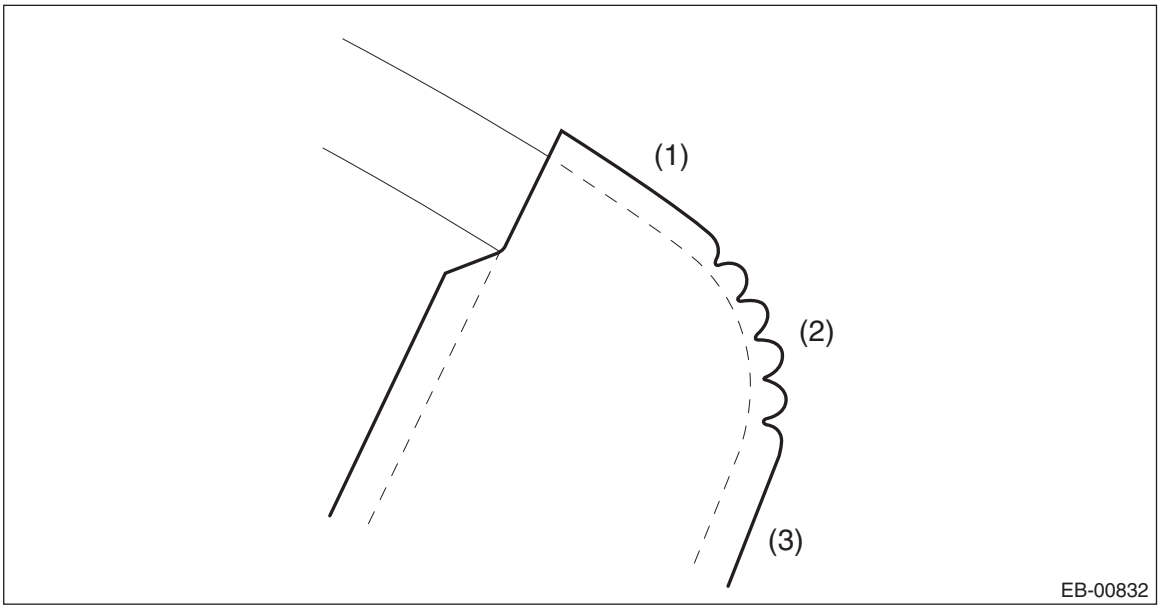

4) Apply the rear door sash tape - rear from the top of the vehicle towards the bottom.

NOTE:
Apply the end of the tape to the position shown in the figure.




(1) End of panel outer (2) Rear door sash tape - rear (3) Rear door sash tape - medium

5) Fold the corners at the door upper end area in the order of (1) — (3).




6) Thereafter, install door parts in the reverse order of removal.

NOTE:
Before installation, check the following items.
- Remote cable is free from deformation such as fray.
- Grease is applied sufficiently to remote cable joints.

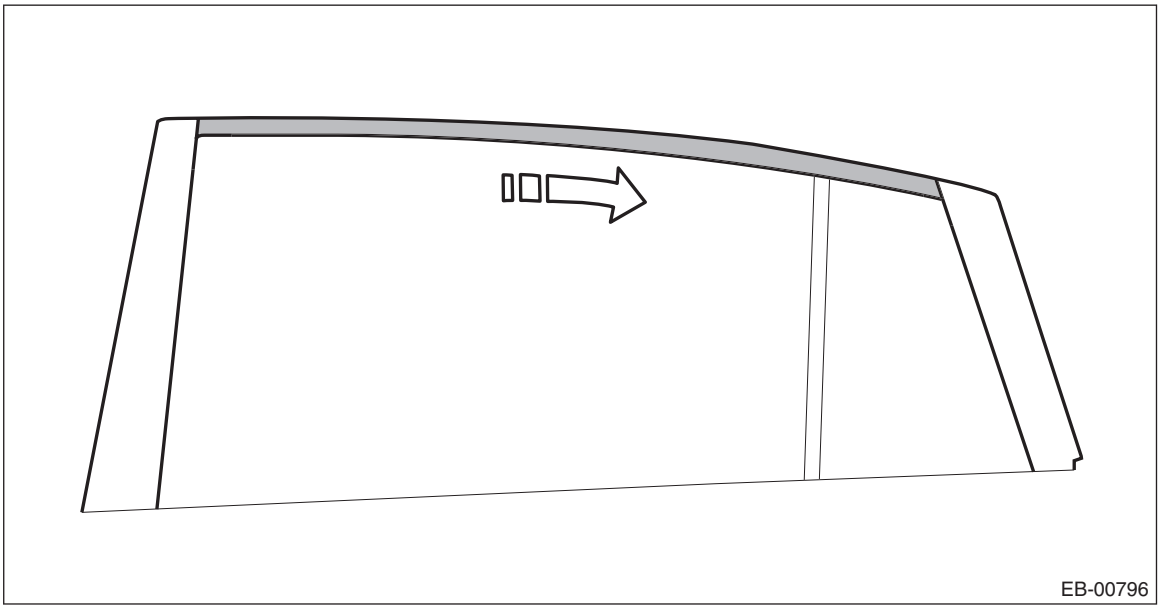
If grease is insufficient, add it as necessary before assembling the remote cable.
7) When installing the panel assembly - front door, make sure that a uniform clearance is created around the panel. For the dimension of clearance, refer to “SPECIFICATION” in “General Description”. <Ref. to EB-2, SPECIFICATION, General Description.>

## 3. REAR DOOR

**5 door model/XV model**

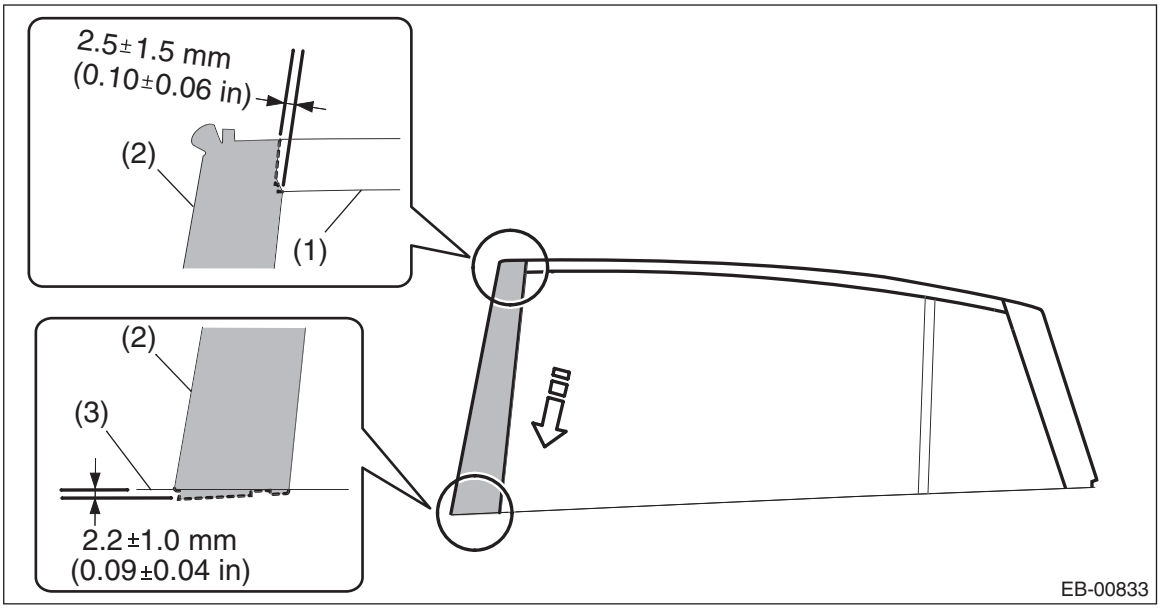
1) Apply the rear door sash tape - medium from the front of the vehicle towards the rear.

NOTE:
Apply the end of the tape to the position shown in the figure.



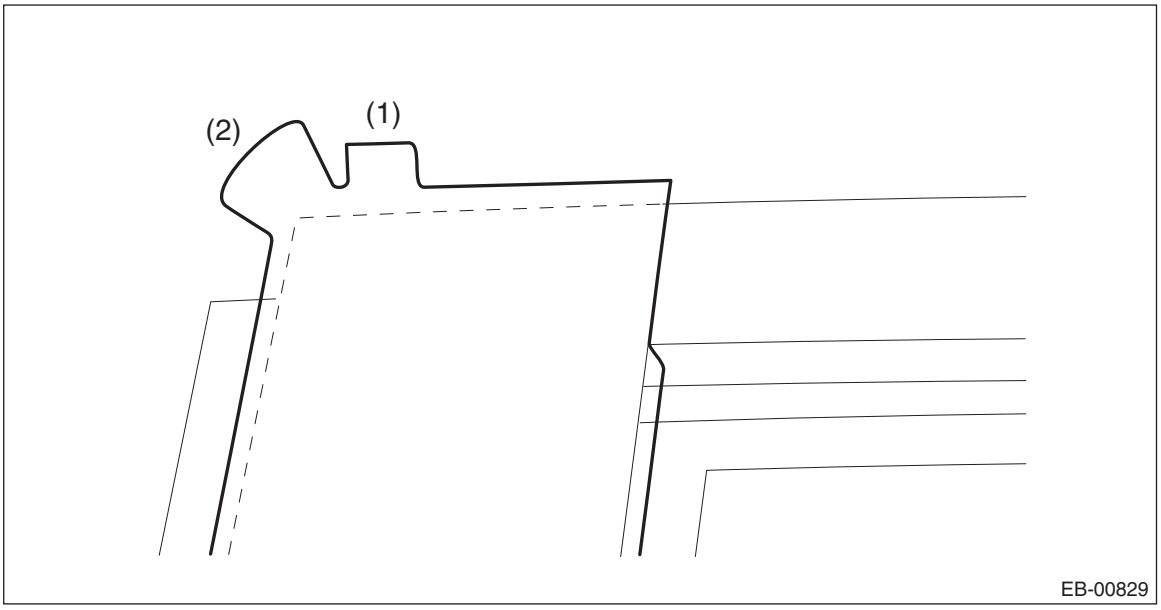
2) Apply the rear door sash tape - front from the top of the vehicle towards the bottom.

NOTE:
Apply the end of the tape to the position shown in the figure.



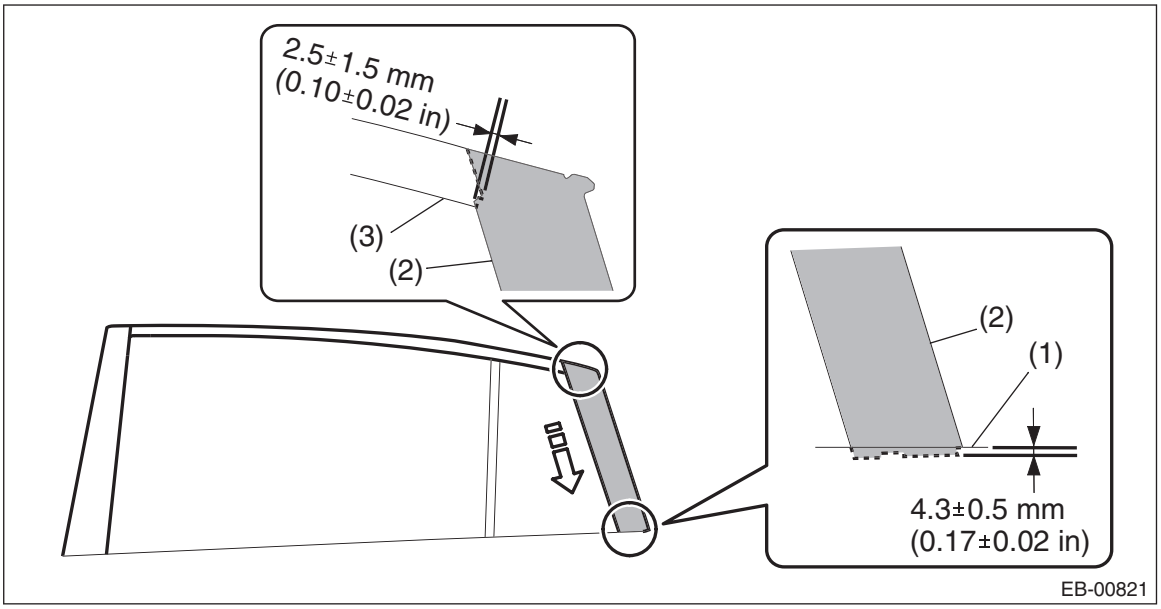

(1) Rear door sash tape - medium (2) Rear door sash tape - front (3) Upper end of weather strip

3) Fold the corners at the door upper end area in the order of (1) — (2).



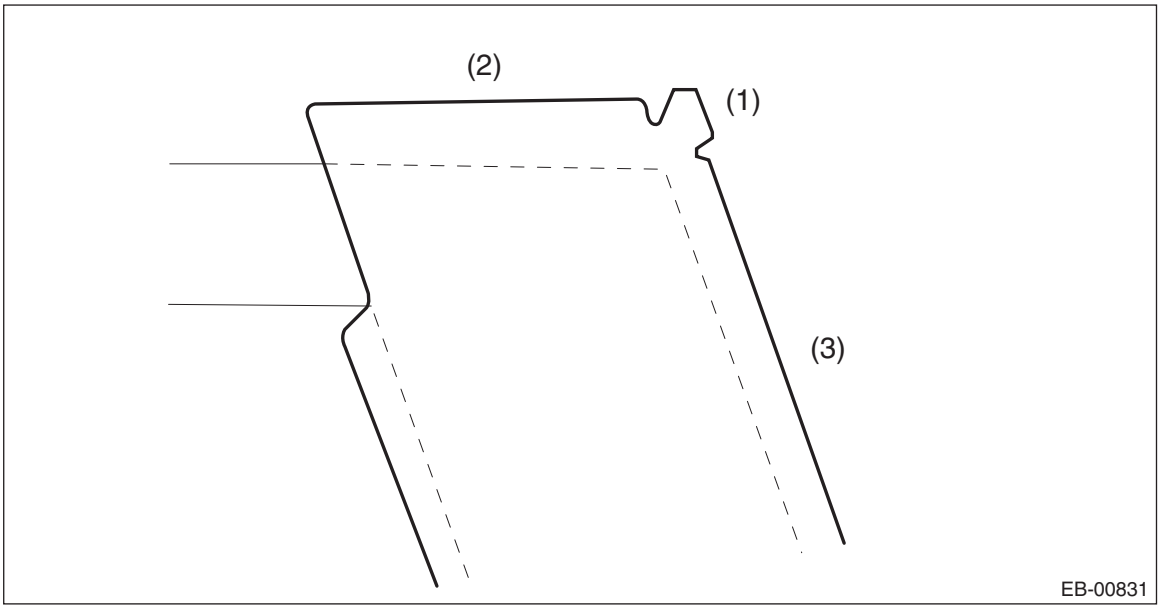
4) Apply the rear door sash tape - rear from the top of the vehicle towards the bottom.

NOTE:
Apply the end of the tape to the position shown in the figure.




(1) Upper end of weather strip (2) Rear door sash tape - rear (3) Rear door sash tape - medium

5) Fold the corners at the door upper end area in the order of (1) — (3).




6) Thereafter, install door parts in the reverse order of removal.

NOTE:
Before installation, check the following items.
- Remote cable is free from deformation such as fray.
- Grease is applied sufficiently to remote cable joints.

If grease is insufficient, add it as necessary before assembling the remote cable.

7) When installing the panel assembly - front door, make sure that a uniform clearance is created around the panel. For the dimension of clearance, refer to “SPECIFICATION” in “General Description”. <Ref. to EB-2, SPECIFICATION, General Description.>

# 9. Trunk Lid

## A: REMOVAL

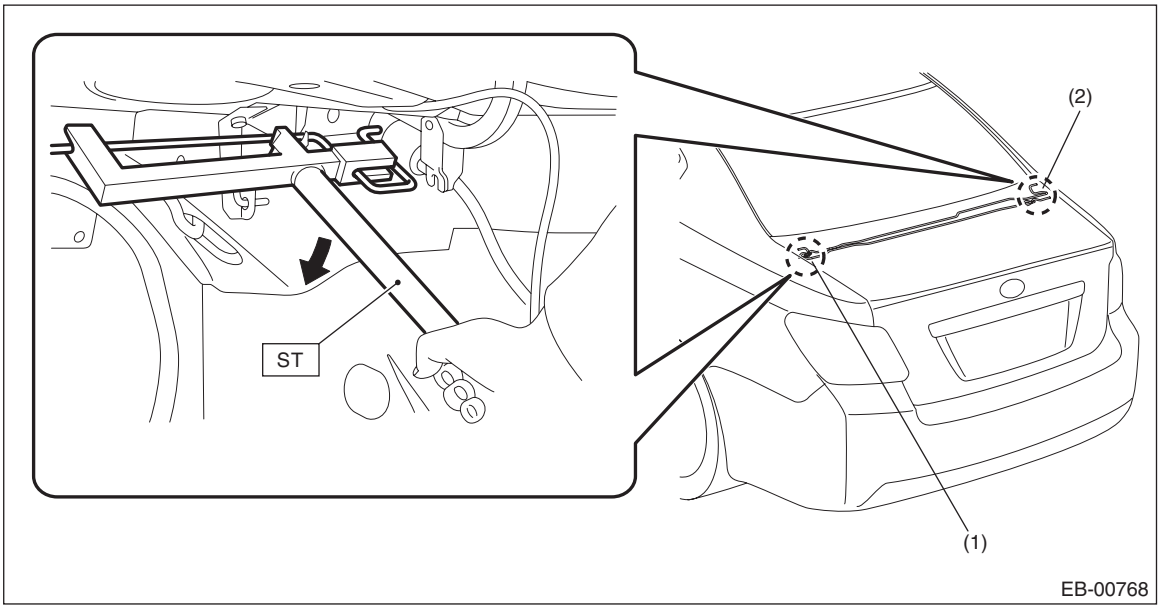
### 1. TORSION BAR

1) Open the trunk lid COMPL.
2) Using the ST, remove the torsion bar - trunk lid.

**CAUTION:**
**During removal and installation, handle the torsion bar - trunk lid carefully, because it will generate reactive force.**

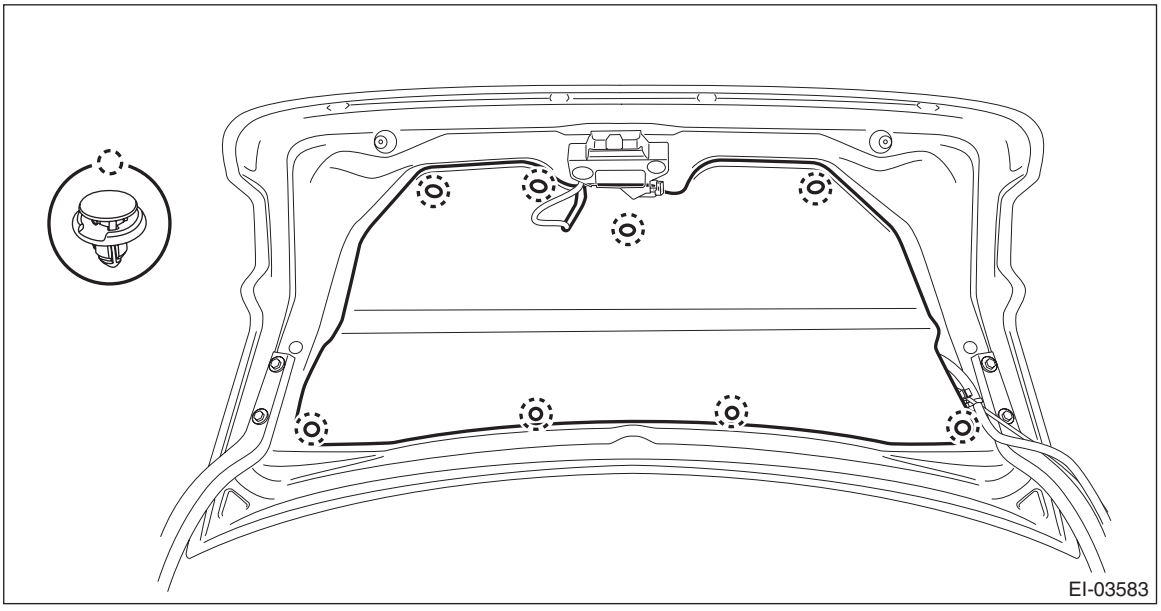
***Preparation tool:***
***ST: REMOVER (927780000)***

(1) Remove the torsion bar - trunk lid on the LH side from the hinge link.
(2) Remove the torsion bar - trunk lid on the RH side from the hinge link.

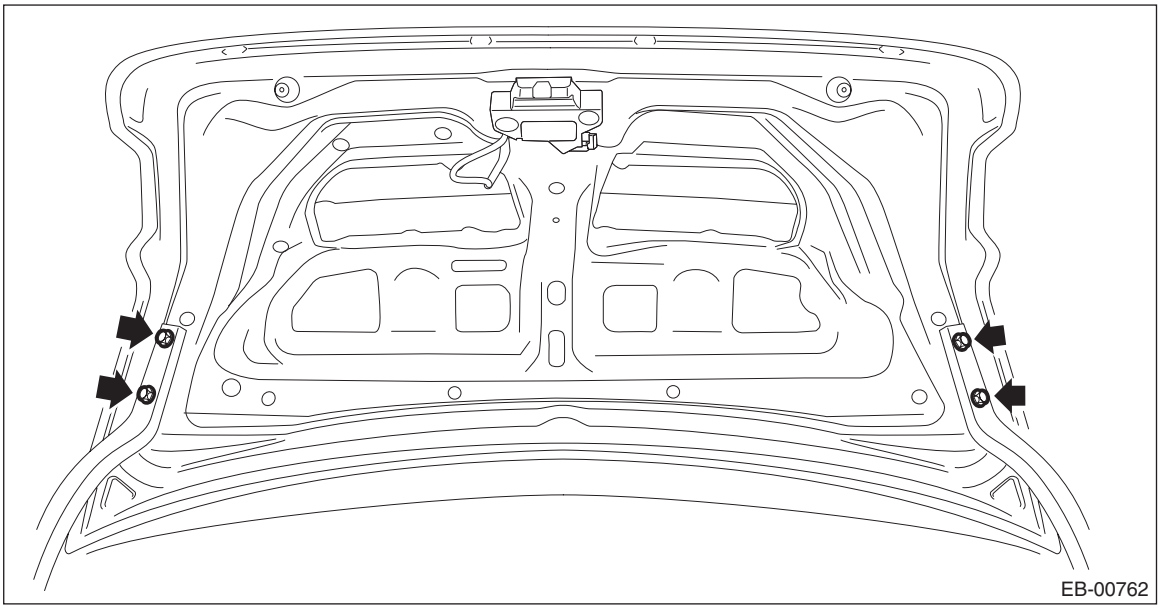



### 2. TRUNK LID PANEL

1) Disconnect the ground cable from battery.
2) Remove the clips, and remove the trim panel - trunk lid.



3) Disconnect the connector to remove the trunk lid harness.
4) Remove the lock assembly - trunk lid. <Ref. to SL-58, REMOVAL, Trunk Lid Latch and Actuator Assembly.>
5) Remove the garnish - trunk. <Ref. to EI-162, REMOVAL, Trunk Lid Garnish.>
6) Remove the trunk lid COMPL.
   (1) Remove the grommet and pull out the trunk lid harness. (RH side only)
   (2) Remove the left and right bolts, and remove the trunk lid COMPL.




7) Remove the trunk lid arm assembly.
   (1) Remove the torsion bar - trunk lid from the trunk lid arm. <Ref. to EB-57, TORSION BAR, REMOVAL, Trunk Lid.>
   (2) Remove the trim panel assembly - rear shelf. <Ref. to EI-120, REMOVAL, Rear Shelf Trim.>
   (3) Remove the bolts, then remove the trunk lid arm assembly.

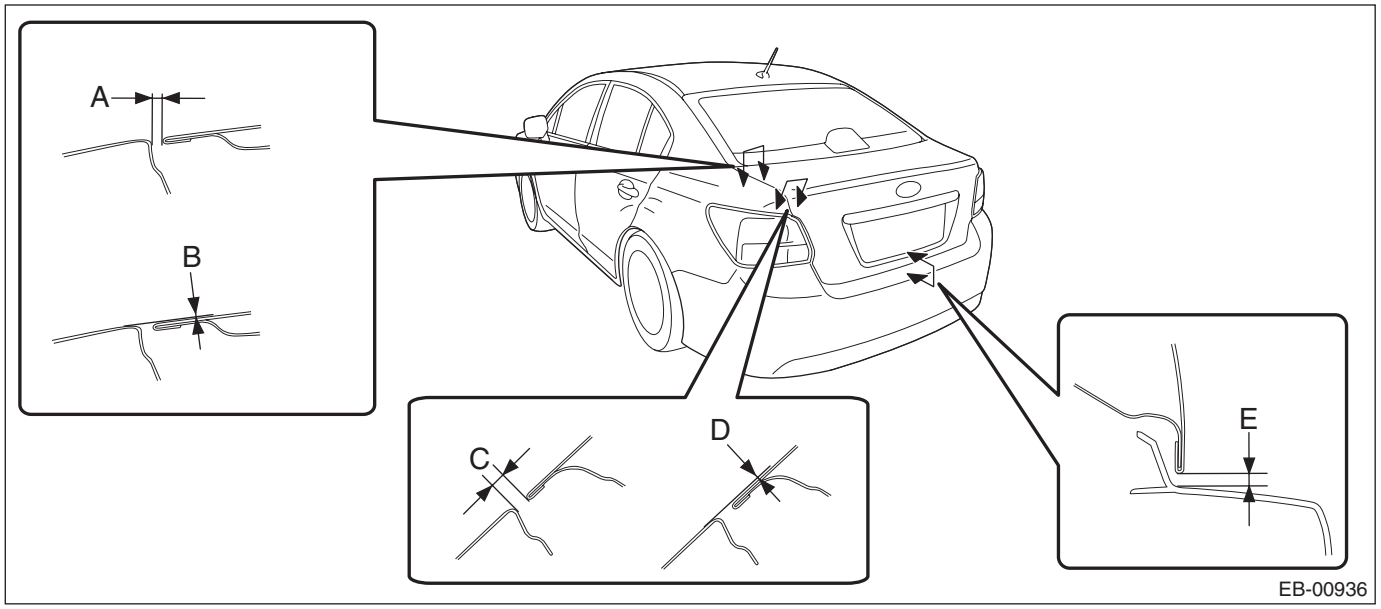
## B: INSTALLATION

1) Install each part in the reverse order of removal.
2) Apply grease to the rotating area of hinges.
3) Install while paying attention to make a uniform clearance around the trunk lid COMPL. <Ref. to EB-59, ADJUSTMENT, Trunk Lid.>

***Tightening torque:***
***Refer to "COMPONENT" of "General Description". <Ref. to EB-6, TRUNK LID PANEL, COMPONENT, General Description.>***

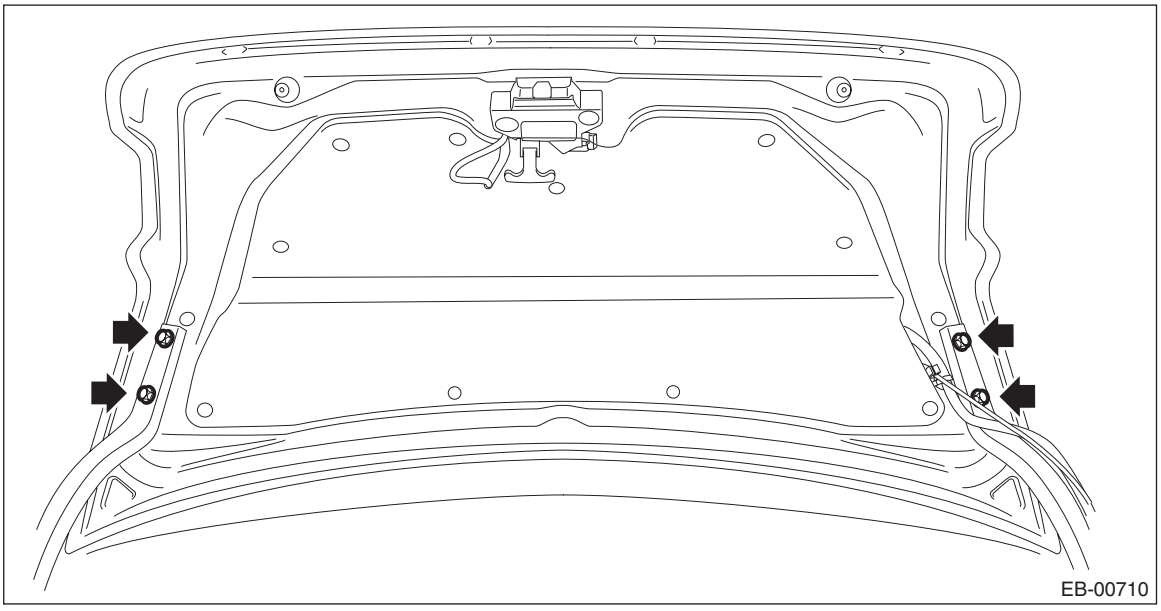
## C: ADJUSTMENT

Adjust the clearance around the trunk lid COMPL as follows.

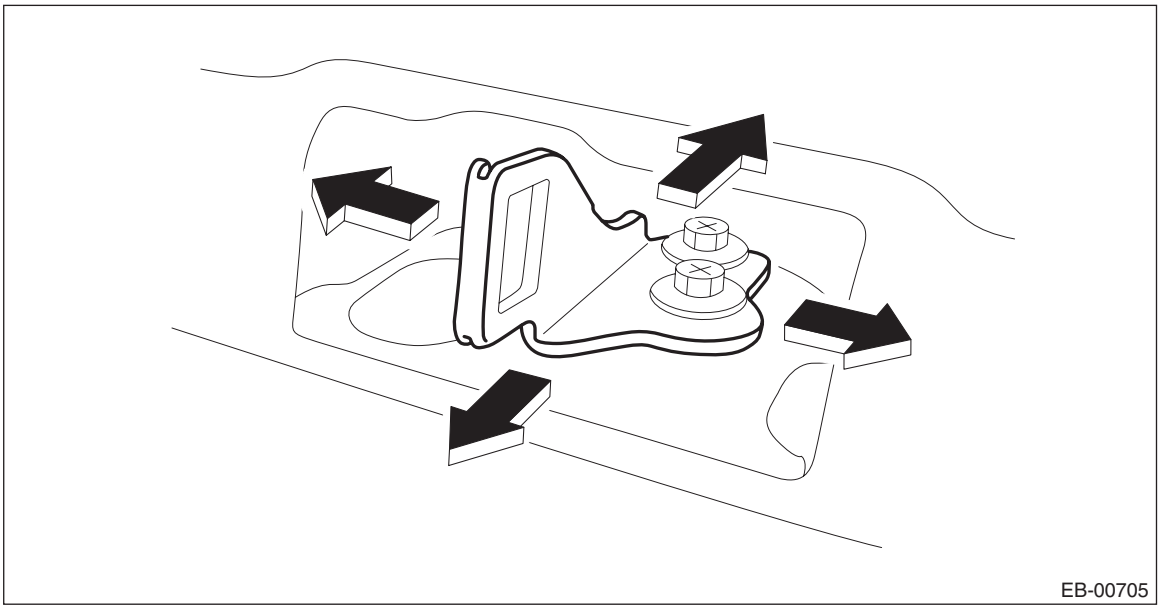



| Part | | Standard |
|---|---|---|
| A | Trunk lid COMPL to Rear quarter panel | 3.5±1.0 mm (0.14±0.04 in) |
| B | Surface level gap between trunk lid COMPL and rear quarter panel | –0.5+1.0, –0.5 mm (–0.02+0.04, –0.02 in) |
| C | Trunk lid COMPL to Rear quarter panel | 3.5±1.0 mm (0.14±0.04 in) |
| D | Surface level gap between trunk lid COMPL and rear quarter panel | –0.5±0.7 mm (0.02±0.03 in) |
| E | Trunk lid COMPL to Bumper face - rear | 7.5±1.0 mm (0.3±0.04 in) |

1) Adjust the horizontal position of the trunk lid COMPL.
   (1) Loosen the mounting bolt.
   (2) Adjust the horizontal clearance of the trunk lid COMPL.



2) Adjust the surface level gap between the trunk lid COMPL and the body.
   (1) Remove the trim panel - trunk rear.
   (2) Loosen the bolt.
   (3) Tap the striker - trunk using a plastic hammer to adjust the surface level gap between the trunk lid COMPL and the body.



# 10.Rear Gate

## A: REMOVAL

**CAUTION:**
**The panel - rear gate is heavy. When removing and installing it, always work in a team of two or more persons.**

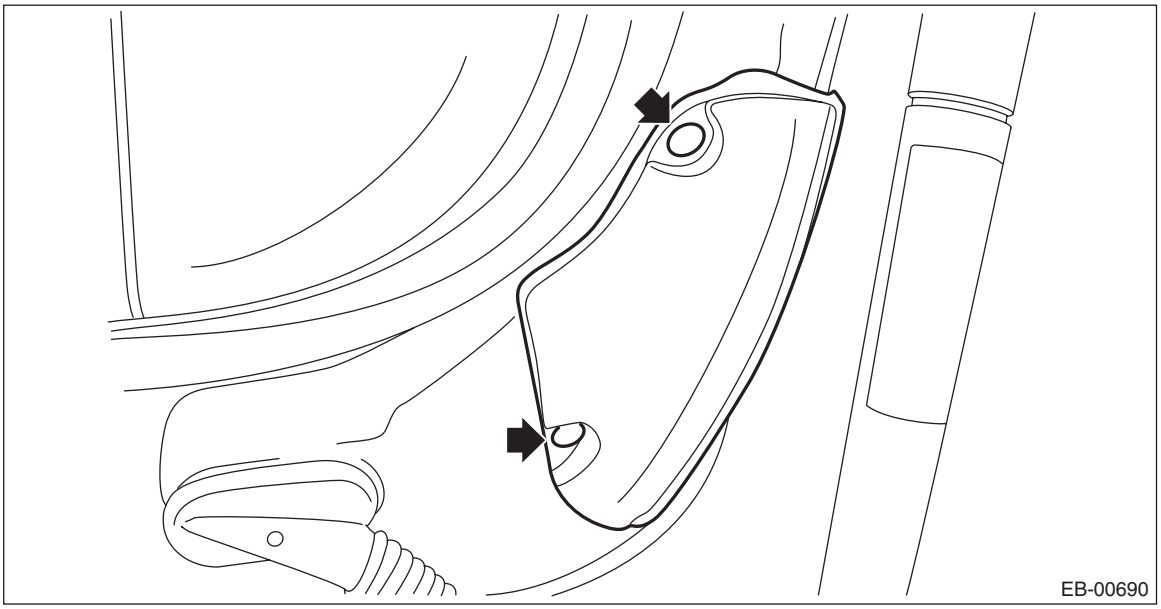
### 1. REAR GATE PANEL

1) Disconnect the ground cable from battery. <Ref. to NT-5, BATTERY, NOTE, Note.>

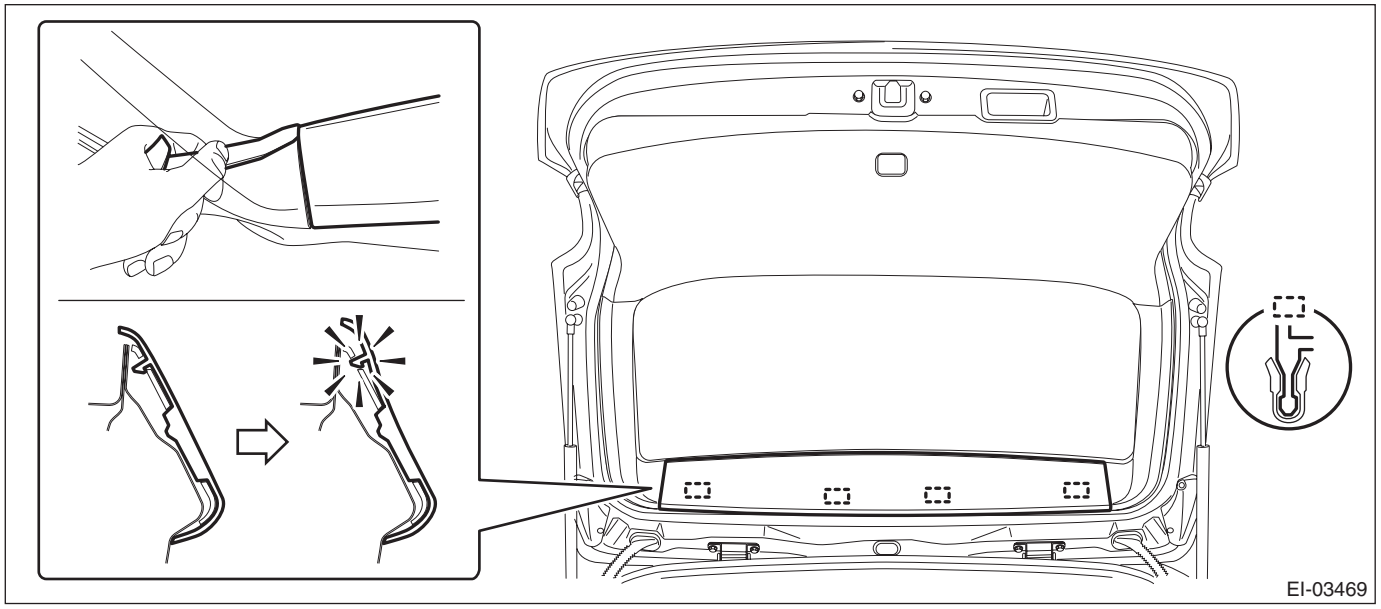
NOTE:
For the 12 volt engine restart battery of HEV model, disconnect the ground terminal from 12V engine restart battery sensor.

2) Remove the following parts. <Ref. to EI-163, REMOVAL, Rear Gate Garnish.>
- Trim panel - rear gate
- Arm assembly - rear wiper and motor assembly - rear wiper
- Garnish assembly - rear gate

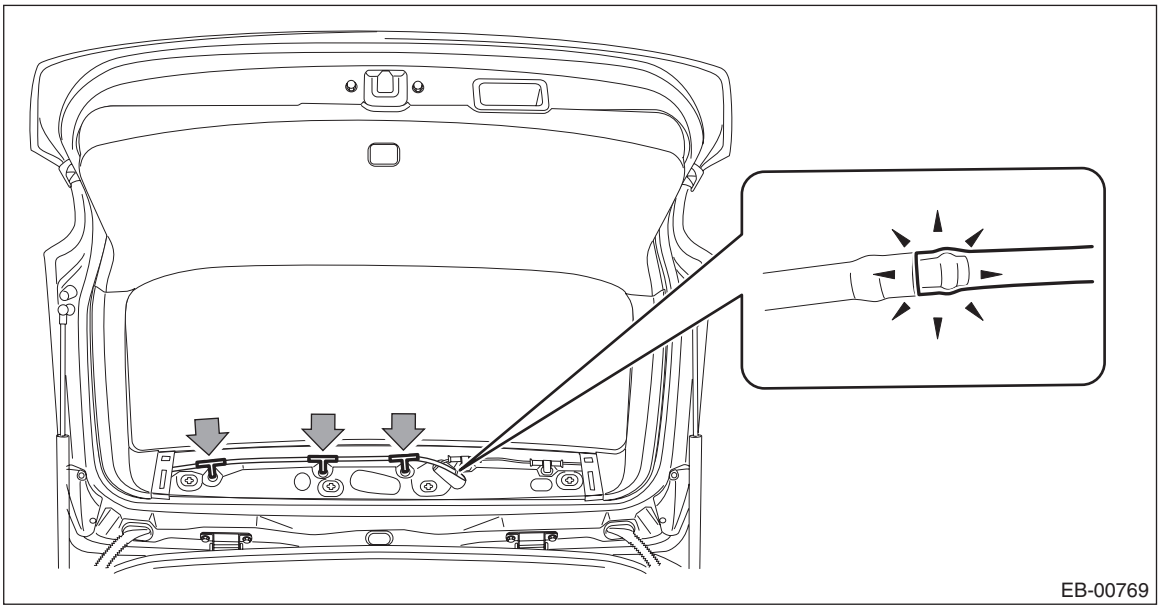
3) Remove the roof spoiler. (XV model) <Ref. to EI-71, REMOVAL, Roof Spoiler.>
4) Remove the light assembly - high-mounted and the nozzle - rear washer. <Ref. to WW-51, REMOVAL, Rear Washer.>
5) Remove the rear gate latch and actuator - rear gate. <Ref. to SL-56, REMOVAL, Rear Gate Latch and Actuator Assembly.>
6) Remove the clips, and remove the drip - rear gate.



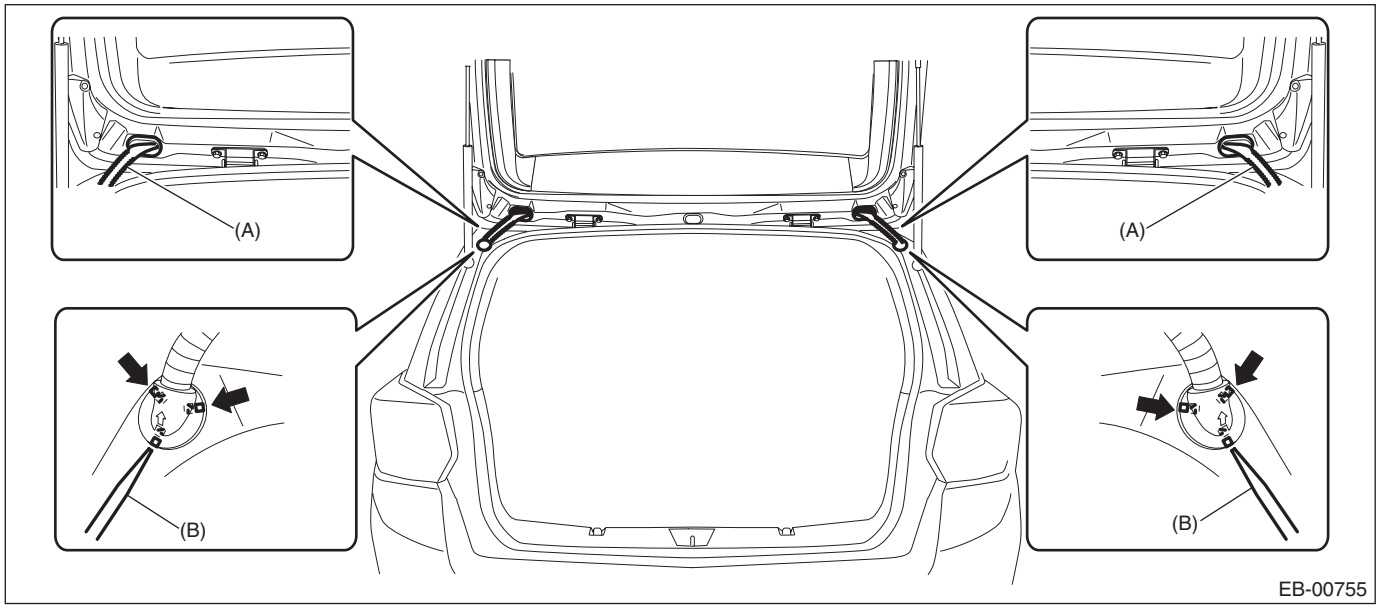
7) Remove the trim panel - rear gate UPR.
(1) Remove the claws on the trim edge.
(2) Release the claws in the center of trim, and remove the trim panel - rear gate UPR.




8) Disconnect the hose assembly - rear washer.
(1) Disconnect the joint portion of the hose assembly - rear washer.
(2) Remove the clip.

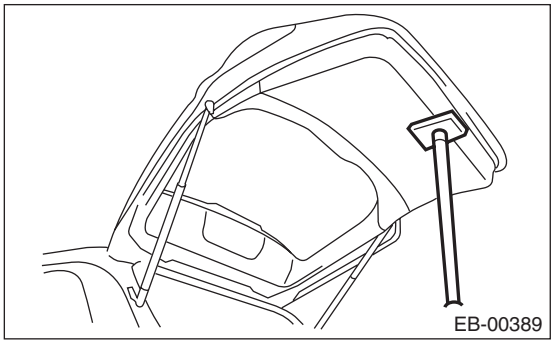


9) Remove the rubber duct (A).
(1) Pull out the claw while pushing it using a flat tip screwdriver (B) or similar tools.
(2) Remove the rubber duct (A) connection.

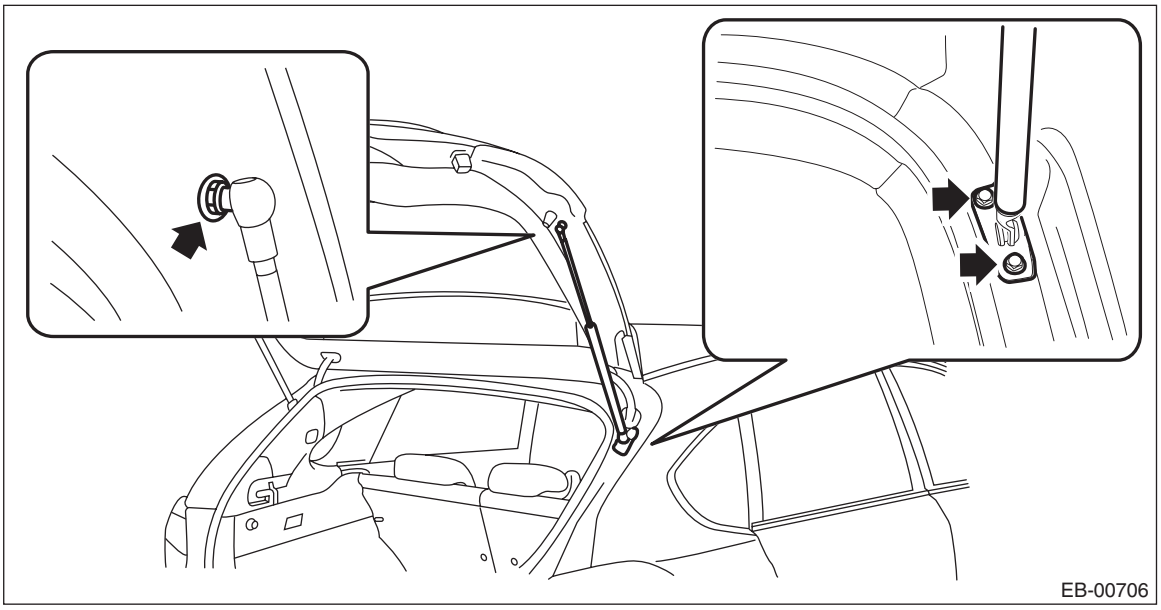



10) Pull out the harness and the hose assembly - rear washer from the panel - rear gate.
11) Remove harness clip of each harness from the panel - rear gate.
12) Before removing the stay assembly - rear gate, prevent the panel - rear gate from closing by using a prop or the like.

**CAUTION:**
**If the prop comes off, operators may get injured and vehicle may get damaged. Make sure to support the panel - rear gate with secure material to prevent injury or damage.**

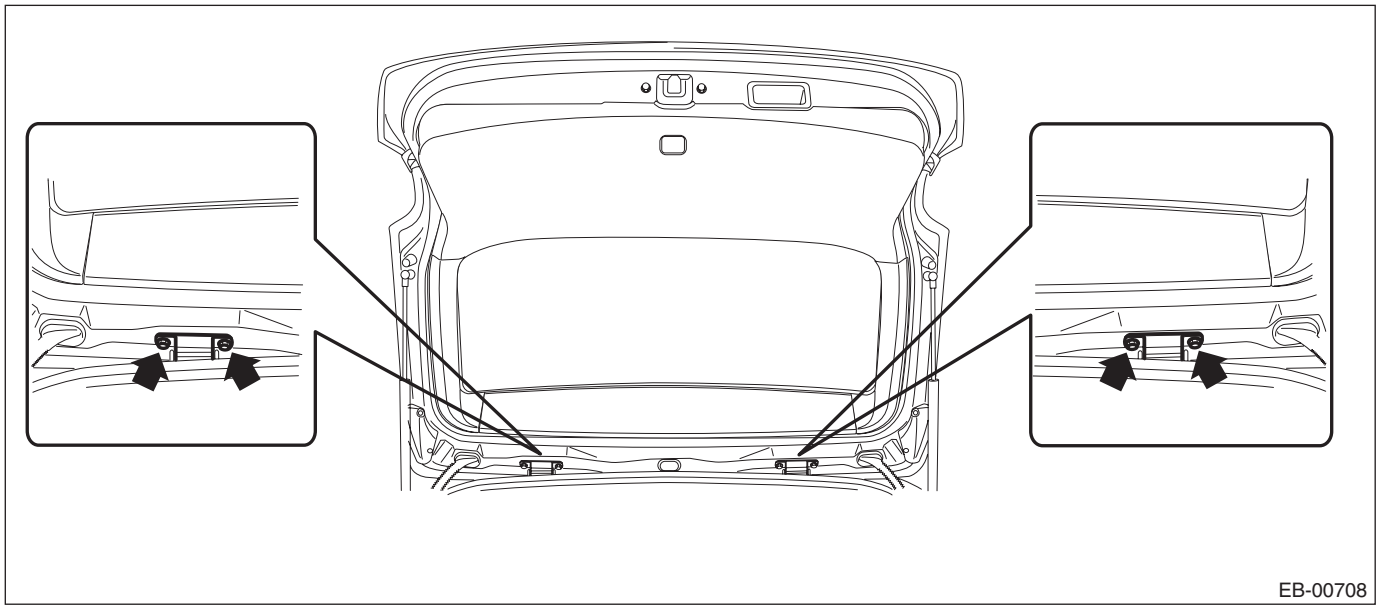


13) Remove the mounting bolts from the stay assembly - rear gate.




14) Remove the bolts of the hinge - rear gate, and remove the panel - rear gate.

**CAUTION:**
**The panel - rear gate is heavy. When removing and installing it, always work in a team of two or more persons.**



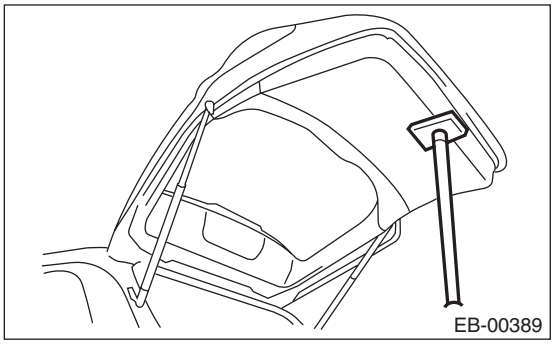

15) Remove the hinge - rear gate from the vehicle.

## 2. REAR GATE DAMPER STAY

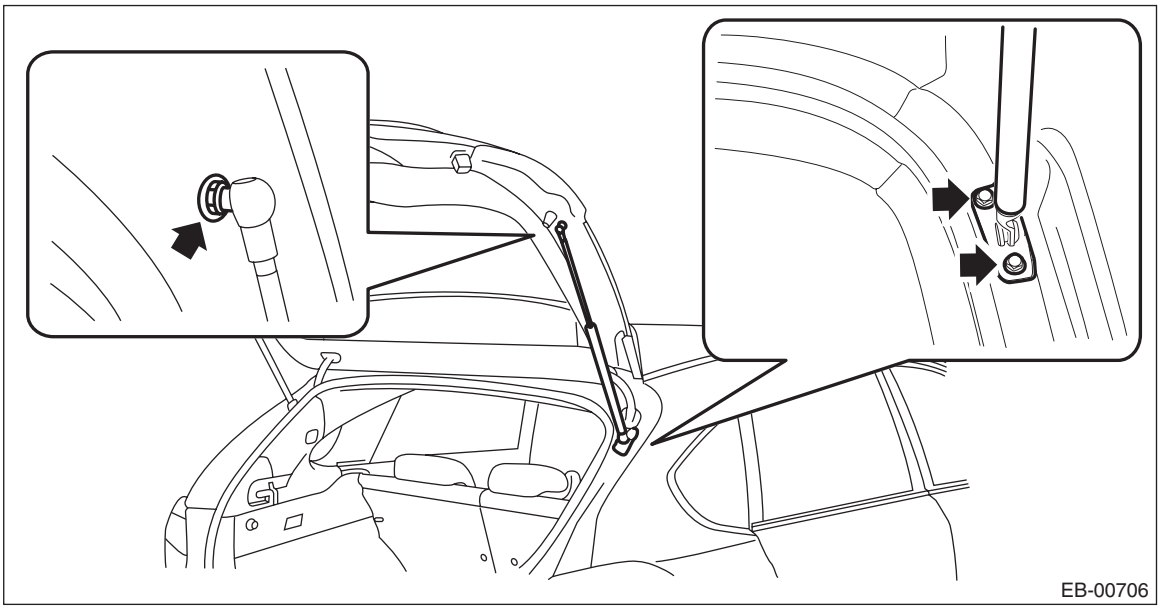
**CAUTION:**
- **Do not damage piston rods and oil seals.**
- **Never disassemble cylinders: They contain gas.**
- **The panel - rear gate is heavy. When removing and installing it, always work in a team of two or more persons.**

1) Before removing the stay assembly - rear gate, prevent the panel - rear gate from closing by using a prop or the like.

**CAUTION:**
**If the prop comes off, operators may get injured and vehicle may get damaged. Make sure to support the panel - rear gate with secure material to prevent injury or damage.**




2) Remove the mounting bolts and remove the stay assembly - rear gate.



# B: INSTALLATION

## 1. REAR GATE PANEL

**CAUTION:**
**The panel - rear gate is heavy. When removing and installing it, always work in a team of two or more persons.**

1) Install the hinge - rear gate to the vehicle body.
2) Temporarily install the panel - rear gate to the hinge - rear gate.

NOTE:
When installing, make sure that a uniform clearance is created around the panel - rear gate.

3) Adjust the clearance around the panel - rear gate. <Ref. to EB-67, ADJUSTMENT, Rear Gate.>
4) Tighten the bolts of the hinge - rear gate.

***Tightening torque:***
***25 N·m (2.55 kgf-m, 18.4 ft-lb)***

5) Install each part in the reverse order of removal.

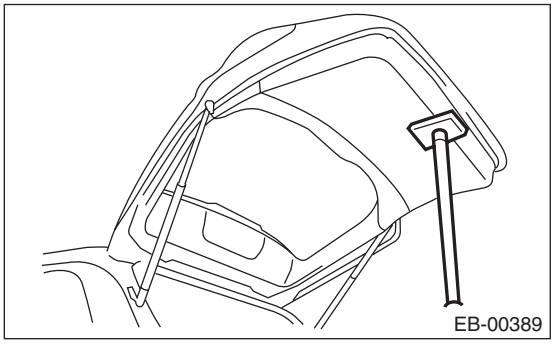
***Tightening torque:***
***Rear gate parts: <Ref. to EB-7, REAR GATE, COMPONENT, General Description.>***
***Garnish assembly - rear gate: 4.5 N·m (0.46 kgf-m, 3.3 ft-lb)***
***Arm assembly - rear wiper and motor assembly - rear wiper: <Ref. to WW-4, REAR WIPER, COMPONENT, General Description.>***
***Roof spoiler (XV model): 7.5 N·m (0.8 kgf-m, 5.5 ft-lb)***

## 2. REAR GATE DAMPER STAY

**CAUTION:**
**The panel - rear gate is heavy. When removing and installing it, always work in a team of two or more persons.**

1) Prevent the panel - rear gate from closing using prop or the like.

**CAUTION:**
**If the prop comes off, operators may get injured and vehicle may get damaged. Make sure to support the panel - rear gate with secure material to prevent injury or damage.**

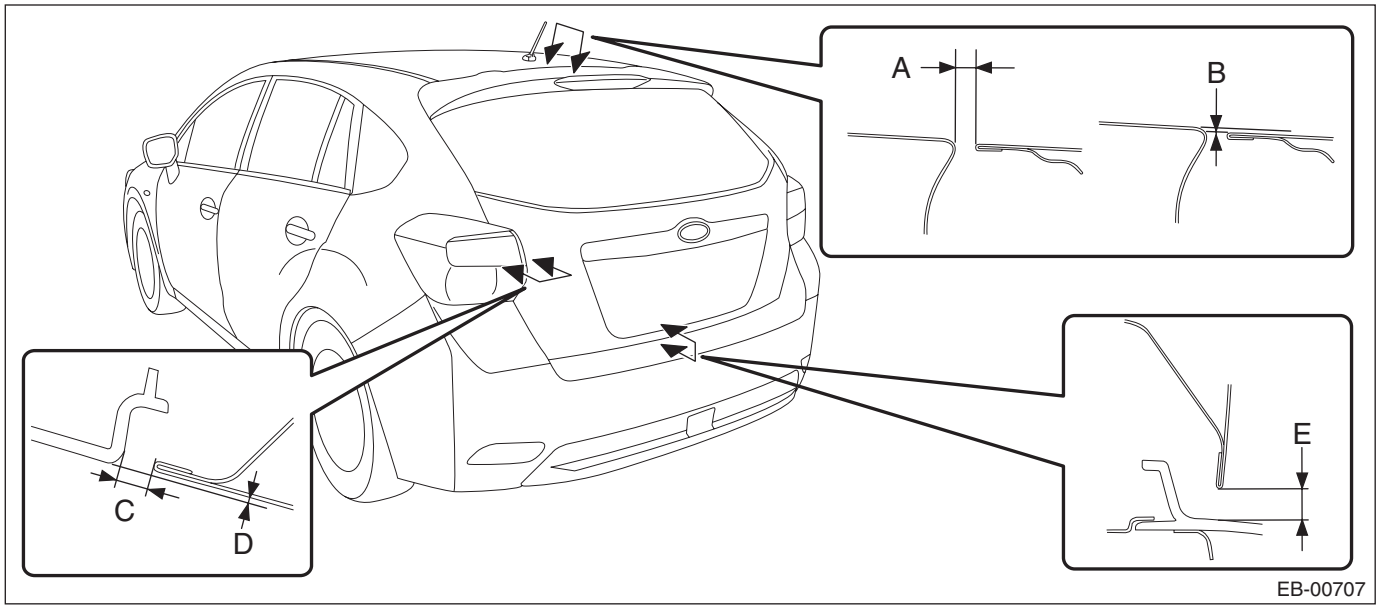



2) Install each part in the reverse order of removal.

***Tightening torque:***
***Refer to "COMPONENT" of "General Description". <Ref. to EB-7, REAR GATE, COMPONENT, General Description.>***

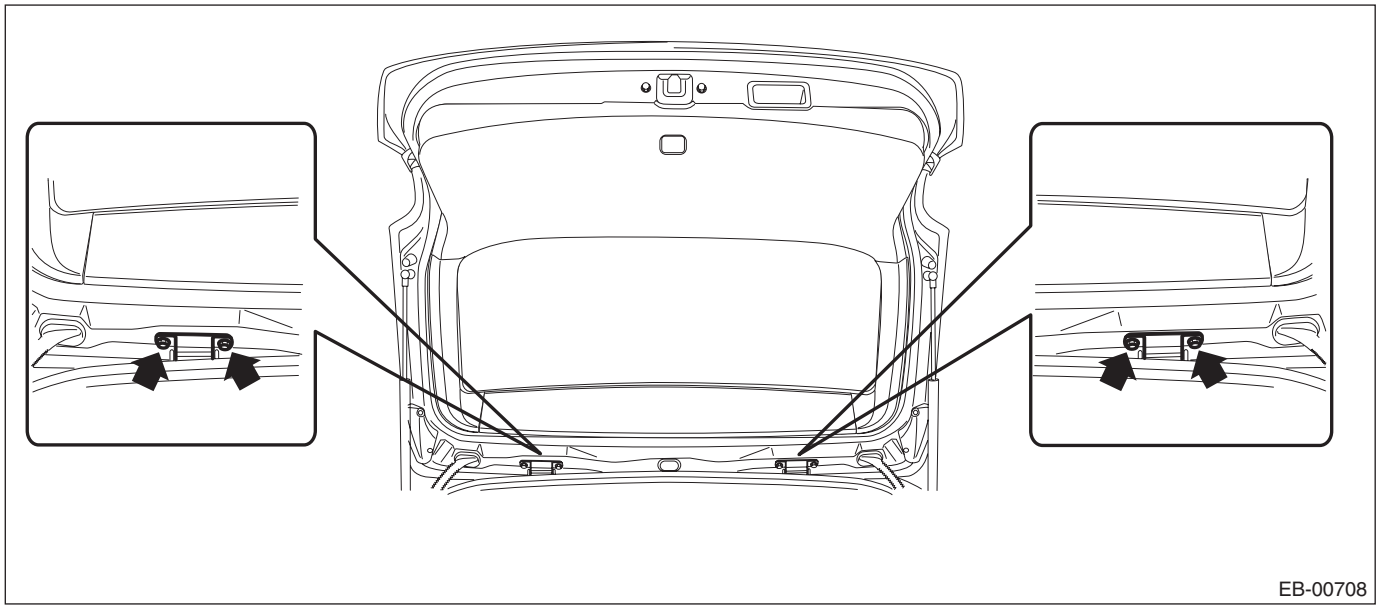
## C: ADJUSTMENT

Adjust the clearance around the panel - rear gate as follows.




| Part | | Standard |
|---|---|---|
| A | Panel - rear gate to Roof panel | 6.0+1.0, –0.5 mm (0.24+0.04, –0.02 in) |
| B | Surface level gap: Panel - rear gate to Roof panel | 1.0±1.0 mm (0.04±0.04 in) |
| C | Panel - rear gate to Light assembly - rear combination | 6.0±1.0 mm (0.24±0.04 in) |
| D | Surface level gap: Panel - rear gate to Light assembly - rear combination | 1.0±1.0 mm (0.04±0.04 in) |
| E | Panel - rear gate to Bumper face - rear | 8.0±1.5 mm (0.31±0.06 in) |

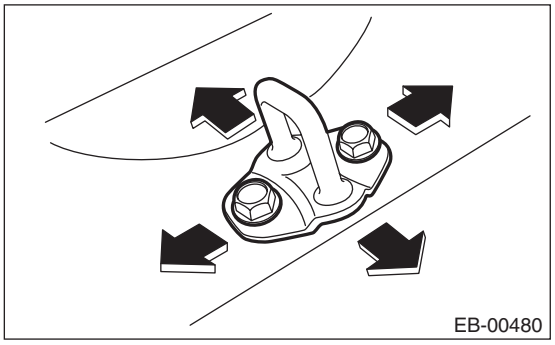
1) Adjust the vertical and horizontal positions of the panel - rear gate.




(1) Loosen the mounting bolts of the hinge - rear gate.
(2) Adjust the vertical and horizontal clearance of the panel - rear gate.

***Tightening torque:***
***25 N·m (2.55 kgf-m, 18.4 ft-lb)***

2) Adjust the surface level gap between the panel - rear gate and the body.




(1) Remove the trim panel - rear skirt.
(2) Loosen the bolt.
(3) Tap the striker - rear gate using a plastic hammer to adjust the surface level gap between the panel - rear gate and the body.

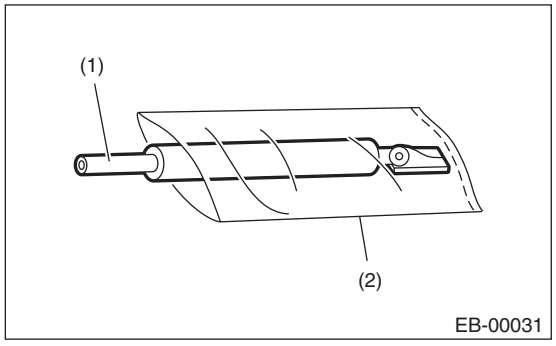
***Tightening torque:***
***25 N·m (2.55 kgf-m, 18.4 ft-lb)***

# D: DISPOSAL

## 1. REAR GATE DAMPER STAY

**CAUTION:**
**Gas is colorless, odorless, and harmless. However, gas pressure may spray cutting powder or oil. Be sure to wear dust-resistant goggles.**

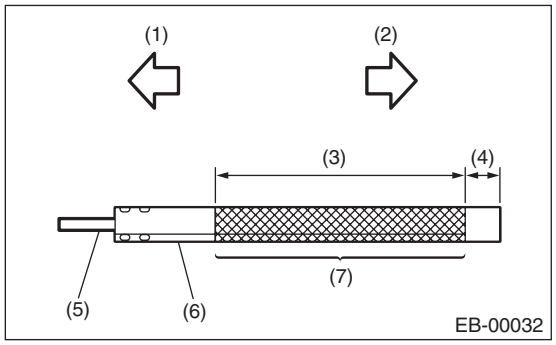
1) Cover with a vinyl sack as shown in the figure.




(1) Stay ASSY - rear gate
(2) Vinyl sack

NOTE:
Prevent the vinyl sack from being caught by drill cutting edge.

2) Lift the body side slightly with piston rods fully extended, and secure the body side with vise.
Drill a hole of 2 to 3 mm (0.08 to 0.12 in) diameter at a point 6 to 196 mm (0.24 to 7.72 in) from the body side, and bleed the gas in the stay assembly - rear gate completely.



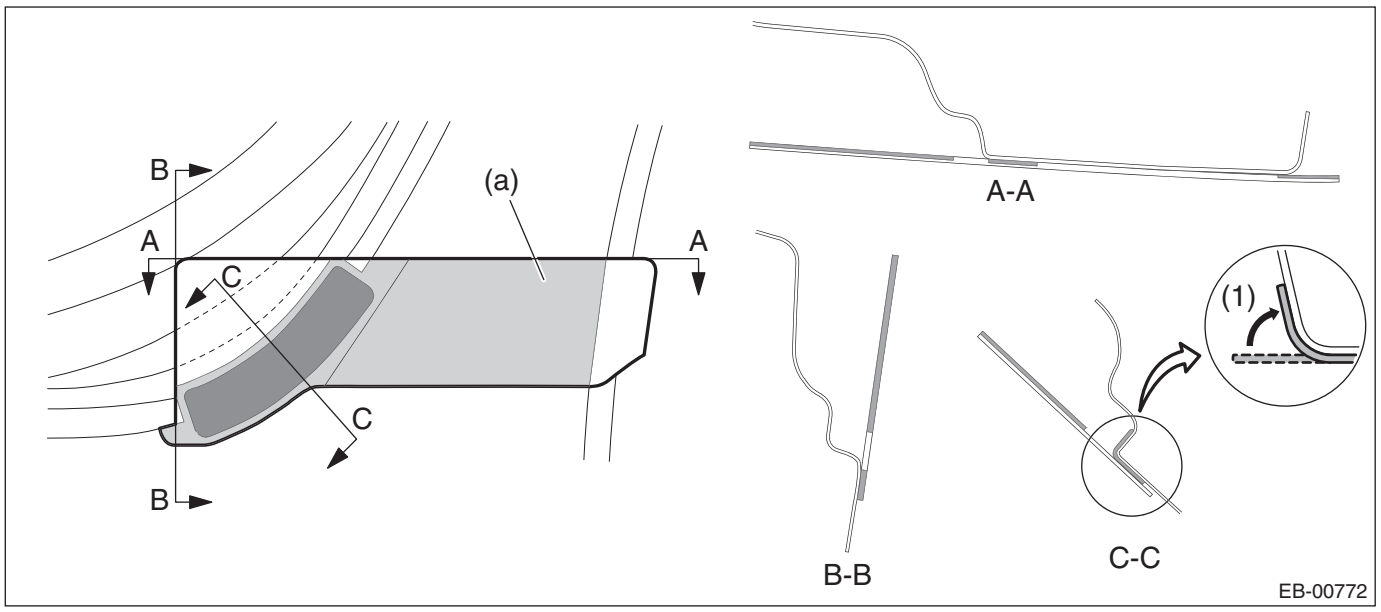

(1) Door side
(2) Body side
(3) 196 mm (7.72 in)
(4) 6 mm (0.24 in)
(5) Piston rod
(6) Cylinder
(7) Portion to be drilled

# 11.Protector Tape

## A: INSTALLATION

Apply the protector tape by the following steps.

### 1. REAR QUARTER PROTECTOR (MODELS WITHOUT SIDE GARNISH)




(1) Apply the protector tape by aligning it to the rounded edge.

1) Clean the area around applying position to remove any foreign objects on body.
2) Detach the backing paper from the temporary retention area (a) and apply the protector tape after positioning it correctly.
3) Detach the backing papers, and moisten the applying area and the backside of protector tape by spraying liquid (mild detergent solution at 3% concentration).
4) Apply the protector tape to the vehicle body.

**CAUTION:**
**Remove the water or air bubbles out of the protector tape by using the plastic or rubber spatula.**
5) Detach the application tape and temporary retention tape.
6) Bend the tack-in end and apply it as shown by (1) in the figure.

# CRUISE CONTROL SYSTEM

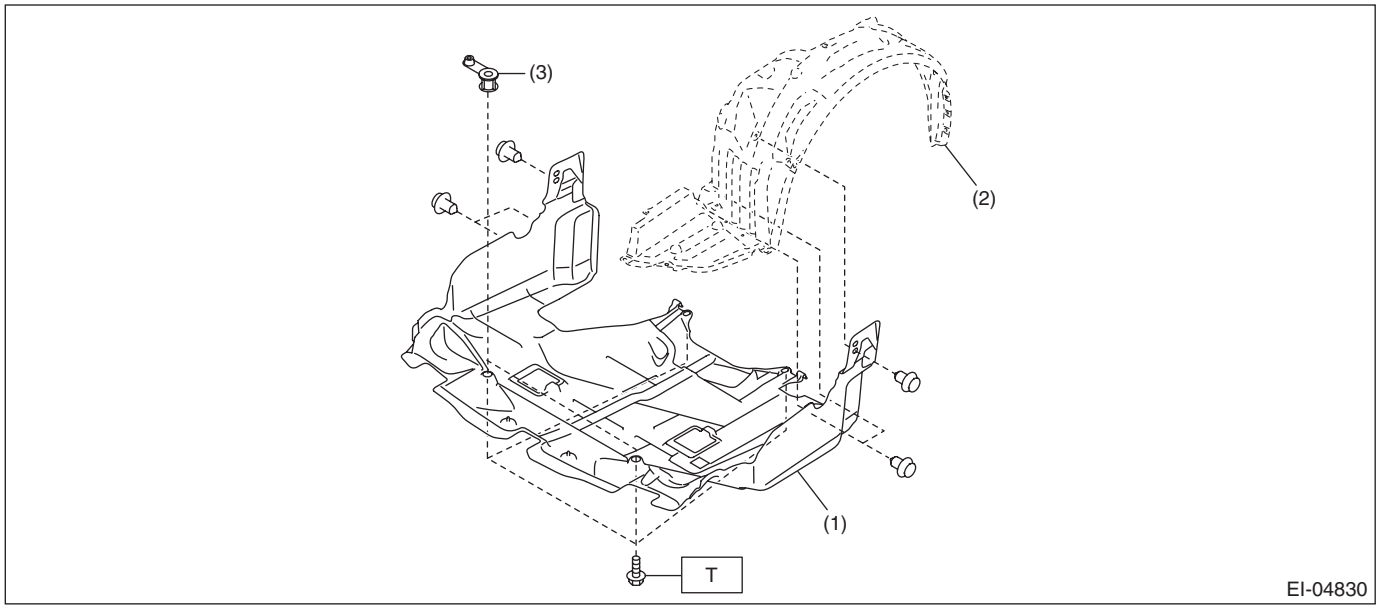
# CC


| | | Page |
|---|---|---|
| 1. | General Description | 2 |
| 2. | Relay and Fuse | 3 |
| 3. | Cruise Control System | 4 |
| 4. | Cruise Control Module | 5 |
| 5. | Cruise Control Command Switch | 6 |
| 6. | Combination Meter | 8 |
| 7. | Stop Light & Brake Switch | 9 |
| 8. | Clutch Switch | 10 |
| 9. | Inhibitor Switch | 11 |
| 10. | Transmission Control Module (TCM) | 12 |
| 11. | Neutral Position Switch | 13 |
| 12. | Hybrid Powertrain Control Module | 14 |
| 13. | Diagnostics with Phenomenon | 15 |

# 1. General Description

## A: COMPONENT

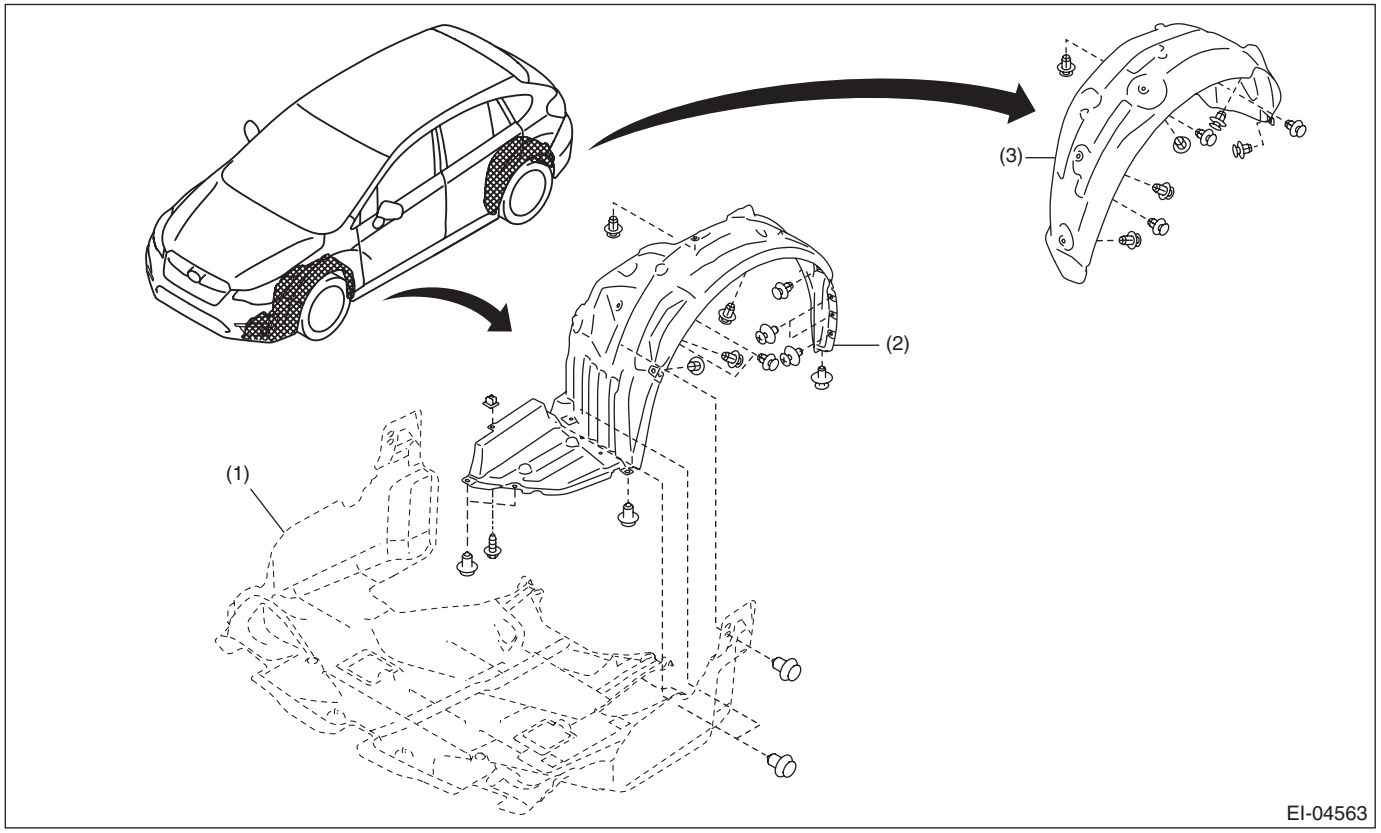
### 1. FRONT UNDER COVER




(1) Under cover - front
(2) Mud guard - front
(3) Spacer - under cover (XV model)

***Tightening torque: N·m (kgf-m, ft-lb)***
***T: 18 (1.84, 13.3)***

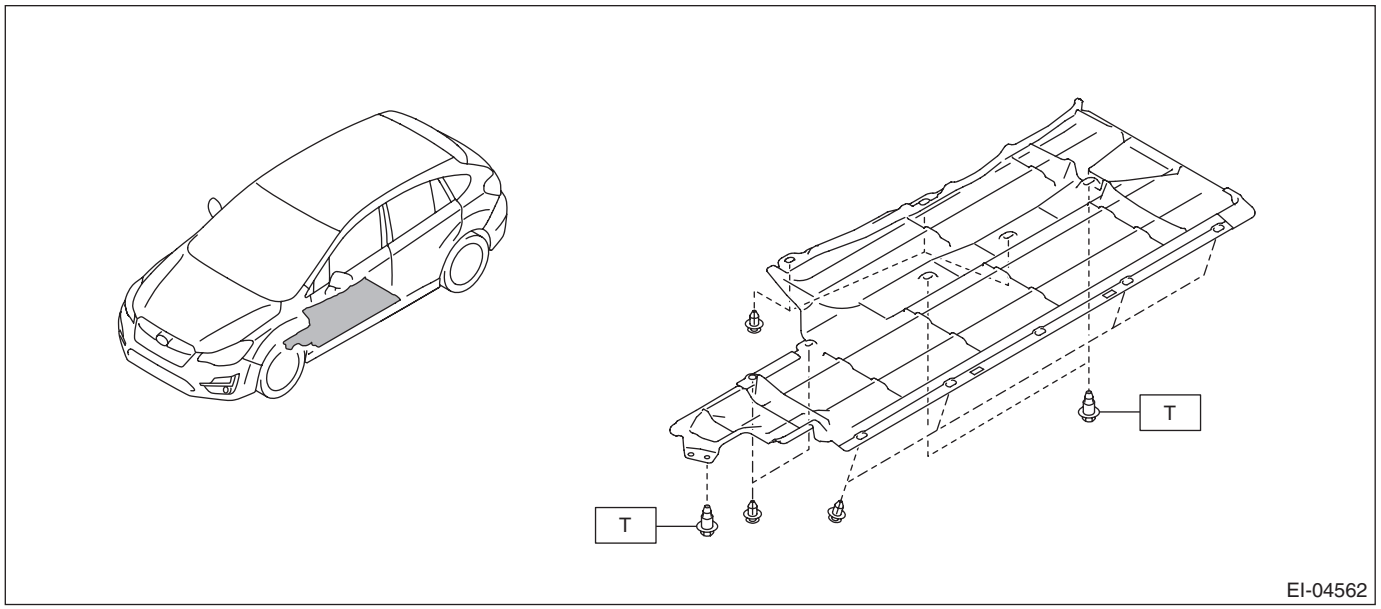
## 2. MUD GUARD




(1) Under cover - front
(2) Mud guard - front
(3) Mud guard - rear

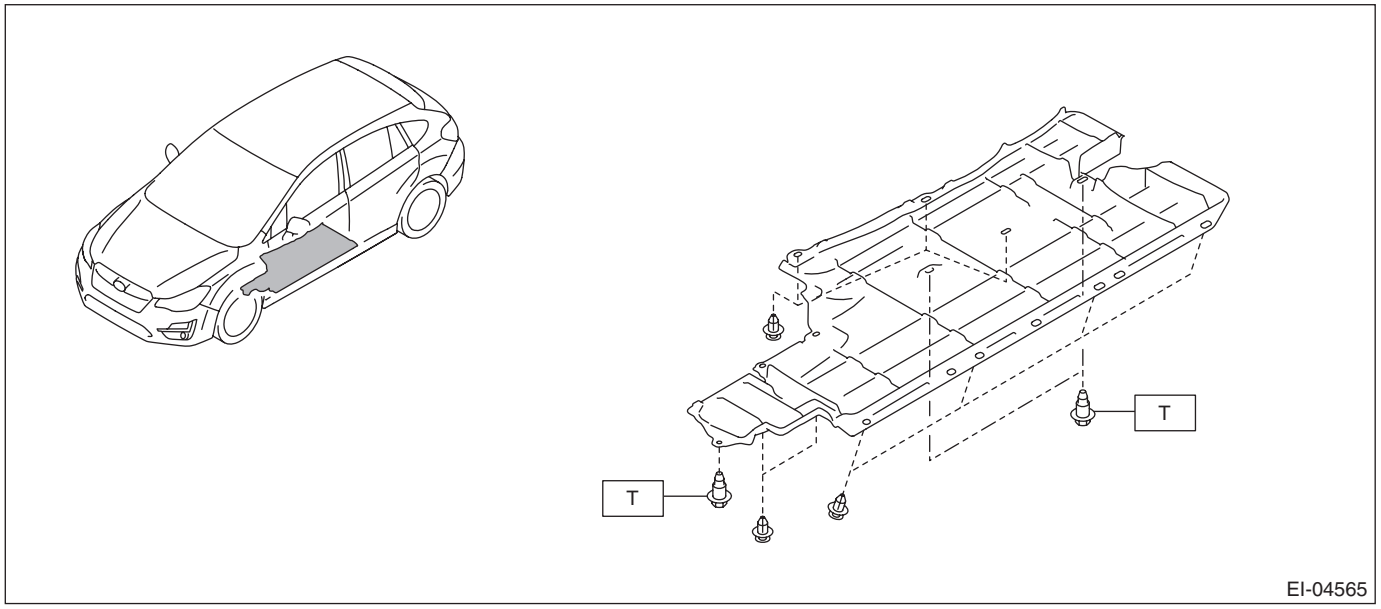
## 3. FLOOR UNDER PROTECTOR

- Type A



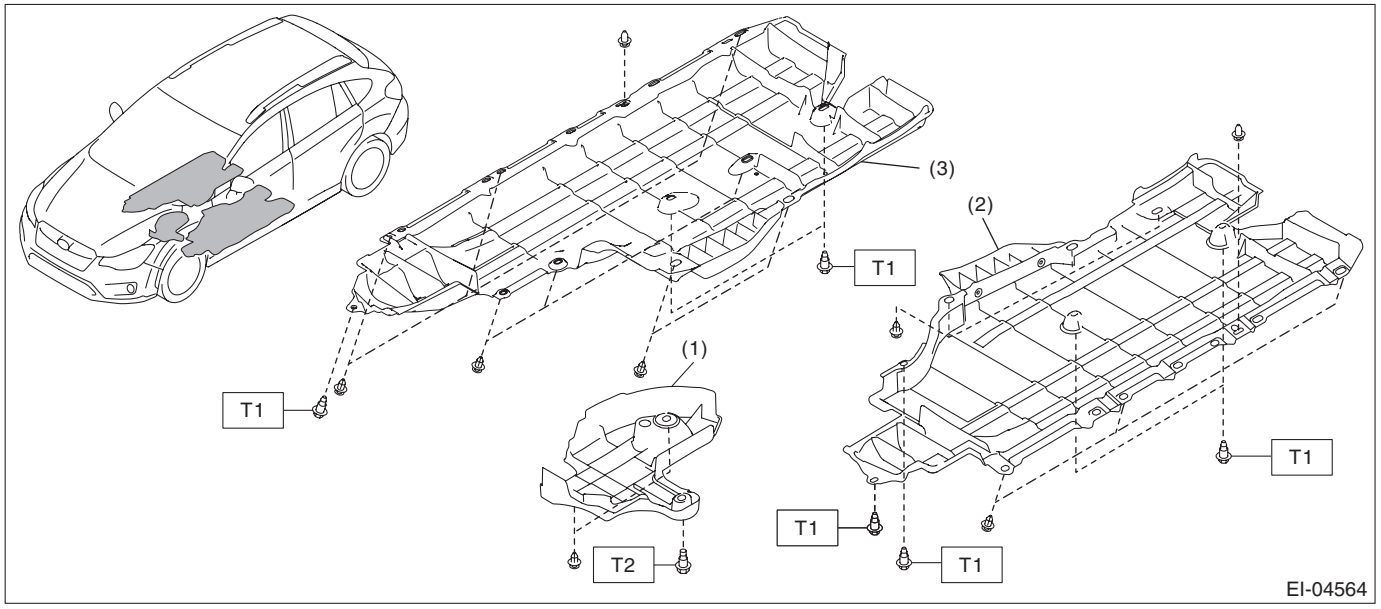

***Tightening torque: N·m (kgf-m, ft-lb)***
***T: 7.5 (0.76, 5.5)***

- Type B




***Tightening torque: N·m (kgf-m, ft-lb)***
***T: 7.5 (0.76, 5.5)***

- Type C



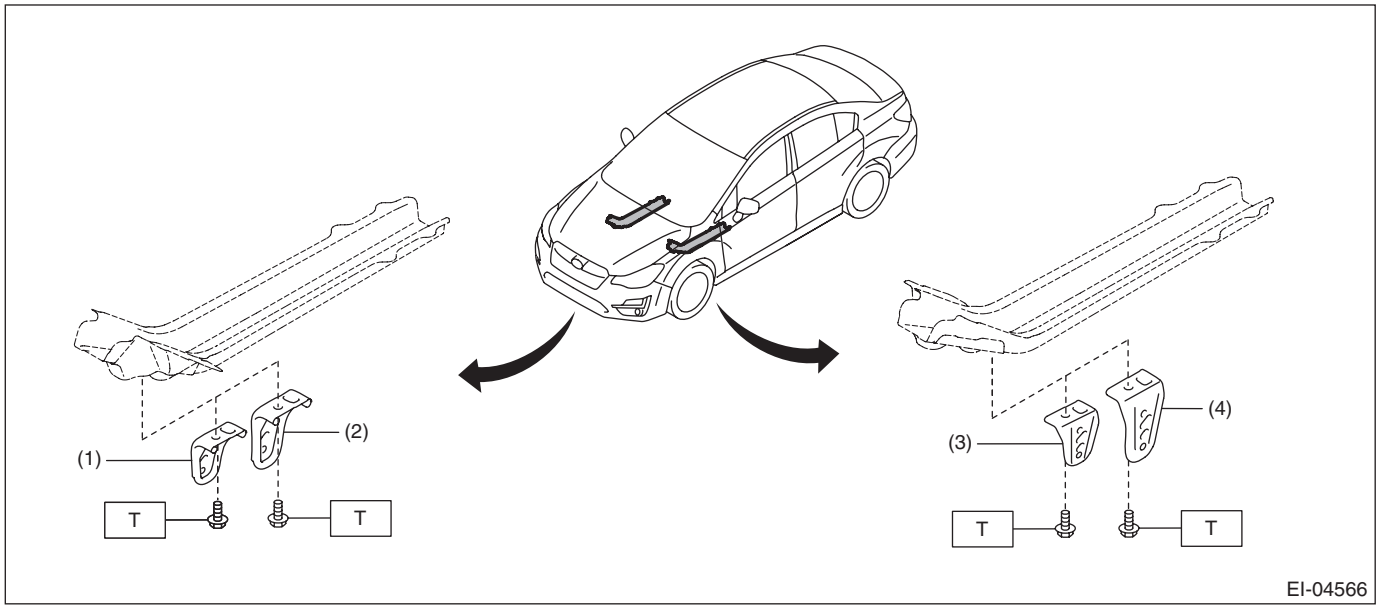

(1) Under cover front - cable
(2) Under cover - rear LH
(3) Under cover - rear RH

***Tightening torque: N·m (kgf-m, ft-lb)***
***T1: 7.5 (0.76, 5.5)***
***T2: 18 (1.84, 13.3)***

## 4. FUEL TANK PROTECTOR

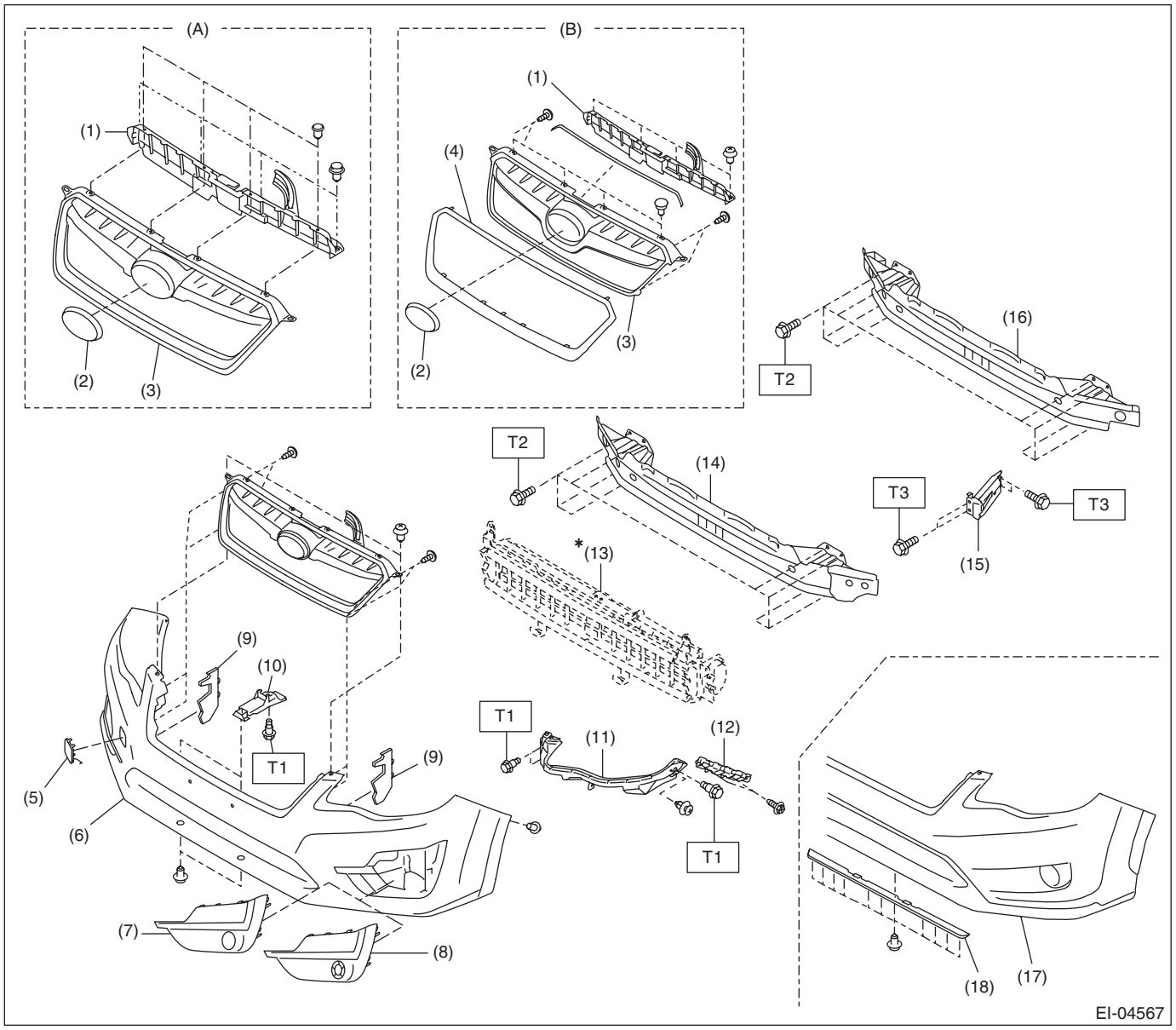
For exploded view of the fuel tank protector, refer to “FUEL TANK” of “FUEL INJECTION” section. <Ref. to FU(H4DO(w/o HEV))-7, FUEL TANK, COMPONENT, General Description.>

## 5. PROTECTOR OIL COVER




| | | | | |
|---|---|---|---|---|
| (1) | Protector oil cover RH (except for XV model) | (3) | Protector oil cover LH (except for XV model) | ***Tightening torque: N·m (kgf-m, ft-lb)*** |
| (2) | Protector oil cover RH (XV model) | (4) | Protector oil cover LH (XV model) | ***T: 100 (10.2, 73.3)*** |

## 6. FRONT BUMPER




(A) Except for XV model
(B) XV model

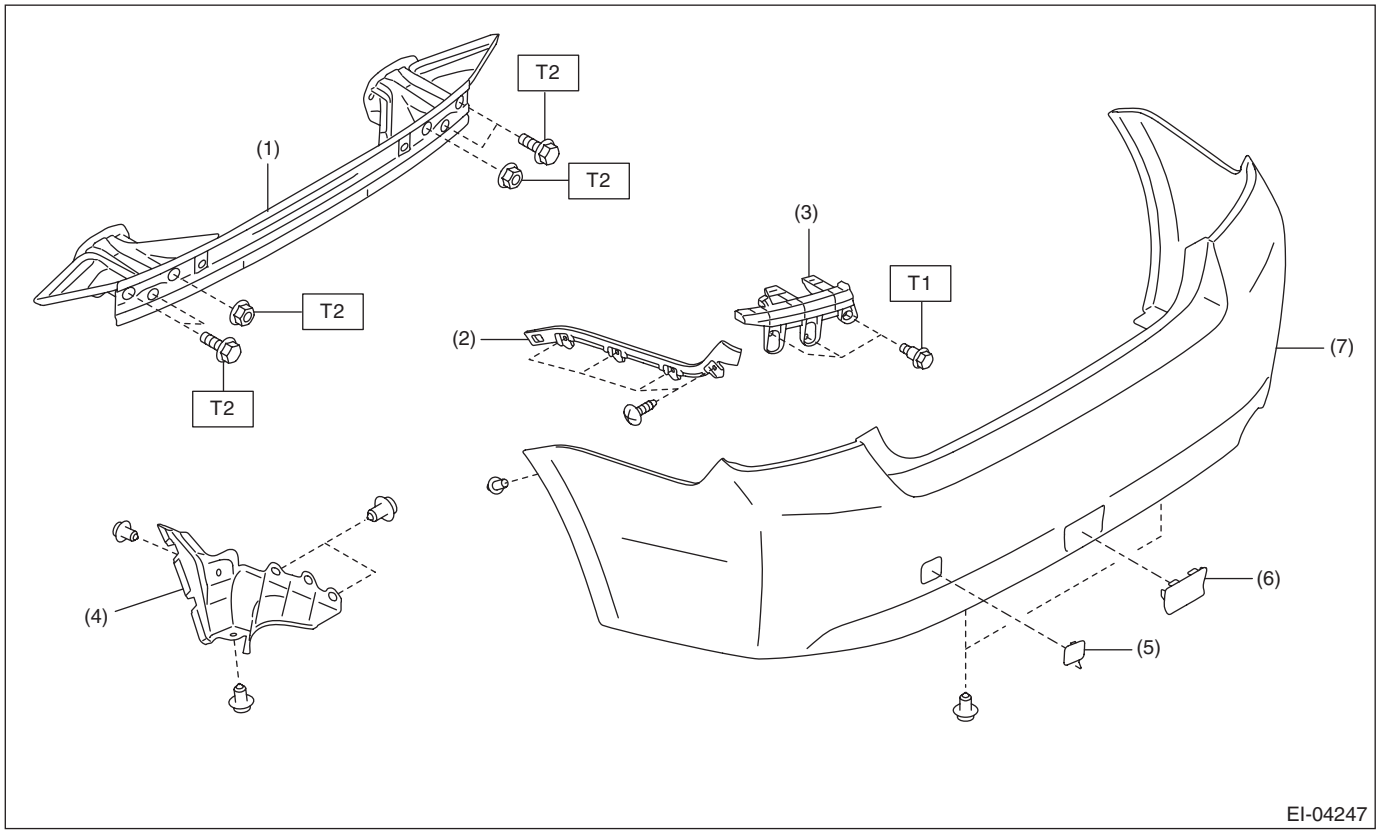
(1) Bracket - grille
(2) Ornament front
(3) Front grille ASSY
(4) Ring - front grille
(5) Cover - front bumper A
(6) Bumper face - front (except for XV model)
(7) Cover - fog light A
(8) Cover - front bumper B
(9) Radiator gasket
(10) Bracket - front center LWR
(11) Bracket - front bumper corner
(12) Bracket - front bumper side
(13) Active grille shutter (ACTGS)
(14) Bumper beam COMPL - front (HEV model)
(15) Gusset COMPL - front side
(16) Bumper beam COMPL - front (gasoline engine model)
(17) Bumper face - front (XV model)
(18) Under spoiler - front (XV model)

***Tightening torque: N·m (kgf-m, ft-lb)***
***T1: 7.5 (0.76, 5.5)***
***T2: 32 (3.26, 23.6)***
***T3: 65 (6.63, 47.9)***

*: For exploded view of the active grille shutter (ACTGS), refer to “ACTIVE GRILLE SHUTTER” of “HYBRID ELECTRIC VEHICLE” section. <Ref. to HEV-9, HYBRID POWERTRAIN CONTROL MODULE, COMPONENT, General Description.>

## 7. REAR BUMPER

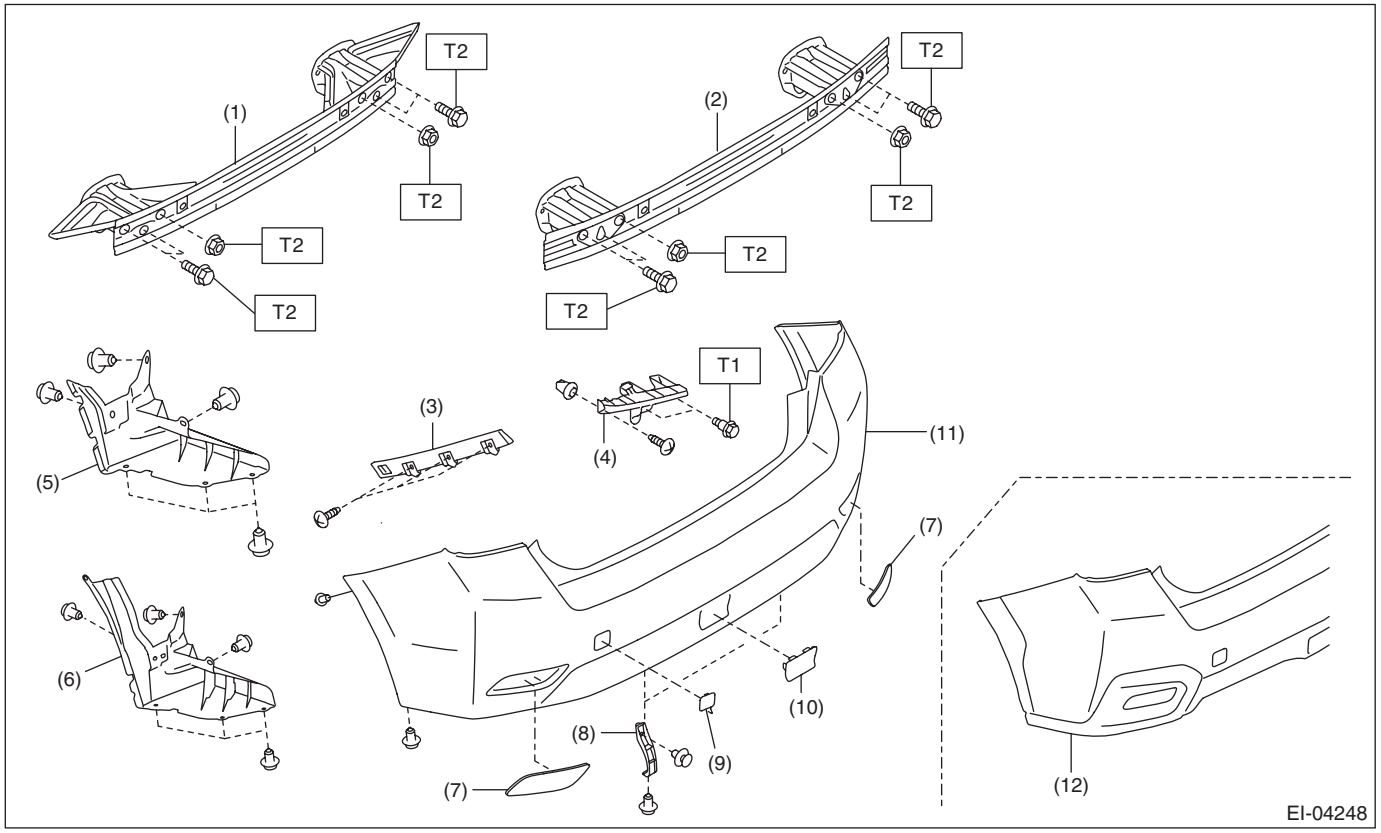
- 4 door model




(1) Bumper beam COMPL - rear
(2) Bracket - rear bumper side
(3) Bracket - rear bumper corner
(4) Cover - rear bumper side
(5) Cover - rear bumper A
(6) Cover - rear bumper B
(7) Bumper face - rear

***Tightening torque: N·m (kgf-m, ft-lb)***
***T1: 7.5 (0.76, 5.5)***
***T2: 70 (7.14, 51.6)***

- 5 door model/XV model




| | | | |
|---|---|---|---|
| (1) | Bumper beam COMPL - rear (except for XV model) | (7) | Reflex reflector ASSY |
| (2) | Bumper beam COMPL - rear (XV model) | (8) | Bracket - rear bumper lower |
| (3) | Bracket - rear bumper side | (9) | Cover - rear bumper A |
| (4) | Bracket - rear bumper corner | (10) | Cover - rear bumper B |
| (5) | Cover - rear bumper side (except for XV model) | (11) | Bumper face - rear (except for XV model) |
| (6) | Cover - rear bumper side (XV model) | (12) | Bumper face - rear (XV model) |

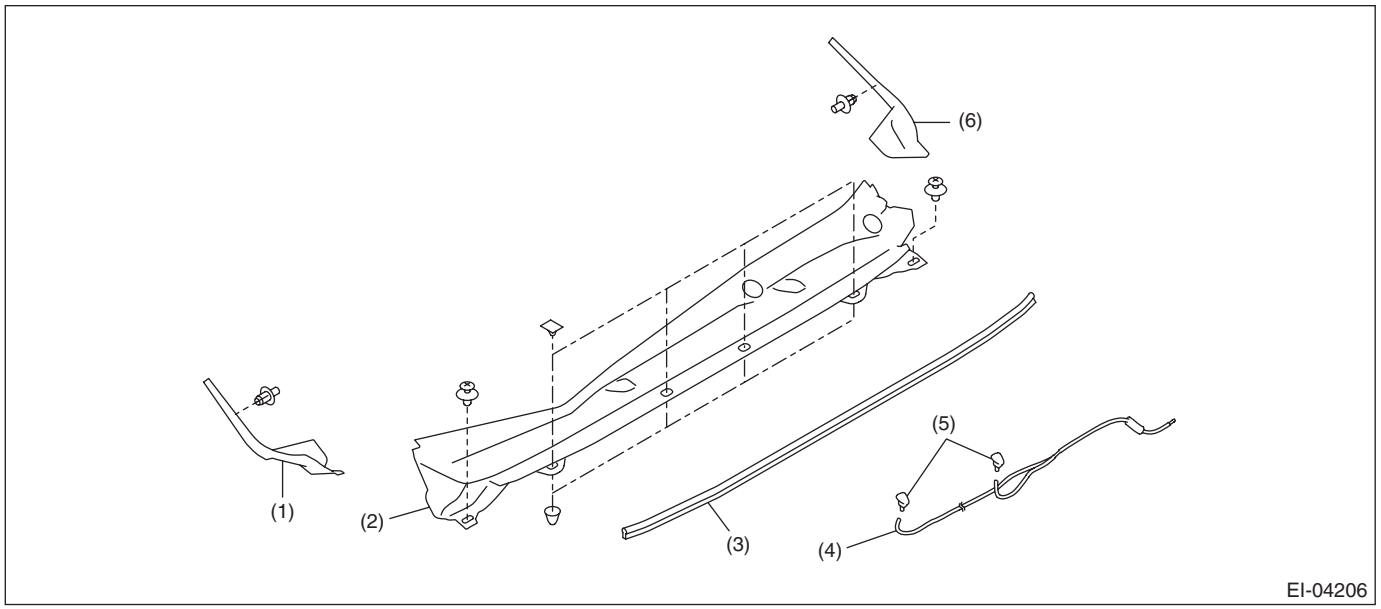
***Tightening torque: N·m (kgf-m, ft-lb)***

***T1: 7.5 (0.76, 5.5)***

***T2: 70 (7.14, 51.6)***

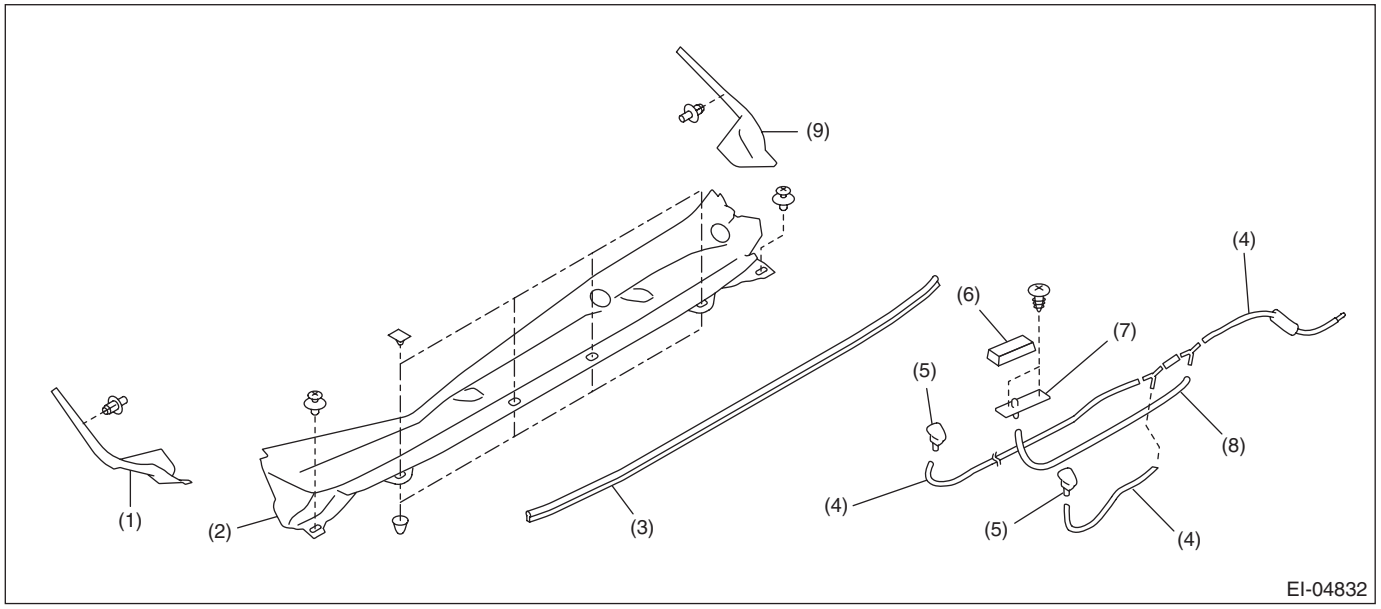
## 8. COWL PANEL

- Models without EyeSight



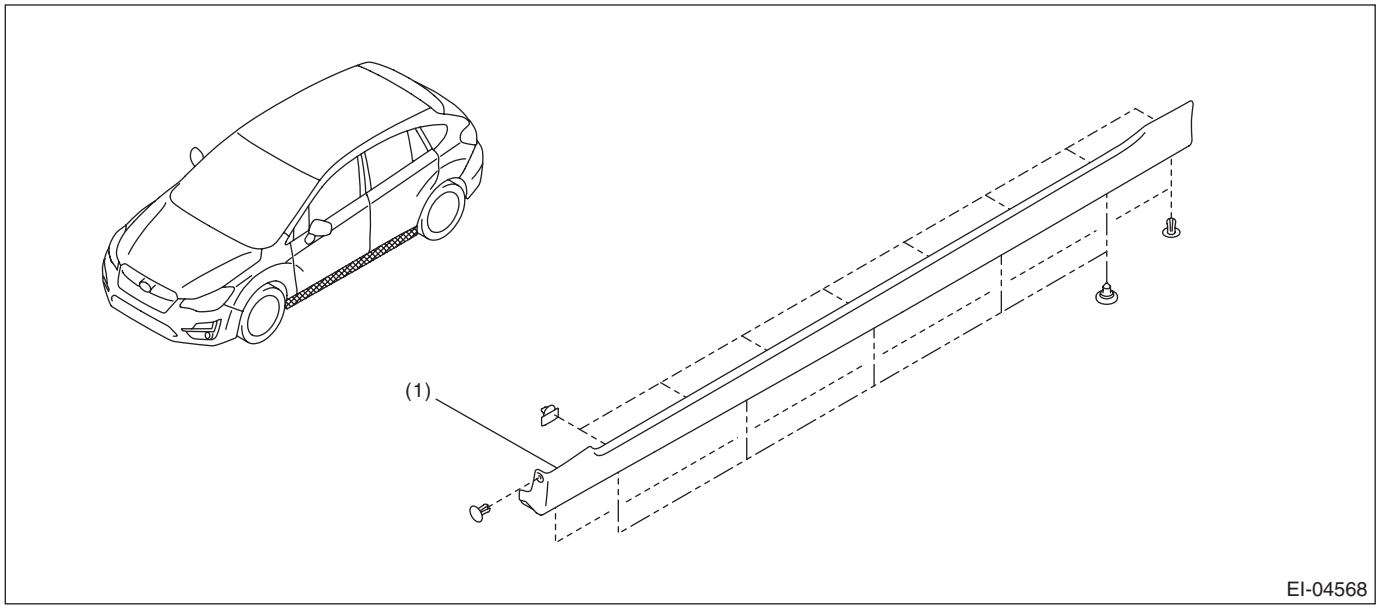

(1) Cowl panel - side RH
(2) Cowl panel ASSY
(3) Seal - front panel
(4) Hose - windshield washer
(5) Nozzle - windshield washer
(6) Cowl panel - side LH

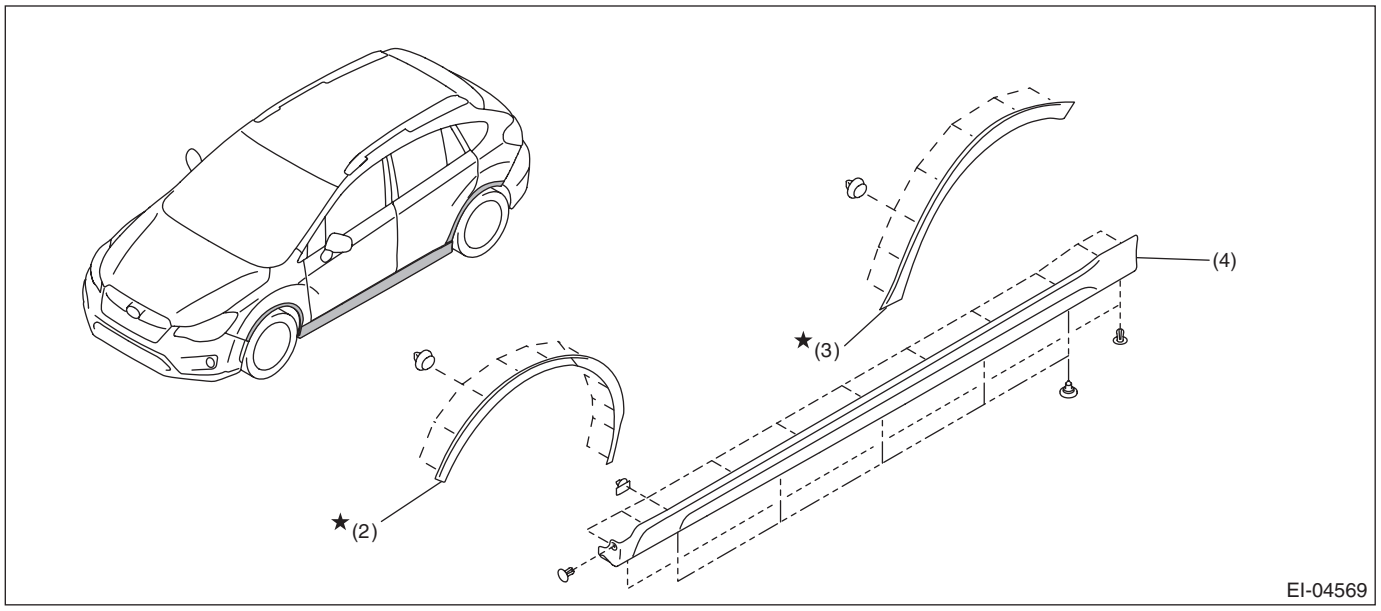
- Models with EyeSight




(1) Cowl panel - side RH
(2) Cowl panel ASSY
(3) Seal - front panel
(4) Hose - windshield washer
(5) Nozzle - windshield washer
(6) Cover - joint
(7) Joint - washer hose
(8) Hose - wiper arm
(9) Cowl panel - side LH

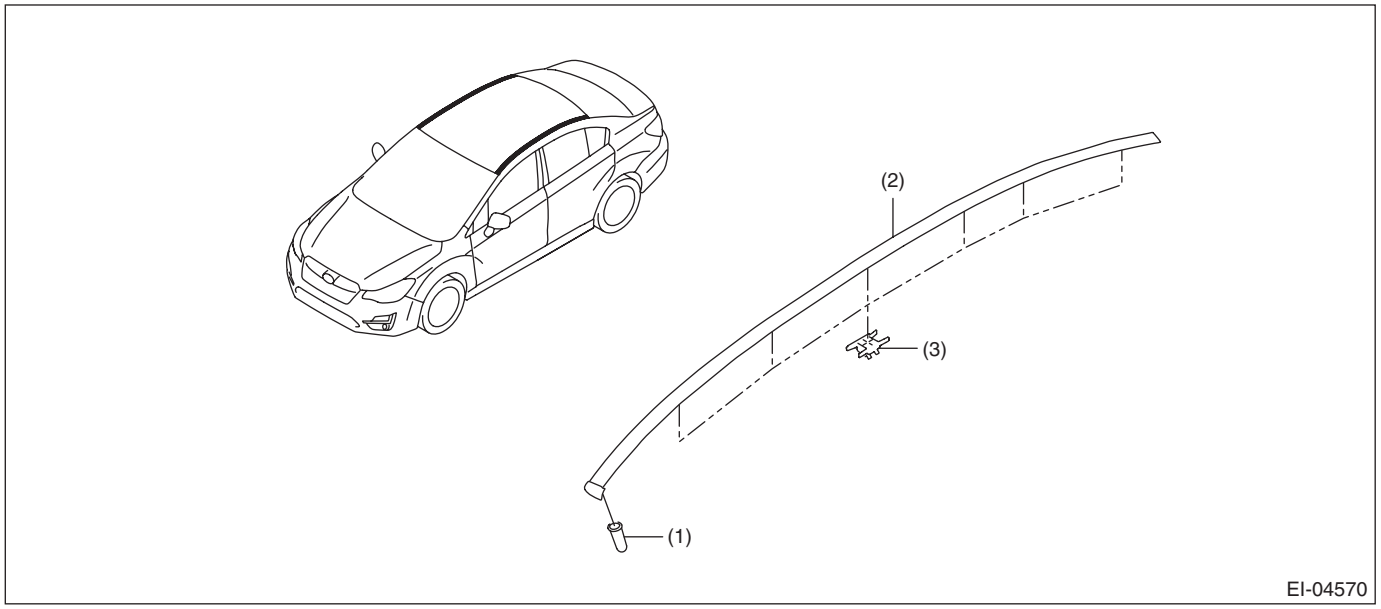
## 9. SIDE GARNISH

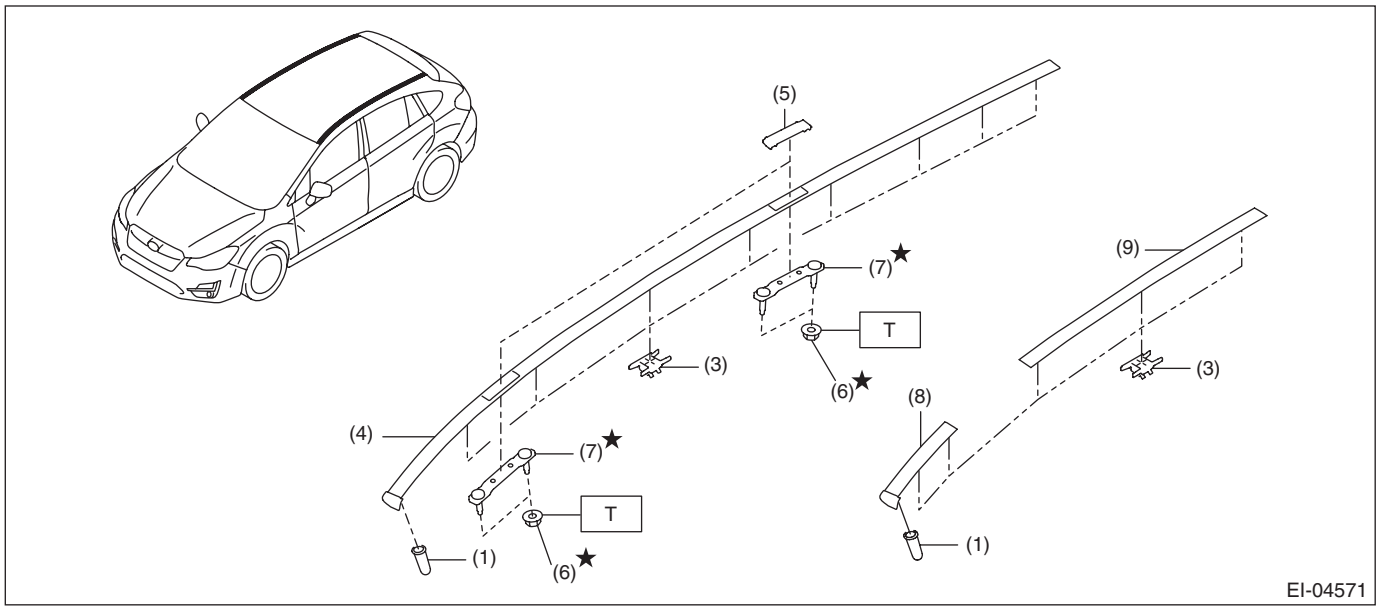



(1) Garnish ASSY - side sill (except for XV model)
(2) Garnish ASSY - fender (XV model)
(3) Garnish ASSY - rear quarter (XV model)
(4) Garnish ASSY - side sill (XV model)

## 10.ROOF MOLDING

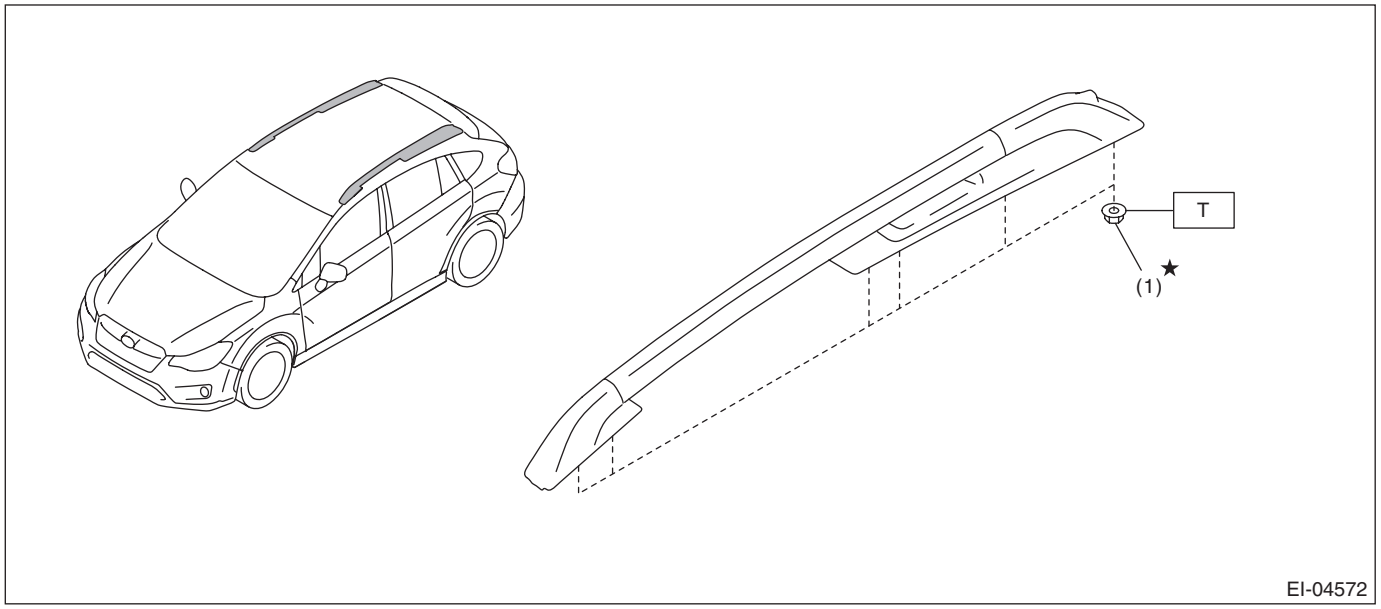



(1) Rivet
(2) Molding - roof (4 door model)
(3) Fastener
(4) Molding - roof (5 door model/XV model)
(5) Cap - molding
(6) Flange nut
(7) Bracket - molding roof
(8) Molding - roof front (model with roof rail)
(9) Molding - roof rear (model with roof rail)

***Tightening torque: N·m (kgf-m, ft-lb)***
***T: 7.5 (0.76, 5.5)***

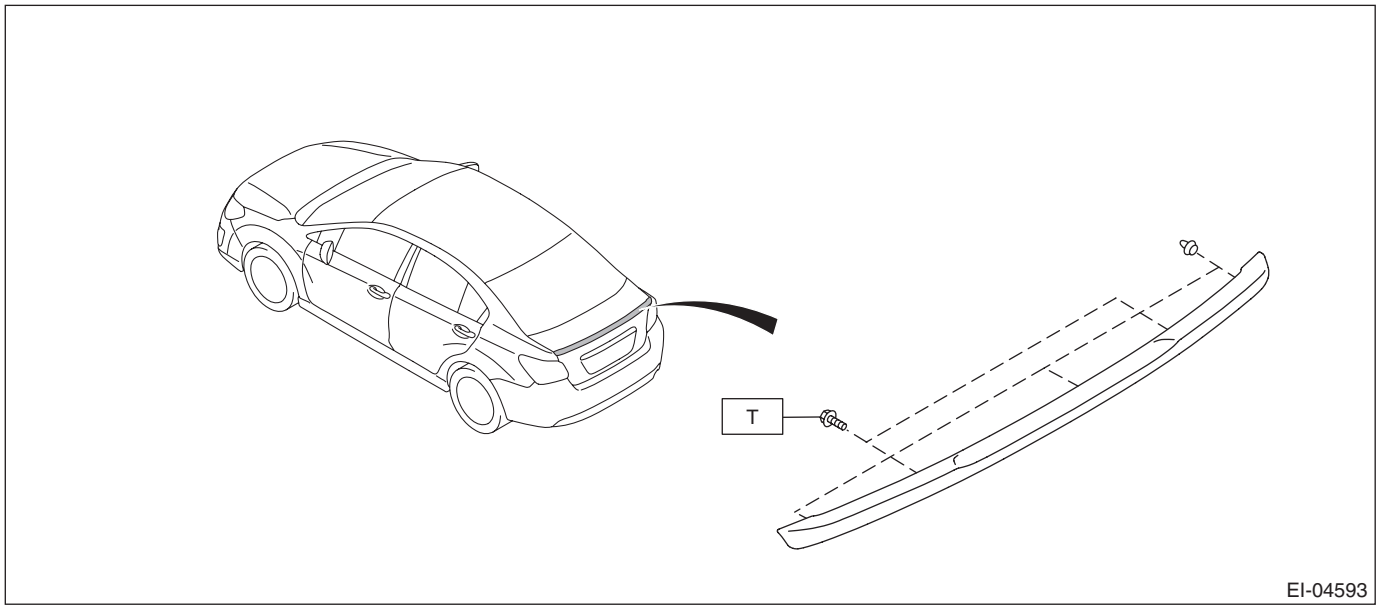
## 11.ROOF RAIL




(1) Self-locking nut

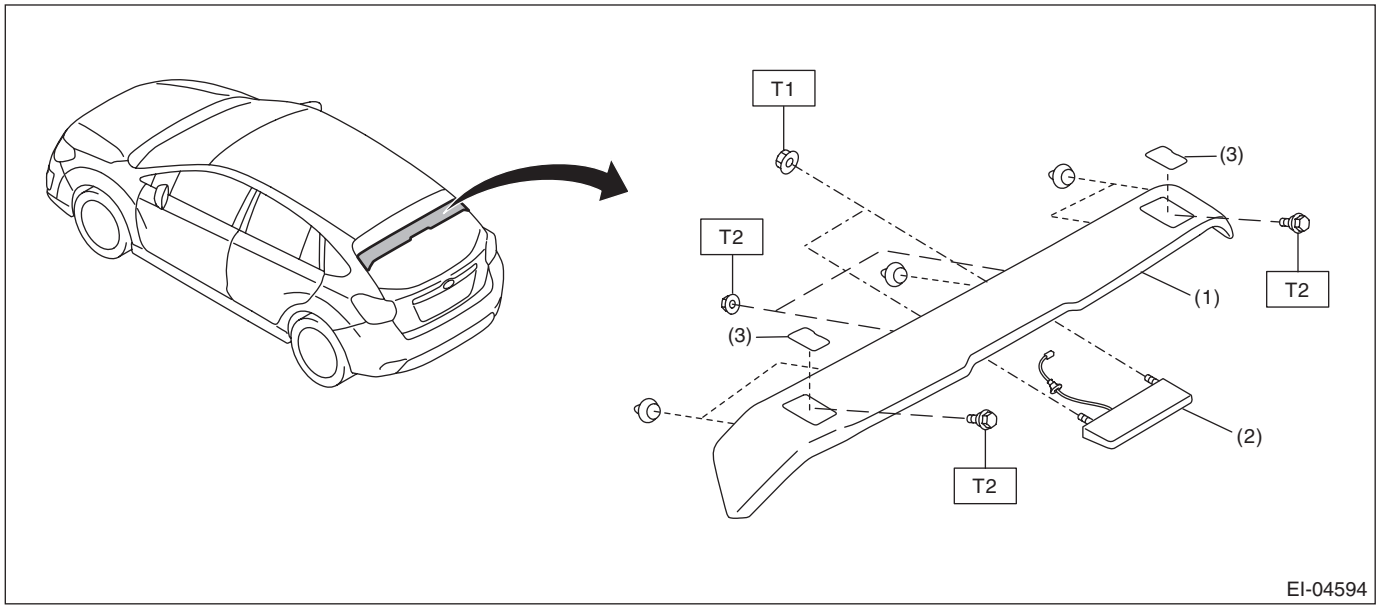
***Tightening torque: N·m (kgf-m, ft-lb)***
***T: 7.5 (0.76, 5.5)***

## 12.REAR SPOILER




***Tightening torque: N·m (kgf-m, ft-lb)***
***T: 7.5 (0.76, 5.5)***

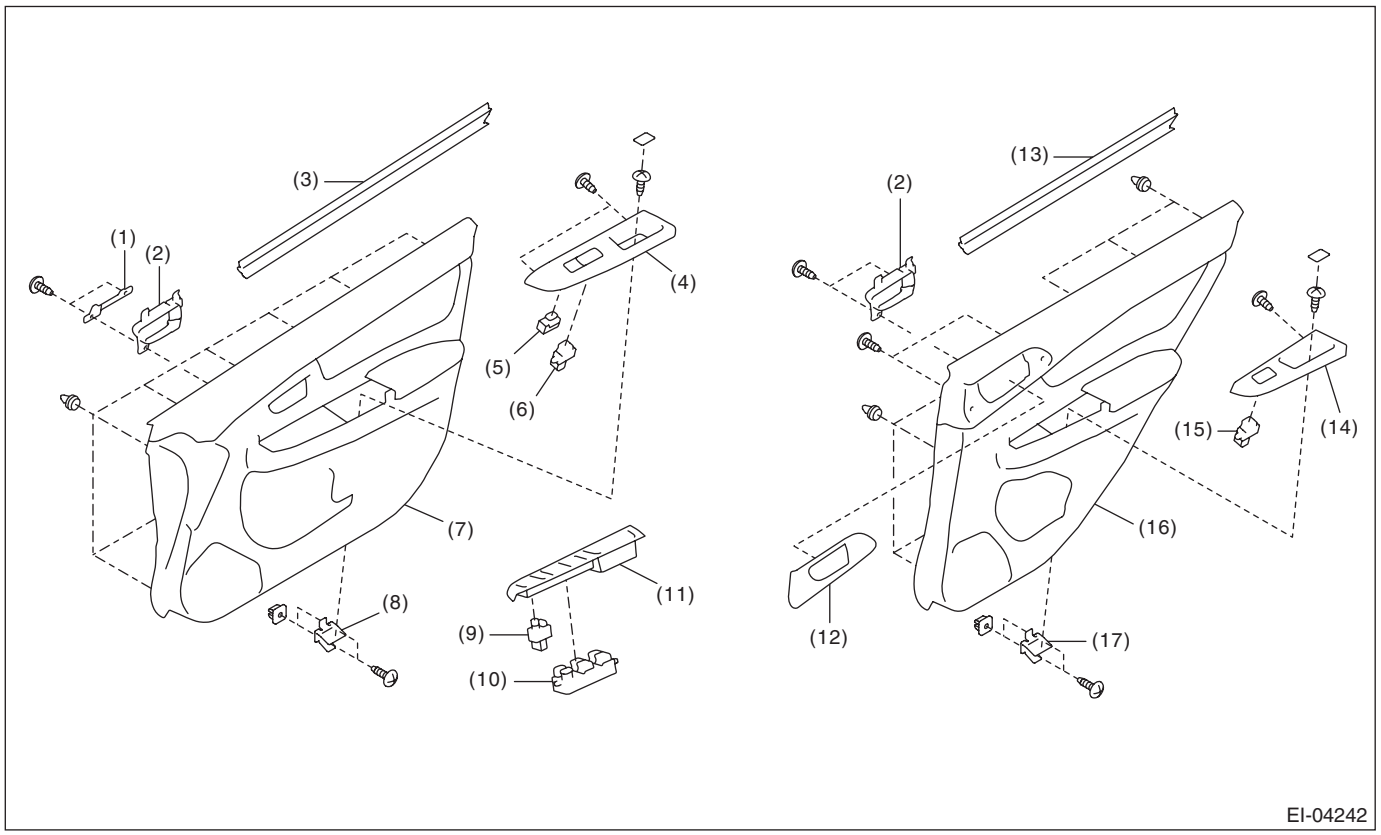
## 13.ROOF SPOILER




(1) Roof spoiler
(2) High-mounted stop light ASSY
(3) Cap

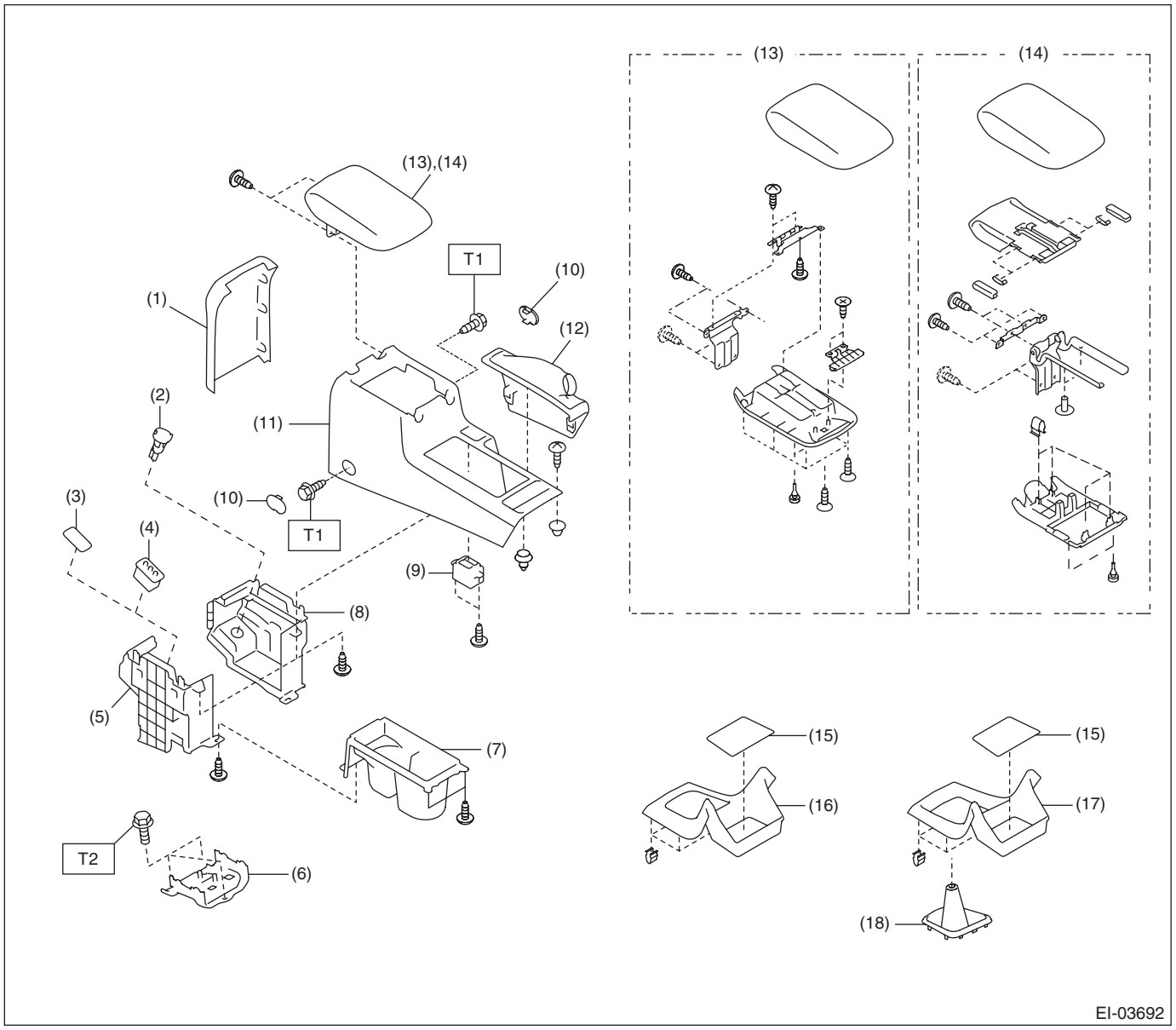
***Tightening torque: N·m (kgf-m, ft-lb)***
***T1: 4.5 (0.46, 3.3)***
***T2: 7.5 (0.76, 5.5)***

## 14.DOOR TRIM




| | | | | | |
|---|---|---|---|---|---|
| (1) | Plate | (7) | Trim panel - front door | (13) | Weather strip - door rear INN |
| (2) | Remote ASSY - door | (8) | Bracket - door trim front | (14) | Panel - power window sub-switch rear |
| (3) | Weather strip - door front INN | (9) | Switch - door mirror | (15) | Switch - power window sub rear |
| (4) | Panel - power window sub-switch front | (10) | Switch - power window main | (16) | Trim panel - rear door |
| (5) | Switch - door lock sub | (11) | Panel - power window main switch | (17) | Bracket - door trim rear |
| (6) | Switch - power window sub front | (12) | Cover - remote rear door | | |

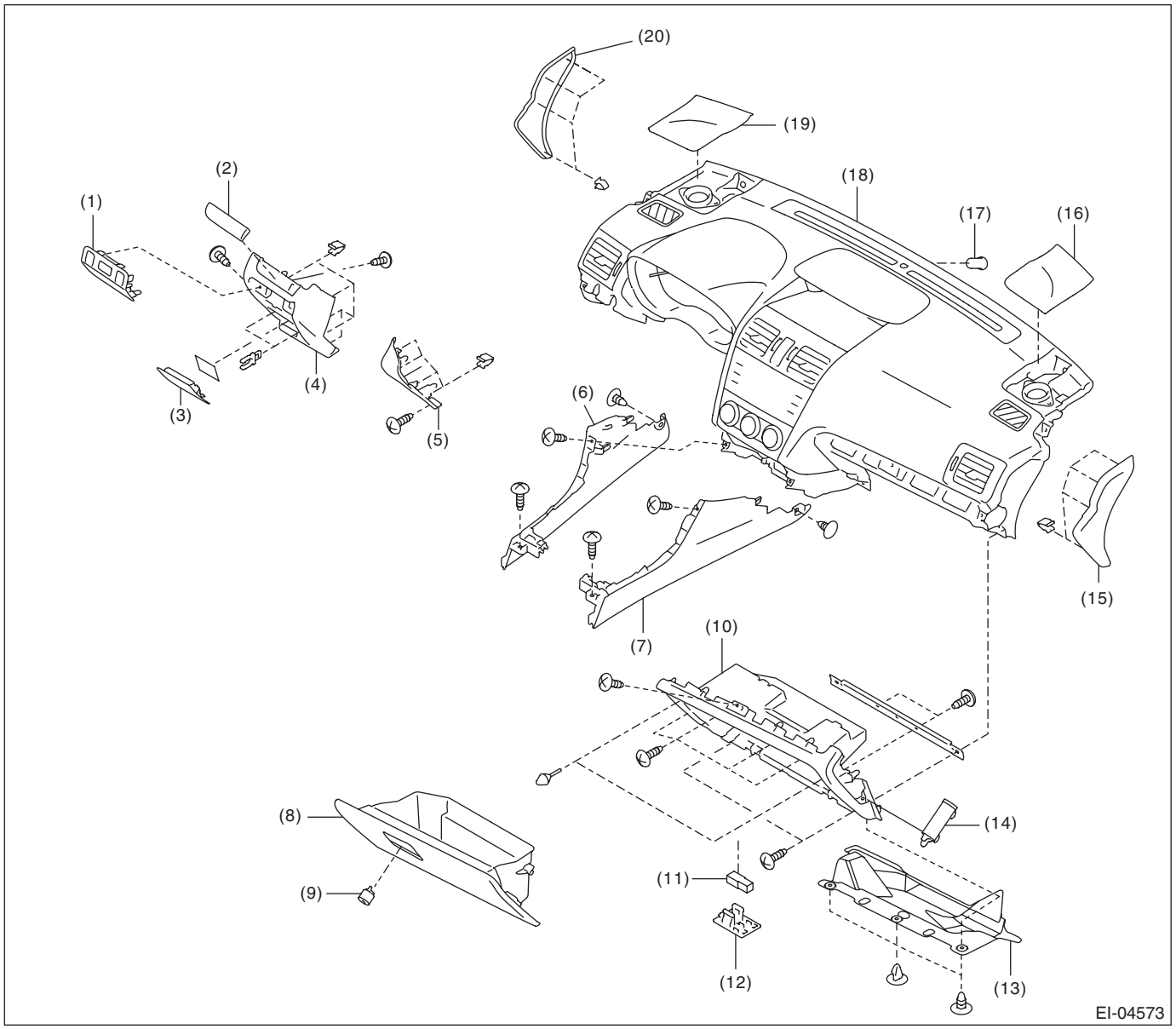
## 15.CONSOLE BOX



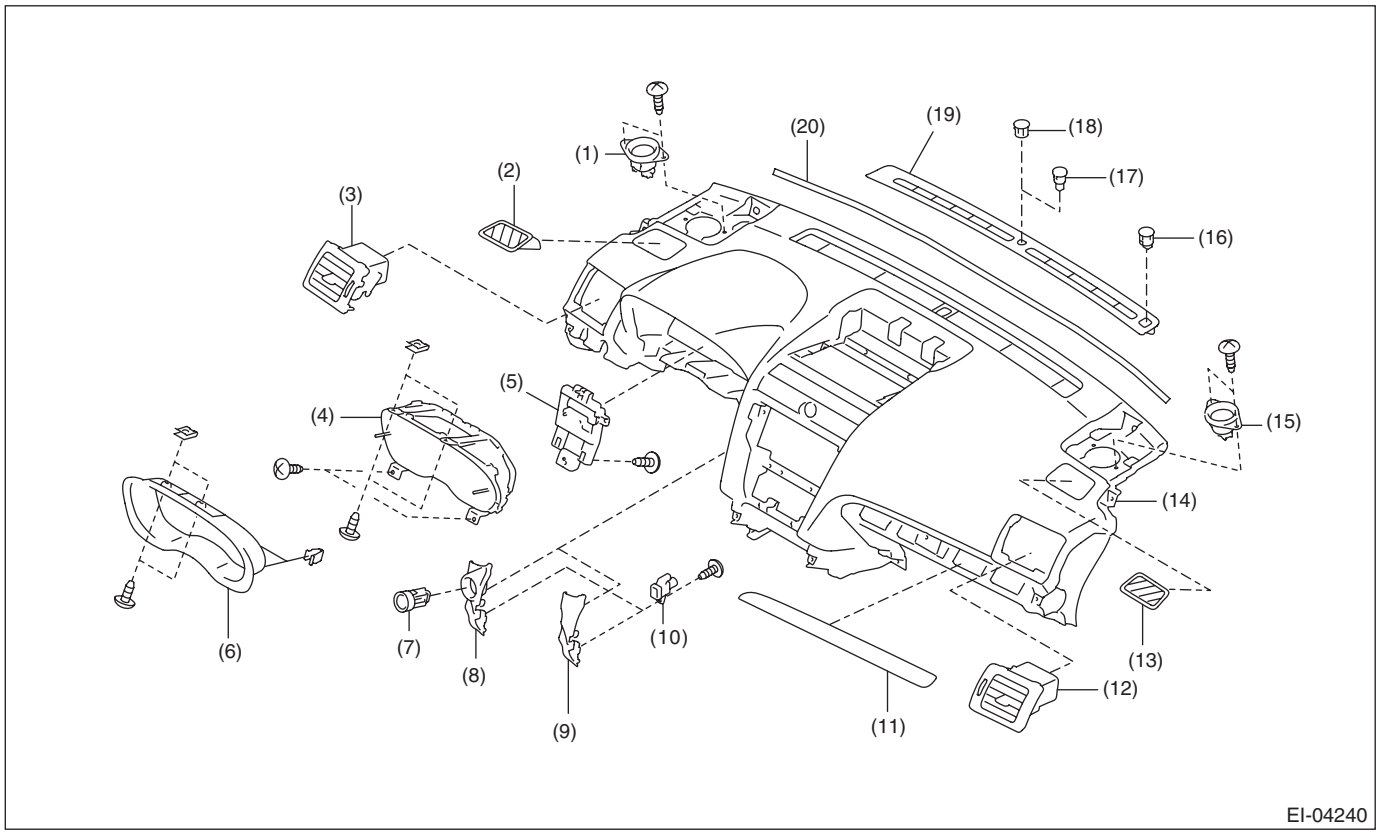

(1) Console box, rear
(2) Accessory socket
(3) Cap
(4) AUX unit
(5) Pocket console box RH
(6) Bracket - console box
(7) Cup holder
(8) Pocket console box LH
(9) Switch - seat heater
(10) Cap - console box
(11) Console box
(12) Boot - parking brake
(13) Lid ASSY - console box (fixed type)
(14) Lid ASSY - console box (sliding type)
(15) Mat
(16) Cover front (CVT model)
(17) Cover front (MT model)
(18) Boot - shift lever (MT model)

***Tightening torque: N·m (kgf-m, ft-lb)***
***T1: 6.5 (0.66, 4.8)***
***T2: 18 (1.84, 13.3)***

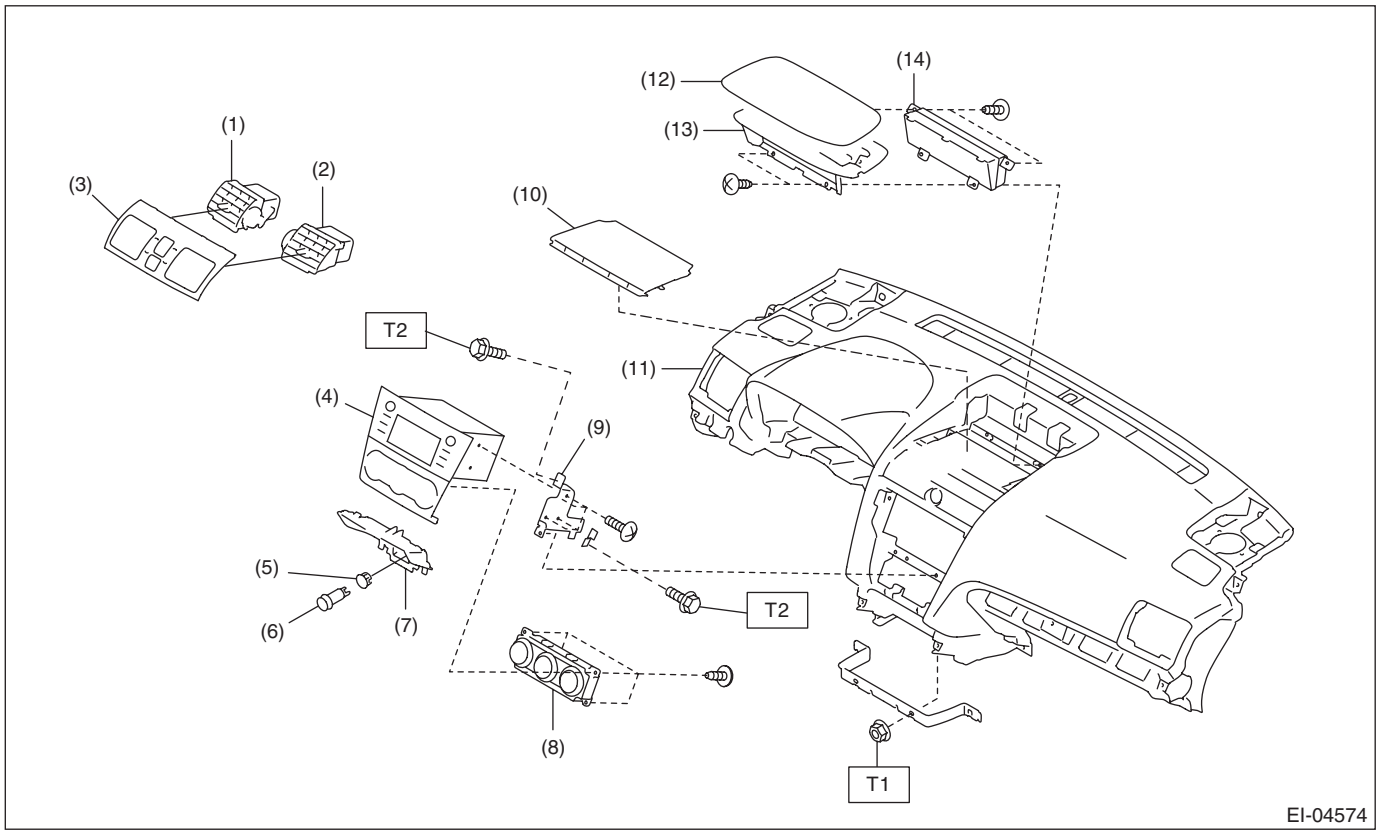
## 16.INSTRUMENT PANEL




| | | | | | |
|---|---|---|---|---|---|
| (1) | Panel - switch | (8) | Pocket ASSY | (15) | Cover - instrument panel side RH |
| (2) | Ornament - panel ASSY driver | (9) | Key cylinder - pocket | (16) | Grille speaker side RH |
| (3) | Lid ASSY - fuse box | (10) | Back panel - pocket | (17) | Cap - guide pin |
| (4) | Cover ASSY - instrument panel LWR driver OUT | (11) | Light - pocket | (18) | Panel COMPL - instrument |
| (5) | Cover ASSY - instrument panel LWR driver INN | (12) | Holder | (19) | Grille speaker side LH |
| (6) | Panel center LWR LH | (13) | Under cover ASSY - passenger | (20) | Cover - instrument panel side LH |
| (7) | Panel center LWR RH | (14) | Damper COMPL - pocket | | |

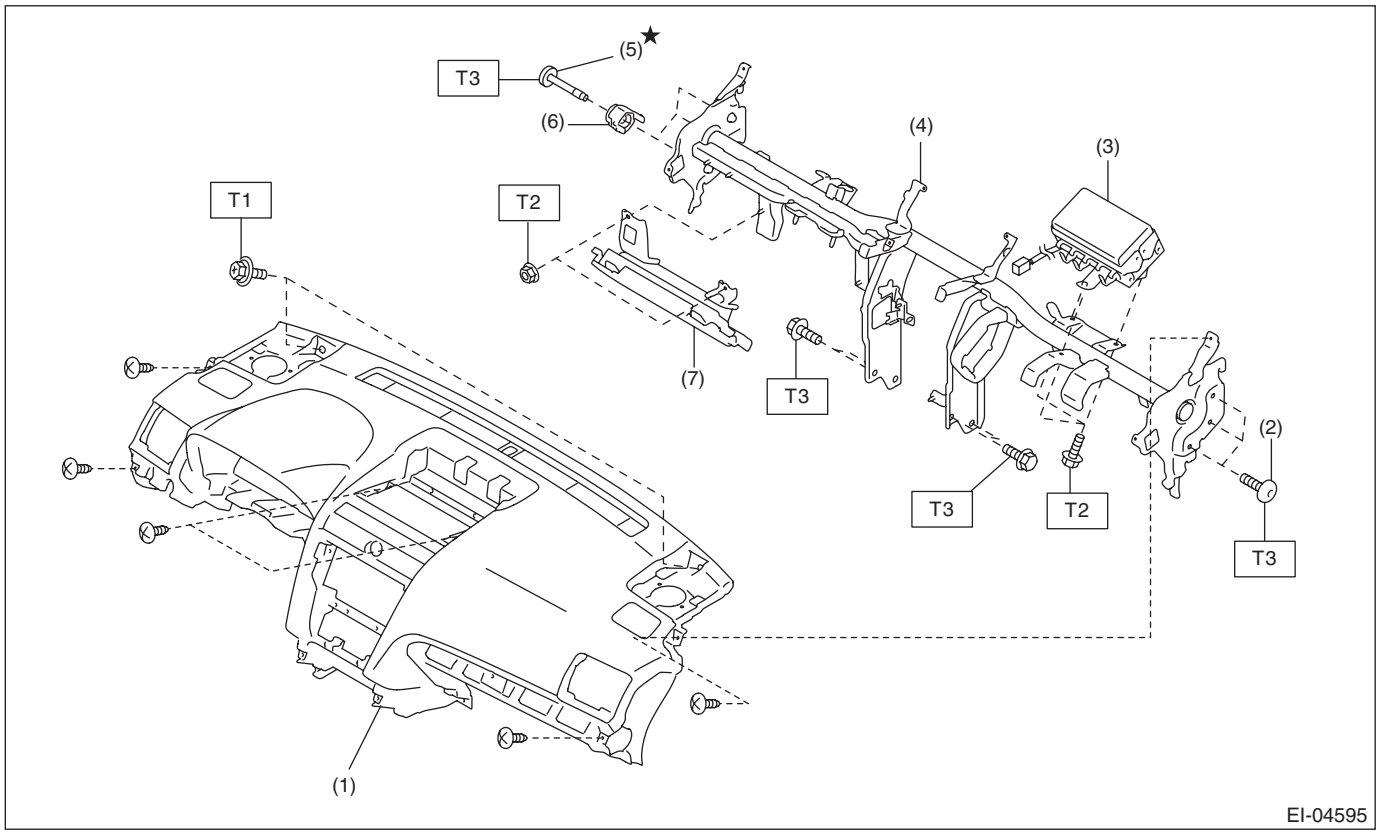



(1) Speaker ASSY - tweeter LH
(2) Grille defroster - front LH
(3) Grille ASSY - ventilation LH
(4) Combination meter ASSY
(5) Reinforcement - combination meter
(6) Visor - combination meter
(7) Switch - push button start
(8) Panel - switch
(9) Cover - switch starter
(10) Case - sensor
(11) Ornament - panel ASSY passenger
(12) Grille ASSY - ventilation RH
(13) Grille defroster - front RH
(14) Panel COMPL - instrument
(15) Speaker ASSY - tweeter RH
(16) Sensor - rain
(17) Sensor - sunload
(18) Cap
(19) Grille front defroster
(20) Cushion



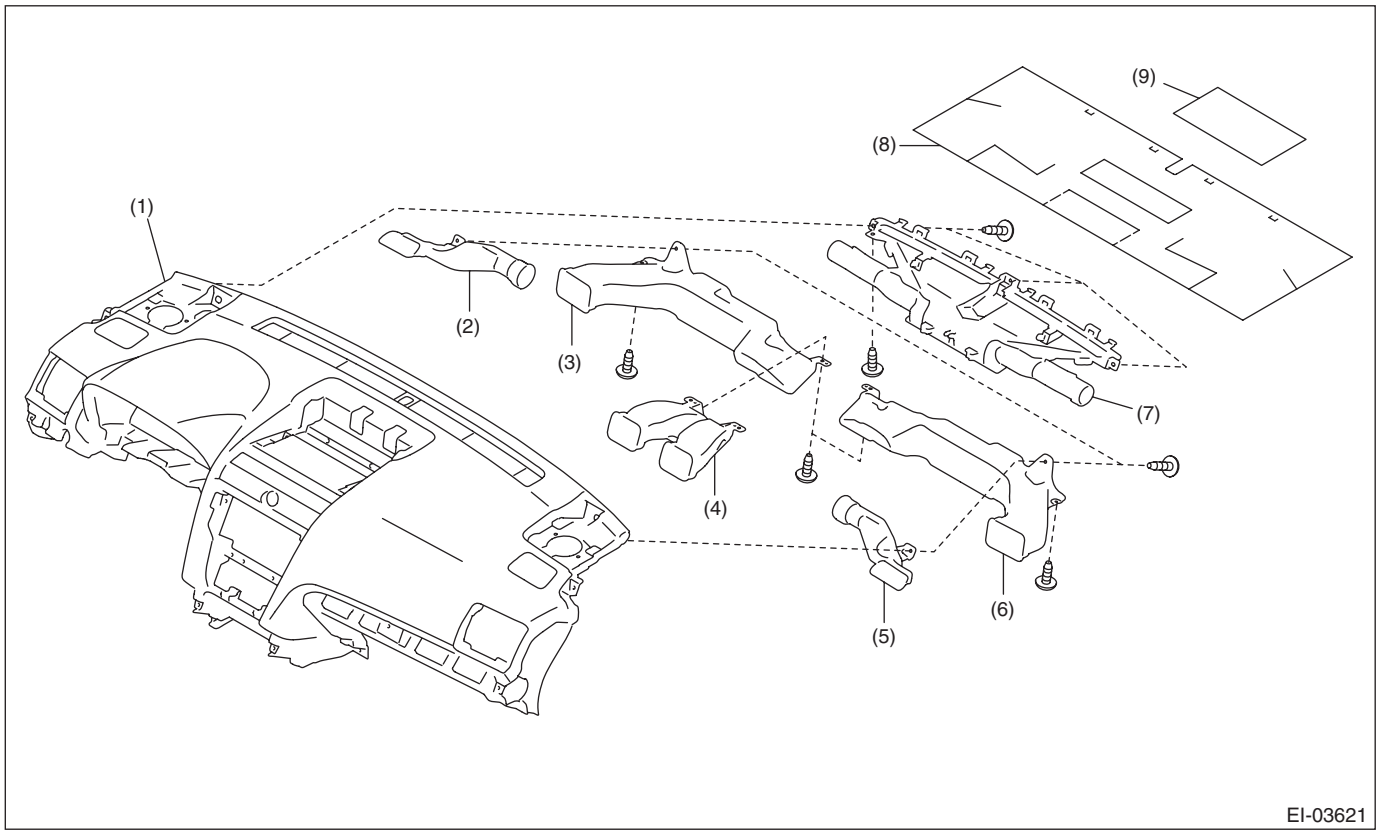

(1) Grille ASSY - CTR ventilation LH
(2) Grille ASSY - CTR ventilation RH
(3) Panel center ASSY
(4) Audio ASSY
(5) Cap
(6) Socket ASSY
(7) Back panel - center pocket
(8) Heater control ASSY
(9) Bracket - audio
(10) Cover center UPR
(11) Panel COMPL - instrument
(12) Panel - display UPR
(13) Panel - display LWR
(14) Multi-function display ASSY

***Tightening torque: N·m (kgf-m, ft-lb)***
***T1: 7 (0.71, 5.2)***
***T2: 7.5 (0.76, 5.5)***




(1) Panel COMPL - instrument
(2) TORX® bolt (M8 × 37)
(3) Passenger's airbag module
(4) Beam COMPL - steering
(5) TORX® bolt (M8 × 57)
(6) Adjuster - clip space
(7) Knee airbag module

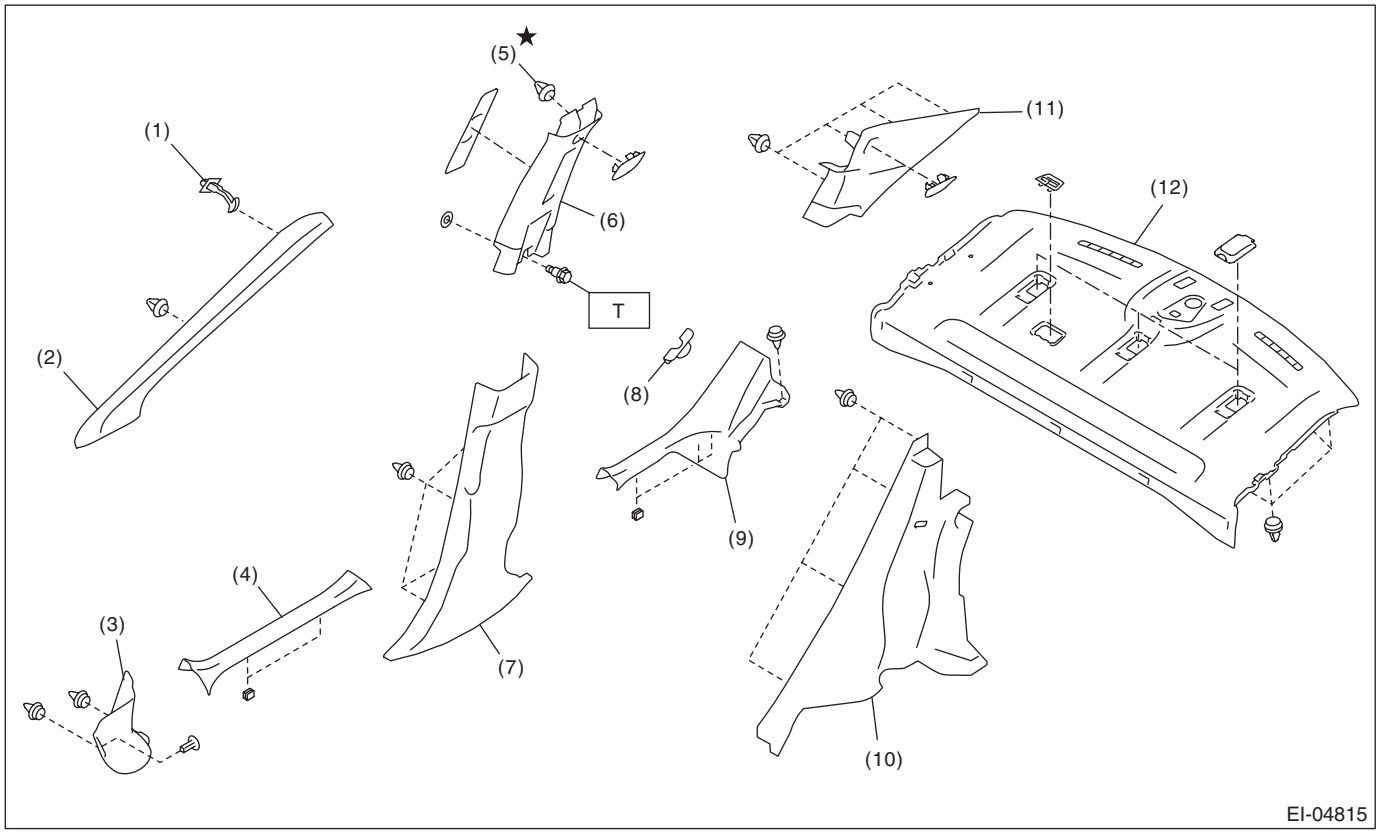
***Tightening torque: N·m (kgf-m, ft-lb)***
***T1: 7 (0.71, 5.2)***
***T2: 7.5 (0.76, 5.5)***
***T3: 25 (2.55, 18.4)***




(1) Panel COMPL - instrument
(2) Duct - side defroster LH
(3) Duct - side ventilation LH
(4) Duct - center vent
(5) Duct - side defroster RH
(6) Duct - side ventilation RH
(7) Nozzle - front defroster
(8) Insulator - instrument
(9) Insulator - airbag

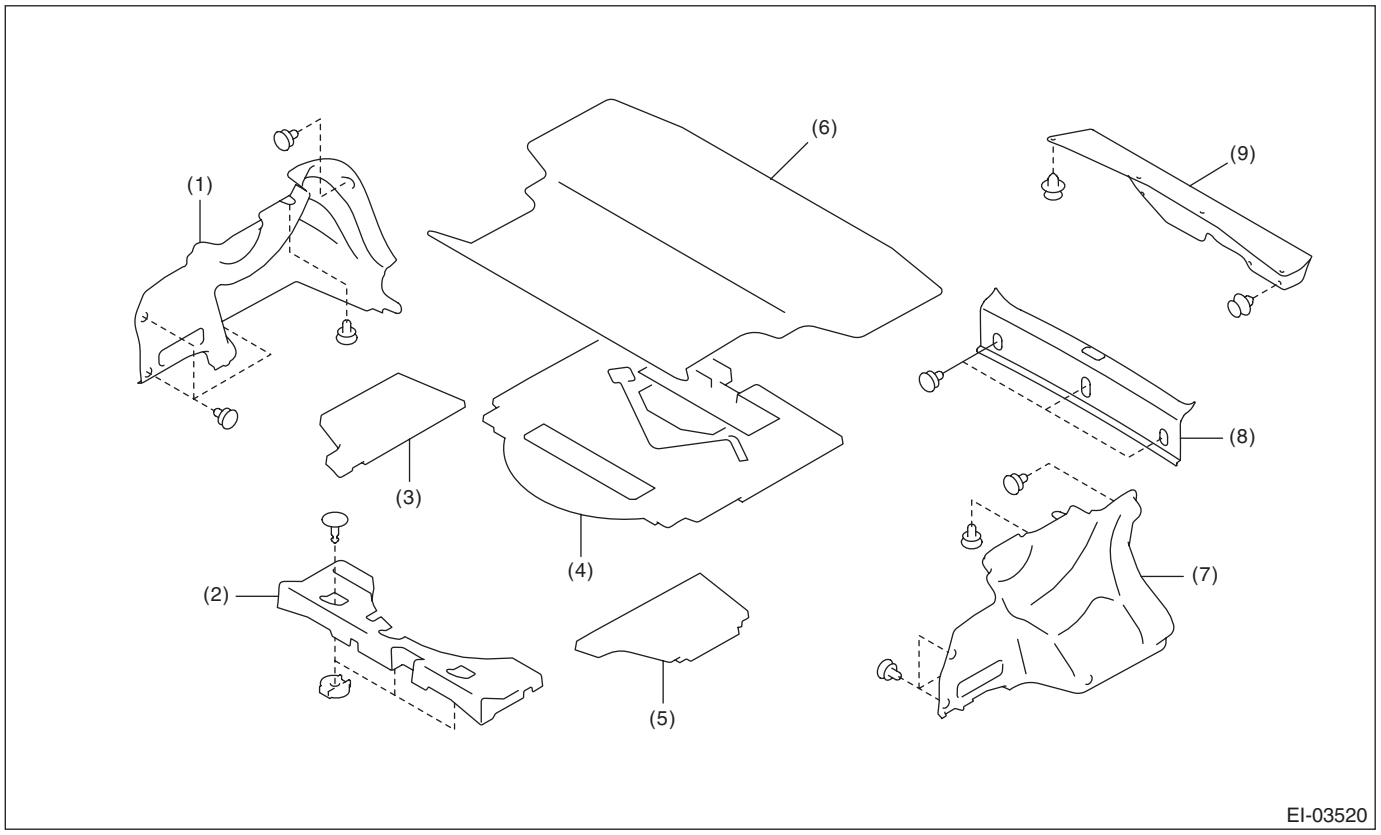
## 17.INNER TRIM

- 4 door model



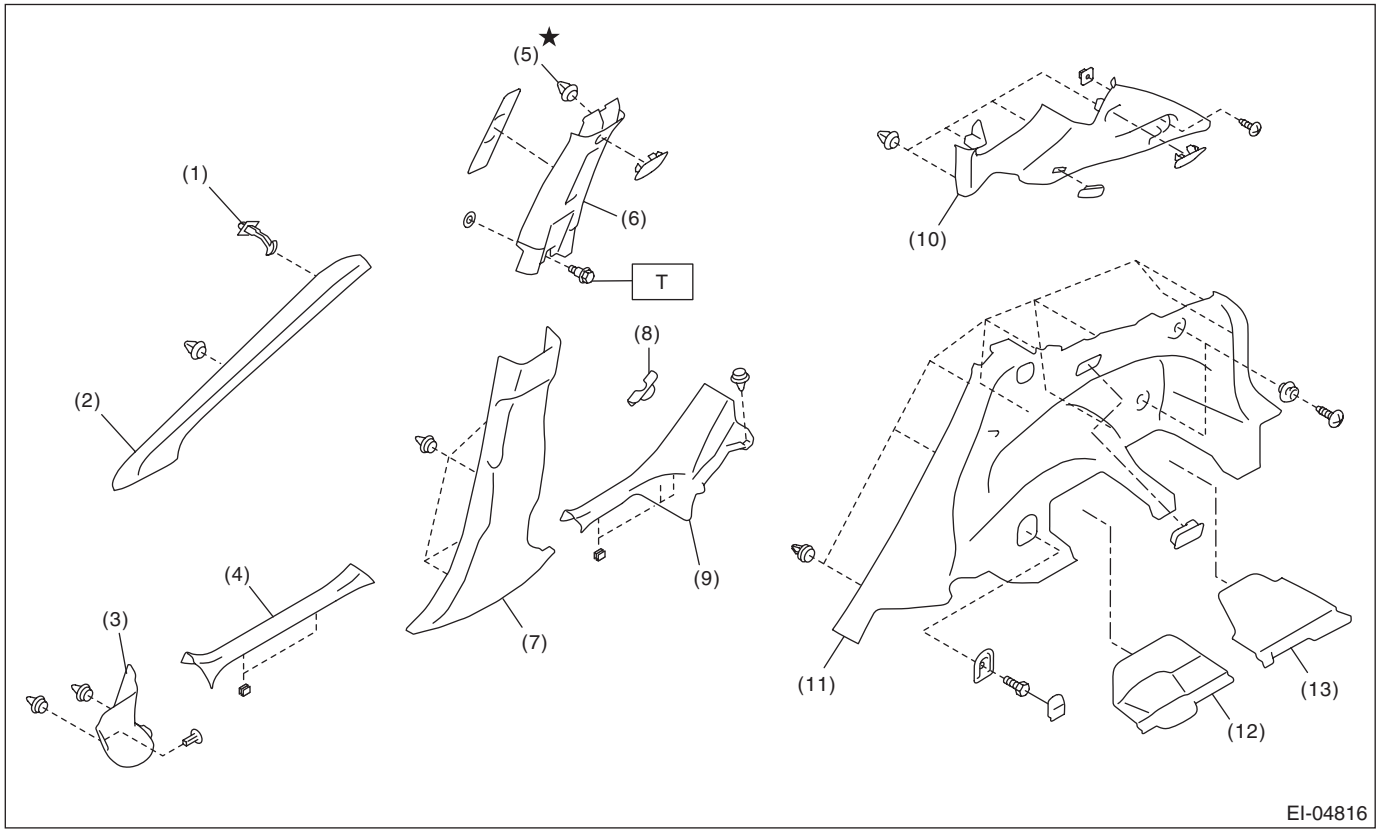

| | | | | | |
|---|---|---|---|---|---|
| (1) | Tether clip | (6) | Trim panel - center pillar UPR | (11) | Trim panel - rear pillar UPR |
| (2) | Trim panel - front pillar UPR | (7) | Trim panel - center pillar LWR | (12) | Trim panel ASSY - rear shelf |
| (3) | Cover side sill - front | (8) | Cover - catcher | | |
| (4) | Cover side sill - front INN | (9) | Cover side sill - rear INN | | |
| (5) | Clip | (10) | Trim panel - rear pillar LWR | | |

***Tightening torque: N·m (kgf-m, ft-lb)***
***T: 7.5 (0.76, 5.5)***



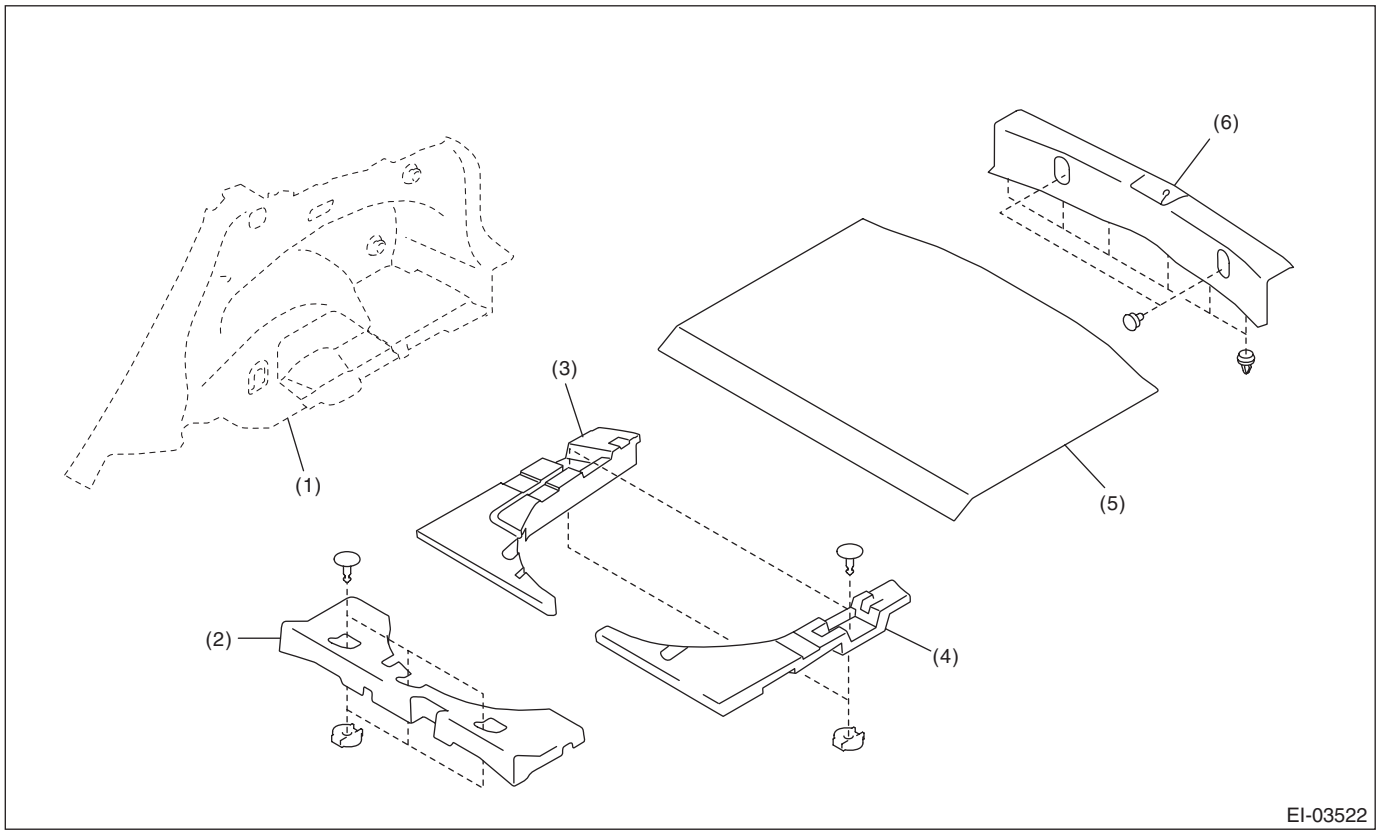

(1) Trim panel - trunk side RH
(2) Spacer - rear floor front
(3) Spacer - rear floor side RH
(4) Sub-trunk ASSY
(5) Spacer - rear floor side LH
(6) Mat - trunk
(7) Trim panel - trunk side LH
(8) Trim panel - trunk rear
(9) Trim panel - trunk lid

- 5 door model (gasoline engine model)



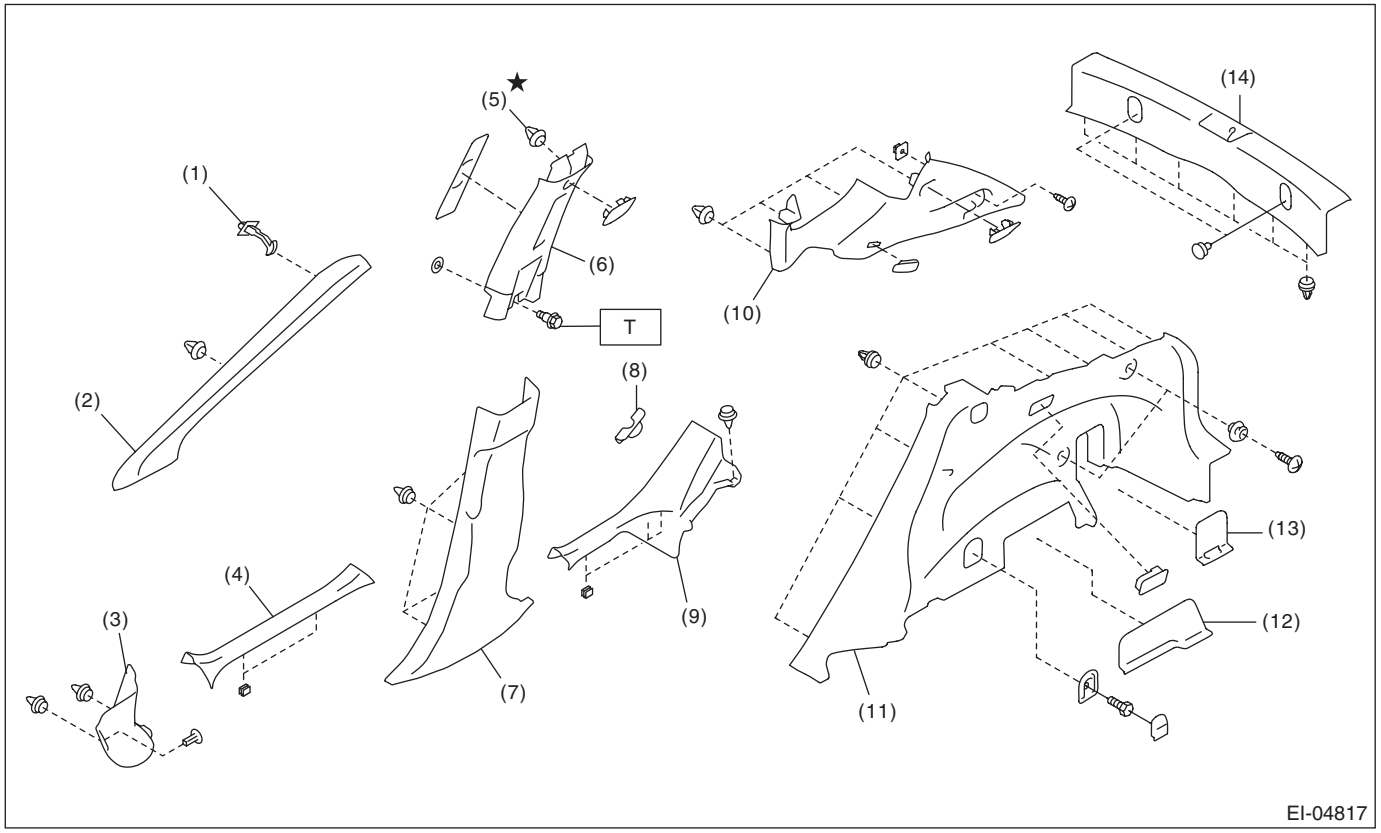

(1) Tether clip
(2) Trim panel - front pillar UPR
(3) Cover side sill - front
(4) Cover side sill - front INN
(5) Clip
(6) Trim panel - center pillar UPR
(7) Trim panel - center pillar LWR
(8) Cover - catcher
(9) Cover side sill - rear INN
(10) Trim panel - rear quarter UPR
(11) Trim panel - rear apron
(12) Cap - rear strut
(13) Lid upper rear

***Tightening torque: N·m (kgf-m, ft-lb)***
***T: 7.5 (0.76, 5.5)***



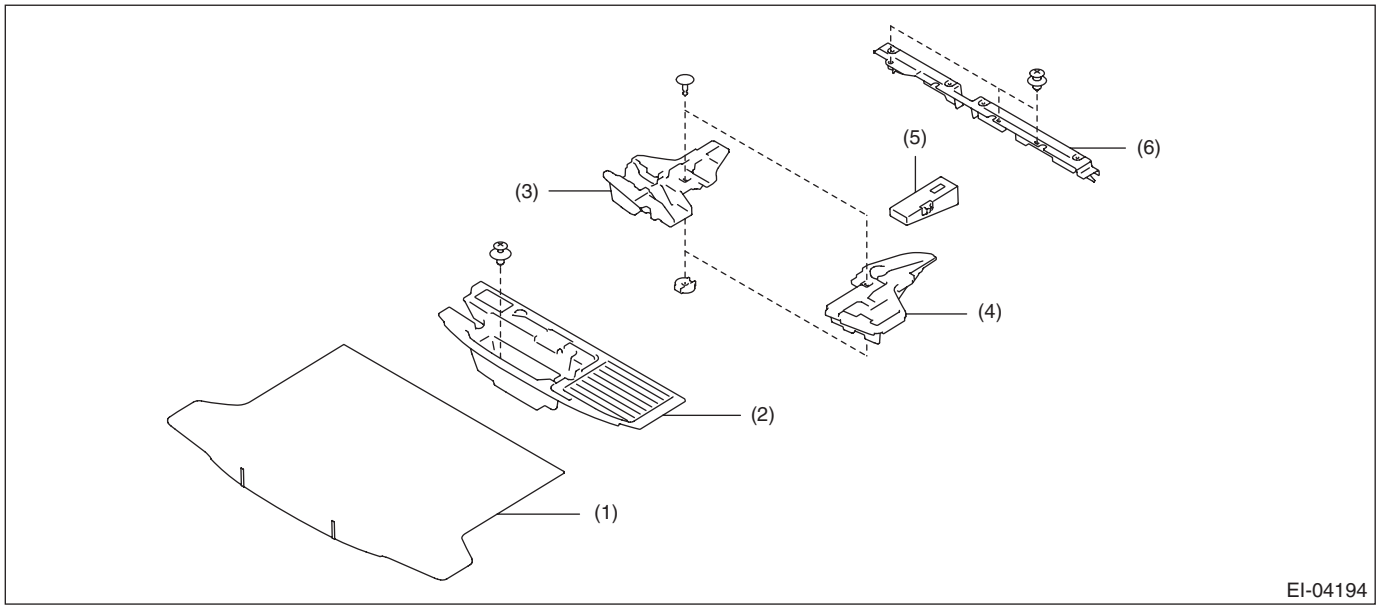

(1) Trim panel - rear apron
(2) Spacer - rear floor
(3) Spacer - rear floor side RH
(4) Spacer - rear floor side LH
(5) Mat - rear floor CTR
(6) Trim panel - rear skirt

- 5 door model (HEV model)



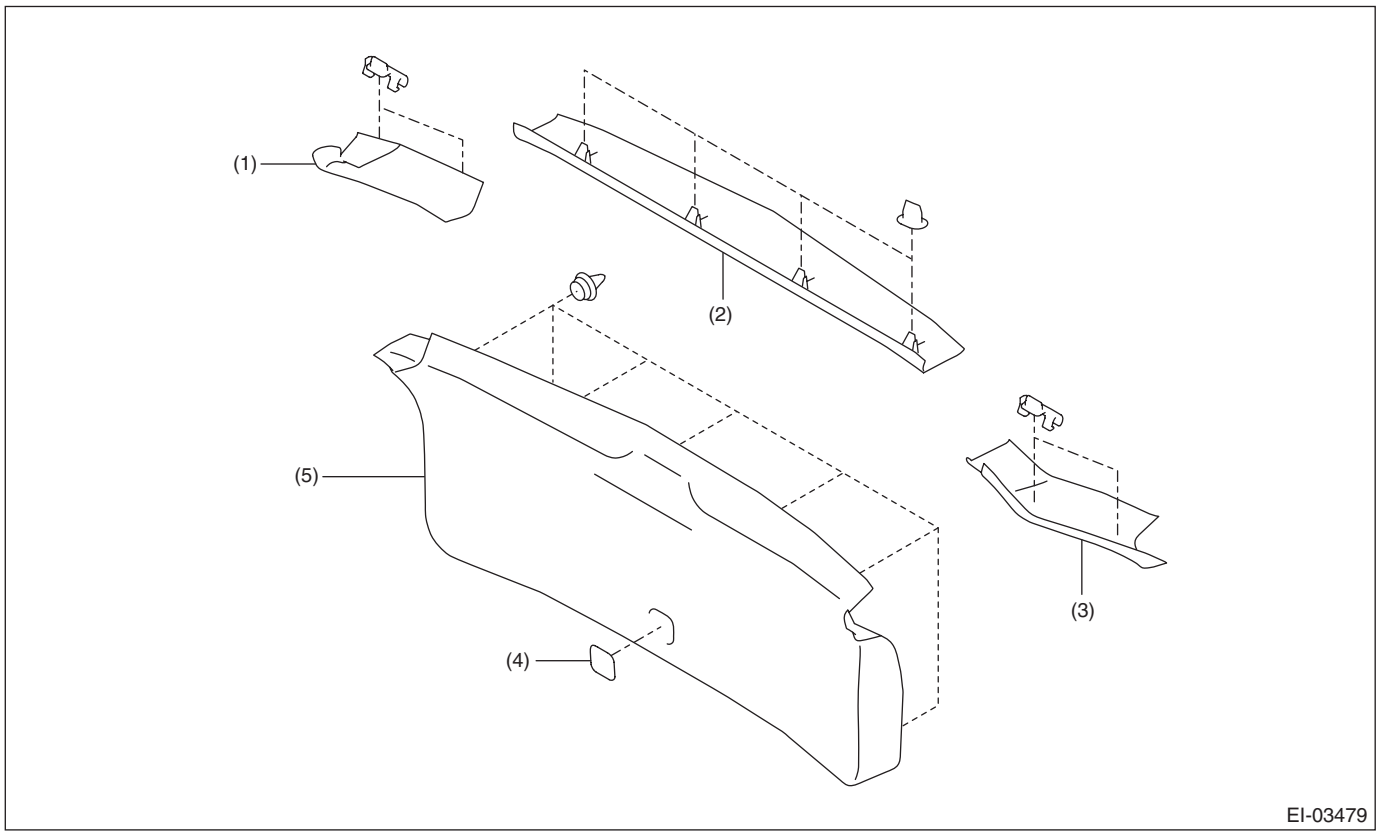

(1) Tether clip
(2) Trim panel - front pillar UPR
(3) Cover side sill - front
(4) Cover side sill - front INN
(5) Clip
(6) Trim panel - center pillar UPR
(7) Trim panel - center pillar LWR
(8) Cover - catcher
(9) Cover side sill - rear INN
(10) Trim panel - rear quarter UPR
(11) Trim panel - rear apron
(12) Cap - rear strut
(13) Cover - jack (LH side only)
(14) Trim panel - rear skirt

***Tightening torque: N·m (kgf-m, ft-lb)***
***T: 7.5 (0.76, 5.5)***



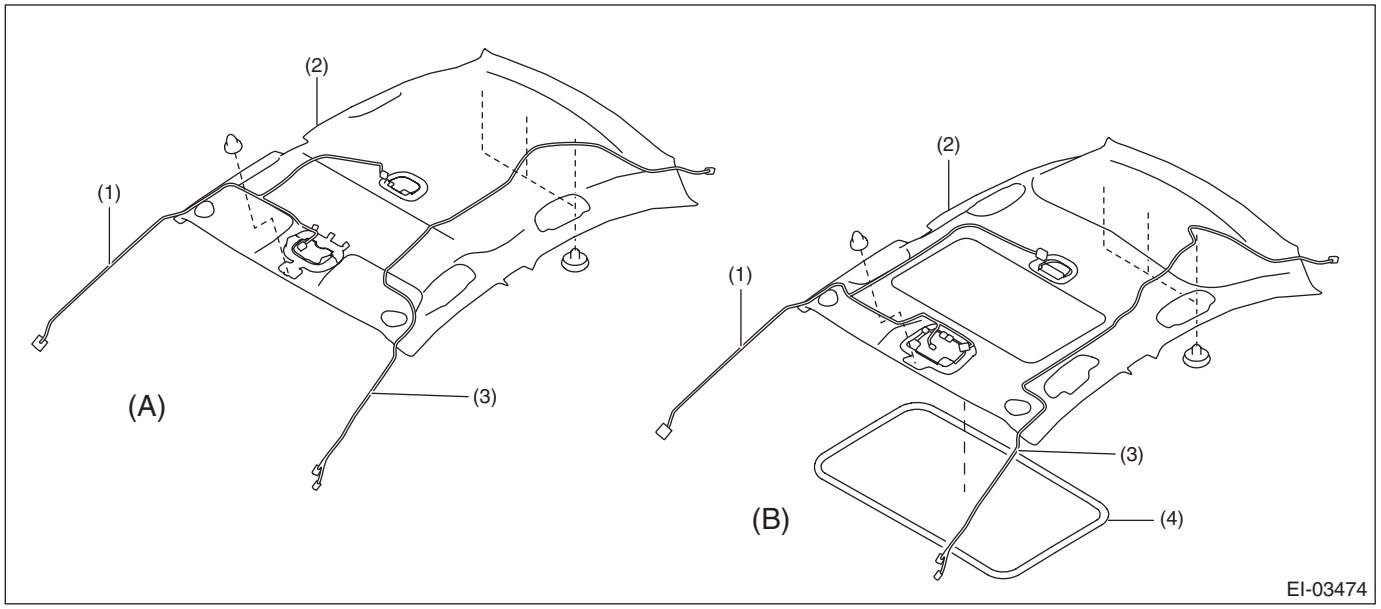

(1) Mat - rear floor CTR
(2) Sub-trunk box
(3) Side spacer LH
(4) Side spacer RH
(5) Inverter spacer
(6) Spacer - rear floor front

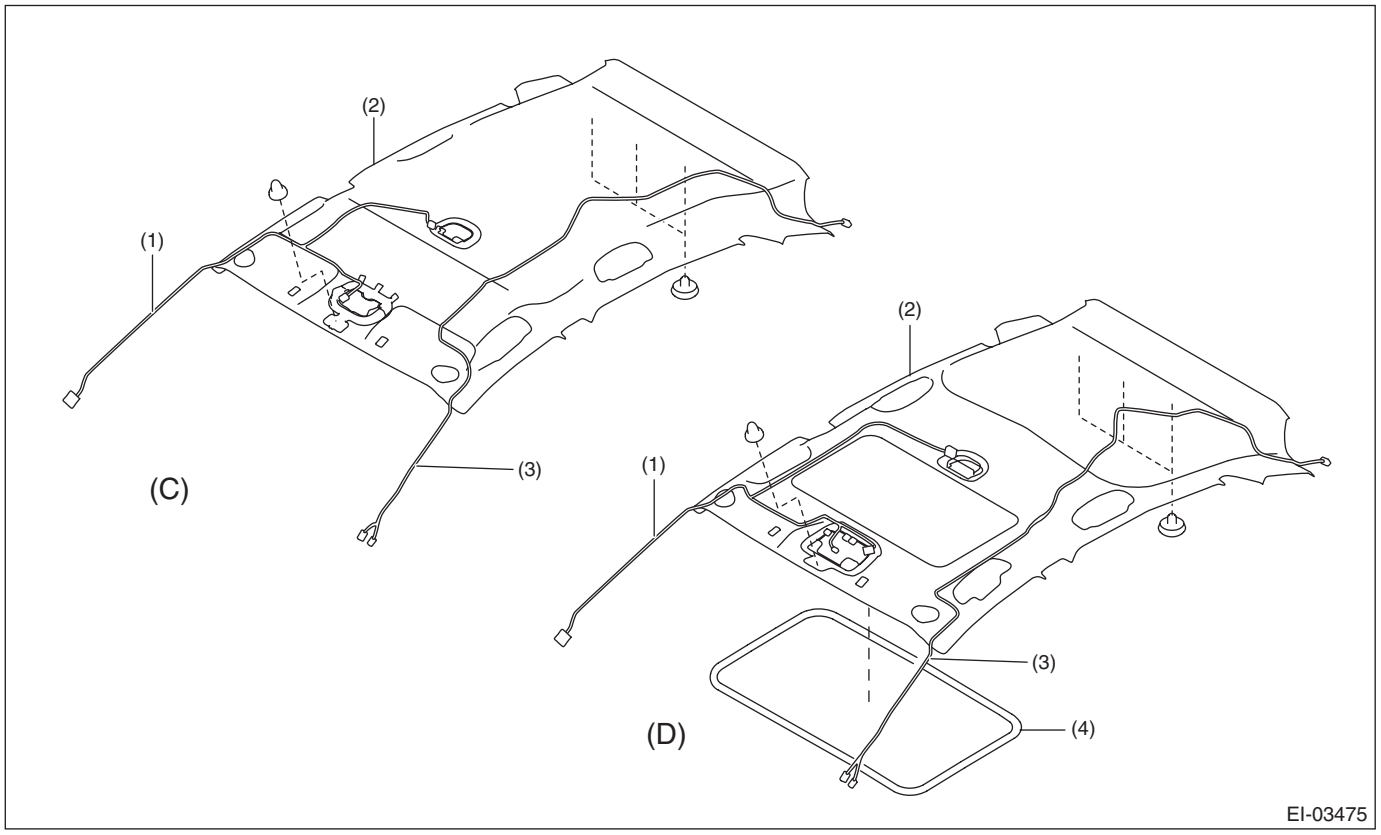
## 18.REAR GATE TRIM




(1) Trim panel - rear gate pillar side RH
(2) Trim panel - rear gate UPR
(3) Trim panel - rear gate pillar side LH
(4) Cap
(5) Trim panel - rear gate LWR

## 19.ROOF TRIM

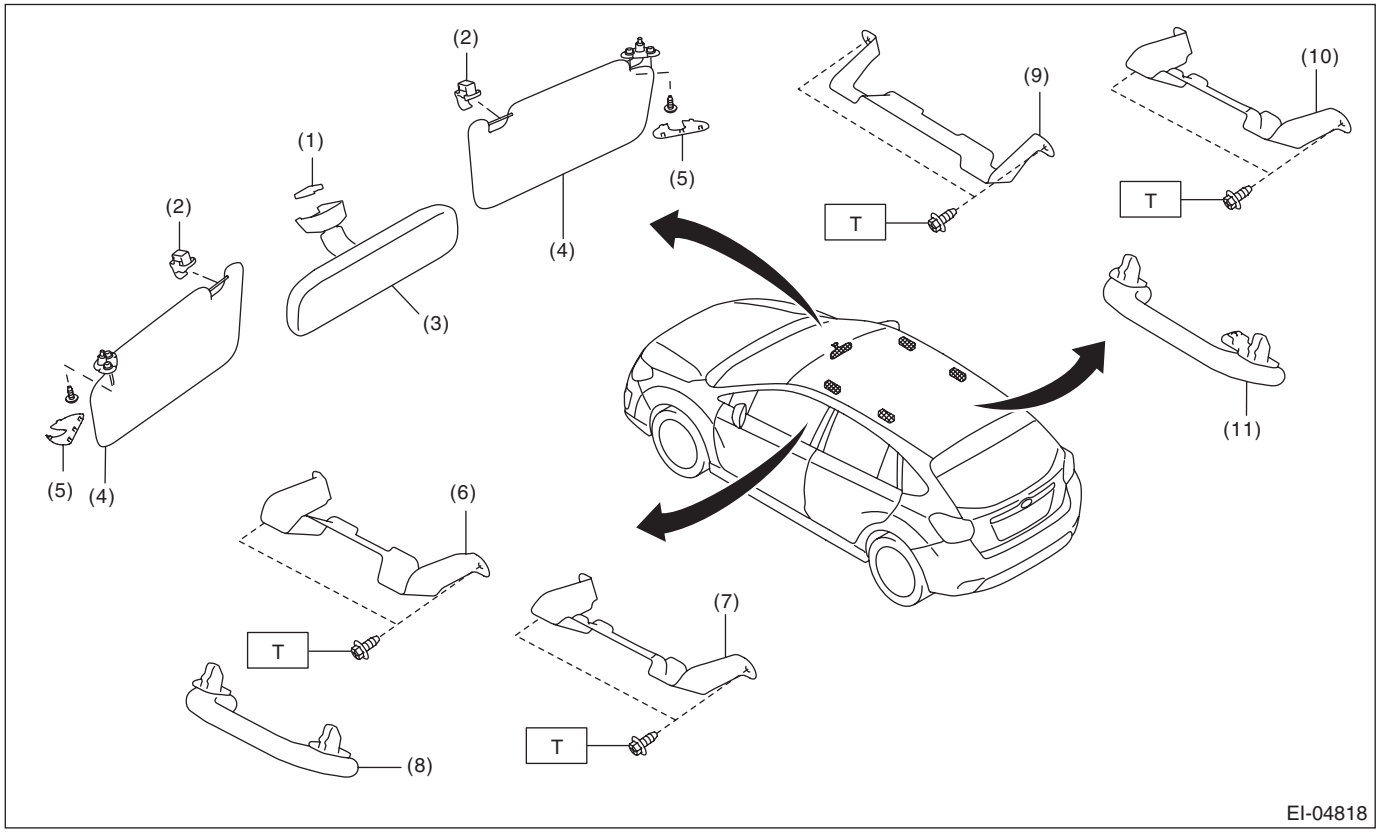



(A) Normal roof type (4 door model)
(B) Sunroof type (4 door model)
(C) Normal roof type (5 door model/XV model)
(D) Sunroof type (5 door model/XV model)

(1) Cord - roof
(2) Trim panel - roof ASSY
(3) Cord ASSY - antenna feeder
(4) Garnish - roof

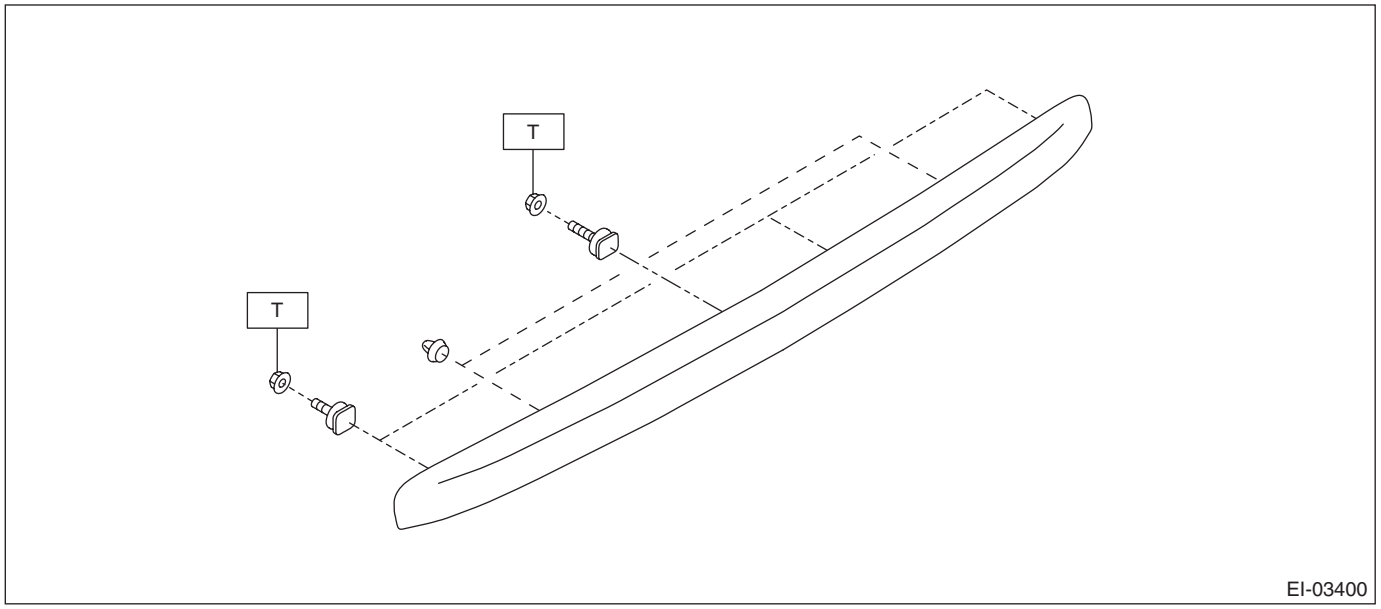
## 20.ROOM INNER PARTS




(1) Base - inner mirror
(2) Hook - sun visor
(3) Mirror ASSY rearview inner
(4) Sun visor ASSY
(5) Cap - sun visor
(6) Bracket - assist rail front (model with sunroof)
(7) Bracket - assist rail front (normal roof)
(8) Assist rail - front
(9) Bracket - assist rail rear (model with sunroof)
(10) Bracket - assist rail rear (normal roof)
(11) Assist rail - rear

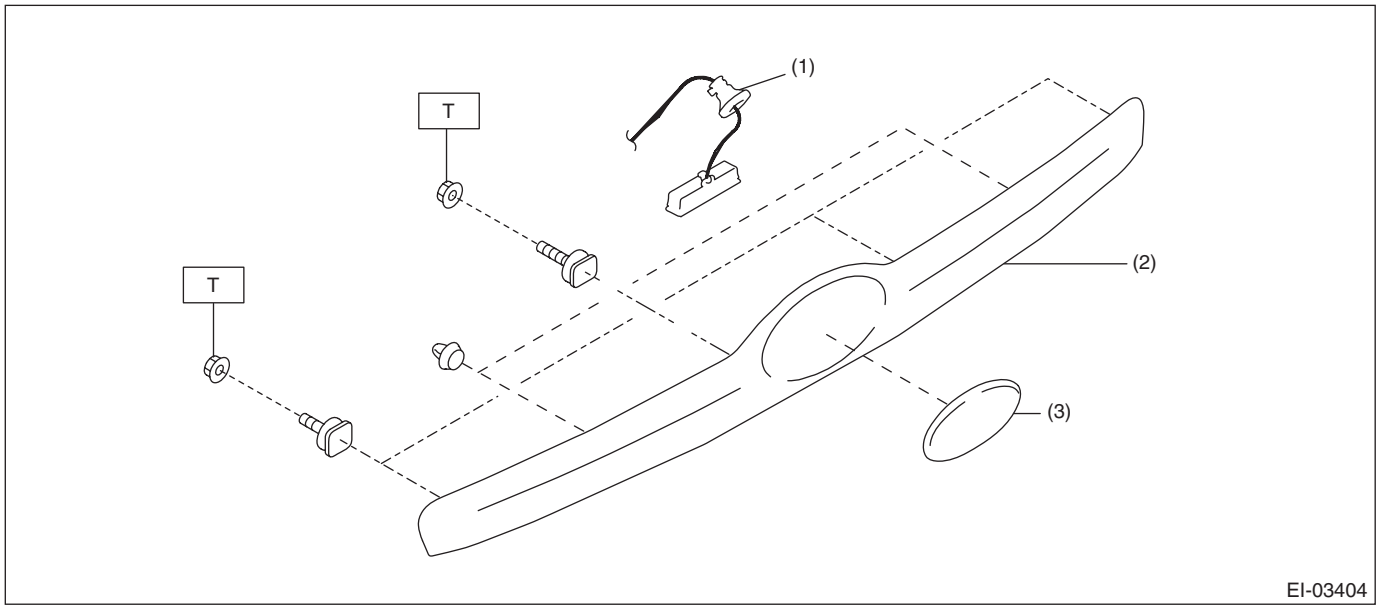
***Tightening torque: N·m (kgf-m, ft-lb)***
***T: 7.5 (0.76, 5.5)***

## 21.TRUNK LID GARNISH




***Tightening torque: N·m (kgf-m, ft-lb)***
***T: 4.5 (0.46, 3.3)***

## 22.REAR GATE GARNISH




(1) Switch - opener rear gate
(2) Garnish assembly - rear gate
(3) Ornament rear

***Tightening torque: N·m (kgf-m, ft-lb)***
***T: 4.5 (0.46, 3.3)***

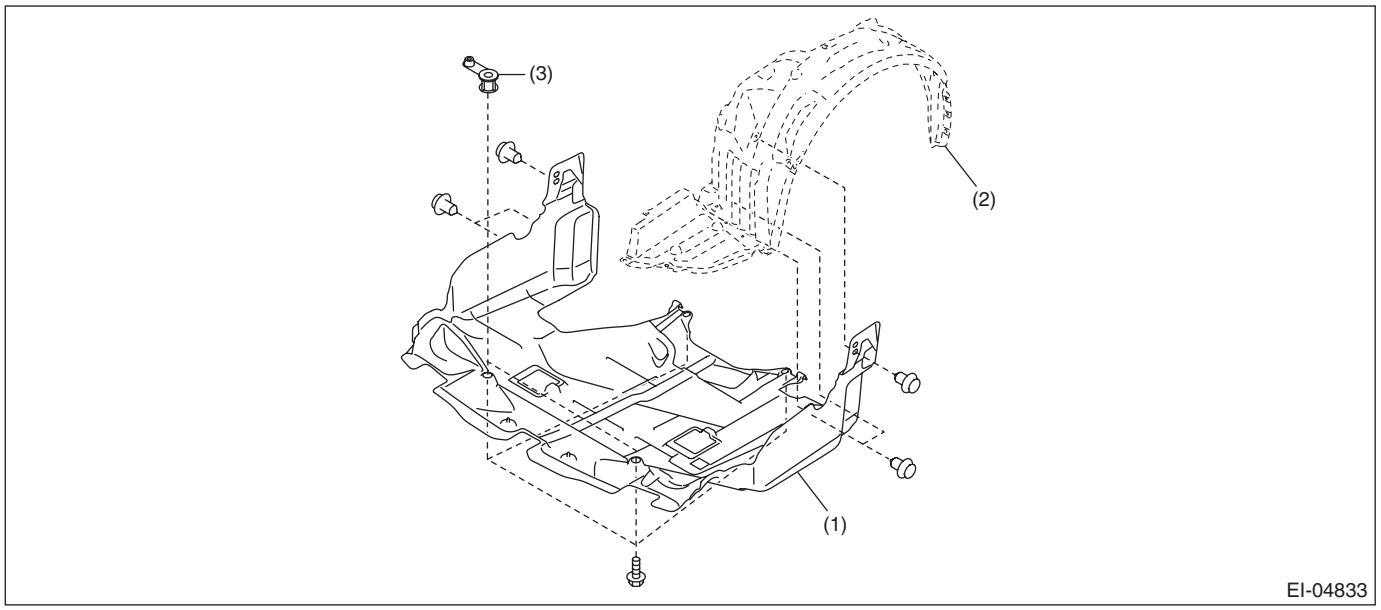
## B: PREPARATION TOOL

| TOOL NAME | REMARKS |
|---|---|
| Clip remover | Used for removing trim.<br>• KTC AP201-10A<br>• KTC AP201-N<br>• KTC AP203-10A<br>• KTC AP20L-10B<br>or equivalent |
| Clip clamp pliers | Used for removal of various clips and clamps.<br>• KTC CCP-190<br>or equivalent |

# 2. Front Under Cover

## A: REMOVAL

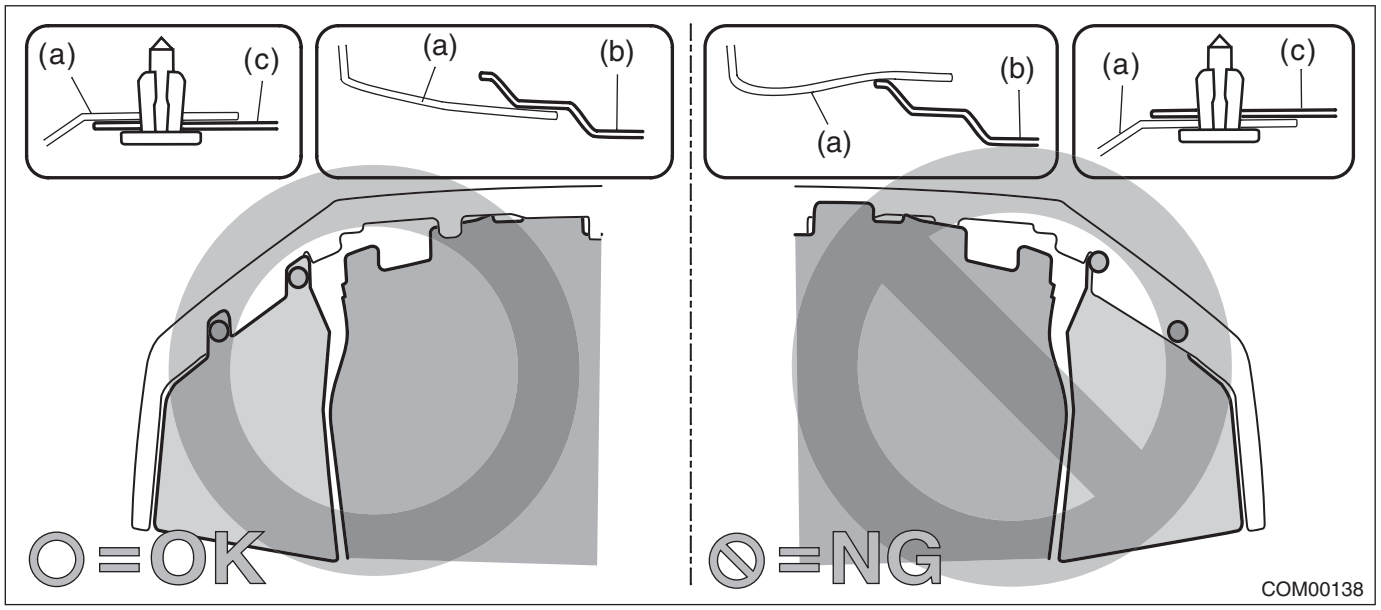
1) Lift up the vehicle.
2) Remove the bolts and clips, and remove the under cover - front.




(1) Under cover - front (2) Mud guard - front (3) Spacer - under cover (XV model)

## B: INSTALLATION

**CAUTION:**
**Install so that the front end of the under cover (b) comes inside the bumper face - front (a), and the front end of the mud guard (c) comes outside the bumper face - front (a).**



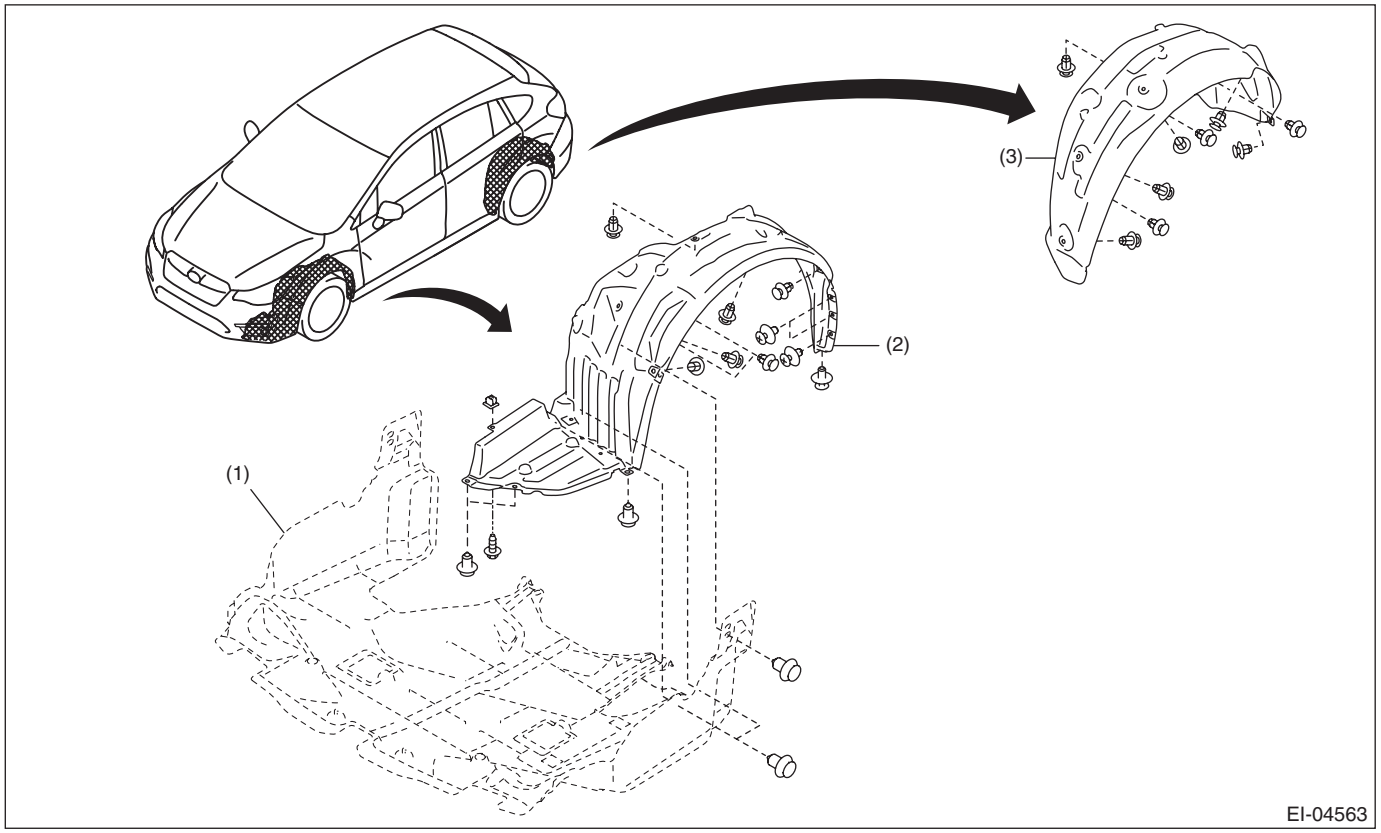

Install each part in the reverse order of removal.

***Tightening torque:***
***18 N·m (1.84 kgf-m, 13.3 ft-lb)***

# 3. Mud Guard

## A: REMOVAL

1) Lift up the vehicle.
2) Remove the wheels.
3) Remove the screws and clips to remove the mud guard.




(1) Under cover - front
(2) Mud guard - front
(3) Mud guard - rear

## B: INSTALLATION

Install each part in the reverse order of removal.

***Tightening torque:***
***Except for C4 model: 120 N·m (12.24 kgf-m, 88.5 ft-lb)***
***C4 model: 100 N·m (10.20 kgf-m, 73.8 ft-lb)***

# 4. Floor Under Protector

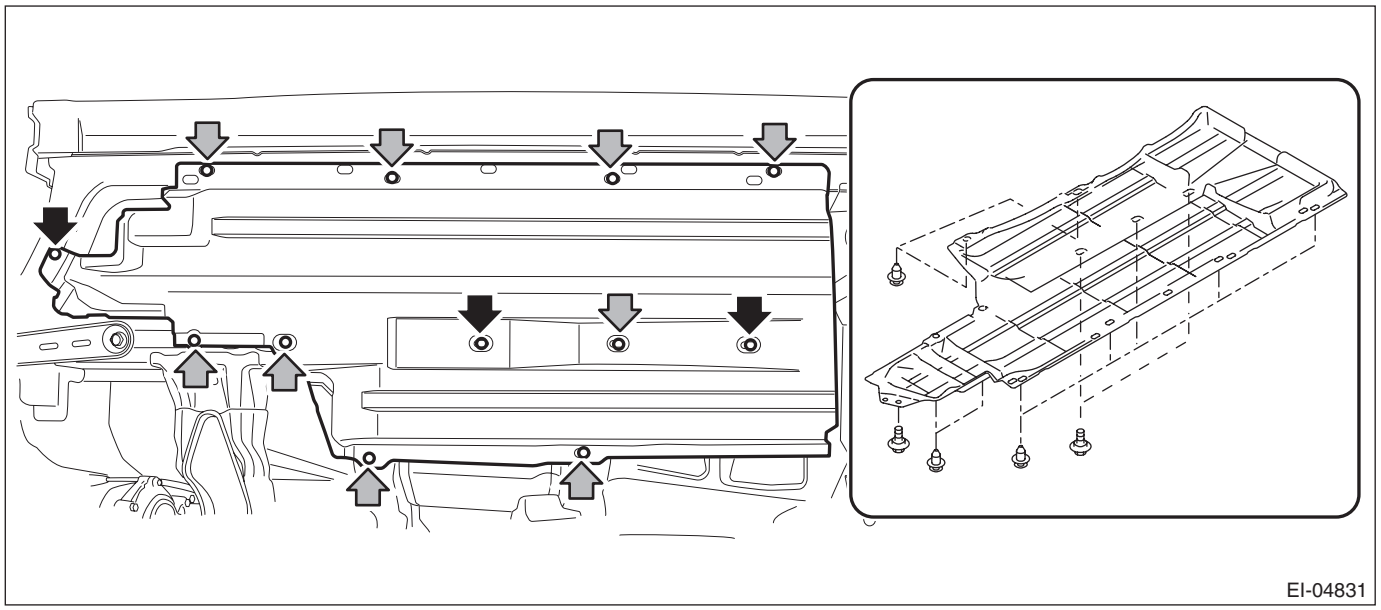
## A: REMOVAL

1) Lift up the vehicle.

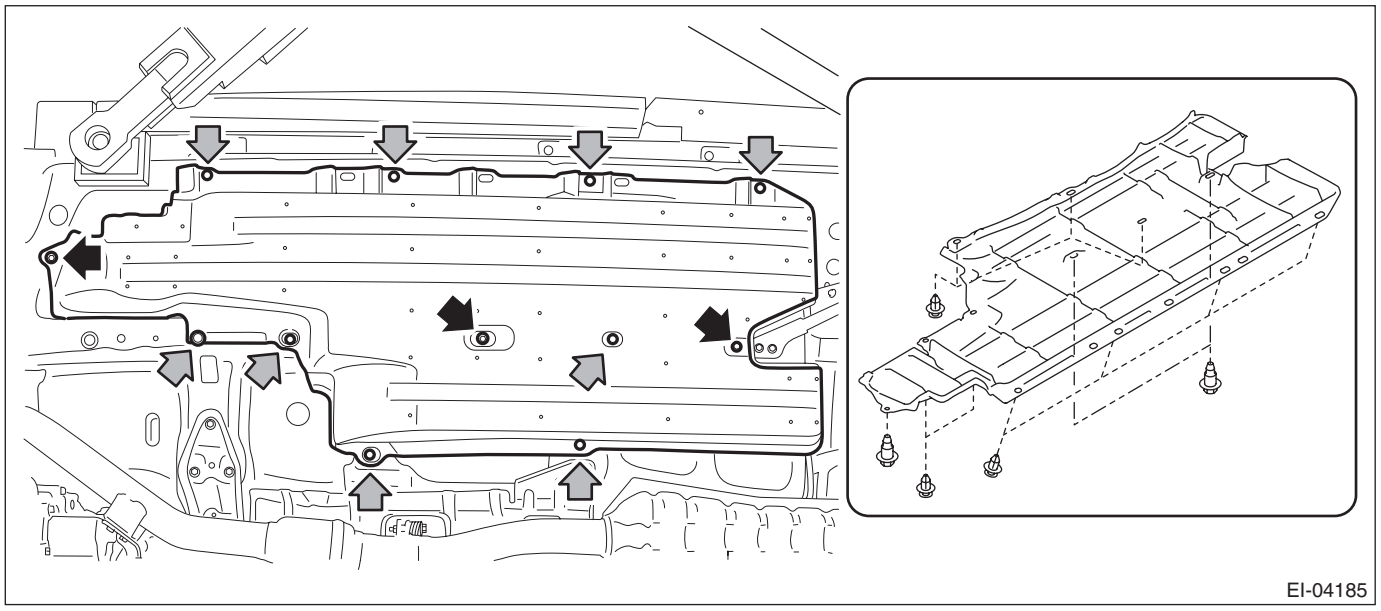
NOTE:
A plate type lift cannot be used.

2) Remove the bolts and clips, and remove the front under protector.

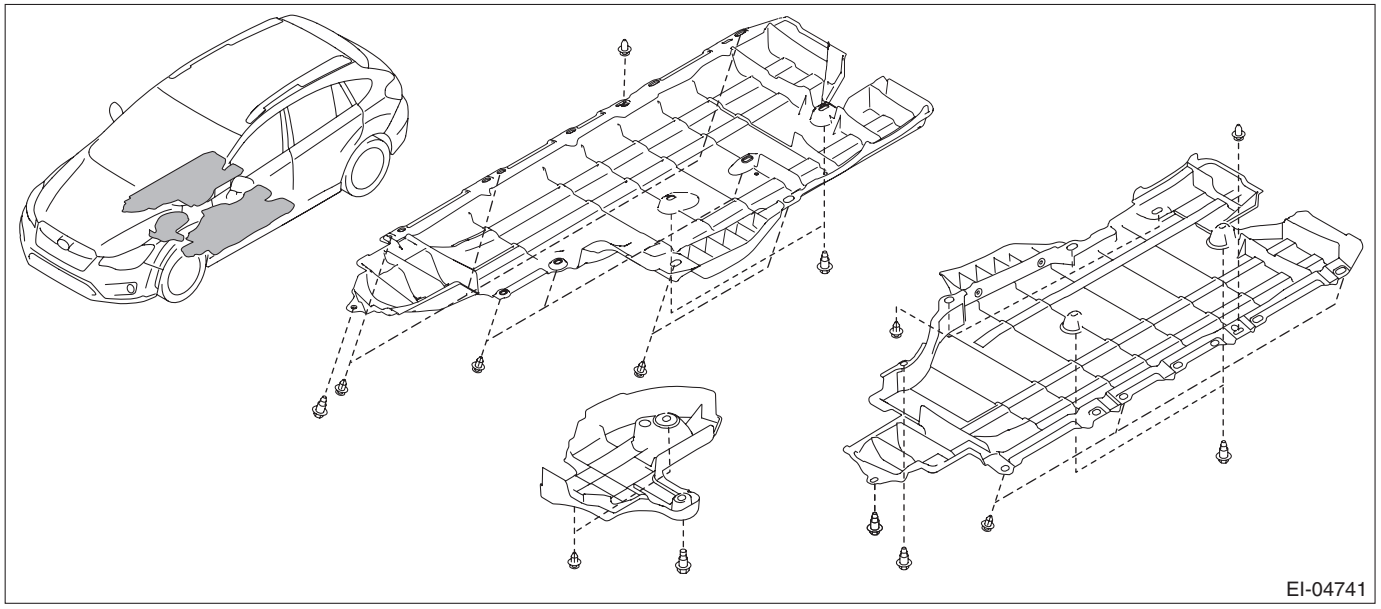
- Type A




- Type B



- Type C




## B: INSTALLATION

Install each part in the reverse order of removal.

***Tightening torque:***

***Refer to "COMPONENT" of "General Description". <Ref. to EI-4, FLOOR UNDER PROTECTOR, COMPONENT, General Description.>***

# 5. Fuel Tank Protector

## A: NOTE

• Refer to “FUEL INJECTION” section for removal and installation procedure of the fuel tank protector. (Gasoline engine model) <Ref. to FU(H4DO(w/o HEV))-114, Fuel Tank Protector.>
• Refer to “FUEL INJECTION” section for removal and installation procedure of the fuel tank protector. (HEV model) <Ref. to FU(H4DO(HEV))-104, Fuel Tank Protector.>

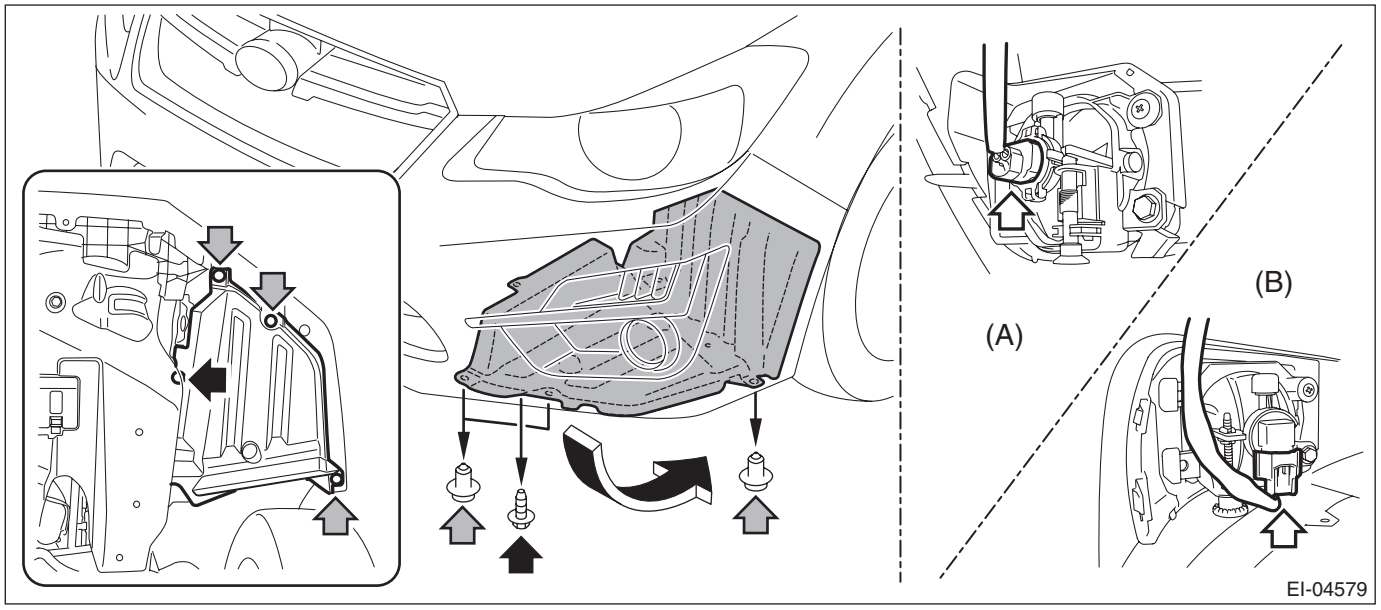
# 6. Front Grille

## A: REMOVAL

1) Disconnect the ground cable from battery. <Ref. to NT-5, BATTERY, NOTE, Note.>

NOTE:
For the 12 volt engine restart battery of HEV model, disconnect the ground terminal from 12V engine restart battery sensor.

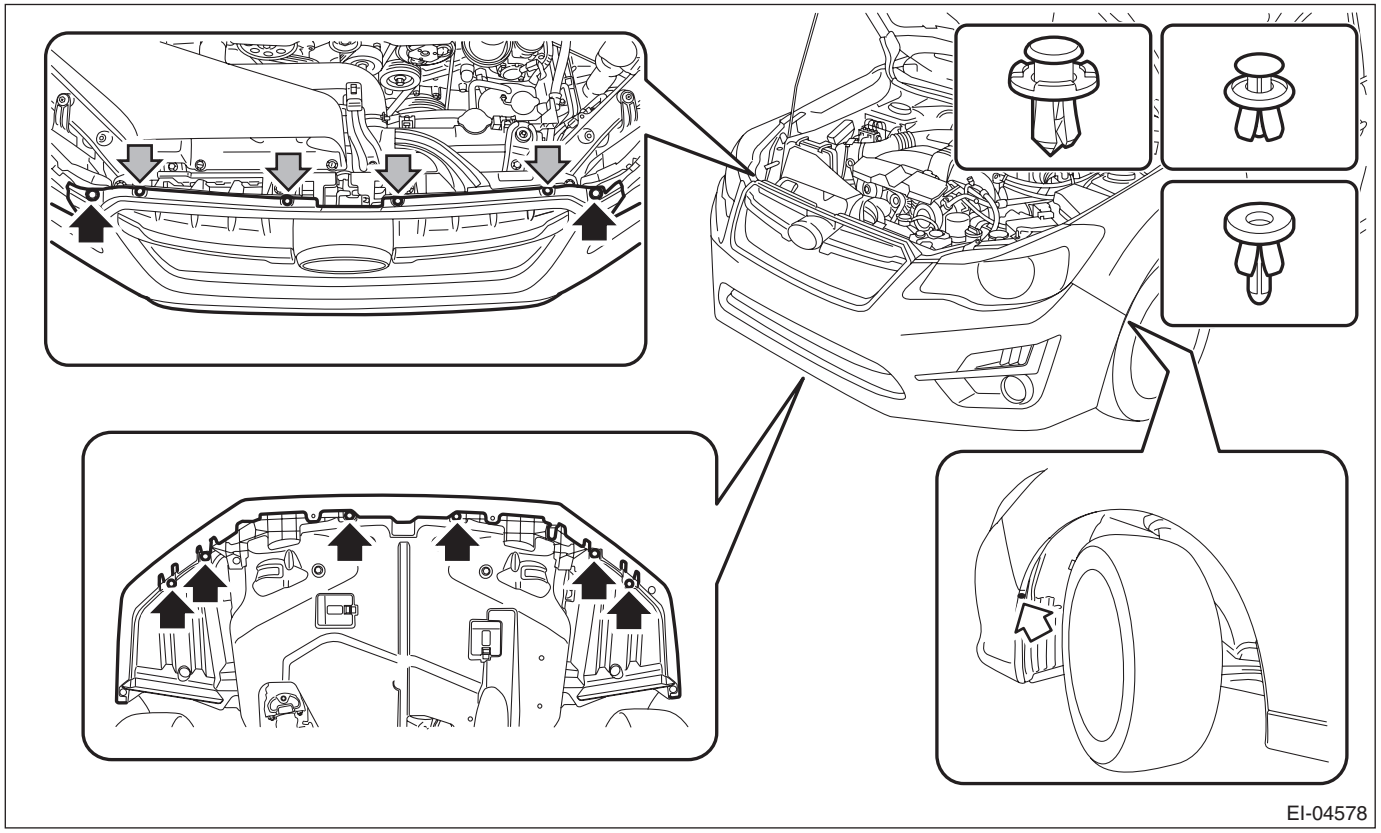
2) Remove the bumper face - front.
   (1) Remove the screws and clips, and turn over the mud guard - front, and then disconnect the connectors of the fog light assembly - front on the LH and RH sides. (Model with fog light)




(A) Type without SRF (B) Type with SRF

   (2) Remove the clips at the upper side of the bumper face - front.
   (3) Remove the clips from the fender.

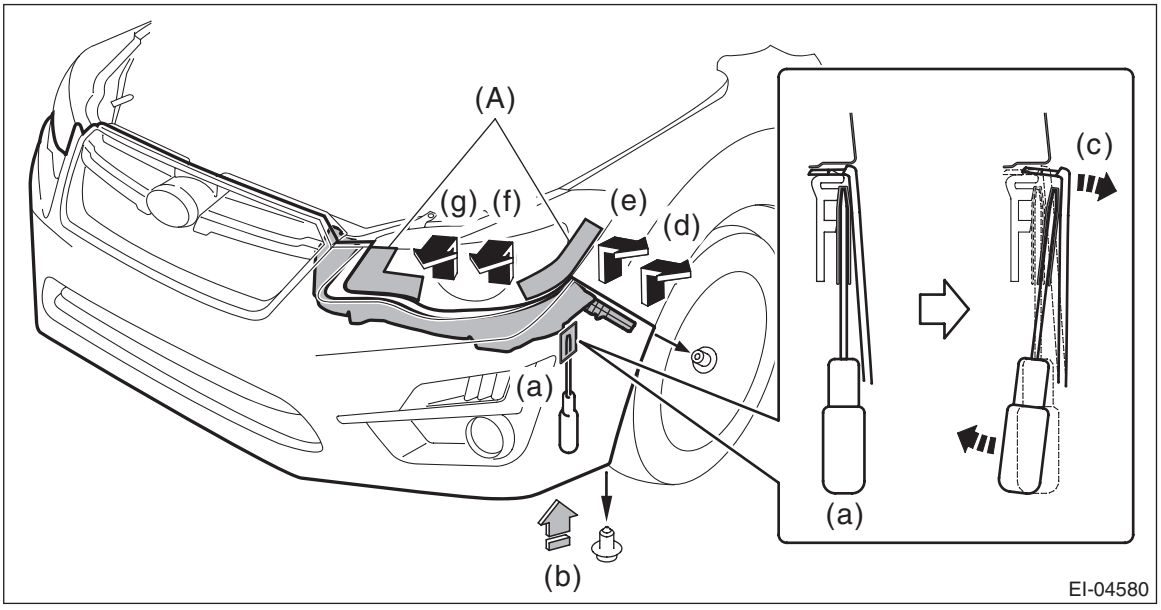
(4) Remove the clips at the lower side of the bumper face - front.




(5) Apply protective tape (A) to the light assembly - head.
(6) Detach the flange section on the bumper face side from the bracket - front bumper side.

**CAUTION:**
**Do not pull forcibly. It may damage the flange section on the bumper face - front side when it comes off from the claws of the bracket - front bumper.**

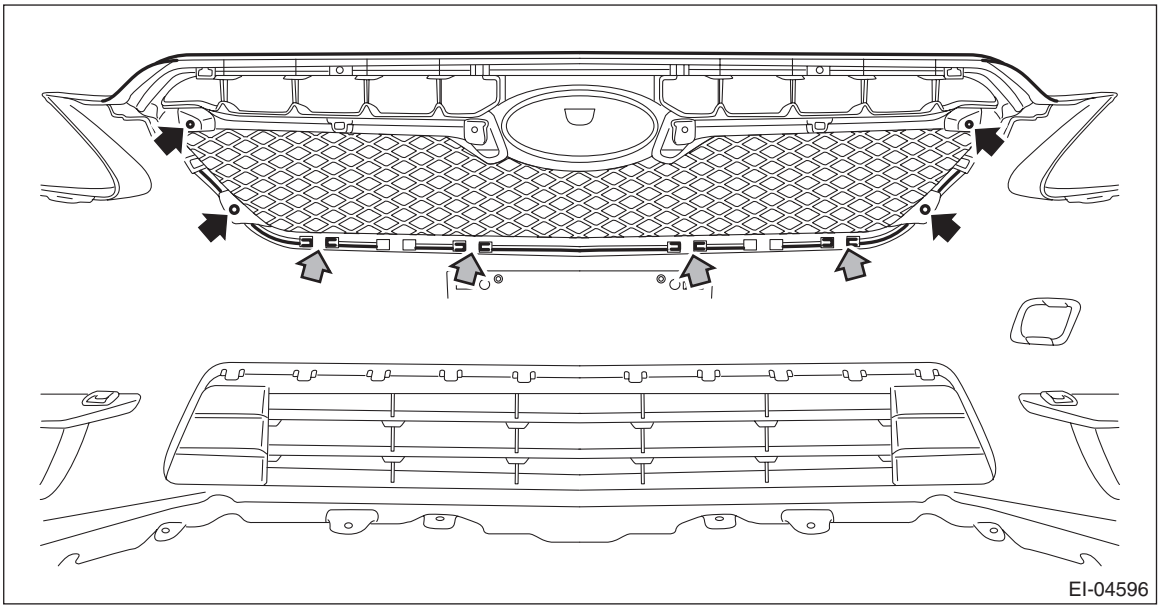
NOTE:
Remove the bumper face - front according to the following procedures.




1. Remove the clips, turn over the mud guard, and insert a flat tip screwdriver with protection for damage prevention into the clearance between bumper and bracket. (a)

2. Push out the bumper with the flat tip screwdriver while pushing up the bumper from below. (b), (c)
3. Release the engagement of clips in the order of (d) to (g) while pushing up the bumper from below.
4. Perform the same procedures to remove the opposite side.

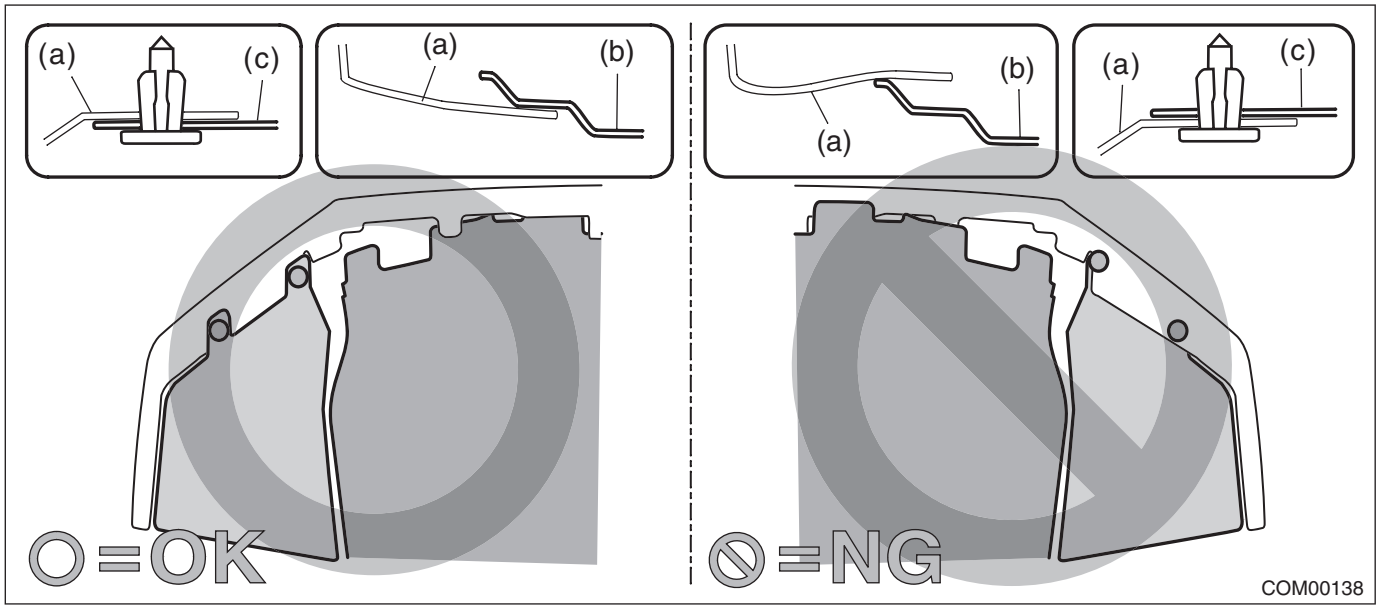
3) Remove the front grille assembly.
(1) Remove the screws from the back side of the bumper face - front.
(2) Release the claws, and remove the front grille assembly.




## B: INSTALLATION

**CAUTION:**

**• Install so that the front end of the under cover (b) comes inside the bumper face - front (a), and the front end of the mud guard (c) comes outside the bumper face - front (a).**




**• Before installing the bumper face, match the claws on the bracket - front bumper with the engaging position of flange section on the bumper face side. If the engaging position is not correct, the flange section may be broken or the clearance between fender panel and bumper face may not be uniform.**

1) Install each part in the reverse order of removal.
2) Adjust the fog light beam. (Model with fog light) <Ref. to LI-55, FOG LIGHT AIMING, ADJUSTMENT, Front Fog Light Assembly.>

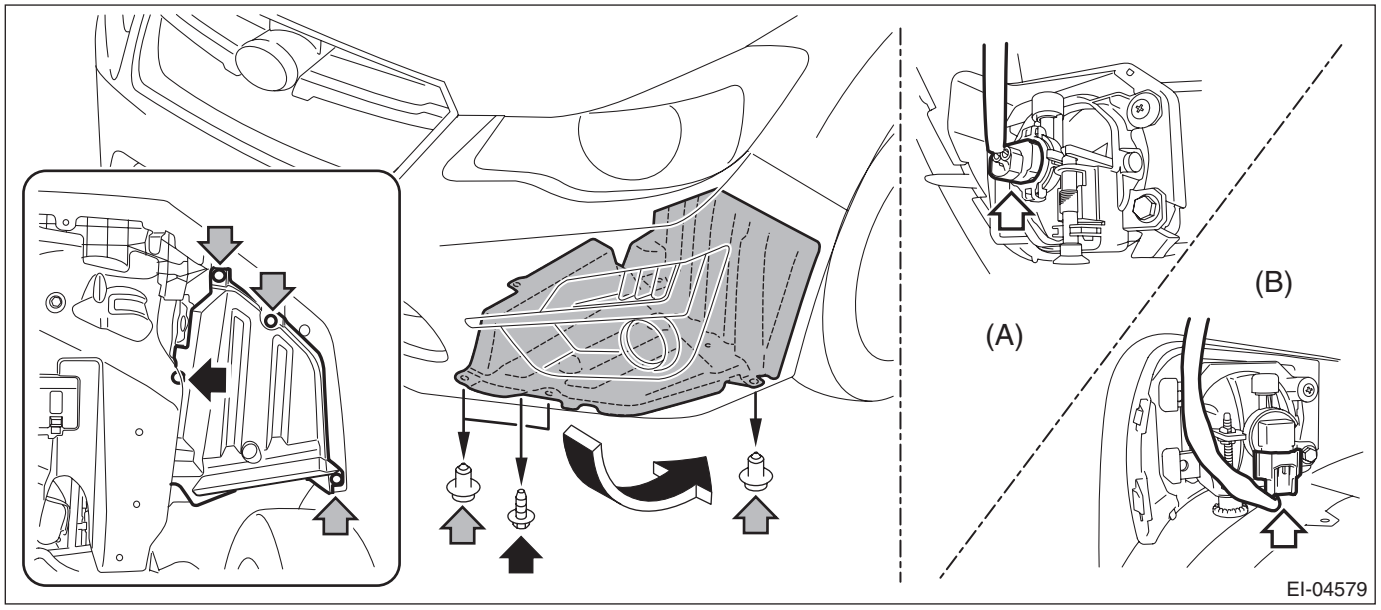
# 7. Front Bumper

## A: REMOVAL

1) Disconnect the ground cable from battery. <Ref. to NT-5, BATTERY, NOTE, Note.>

NOTE:
For the 12 volt engine restart battery of HEV model, disconnect the ground terminal from 12V engine restart battery sensor.

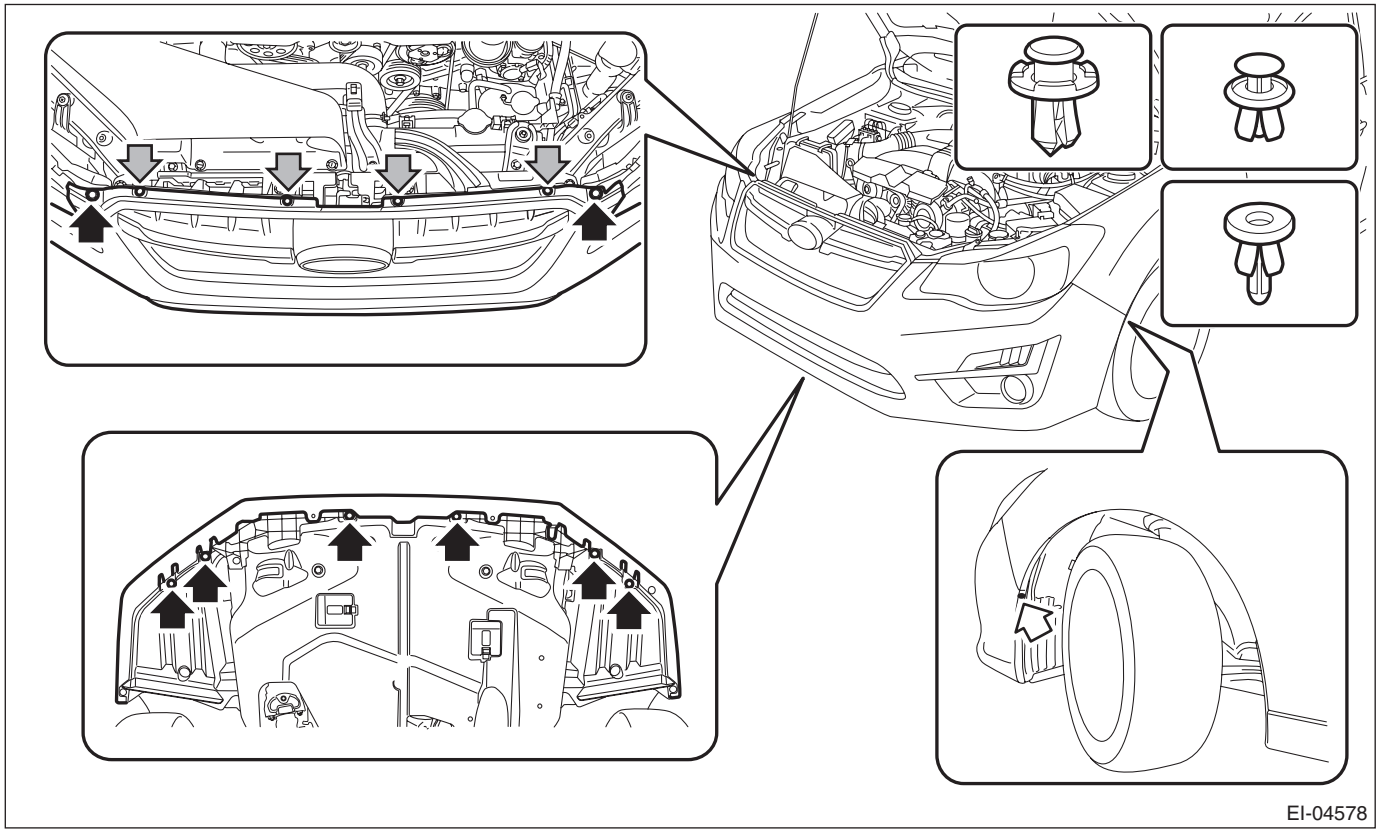
2) Remove the bumper face - front.
   (1) Remove the screws and clips, and turn over the mud guard - front, and then disconnect the connectors of the fog light assembly - front on the LH and RH sides. (Model with fog light)




(A) Type without SRF (B) Type with SRF

   (2) Remove the clips at the upper side of the bumper face - front.
   (3) Remove the clips from the fender.

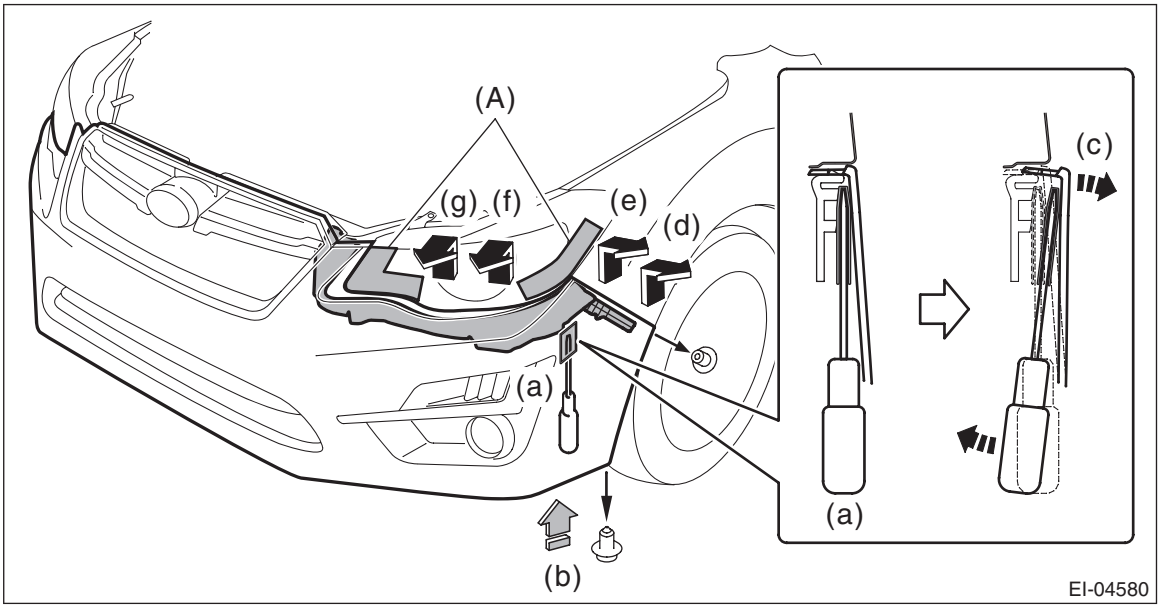
(4) Remove the clips at the lower side of the bumper face - front.




(5) Apply protective tape (A) to the light assembly - head.
(6) Detach the flange section on the bumper face side from the bracket - front bumper side.

**CAUTION:**
**Do not pull forcibly. It may damage the flange section on the bumper face - front side when it comes off from the claws of the bracket - front bumper.**

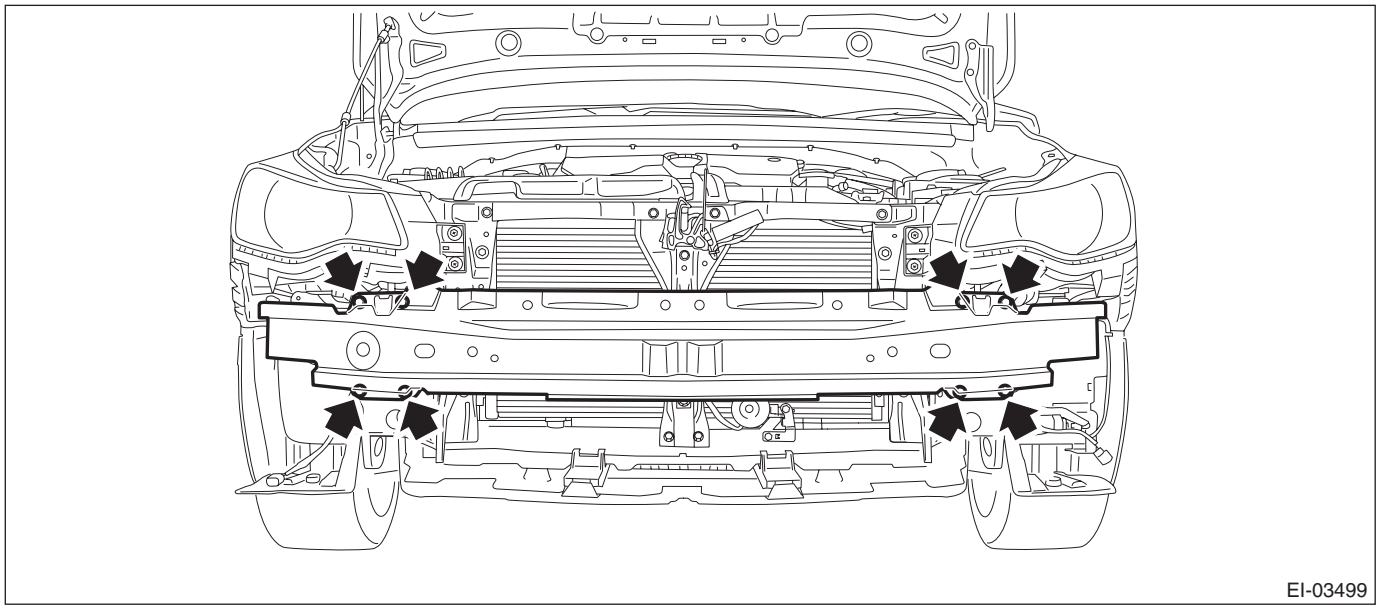
NOTE:
Remove the bumper face - front according to the following procedures.




1. Remove the clips, turn over the mud guard, and insert a flat tip screwdriver with protection for damage prevention into the clearance between bumper and bracket. (a)

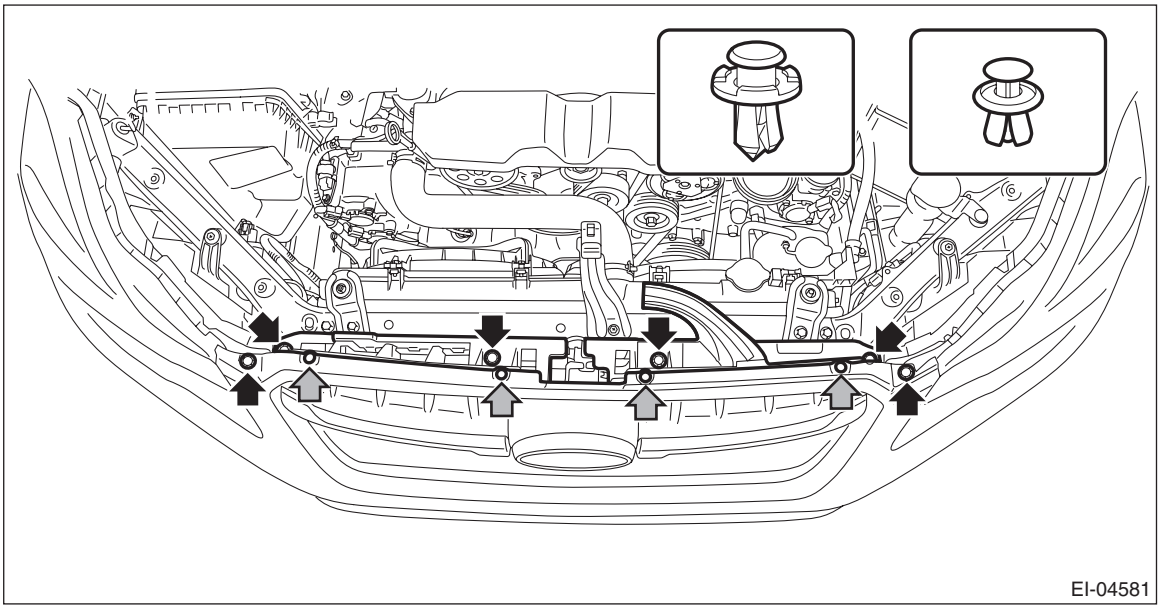
2. Push out the bumper with the flat tip screwdriver while pushing up the bumper from below. (b), (c)
3. Release the engagement of clips in the order of (d) to (g) while pushing up the bumper from below.
4. Perform the same procedures to remove the opposite side.

3) Remove the active grille shutter. (HEV model) <Ref. to HEV-77, REMOVAL, Active Grille Shutter.>
4) Remove the bolts, and remove the bumper beam COMPL - front.


EI-03499

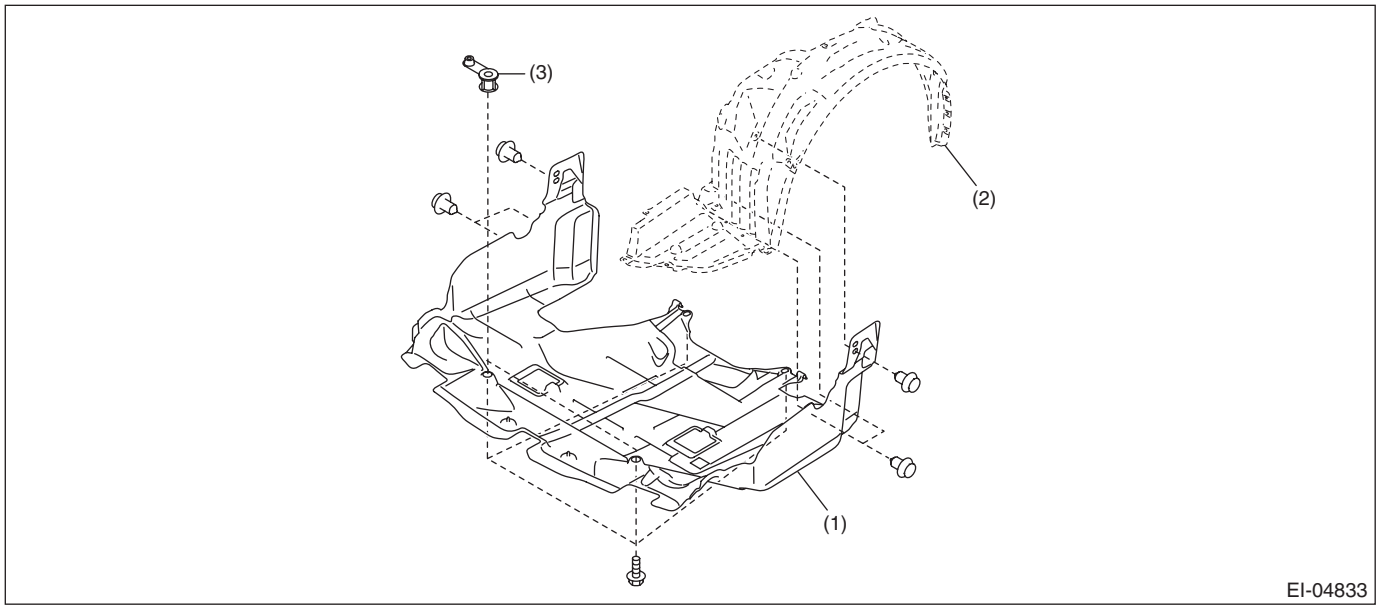
5) Remove the clip, and remove the bracket - grille.

**CAUTION:**
**To prevent damage to the bracket - grille, make sure to remove all clips.**


EI-04581

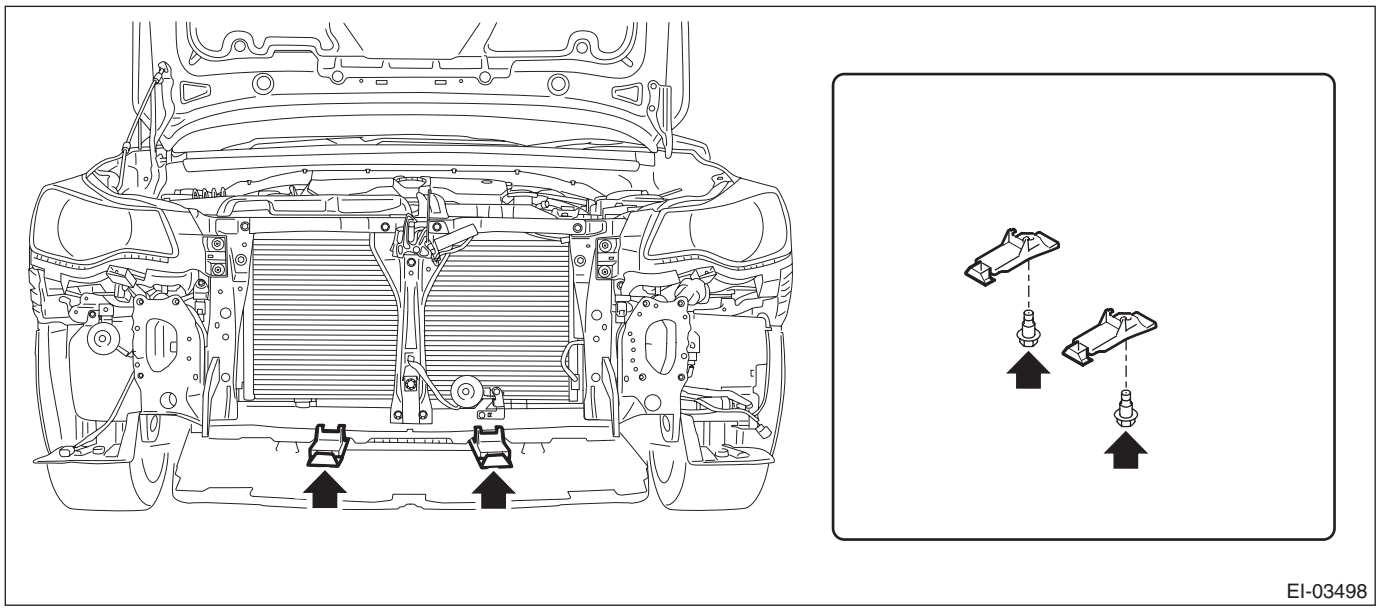
NOTE:
The bracket - grille can be removed without removing the bumper face - front.

6) Remove the bracket - front center LWR.
(1) Remove the bolts and clips, and turn over the under cover - front.

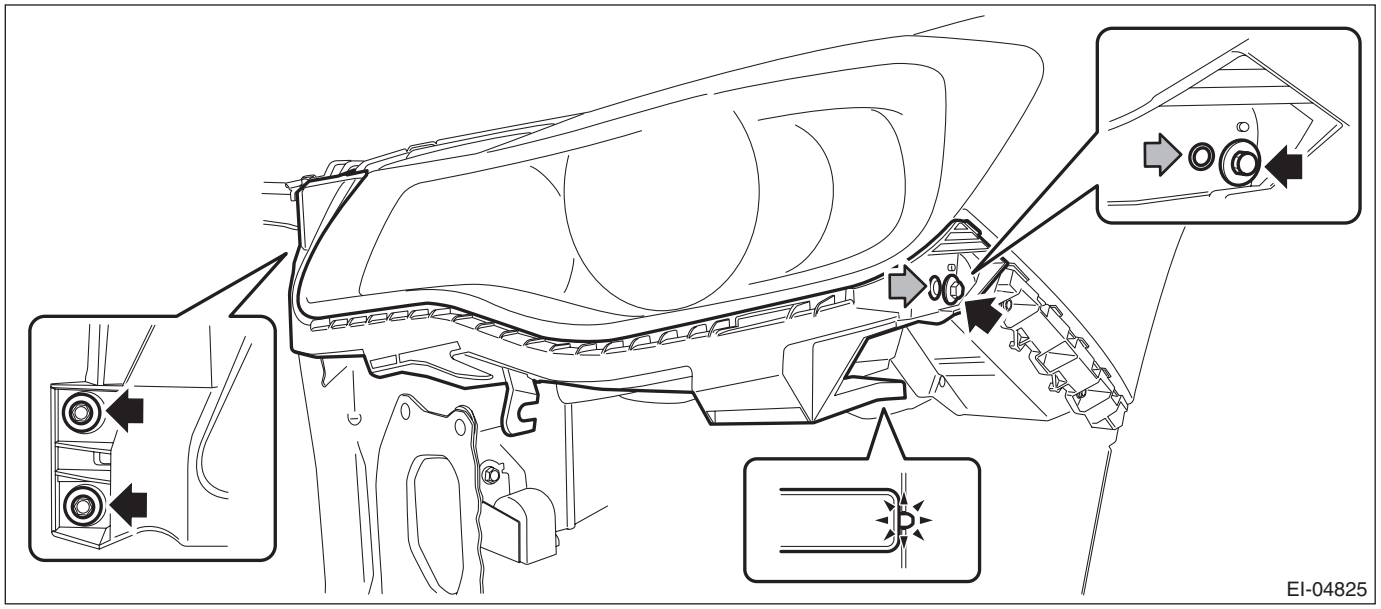



(1) Under cover - front (2) Mud guard - front (3) Spacer - under cover (XV model)

(2) Remove the bolts, and remove the bracket - front center LWR.

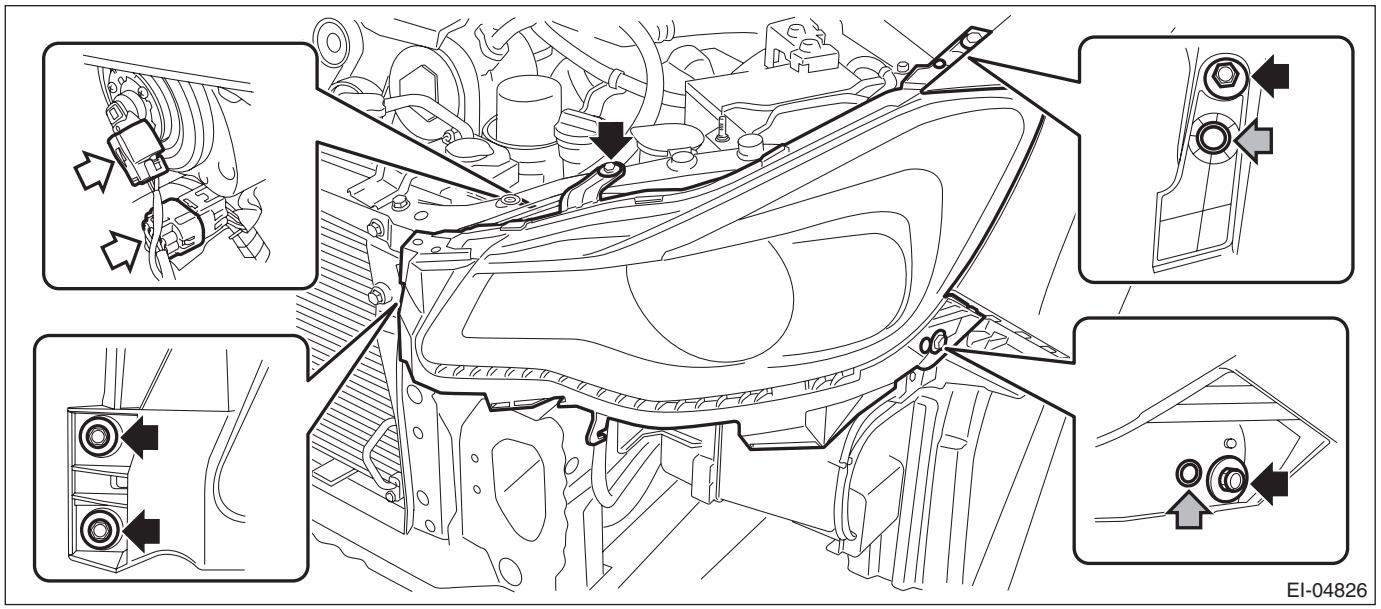


7) Remove the bolts and clips, and remove the bracket - front bumper corner.



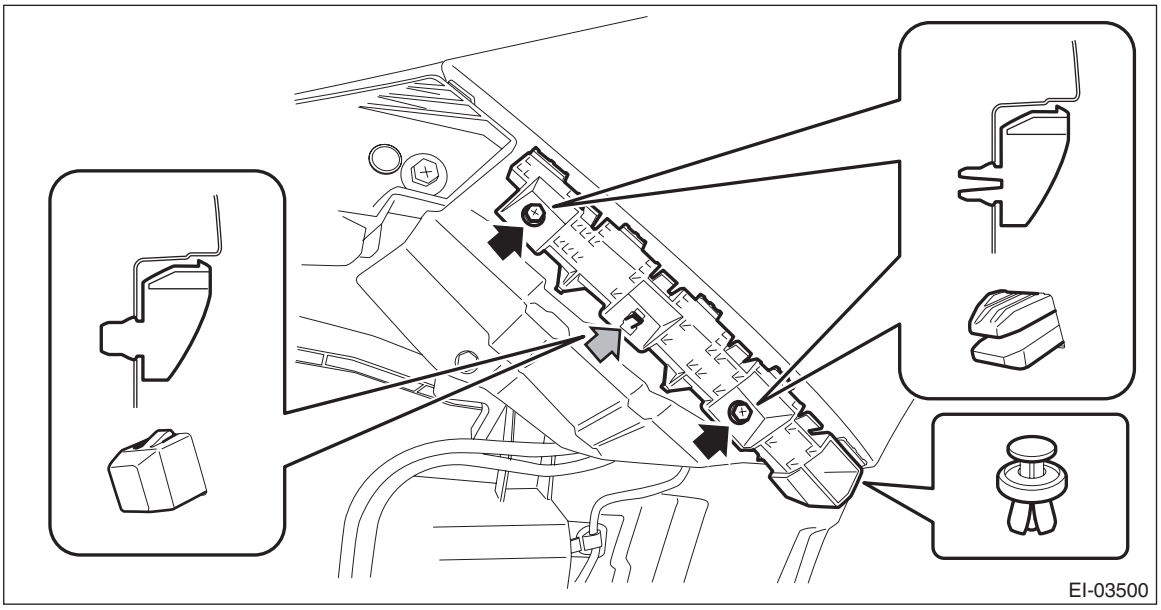

NOTE:
When removing the bracket - front bumper corner only, do not remove the light assembly - head.

8) Remove the bracket - front bumper side.
(1) Remove the bolts and clips, and remove the light assembly - head and the bracket - front bumper corner.




(2) Remove the screws.

(3) Remove the claws from behind the fender COMPL - front, and remove the bracket - front bumper side.

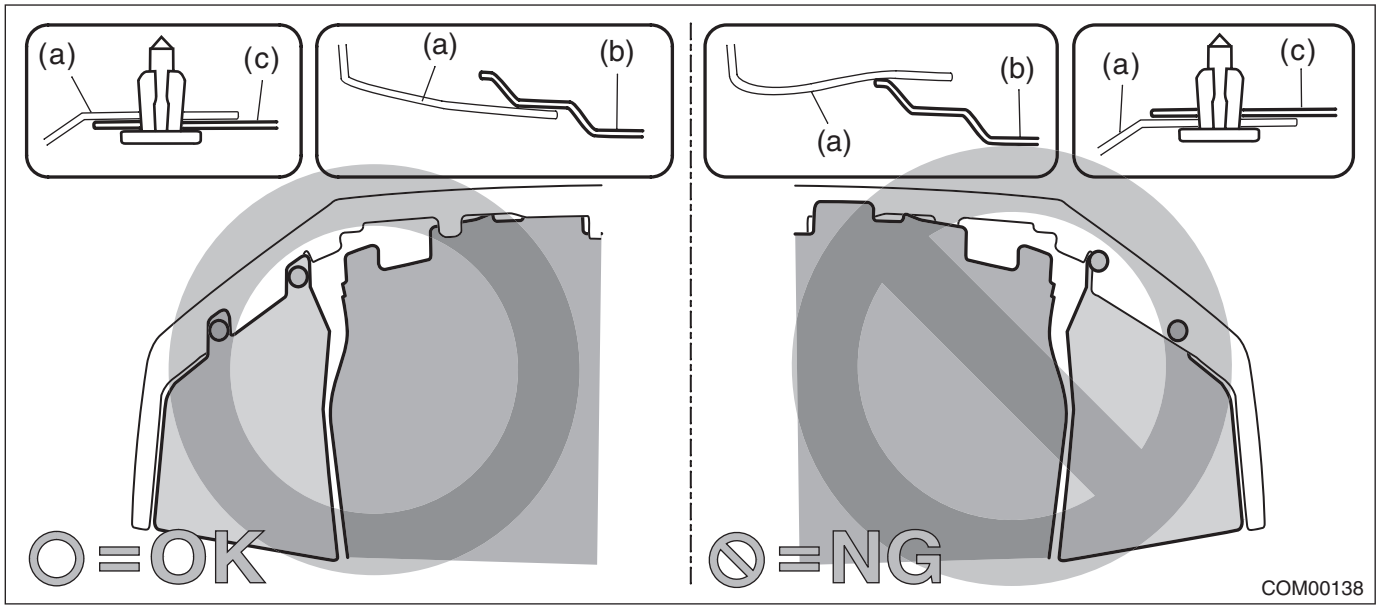



9) Remove the bolts and clips, and remove the fog light assembly - front.

## B: INSTALLATION

1) Install each part in the reverse order of removal.
2) Secure the flange section of the bumper face - front to the bracket - front bumper side.

**CAUTION:**
**• Install so that the front end of the under cover (b) comes inside the bumper face - front (a), and the front end of the mud guard (c) comes outside the bumper face - front (a).**



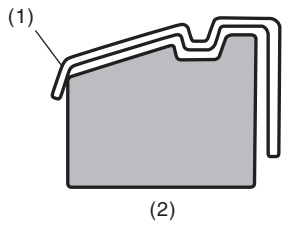

**• Before installing the bumper face, match the claws on the bracket - front bumper with the engaging position of flange section on the bumper face side. If the engaging position is not correct, the flange section may be broken or the clearance between fender panel and bumper face may not be uniform.**

***Tightening torque:***
***Refer to "COMPONENT" of "General Description". <Ref. to EI-7, FRONT BUMPER, COMPONENT, General Description.>***

3) Install each part in the reverse order of removal.
4) Adjust the headlight beam and fog light beam.
• Adjust the headlight beam. <Ref. to LI-34, HEADLIGHT BEAM ADJUSTMENT, ADJUSTMENT, Headlight Assembly.>
• Adjust the fog light beam. (Model with fog light) <Ref. to LI-55, FOG LIGHT AIMING, ADJUSTMENT, Front Fog Light Assembly.>

# C: REPAIR

## 1. COATING METHOD FOR PP BUMPER

| Process No. | Process name | Job contents | |
|---|---|---|---|
| 1 | Bumper installation | Place the bumper on a paint worktable as required. Use the paint worktable conforming to inner shape of bumper if possible. |  EI-00234<br>(1) Bumper<br>(2) Set bumper section |
| 2 | Masking | Mask specified part (black base) with masking tape. Use masking tape for PP. | |
| 3 | Degreasing/ cleaning | Clean all parts to be painted with appropriate detergent, general-purpose alcohol, etc. to remove dirt, oil, grease, etc. | |
| 4 | Primer paint | Apply primer to all parts to be painted, using spray gun. Use primer (clear). | |
| 5 | Drying | Dry at normal temperature. [10 — 15 min. at 20°C (68°F)]<br>In half-dried condition, PP primer paint is dissolved by solvent, e.g. thinner, etc.<br>Therefore, if dust or dirt must be removed, use general-purpose alcohol etc. | |
| 6 | Top coat paint (I) | Non-colored | Metallic paint |
| | | Use section (block) paint for top coat.<br>For paint/hardener mixture, observe the specifications recommended by the manufacturers.<br>• Viscosity: 10 — 13 sec./20°C (68°F)<br>• Film thickness: 35 — 45 µ<br>• Spraying pressure: 245 — 343 kPa<br>(2.5 — 3.5 kgf/cm$^2$, 36 — 50 psi) | Use section (block) paint for top coat.<br>For paint/hardener mixture, observe the specifications recommended by the manufacturers.<br>• Viscosity: 10 — 13 sec./20°C (68°F)<br>• Film thickness: 15 — 20 µ<br>• Spraying pressure: 245 — 343 kPa<br>(2.5 — 3.5 kgf/cm$^2$, 36 — 50 psi) |
| 7 | Drying | Not required. | Dry at normal temperature [at least 10 min. at 20°C (68°F)].<br>In half-dried condition, avoid dust, dirt. |
| 8 | Top coat paint (II) | Not required. | Apply a clear coat to parts with top coat paint (I), three times at 5 — 7 minute intervals.<br>For paint/hardener mixture, observe the specifications recommended by the manufacturers.<br>• Viscosity: 14 — 16 sec./20°C (68°F)<br>• Film thickness: 25 — 30 µ<br>• Spraying pressure: 245 — 343 kPa<br>(2.5 — 3.5 kgf/cm$^2$, 36 — 50 psi) |
| 9 | Drying | 60°C (140°F), 60 min. or 80°C (176°F), 30 min.<br>If the temperature is higher than 80°C (176°F), PP may be deformed. Keep maximum temperature at 80°C (176°F) or less. | |
| 10 | Inspection | Check paint. | |
| 11 | Removal of masking | Remove the masking tape applied in procedure 2. | |

## 2. REPAIR INSTRUCTIONS FOR COLORED PP BUMPER

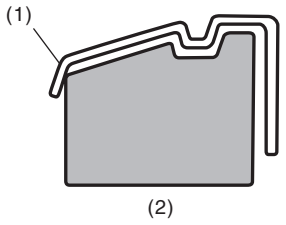
NOTE:
All PP bumpers are provided with a grained surface, and if the surface is damaged, it cannot normally be restored to its former condition. Damages limited to the shallow scratches that cause only a change in the luster of the base material or coating, can be almost fully restored. Before repairing a damaged area, explain this point to the customer and obtain an understanding about the matter.
Repair methods are outlined below, based on a classification of the extent of damage.
1) Minor damage causing only a change in the luster of the bumper due to a light touch
Almost restorable.

<table>
<tr><th>Process No.</th><th>Process name</th><th colspan="2">Job contents</th></tr>
<tr><td>1</td><td>Cleaning</td><td colspan="2">Clean the area to be repaired using water.</td></tr>
<tr><td>2</td><td>Sanding</td><td colspan="2">Grind the repairing area with #500 sand paper in a “feathering” motion.</td></tr>
<tr><td rowspan="3">3</td><td rowspan="3">Finish</td><td>Resin section</td><td>Coated section</td></tr>
<tr><td>Repeatedly apply wax to the affected area using soft cloth (such as flannel).<br>Recommended wax: Tire wax or equivalent</td><td rowspan="2">Perform either the same procedures as for the resin section or process No. 18 and subsequent in section 3), depending on the degree and nature of damage.</td></tr>
<tr><td>Polish the waxed area with clean cloth after 5 — 10 minutes.</td></tr>
</table>

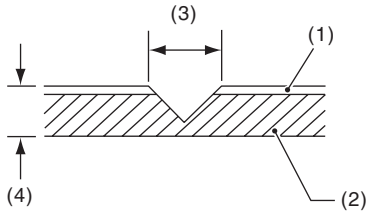
2) Deep damage caused by scratching with fences etc.
A dent cannot be repaired but a whitened or swelled part can be removed.

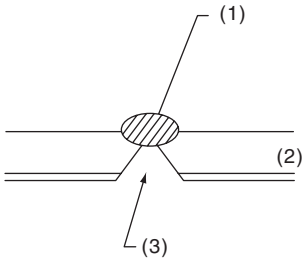
<table>
<tr><th>Process No.</th><th>Process name</th><th colspan="2">Job contents</th></tr>
<tr><td>1</td><td>Cleaning</td><td colspan="2">Clean the damaged area with water.</td></tr>
<tr><td>2</td><td>Removal of damaged area</td><td colspan="2">Cut off protruding area, if any, due to collision, using a putty knife.</td></tr>
<tr><td>3</td><td>Sanding</td><td colspan="2">Grind the affected area with #100 — #500 sand paper.</td></tr>
<tr><td rowspan="2">4</td><td rowspan="2">Finish</td><td>Resin section</td><td>Coated section</td></tr>
<tr><td>Same as process No. 3 in section “1)”.</td><td>Perform process No. 12 and subsequent operations in section “3)”.</td></tr>
</table>

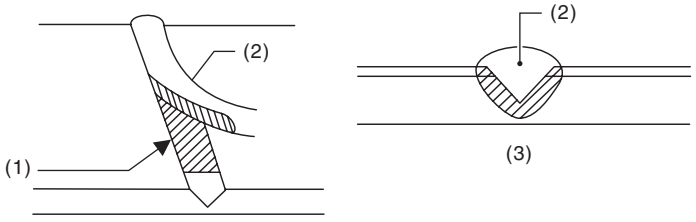
3) Deep damage such as a break or hole that requires filling
Much of the peripheral grained surface must be sacrificed for repair. The degree of restoration is not really worth the expense. (The surface, however, will become almost flush with adjacent areas.)

<table>
<tr><th>Process No.</th><th>Process name</th><th colspan="2">Job contents</th></tr>
<tr><td>1</td><td>Bumper removal</td><td colspan="2">Remove the bumper as required.</td></tr>
<tr><td>2</td><td>Removal of parts</td><td colspan="2">Remove the parts built into bumper as required.</td></tr>
<tr><td>3</td><td>Bumper placement</td><td>Place the bumper on a paint worktable as required.<br>It is recommended to use the paint worktable conforming to internal shape of bumper.</td><td> 

EI-00234<br>(1) Bumper<br>(2) Set bumper section</td></tr>
<tr><td>4</td><td>Surface preparation</td><td colspan="2">Remove dust, oil, etc. from areas to be repaired and surrounding areas, using a suitable solvent (appropriate detergent or alcohol, etc.).</td></tr>
</table>

<table>
<tr><th>Process No.</th><th>Process name</th><th colspan="2">Job contents</th></tr>
<tr><td>5</td><td>Cutting</td><td>If the damage is a crack or a hole, cut a guide slit of 20 to 30 mm (0.79 to 1.18 in) in length along the crack or hole up to the bumper base surface. Next, use a knife or grinder to carve a V-shaped groove in the area for repair.</td><td> 

EI-00235<br>(1) Paint surface<br>(2) PP base surface<br>(3) 20 — 30 mm (0.79 — 1.18 in)<br>(4) 3 mm (0.12 in)</td></tr>
<tr><td>6</td><td>Sanding (I)</td><td colspan="2">Grind beveled surface with sand paper (#40 — #60) to smooth finish.</td></tr>
<tr><td>7</td><td>Cleaning</td><td colspan="2">Clean the sanded surface with the same solvent as used in process No. 4.</td></tr>
<tr><td rowspan="2">8</td><td rowspan="2">Temporary welding</td><td colspan="2">Grind the side just opposite the beveled area with sand paper (#40 — #60) and clean using a solvent.<br>Temporarily spot-weld the side, using PP welding rod and heater gun.</td></tr>
<tr><td colspan="2"> 

EI-00236<br>(1) Welded point (Use heater gun and PP welding rod)<br>(2) PP base surface<br>(3) Beveled section<br>NOTE:<br>• Do not melt welding rod until it flows out. This results in reduced strength.<br>• Leave the welded spot unattended until it cools completely.</td></tr>
<tr><td rowspan="2">9</td><td rowspan="2">Welding</td><td colspan="2">Using a heater gun and PP welding rod, weld the beveled spot while melting both the rod and damaged area.</td></tr>
<tr><td colspan="2"> 

EI-00237<br>(1) Welding rod<br>(2) Melt hatched area<br>(3) Section<br>NOTE:<br>• Melt the sections indicated by hatched area.<br>• Do not melt the welding rod until it flows out, in order to provide strength.<br>• Always keep the heater gun 1 to 2 cm (0.4 to 0.8 in) away from the welding spot.<br>• Leave the welded spot unattended until it cools completely.</td></tr>
</table>

| Process No. | Process name | Job contents | |
|---|---|---|---|
| 10 | Sanding (II) | Remove excess part of weld with a putty knife. If a drill or disc wheel is used instead of the knife, operate it at a rate less than 1,500 rpm and grind the excess part little by little. A higher rpm will cause the PP substrate to melt from the heat. | |
| | | EI-00042 | |
| | | Sand the welded spot smooth with #240 sand paper. | |
| 11 | Masking | Mask the black substrate section using masking tape. | |
| 12 | Cleaning/ degreasing | Completely clean the entire coated area, using solvent similar to that used in process No. 4. | |
| 13 | Primer coating | Apply a coat of primer for bumpers to the repaired surface and its surrounding areas. Mask these areas, if necessary.<br>NOTE:<br>Be sure to apply a coat of primer using a spray gun at a pressure of 245 — 343 kPa (2.5 — 3.5 kgf/cm$^2$, 36 — 50 psi). | |
| 14 | Leave unattended | Leave the repaired area unattended at 20°C (68°F) for 10 to 15 minutes until primer is half-dry.<br>NOTE:<br>If dirt or dust comes in contact with the coated area, wipe it off with a cloth dampened with alcohol. (Do not use thinner since the coated area tends to melt.) | |
| 15 | Surfacer coating | Apply a coat of surfacer for PP bumpers to the repaired area two or three times at an interval of 3 — 5 minutes.<br>For surfacer/hardener mixture, viscosity and paint thickness, observe the specifications of the surfacers to be used. | |
| 16 | Drying | Allow the coated surface to dry for 20 minutes at 20°C (68°F) [or 30 minutes at 60°C (140°F)]. | |
| 17 | Sanding (III) | Sand the coated surface and its surrounding areas using #400 sand paper and water. | |
| 18 | Cleaning/ degreasing | Same as process No. 12. | |
| 19 | Top coat (I) | Non-colored | Metallic paint |
| | | Use a “block” coating method.<br>For paint/hardener mixture, observe the specifications recommended by the manufacturers.<br>• Viscosity: 11 — 13 sec./20°C (68°F)<br>• Coating film thickness: 40 — 50 µ<br>• Spraying pressure: 245 — 343 kPa (2.5 — 3.5 kgf/cm$^2$, 36 — 50 psi) | Use a “block” coating method.<br>For paint/hardener mixture, observe the specifications recommended by the manufacturers.<br>• Viscosity: 11 — 13 sec./20°C (68°F)<br>• Coating film thickness: 20 — 30 µ<br>• Spraying pressure: 245 — 343 kPa (2.5 — 3.5 kgf/cm$^2$, 36 — 50 psi) |
| 20 | Leave unattended | Not required. | Leave unattended at 20°C (68°F) for at least 10 minutes until the topcoated area is half-dry.<br>NOTE:<br>Be careful to keep dust or dirt from coming in contact with the affected area. |
| 21 | Top coat (II) | Not required. | Apply a clear coat three times at an interval of 3 to 5 minutes.<br>For paint/hardener mixture, observe the specifications recommended by the manufacturers.<br>• Viscosity: 10 — 13 sec./20°C (68°F)<br>• Coating film thickness: 20 — 30 µ<br>• Spraying pressure: 245 — 343 kPa (2.5 — 3.5 kgf/cm$^2$, 36 — 50 psi) |
| 22 | Drying | Allow the coated surface to dry for two hours at 20°C (68°F) or 30 minutes at 60°C (140°F).<br>NOTE:<br>Do not allow the temperature to exceed 80°C (176°F) since this will deform the PP substrate. | |

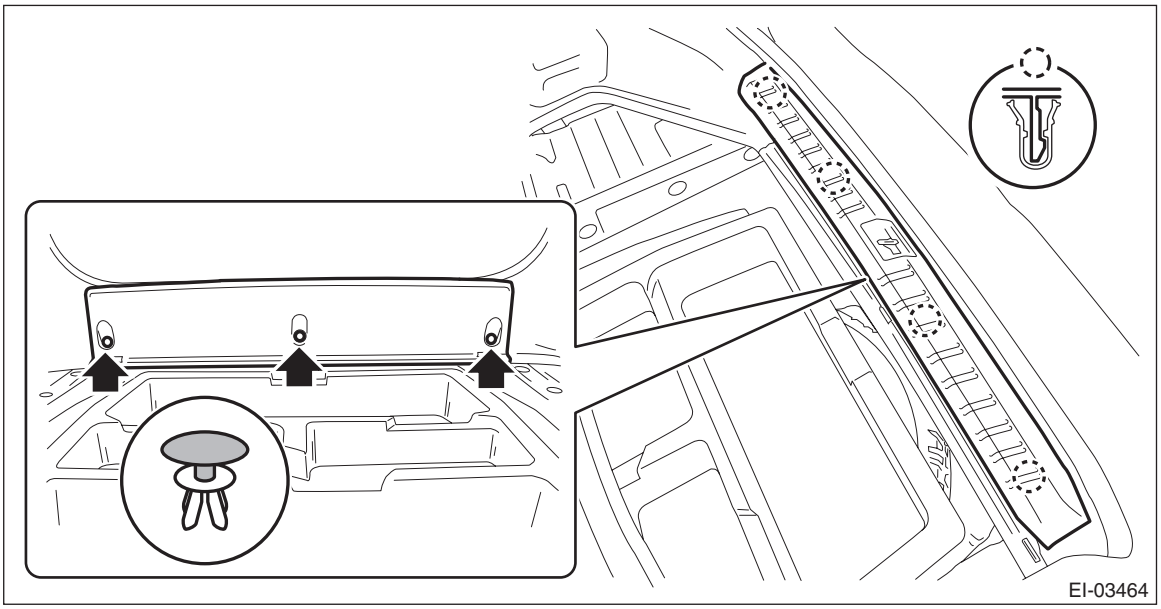
| Process No. | Process name | Job contents |
|---|---|---|
| 23 | Inspection | Carefully check the condition of the repaired area. |
| 24 | Removal of masking | Remove the masking tape applied in process No. 11 and 13. |
| 25 | Parts installation | Install parts on the bumper in reverse order of removal. |
| 26 | Bumper installation | Install the bumper. |

# 8. Rear Bumper

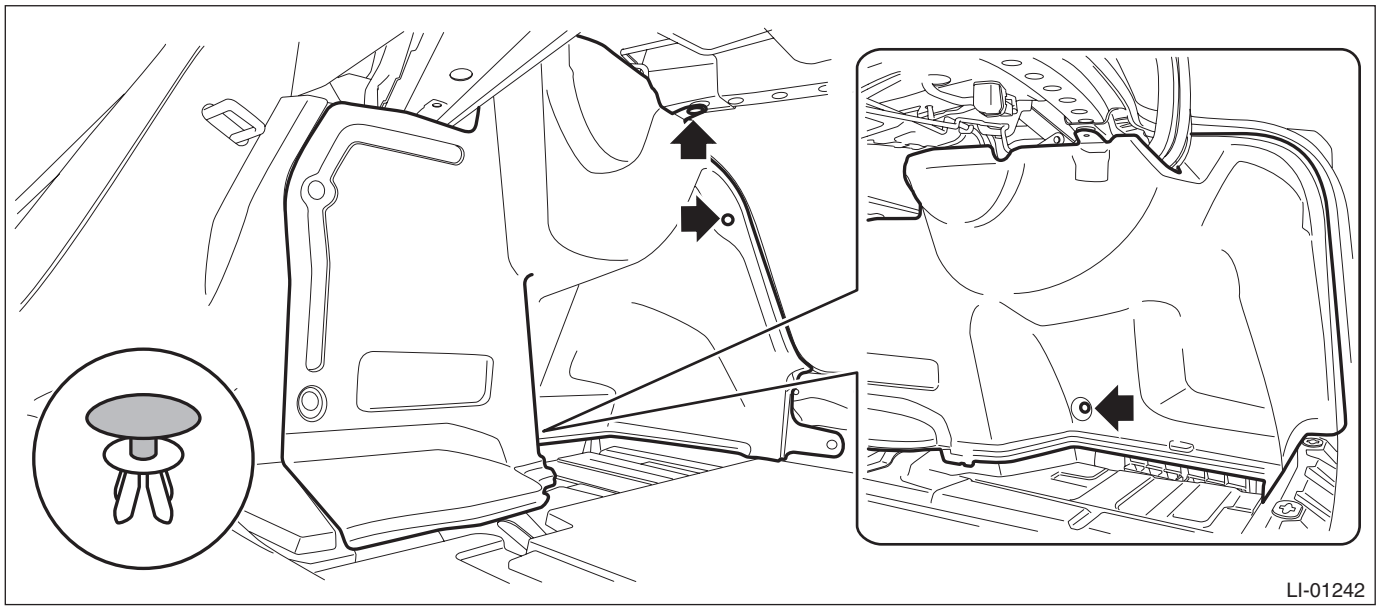
## A: REMOVAL

### 1. 4 DOOR MODEL

1) Disconnect the ground cable from battery.
2) Remove the trunk room mat.
3) Remove the trim panel - trunk rear.
   (1) Remove the clip.
   (2) Release the claws, and remove the trim panel - trunk rear.

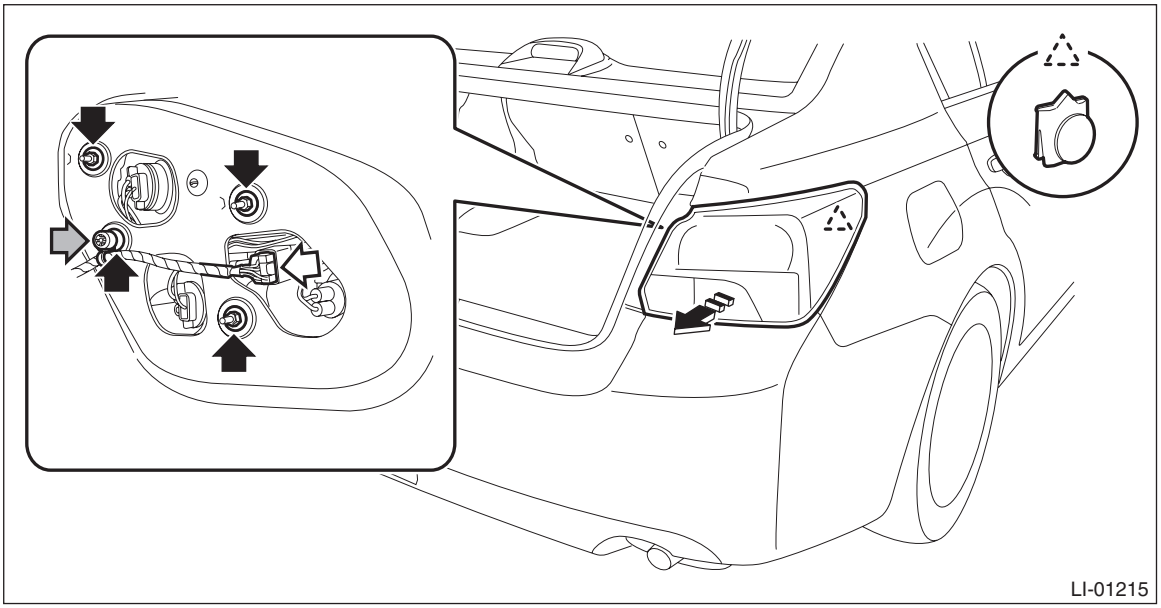



4) Remove the clips, and turn over the trim panel - trunk side.

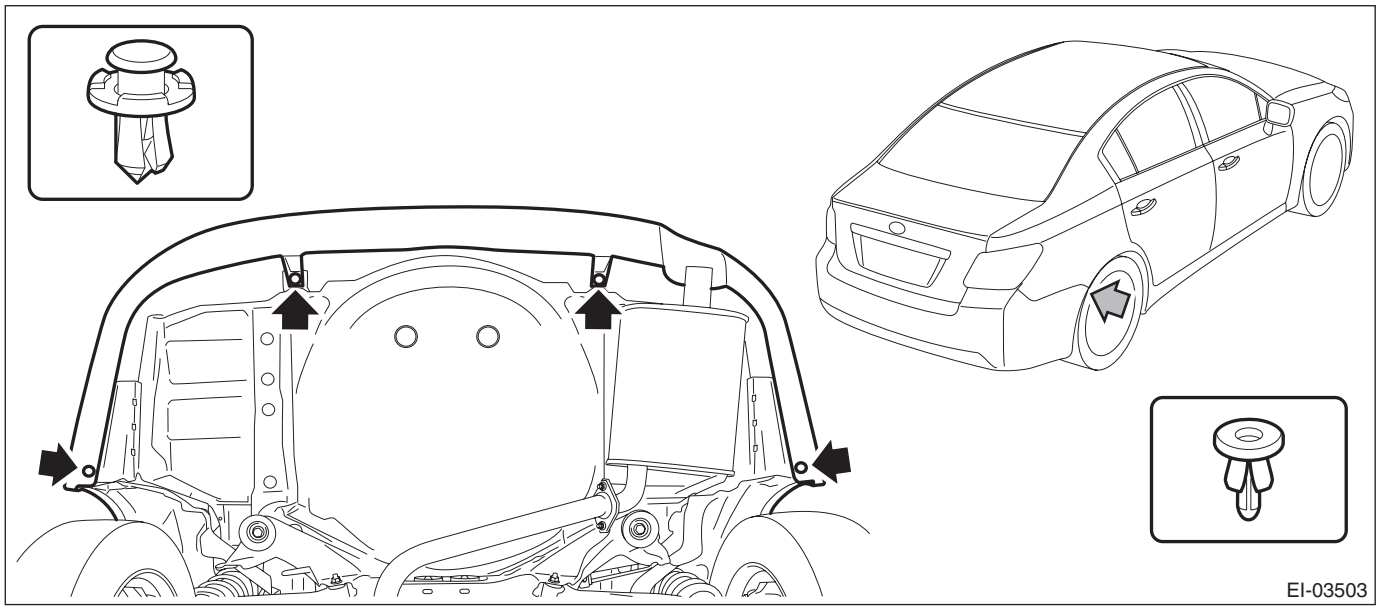


5) Remove the light assembly - rear combination.
(1) Remove the harness clamp and connector.
(2) Release the nuts and clips, then remove the light assembly - rear combination.

**CAUTION:**
**Be careful not to damage the clips.**

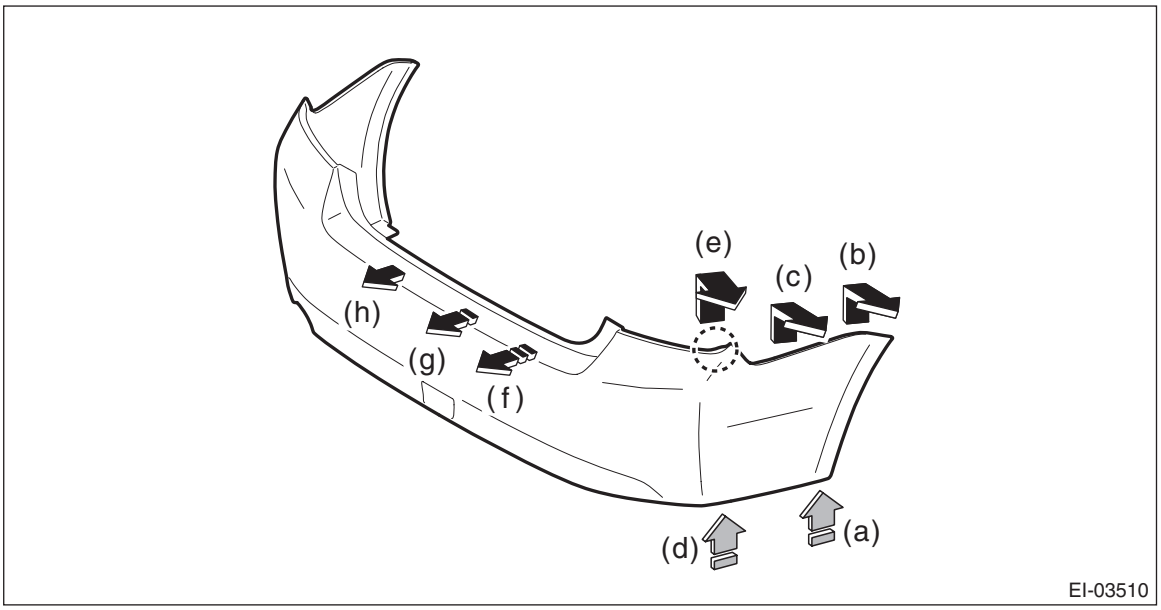



6) Remove the bumper face - rear.
(1) Remove the clips inside the wheel housing.
(2) Remove the clips at the lower side of the bumper face - rear.

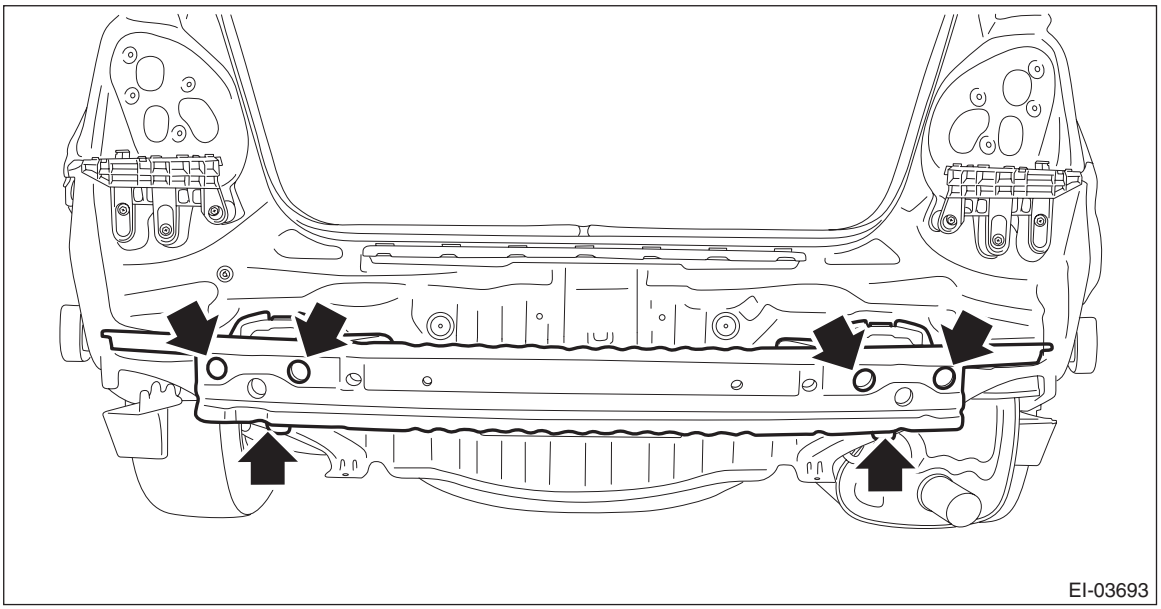


(3) Detach (b) and (c) while pulling up (a) of the bumper face - rear.
(4) Detach (e) while pulling up (d) of the bumper face - rear.
(5) Detach the opposite side in the same manner.
(6) Detach in order from (f) to (h) while pulling up the center part of the bumper face - rear.

**CAUTION:**
**Pulling with excessive force may damage the bracket.**

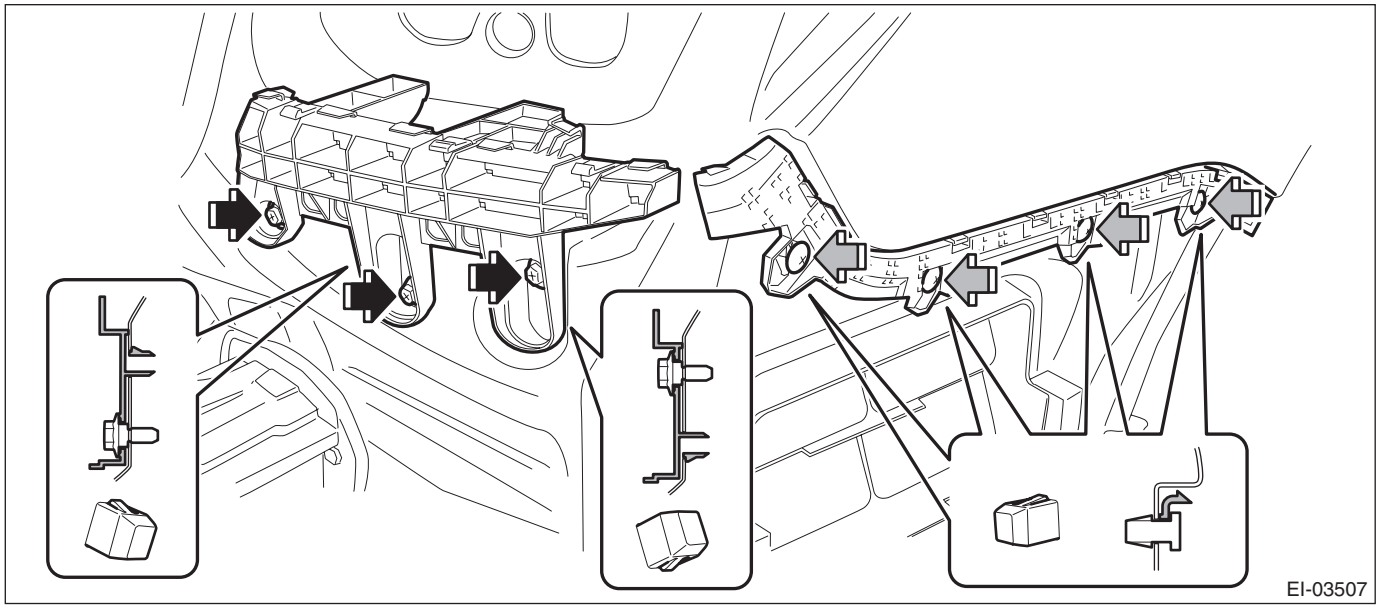



7) Remove the bolts and nuts, and remove the bumper beam COMPL - rear.




NOTE:
After all nuts are removed, raise the bumper beam COMPL - rear a little to remove it from vehicle body.

8) Remove bumper brackets.
(1) Remove the screws.
(2) Turn over the trim panel - trunk side, and detach the claw of the clip from the back side.



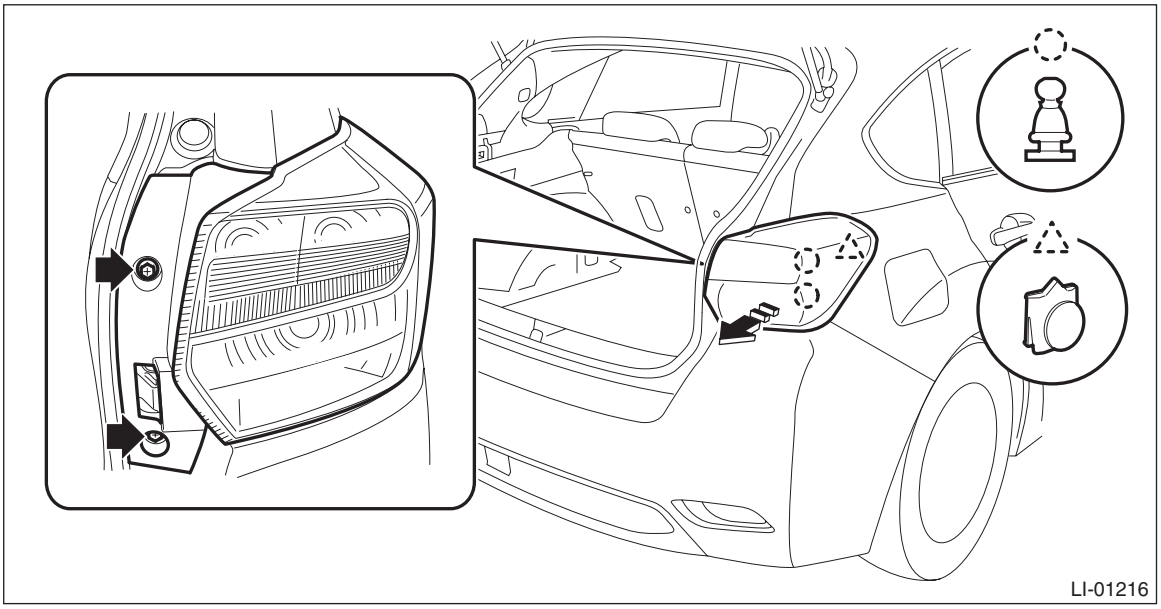

## 2. 5 DOOR MODEL/XV MODEL

1) Disconnect the ground cable from battery. <Ref. to NT-5, BATTERY, NOTE, Note.>

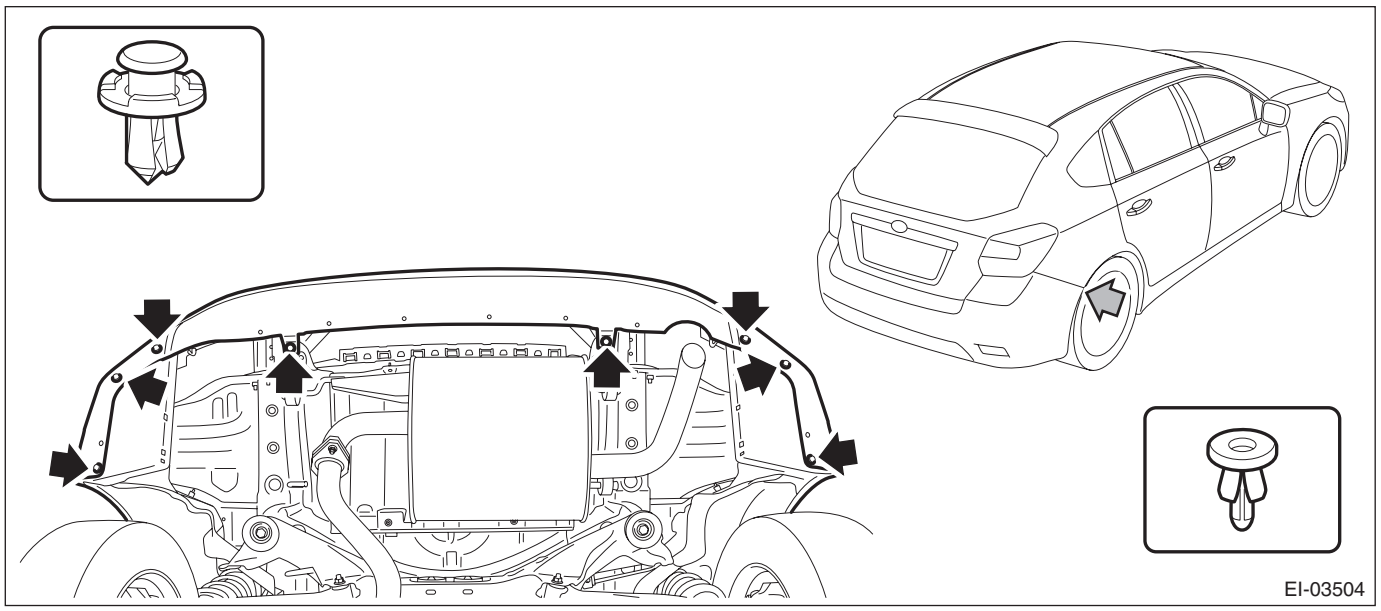
NOTE:
For the 12 volt engine restart battery of HEV model, disconnect the ground terminal from 12V engine restart battery sensor.

2) Remove the light assembly - rear combination.

**CAUTION:**
**Be careful not to damage the clips.**
(1) Release the bolts and clips, then pull out the light assembly - rear combination to the vehicle rear.
(2) Disconnect the connector and remove the light assembly - rear combination.

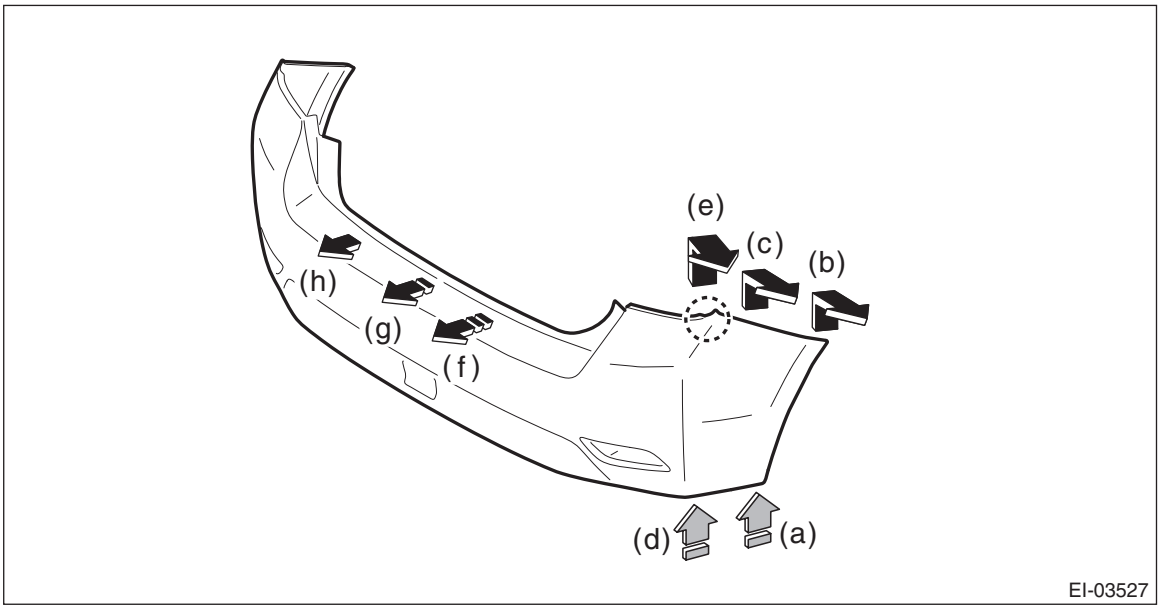


3) Remove the bumper face - rear.
(1) Remove the clips inside the wheel housing.
(2) Remove the clips at the lower side of the bumper face - rear.



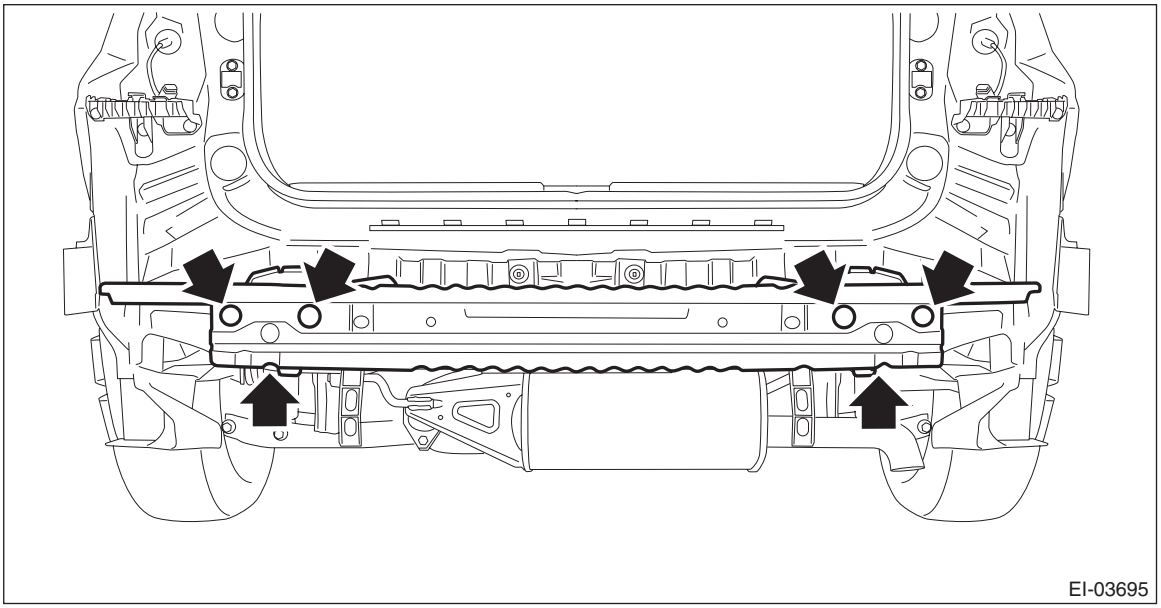

(3) Detach (b) and (c) while pulling up (a) of the bumper face - rear.
(4) Detach (e) while pulling up (d) of the bumper face - rear.
(5) Detach the opposite side in the same manner.
(6) Detach in order from (f) to (h) while pulling up the center part of the bumper face - rear.

**CAUTION:**
**Do not pull forcibly. It may damage the flange section on the bumper face - rear side when it comes off from the claws of the bracket - rear bumper.**

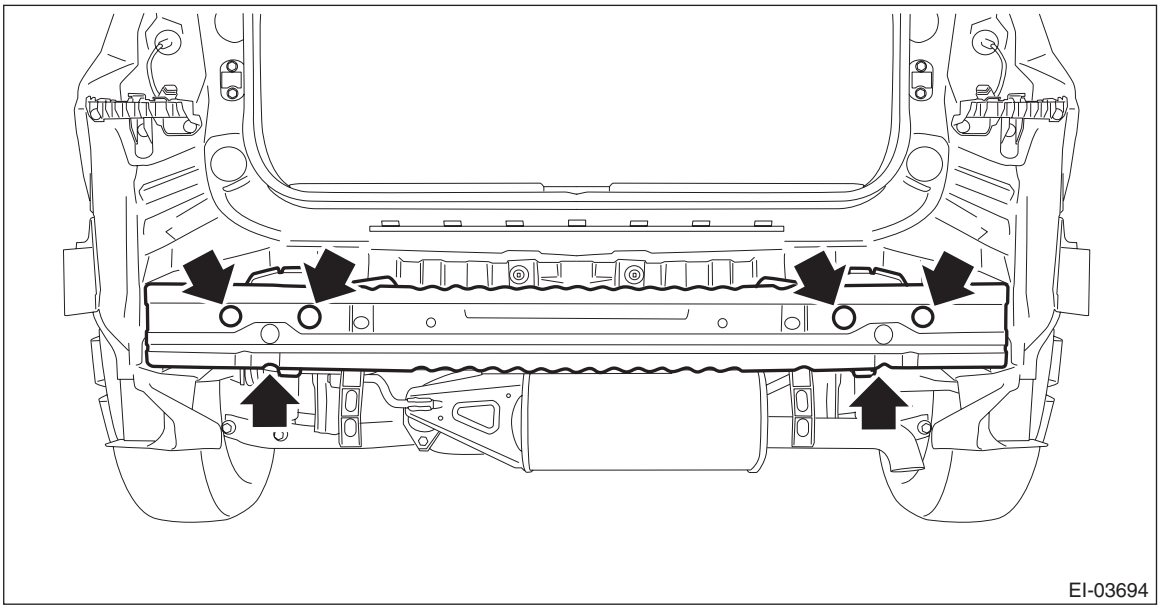


4) Remove the bolts and nuts, and remove the bumper beam COMPL - rear.

- Except for XV model

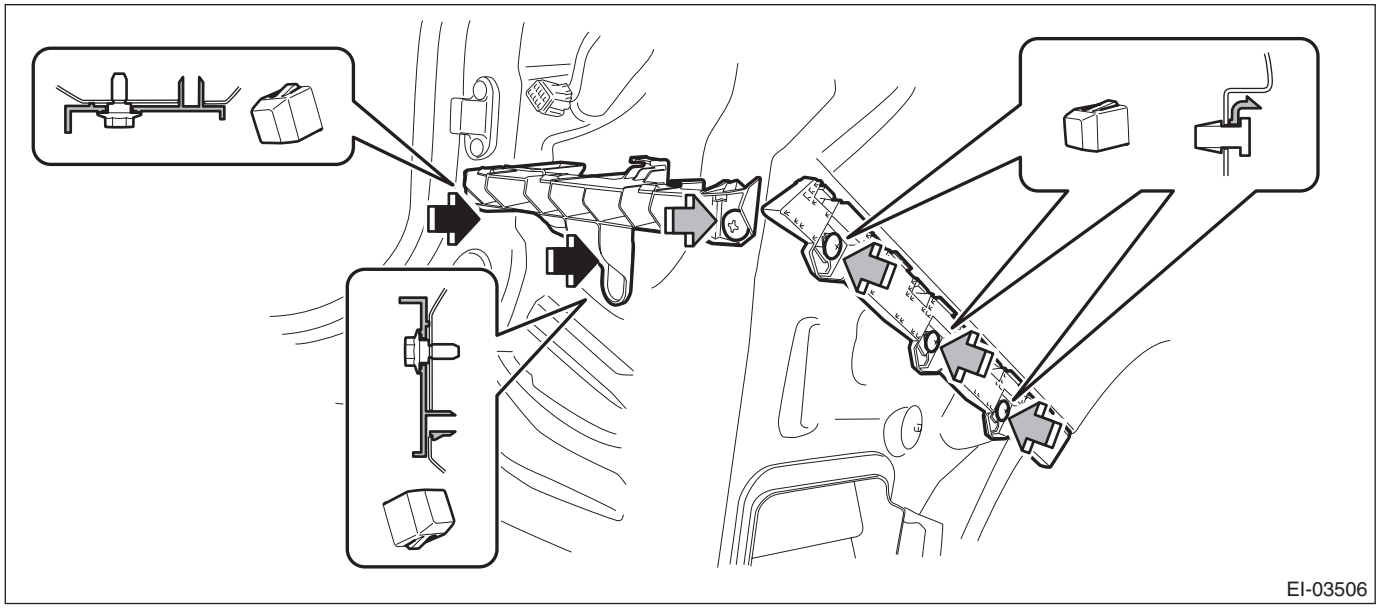



- XV model

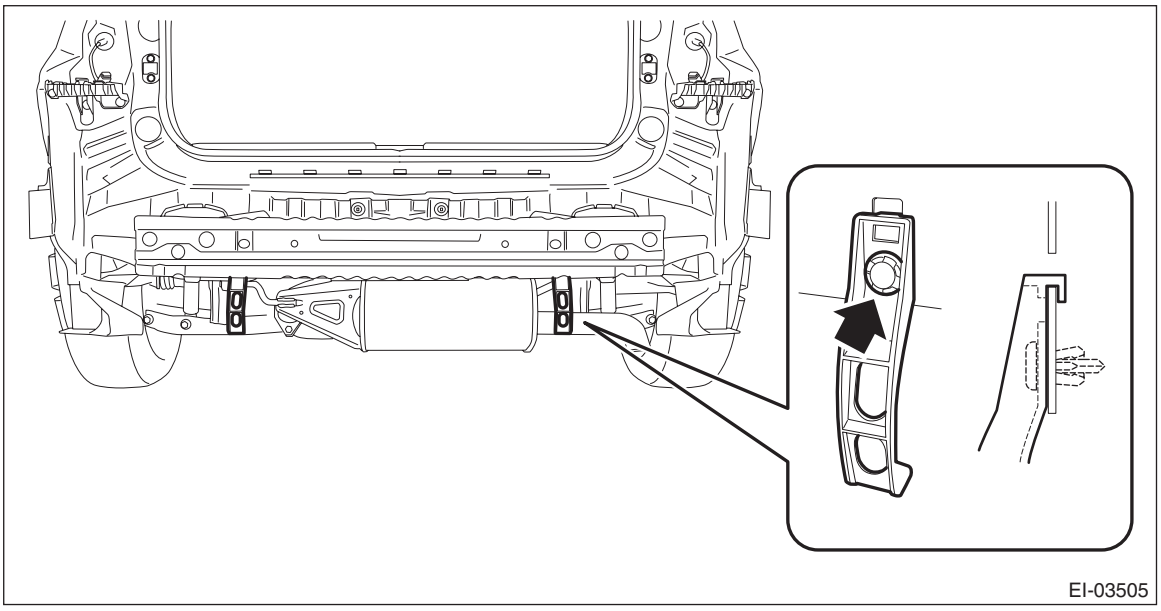



NOTE:
After all nuts are removed, raise the bumper beam COMPL - rear a little to remove it from vehicle body.

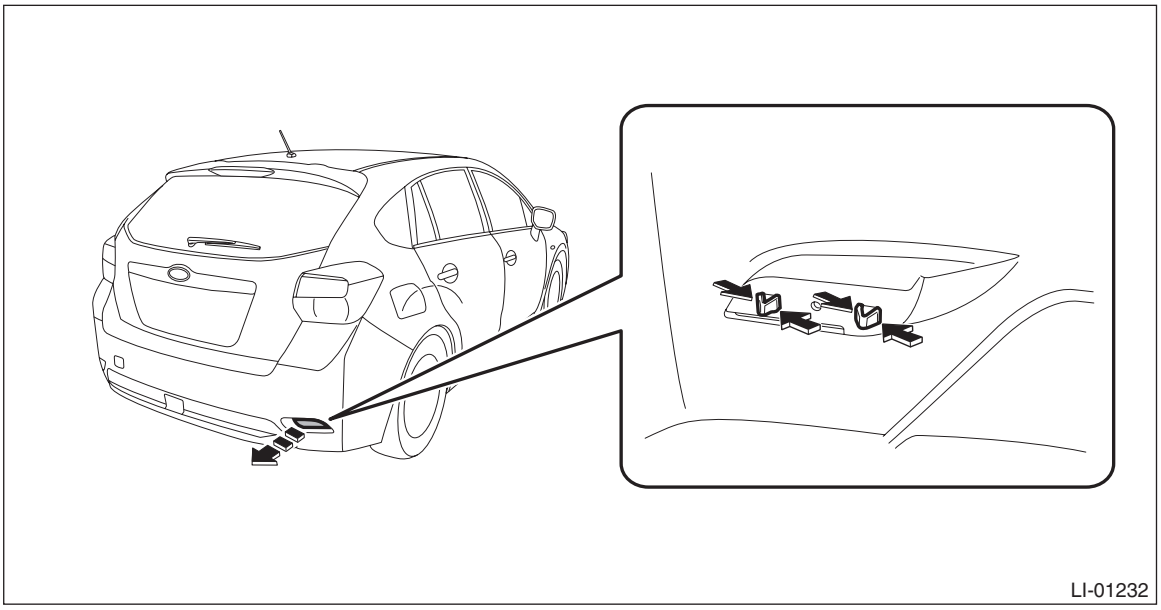
5) Remove bumper brackets.
(1) Remove the screws.
(2) Turn over the trim panel - trunk side, and detach the claw of the clip from the back side.


EI-03506

(3) Remove the clip, and remove the bracket - rear bumper lower.


EI-03505

6) From behind the bumper, release the claws, and remove the reflex reflector assembly.

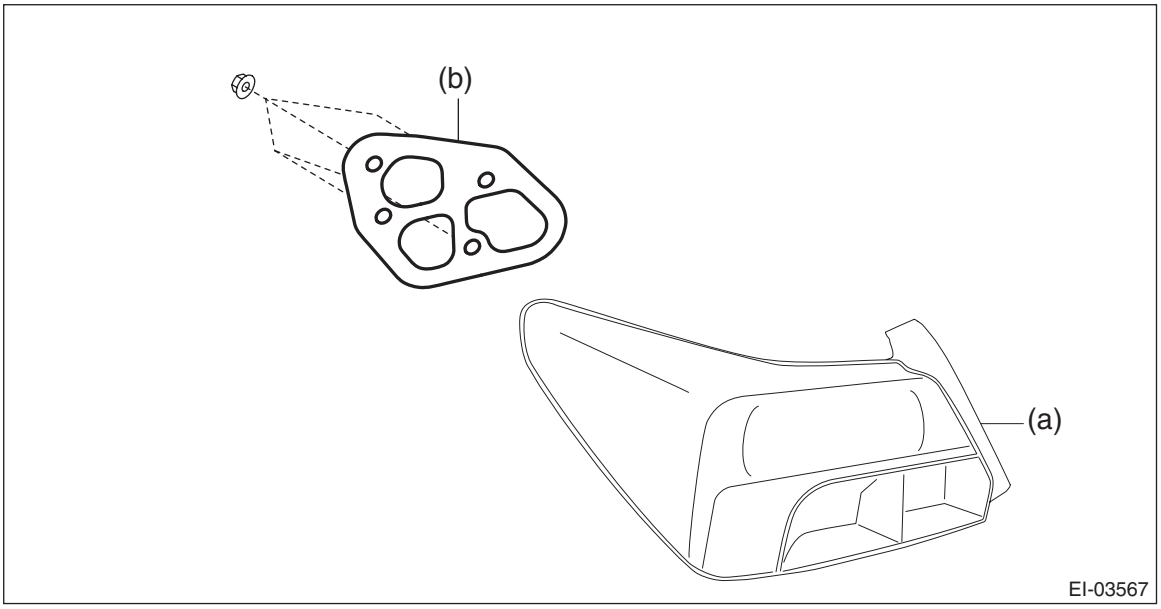



## B: INSTALLATION

Install each part in the reverse order of removal.

**CAUTION:**

**• For 4 door model, replace the seal gasket (b) of rear combination light assembly (a) with a new part. If the seal gasket is reused, water leaks may occur.**




**• Before installing the bumper face, match the claws on the bracket - rear bumper with the engaging position of flange section on the bumper face side. If the engaging position is not correct, the flange section may be broken or the clearance between fender panel and bumper face may not be uniform.**

NOTE:
If the bumper face - rear comes off too easily, adjust the hook of the bracket side.

***Tightening torque:***

***Rear bumper component: <Ref. to EI-8, REAR BUMPER, COMPONENT, General Description.>***
***Light assembly - rear combination: 7.5 N·m (0.76 kgf-m, 5.5 ft-lb)***

## C: REPAIR

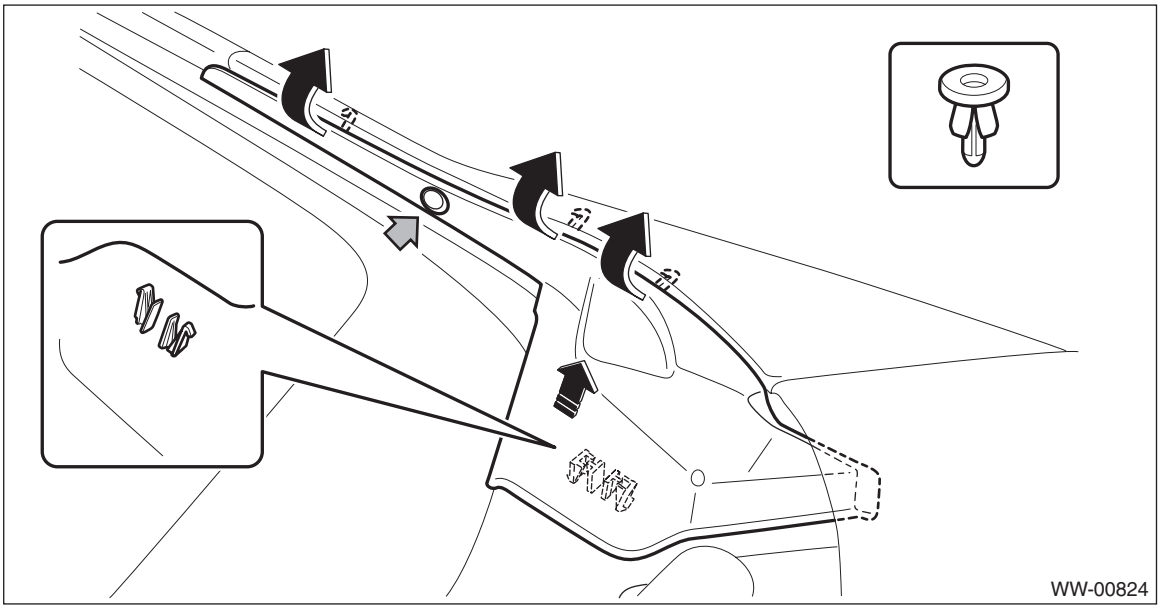
Refer to the description concerning repair in “Front Bumper” section. <Ref. to EI-47, REPAIR, Front Bumper.>

# 9. Cowl Panel

## A: REMOVAL

1) Open the front hood.
2) Remove the arm assembly - windshield wiper. <Ref. to WW-29, REMOVAL, Front Wiper Arm.>
3) Remove the cowl panel - side.
   (1) Remove the clips.
   (2) Release the claws, and then remove the cowl panel - side.

**CAUTION:**
**Pulling with excessive force may damage the cowl panel - side. If it is difficult to remove, use a plastic remover or equivalent tool.**



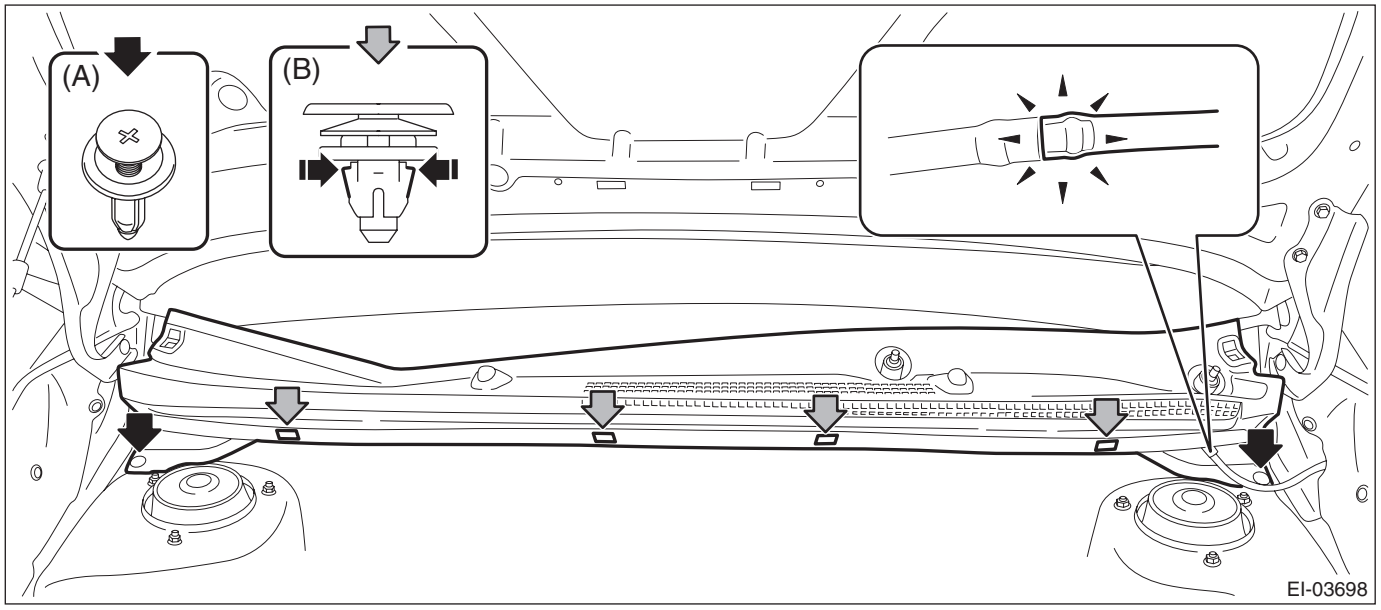
4) Remove the cowl panel assembly.

**CAUTION:**
**Before removing the cowl panel, use an air blower and nylon brush to sweep gravel from the lower area of the front side of the glass.**

(1) Disconnect the washer hose.
(2) Remove clips (A).
(3) Check the direction of the clip (B), and push the claws from both sides to remove it.

**CAUTION:**
**When removing the clip (B), push the claws of the clip first.**
**Be careful not to apply excessive force when pulling the clip (B), as the clip may become damaged.**

(4) Remove the cowl panel assembly by pulling it out towards the front of the vehicle.




5) Remove the washer nozzle and the washer hose as required. <Ref. to WW-39, REMOVAL, Front Washer Nozzle.>

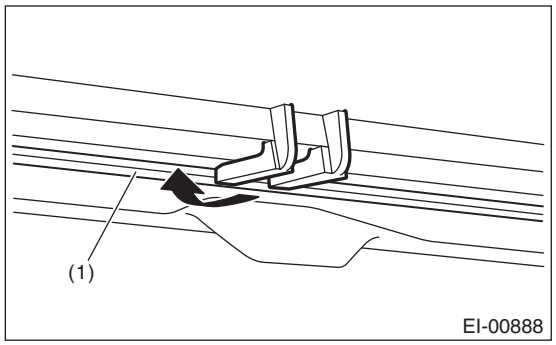
## B: INSTALLATION

**CAUTION:**
**Before installing the windshield glass and cowl panel, make sure there are no gravel in the installing area.**

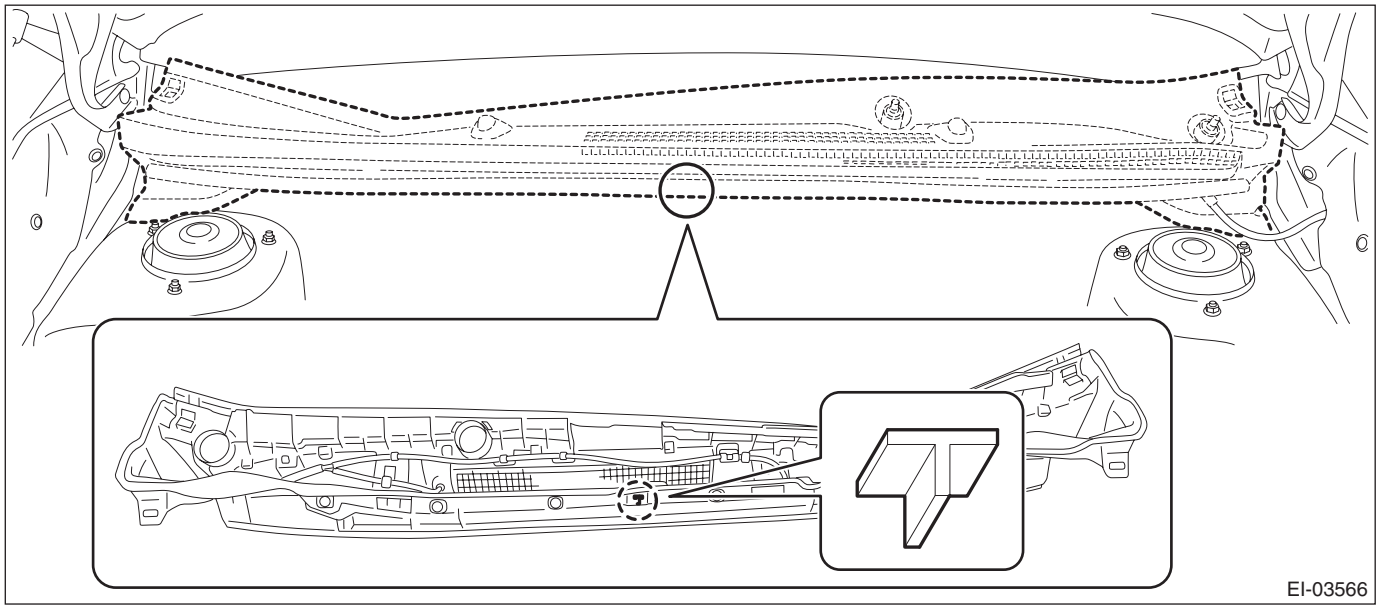
1) Install the cowl panel assembly.

**CAUTION:**
**If the cowl panel assembly cannot be installed properly, do not hit or set it forcibly. The claws of the cowl panel or the windshield glass may be damaged.**

(1) Hook the claw of the cowl panel on the lower end (1) of the windshield.




(2) Align the center claw of the cowl panel assembly to the cutout portion of the vehicle side, then install the cowl panel assembly.




2) Install the arm assembly - windshield wiper. <Ref. to WW-30, INSTALLATION, Front Wiper Arm.>
3) Install the remaining parts in the reverse order of removal.

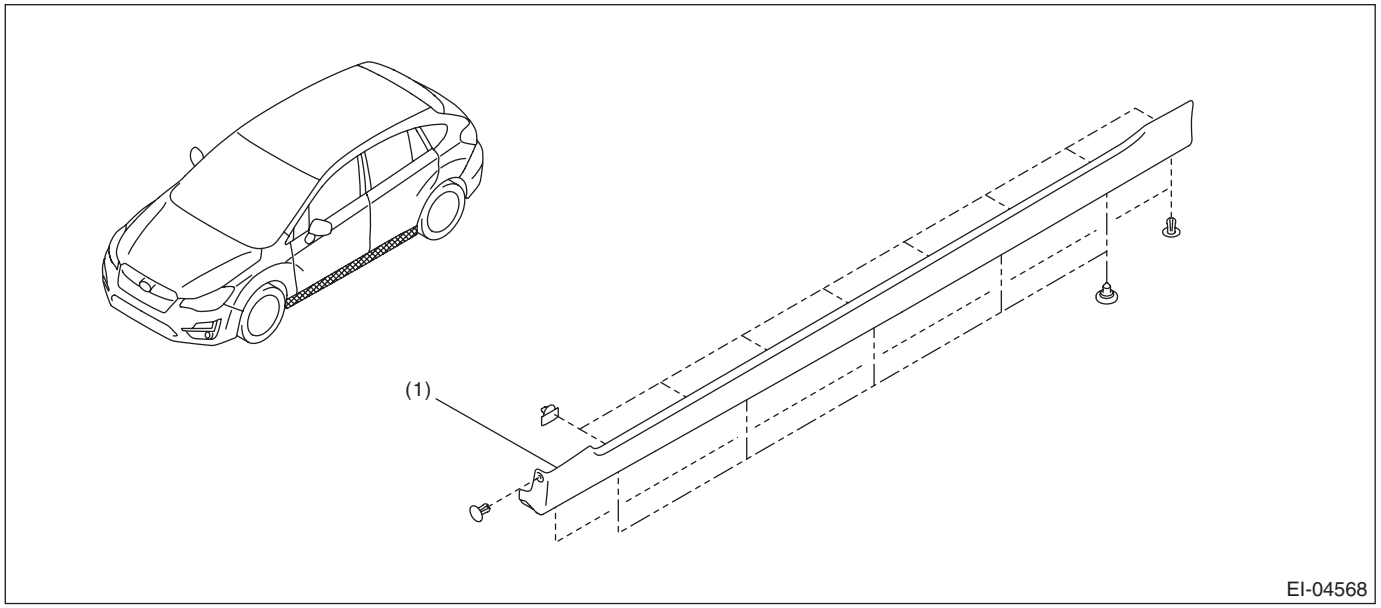
***Tightening torque:***
***Arm assembly - windshield wiper: <Ref. to WW-2, FRONT WIPER, COMPONENT, General Description.>***

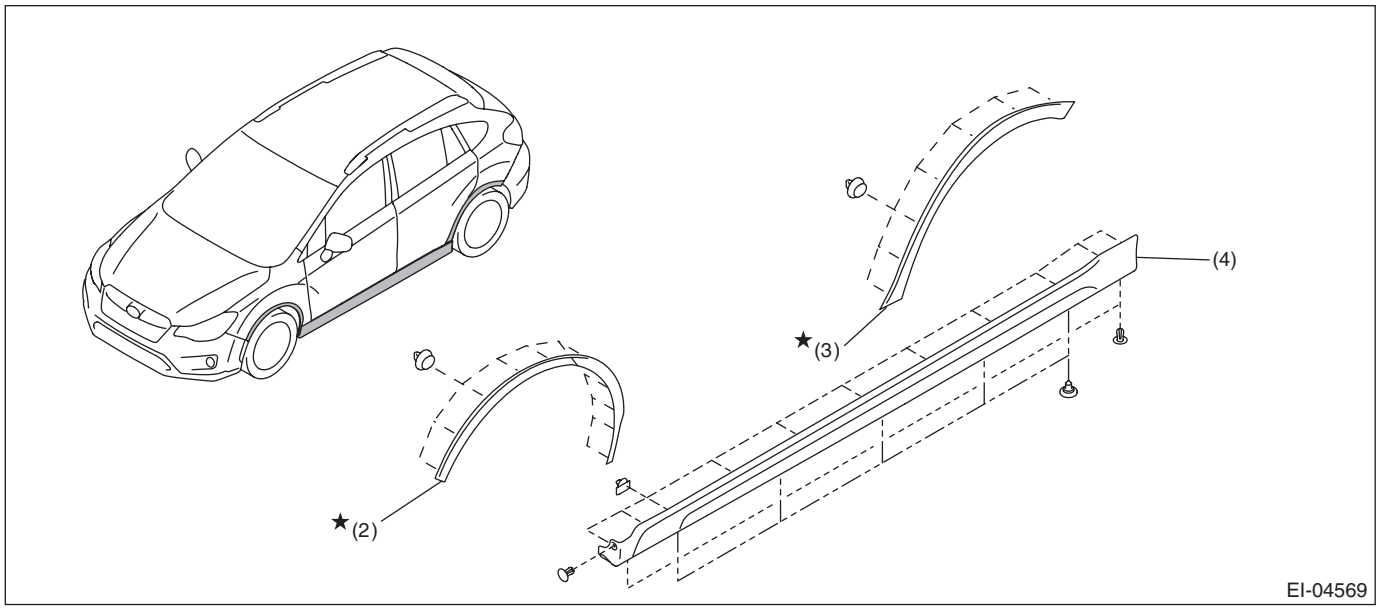
4) If the washer nozzles have been removed from the cowl panel assembly, adjust the washer spray positions. <Ref. to WW-42, ADJUSTMENT, Front Washer Nozzle.>

# 10.Side Garnish

## A: REMOVAL

Remove the clips and detach the side garnish assembly.




(1) Garnish ASSY - side sill (except for XV model)
(2) Garnish ASSY - fender (XV model)
(3) Garnish ASSY - rear quarter (XV model)
(4) Garnish ASSY - side sill (XV model)

## B: INSTALLATION

**CAUTION:**
**Do not reuse the garnish assembly. Deformation occurs on the garnish assembly when once removed, and this may cause improper adhesion.**

1) Install each part in the reverse order of removal.
2) For XV model, install the garnish assembly - fender and the garnish assembly - rear quarter.
   (1) Remove the double-sided tape remaining on the vehicle body, then clean the adhesive surface.

**CAUTION:**
**If even a slight amount of double-sided tape remains on the adhesive surface, it may lead to improper adhesion.**

   (2) Heat the vehicle body and the garnish for 1 — 3 minutes using a heat light or a drier.

**CAUTION:**
**Be careful not to burn yourself.**

   (3) Apply primer to the installation surfaces of garnish, and wait till the primer dries.
   (4) Attach new double-sided tape on garnish.
   (5) Apply primer to the garnish installation surface on the vehicle body side, and wait till the primer dries.
   (6) Peel off the backing papers, engage the clips, and adhere the garnish assembly to the vehicle body.

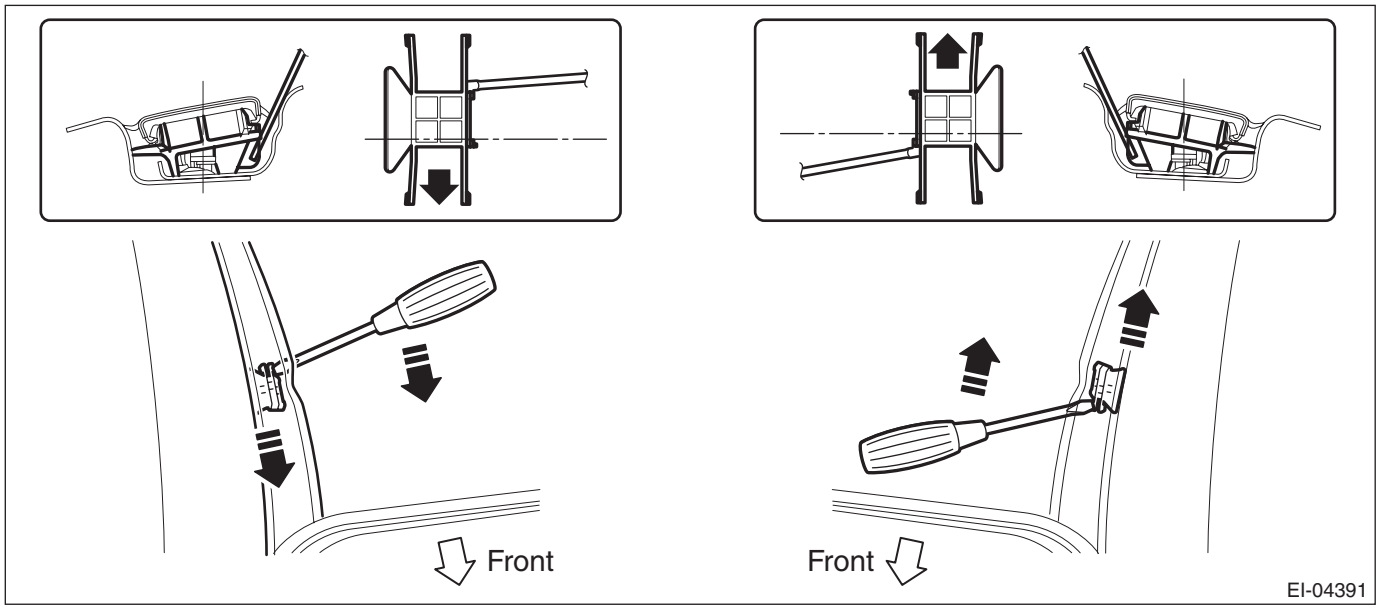
**CAUTION:**
**Press-fit the garnish assembly to adhere securely.**

# 11.Roof Molding

## A: REMOVAL

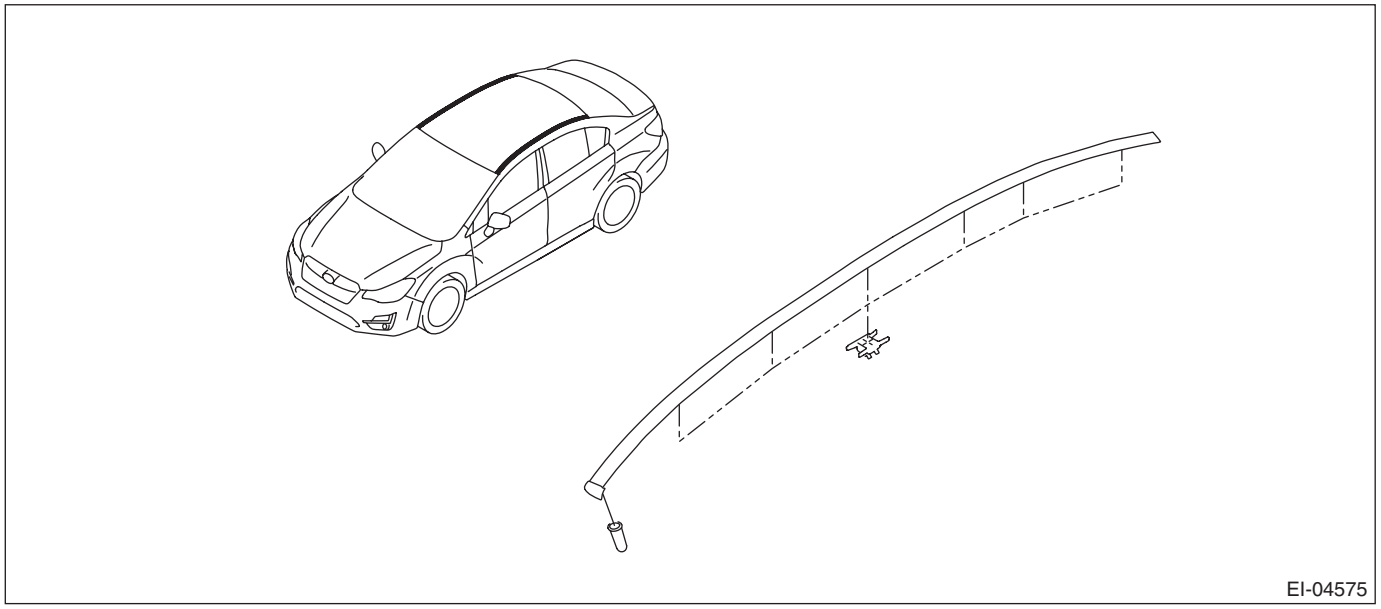
**CAUTION:**
**Be careful not to damage the body.**

1) Remove the roof rail assembly. (model with roof rail) <Ref. to EI-69, REMOVAL, Roof Rail.>
2) Turn over the front end of the molding - roof.
3) Slide the inner fastener in the direction of the arrow using a flat tip screwdriver, then remove the fastener from the stud on the vehicle side.

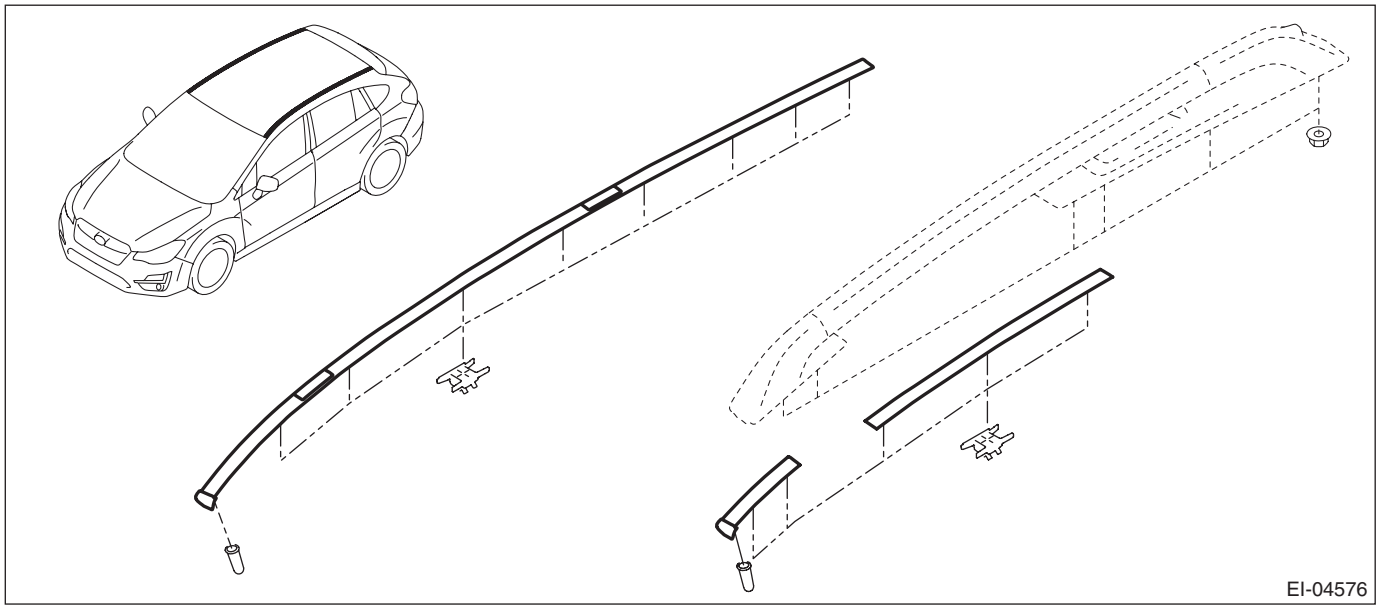



Right side: Slide towards the front of the vehicle.
Left side: Slide towards the rear of the vehicle.

- 4 door model: 6 locations per side



- 5 door model/XV model
  - Model without roof rail: 8 locations per side
  - Model with roof rail: 5 locations per side

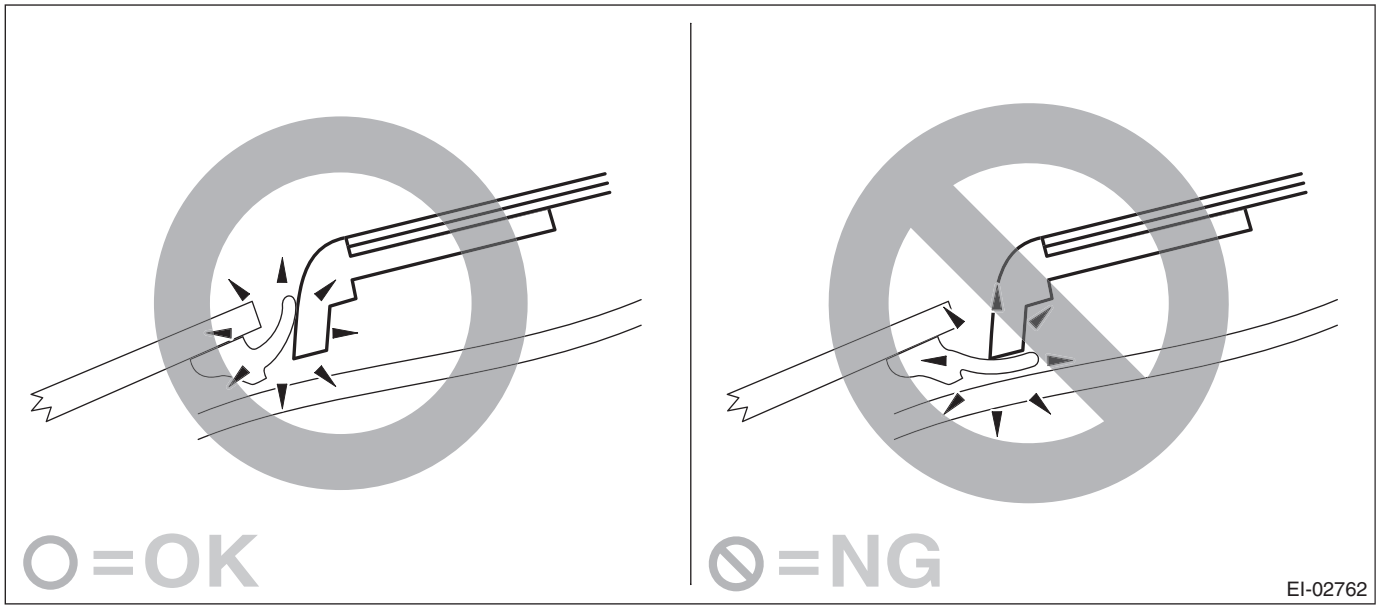



4) Pull up the molding - roof, and remove from the vehicle.

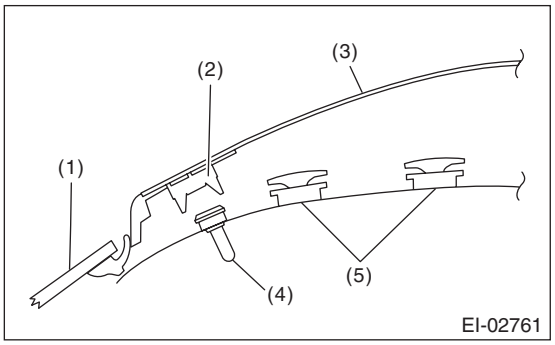
## B: INSTALLATION

1) Remove the clips from the molding - roof, and attach to the studs on the vehicle.

**CAUTION:**
- **Always replace the clips that were damaged during removal of the molding - roof with new parts.**
- **While installing the molding - roof, be careful not to catch the glass molding with the tip of the front side and rear side.**




2) Push the front end of the molding - roof against the front window, and attach the forward positioning clip onto the rivet on the body.




(1) Windshield
(2) Positioning clip
(3) Molding - roof
(4) Rivet
(5) Clip

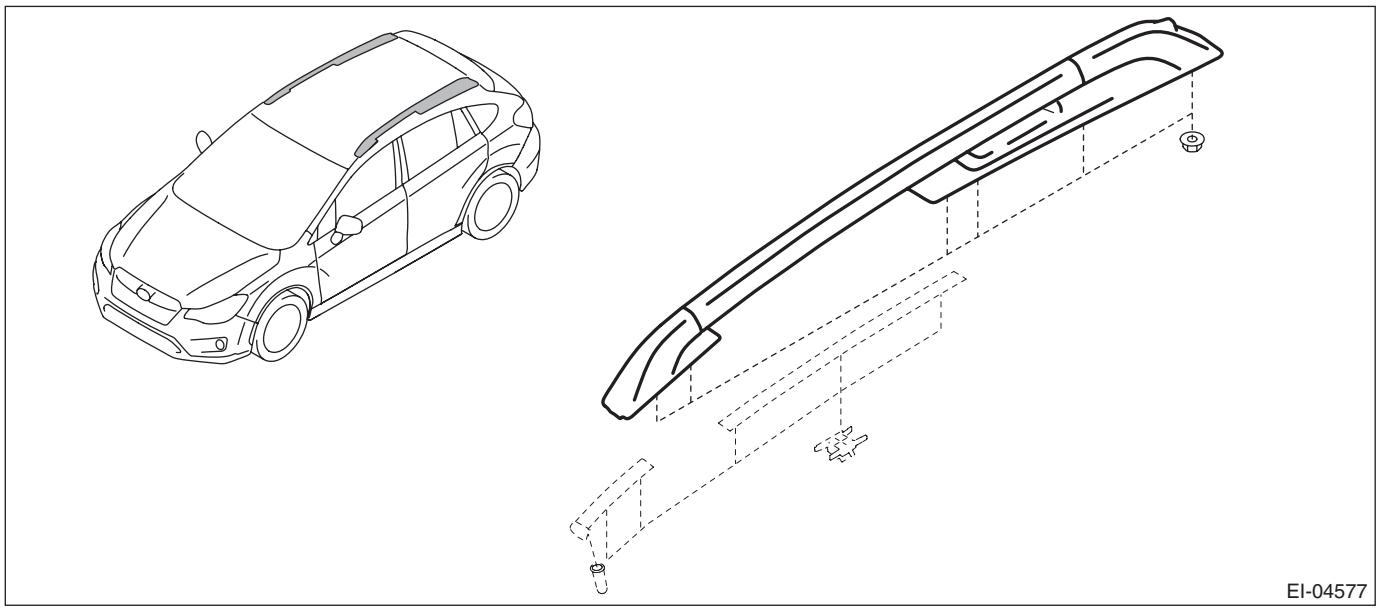
3) While pushing down the molding - roof from above, connect the molding - roof and the clip.

# 12.Roof Rail

## A: REMOVAL

1) Remove the trim panel - roof. <Ref. to EI-139, 5 DOOR MODEL/XV MODEL, REMOVAL, Roof Trim.>
2) Remove the curtain airbag module. <Ref. to AB-63, 5 DOOR MODEL/XV MODEL, REMOVAL, Curtain Airbag Module.>

**CAUTION:**
**• Before handling the airbag module, refer to "CAUTION" of "General Description" in "AIRBAG SYSTEM". <Ref. to AB-10, CAUTION, General Description.>**
**• Be careful not to damage the curtain airbag module during removal.**
3) Remove the six installing nuts.




## B: INSTALLATION

**CAUTION:**
**When removing or installing the roof rail, be careful not to scratch the body panel with the stud bolt of roof rail.**
Install each part in the reverse order of removal.

***Tightening torque:***
***7.5 N·m (0.76 kgf-m, 5.5 ft-lb)***

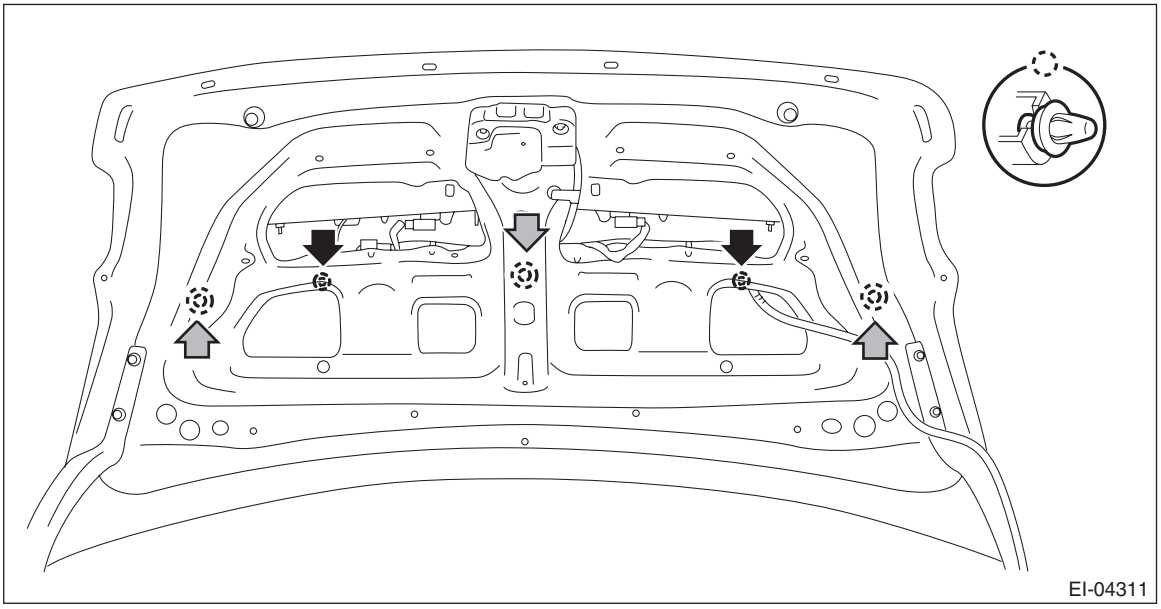
# 13.Rear Spoiler

## A: REMOVAL

1) Remove the trim panel - trunk lid. <Ref. to EI-125, REMOVAL, Trunk Room Trim.>
2) Detach the rear spoiler assembly.

**CAUTION:**
- **When removing the nut, be careful not to drop the nut inside the trunk lid panel.**
- **Be careful not to damage the vehicle body during removal and installation.**
- **For model with the large rear spoiler, the reactive force of trunk lid increases when the rear spoiler is removed.**

(1) Remove the nuts.
(2) Disengage the clips and remove the rear spoiler assembly.




## B: INSTALLATION

1) Clean the trunk lid and spoiler attachment surface before installation.

**CAUTION:**
**Make sure that there is a gasket attached on the clip of the rear spoiler assembly. If a gasket is not attached, water leakage may occur.**
2) Install the rear spoiler assembly.

***Tightening torque:***
***4.5 N·m (0.46 kgf-m, 3.3 ft-lb)***

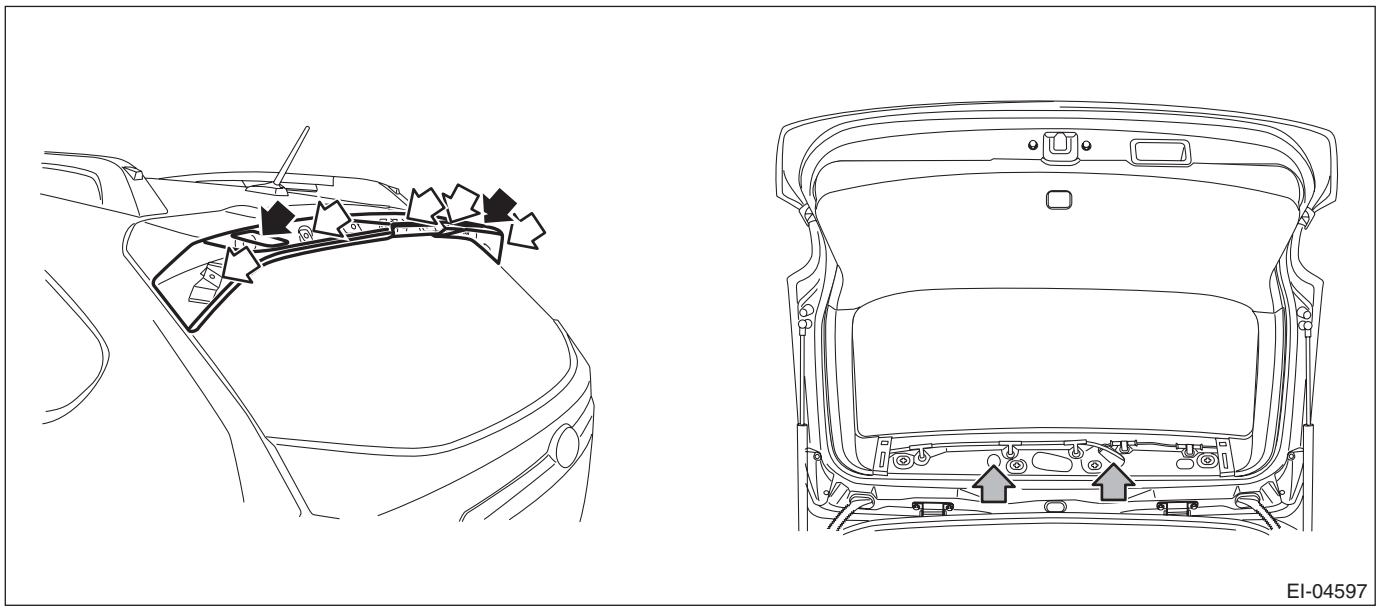
# 14.Roof Spoiler

## A: REMOVAL

1) Disconnect the ground cable from battery. <Ref. to NT-5, BATTERY, NOTE, Note.>

NOTE:
For the 12 volt engine restart battery of HEV model, disconnect the ground terminal from 12V engine restart battery sensor.

2) Remove the trim panel - rear gate UPR. <Ref. to EI-158, REMOVAL, Rear Gate Trim.>
3) Remove the roof spoiler assembly.
   (1) Disconnect the connector of high-mounted stop light.
   (2) Remove the caps, and remove the bolts.
   (3) Remove the nuts.
   (4) Remove the nuts, and then remove the roof spoiler assembly.




## B: INSTALLATION

**CAUTION:**
**• Make sure that packings are attached on the clips of the roof spoiler assembly. If a gasket is not attached, water leakage may occur.**
**• Make sure the bolt is tightened securely because improper installation may cause the water leakage.**

1) Install the roof spoiler assembly.

***Tightening torque:***
***7.5 N·m (0.76 kgf-m, 5.5 ft-lb)***

2) Connect the connector of high-mounted stop light.
3) Install the trim panel - rear gate UPR. <Ref. to EI-159, INSTALLATION, Rear Gate Trim.>
4) Connect the ground terminal to battery sensor. <Ref. to NT-5, BATTERY, NOTE, Note.>

# 15.Door Trim

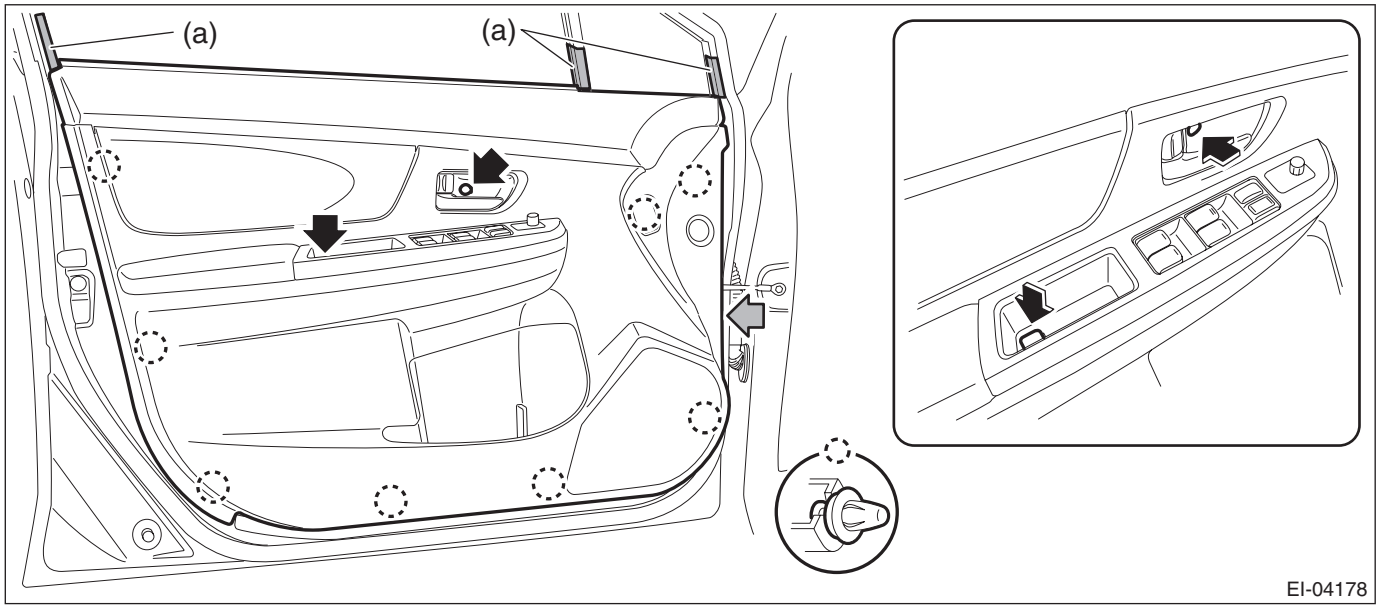
## A: REMOVAL

### 1. FRONT DOOR

1) Disconnect the ground cable from battery. <Ref. to NT-5, BATTERY, NOTE, Note.>

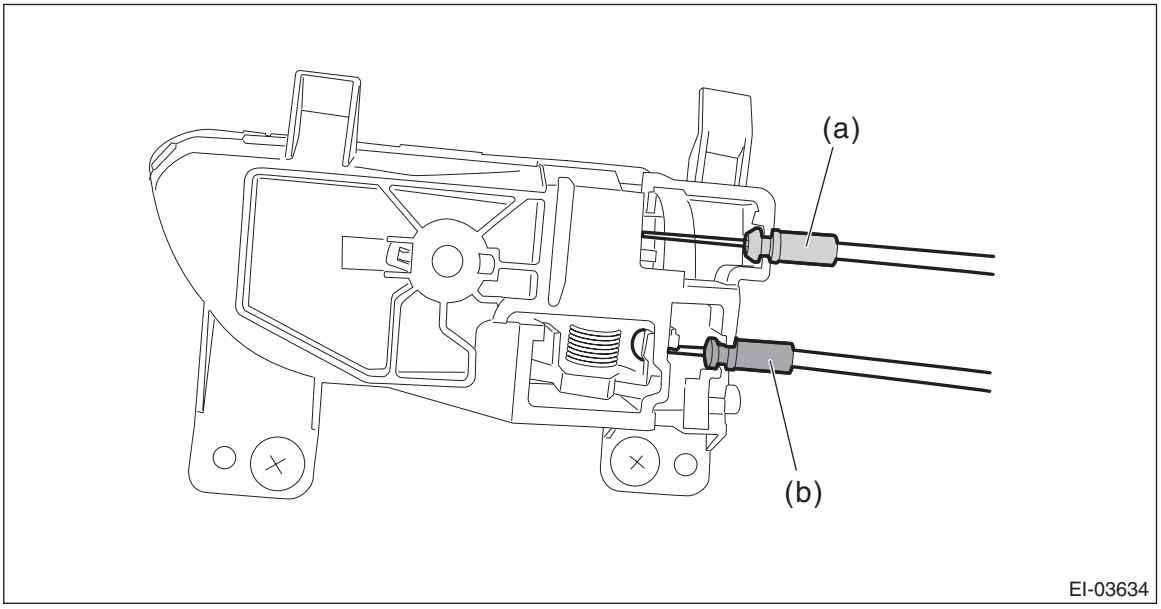
NOTE:
For the 12 volt engine restart battery of HEV model, disconnect the ground terminal from 12V engine restart battery sensor.

2) Remove the trim panel - front door.
   (1) Attach the protective tape (a).
   (2) Open the cover and remove the screw.
   (3) Remove the clips, and remove the trim panel - front door from the panel assembly - front door.




NOTE:
It is easier to remove the door trim if the removal is performed from the gray arrow section.

   (4) Detach the door lock cable (a) and door open cable (b) from the remote assembly - door.




   (5) Disconnect the harness connector and remove the trim panel - front door.

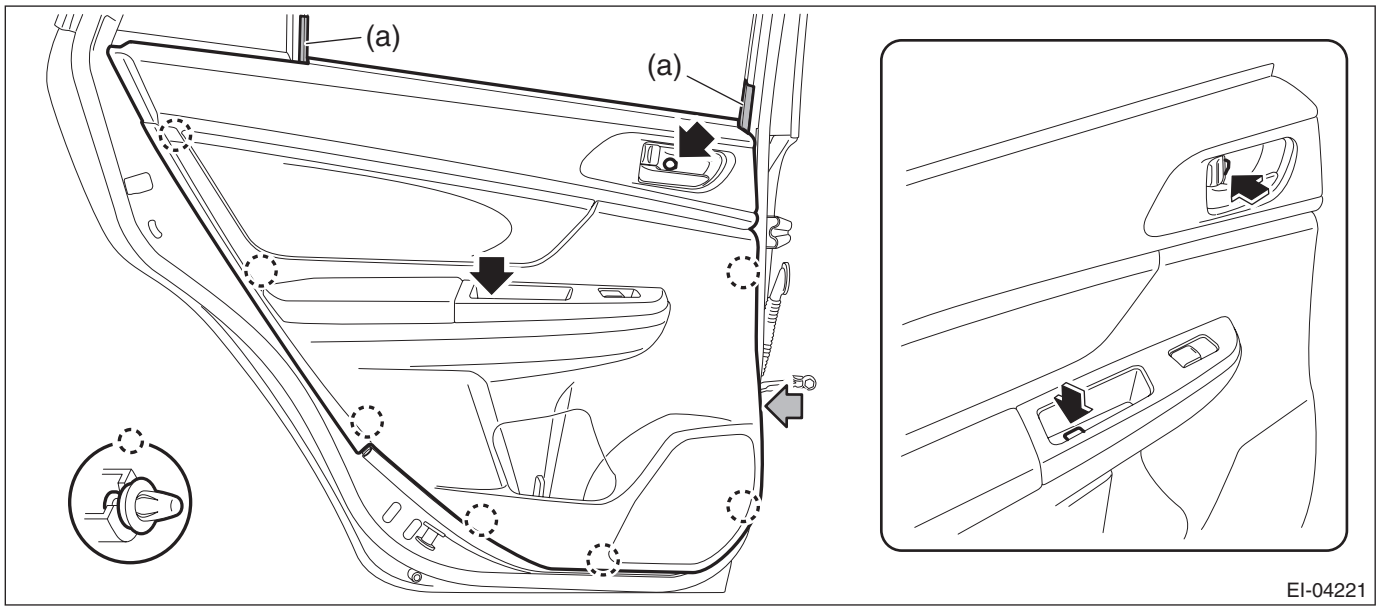
3) Remove each part as required.
- Remote assembly - door: <Ref. to SL-39, REMOVAL, Front Inner Remote.>
- Switch - power window main: <Ref. to GW-12, MAIN SWITCH, REMOVAL, Power Window Control Switch.>
- Weather strip - door INN: <Ref. to EI-74, DISASSEMBLY, Door Trim.>

## 2. REAR DOOR

1) Disconnect the ground cable from battery. <Ref. to NT-5, BATTERY, NOTE, Note.>

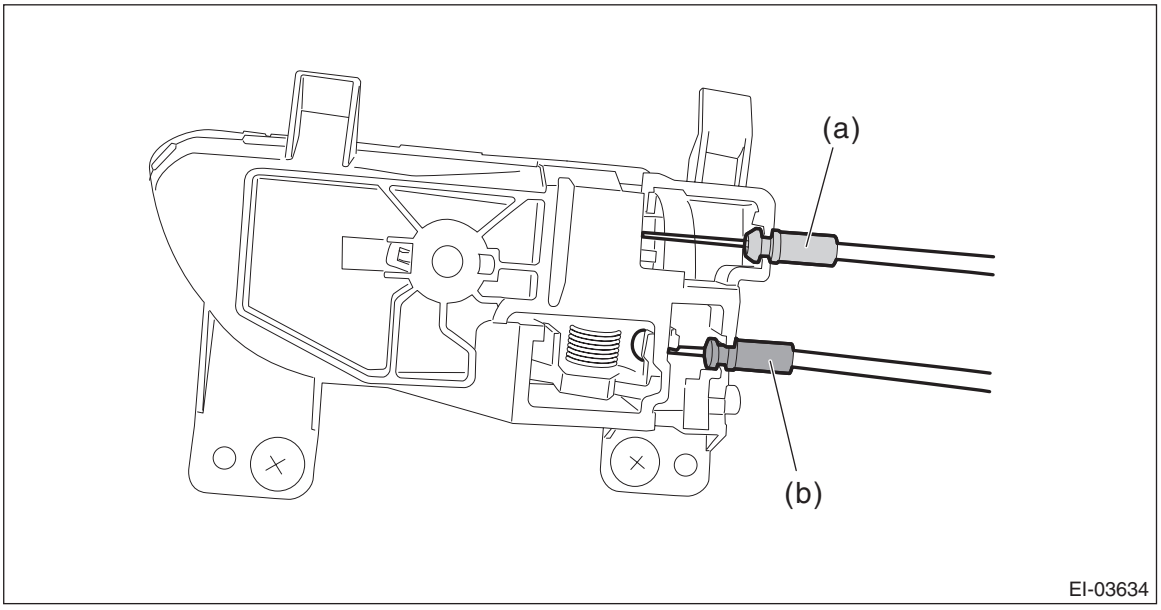
NOTE:
For the 12 volt engine restart battery of HEV model, disconnect the ground terminal from 12V engine restart battery sensor.

2) Remove the trim panel - rear door.
   (1) Attach the protective tape (a).
   (2) Open the cover and remove the screw.
   (3) Remove the clips, and remove the trim panel - rear door from the panel assembly - rear door.




NOTE:
It is easier to remove the door trim if the removal is performed from the gray arrow section.

   (4) Detach the door lock cable (a) and door open cable (b) from the remote assembly - door.



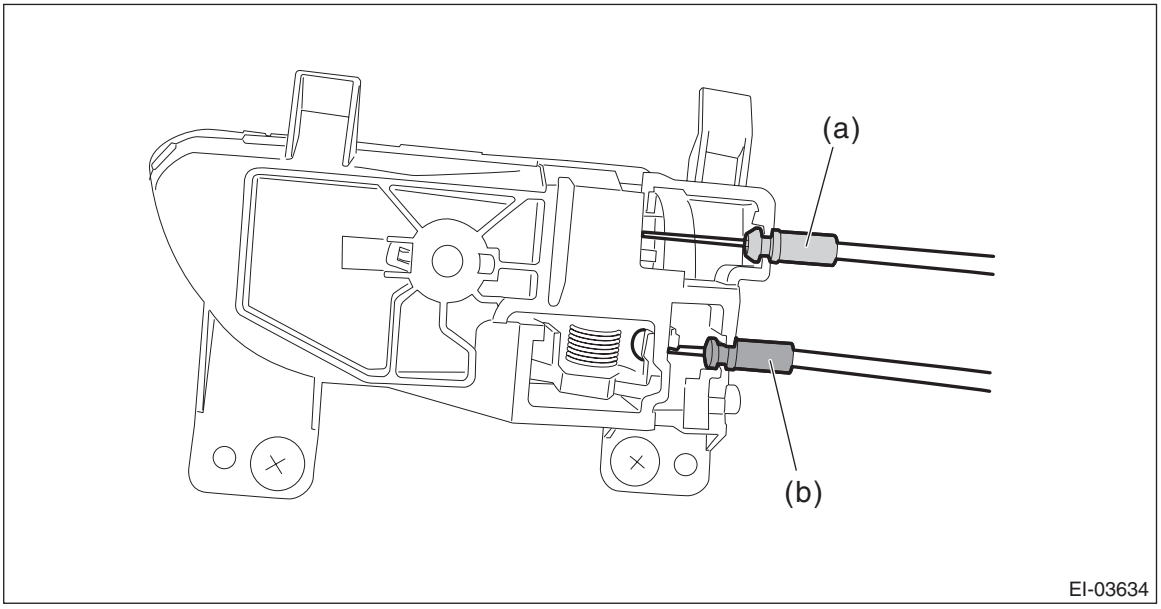

   (5) Disconnect the harness connector and remove the trim panel - rear door.

3) Remove each part as required.
- Remote assembly - door: <Ref. to SL-47, REMOVAL, Rear Inner Remote.>
- Switch - power window sub: <Ref. to GW-13, SUB-SWITCH, REMOVAL, Power Window Control Switch.>
- Weather strip - door INN: <Ref. to EI-74, DISASSEMBLY, Door Trim.>

## B: INSTALLATION

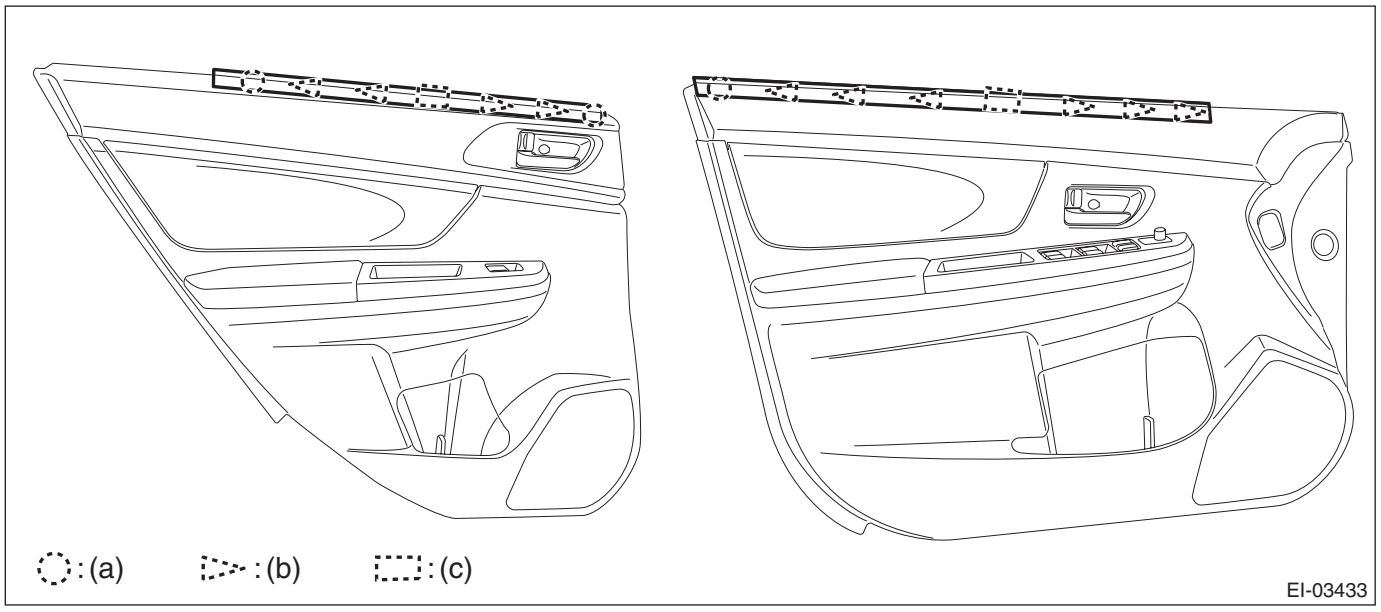
Install each part in the reverse order of removal.

NOTE:
Attach the door lock cable (a - end ball: small) to the upper side, and attach the door open cable (b - end ball: large) to the lower side.




## C: DISASSEMBLY

1) Remove the door trim.
2) Remove the rivets and claws, and remove the weather strip - door INN from the door trim.




(a) Rivet (b) Claw (c) Claw

NOTE:
Remove the rivets by using the rivet cutter or nippers.

## D: ASSEMBLY

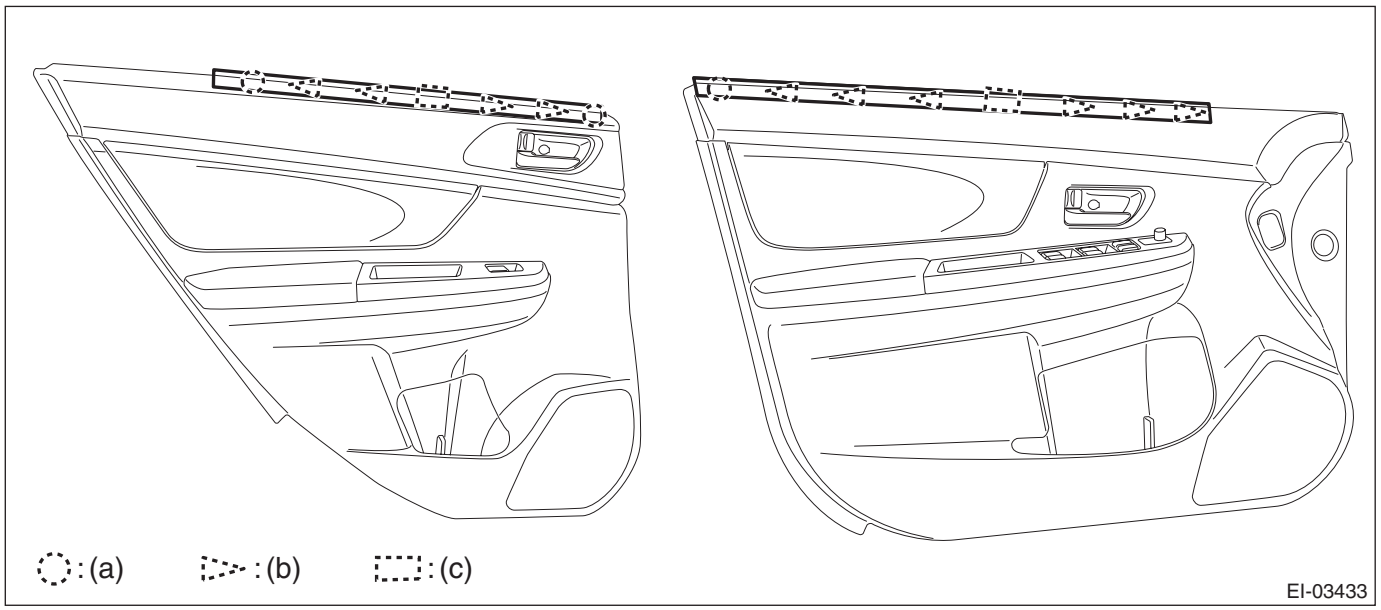
1) Bend the claws while pushing the weather strip - door INN against the door trim.

**CAUTION:**
**Be careful of the bending direction of the claws.**

2) Install the rivet.

**CAUTION:**
**The height of the crimped rivet must be 3 mm (0.12 in). Squash the rivets with the pliers if the crimping is not enough, because the rivet may interference with the door trim.**

***PREPARATION TOOL & REQUIRED MATERIALS:***
***Hand riveter (ϕ3.2 mm (0.13 in) compliant)***
***Rivet***




(a) Rivet
(b) Claw bending direction
(c) Claw bending direction: bend forward for LH side, backward for RH side.

3) After installing the weather strip - door INN, perform the following checks.
- Make sure there are no gaps between the weather strip - door INN and the door trim.
- Make sure there are no looseness when pulling the weather strip - door INN lightly.

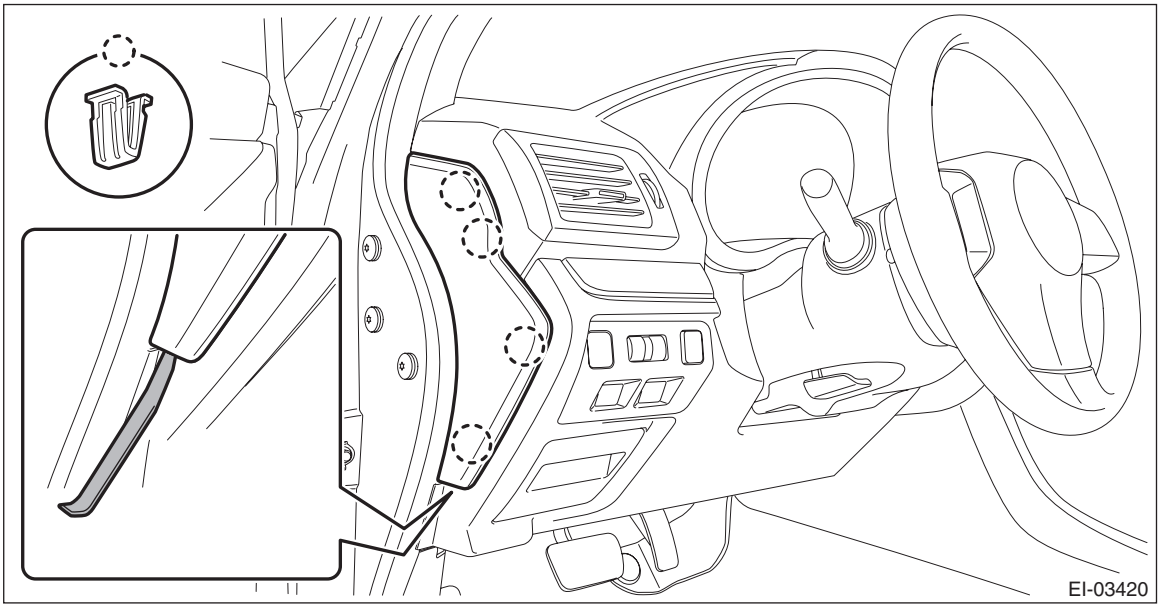
# 16.Instrument Panel Lower Cover

## A: REMOVAL

1) Disconnect the ground cable from battery and wait for at least 60 seconds before starting work. <Ref. to NT-5, BATTERY, NOTE, Note.>

NOTE:
For the 12 volt engine restart battery of HEV model, disconnect the ground terminal from 12V engine restart battery sensor.

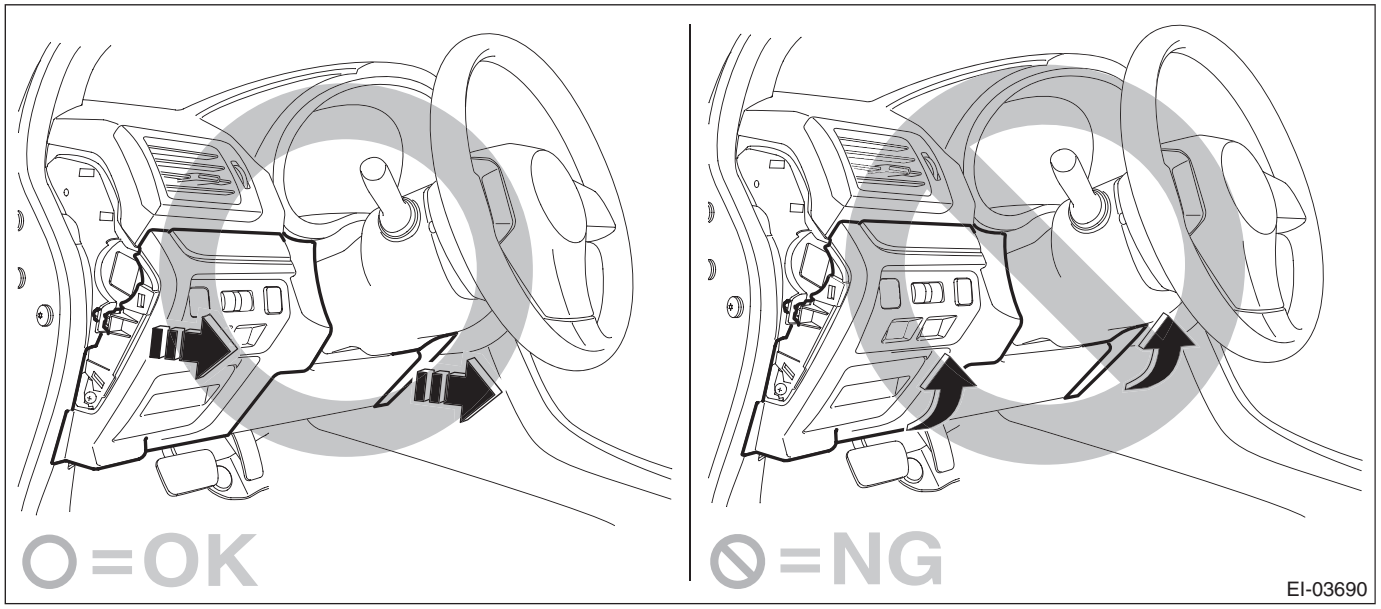
2) Remove the clips, and remove the cover - instrument panel side LH.




NOTE:
Using a plastic remover, open the cover - instrument panel side LH.

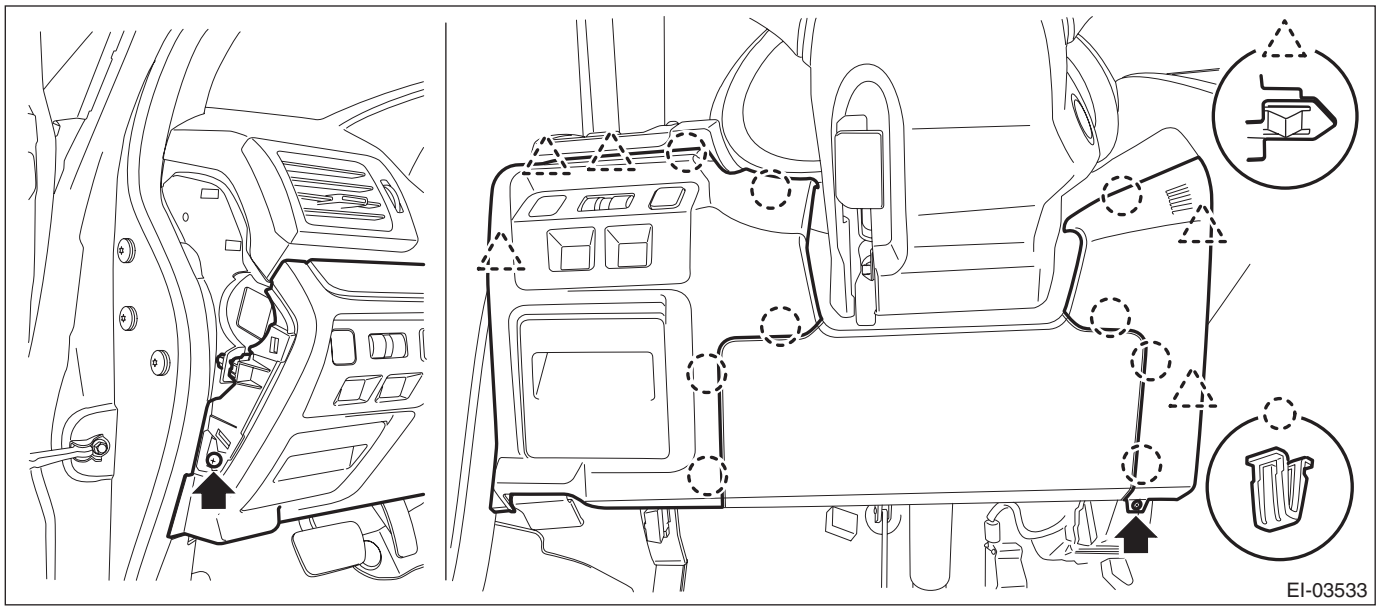
3) Remove the cover assembly - instrument panel LWR driver INN and OUT.

**CAUTION:**
**When removing the cover assembly - instrument panel LWR driver, be sure to pull it toward you. If attempting to remove by turning it upward, the claws may be damaged.**




(1) Remove the screws and release the clips and claws.

(2) Disconnect the harness connectors, and remove the cover assembly - instrument panel LWR driver INN and OUT.




## B: INSTALLATION

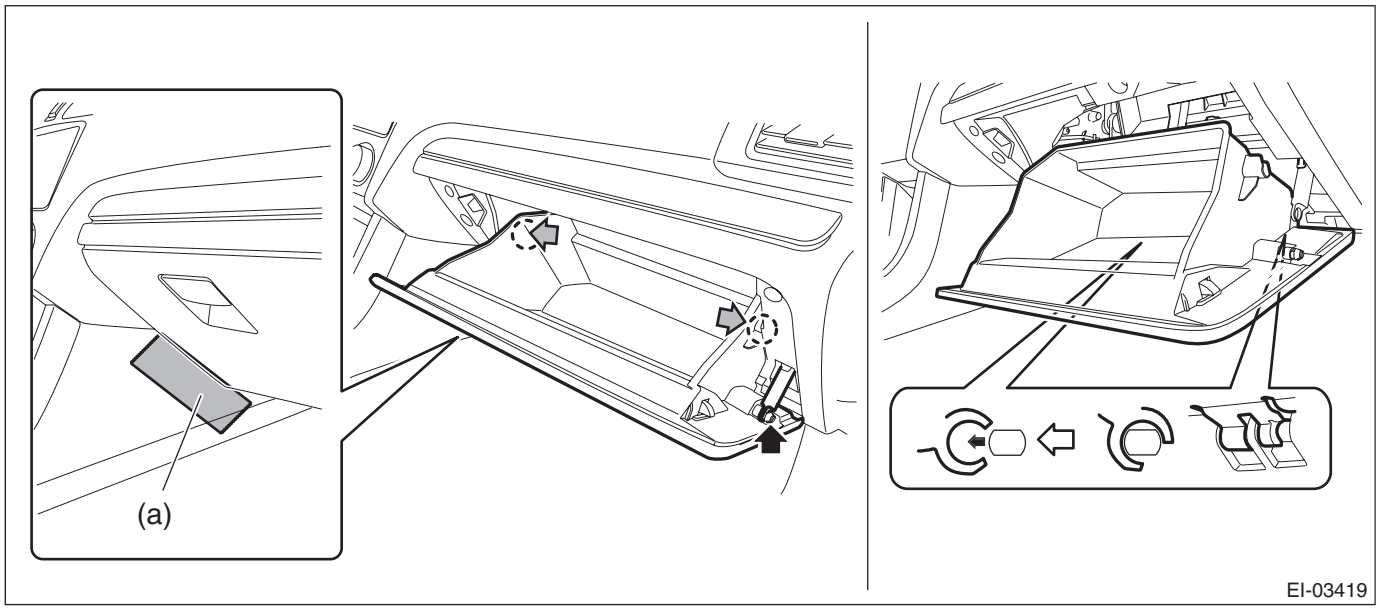
Install each part in the reverse order of removal.

# 17.Glove Box

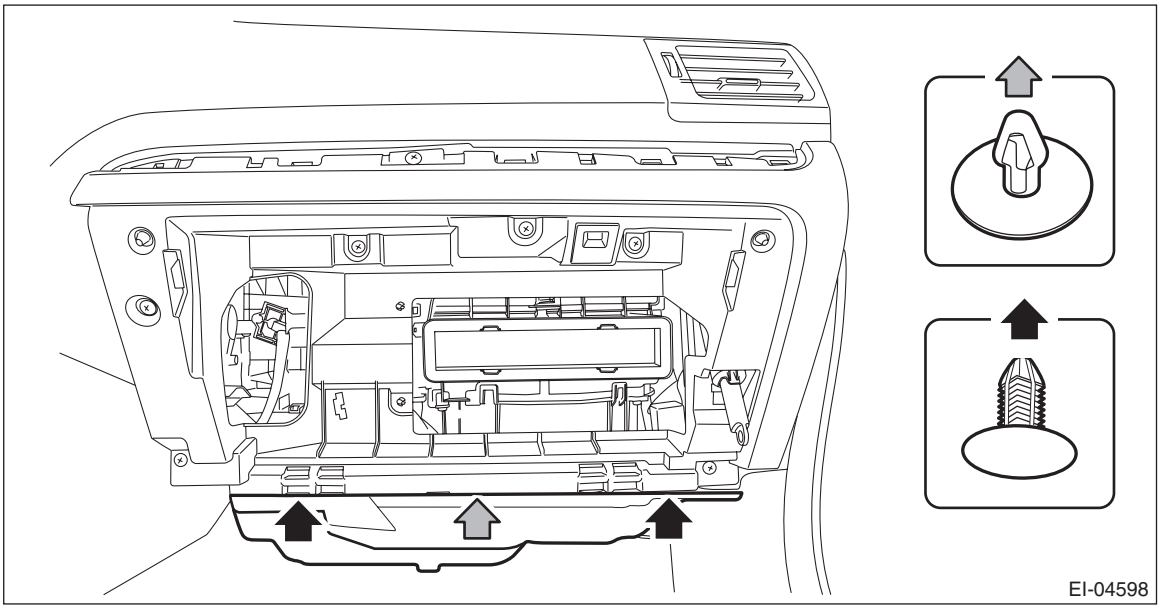
## A: REMOVAL

NOTE:
Refer to “Security and Locks” section for key cylinder replacement. <Ref. to SL-79, GLOVE BOX LID, REPLACEMENT, Key Lock Cylinders.>

1) Remove the pocket assembly.
   (1) Attach the protective tape (a) to the panel center LWR.
   (2) Remove the damper COMPL - pocket.
   (3) Release the stoppers and remove the pocket assembly by pulling it toward you.



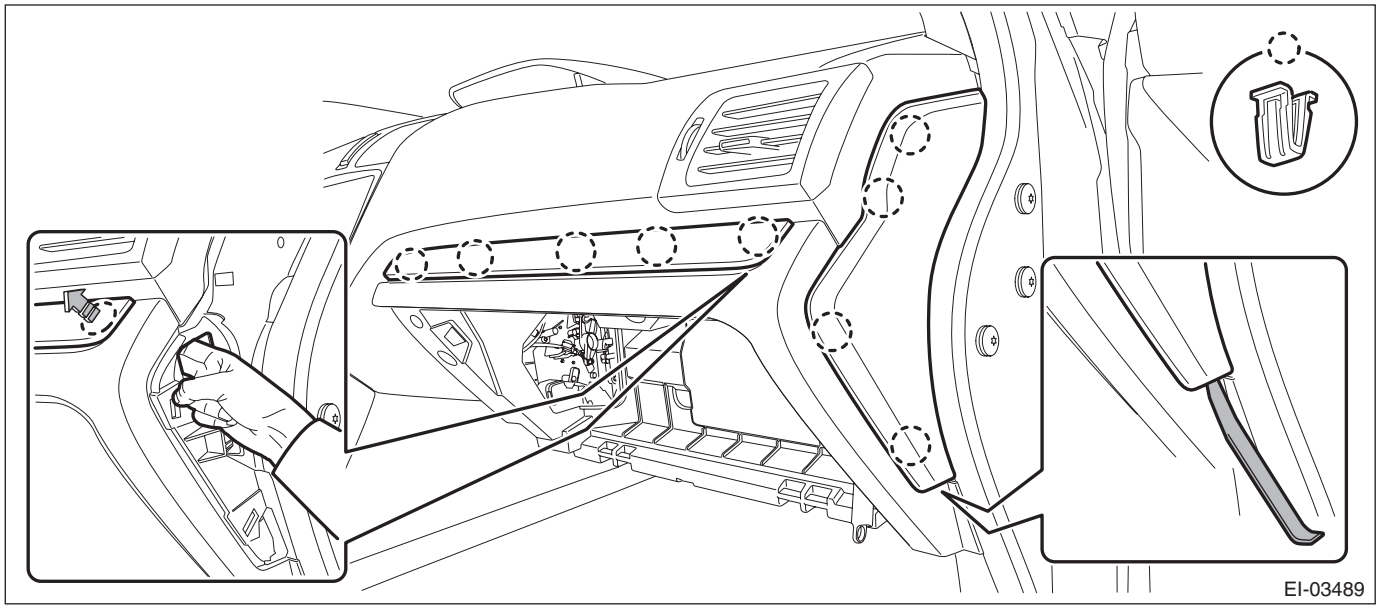

2) Remove the back panel - pocket.
   (1) Release the clips, and remove the under cover assembly - passenger.




   (2) Remove the clips, and remove the cover - instrument panel side RH.

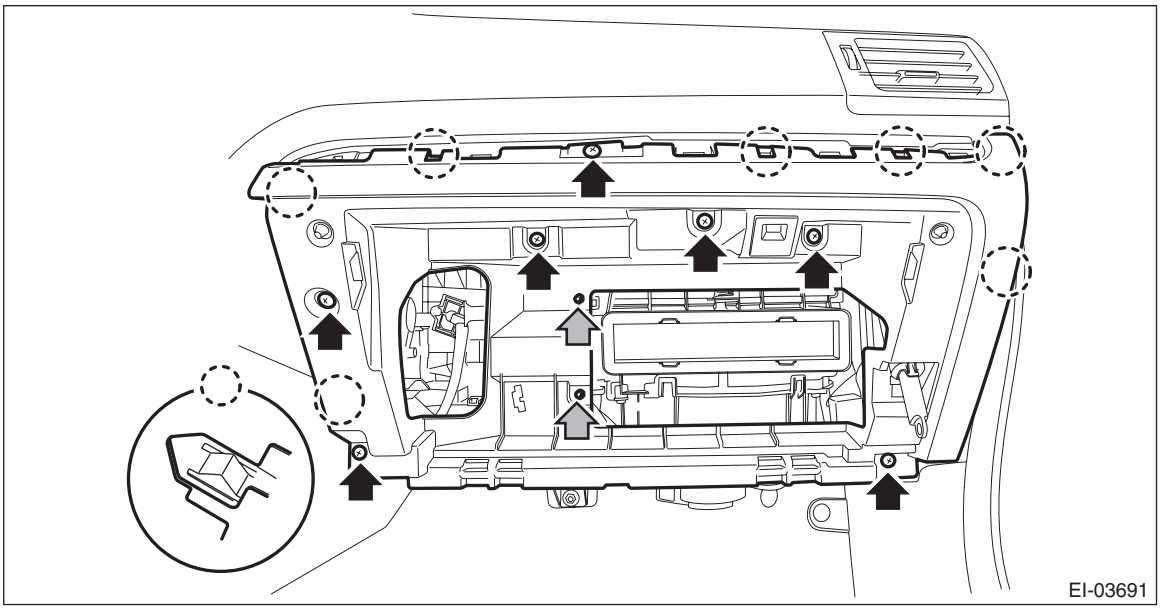
NOTE:
Remove the cover - instrument panel side RH by using a plastic remover.

(3) Release the clips, and remove the ornament - panel assembly passenger.




NOTE:
To facilitate the removal, push the clip of the ornament - panel assembly passenger from the backside.

(4) Remove the screws, claws and harness clamp, then remove the back panel - pocket.




(5) Disconnect the glove box light LED connector.

## B: INSTALLATION

Install each part in the reverse order of removal.

# 18.Center Console

## A: REMOVAL

1) Remove the center grille assembly. <Ref. to AC-104, REMOVAL, Air Vent Grille.>
2) Remove the audio assembly or navigation assembly. <Ref. to ET-12, REMOVAL, Audio.>

## B: INSTALLATION

**CAUTION:**
**After installing the panel center assembly, check that the air vent grille of the panel center assembly is inserted correctly into the air vent duct.**
Install each part in the reverse order of removal.

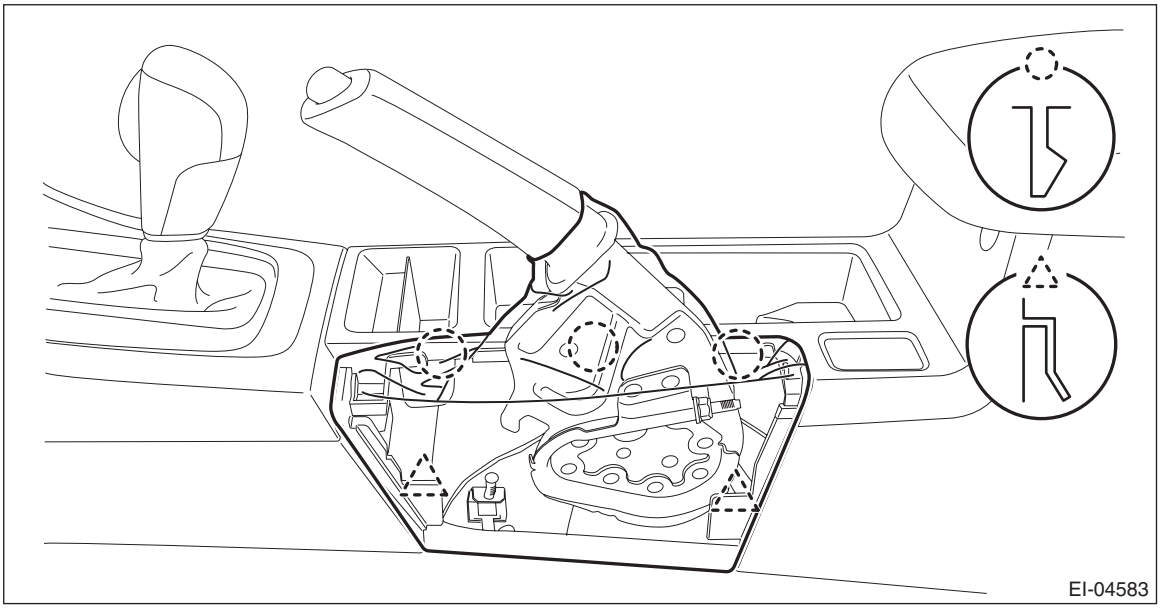
# 19.Console Box

## A: REMOVAL

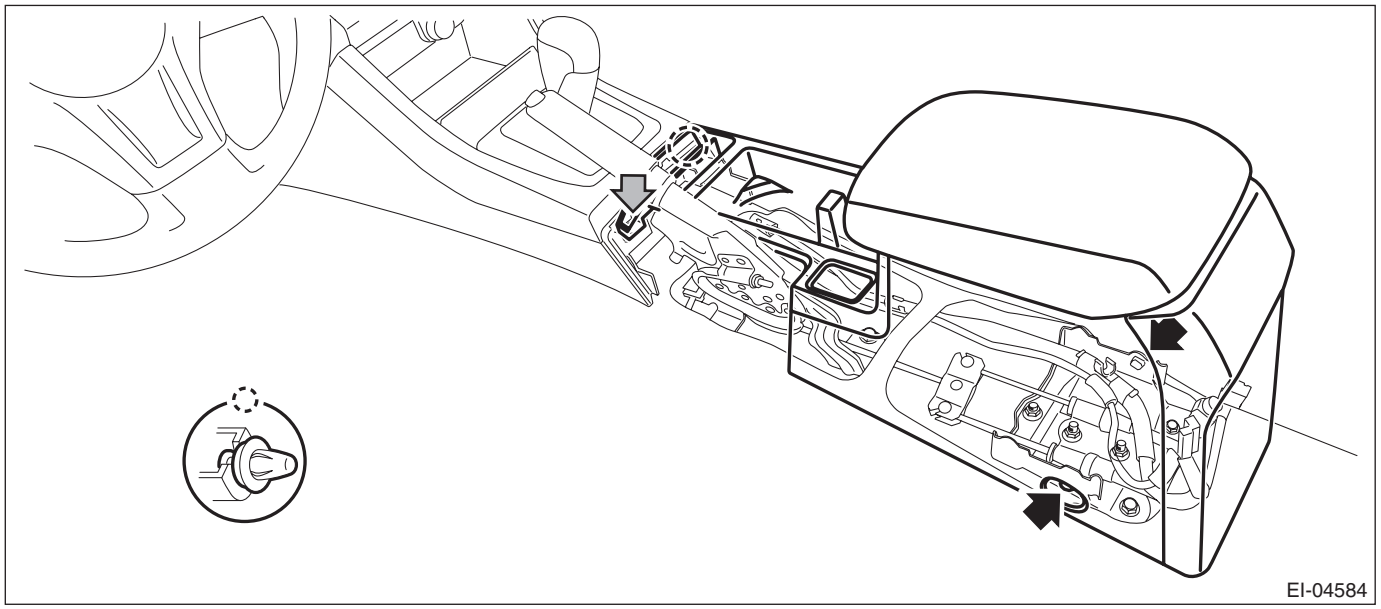
1) Disconnect the ground cable from battery. <Ref. to NT-5, BATTERY, NOTE, Note.>

NOTE:
• For the 12 volt engine restart battery of HEV model, disconnect the ground terminal from 12V engine restart battery sensor.
• On CVT models, shift the select lever into “D” before disconnecting the battery ground cable.

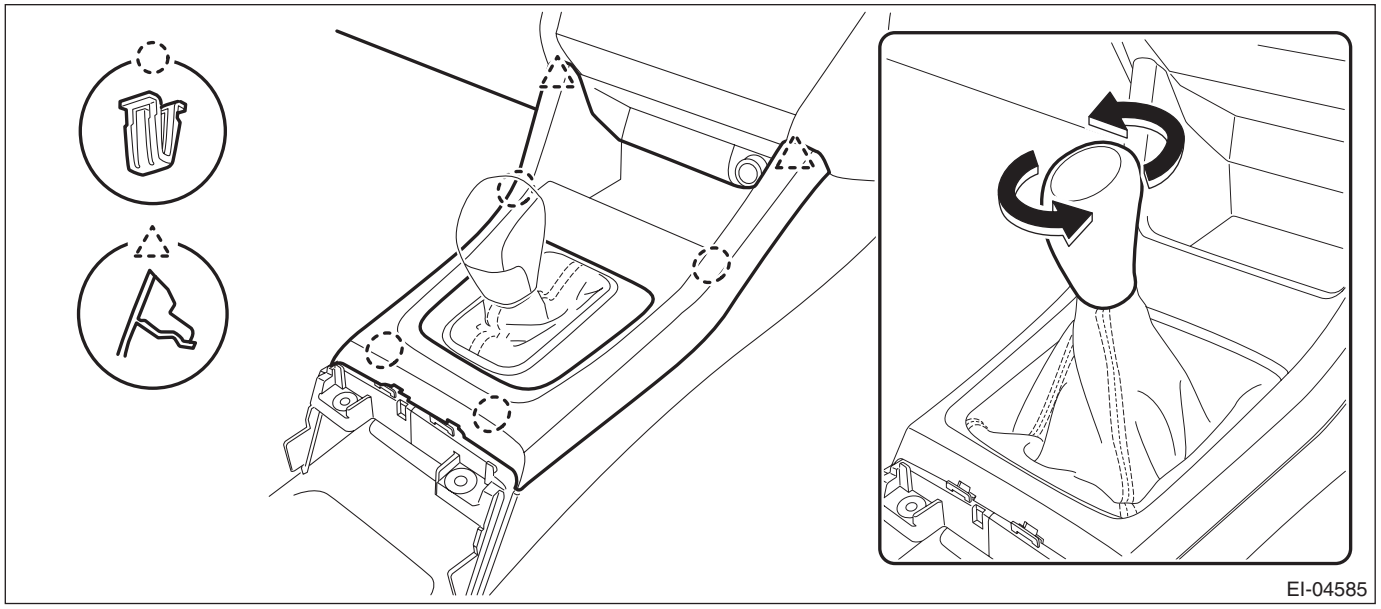
2) Remove the console box assembly.
(1) Release the claws, and then remove the boot - hand brake.



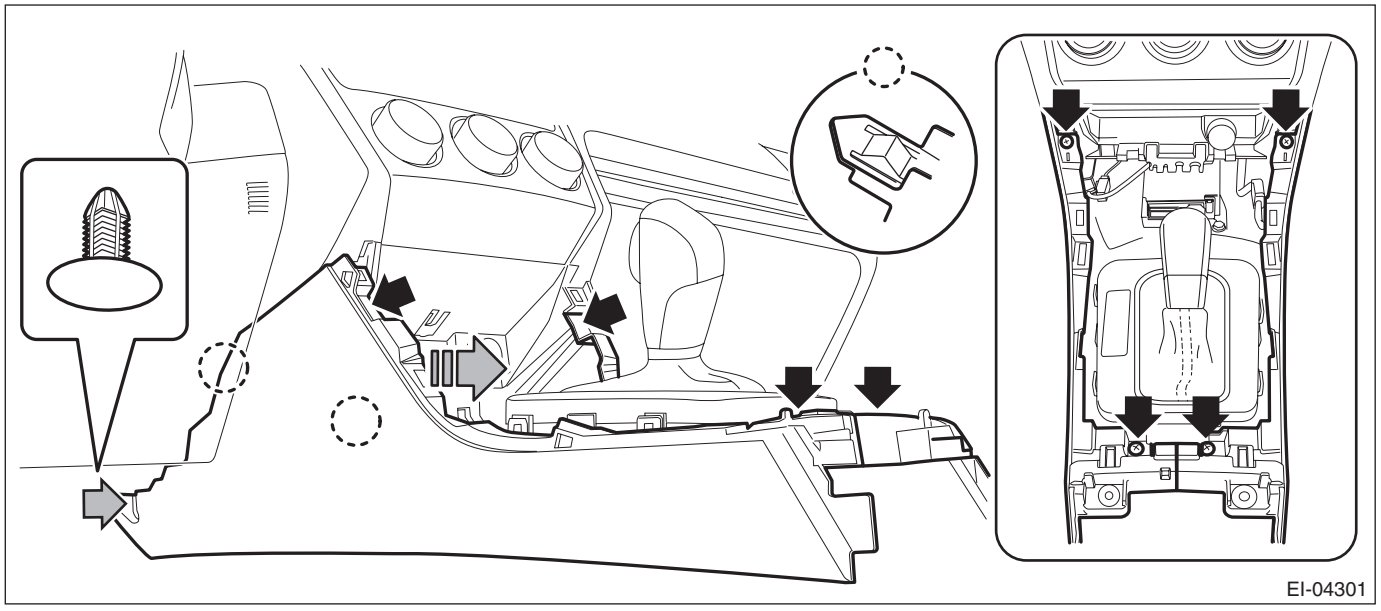

(2) Move the seat forward, and remove the bolts after detaching the left and right caps.
(3) Remove the screws and clips, disconnect the harness connector and remove the console box assembly.



3) Remove the cover - shift lever.
   (1) Remove the shift knob. (MT model)
   (2) Release the clips and claws, then pull up the cover - shift lever.


EI-04585

4) Remove the left and right panel center LWR.
   (1) Remove the screws and clips.
   (2) Release the claws, and then pull the panel center LWR to remove.


EI-04301

## B: INSTALLATION

Install each part in the reverse order of removal.

***Tightening torque:***
***6.5 N·m (0.66 kgf-m, 4.8 ft-lb)***

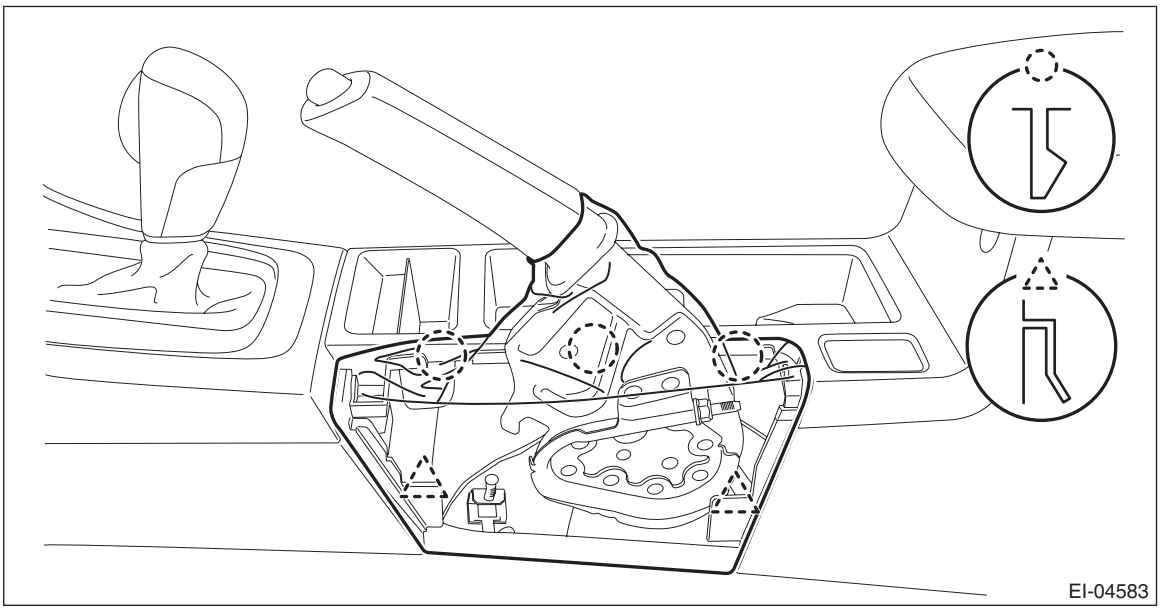
# 20.Instrument Panel Assembly

## A: REMOVAL

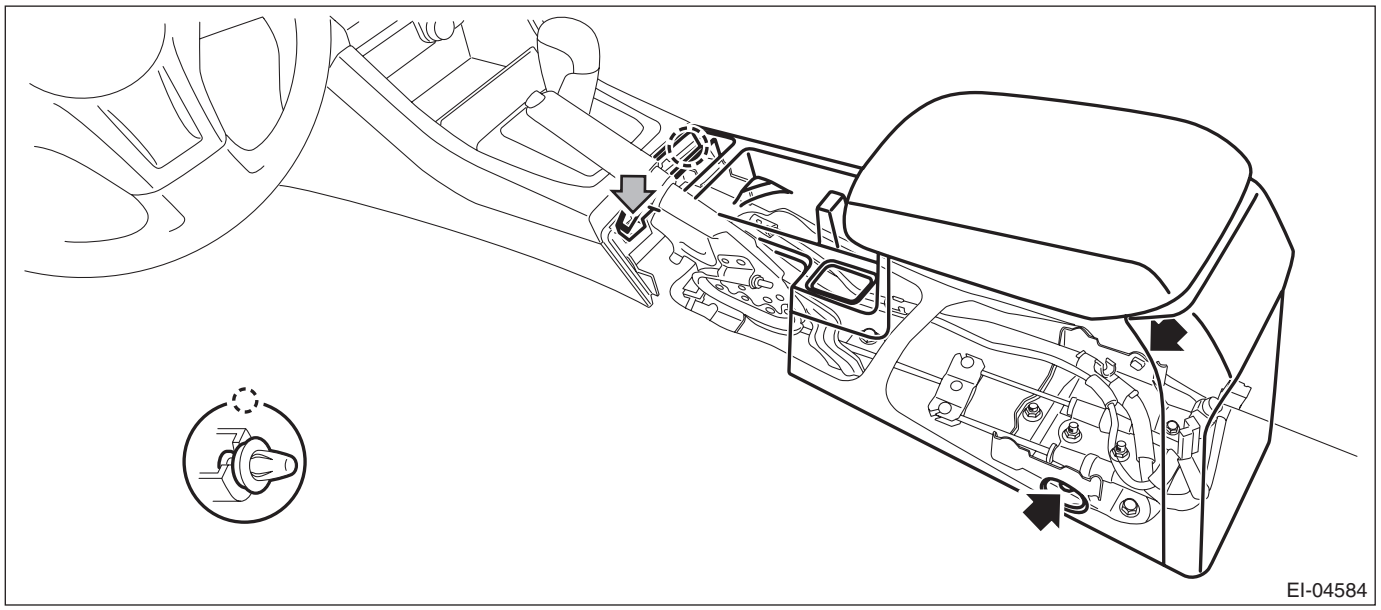
**CAUTION:**
**Be careful not to damage the airbag system harness when servicing the instrument panel. Damage may cause the system to malfunction.**

NOTE:
Remove the instrument panel assembly and the beam COMPL - steering as a unit.
1) Disconnect the ground cable from battery. <Ref. to NT-5, BATTERY, NOTE, Note.>

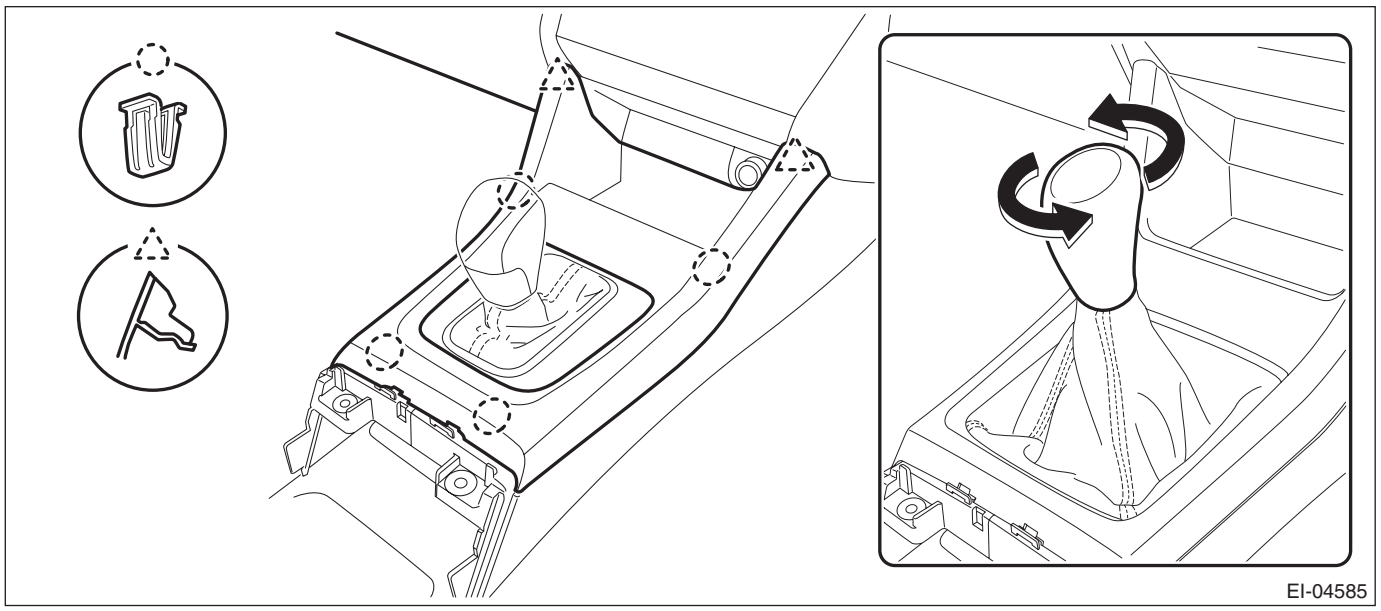
NOTE:
• For the 12 volt engine restart battery of HEV model, disconnect the ground terminal from 12V engine restart battery sensor.
• On CVT models, shift the select lever into “D” before disconnecting the battery ground cable.
2) Remove the console box assembly.
(1) Release the claws, and then remove the boot - hand brake.



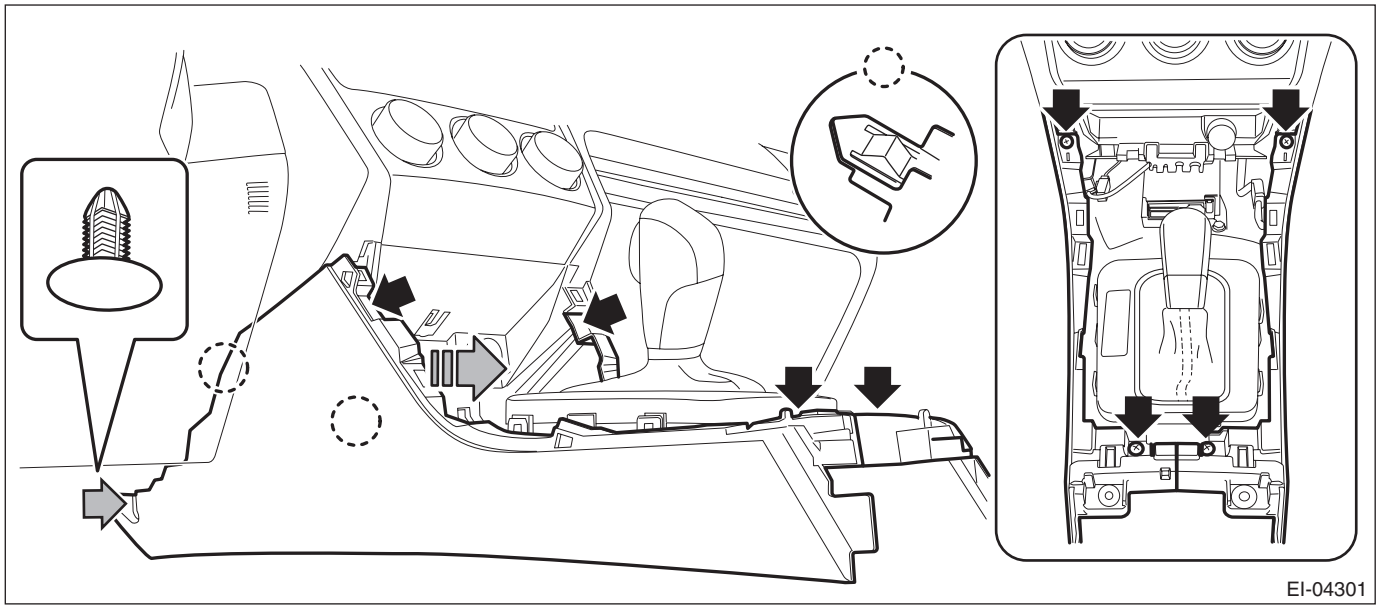

(2) Move the seat forward, and remove the bolts after detaching the left and right caps.
(3) Remove the screws, disconnect the harness connector and remove the console box assembly.



3) Remove the cover - shift lever.
   (1) Remove the shift knob. (MT model)
   (2) Release the clips and claws, then pull up the cover - shift lever.

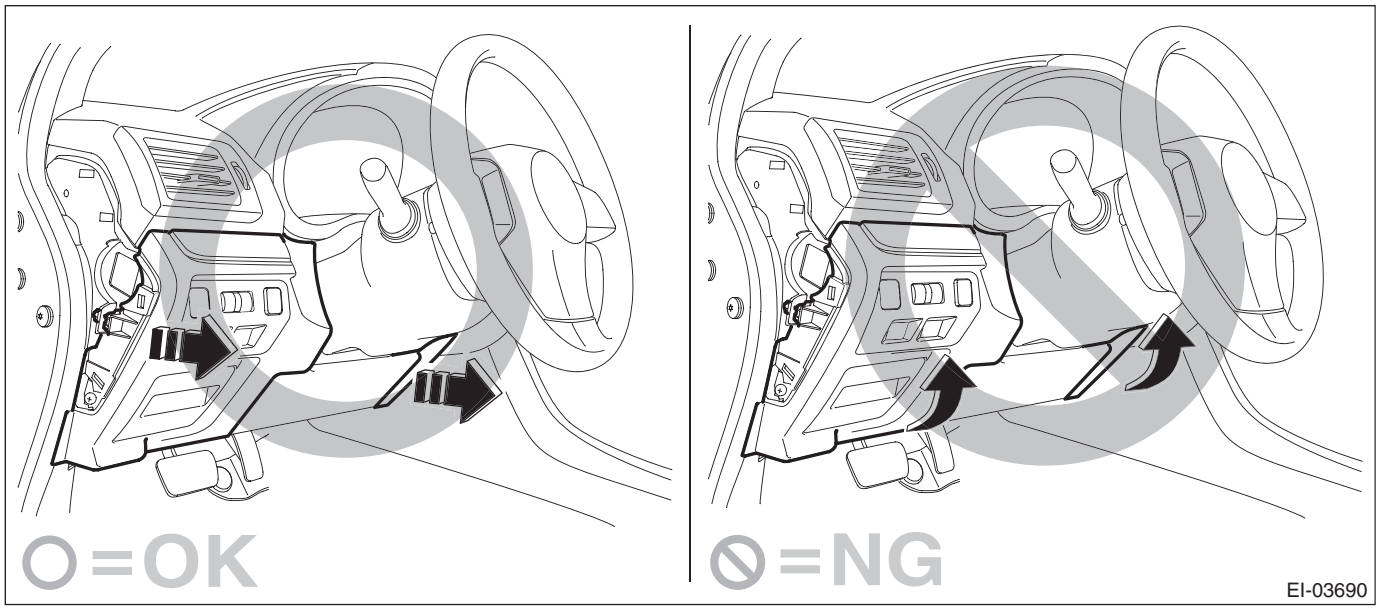



4) Remove the left and right panel center LWR.
   (1) Remove the screws and clips.
   (2) Release the claws, and then pull the panel center LWR to remove.

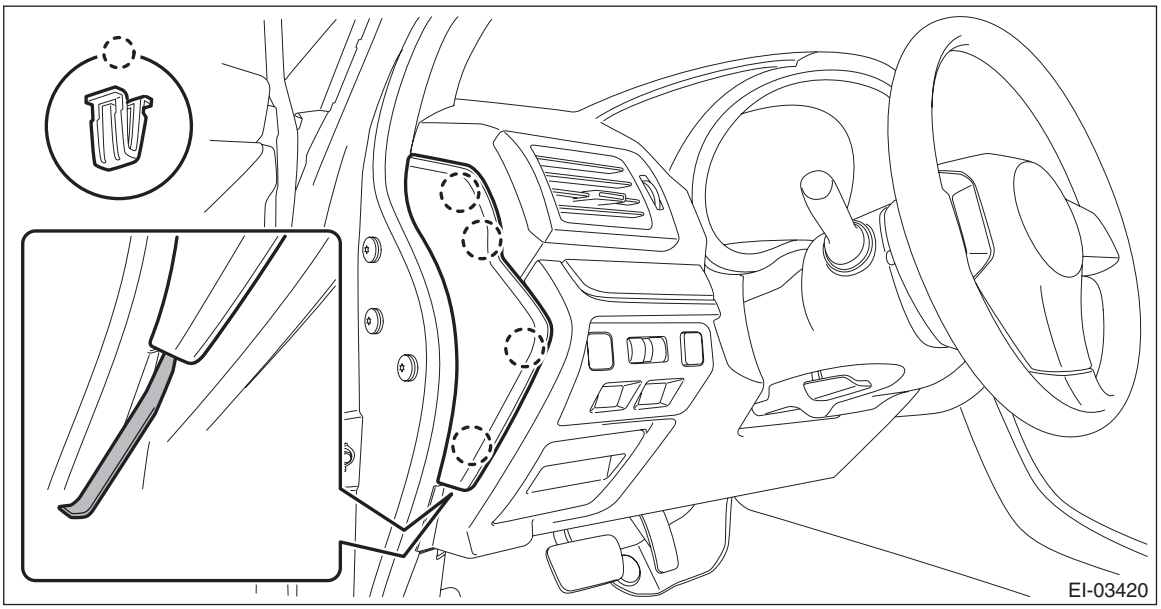


5) Remove the cover assembly - instrument panel LWR driver.

**CAUTION:**
**When removing the cover assembly - instrument panel LWR driver, be sure to pull it toward you. If attempting to remove by turning it upward, the claws may be damaged.**



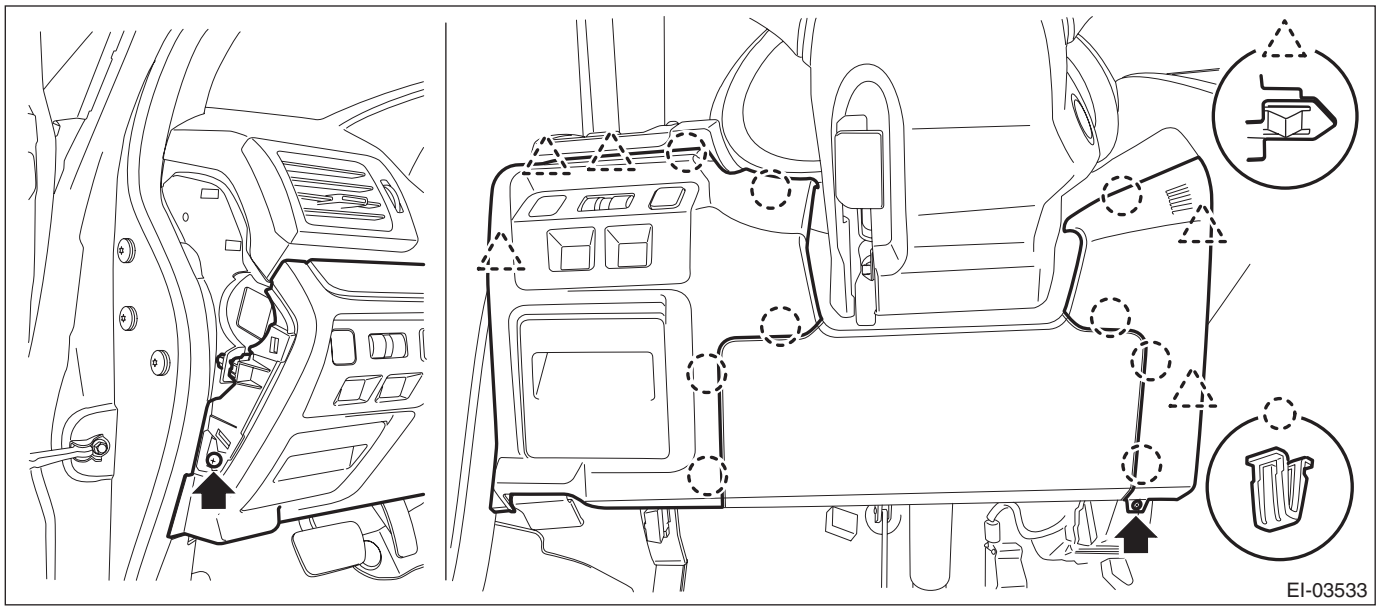

(1) Remove the clips, and remove the cover - instrument panel side LH.



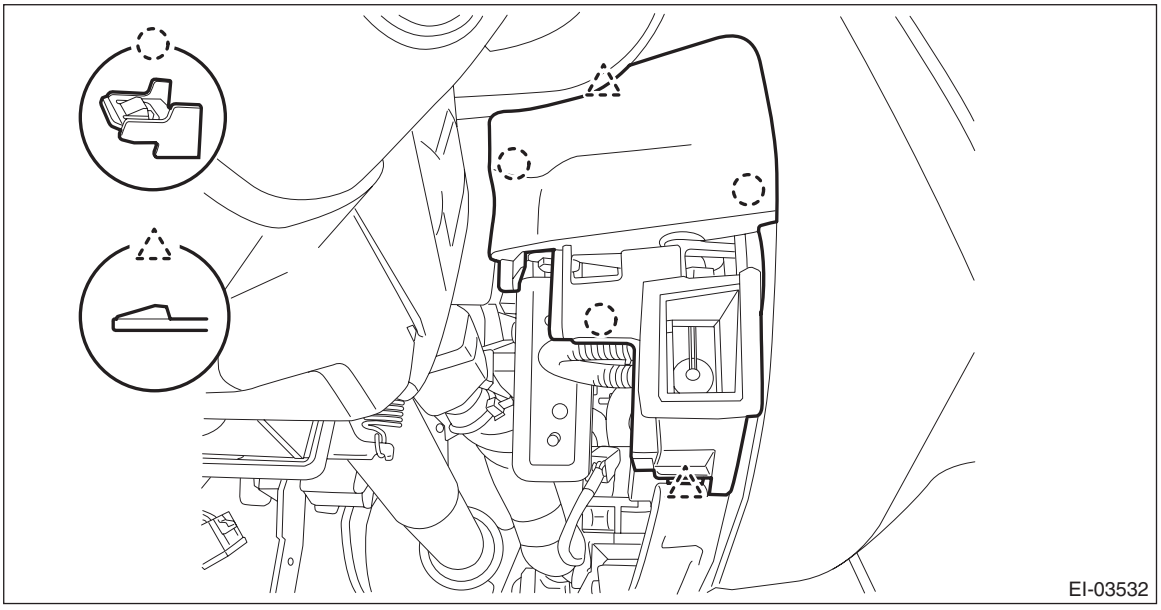

NOTE:
Using a plastic remover, open the cover - instrument panel side LH.

(2) Remove the screws and release the clips and claws.

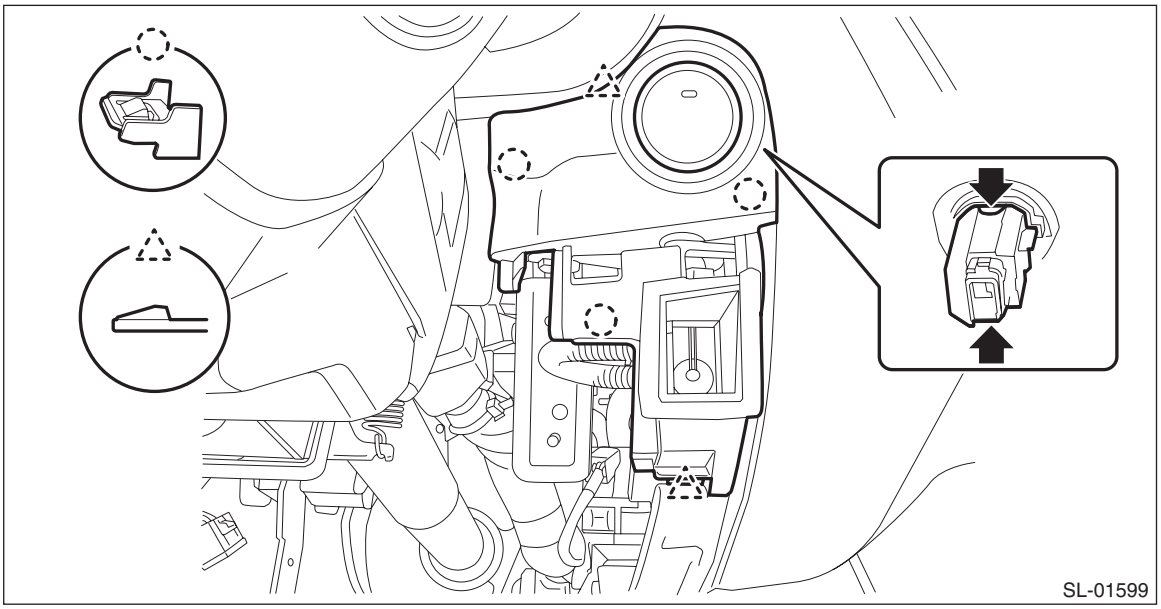
(3) Disconnect the harness connectors, and remove the cover assembly - instrument panel LWR driver INN and OUT.



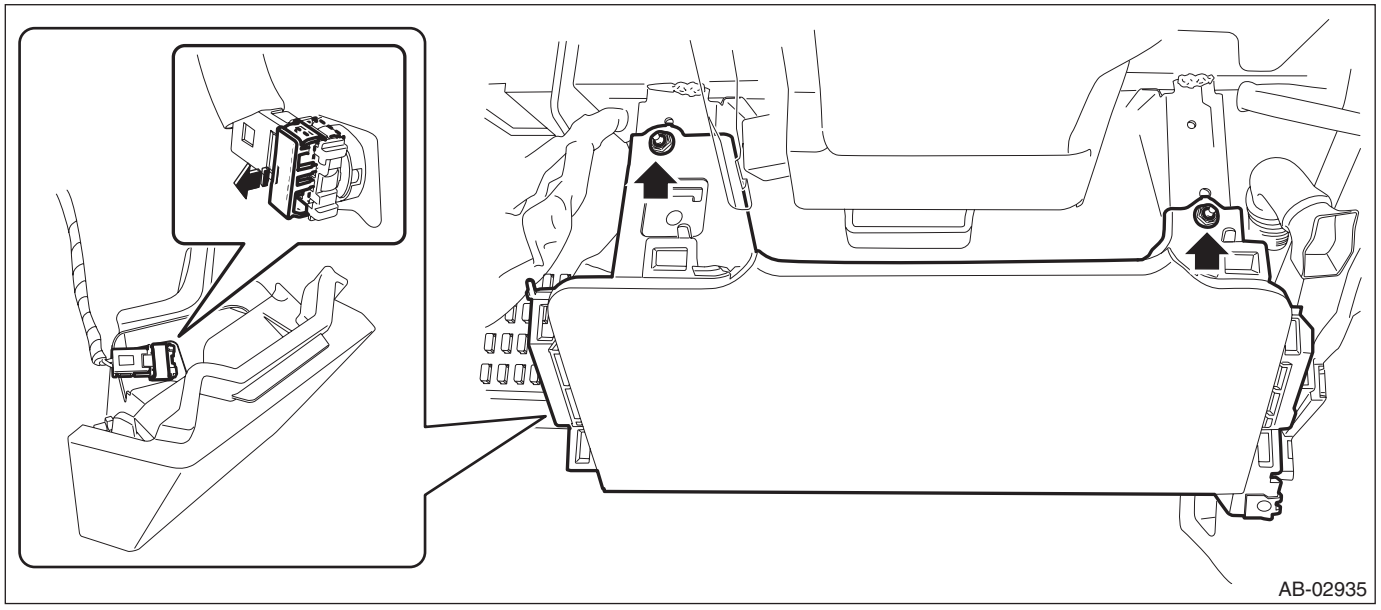

6) Remove the cover switch - starter. (Model without keyless access)
(1) Release the claws and remove the cover switch - starter.
(2) Disconnect the connector and aspirator hose.



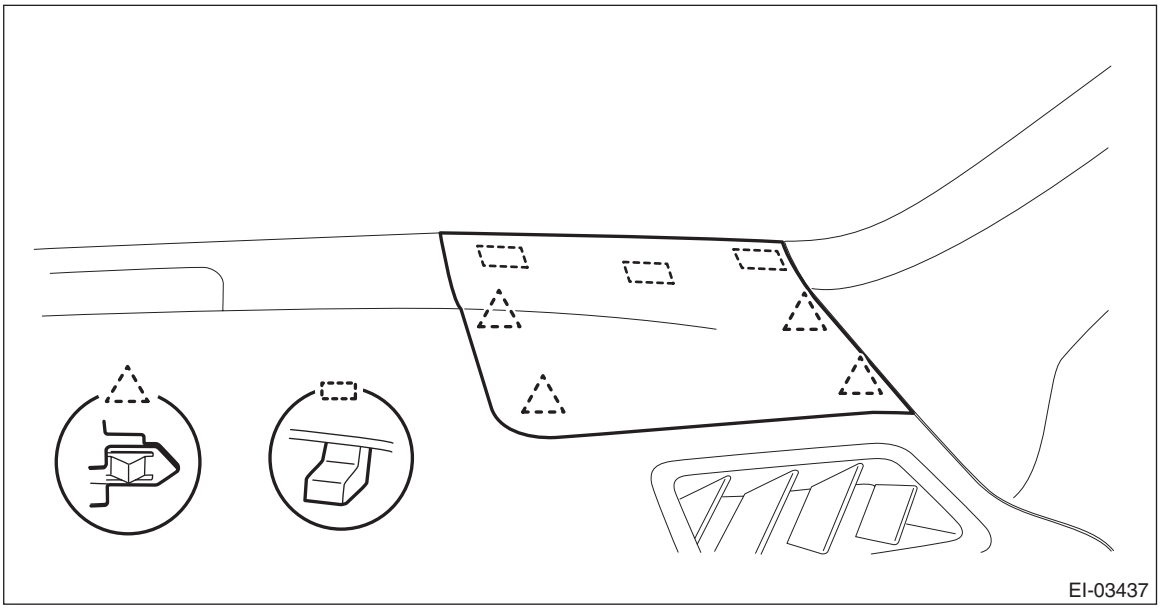
7) Remove the panel - switch. (Model with keyless access)
(1) Release the claw of the switch - push button start, and disconnect the connector.
(2) Release the claws, and then remove the panel - switch.
(3) Disconnect the connector and aspirator hose.




8) Remove the nuts to remove the knee airbag module and disconnect the harness connector. <Ref. to AB-23, KNEE AIRBAG MODULE, PROCEDURE, Airbag Connector.>



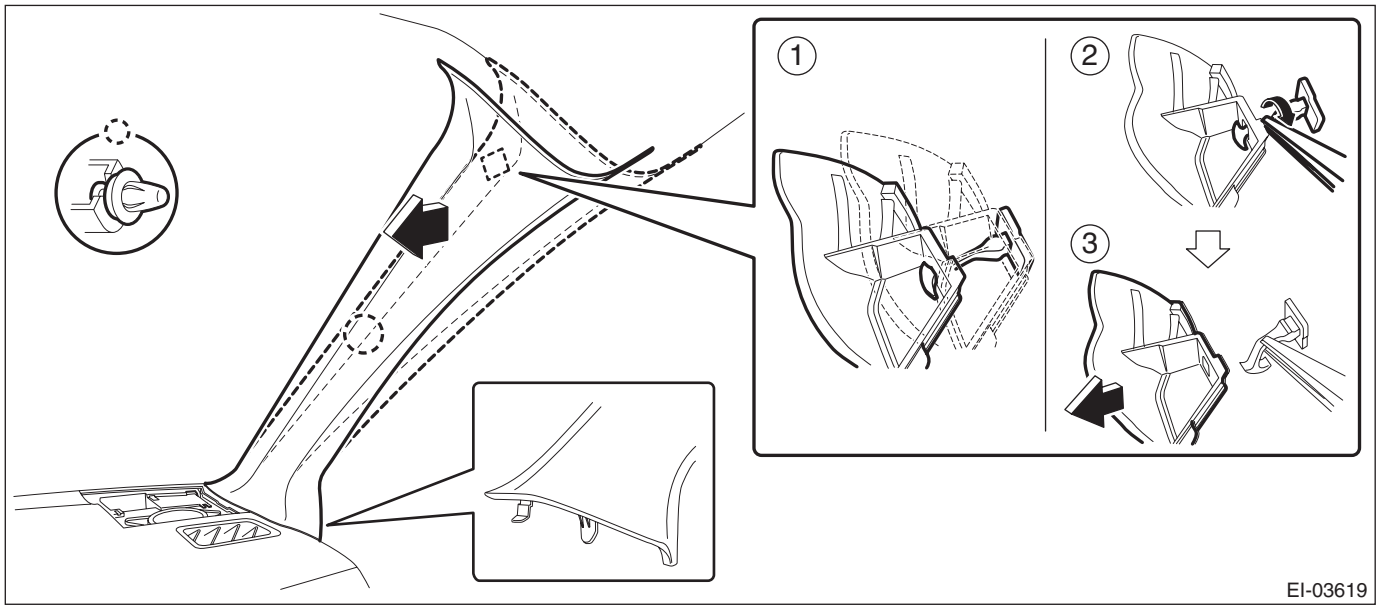
9) Release the clips and claws, then detach the left and right grille speaker side.



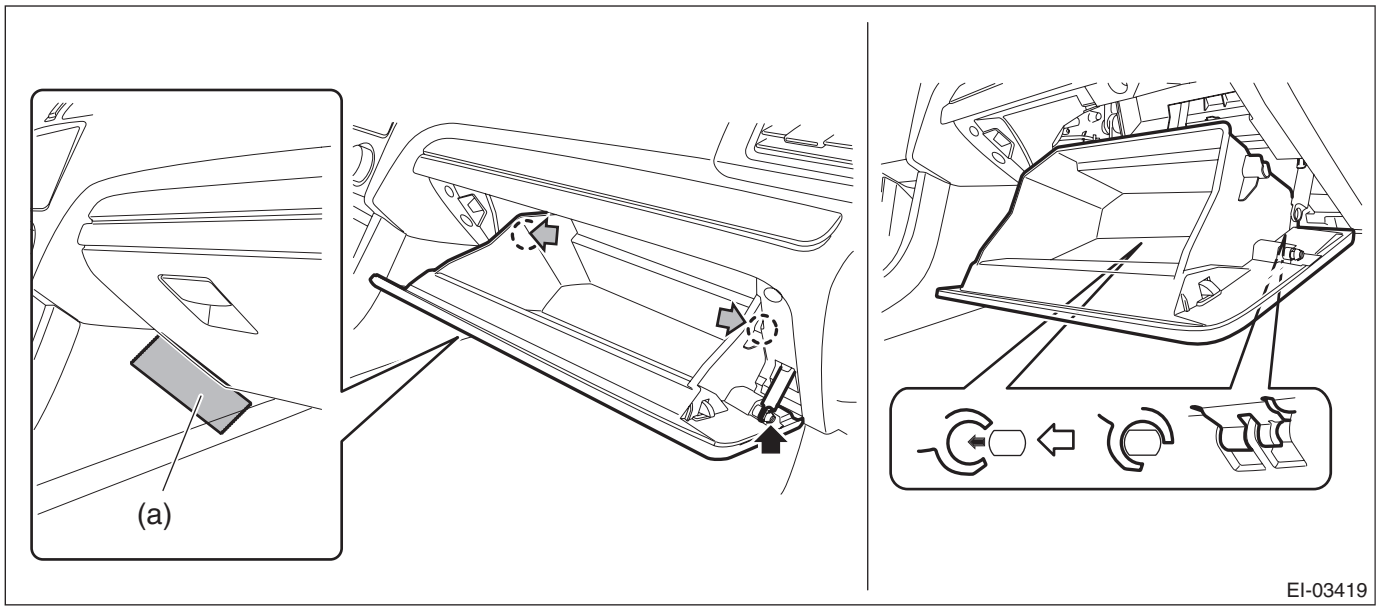

NOTE:
Remove the grille speaker side by using a plastic remover.

10) Remove the trim panel - front pillar UPR on the left and right sides.
(1) Pull the upper part of the trim panel - front pillar UPR towards the center of the vehicle.
(2) Insert long-nose pliers into the top part of the trim, grip the tether clip with the pliers and twist 90° in that position.

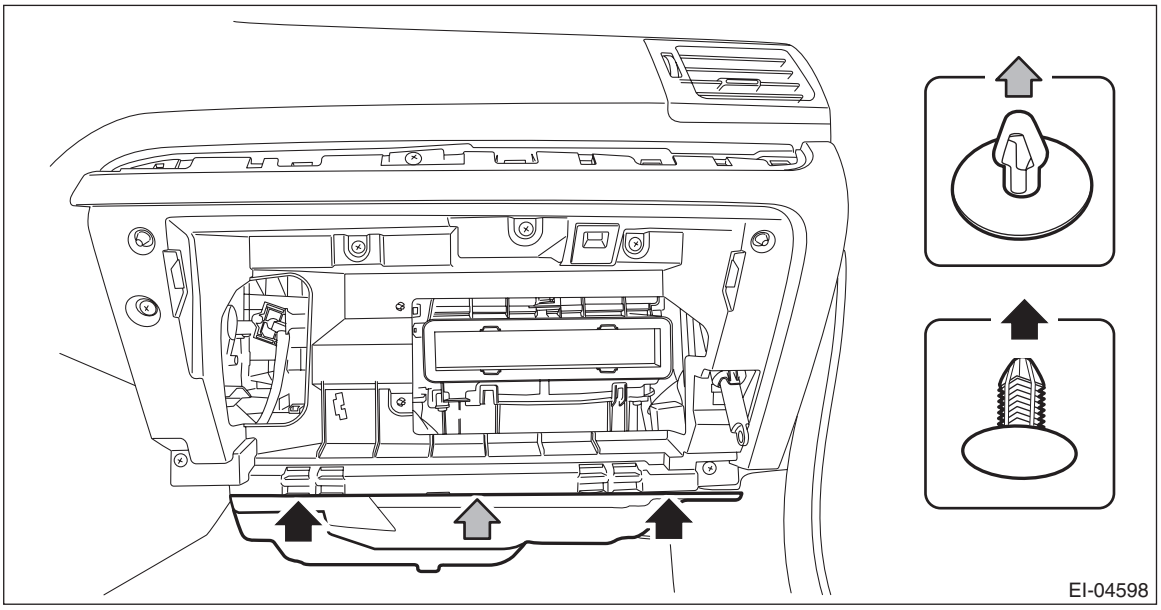
**CAUTION:**
**Be careful not to damage the pillar trim surface and curtain airbag module when inserting the pliers.**
(3) Holding the tether clip twisted as in the previous step, remove the trim panel - front pillar UPR from the tether clip.
(4) Remove the clips, and remove the trim panel - front pillar UPR.



11) Remove the pocket assembly.
(1) Attach the protective tape (a) to the panel center LWR.
(2) Remove the damper COMPL - pocket.
(3) Release the stoppers and remove the pocket assembly by pulling it toward you.



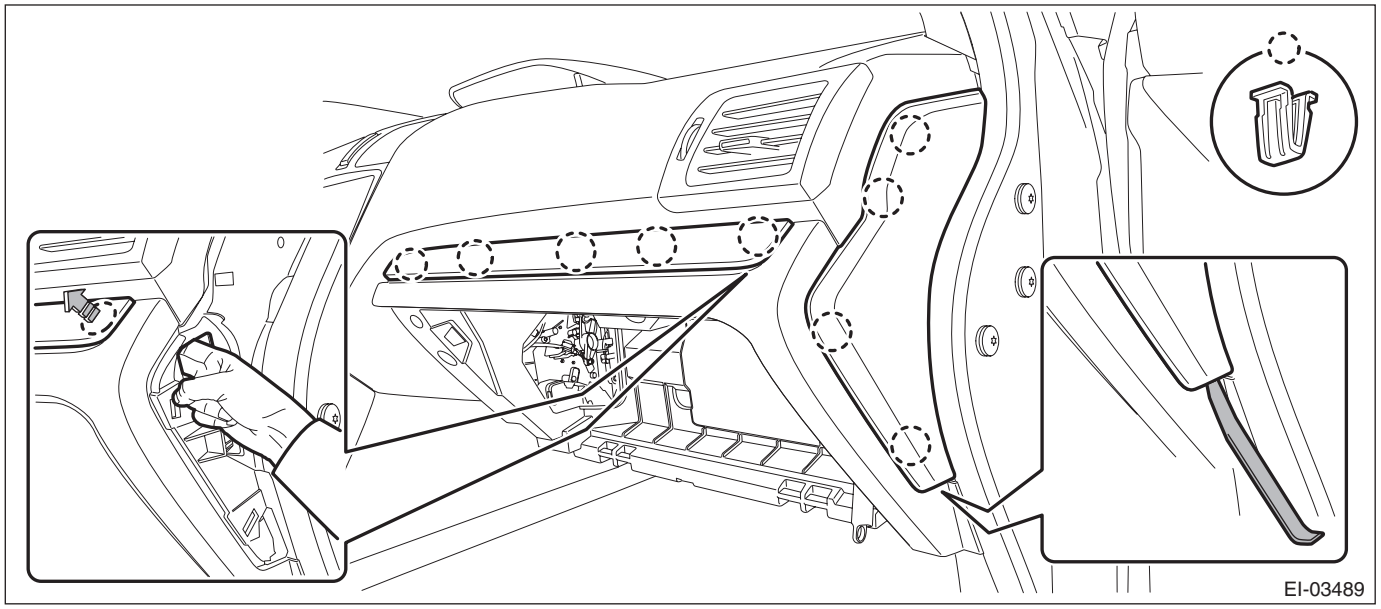

12) Remove the back panel - pocket.
(1) Release the clips, and remove the under cover assembly - passenger.




(2) Remove the clips, and remove the cover - instrument panel side RH.

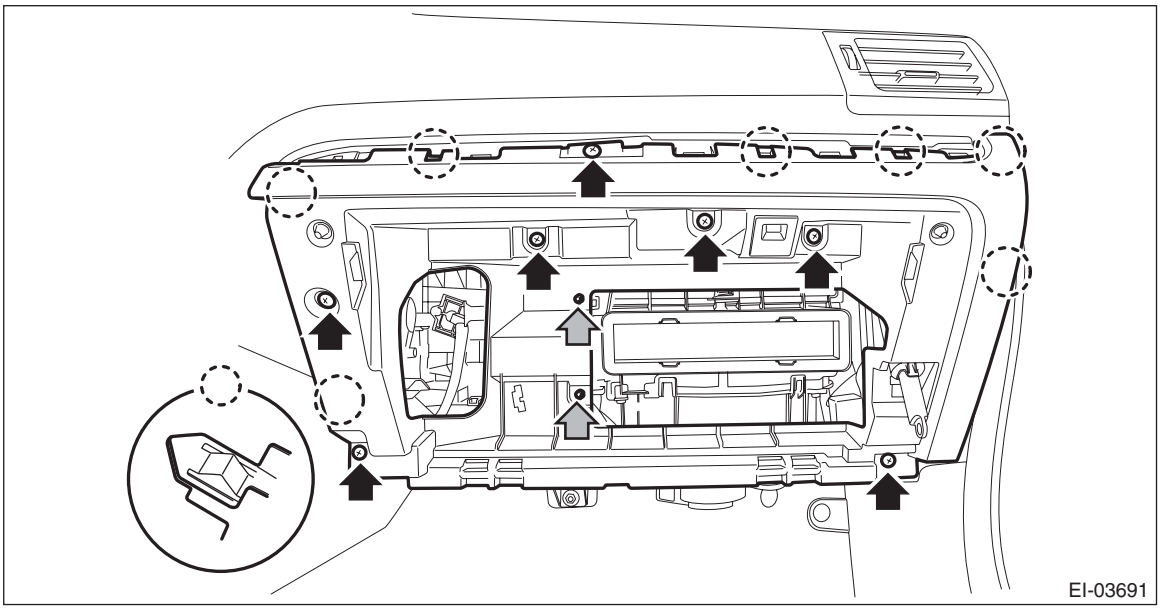
NOTE:
Remove the cover - instrument panel side RH by using a plastic remover.

(3) Release the clips, and remove the ornament - panel assembly passenger.



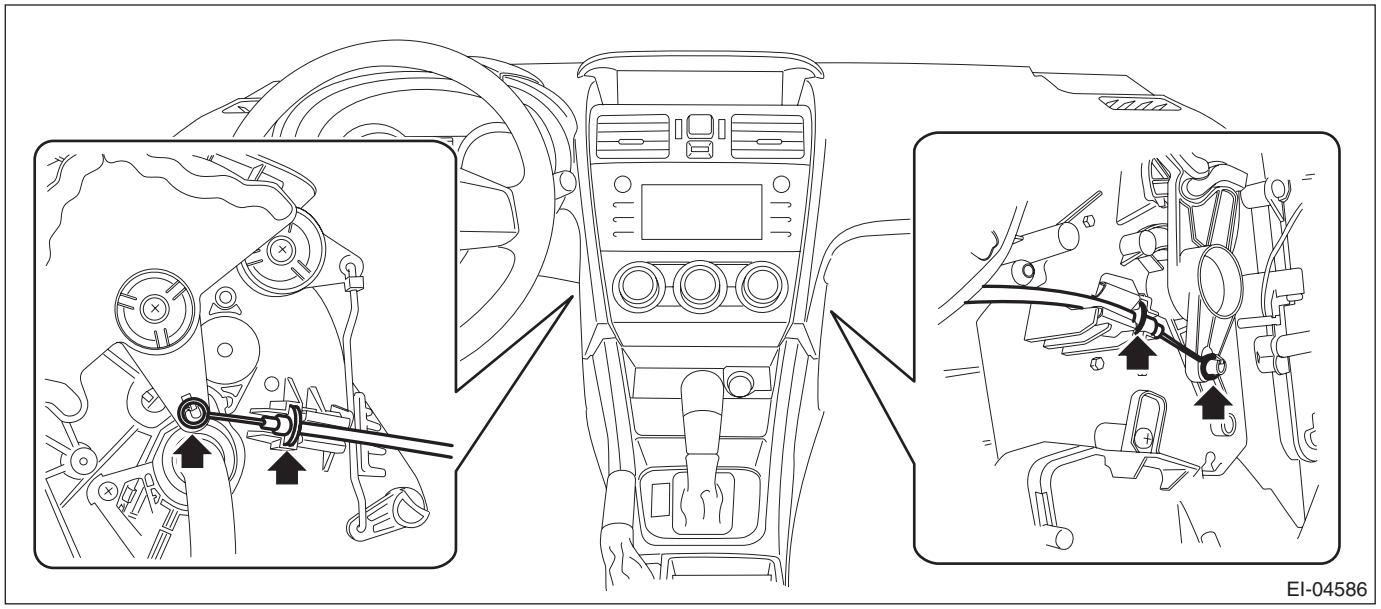

NOTE:
To facilitate the removal, push the clip of the ornament - panel assembly passenger from the backside.

(4) Remove the screws, claws and harness clamp, then remove the back panel - pocket.

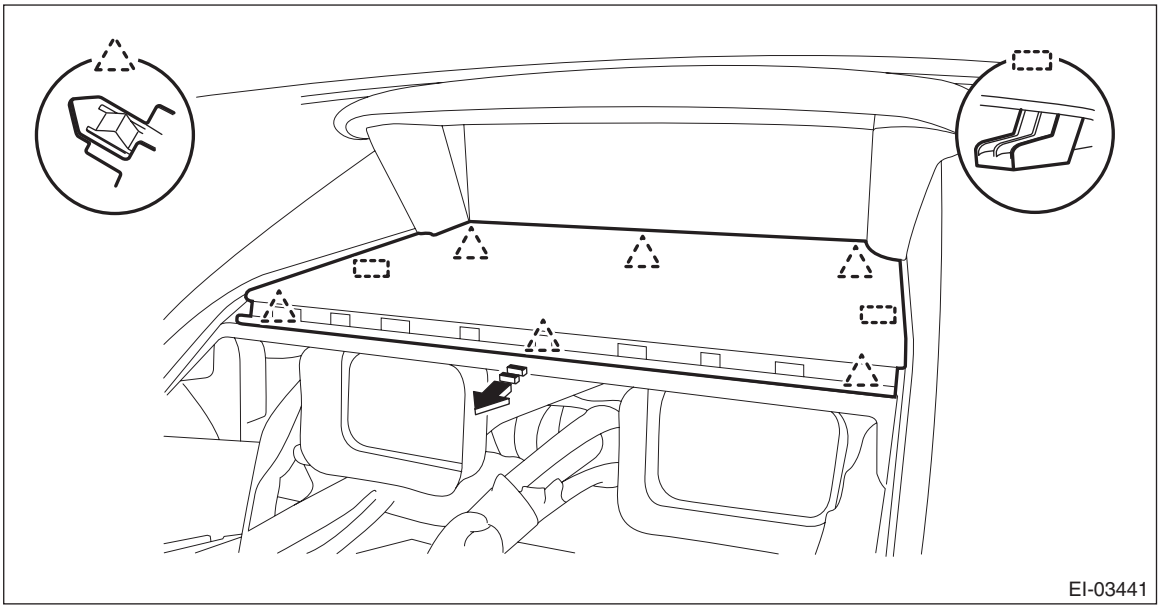



(5) Disconnect the glove box light LED connector.

13) On manual A/C models, disconnect the control cables from both sides of the heater & cooling unit.




14) Remove the center grille assembly. <Ref. to AC-104, REMOVAL, Air Vent Grille.>
15) Remove the audio assembly or navigation assembly. <Ref. to ET-12, REMOVAL, Audio.>
16) Remove the multi-function display assembly.
(1) Disconnect the claws and then remove the cover center UPR.

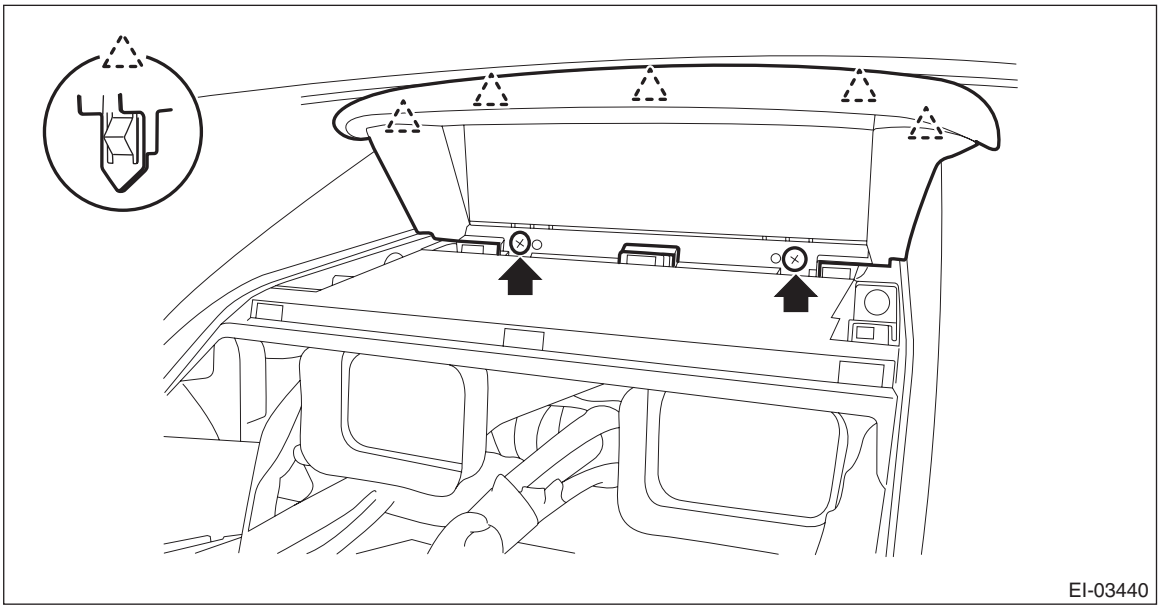



NOTE:
Lightly push up the back of the cover center UPR, hook the finger to the end portion and pull it toward you to remove it.

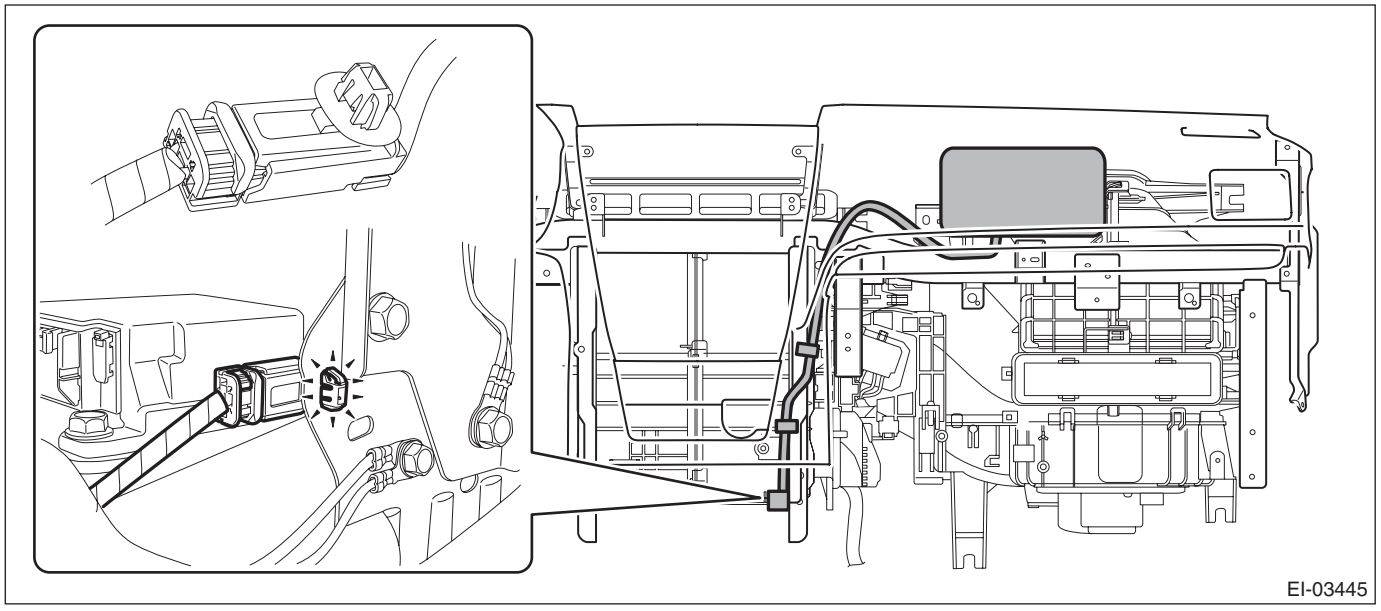
(2) Remove the screws and release the claws, then remove the panel - display assembly.

NOTE:
Remove the panel - display UPR & panel - display LWR and the multi-function display assembly as a unit.

(3) Disconnect the connector and remove the multi-function display assembly.



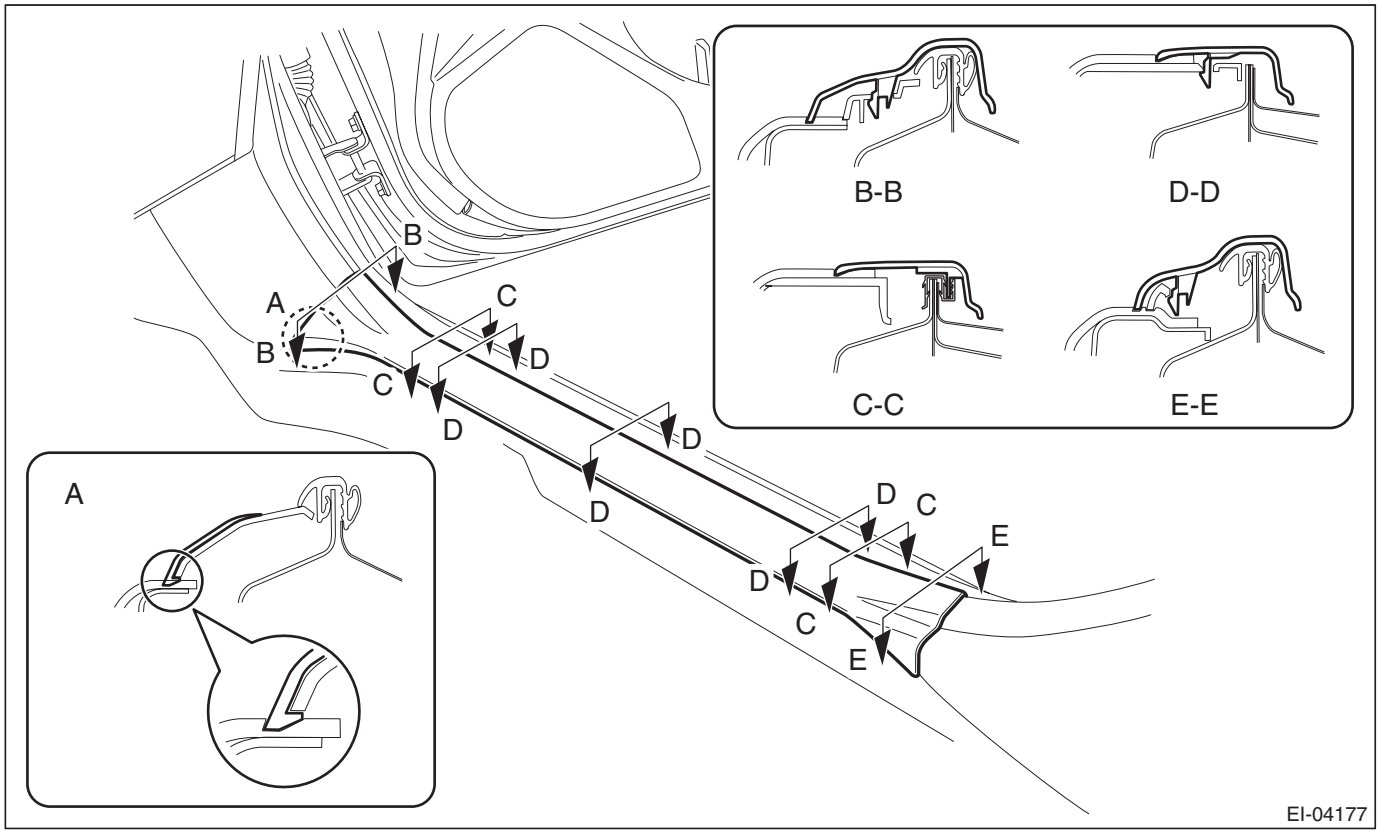

17) Remove the combination meter assembly. <Ref. to IDI-20, REMOVAL, Combination Meter.>
18) Disconnect the passenger's airbag module connector. <Ref. to AB-19, PASSENGER'S AIRBAG MODULE, PROCEDURE, Airbag Connector.>



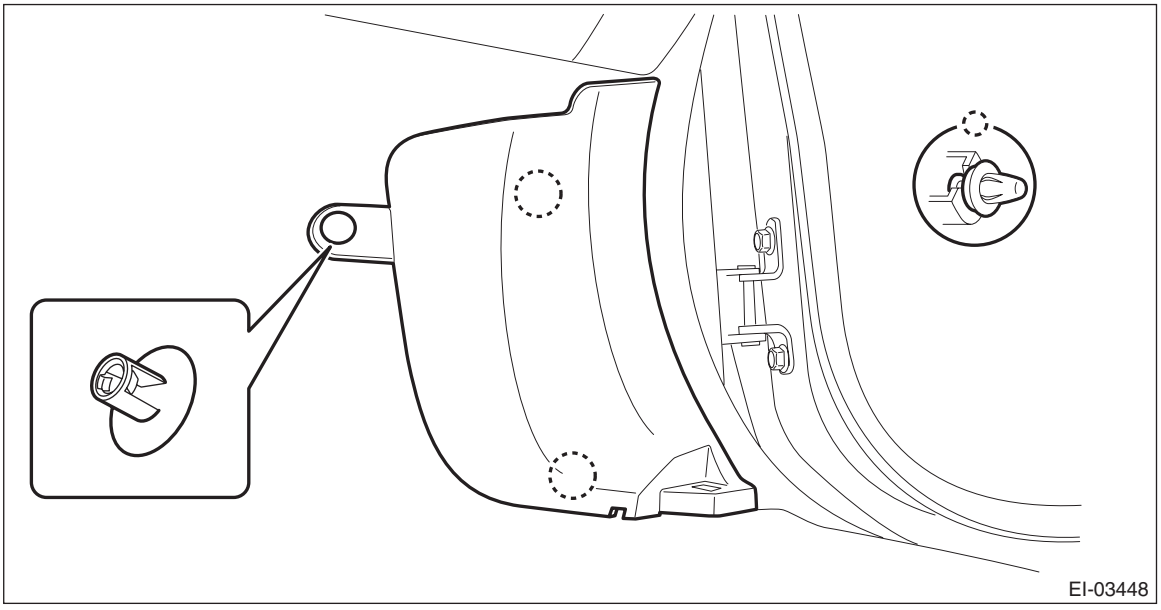

19) Remove the column assembly - steering. <Ref. to PS-19, REMOVAL, Steering Column.>

20) Release the claws, and then remove the cover side sill - front INN on LH and RH sides.

**CAUTION:**
**Do not pull with excessive force. Doing so may damage the claws of the cover side sill - front INN.**




21) Remove the clip, and remove the cover side sill - front on LH and RH sides.




22) Remove the body side weather strip - flange front.

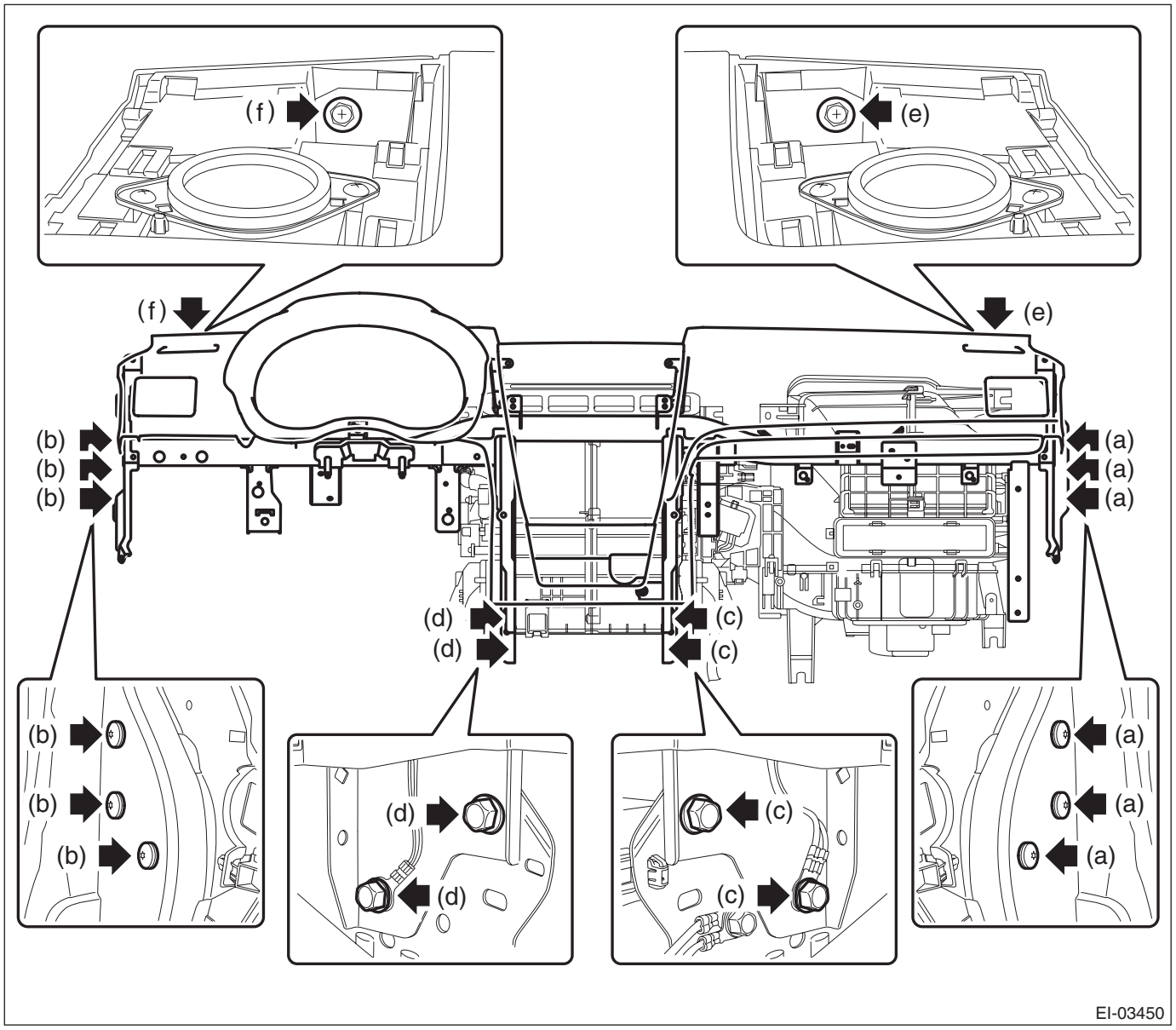
23) Remove the instrument panel assembly and the beam COMPL - steering as a unit.

**CAUTION:**
**The instrument panel assembly and the beam COMPL - steering are heavy. Always work in a team of two persons when removing them from the vehicle, so as not to damage the vehicle interior.**

(1) Remove the fuse box and relay box.
(2) Disconnect all harness clamps and connectors of the instrument panel harness.
(3) Remove the TORX® bolt. (a), (b)

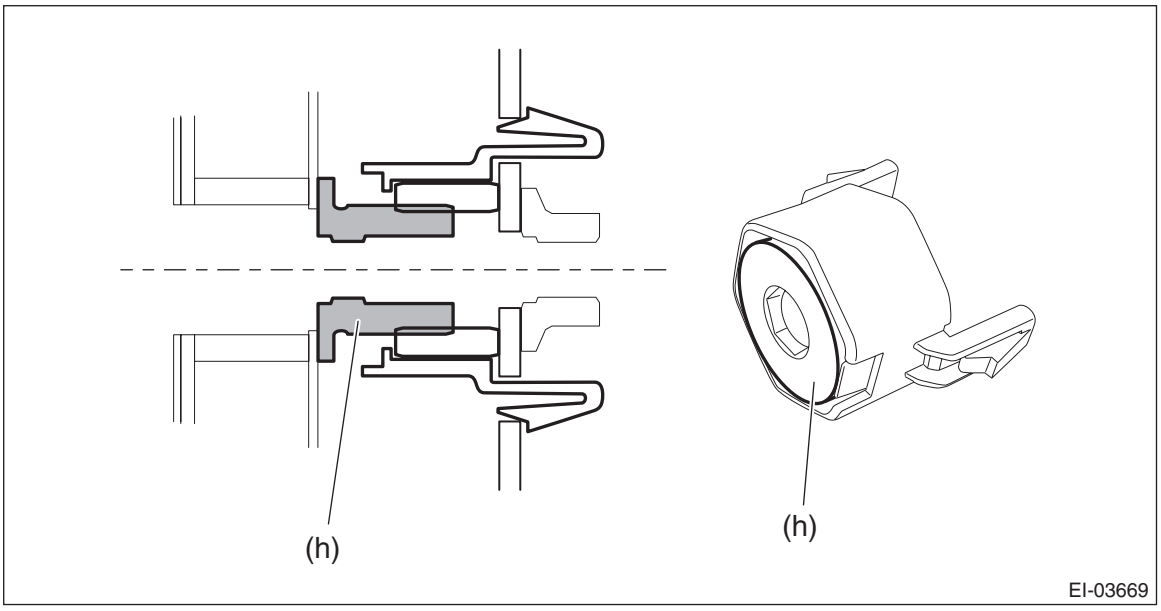
***Preparation tool:***
***TORX® T40***

(4) Remove the bolts at the floor center. (c), (d)
(5) Remove the bolt. (e), (f)



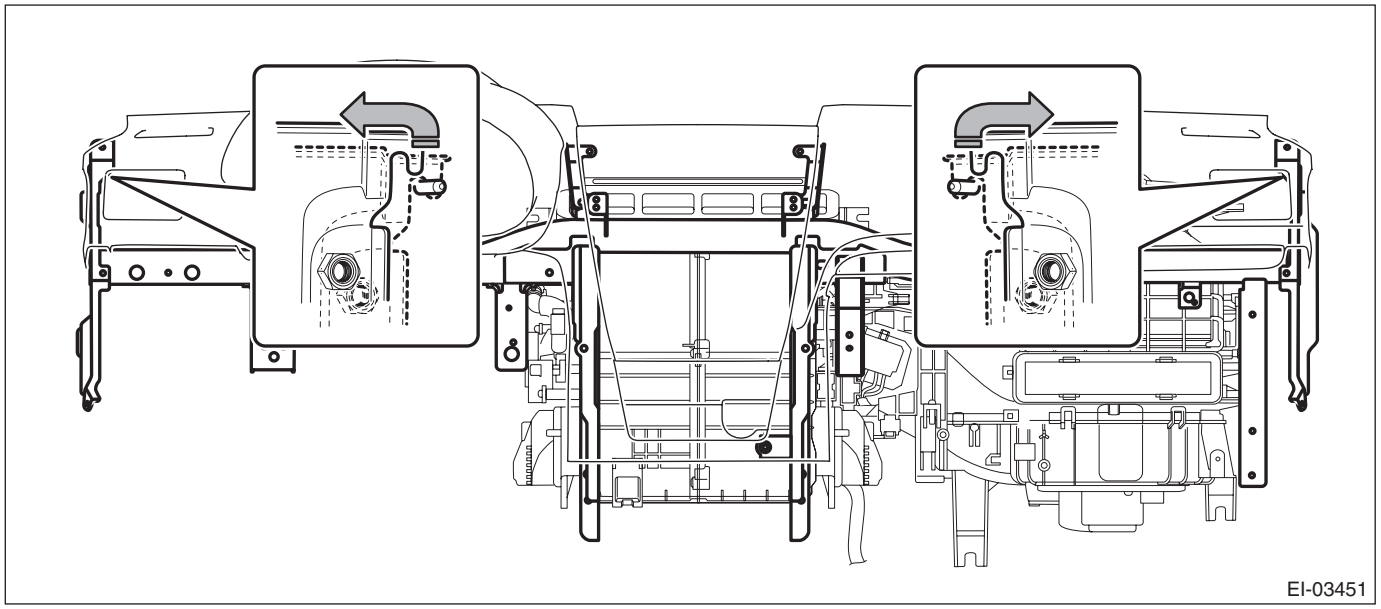
(6) Loosen the adjuster portion (h) of the adjuster - clip space. (only LH side of the beam COMPL - steering)

***Preparation tool:***
***Hexagon wrench: 8 mm (0.31 in)***

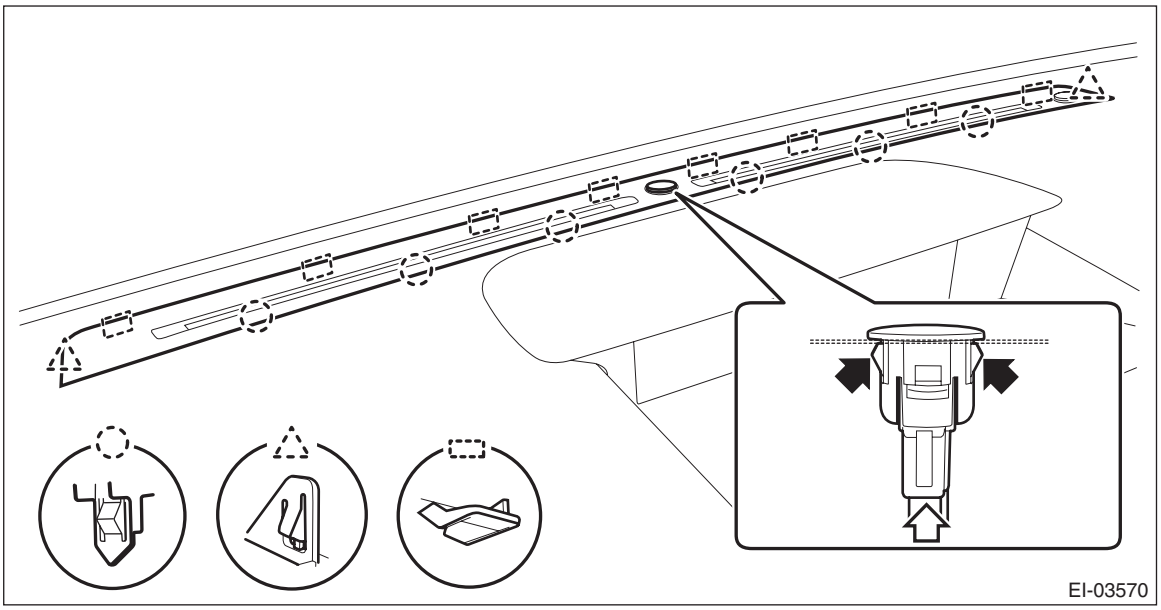



(7) Slightly lift the instrument panel assembly together with the beam COMPL - steering to detach the left and right pins. Then pull it toward you to remove the assembly.

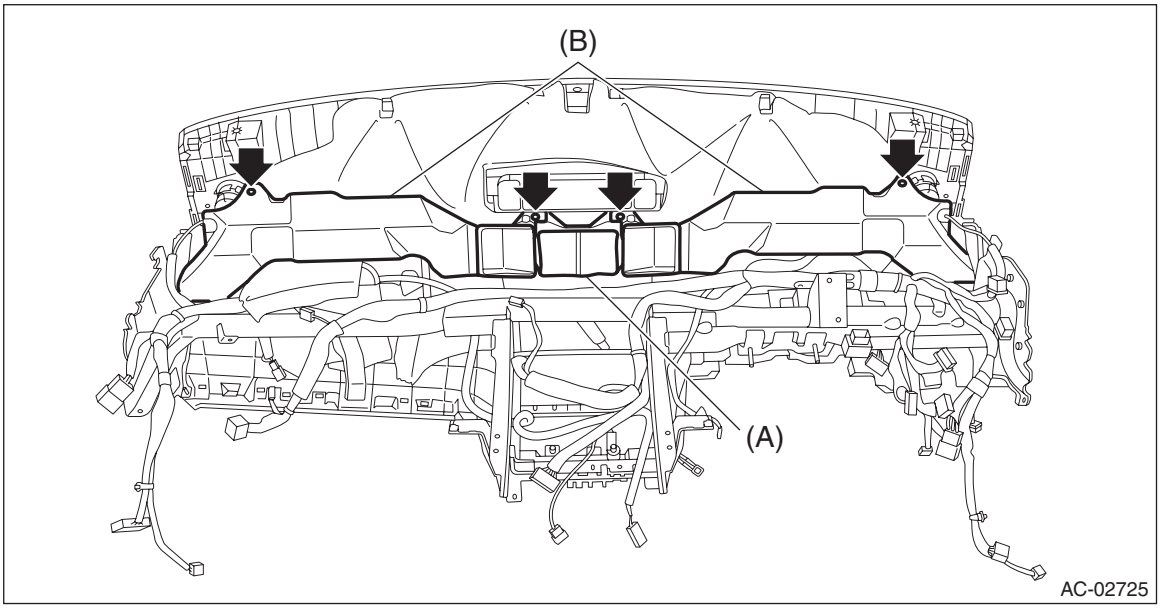
**CAUTION:**
**• Check that all harness clamps and connectors are detached.**
**• The instrument panel assembly and the beam COMPL - steering are heavy. Always work in a team of two persons when removing them from the vehicle, so as not to damage the vehicle interior.**



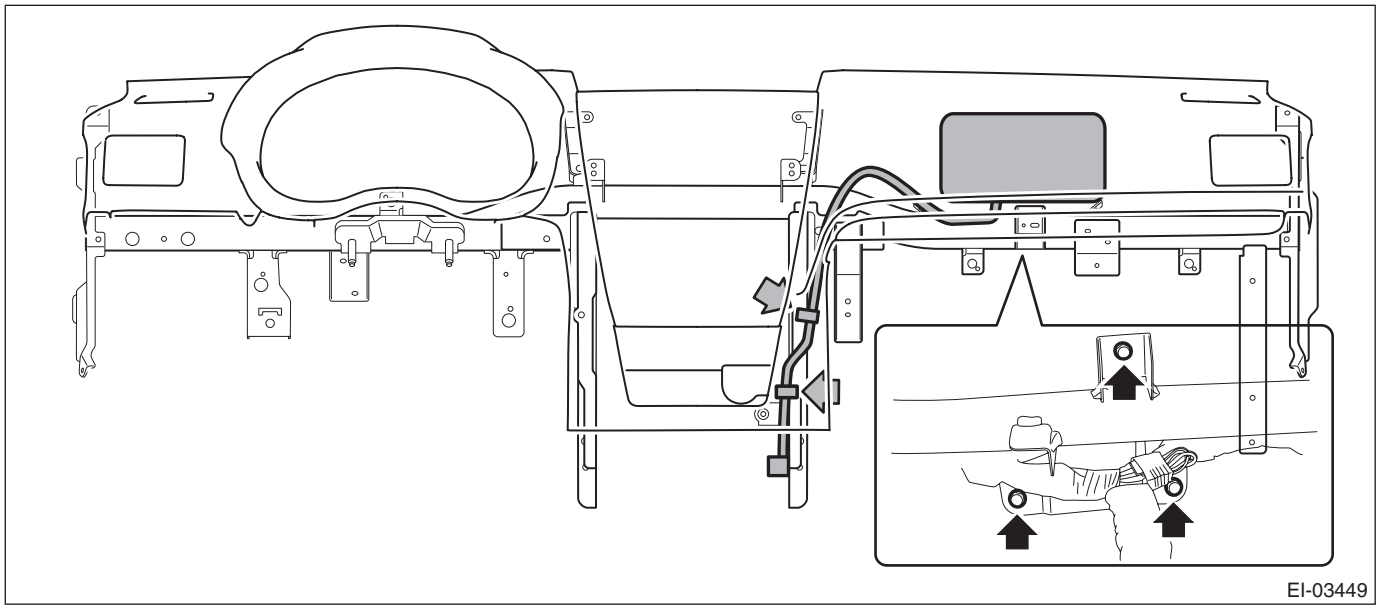
24) Remove the grille front defroster.
(1) Disconnect the connector of the sensor - sunload.
(2) Release the claws and remove the grille front defroster.




25) Remove the screws and remove the front (A) and side vent duct (B) LH, RH.



26) Separate the panel COMPL - instrument and the beam COMPL - steering.
(1) Remove the clamps and bolts of the passenger's airbag module harness.

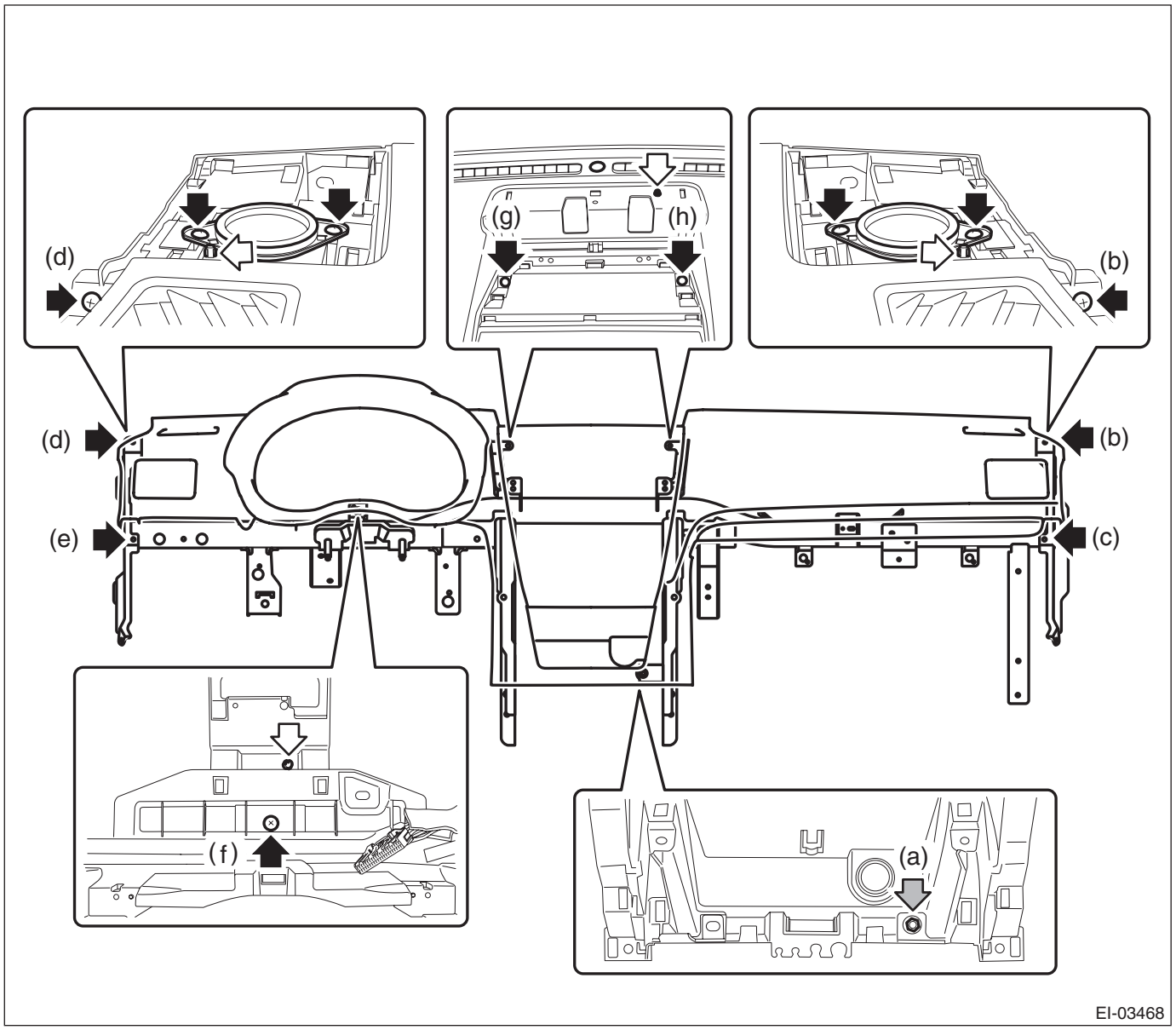

EI-03449

(2) Remove the left and right speakers.

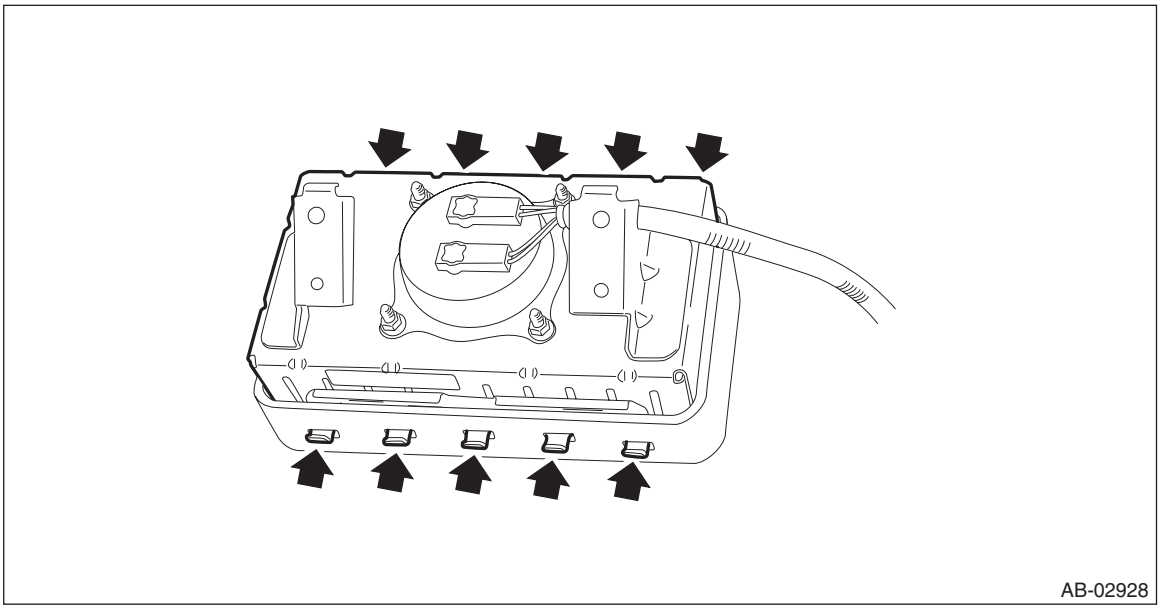
NOTE:
Detach the harness clamp together.

(3) Disconnect the front accessory socket connector.

(4) Remove the nut (a) and screws (b), (c), (d), (e), (f), (g) and (h).
(5) While being careful with the harness, separate the panel COMPL - instrument and the beam COMPL - steering.



27) Remove the claws, and remove the passenger's airbag module.




## B: INSTALLATION

1) Attach components until the instrument panel assembly is formed, in the reverse order of removal.

***Tightening torque:***
***Passenger's airbag module: 7.5 N·m (0.76 kgf-m, 5.5 ft-lb)***

NOTE:
Method of installing insulator
- Adhesive

Use polyurethane adhesive. When assembling the instrument panel assembly, wait until the adhesive has evaporated to prevent filling of the smell in the compartment.
- Double-sided tape

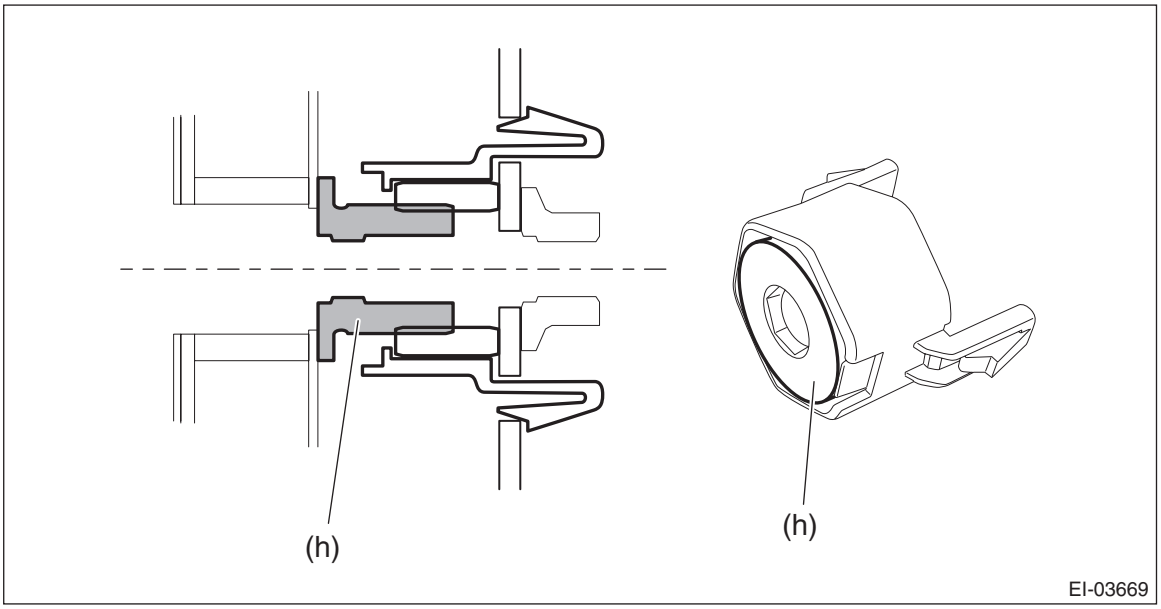
Use commercial double-sided tape. (Use strong double-sided adhesive tape.)
2) Insert the matching pins on the body side (three locations - one in the center and the remaining two on both sides) into the instrument panel assembly and the beam COMPL - steering.
3) Check that the matching pins are inserted securely, and then route the harness.

4) Secure the instrument panel assembly and the beam COMPL - steering to the vehicle body.
(1) Position the instrument panel assembly and the beam COMPL - steering to the vehicle body and tighten the adjuster - clip space.

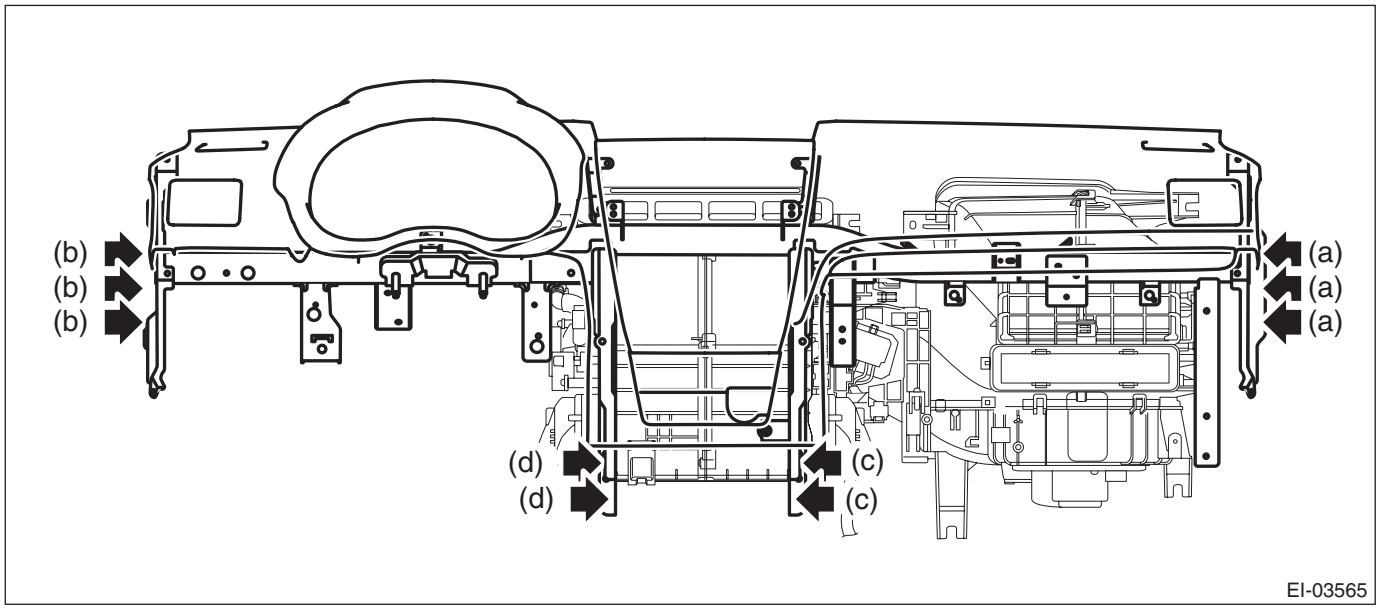
***Preparation tool:***
***Hexagon wrench: 8 mm (0.31 in)***

NOTE:
Tighten so that there is no gap between the adjuster portion (h) and the body.

***Tightening torque:***
***Adjuster - clip space: 0.4 — 4 N·m (0.04 — 0.41 kgf-m, 0.3 — 2.95 ft-lb)***




(2) Temporarily tighten the bolts (a), (b), (c) and (d) of the beam COMPL - steering.

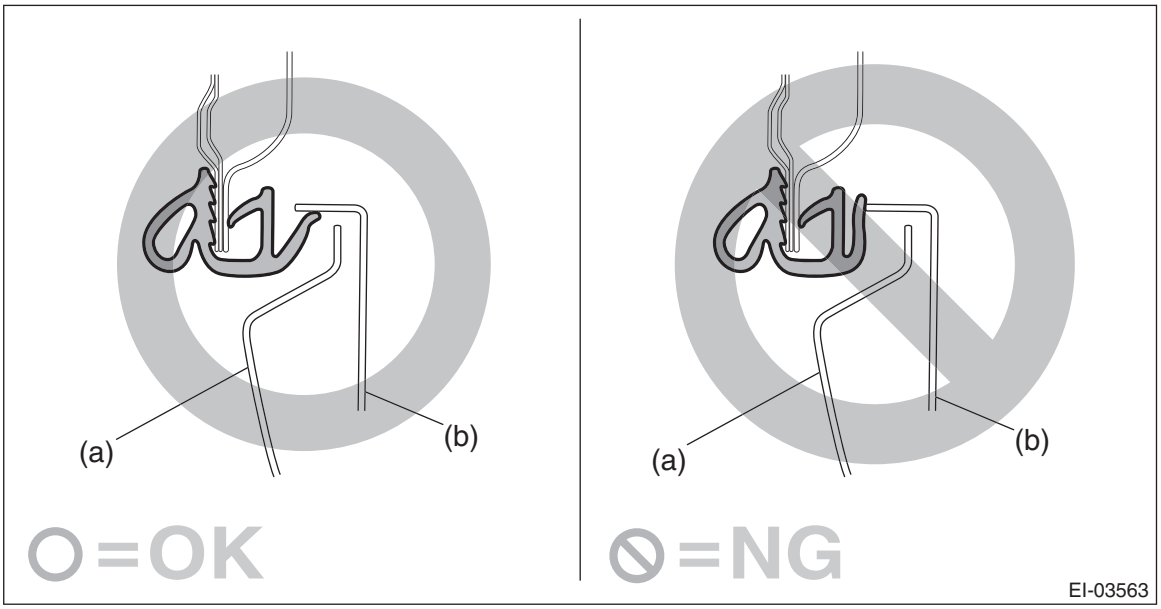



(3) Tighten the beam COMPL - steering in the order from (a) to (d) to the specified torque.

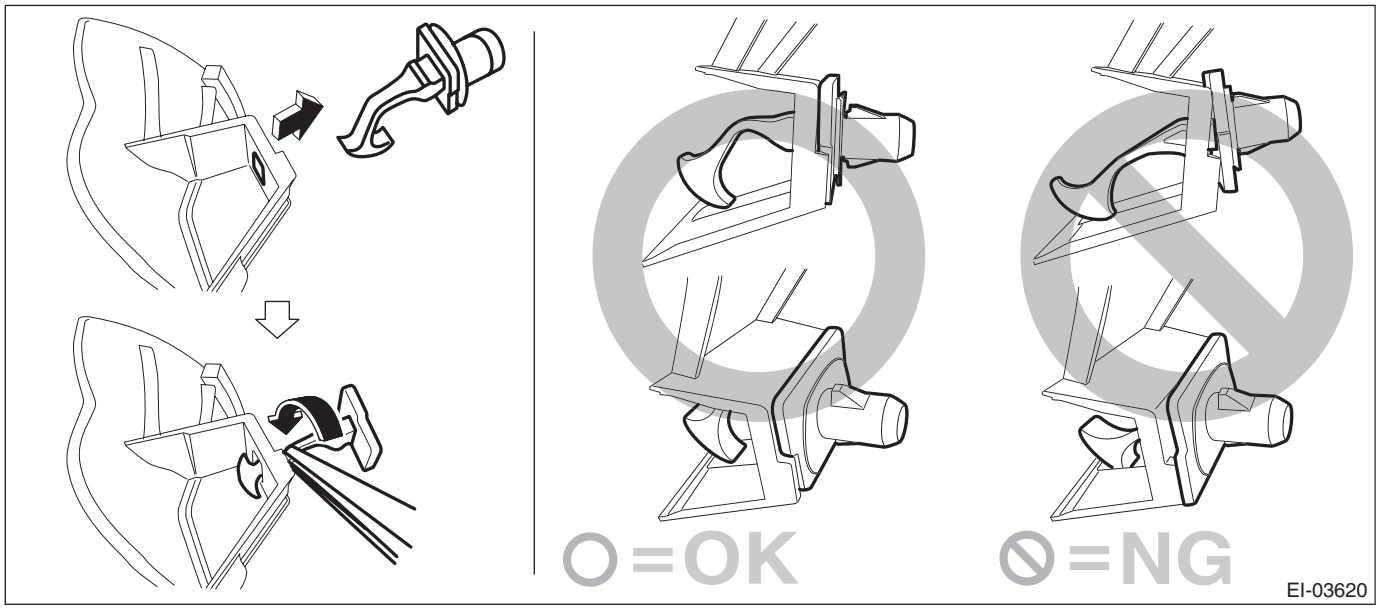
***Tightening torque:***
***Beam COMPL - steering: 25 N·m (2.55 kgf-m, 18.4 ft-lb)***

5) Install each part in the reverse order of removal.

**CAUTION:**
**• After installing the panel center assembly, check that the air vent grille of the panel center assembly is inserted correctly into the air vent duct.**
**• When installing the cover - instrument panel side (a), make sure that the body side weather strip - flange front does not come inside the panel COMPL - instrument (b).**




**• When reusing the tether clip on the upper part of the trim panel - front pillar UPR, check that there is no damage to the tether clip. If the tether clip is damaged, its holding force is reduced and the trim panel - front pillar UPR may come off. Be sure to replace it with a new tether clip.**
**• Do not reuse the tether clip removed from the upper part of the trim panel - front pillar UPR. Always replace with a new part.**
**• Check the installation status of the tether clips and install the trim panel - front pillar UPR.**




***Tightening torque:***
***Column assembly - steering: <Ref. to PS-3, STEERING WHEEL AND COLUMN, COMPONENT, General Description.>***
***Console box assembly: 6.5 N·m (0.66 kgf-m, 4.8 ft-lb)***

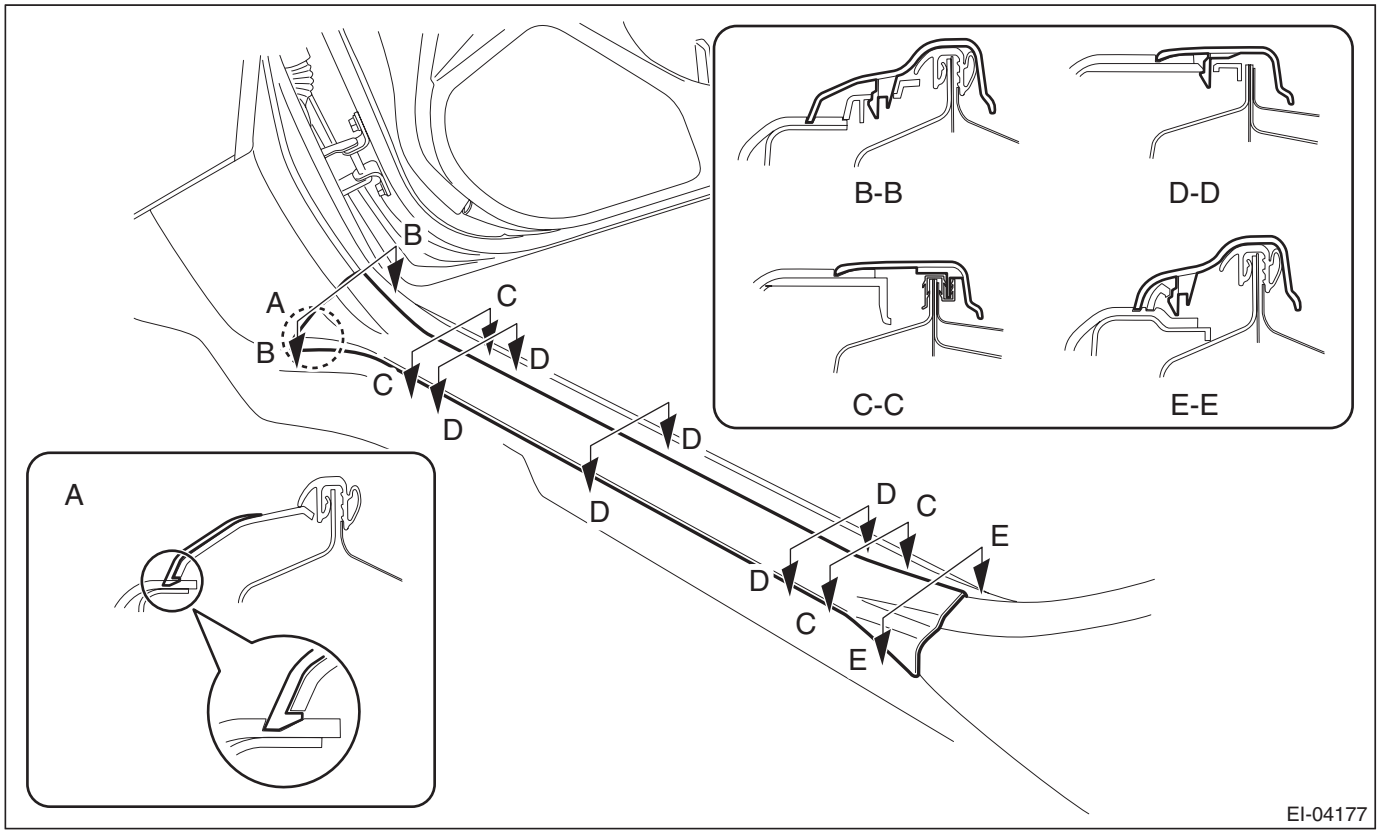
# 21.Lower Inner Trim

## A: REMOVAL

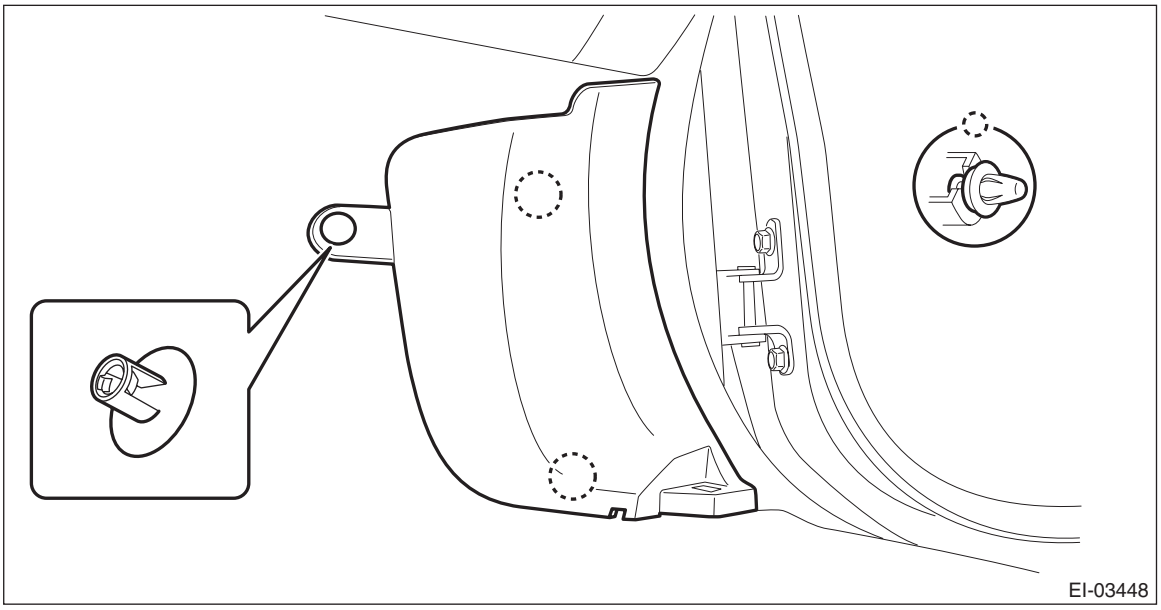
**CAUTION:**
**• Airbag system satellite safing sensor is located in the lower of the rear seat cushion center. Before removing the rear seat, refer to "CAUTION" of "General Description" in "AIRBAG SYSTEM" section. <Ref. to AB-10, CAUTION, General Description.>**
**• The airbag system is fitted with the airbag power supply. After disconnecting the battery ground cable, the airbag may operate if you do not wait for 60 seconds before starting the service of airbag system.**

1) Release the claws, and then remove the cover side sill - front INN.

**CAUTION:**
**Do not pull with excessive force. Doing so may damage the claws of the cover side sill - front INN.**

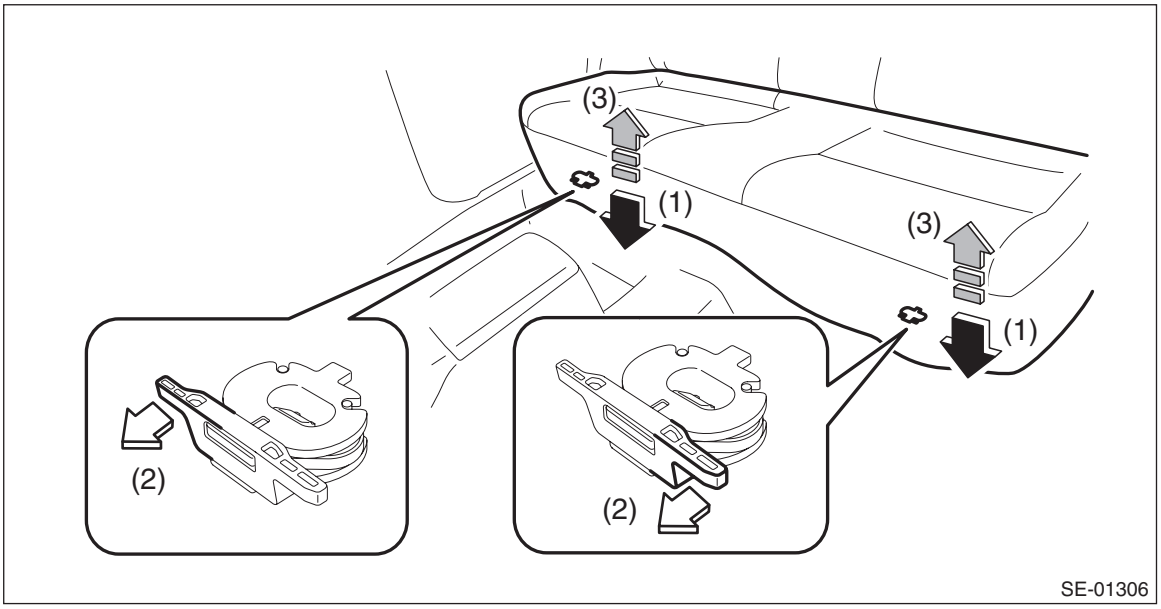


2) Remove the clips, and remove the cover side sill - front.

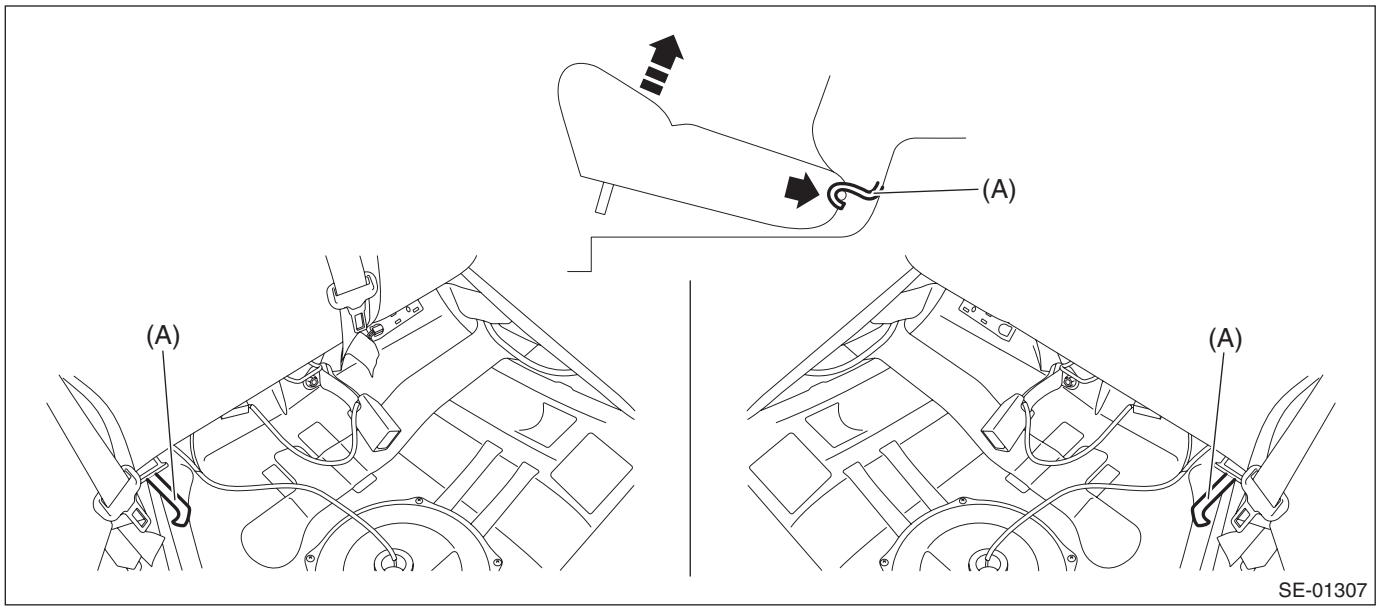



3) Remove the rear seat cushion assembly.
(1) Push the corners of the rear seat cushion from above.
(2) While pushing the corners of the rear seat cushion from above, pull the knob of the hook - seat cushion rear towards yourself.
(3) While pulling the knob towards yourself, disconnect the hooks by lifting up the rear seat cushion.

NOTE:
Pull the left side of the knob to disconnect the LH side hook, and pull the right side of the knob to disconnect the RH side hook.

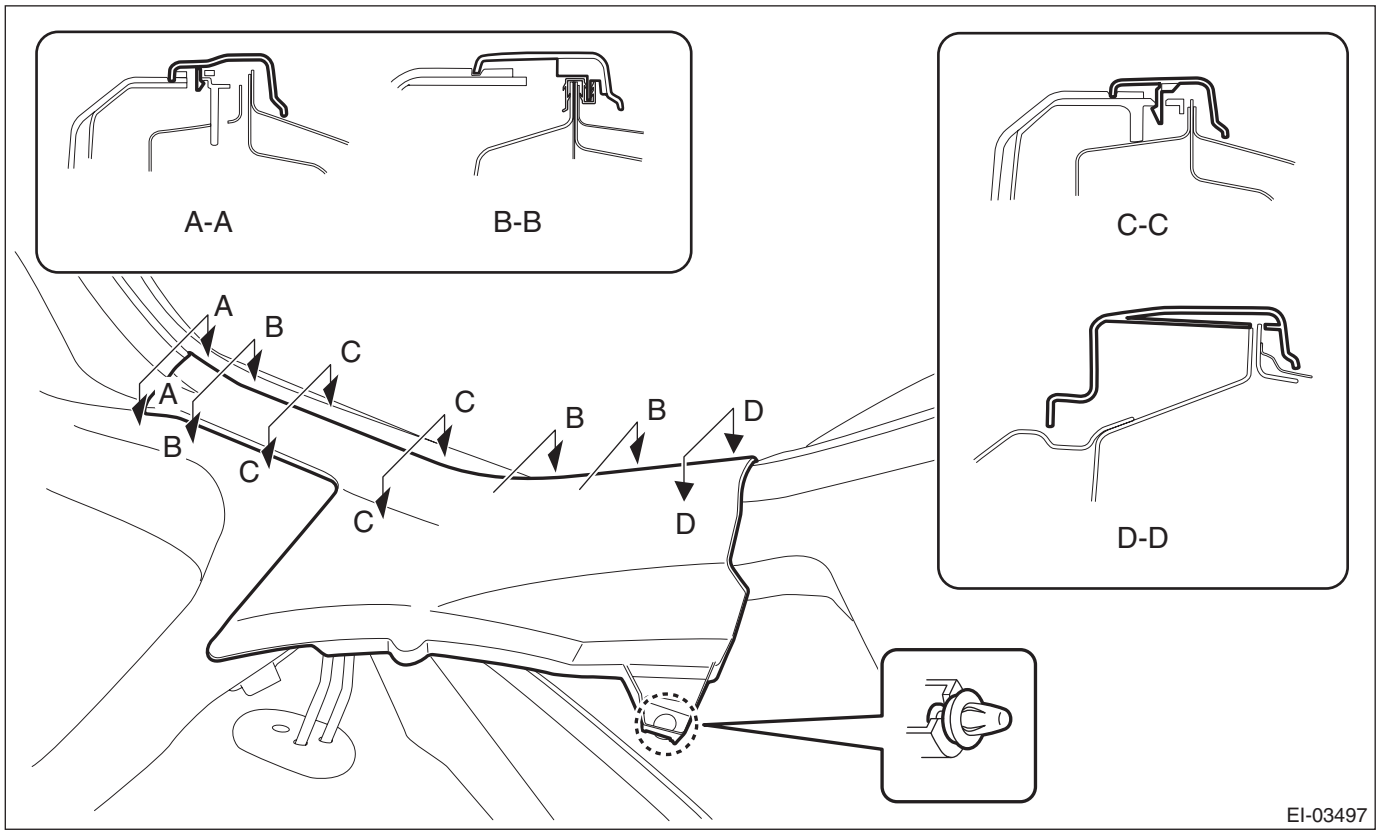


(4) Remove the hook (A) by pushing it back while lifting the front side of the rear seat cushion, and remove the rear seat cushion.



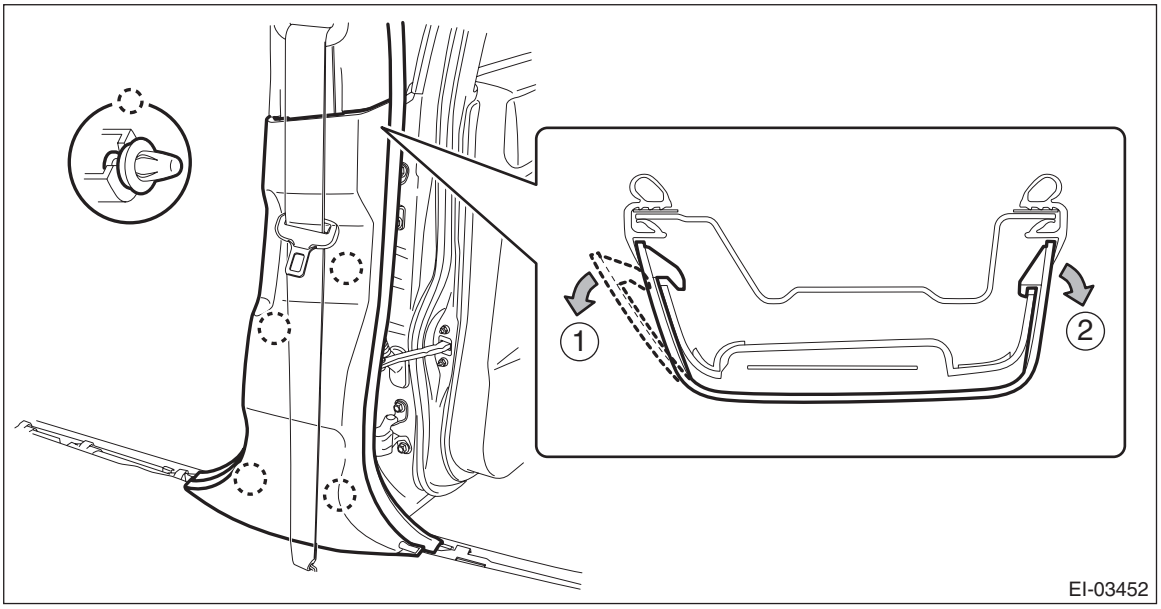

4) Release the clips and claws, and then remove the cover side sill - rear INN.

**CAUTION:**
**Do not pull with excessive force. Doing so may damage the claws of the cover side sill - rear INN.**

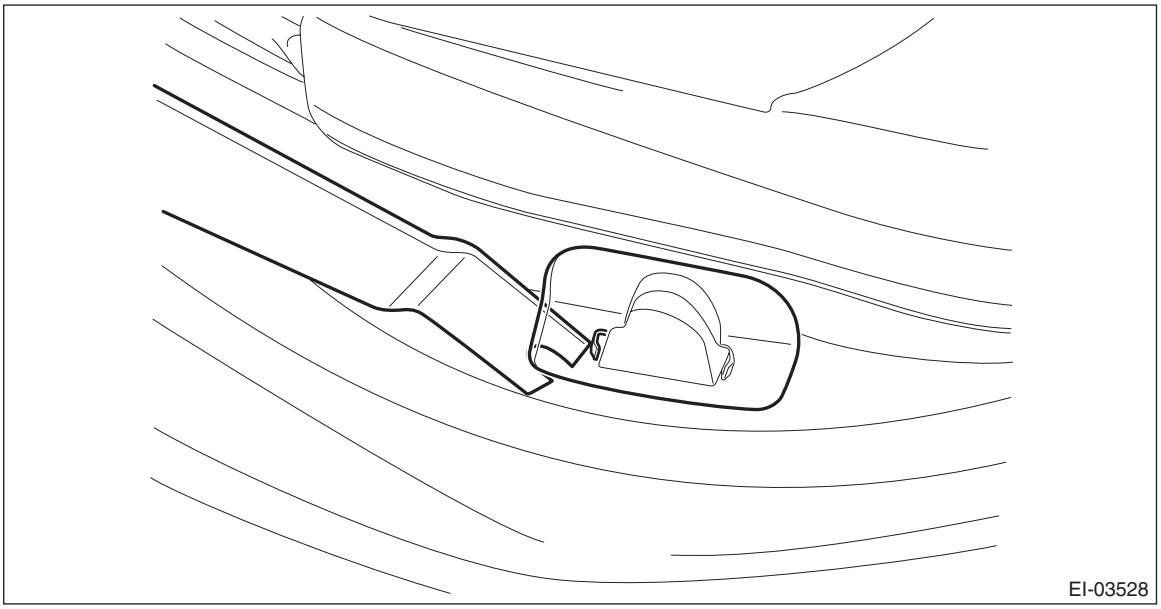


5) Remove the trim panel - center pillar LWR.
(1) Release the clip by pulling the trim panel - center pillar LWR toward you.
(2) Expand the claws of the trim panel - center pillar LWR outward, and remove it from the trim panel - center pillar UPR.

**CAUTION:**
**Do not expand the trim panel - center pillar LWR excessively. Doing so may damage the trim.**




NOTE:
First release the claw located to the front of the vehicle.
6) Disconnect the claws and remove the cover - catcher.

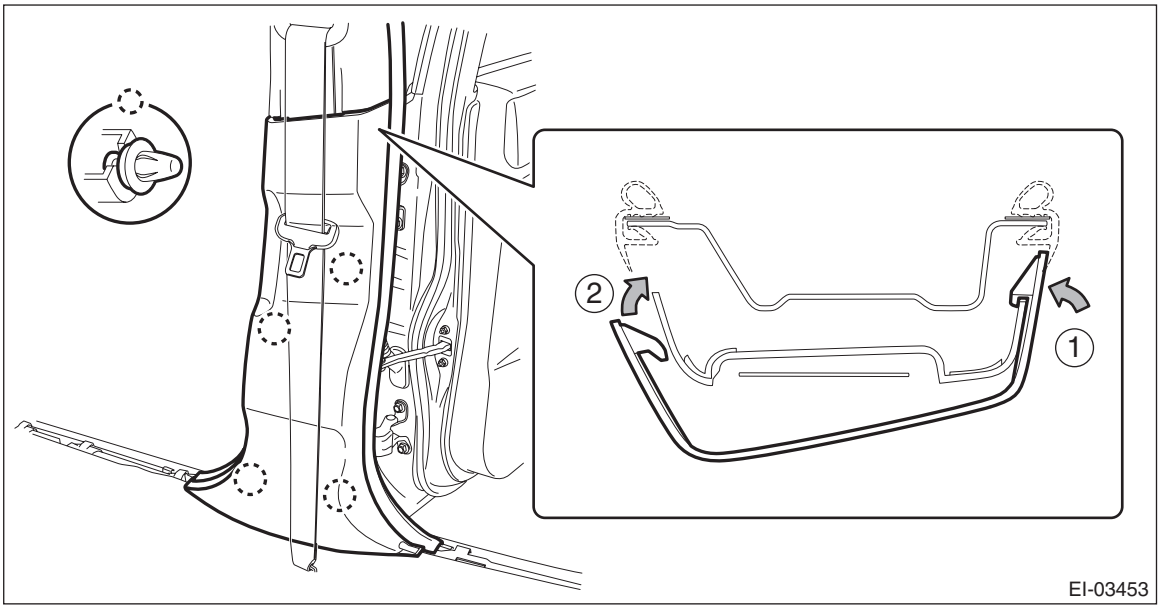



NOTE:
Remove the cover - catcher by using a plastic remover.

## B: INSTALLATION

Install each part in the reverse order of removal.

NOTE:
Assemble the trim panel - center pillar LWR to the trim panel - center pillar UPR securely.



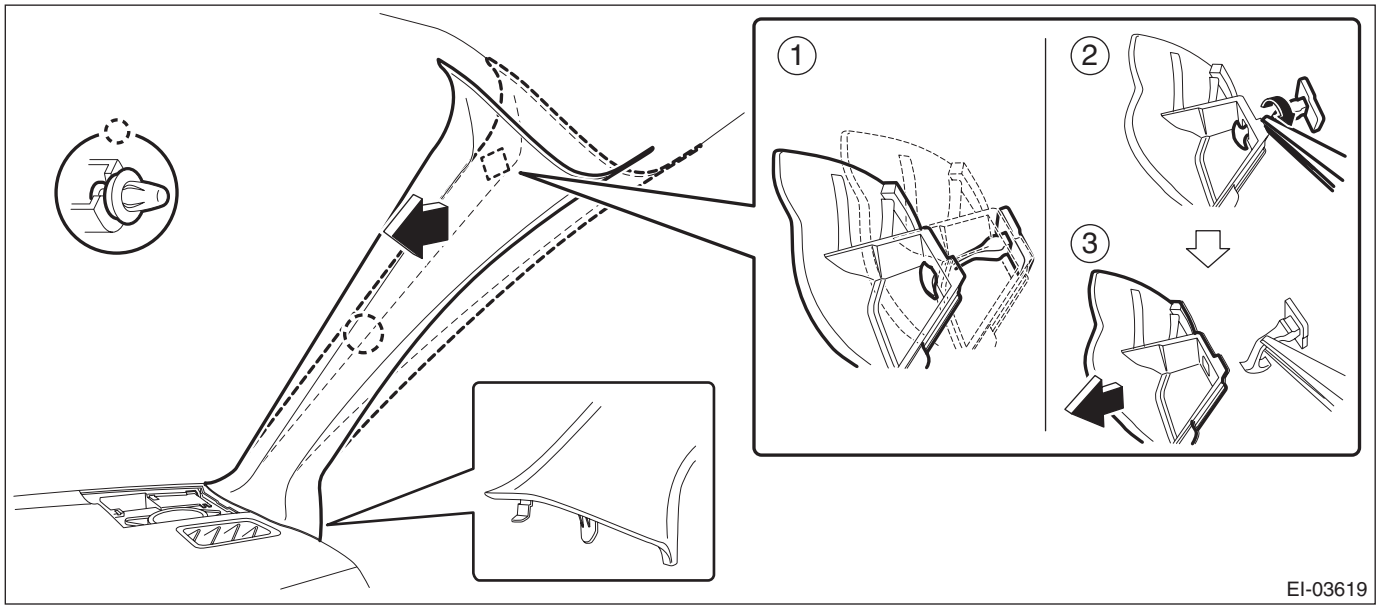
# 22.Upper Inner Trim

## A: REMOVAL

**CAUTION:**
**• Airbag system satellite safing sensor is located in the lower of the rear seat cushion center. Before removing the rear seat, refer to "CAUTION" of "General Description" in "AIRBAG SYSTEM" section. <Ref. to AB-10, CAUTION, General Description.>**
**• The airbag system is fitted with a backup power supply. After disconnecting the battery ground cable, the airbag may operate if you do not wait for 60 seconds before starting the service of airbag system.**

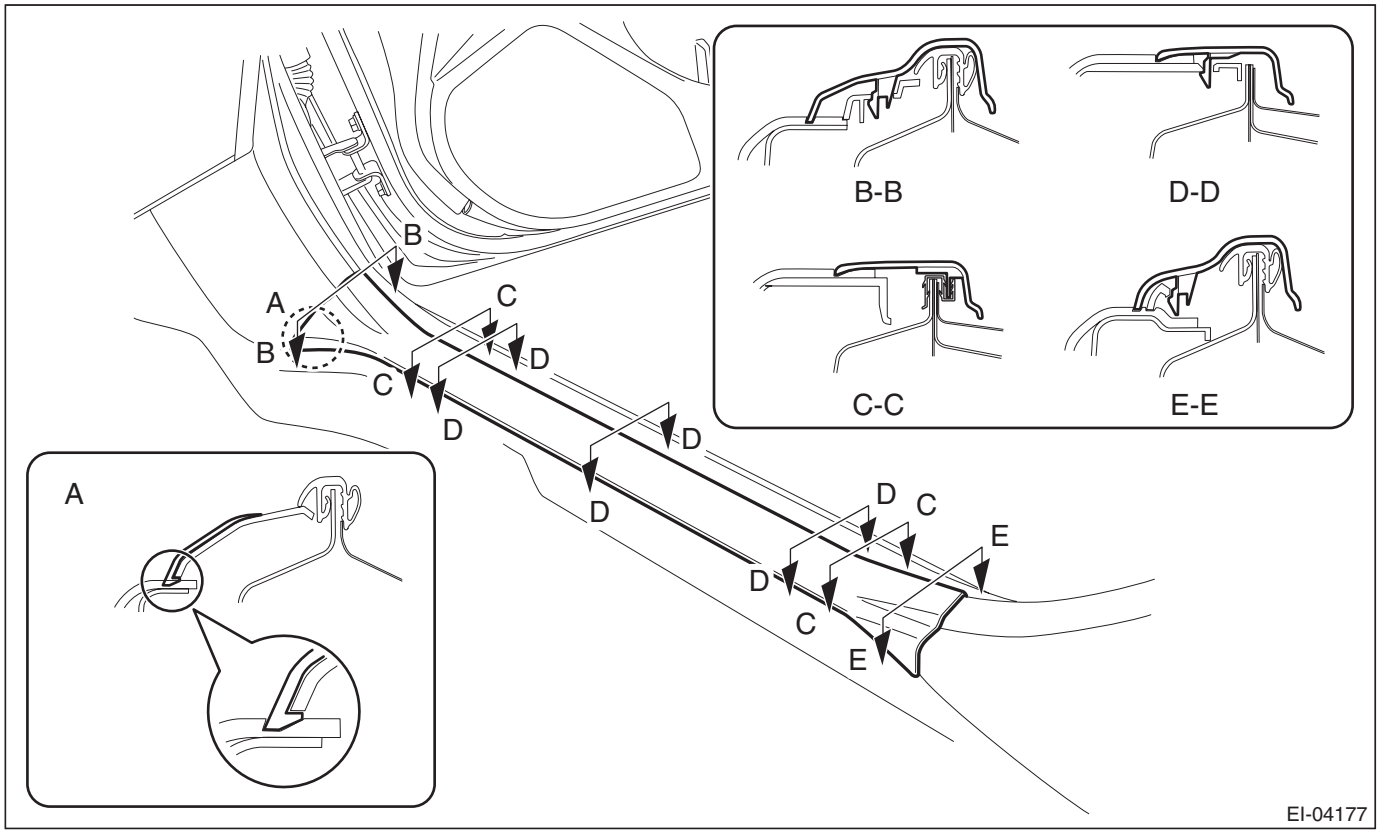
1) Remove the trim panel - front pillar UPR.
   (1) Pull the upper part of the trim panel - front pillar UPR towards the center of the vehicle.
   (2) Insert long-nose pliers into the top part of the trim, grip the tether clip with the pliers and twist 90° in that position.

**CAUTION:**
**Be careful not to damage the pillar trim surface and curtain airbag module when inserting the pliers.**
   (3) Holding the tether clip twisted as in the previous step, remove the trim panel - front pillar UPR from the tether clip.
   (4) Remove the clips, and remove the trim panel - front pillar UPR.



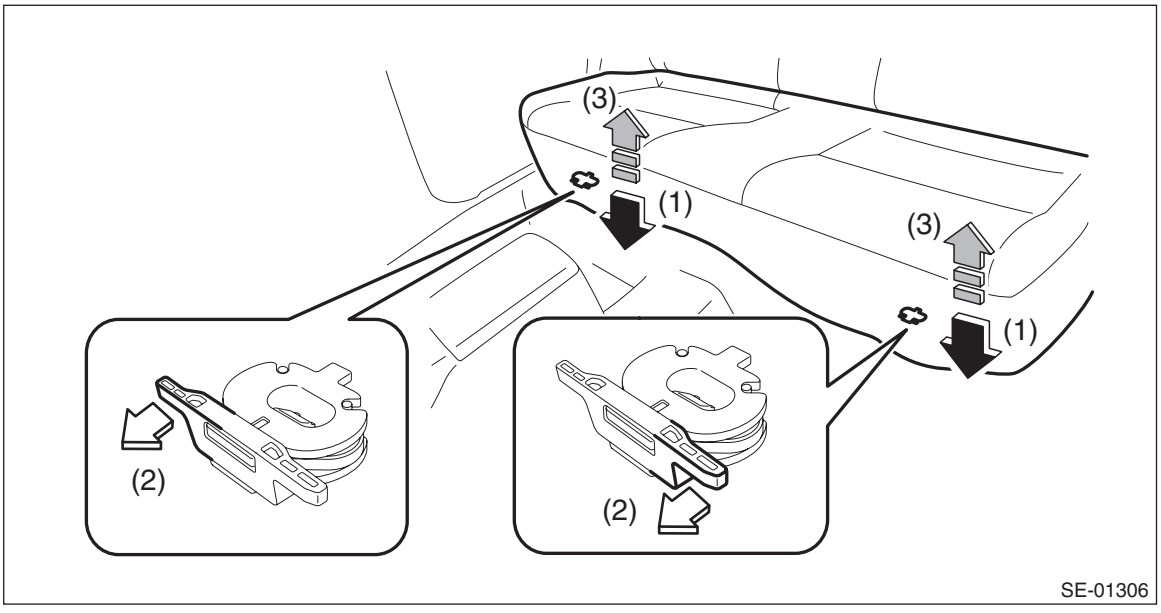
2) Release the claws, and then remove the cover side sill - front INN.

**CAUTION:**
**Do not pull with excessive force. Doing so may damage the claws of the cover side sill - front INN.**

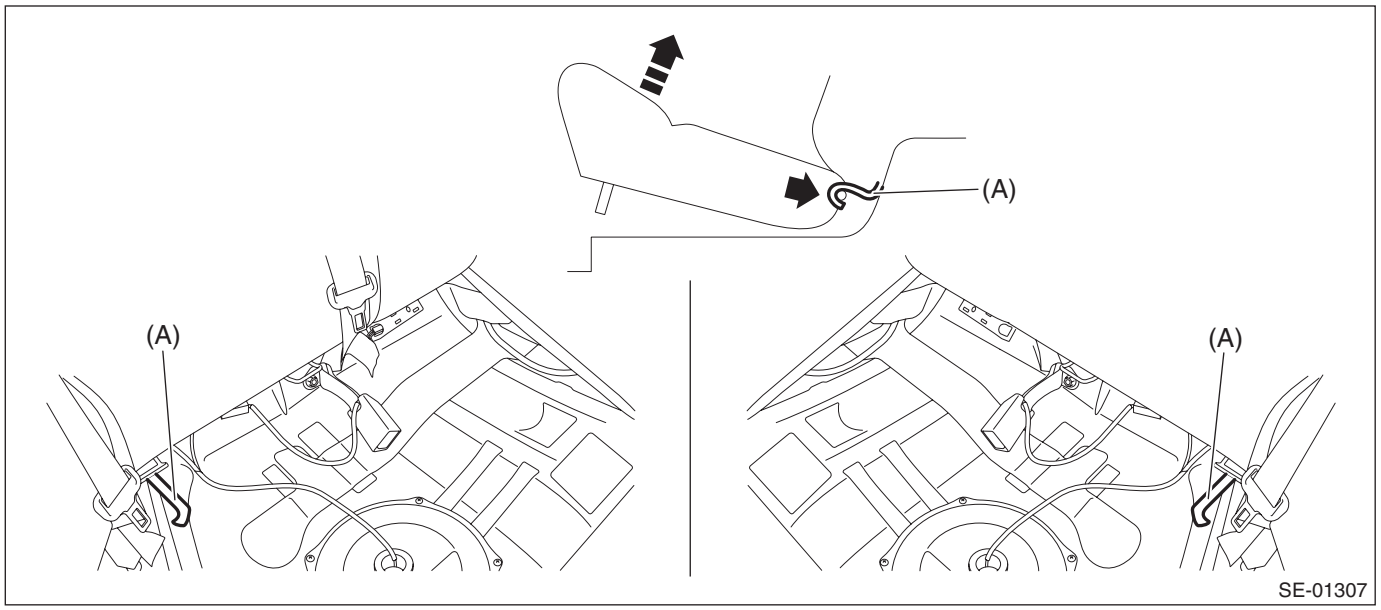



3) Remove the rear seat cushion assembly.
(1) Push the corners of the rear seat cushion from above.
(2) While pushing the corners of the rear seat cushion from above, pull the knob of the hook - seat cushion rear towards yourself.
(3) While pulling the knob towards yourself, disconnect the hooks by lifting up the rear seat cushion.

NOTE:
Pull the left side of the knob to disconnect the LH side hook, and pull the right side of the knob to disconnect the RH side hook.

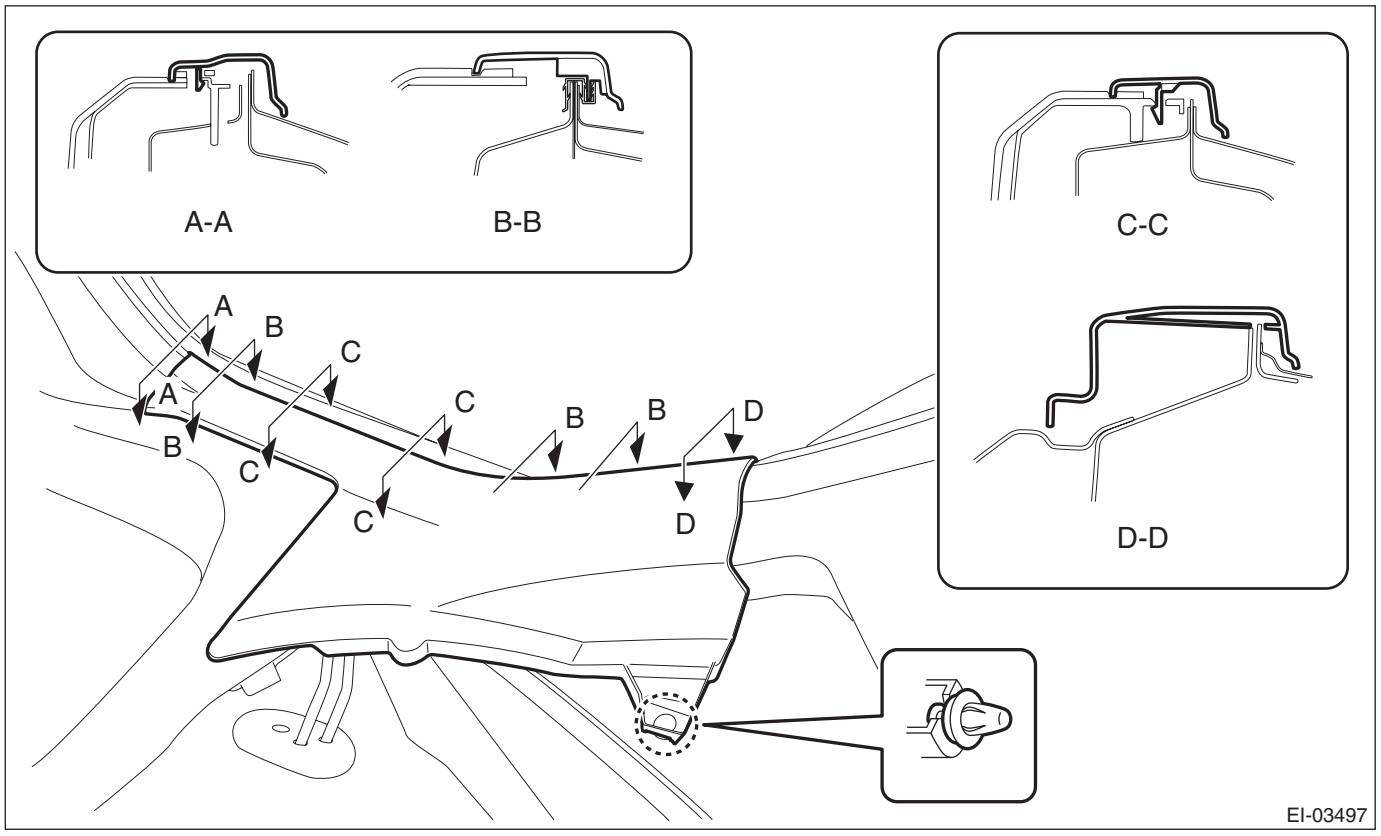


(4) Remove the hook (A) by pushing it back while lifting the front side of the rear seat cushion, and remove the rear seat cushion.



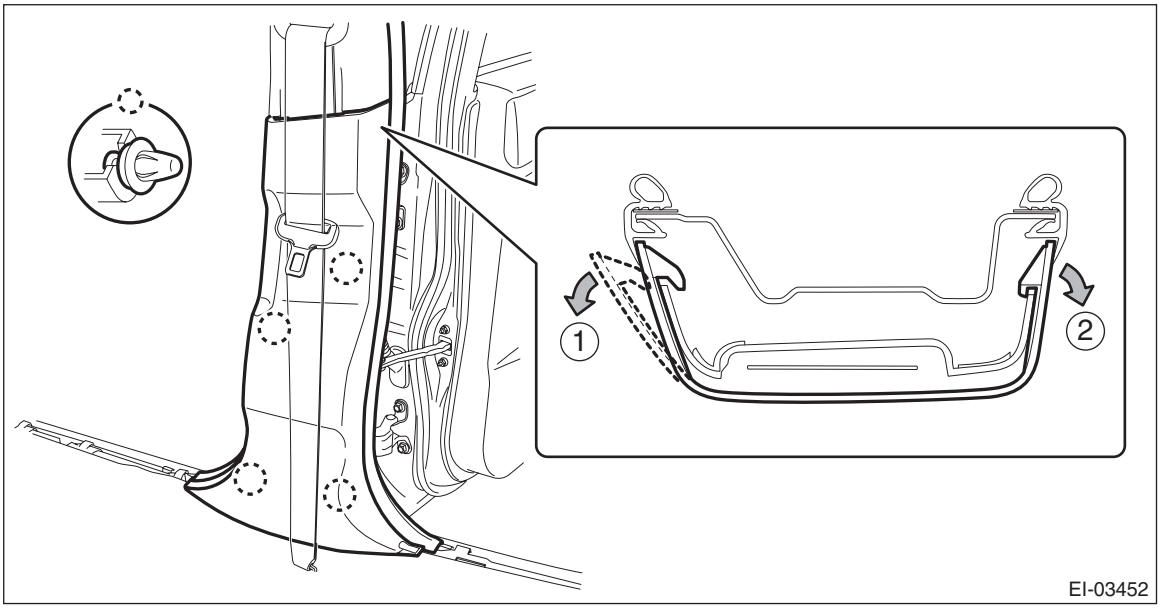

4) Release the clips and claws, and then remove the cover side sill - rear INN.

**CAUTION:**
**Do not pull with excessive force. Doing so may damage the claws of the cover side sill - rear INN.**



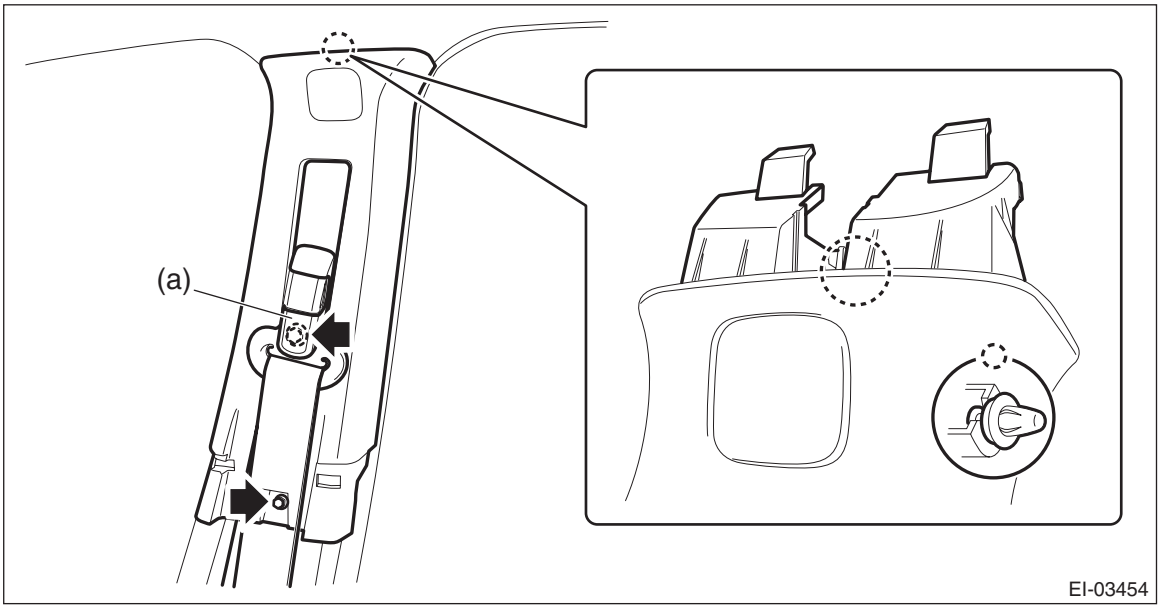
5) Remove the trim panel - center pillar LWR.
(1) Release the clip by pulling the trim panel - center pillar LWR toward you.
(2) Expand the claws of the trim panel - center pillar LWR outward, and remove it from the trim panel - center pillar UPR.

**CAUTION:**
**Do not expand the trim panel - center pillar LWR excessively. Doing so may damage the trim.**



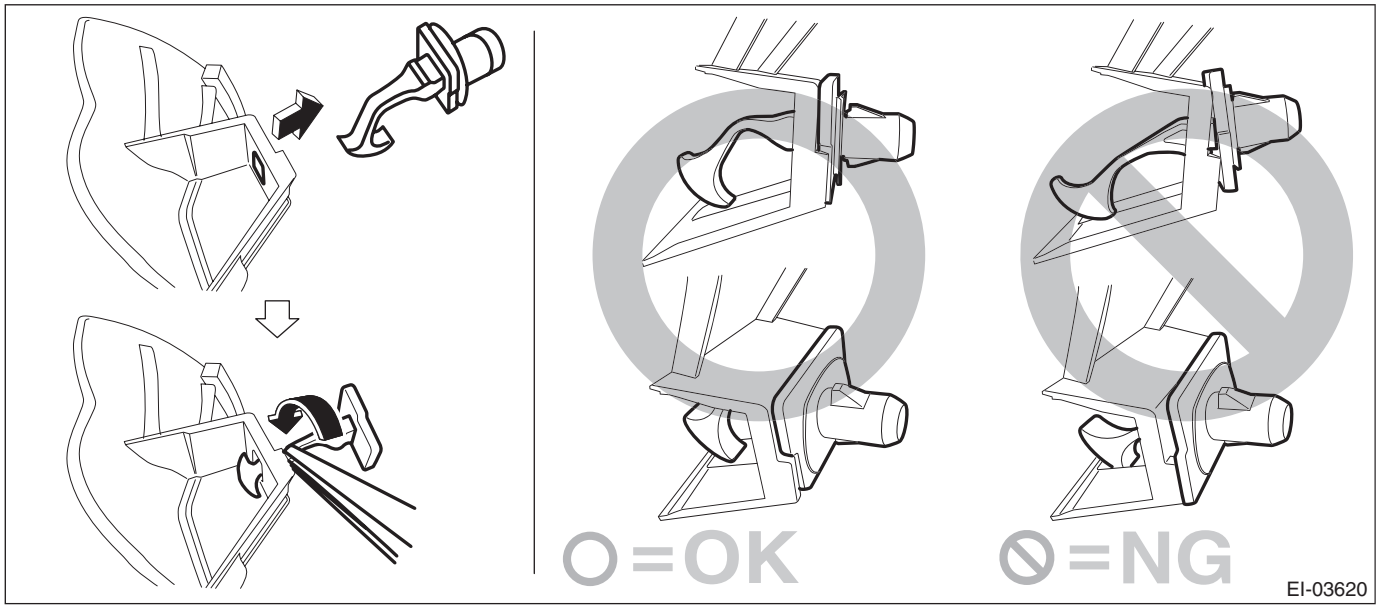

NOTE:
First release the claw located to the front of the vehicle.
6) Remove the trim panel - center pillar UPR.
(1) Remove the cover through (a), and remove the seat belt anchor bolt.
(2) Remove the bolt on the lower side of the trim panel - center pillar UPR.
(3) Remove the clip by pulling the upper part of the trim toward you, and while lowering the entire trim, remove the trim panel - center pillar UPR.

**CAUTION:**
**Do not reuse the upper clips of the trim panel - center pillar UPR. Once the clip is removed, its holding force is reduced. Be sure to replace it with a new clip.**



## B: INSTALLATION

**CAUTION:**
**• When reusing the tether clip on the upper part of the trim panel - front pillar UPR, check that there is no damage to the tether clip. If the clip is damaged, its holding force is reduced and the trim panel - front pillar UPR may come off. Be sure to replace it with a new clip.**
**• Do not reuse the tether clip removed from the upper part of the trim panel - front pillar UPR. Always replace with a new part.**
**• Do not reuse the upper clips of the trim panel - center pillar UPR. Once the clip is removed, its holding force is reduced. Be sure to replace it with a new clip.**
**• Before installing the trim panel - front pillar UPR, check the condition of protective non-woven fabric (white) of the curtain airbag. If it is damaged (airbag module cloth is exposed), replace the curtain airbag module assembly with a new part.**
1) Remove the remaining tether clips from the vehicle body.
2) Install the trim panel - front pillar UPR.
(1) Check the installation status of the tether clips and install the trim panel - front pillar UPR.




3) Install each part in the reverse order of removal.

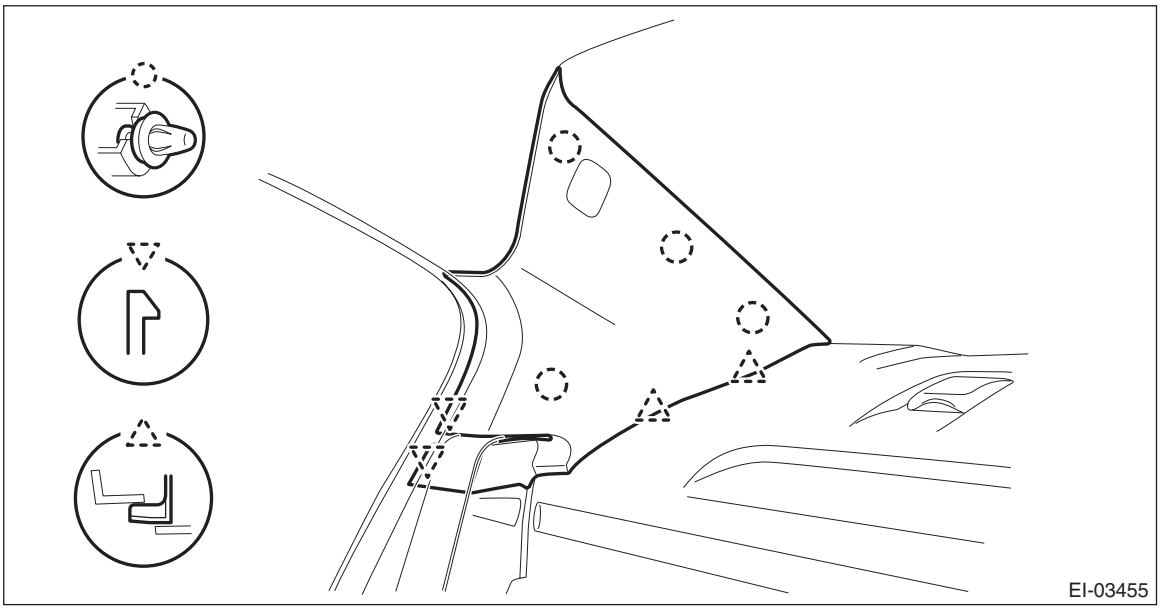
***Tightening torque***
***Front seat belt: <Ref. to SB-2, FRONT SEAT BELT, COMPONENT, General Description.>***

# 23.Rear Quarter Trim

## A: REMOVAL

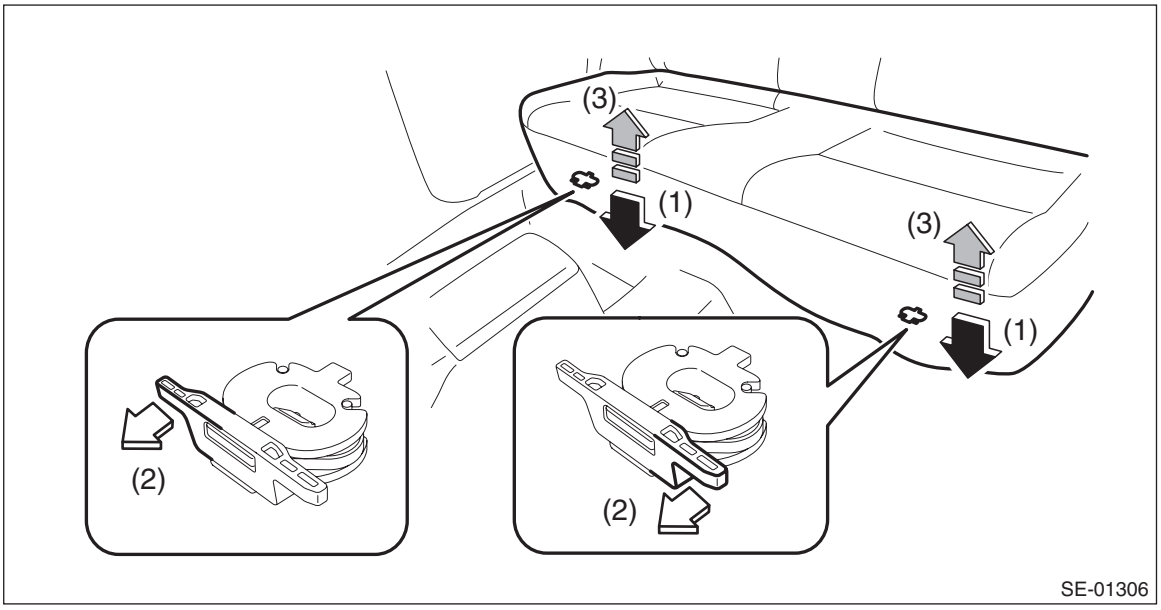
### 1. 4 DOOR MODEL

**CAUTION:**
**• Airbag system satellite safing sensor is located in the lower of the rear seat cushion center. Before removing the rear seat, refer to "CAUTION" of "General Description" in "AIRBAG SYSTEM" section. <Ref. to AB-10, CAUTION, General Description.>**
**• The airbag system is fitted with a backup power supply. After disconnecting the battery ground cable, the airbag may operate if you do not wait for 60 seconds before starting the service of airbag system.**
1) Disconnect the ground cable from battery and wait for at least 60 seconds before starting work.
2) Remove the clips, and remove the trim panel - rear pillar UPR.

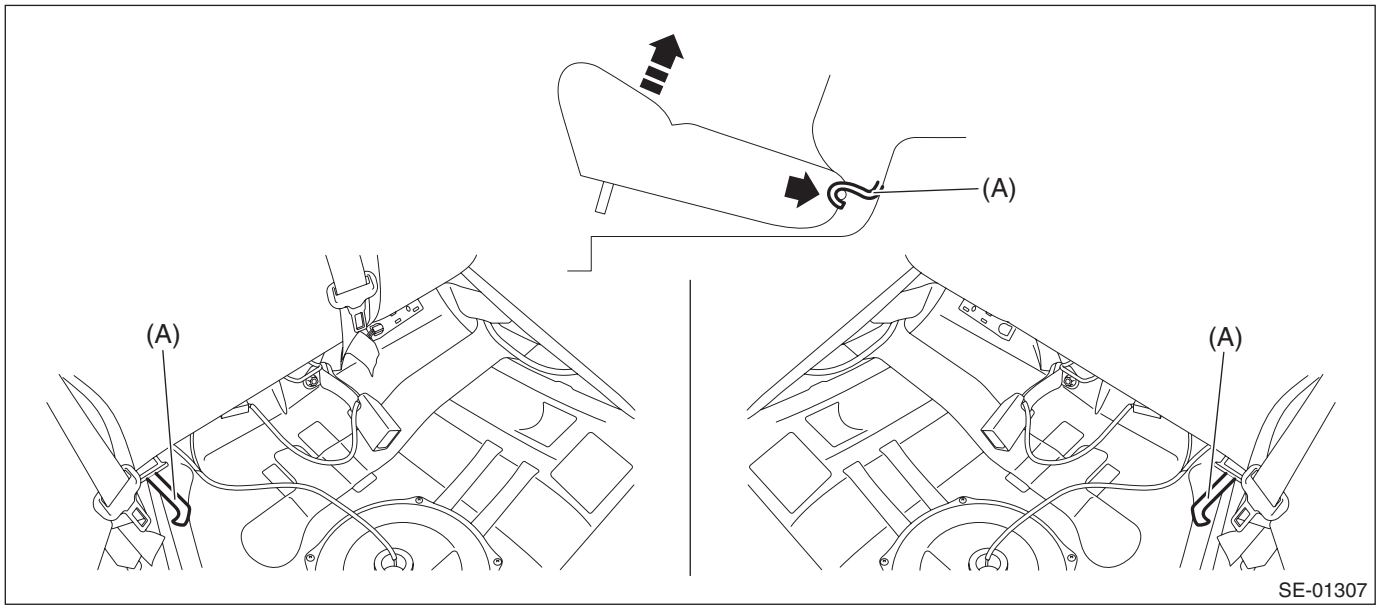


3) Remove the rear seat cushion assembly.
(1) Push the corners of the rear seat cushion from above.
(2) While pushing the corners of the rear seat cushion from above, pull the knob of the hook - seat cushion rear towards yourself.
(3) While pulling the knob towards yourself, disconnect the hooks by lifting up the rear seat cushion.

NOTE:
Pull the left side of the knob to disconnect the LH side hook, and pull the right side of the knob to disconnect the RH side hook.

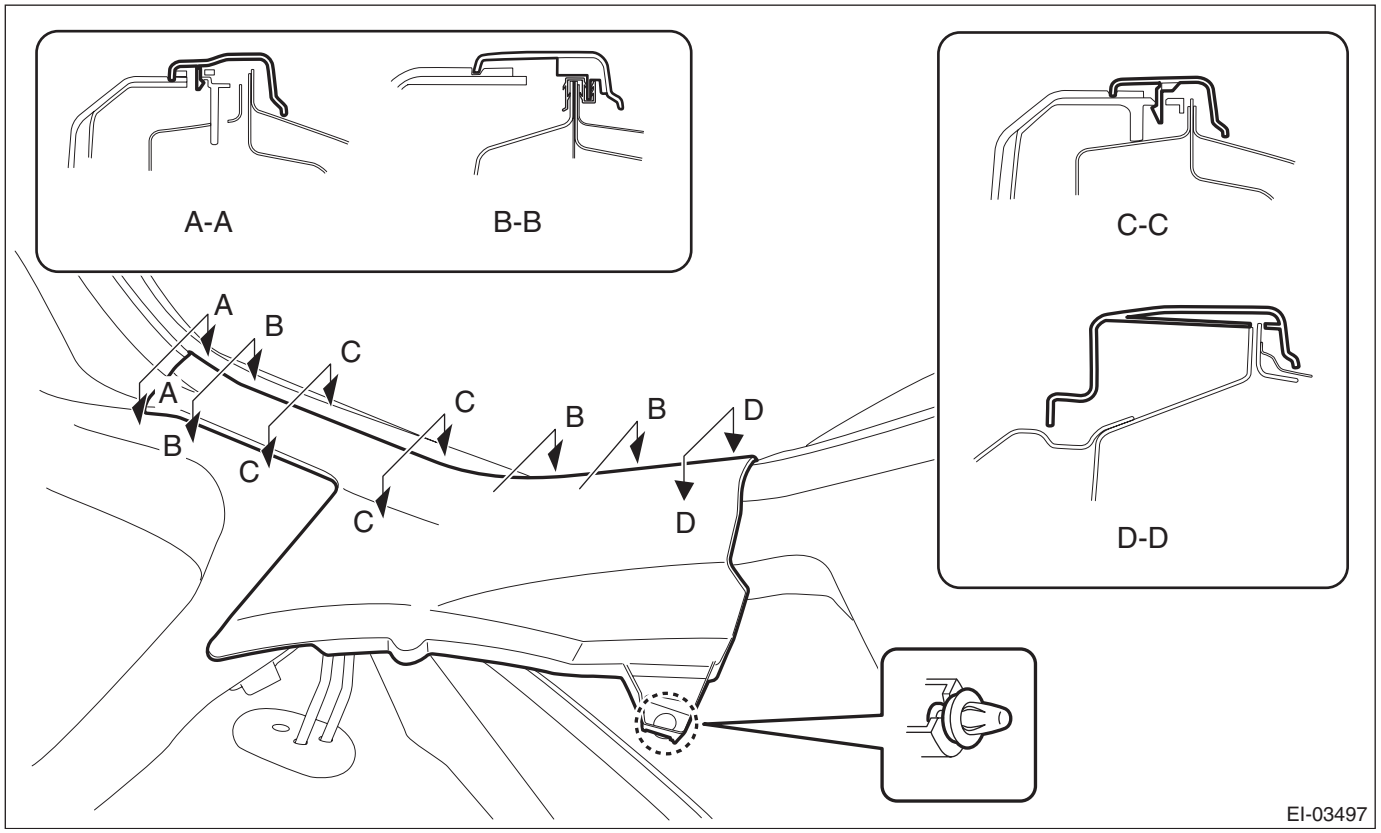



(4) Remove the hook (A) by pushing it back while lifting the front side of the rear seat cushion, and remove the rear seat cushion.

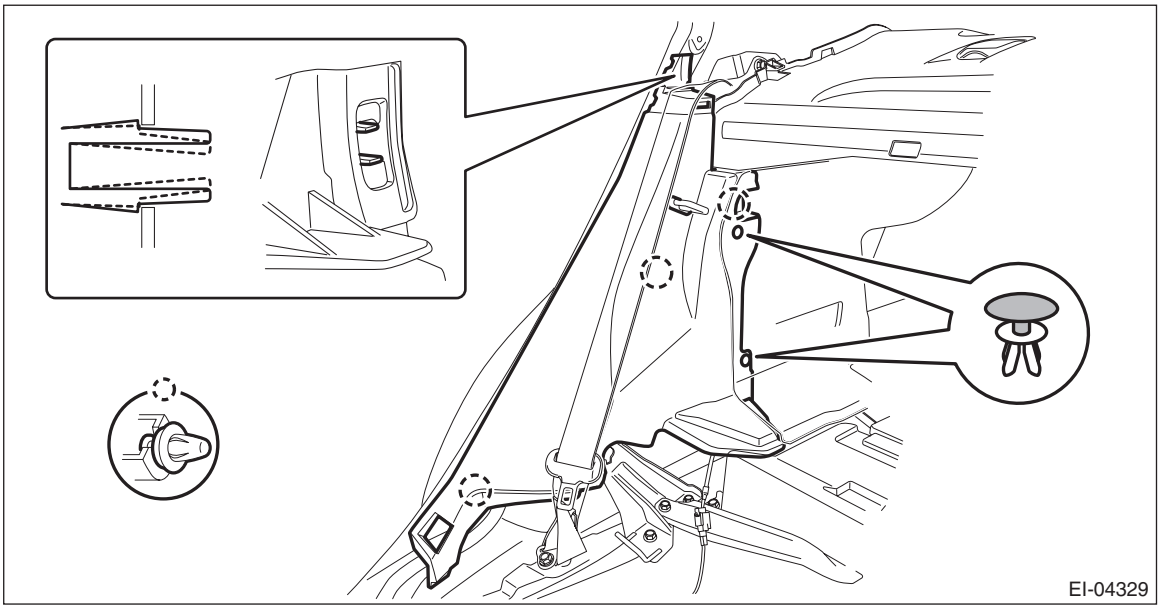


4) Release the clips and claws, and then remove the cover side sill - rear INN.

**CAUTION:**
**Do not pull with excessive force. Doing so may damage the claws of the cover side sill - rear INN.**



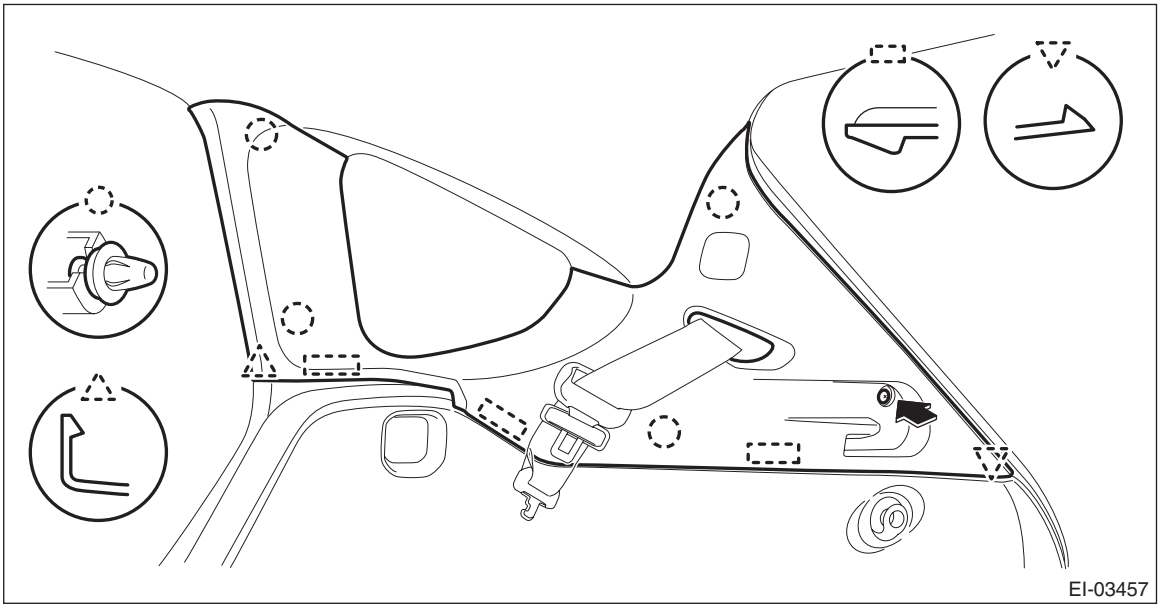

5) Remove the trim panel - rear pillar LWR.
(1) Remove the clips, and turn over the trim panel - trunk side.
(2) Remove the clips, and remove the trim panel - rear pillar LWR.



## 2. 5 DOOR MODEL/XV MODEL

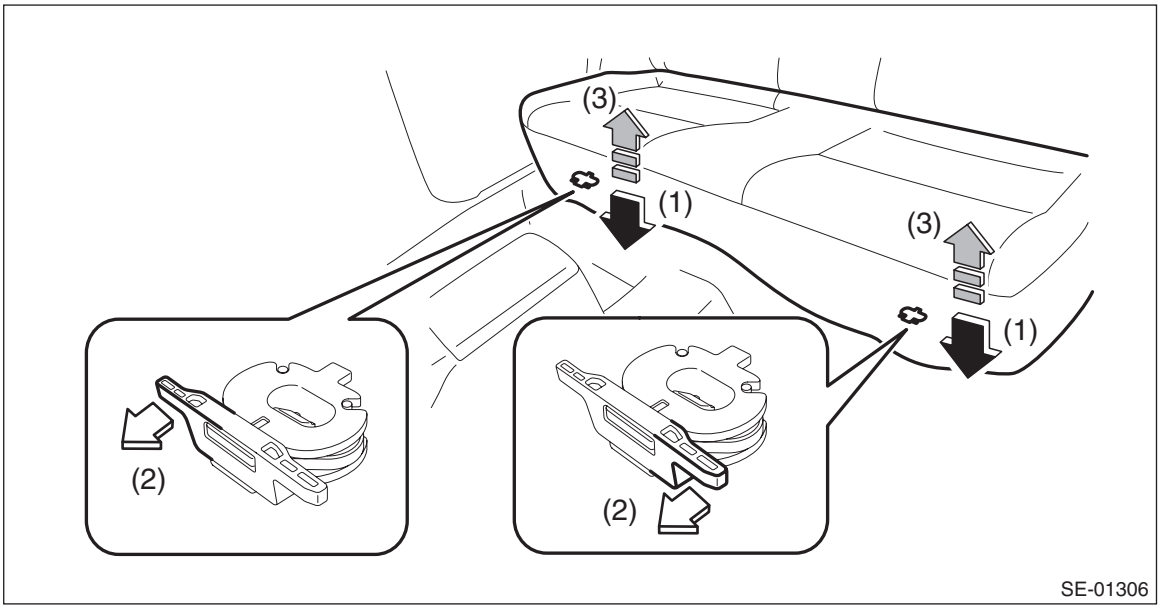
**CAUTION:**
**• Airbag system satellite safing sensor is located in the lower of the rear seat cushion center. Before removing the rear seat, refer to "CAUTION" of "General Description" in "AIRBAG SYSTEM" section. <Ref. to AB-10, CAUTION, General Description.>**
**• The airbag system is fitted with a backup power supply. After disconnecting the battery ground cable, the airbag may operate if you do not wait for 60 seconds before starting the service of airbag system.**
1) Disconnect the ground cable from battery and wait for at least 60 seconds before starting work. <Ref. to NT-5, BATTERY, NOTE, Note.>

NOTE:
For the 12 volt engine restart battery of HEV model, disconnect the ground terminal from 12V engine restart battery sensor.
2) Remove the screws and clips, and remove the trim panel - rear quarter pillar UPR.

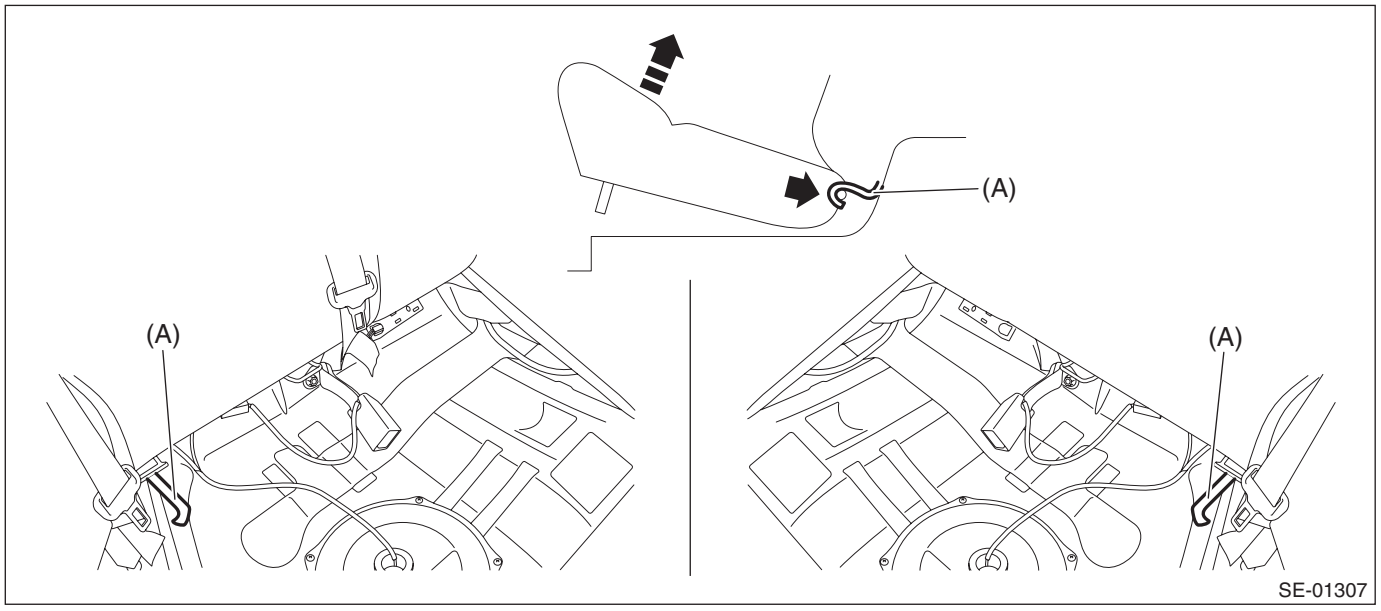


3) Remove the rear seat cushion assembly.
(1) Push the corners of the rear seat cushion from above.
(2) While pushing the corners of the rear seat cushion from above, pull the knob of the hook - seat cushion rear towards yourself.
(3) While pulling the knob towards yourself, disconnect the hooks by lifting up the rear seat cushion.

NOTE:
Pull the left side of the knob to disconnect the LH side hook, and pull the right side of the knob to disconnect the RH side hook.

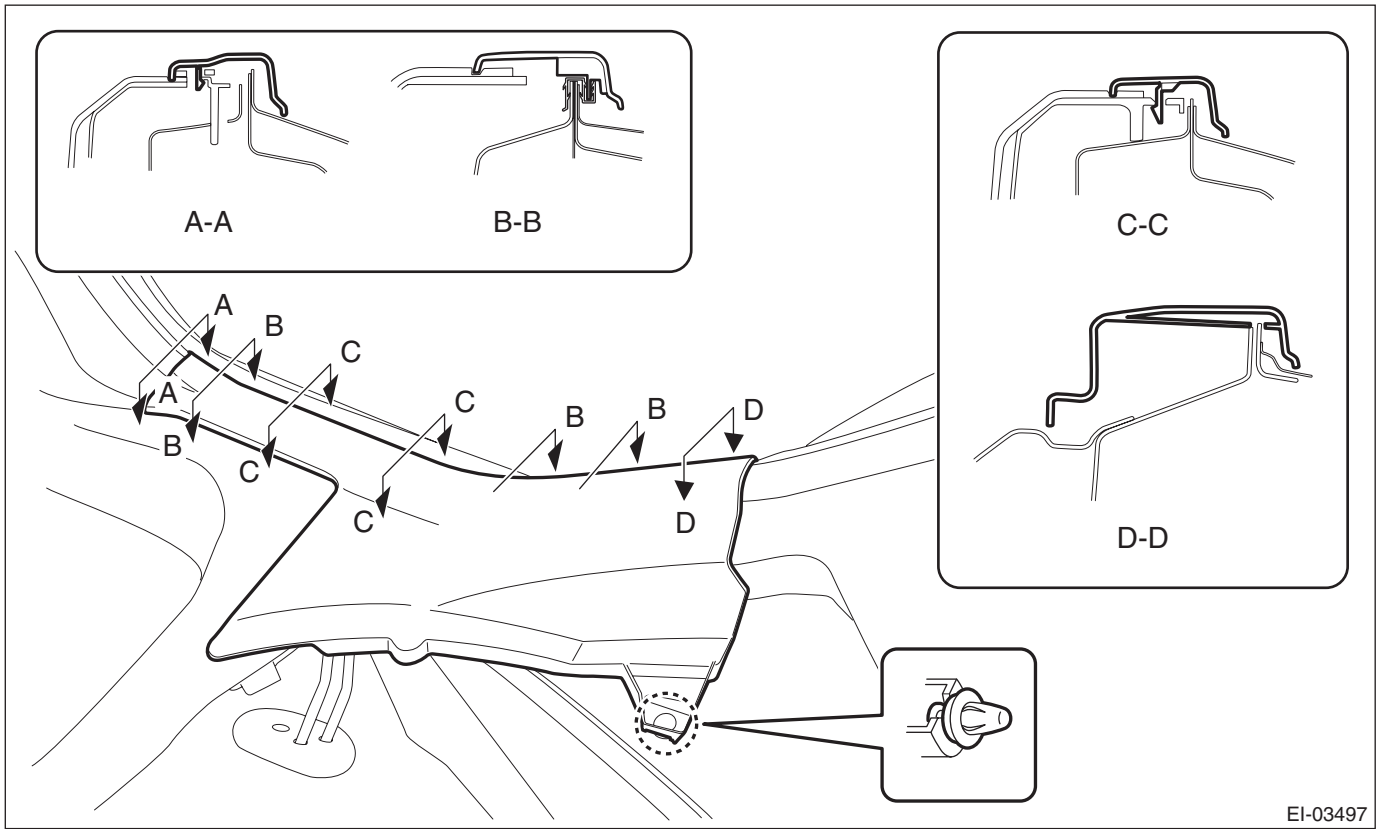



(4) Remove the hook (A) by pushing it back while lifting the front side of the rear seat cushion, and remove the rear seat cushion.

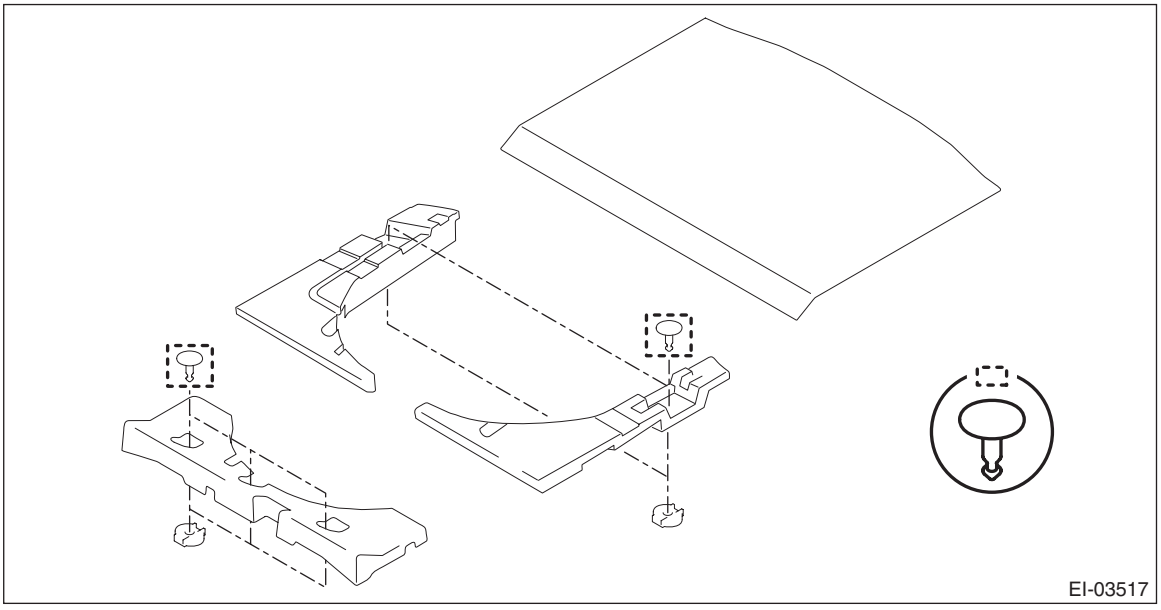


4) Release the clips and claws, and then remove the cover side sill - rear INN.

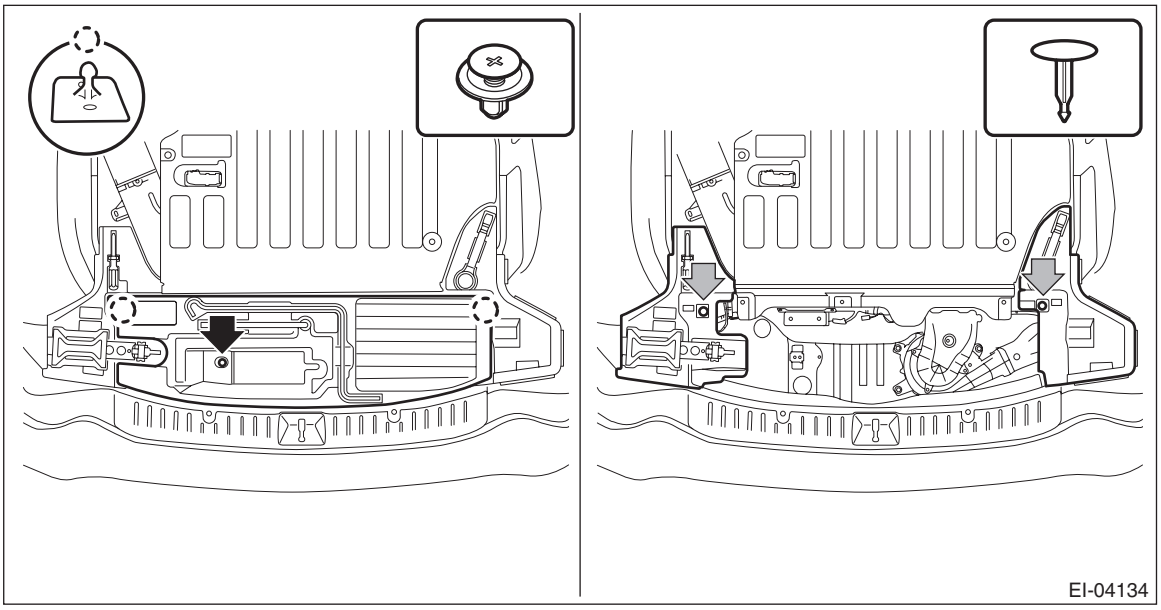
**CAUTION:**
**Do not pull with excessive force. Doing so may damage the claws of the cover side sill - rear INN.**




5) Remove the mat - rear floor CTR and the spacer - rear floor side.

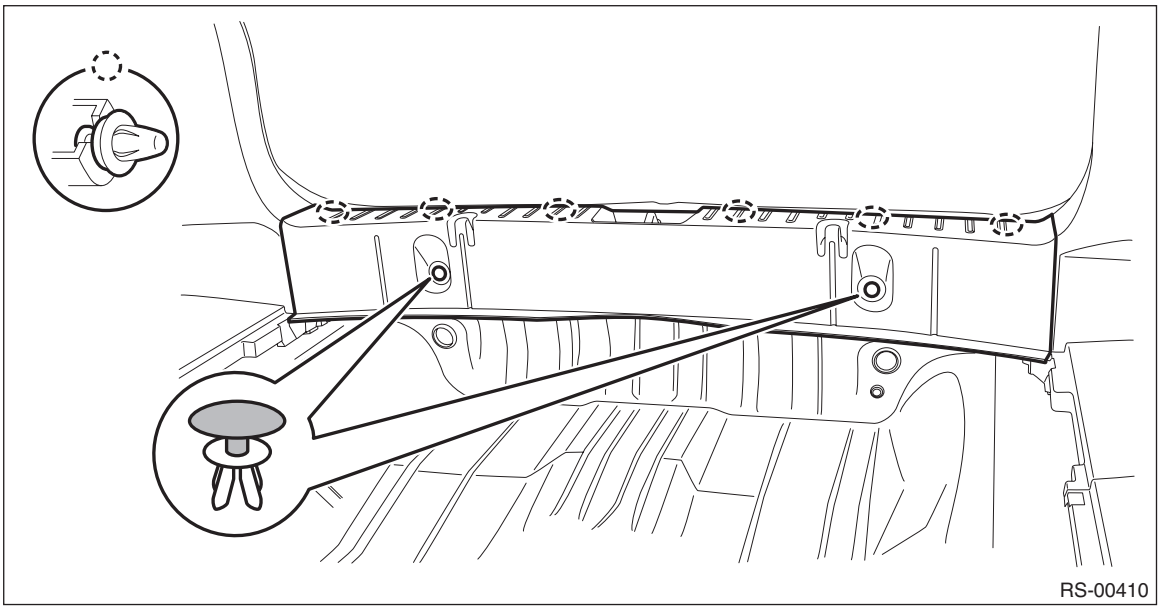


6) Remove the sub-trunk box and side spacers. (HEV model)




(1) Release the clips and side spacers, then detach the sub-trunk box.
(2) Remove the clips and detach the side spacers.

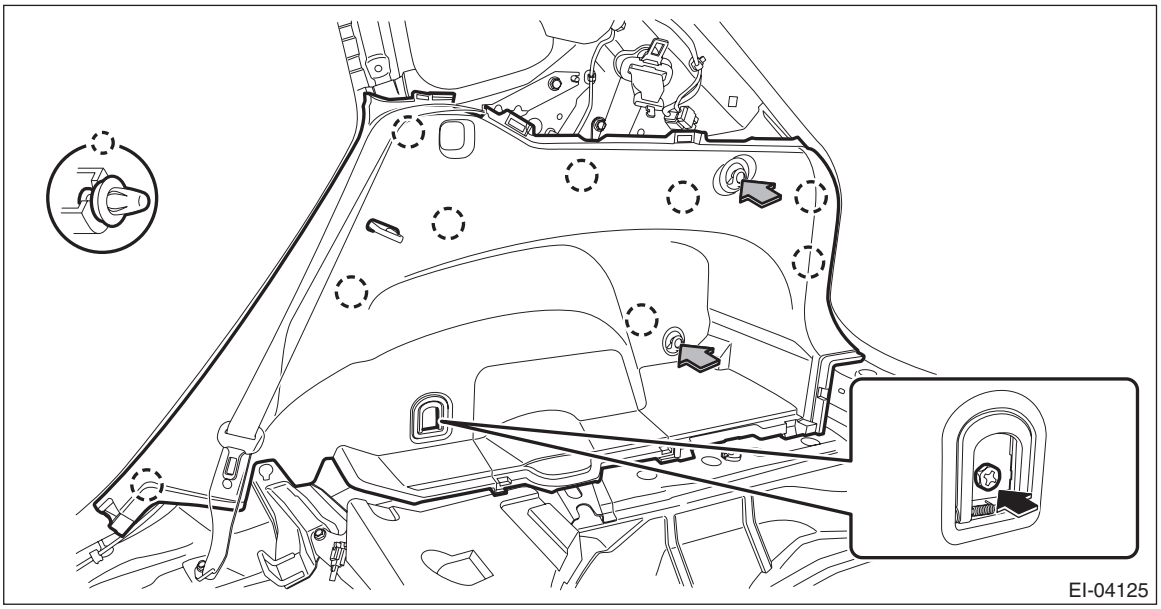
7) Remove the clips, and remove the trim panel - rear skirt.



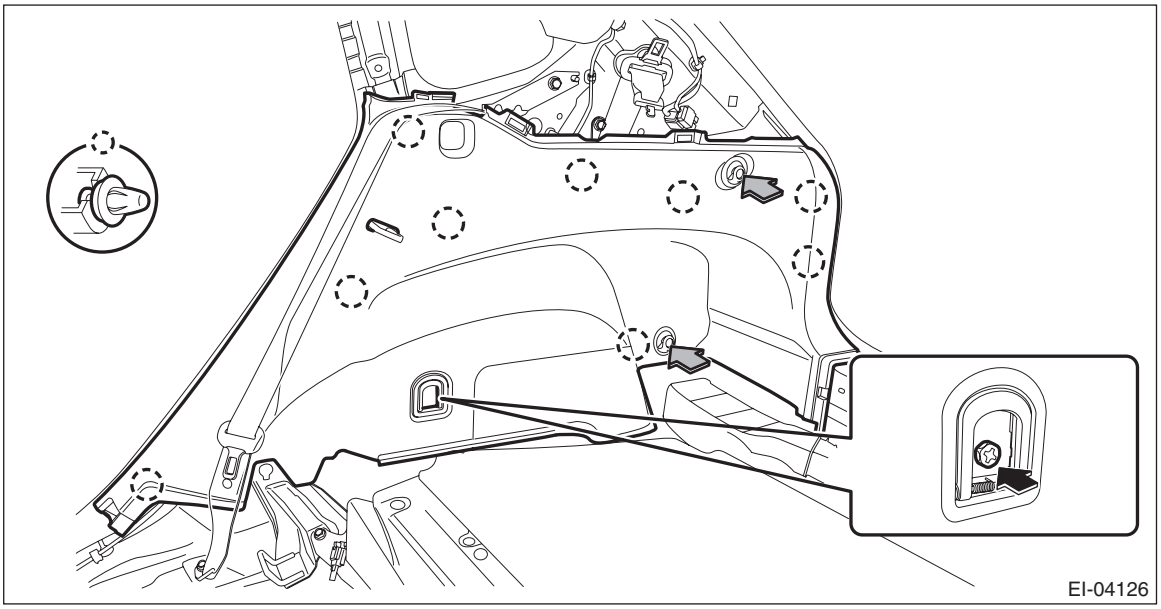
8) Remove the trim panel - rear apron.
(1) Remove the caps, and remove the bolts.
(2) Remove the screws.
(3) Disengage the clips, and remove the trim panel - rear apron.

NOTE:
For LH side, disconnect the connector of the luggage room light.

- Gasoline engine model


EI-04125

- HEV model


EI-04126

## B: INSTALLATION

Install each part in the reverse order of removal.

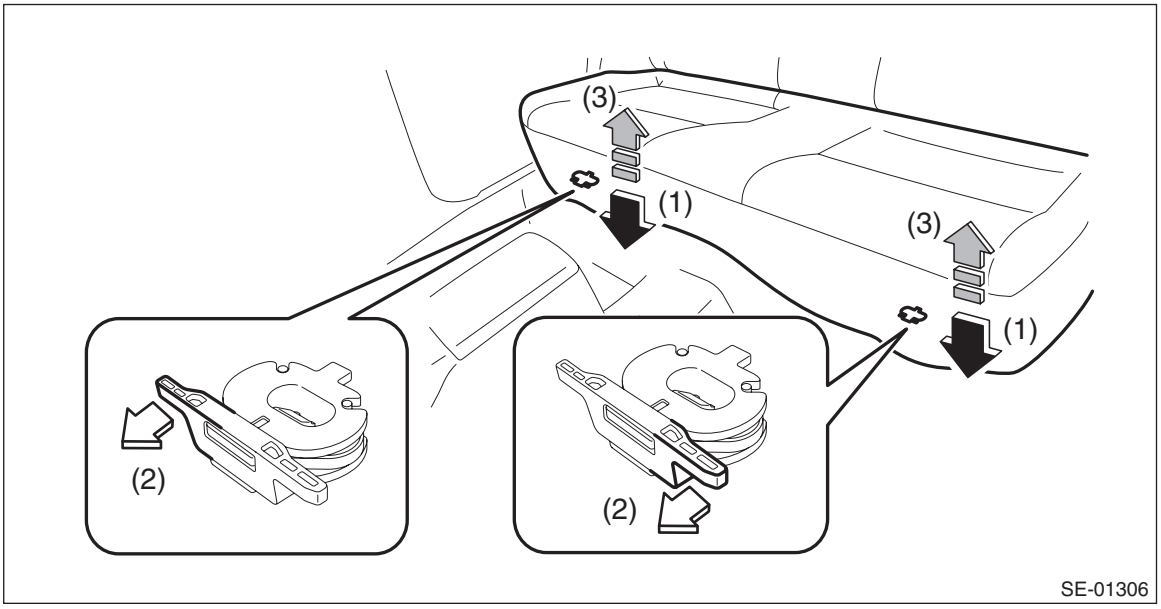
***Tightening torque:***
***Rear seat backrest assembly: <Ref. to SE-5, REAR SEAT, COMPONENT, General Description.>***

# 24.Rear Shelf Trim

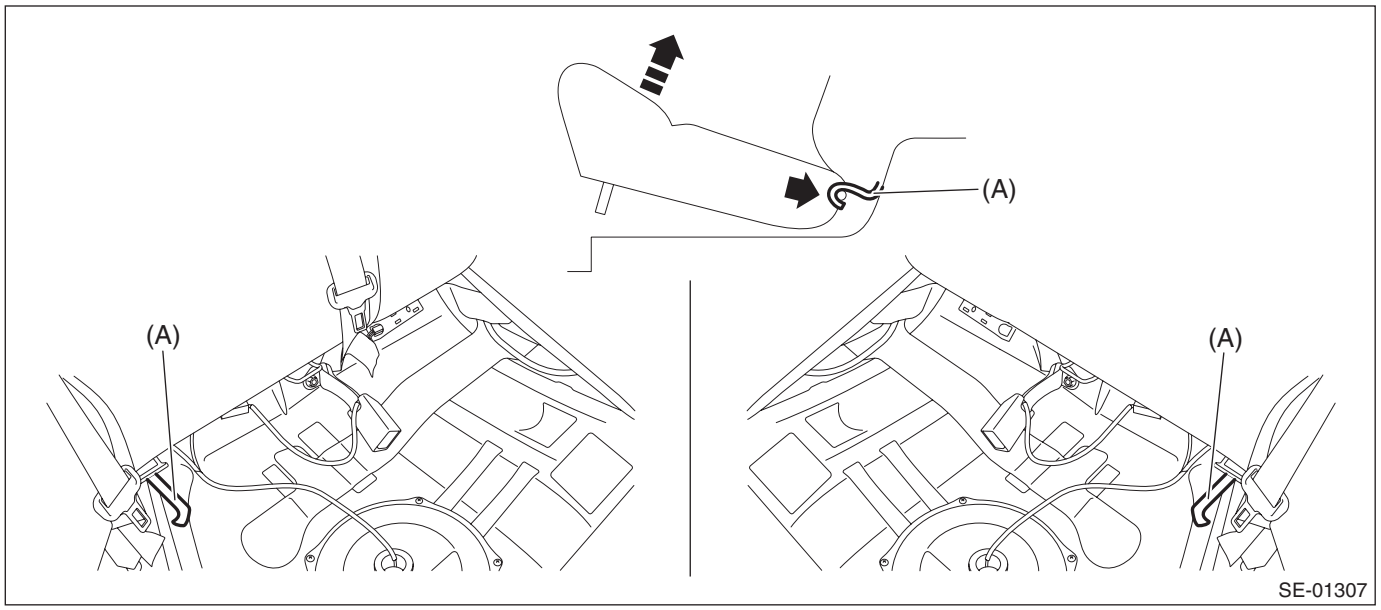
## A: REMOVAL

**CAUTION:**
**• Airbag system satellite safing sensor is located in the lower of the rear seat cushion center. Before removing the rear seat, refer to "CAUTION" of "General Description" in "AIRBAG SYSTEM" section. <Ref. to AB-10, CAUTION, General Description.>**
**• The airbag system is fitted with a backup power supply. After disconnecting the battery ground cable, the airbag may operate if you do not wait for 60 seconds before starting the service of airbag system.**
1) Disconnect the ground cable from battery and wait for at least 60 seconds before starting work. <Ref. to NT-5, BATTERY, NOTE, Note.>

NOTE:
For the 12 volt engine restart battery of HEV model, disconnect the ground terminal from 12V engine restart battery sensor.
2) Remove the rear seat cushion assembly.
(1) Push the corners of the rear seat cushion from above.
(2) While pushing the corners of the rear seat cushion from above, pull the knob of the hook - seat cushion rear towards yourself.
(3) While pulling the knob towards yourself, disconnect the hooks by lifting up the rear seat cushion.

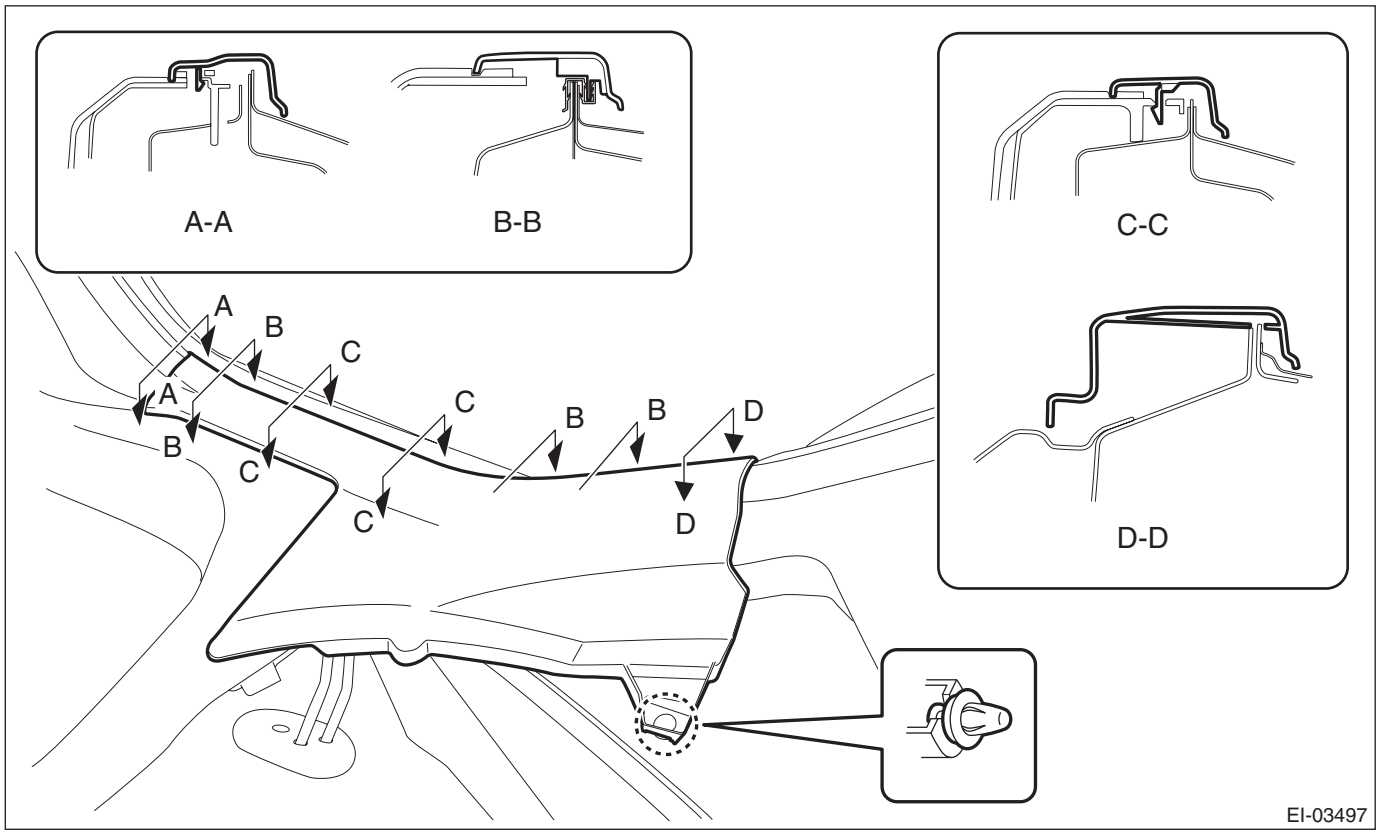


(4) Remove the hook (A) by pushing it back while lifting the front side of the rear seat cushion, and remove the rear seat cushion.

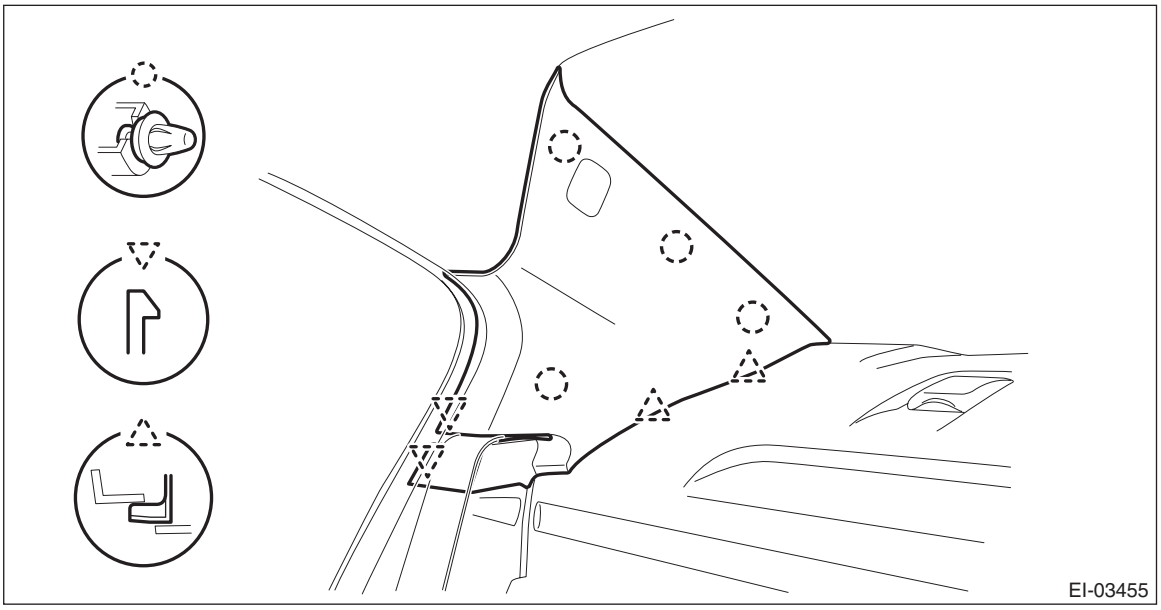



3) Release the clips and claws, and remove the side sill covers - rear INN on the left and right sides.

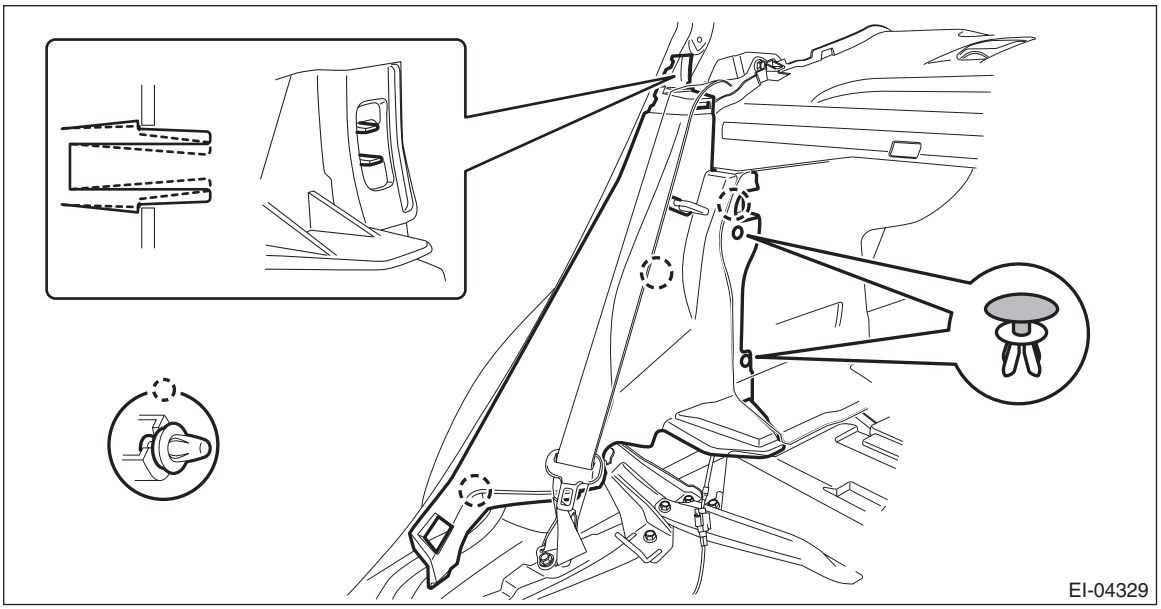
**CAUTION:**
**Do not pull with excessive force. Doing so may damage the claws of the side sill cover - rear INN.**



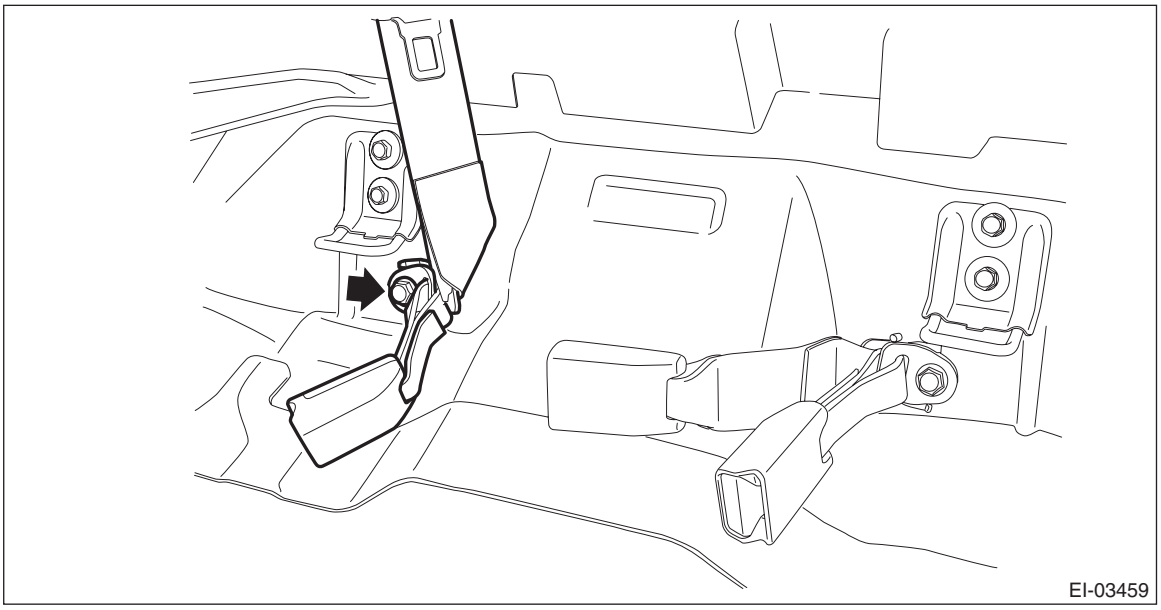
4) Remove the clips, and remove the trim panel - rear pillar UPR on the left and right sides.



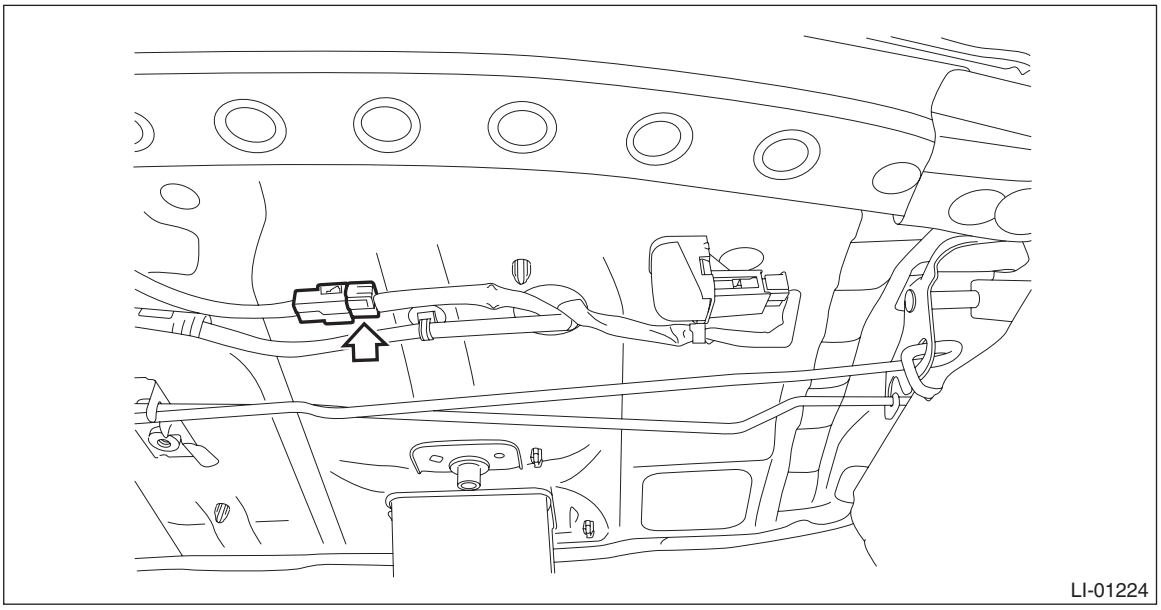

5) Remove the trim panel - rear pillar LWR on the left and right sides.
   (1) Remove the clips, and turn over the trim panel - trunk side.
   (2) Remove the clips, and remove the trim panel - rear pillar LWR.



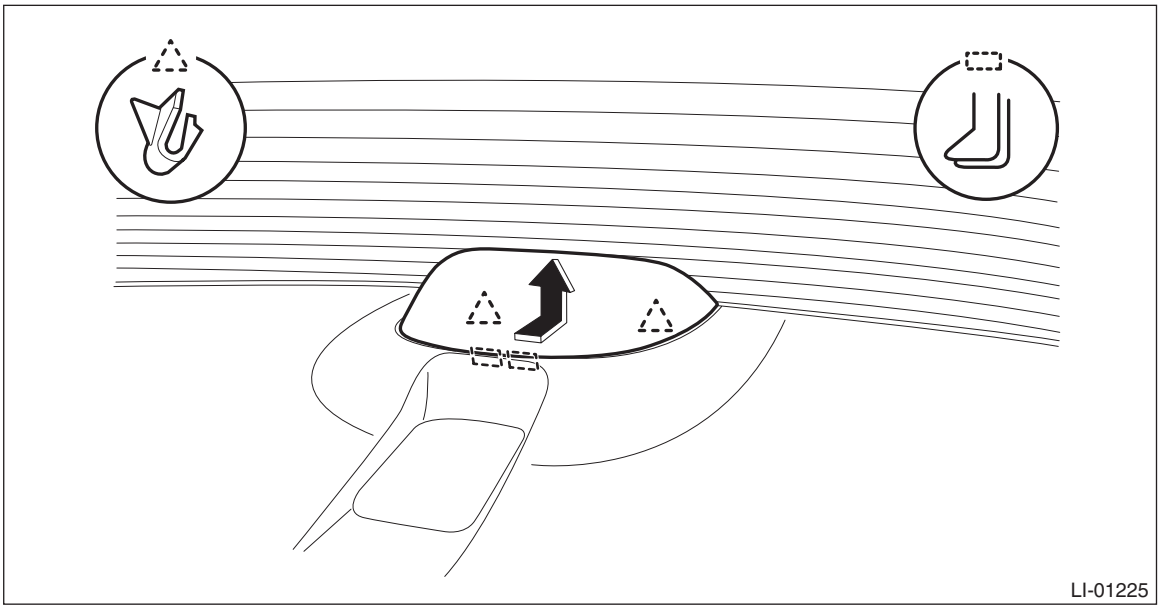
6) Remove the bolts, and remove the lower anchor of the seat belt - rear shoulder CTR.



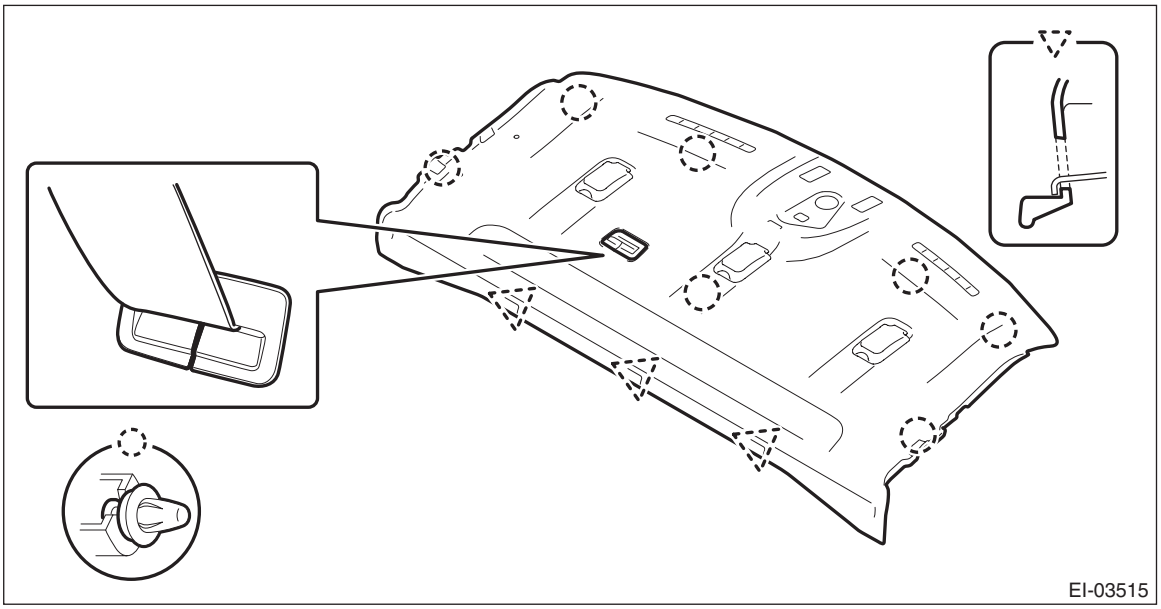

7) Remove the high-mounted stop light.
(1) Disconnect the connector.



(2) Release the claws, and remove the light assembly - high-mounted.




8) Remove the trim panel assembly - rear shelf.
(1) Release the clips to float the trim panel assembly - rear shelf.
(2) Release the belt guide, and guide the anchor of the seat belt - rear shoulder CTR to behind the trim panel - rear shelf assembly.
(3) Disconnect the connector of high-mounted stop light.
(4) Remove the trim panel assembly - rear shelf.




## B: INSTALLATION

**CAUTION:**
**Make sure that the claw behind the light assembly - high-mounted is securely attached to the trim panel assembly - rear shelf.**
Install each part in the reverse order of removal.

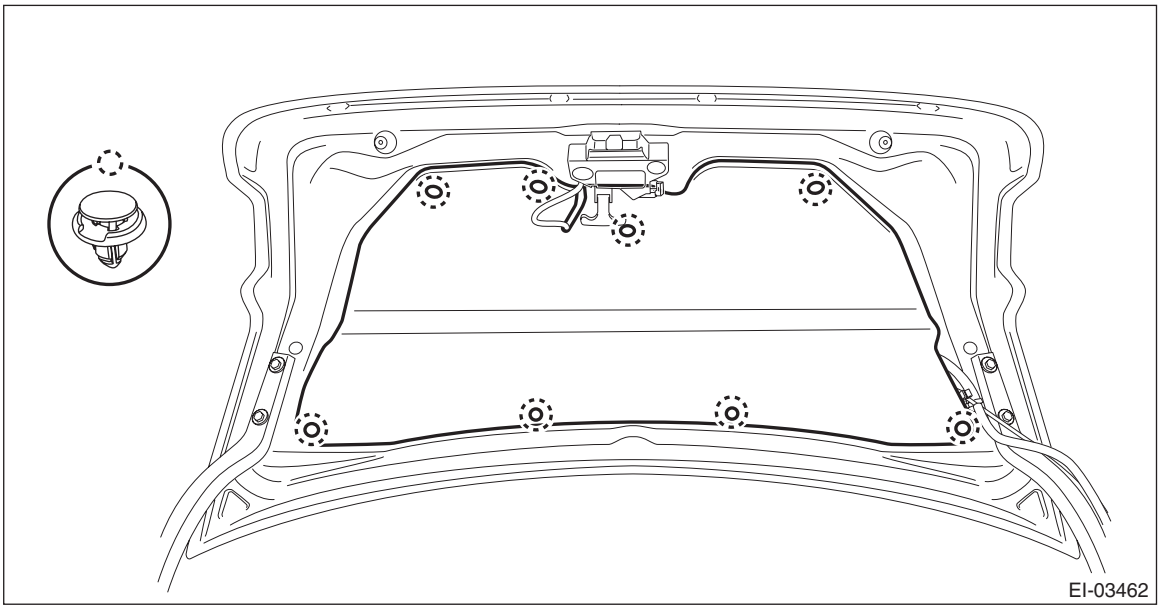
***Tightening torque:***
***Rear seat belt: <Ref. to SB-3, REAR SEAT BELT (4 DOOR MODEL), COMPONENT, General Description.>***
***Rear seat backrest assembly: <Ref. to SE-5, REAR SEAT, COMPONENT, General Description.>***

# 25.Trunk Room Trim

## A: REMOVAL

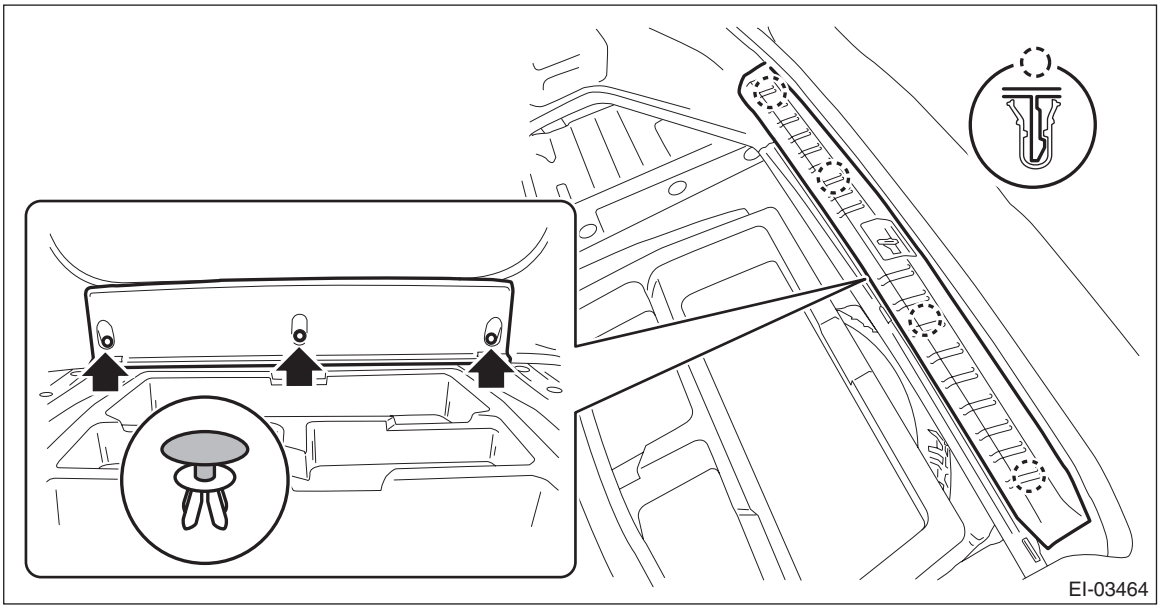
### 1. TRUNK LID TRIM

1) Open the trunk lid.
2) Remove the clips, and remove the trim panel - trunk lid.

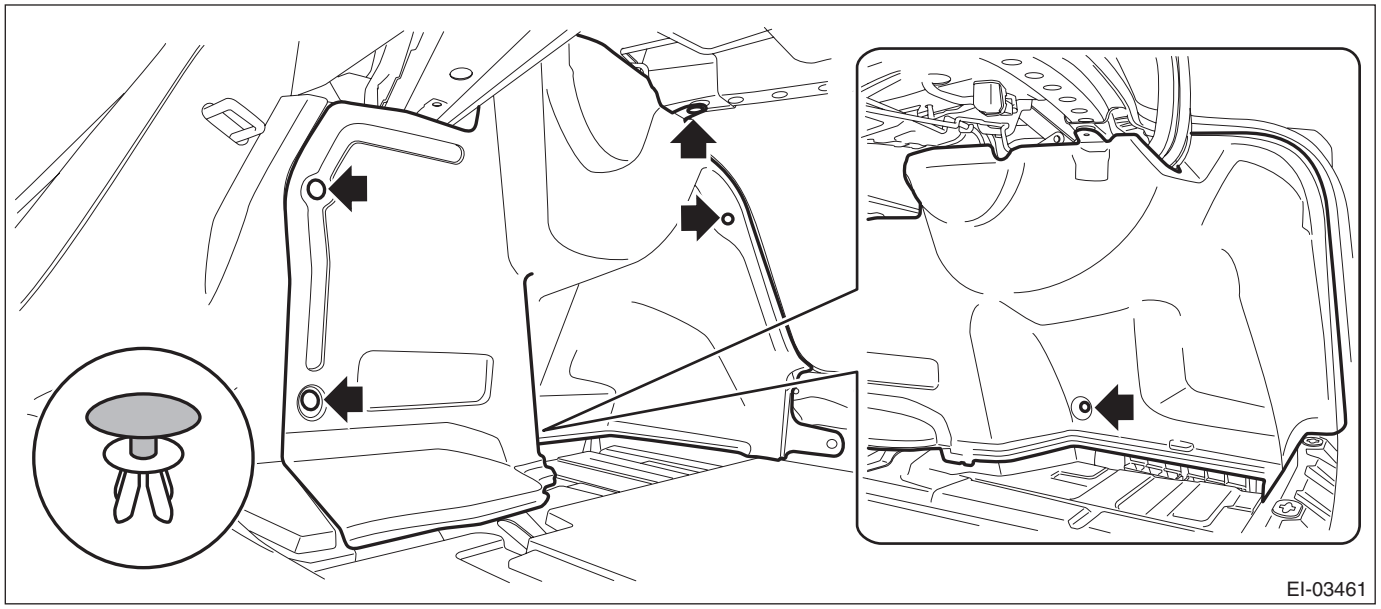



### 2. TRUNK ROOM TRIM

1) Tilt the backrest assembly forward.
2) Remove the mat - trunk.
3) Remove the trim panel - trunk rear.
   (1) Remove the clip.
   (2) Release the claws, and remove the trim panel - trunk rear.



4) Remove the clips, and remove the trim panel - trunk side.



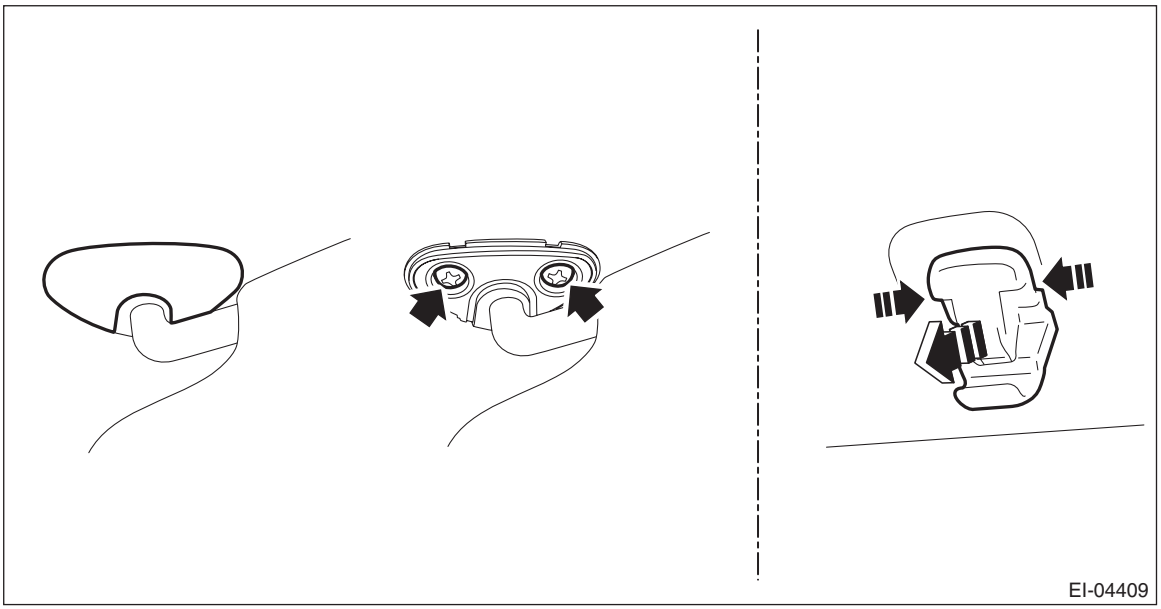

## B: INSTALLATION

Install each part in the reverse order of removal.

# 26.Sun Visor

## A: REMOVAL

1) Remove the sun visor assembly.
   (1) Remove the cap - sun visor, and then remove the screws.
   (2) Disconnect the connector and remove the sun visor assembly.
2) Remove the hook - sun visor.
   (1) Press both sides using a flat tip screwdriver.
   (2) Remove the hook - sun visor by pulling it toward you.



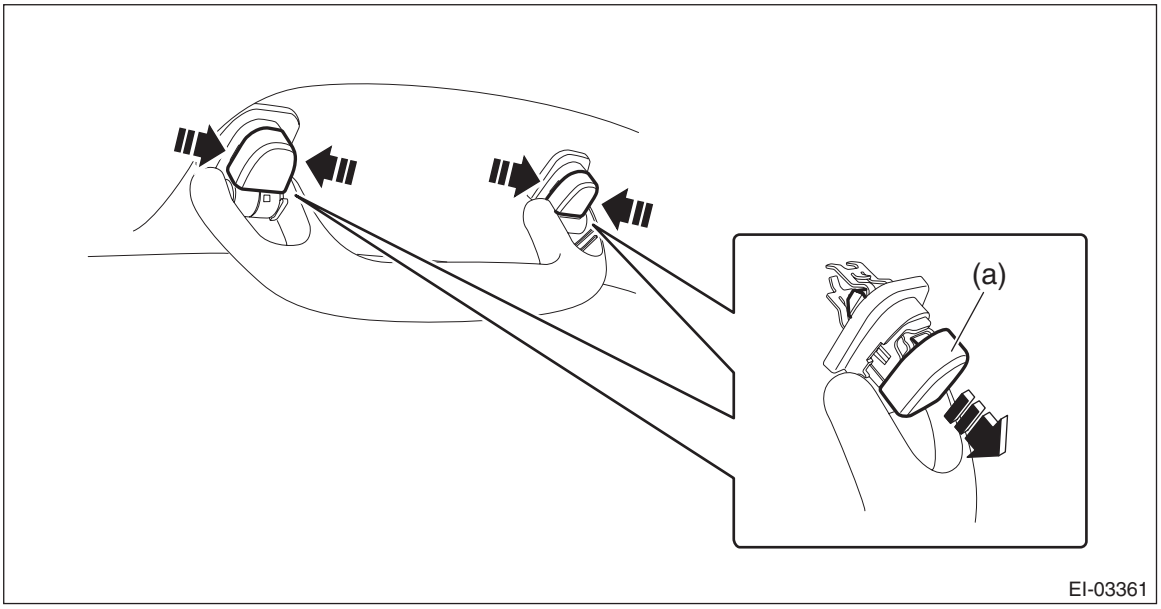

## B: INSTALLATION

Install each part in the reverse order of removal.

# 27.Assist Grip

## A: REMOVAL

Remove the assist rail.
1) Remove the cap (a) by pulling the both sides of the cap (a) using a flat tip screwdriver wrapped with a protection tape.
2) Pull the assist grip toward you (to the vehicle center) and remove the metal clip from the bracket.




## B: INSTALLATION

Install each part in the reverse order of removal.

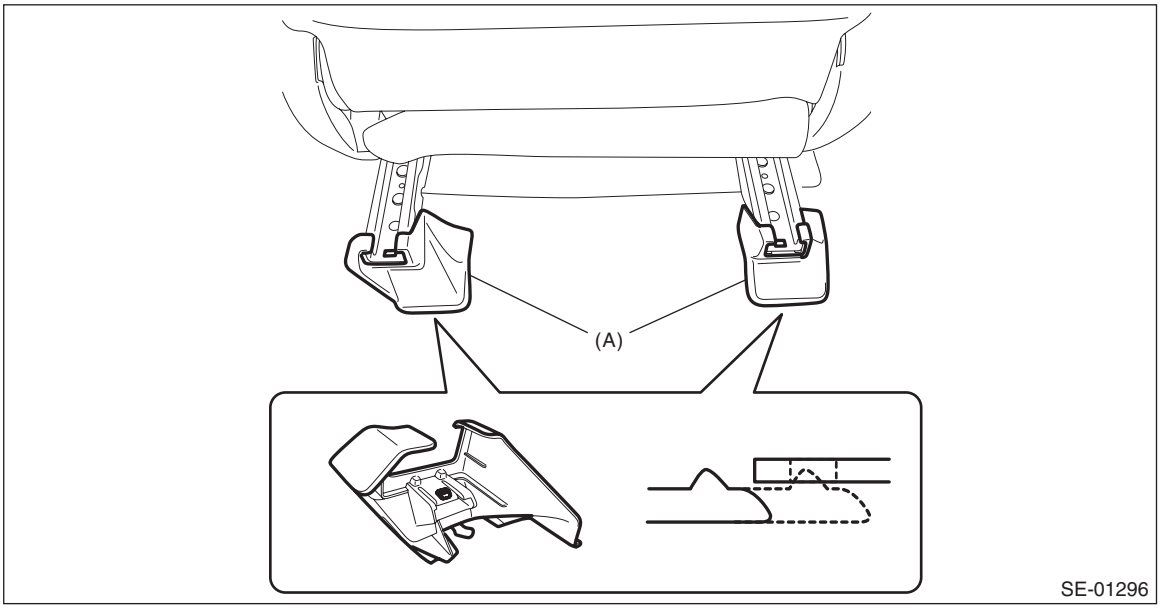
# 28.Roof Trim

## A: REMOVAL

### 1. 4 DOOR MODEL

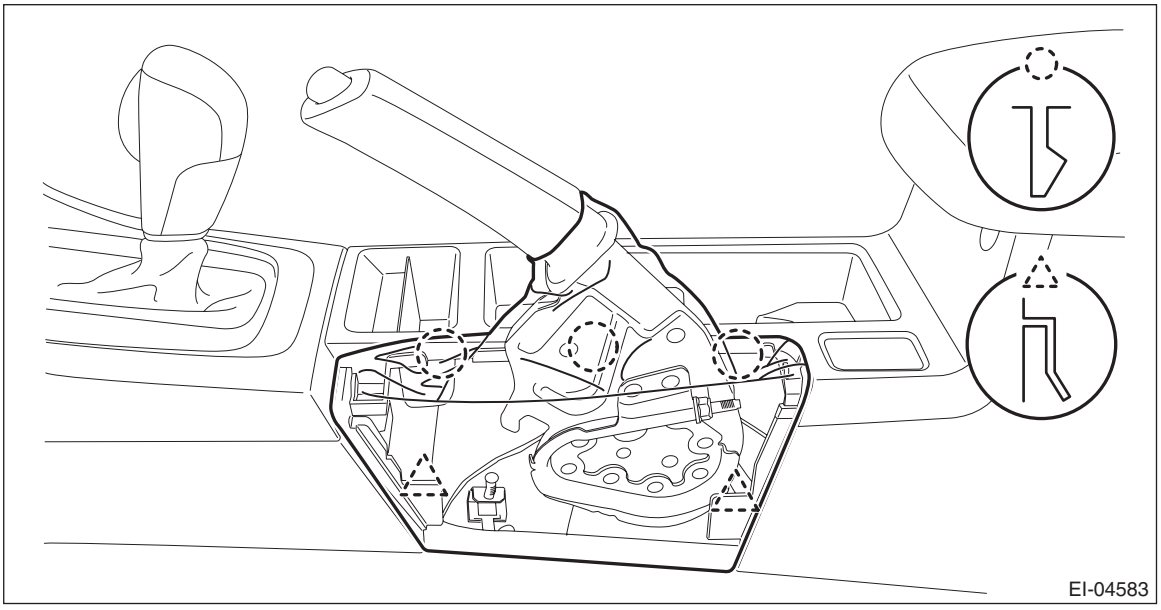
**CAUTION:**
**• Airbag system satellite safing sensor is located in the lower of the rear seat cushion center. Before removing the rear seat, refer to "CAUTION" of "General Description" in "AIRBAG SYSTEM" section. <Ref. to AB-10, CAUTION, General Description.>**
**• The airbag system is fitted with a backup power supply. After disconnecting the battery ground cable, the airbag may operate if you do not wait for 60 seconds before starting the service of airbag system.**

1) Disconnect the ground cable from battery and wait for at least 60 seconds before starting work.
2) Remove the driver's seat.
   (1) Tilt the backrest forward and move the seat to the front most position.
   (2) Remove the rear bolt cover (A) and remove the two bolts.
   (3) Move the seat to the rearmost position, and remove the front bolts.

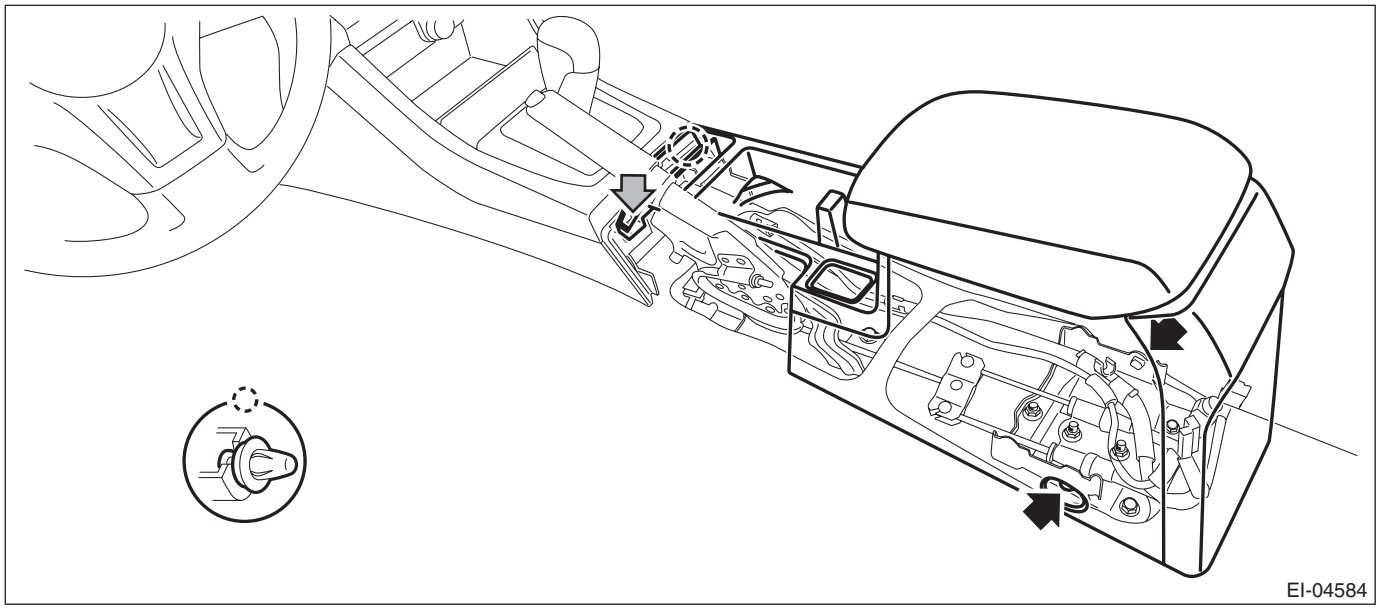



   (4) Disconnect the connector under the front seat.
   • Seat belt warning light connector (driver's seat)
   • Side airbag module connector <Ref. to AB-22, SIDE AIRBAG MODULE, PROCEDURE, Airbag Connector.>
   • Seat heater connector (model with seat heater)
   (5) Remove the headrest and take out the driver's seat from the vehicle.
3) Adjust the passenger's seat position.
   (1) Remove the headrest.
   (2) Move the passenger's seat to the front-most position and tilt the backrest rearward.

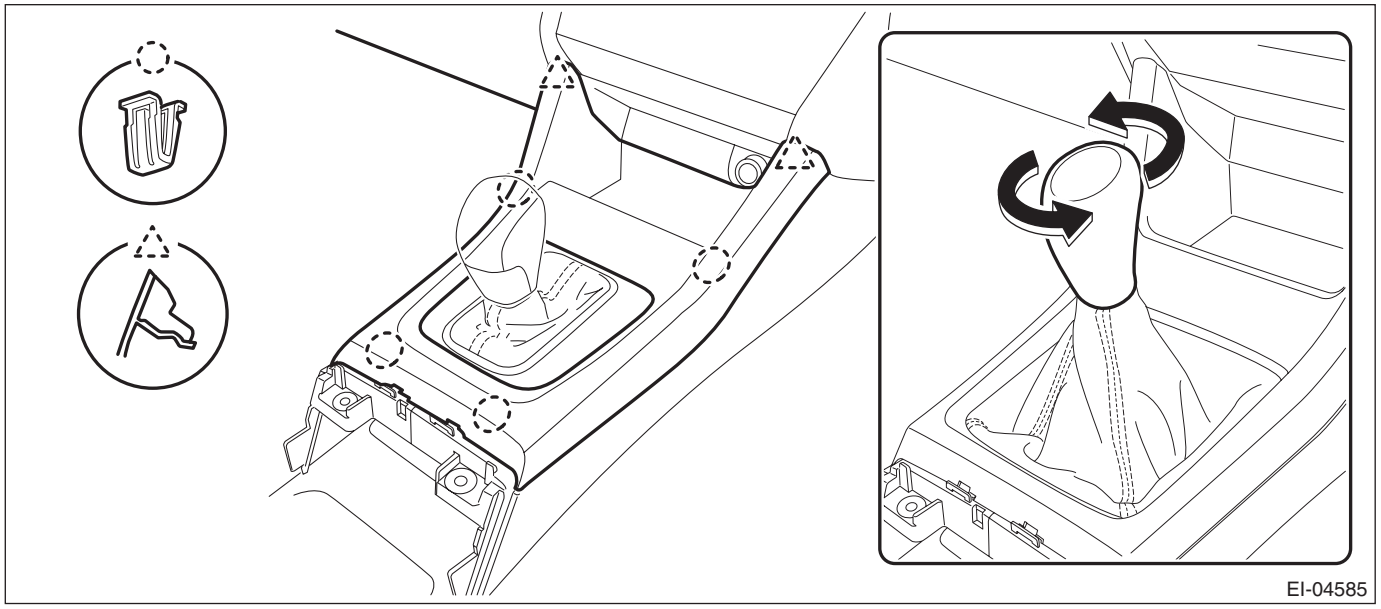
4) Remove the console box assembly.
(1) Release the claws, and then remove the boot - hand brake.




(2) Detach the left and right caps and remove the bolts.
(3) Remove the screws, disconnect the harness connector and remove the console box assembly.



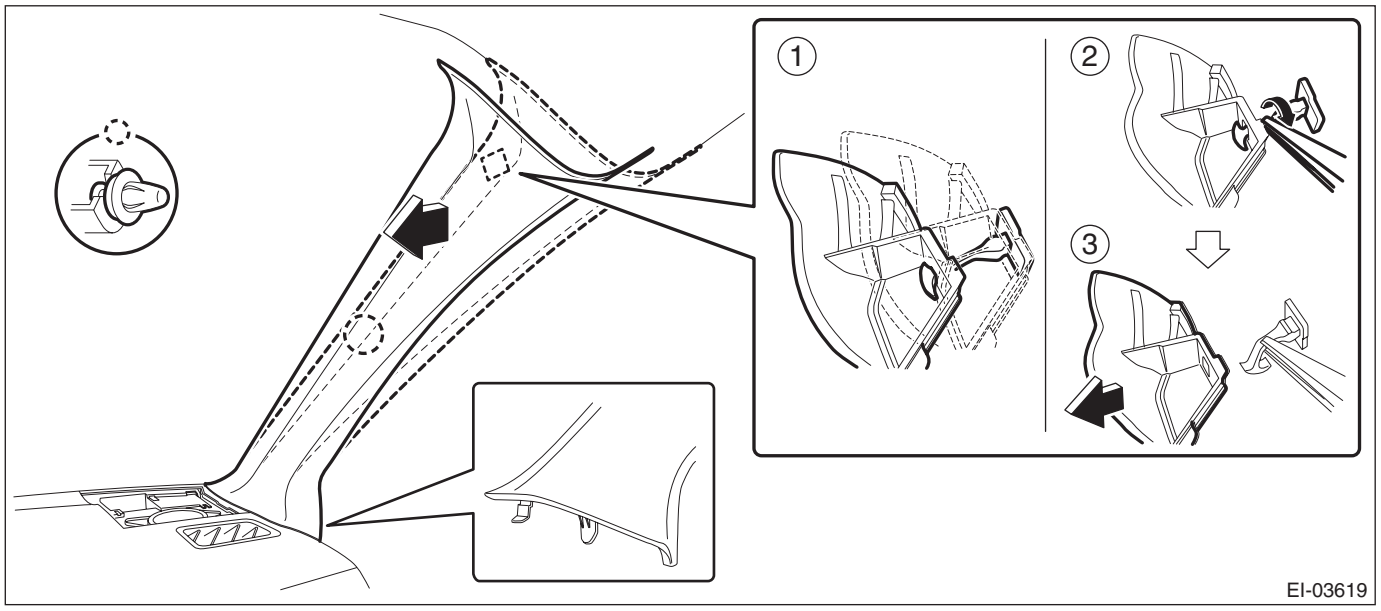
5) Remove the cover - shift lever.
(1) Remove the shift knob. (MT model)
(2) Release the clips and claws, then pull up the cover - shift lever.


EI-04585

6) Cover the following areas to protect from damage.
- Steering wheel surface
- Instrument panel surface
- Glove box surface

7) Remove the trim panel - front pillar UPR on the left and right sides.
(1) Pull the upper part of the trim panel - front pillar UPR towards the center of the vehicle.
(2) Insert long-nose pliers into the top part of the trim, grip the tether clip with the pliers and twist 90° in that position.

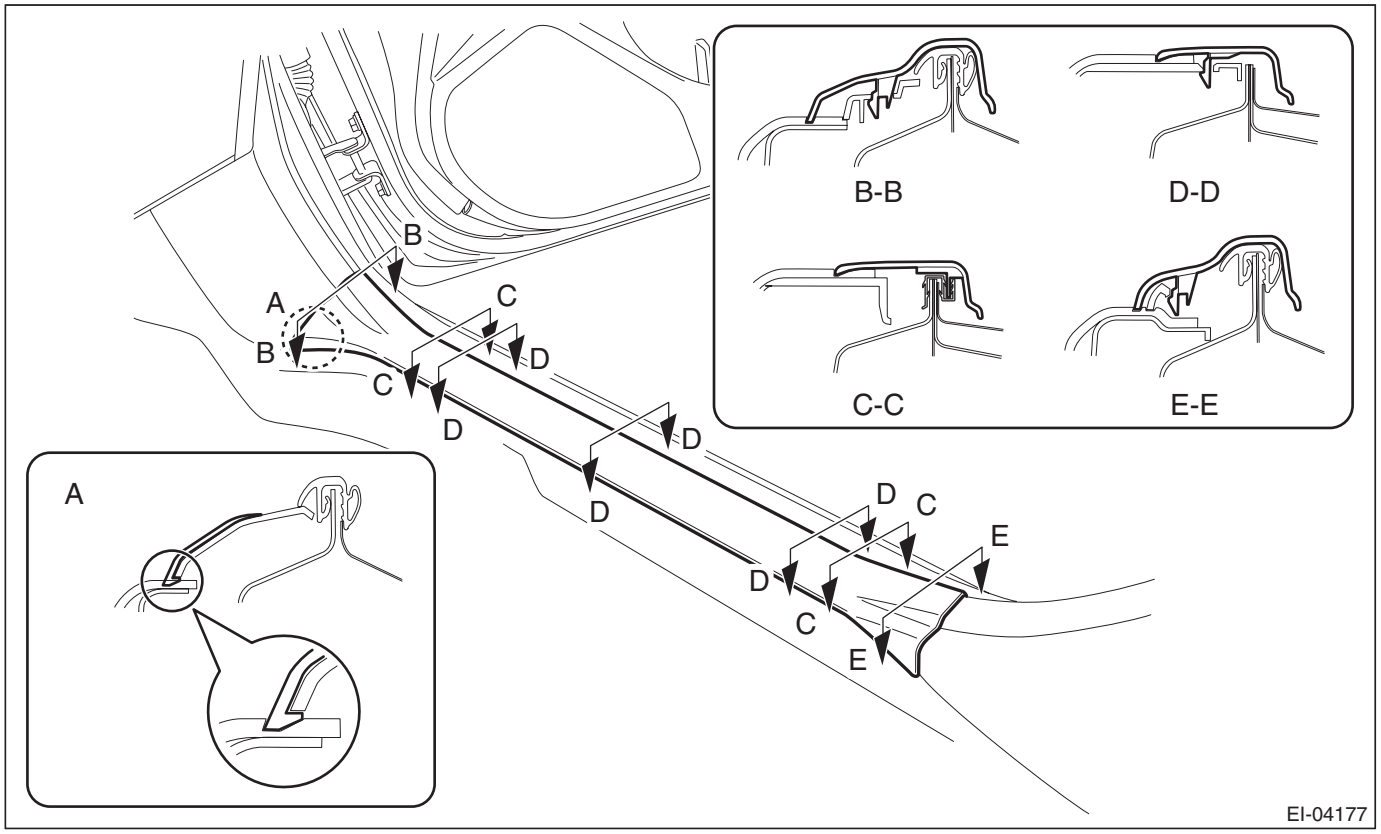
**CAUTION:**
**Be careful not to damage the pillar trim surface and curtain airbag module when inserting the pliers.**
(3) Holding the tether clip twisted as in the previous step, remove the trim panel - front pillar UPR from the tether clip.
(4) Remove the clips, and remove the trim panel - front pillar UPR.



EI-03619

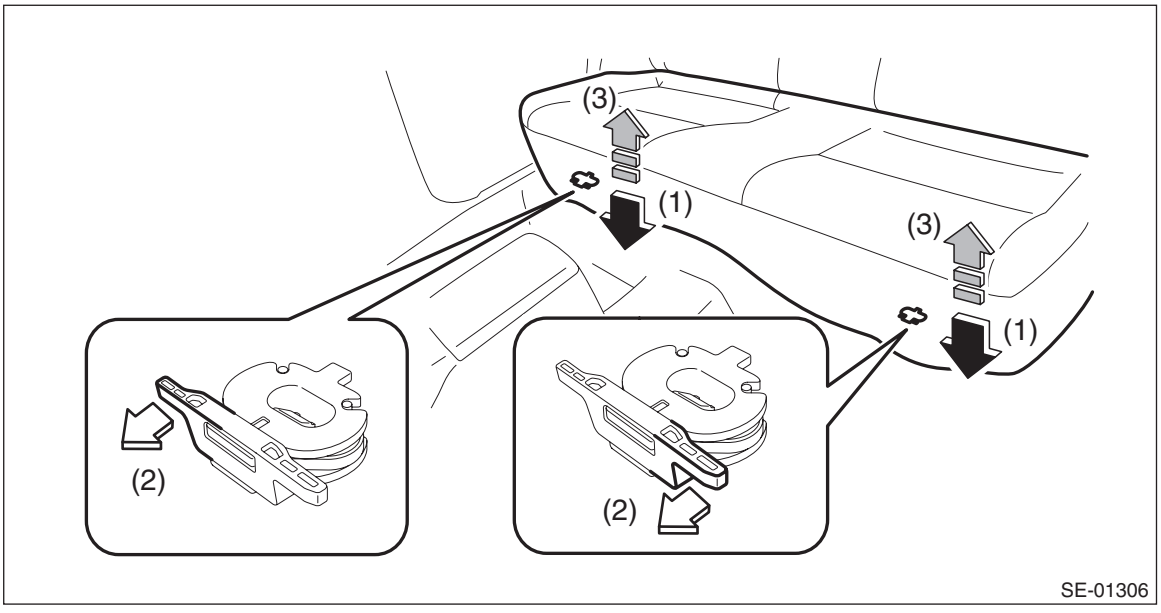
8) Release the claws, and then remove the cover side sill - front INN on LH and RH sides.

**CAUTION:**
**Do not pull with excessive force. Doing so may damage the claws of the cover side sill - front INN.**

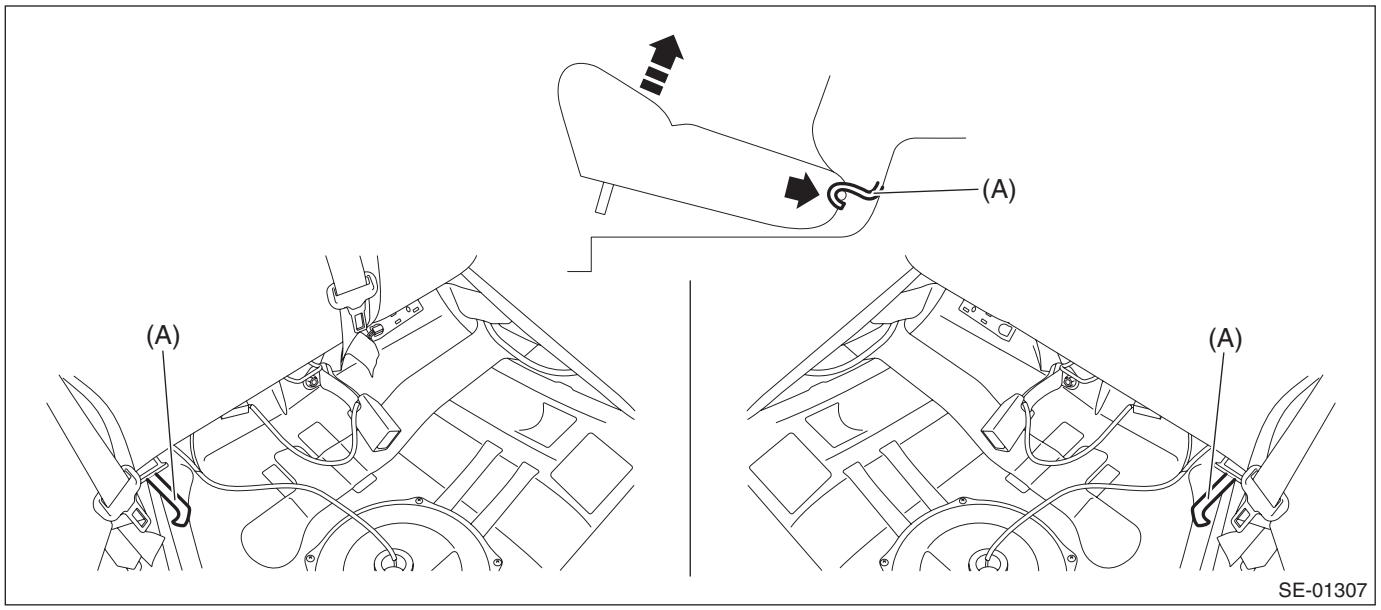



9) Remove the rear seat cushion assembly.
(1) Push the corners of the rear seat cushion from above.
(2) While pushing the corners of the rear seat cushion from above, pull the knob of the hook - seat cushion rear towards yourself.
(3) While pulling the knob towards yourself, disconnect the hooks by lifting up the rear seat cushion.

NOTE:
Pull the left side of the knob to disconnect the LH side hook, and pull the right side of the knob to disconnect the RH side hook.

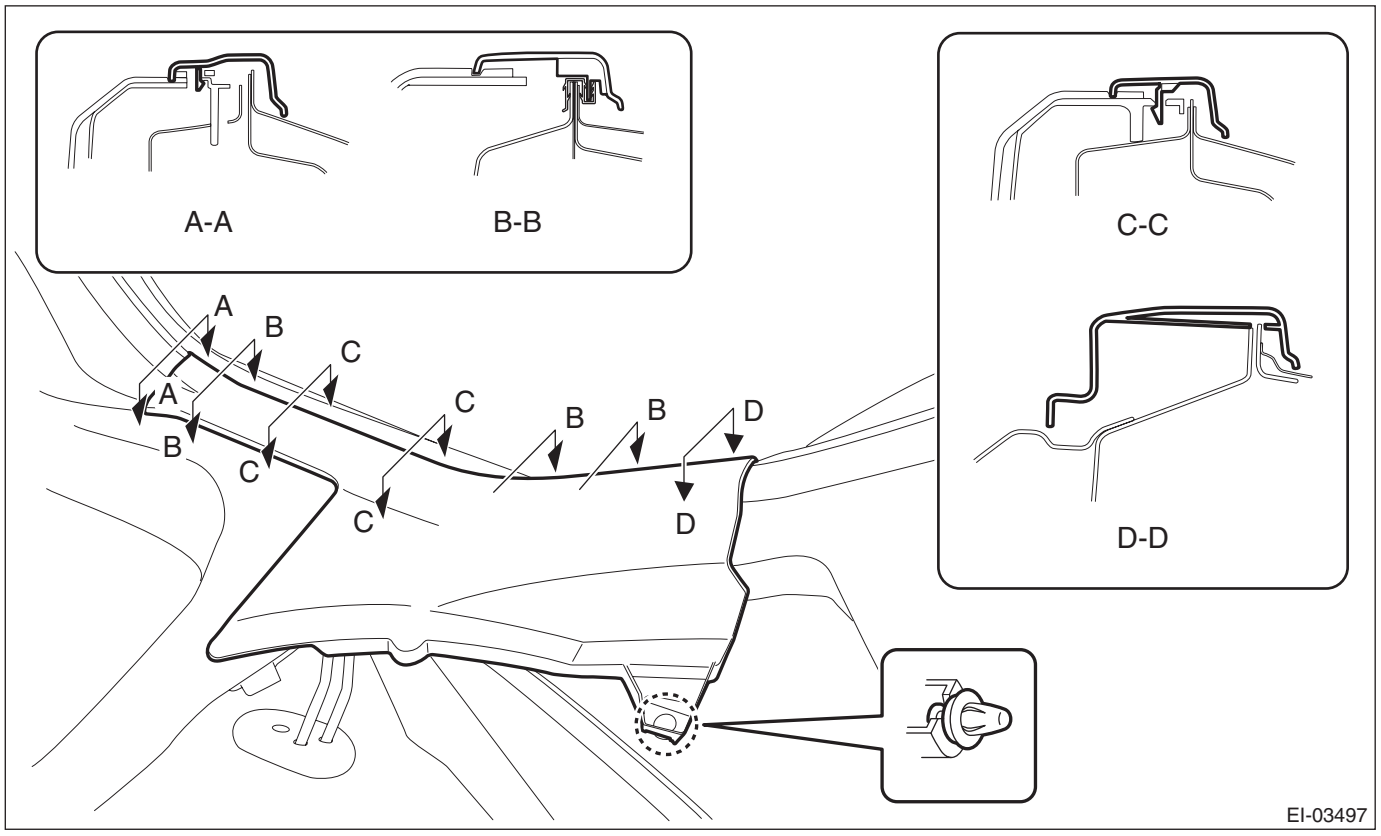


(4) Remove the hook (A) by pushing it back while lifting the front side of the rear seat cushion, and remove the rear seat cushion.



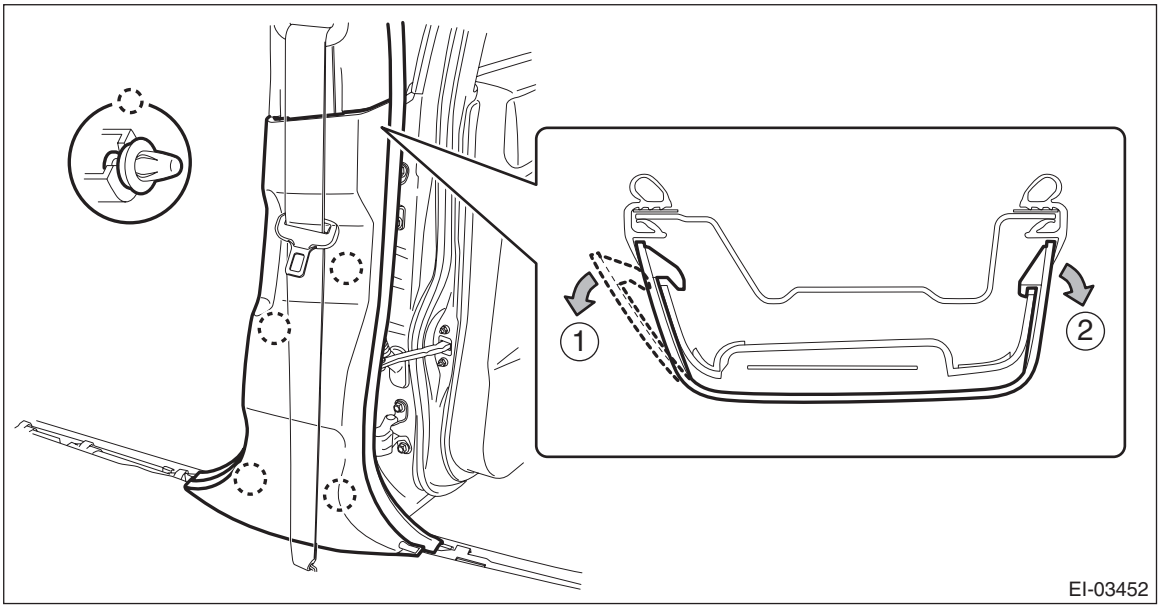

10) Release the clips and claws, and remove the cover side sill - rear INN on LH and RH sides.

**CAUTION:**
**Do not pull with excessive force. Doing so may damage the claws of the cover side sill - rear INN.**



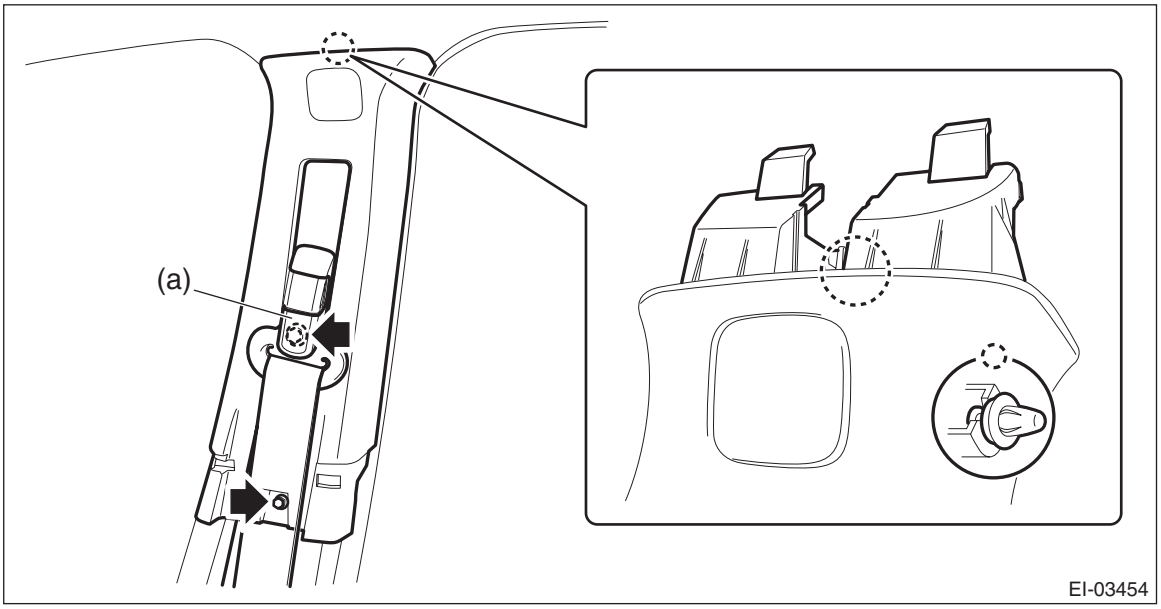
11) Remove the trim panel - center pillar LWR on the left and right sides.
(1) Release the clip by pulling the trim panel - center pillar LWR toward you.
(2) Expand the claws of the trim panel - center pillar LWR outward, and remove it from the trim panel - center pillar UPR.

**CAUTION:**
**Do not expand the trim panel - center pillar LWR excessively. Doing so may damage the trim.**

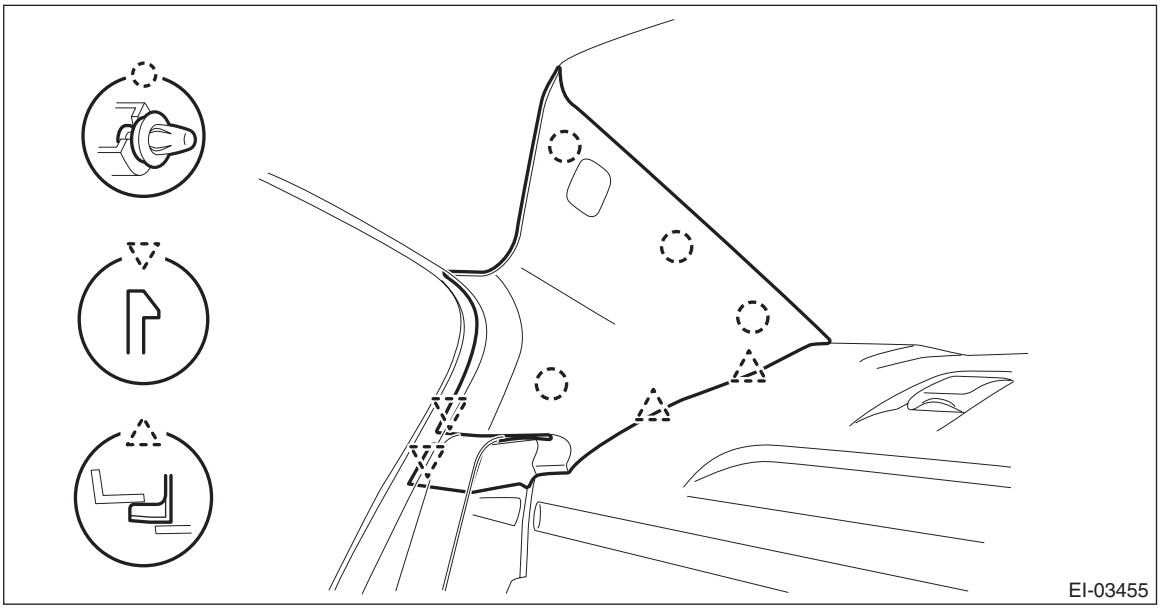



NOTE:
First release the claw located to the front of the vehicle.
12) Remove the trim panel - center pillar UPR on the left and right sides.
(1) Remove the cover through (a), and remove the seat belt anchor bolt.
(2) Remove the bolt on the lower side of the trim panel - center pillar UPR.
(3) Remove the clip by pulling the upper part of the trim toward you, and while lowering the entire trim, remove the trim panel - center pillar UPR.

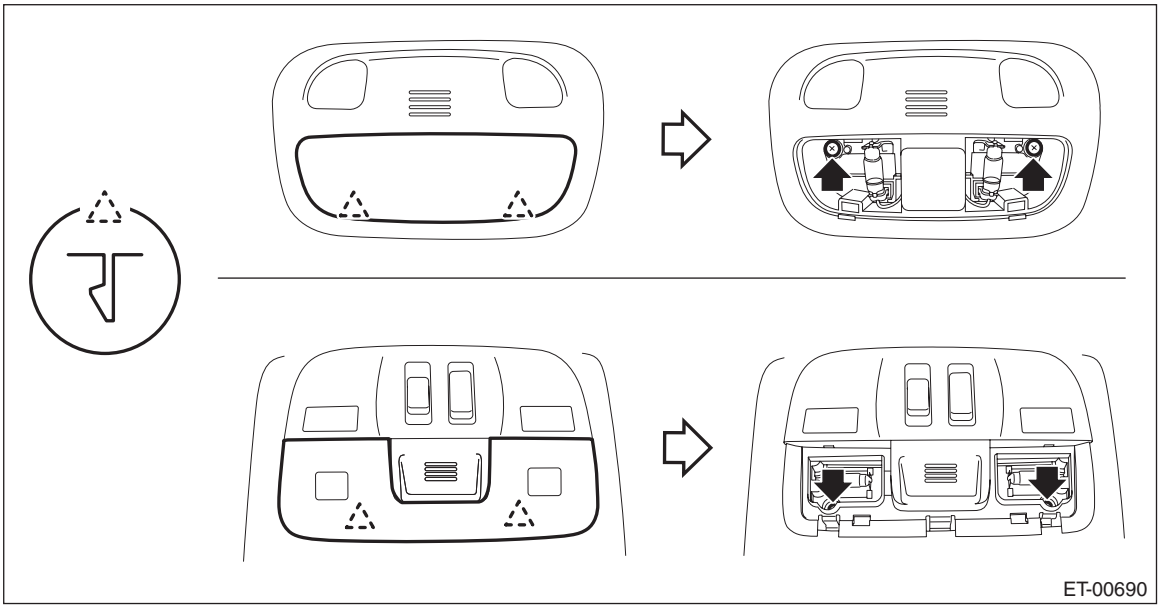
**CAUTION:**
**Do not reuse the upper clips of the trim panel - center pillar UPR. Once the clip is removed, its holding force is reduced. Be sure to replace it with a new clip.**



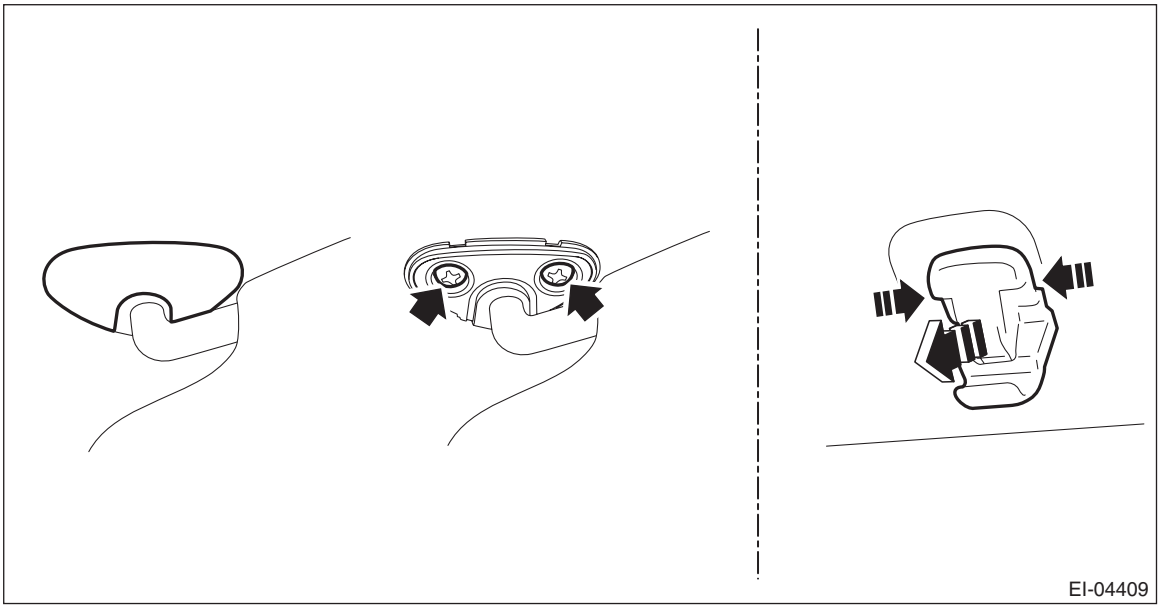
13) Remove the clips, and remove the trim panel - rear pillar UPR on the left and right sides.



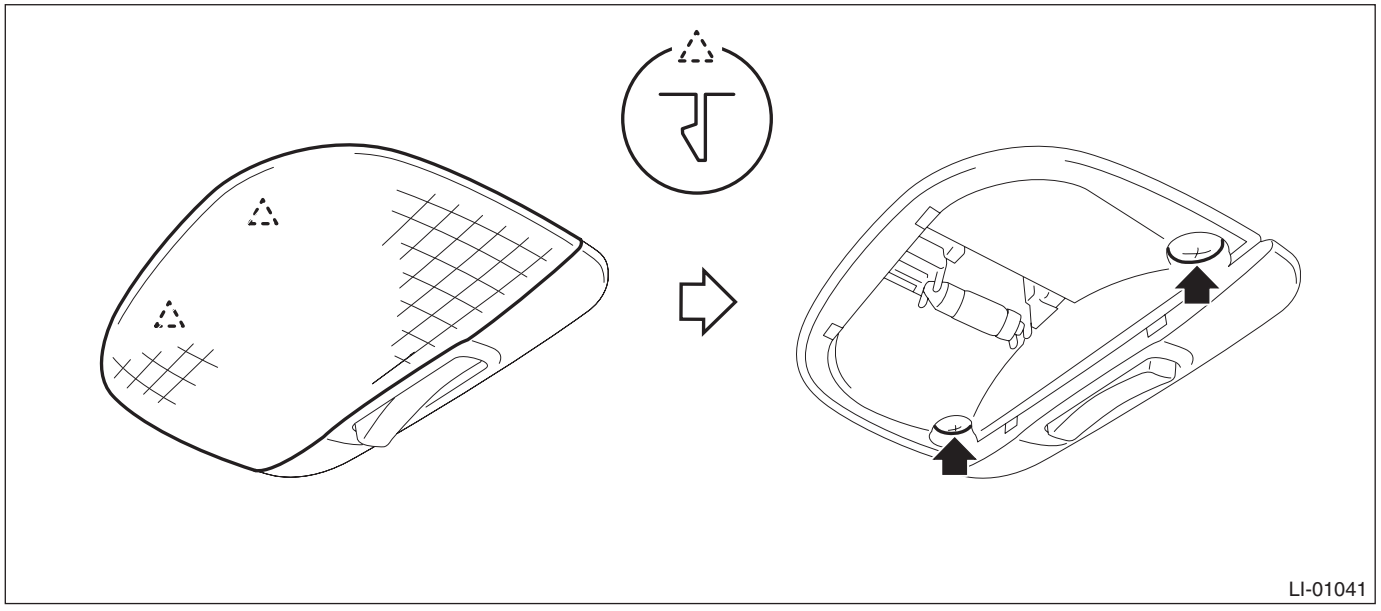

14) Remove the light assembly - map.
(1) Remove the lens and detach the screws.
(2) Disconnect the connector and remove the light assembly - map.



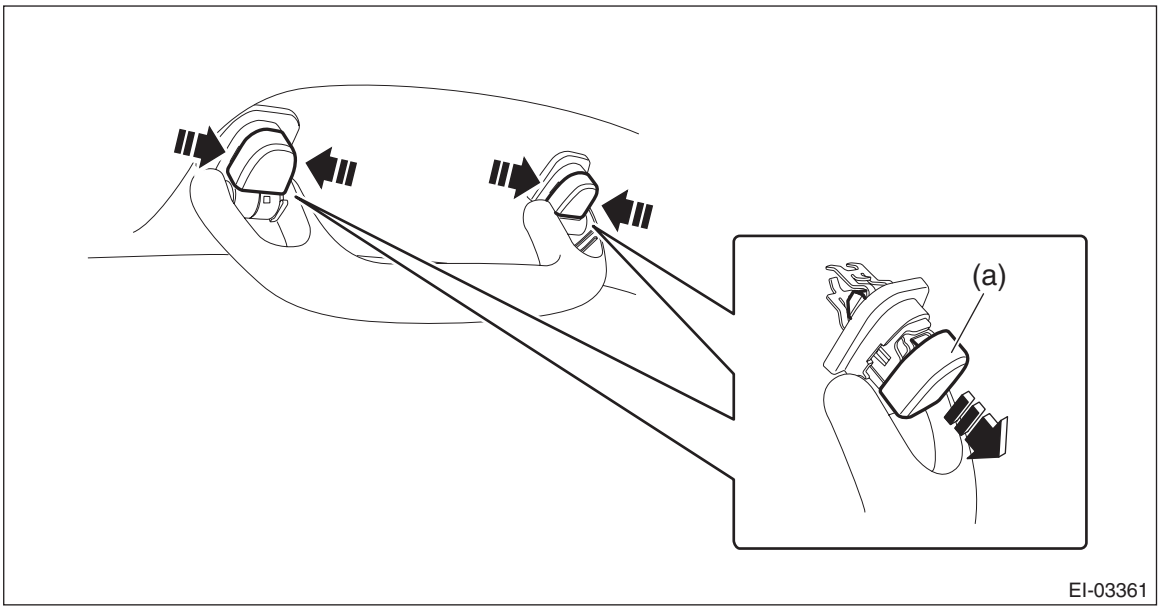
15) Remove the left and right sun visor assembly.
(1) Remove the cap - sun visor.
(2) Remove the screws and remove the sun visor assembly.
(3) Press both sides of the hook - sun visor using a flat tip screwdriver.
(4) Remove the hook - sun visor by pulling it toward you.



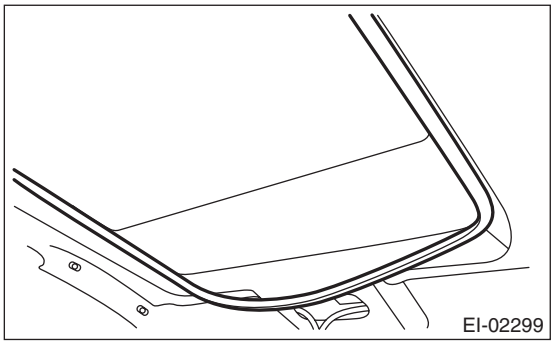

16) Remove the light assembly - room.
(1) Remove the lens and detach the screws.
(2) Disconnect the connector and remove the light assembly - room.



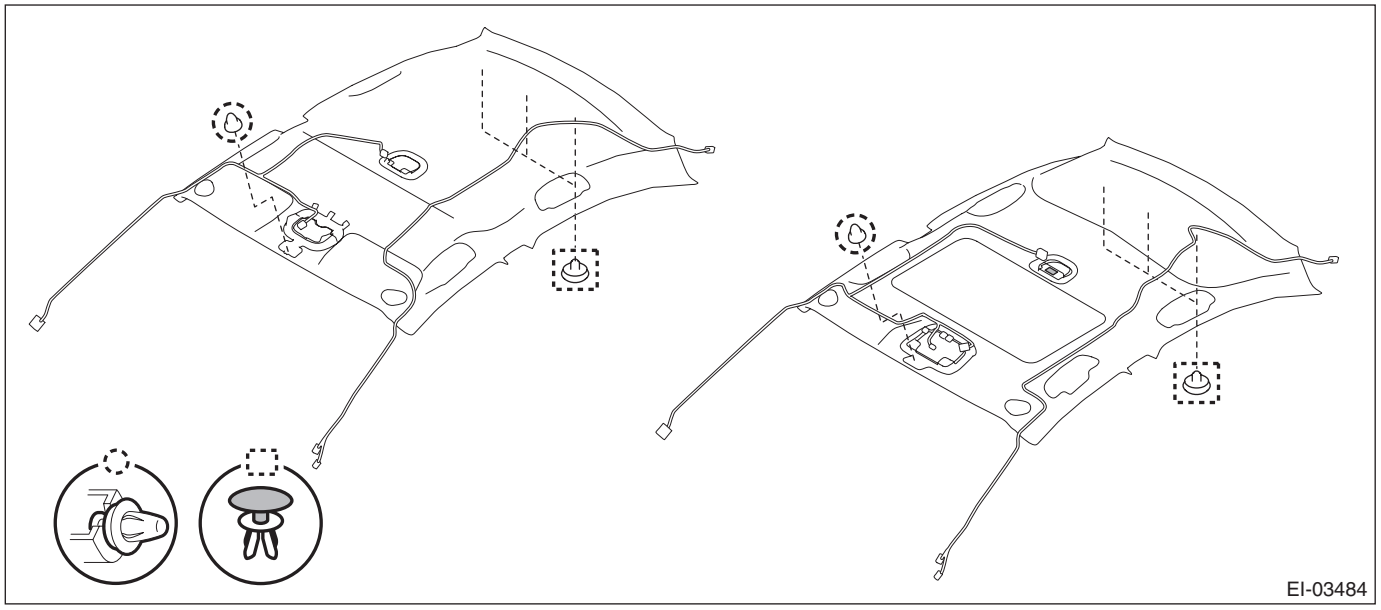
17) Remove all assist rails.
(1) Remove the cap (a) by pulling the both sides of the cap (a) using a flat tip screwdriver wrapped with a protection tape.
(2) Pull the assist grip toward you (to the vehicle center) and remove the metal clip from the bracket.



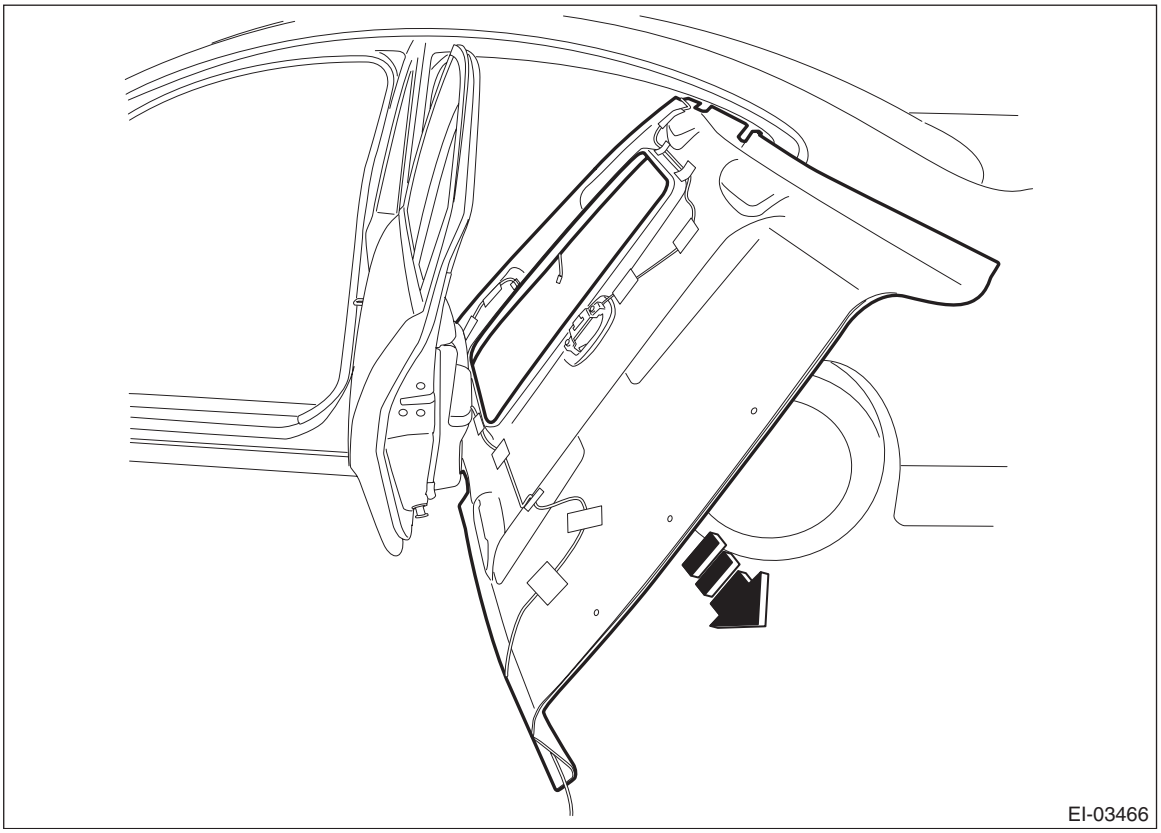

18) Remove the garnish - roof. (Model with sunroof)



19) Remove the trim panel - roof assembly.
(1) Remove the harness clamp of the cord assembly - antenna feeder and the cord - roof, and disconnect the connectors.
(2) Remove the clips and the Velcro tape behind the room light.
(3) Remove the weather strip - body side flange from the front/rear and left/right doors, and remove the trim panel - roof assembly.




(4) Take out the trim panel - roof assembly from the vehicle.



## 2. 5 DOOR MODEL/XV MODEL

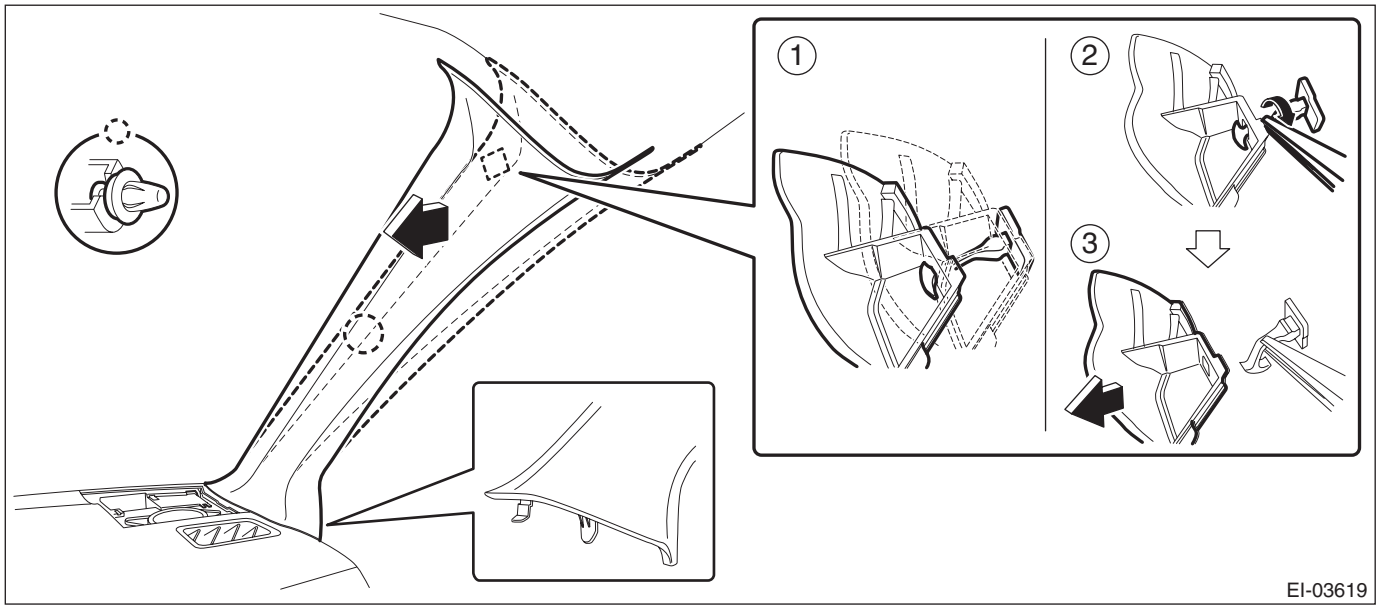
**CAUTION:**
**• Airbag system satellite safing sensor is located in the lower of the rear seat cushion center. Before removing the rear seat, refer to "CAUTION" of "General Description" in "AIRBAG SYSTEM" section. <Ref. to AB-10, CAUTION, General Description.>**
**• The airbag system is fitted with a backup power supply. After disconnecting the battery ground cable, the airbag may operate if you do not wait for 60 seconds before starting the service of airbag system.**

1) Disconnect the ground cable from battery and wait for at least 60 seconds before starting work. <Ref. to NT-5, BATTERY, NOTE, Note.>

NOTE:
For the 12 volt engine restart battery of HEV model, disconnect the ground terminal from 12V engine restart battery sensor.

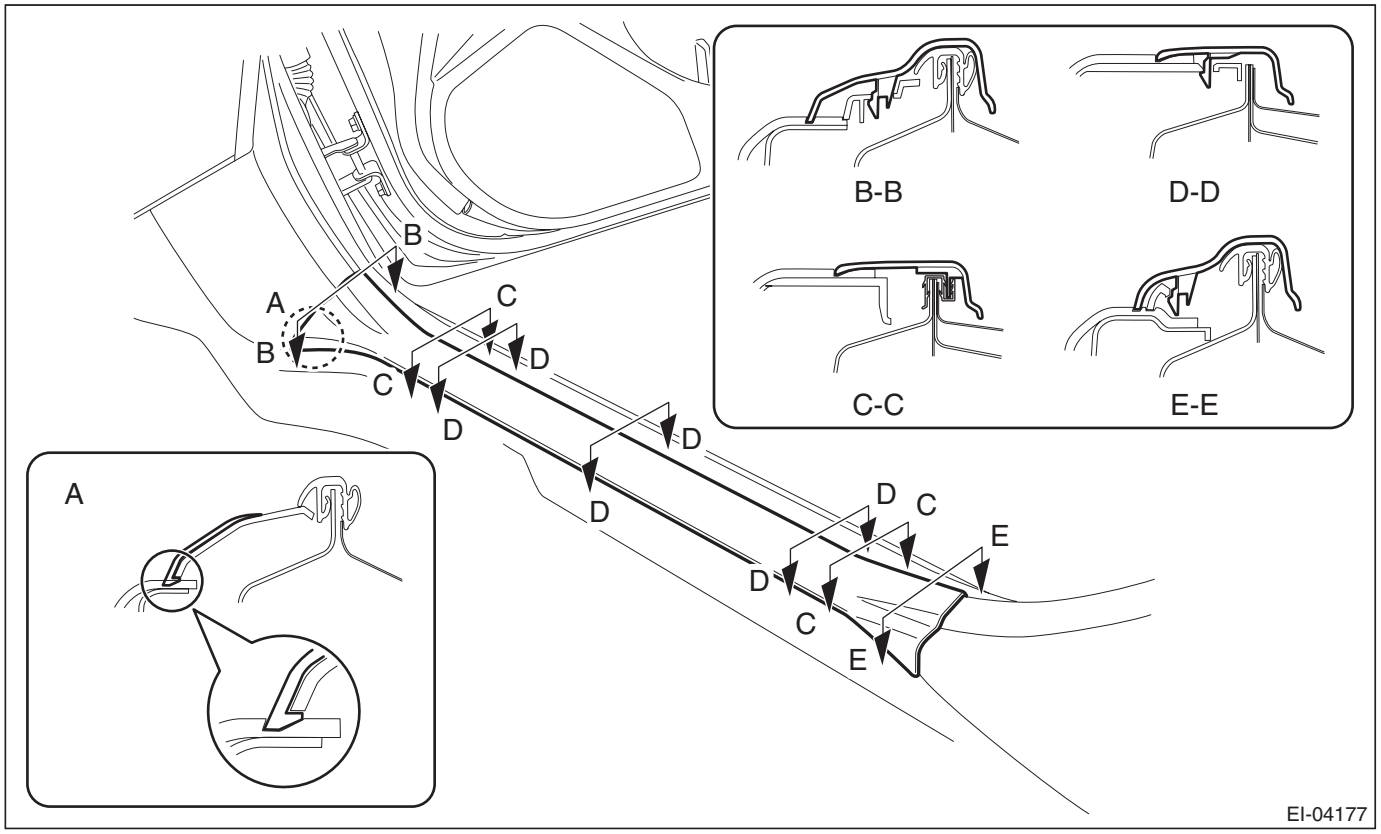
2) Adjust the front seat position.
   (1) Remove the headrest.
   (2) Move the seat to the front-most position and tilt the backrest rearward.
3) Remove the trim panel - front pillar UPR on the left and right sides.
   (1) Pull the upper part of the trim panel - front pillar UPR towards the center of the vehicle.
   (2) Insert long-nose pliers into the top part of the trim, grip the tether clip with the pliers and twist 90° in that position.

**CAUTION:**
**Be careful not to damage the pillar trim surface and curtain airbag module when inserting the pliers.**
   (3) Holding the tether clip twisted as in the previous step, remove the trim panel - front pillar UPR from the tether clip.
   (4) Remove the clips, and remove the trim panel - front pillar UPR.



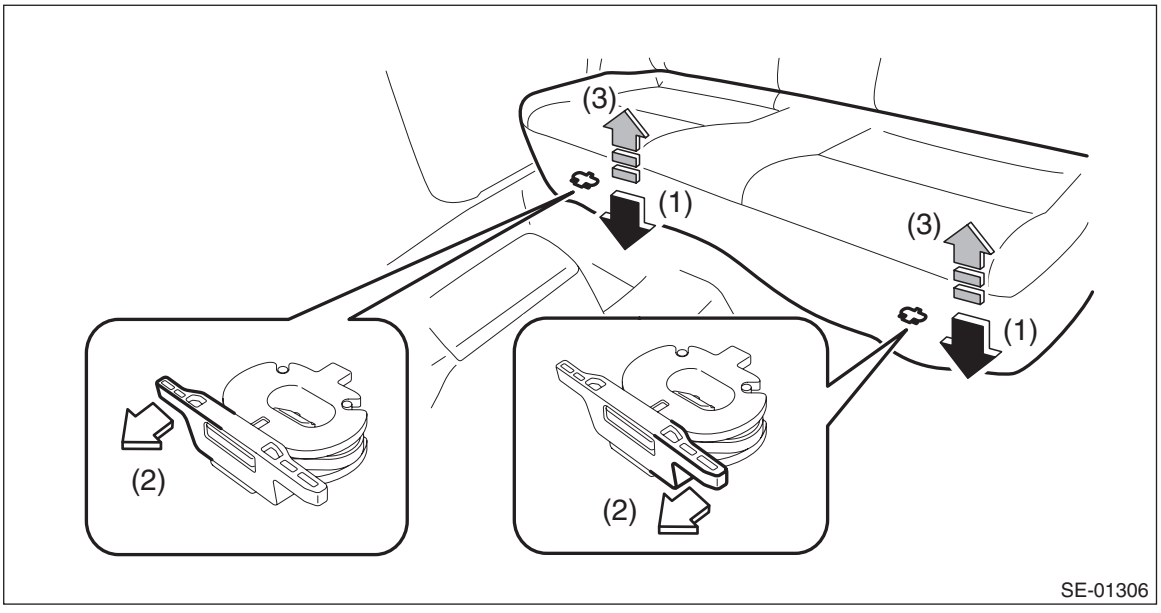
4) Release the claws, and then remove the cover side sill - front INN on LH and RH sides.

**CAUTION:**
**Do not pull with excessive force. Doing so may damage the claws of the cover side sill - front INN.**

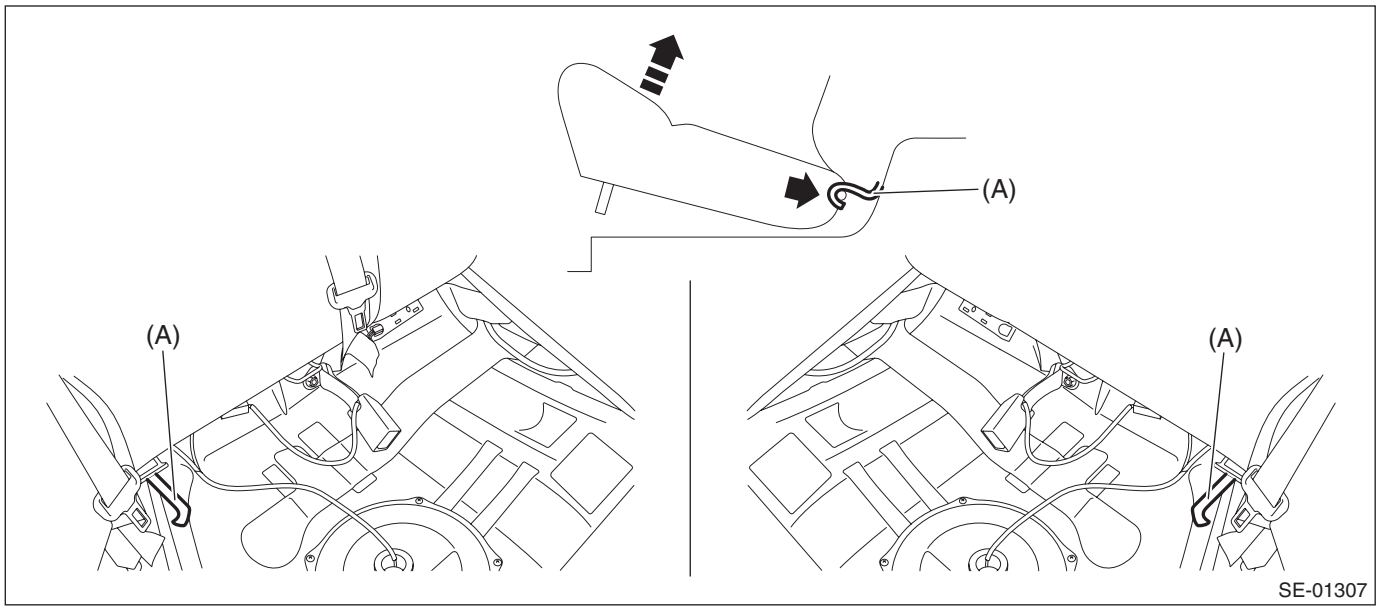



5) Remove the rear seat cushion assembly.
(1) Push the corners of the rear seat cushion from above.
(2) While pushing the corners of the rear seat cushion from above, pull the knob of the hook - seat cushion rear towards yourself.
(3) While pulling the knob towards yourself, disconnect the hooks by lifting up the rear seat cushion.

NOTE:
Pull the left side of the knob to disconnect the LH side hook, and pull the right side of the knob to disconnect the RH side hook.

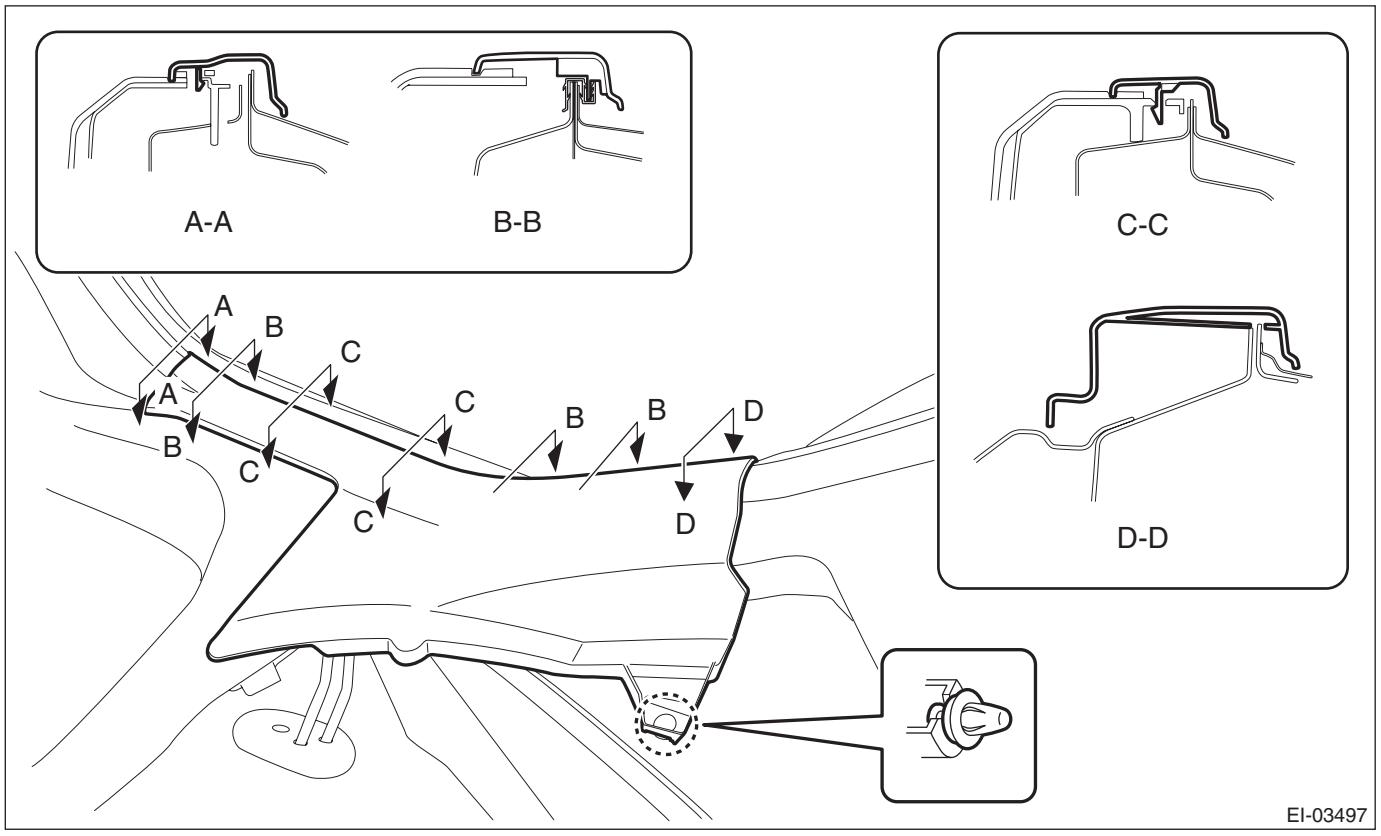


(4) Remove the hook (A) by pushing it back while lifting the front side of the rear seat cushion, and remove the rear seat cushion.



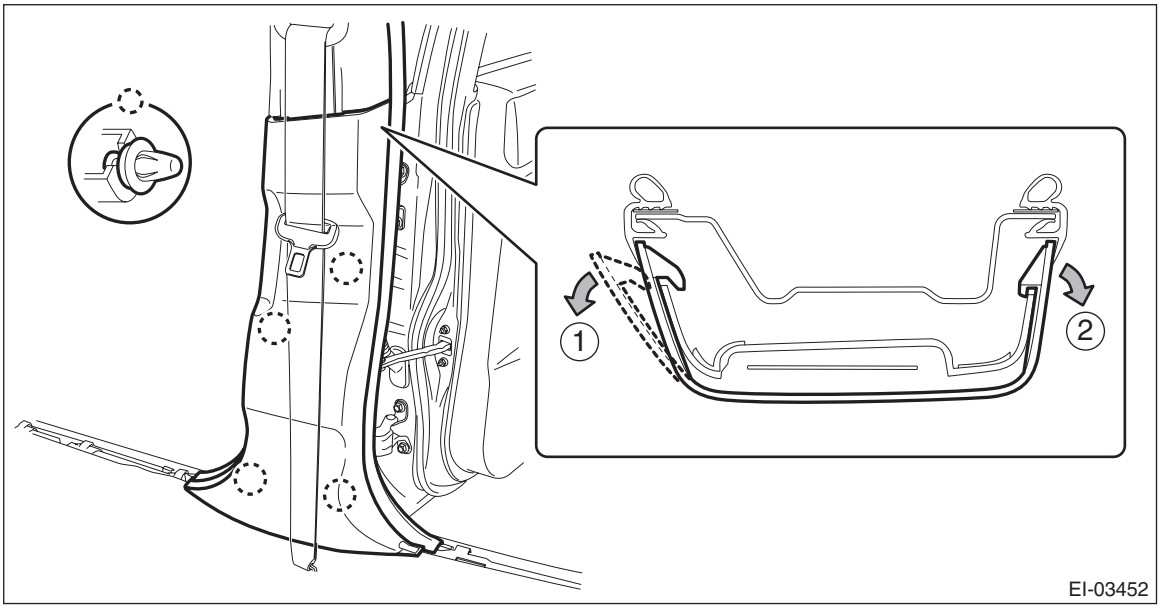

6) Release the clips and claws, and remove the cover side sill - rear INN on LH and RH sides.

**CAUTION:**
**Do not pull with excessive force. Doing so may damage the claws of the cover side sill - rear INN.**



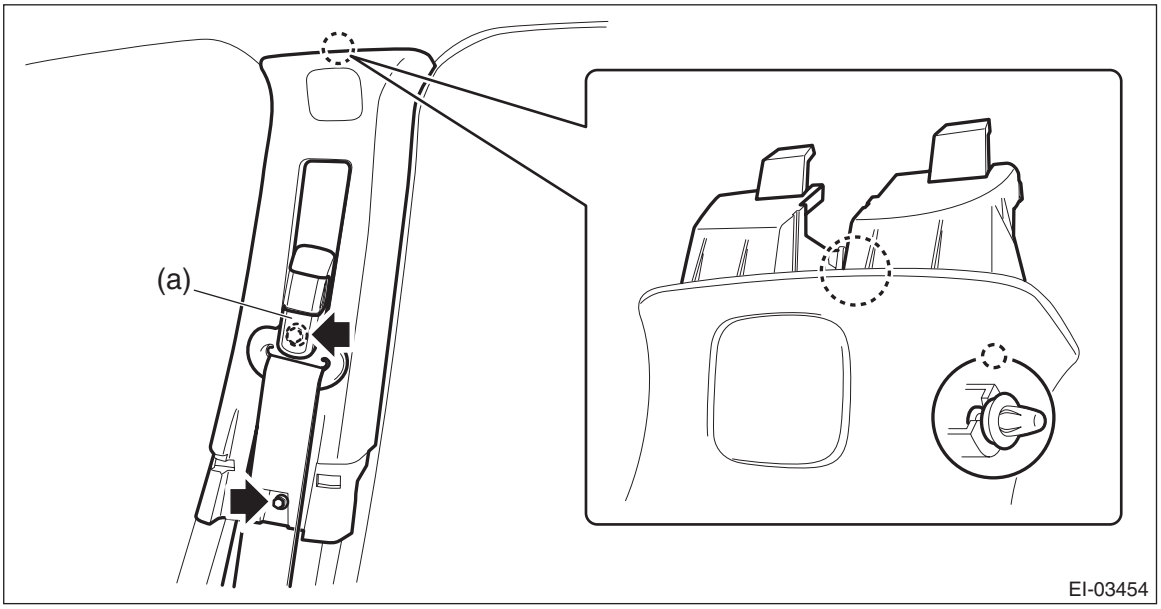
7) Remove the trim panel - center pillar LWR on the left and right sides.
   (1) Release the clip by pulling the trim panel - center pillar LWR toward you.
   (2) Expand the claws of the trim panel - center pillar LWR outward, and remove it from the trim panel - center pillar UPR.

**CAUTION:**
**Do not expand the trim panel - center pillar LWR excessively. Doing so may damage the trim.**

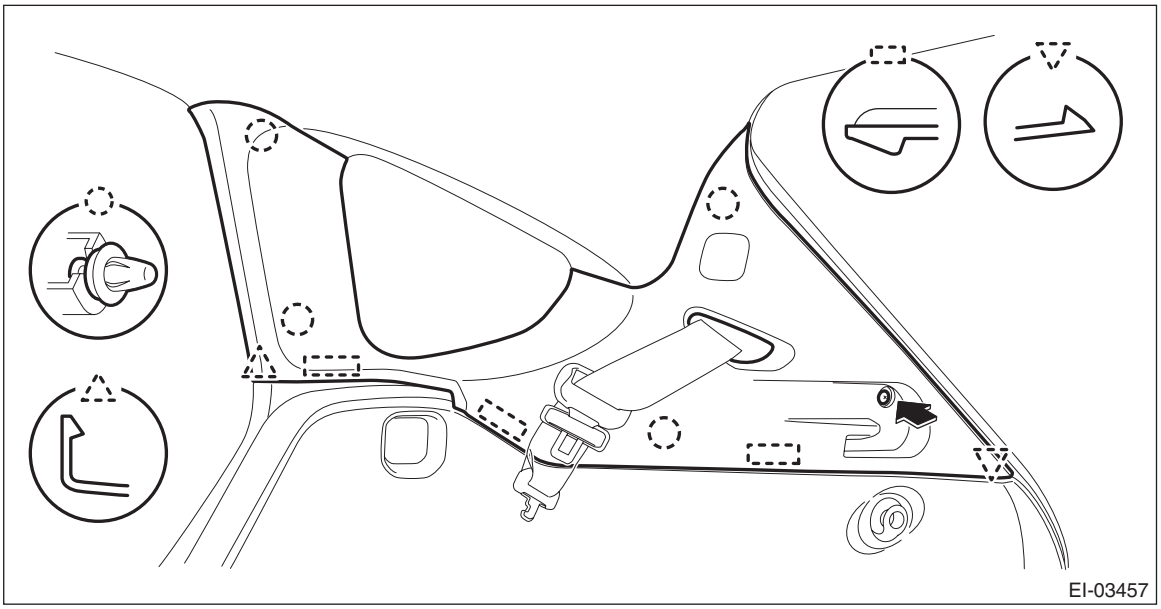



NOTE:
First release the claw located to the front of the vehicle.
8) Remove the trim panel - center pillar UPR on the left and right sides.
   (1) Remove the cover through (a), and remove the seat belt anchor bolt.
   (2) Remove the bolt on the lower side of the trim panel - center pillar UPR.
   (3) Remove the clip by pulling the upper part of the trim toward you, and while lowering the entire trim, remove the trim panel - center pillar UPR.

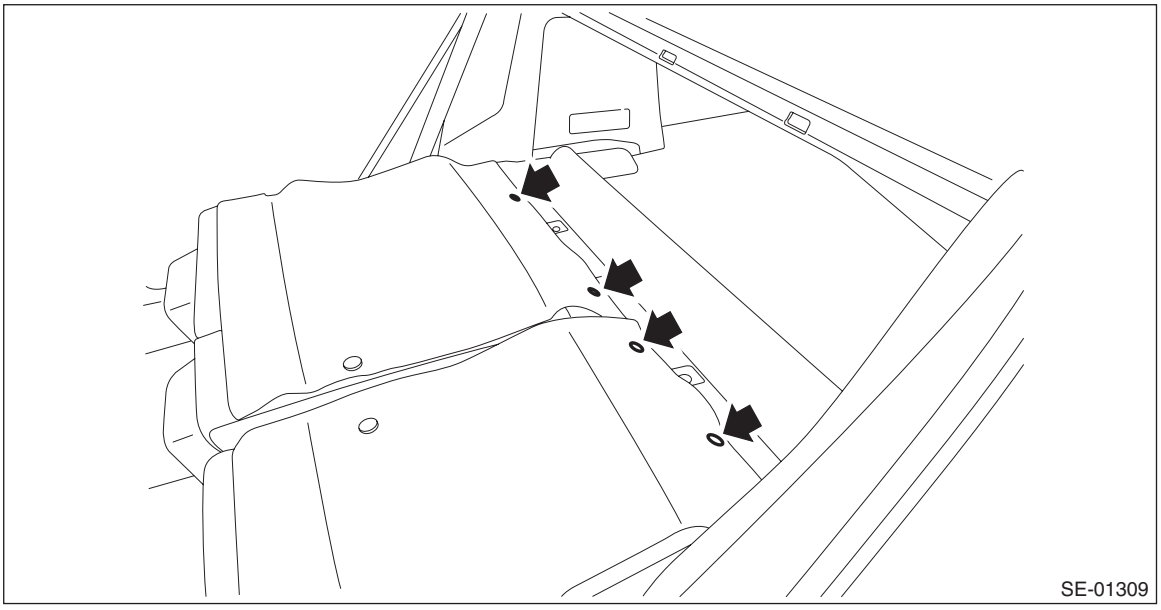
**CAUTION:**
**Do not reuse the upper clips of the trim panel - center pillar UPR. Once the clip is removed, its holding force is reduced. Be sure to replace it with a new clip.**



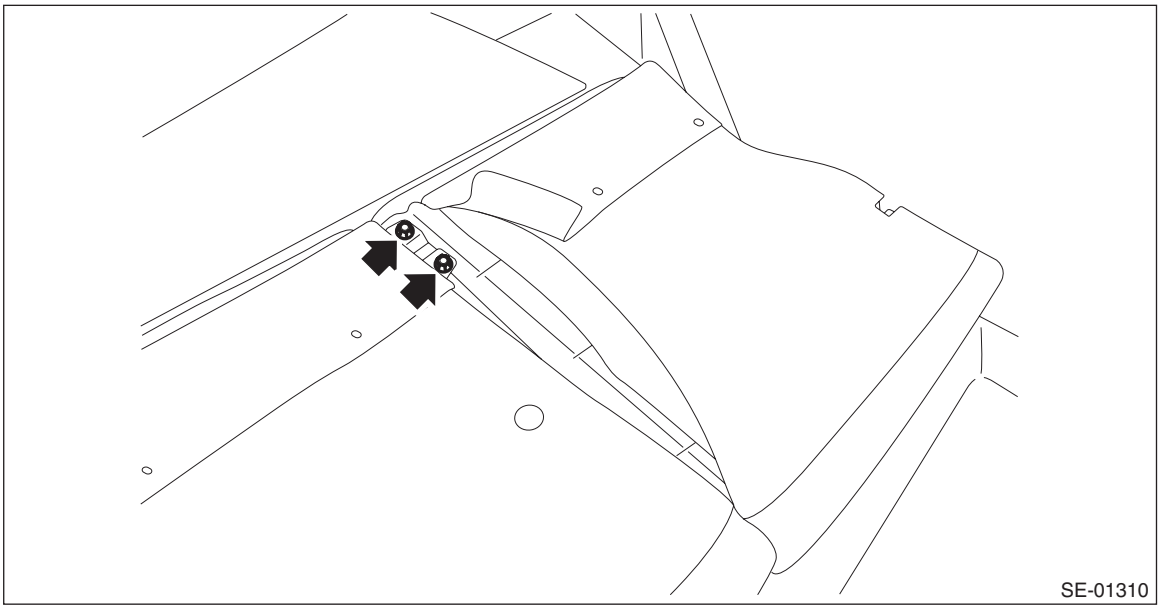
9) Remove the screws and clips, and remove the trim panel - rear quarter pillar UPR on the left and right sides.



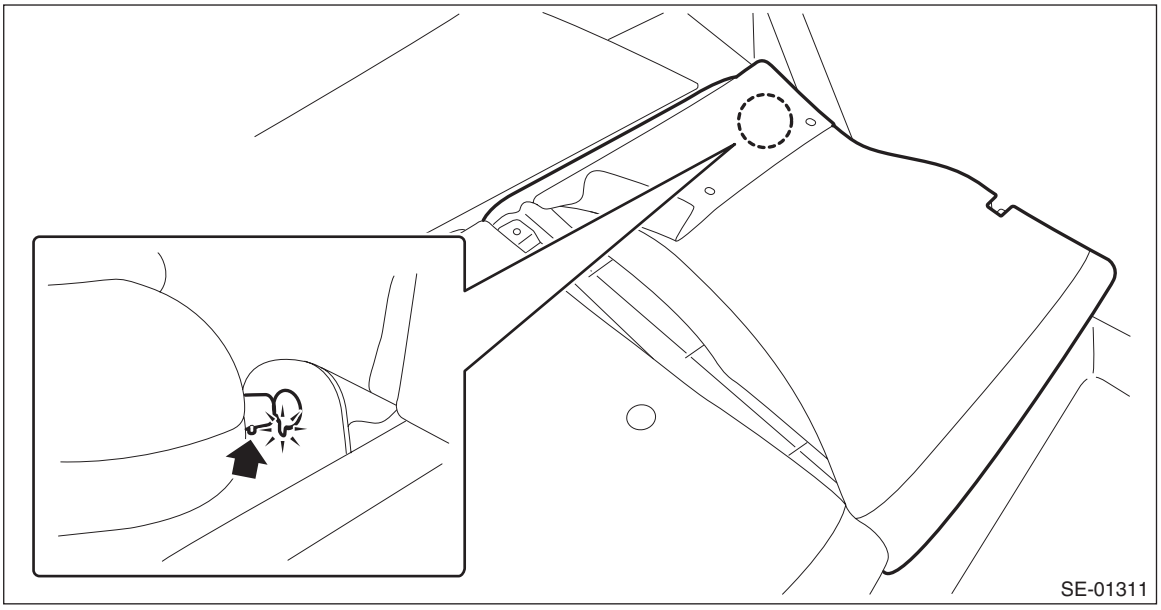

10) Remove the backrest assembly.
(1) Remove the pillow assembly - rear backrest, and tilt the backrest forward.
(2) Remove the clips located at the bottom of the cover COMPL - rear backrest LH and RH of the rear seat back.



(3) Turn over the cover COMPL - rear backrest to remove the bolts.

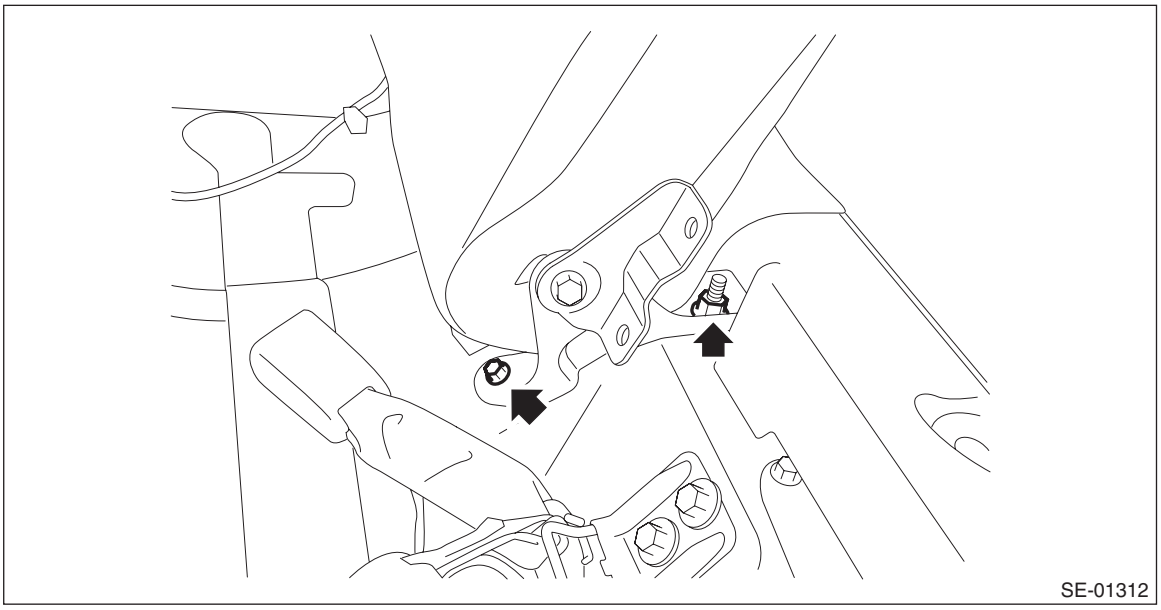



(4) Remove the backrest assembly LH from the hinge assembly.

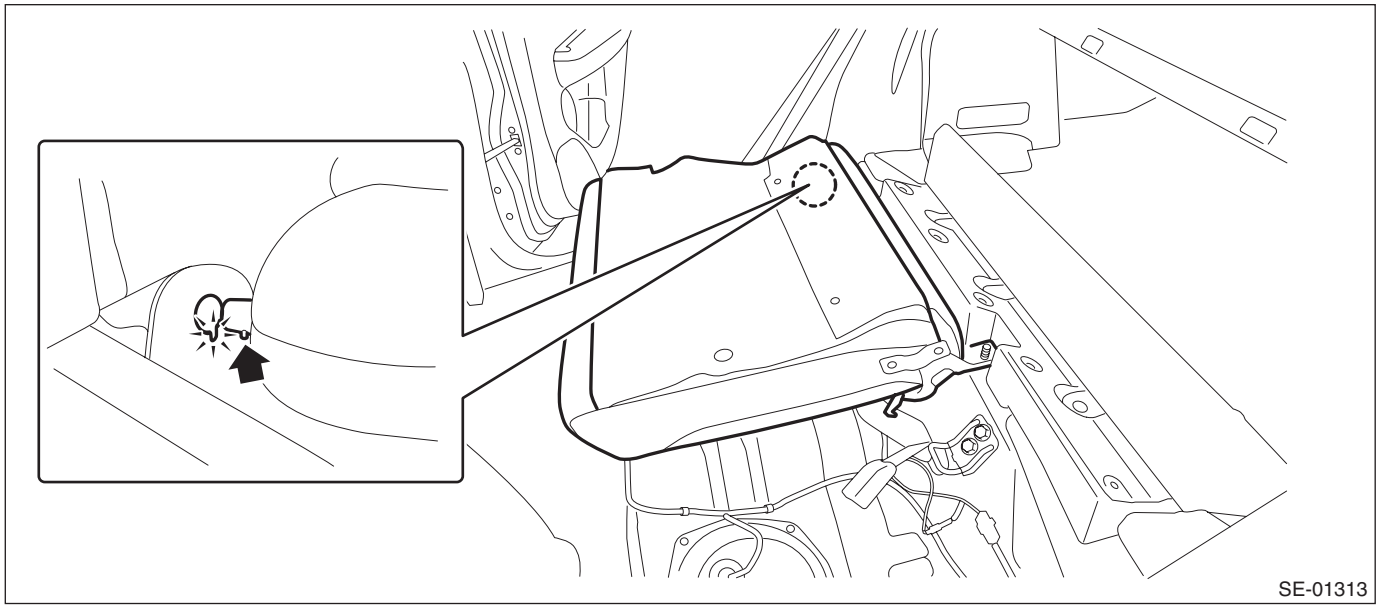



NOTE:
The backrest assembly cannot be removed unless pin positions on the hinge assembly side and backrest assembly side are aligned.

(5) Remove the bolts and nuts, and remove the backrest assembly RH.

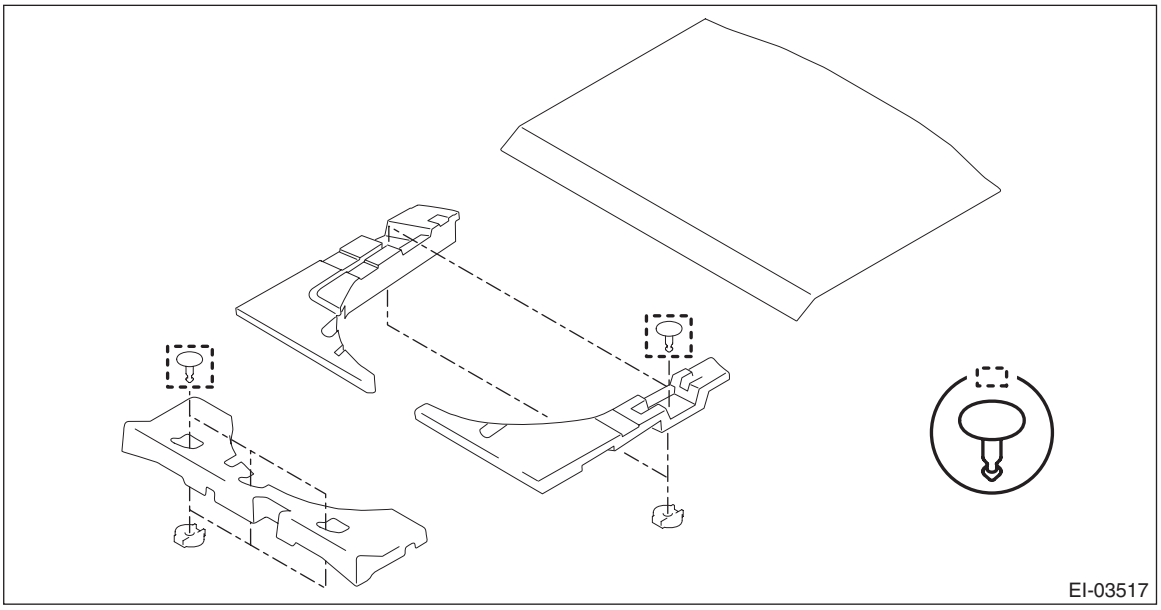



(6) Remove the backrest assembly RH from the hinge assembly.

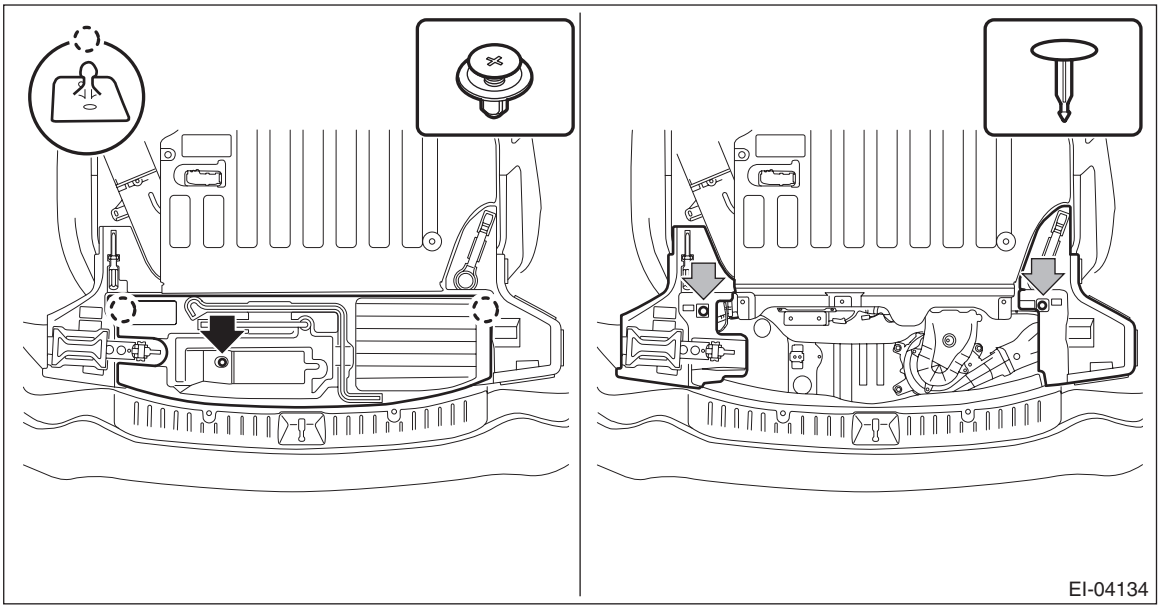



NOTE:
The backrest assembly cannot be removed unless pin positions on the hinge assembly side and backrest assembly side are aligned.

11) Remove the mat - rear floor CTR and the spacer - rear floor side.

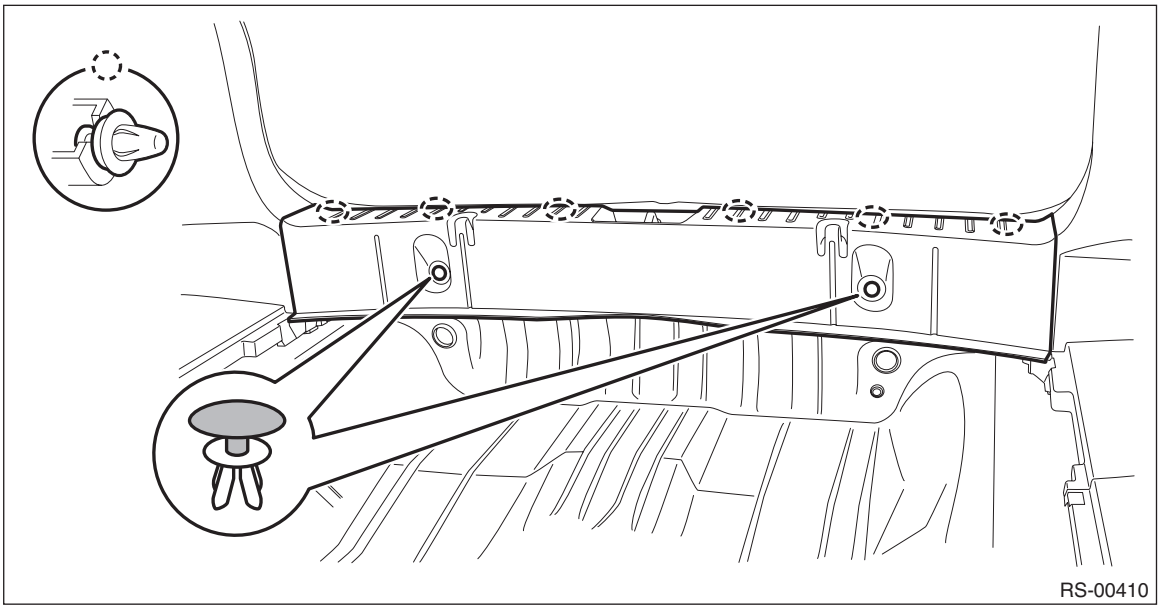



12) Remove the sub-trunk box and side spacers. (HEV model)




(1) Release the clips and side spacers, then detach the sub-trunk box.
(2) Remove the clips and detach the side spacers.

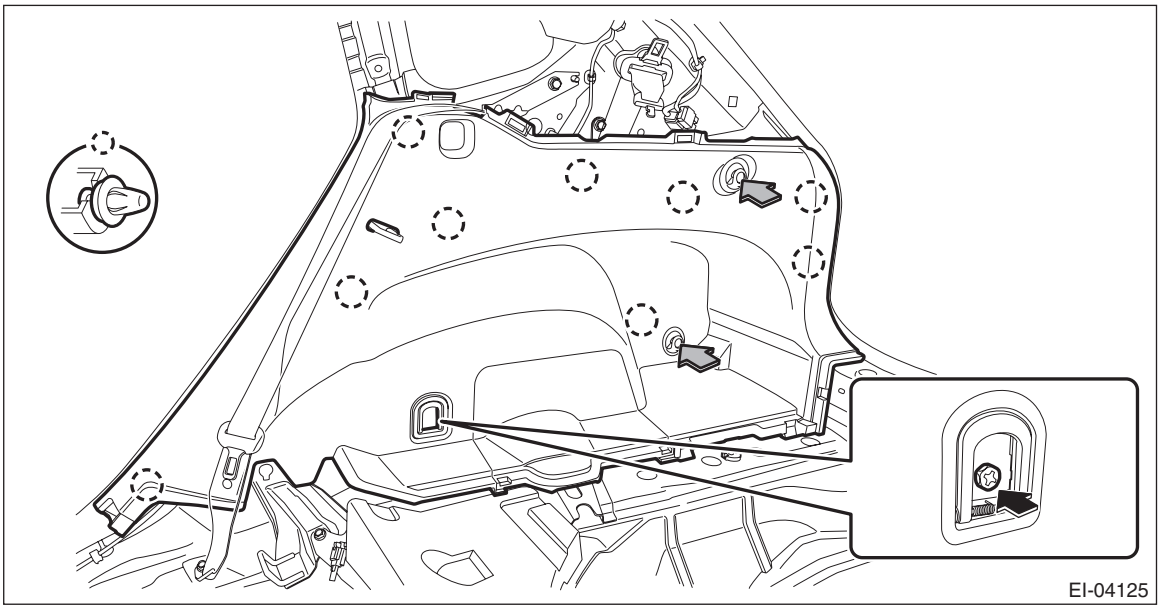
13) Remove the clips, and remove the trim panel - rear skirt.



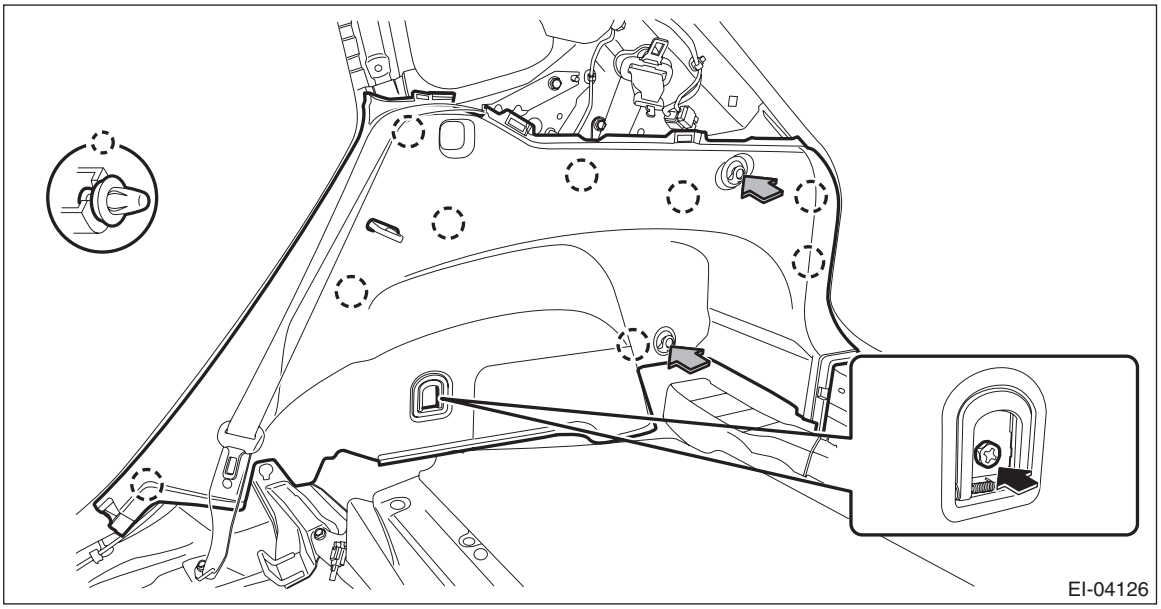
14) Remove the trim panel - rear apron.
(1) Remove the caps, and remove the bolts.
(2) Remove the screws.
(3) Disengage the clips, and remove the trim panel - rear apron.

NOTE:
For LH side, disconnect the connector of the luggage room light.

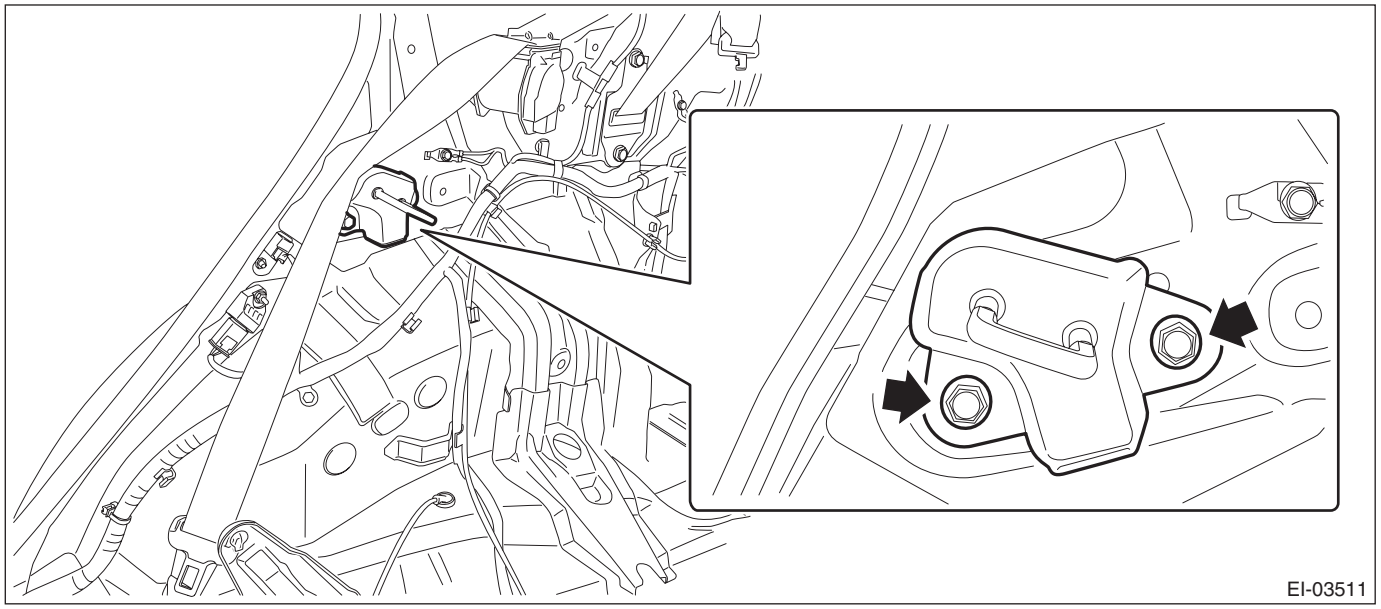
- Gasoline engine model



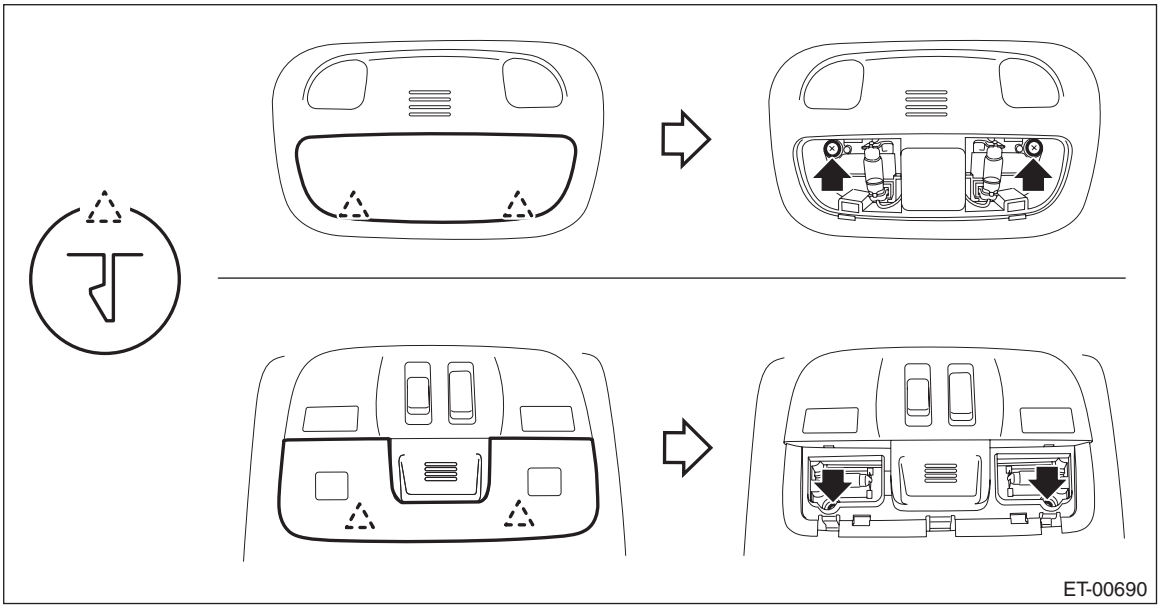

- HEV model



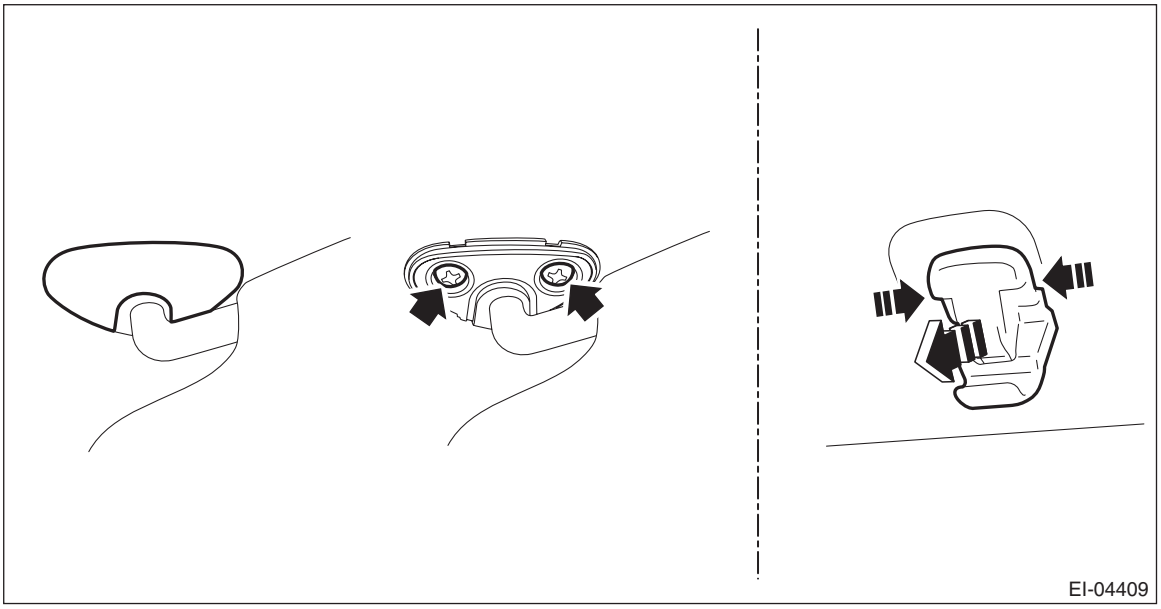
15) Remove the bolts, and remove the striker - backrest rear on the passenger's side.



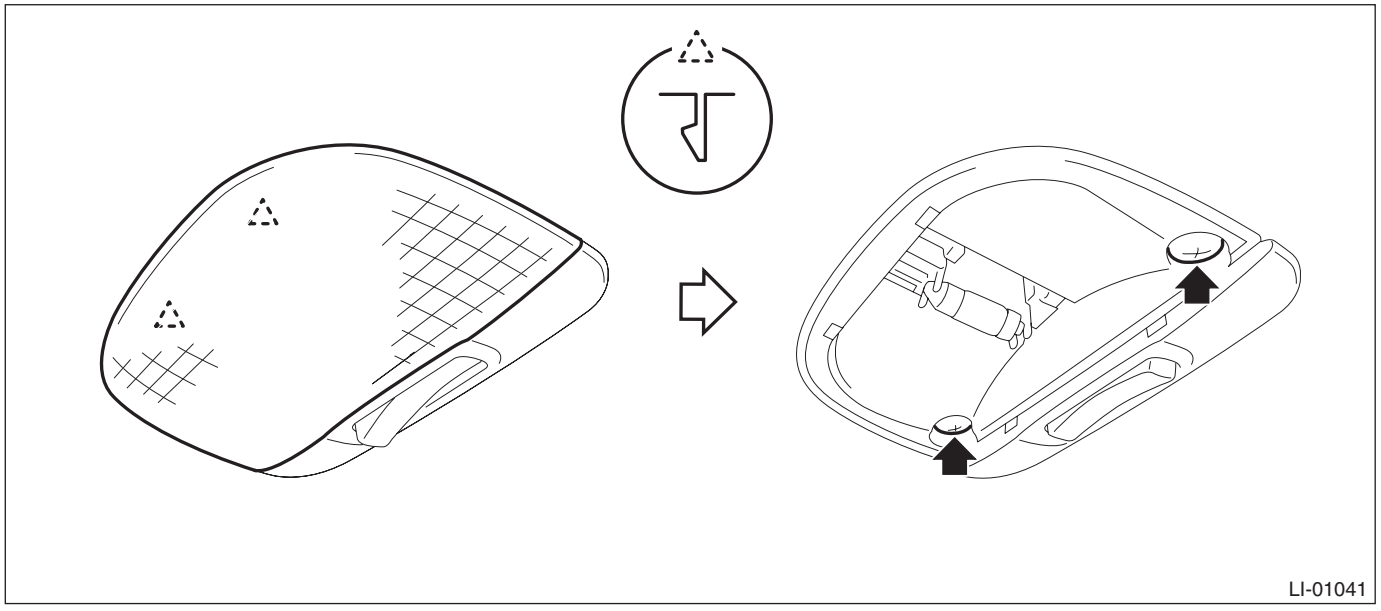

16) Remove the light assembly - map.
(1) Remove the lens and detach the screws.
(2) Disconnect the connector and remove the light assembly - map.



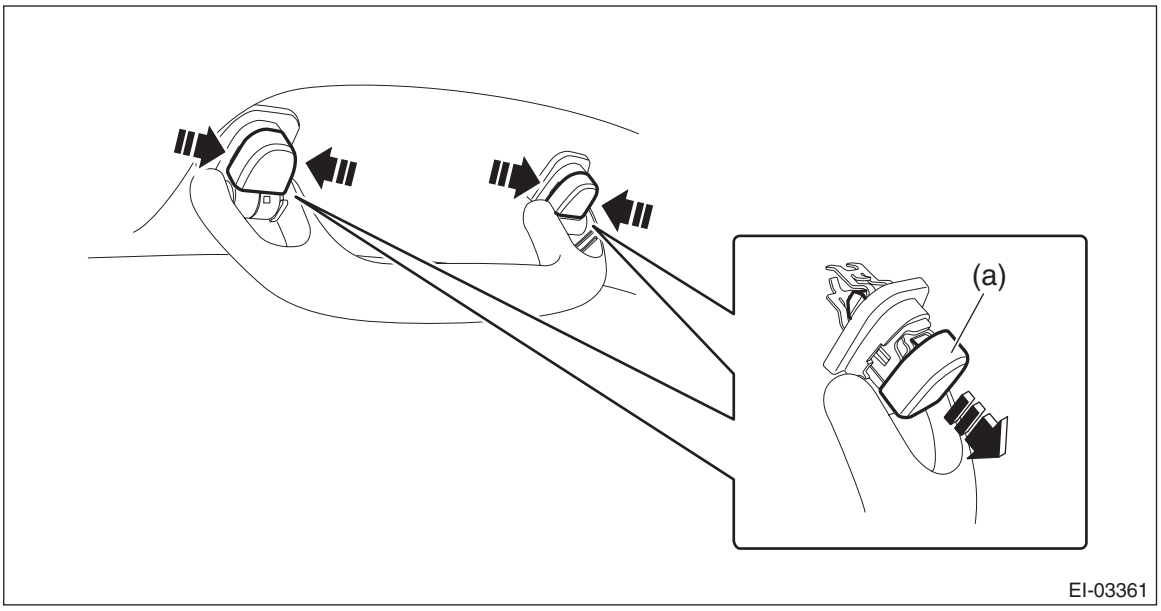
17) Remove the left and right sun visor assembly.
(1) Remove the cap - sun visor.
(2) Remove the screws and remove the sun visor assembly.
(3) Press both sides of the hook - sun visor using a flat tip screwdriver.
(4) Remove the hook - sun visor by pulling it toward you.



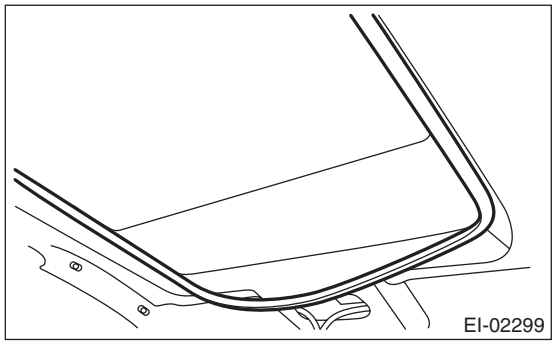

18) Remove the light assembly - room.
(1) Remove the lens and detach the screws.
(2) Disconnect the connector and remove the light assembly - room.



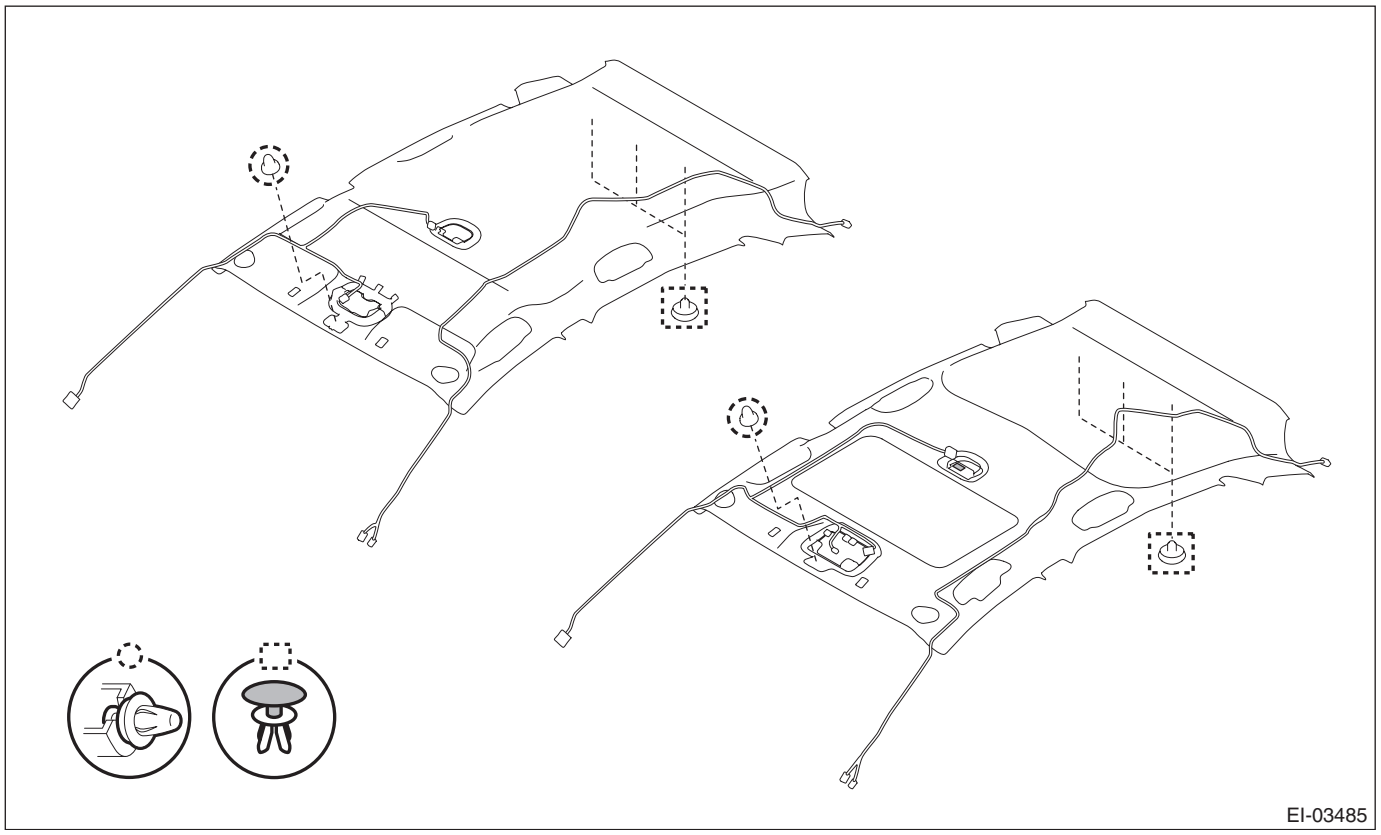
19) Remove all assist rails.
(1) Remove the cap (a) by pulling the both sides of the cap (a) using a flat tip screwdriver wrapped with a protection tape.
(2) Pull the assist grip toward you (to the vehicle center) and remove the metal clip from the bracket.




20) Remove the garnish - roof. (Model with sunroof)

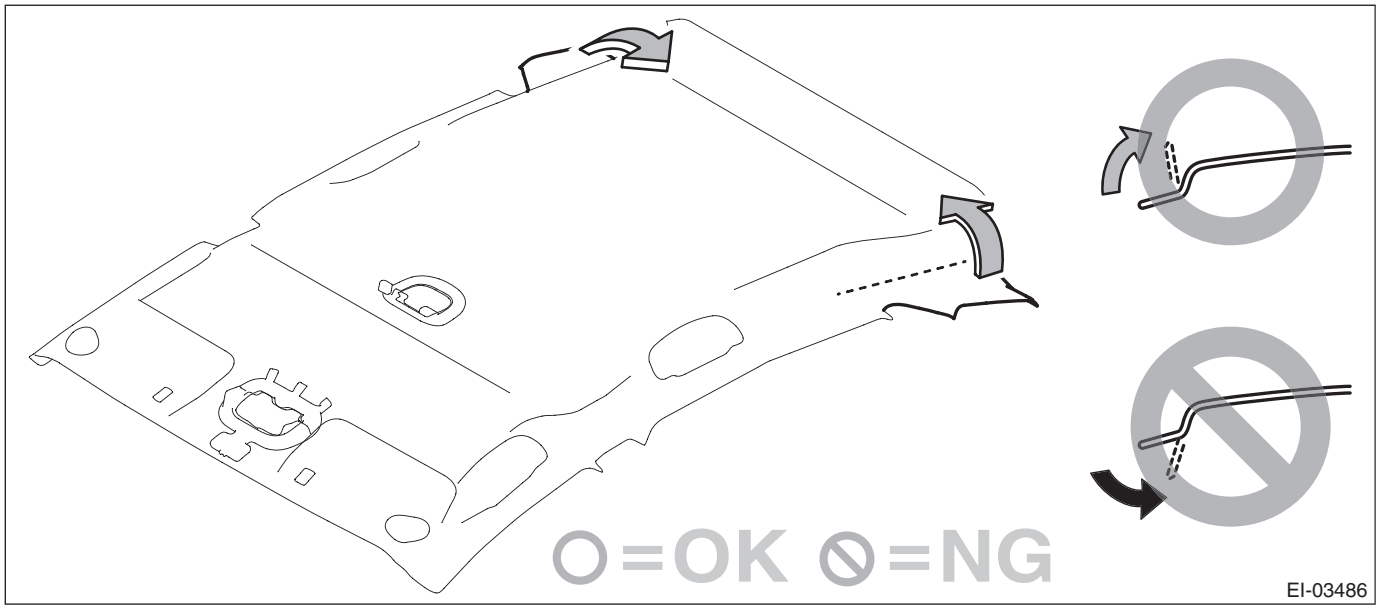


21) Remove the trim panel - roof assembly.
(1) Remove the harness clamp of the cord assembly - antenna feeder and the cord - roof, and disconnect the connectors.
(2) Remove the clips and remove the Velcro tape behind the room light.




(3) Remove the weather strip - body side flange from the front/rear and left/right doors, and remove the trim panel - roof assembly.
(4) Slightly bend the rear end of the trim panel - roof assembly along the character line, and take it out from the rear gate opening.

**CAUTION:**
**Be careful of the bending direction. If the direction is wrong, the trim panel - roof assembly may be wrinkled.**



## B: INSTALLATION

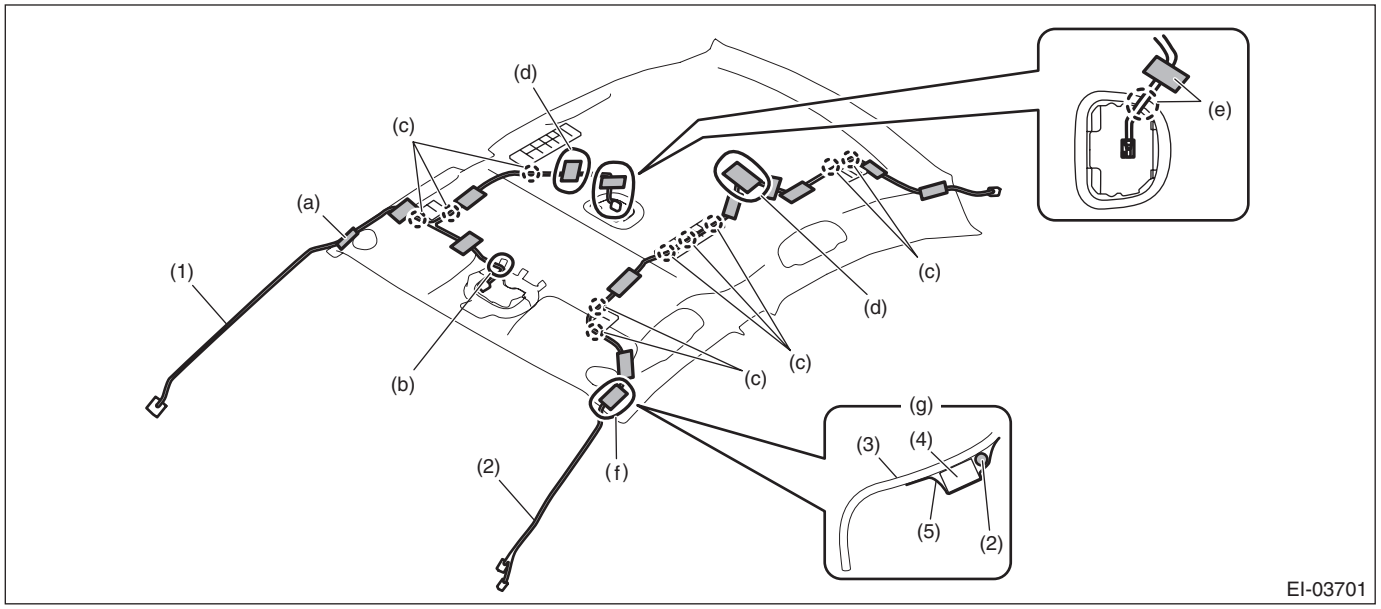
1) Attach the feeder cord and roof cord to the roof trim.

**CAUTION:**
**Route each cord carefully. The cord may interfere, thus preventing normal deployment of the curtain airbag when necessary.**

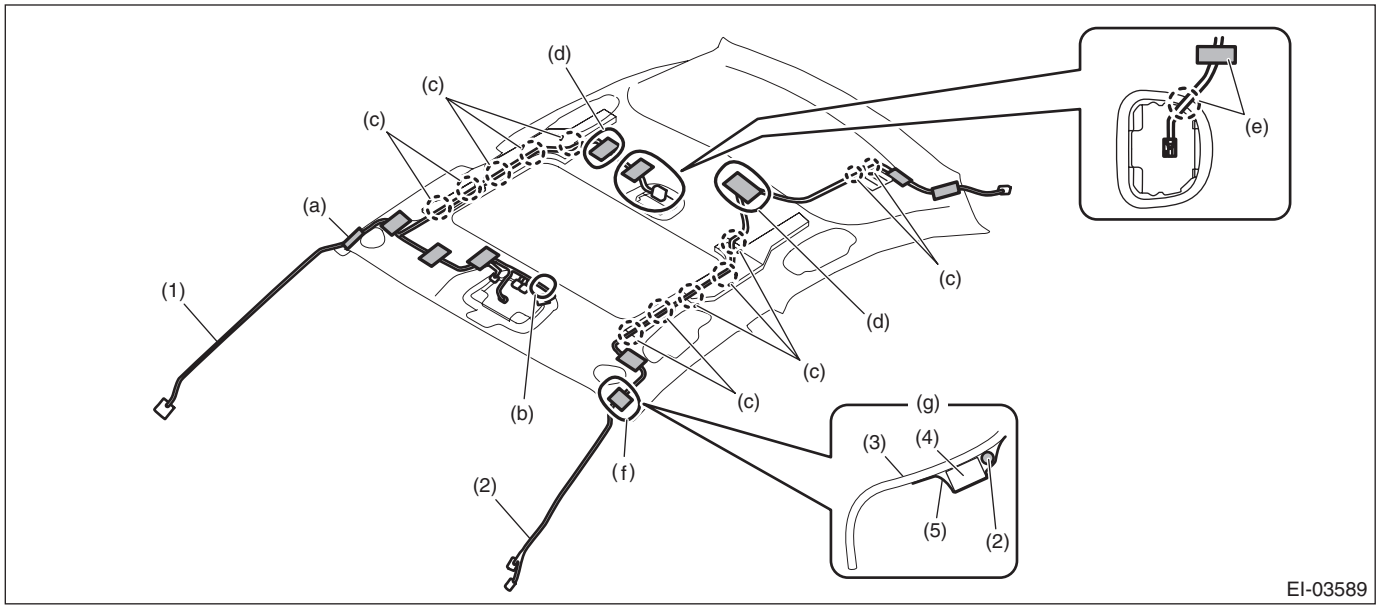
***Tape:***
***Item number: 86359SC000/TAPE***

NOTE:
Use the tape (service parts) by cutting into 80 mm × 50 mm (3.2 in × 2.0 in).

- 4 door model



EI-03701

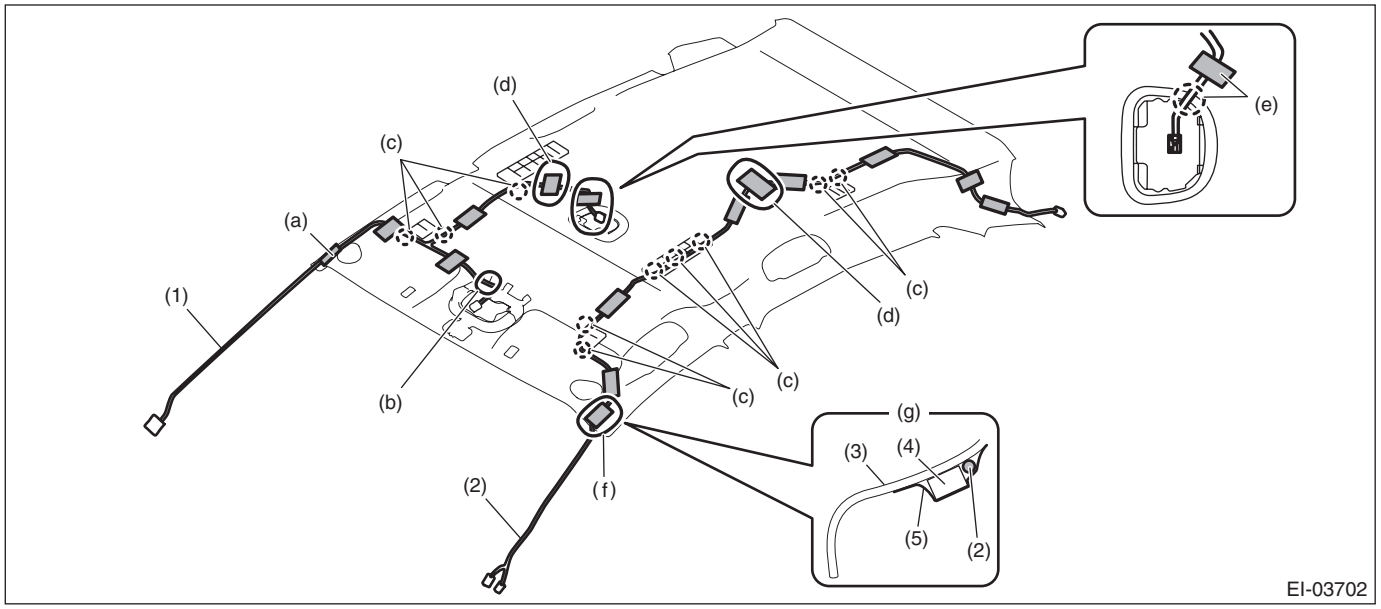


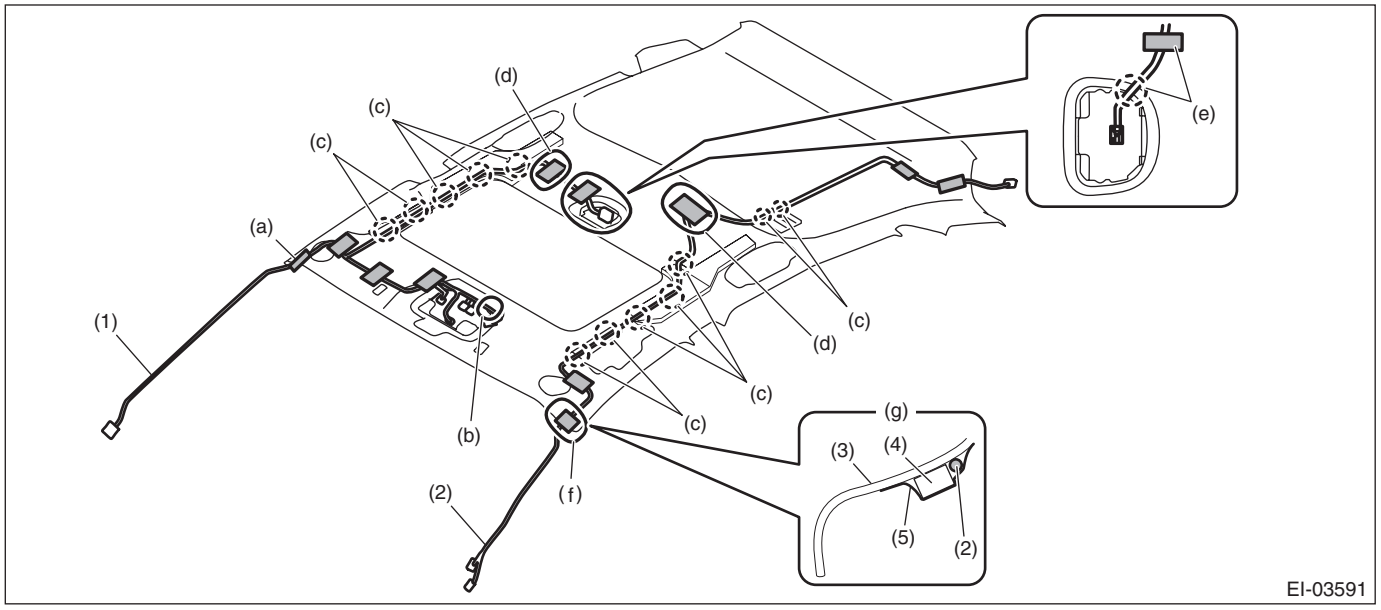
EI-03589

| | | | | | |
|---|---|---|---|---|---|
| (1) | Roof cord | (3) | Trim panel - roof | (5) | Tape |
| (2) | Feeder cord | (4) | Cushion | | |

| | | | | | |
|---|---|---|---|---|---|
| (a) | Align the center of the marking (white tape) on the cord with the trim end, then secure using the tape. | (d) | Adjust the excess cord at (d) position and secure using the tape. | (g) | Route the cord along inside of the cushion (to the vehicle center) and secure using the tape. |
| (b) | Align the marking (white tape) of the cord with the clamp to secure. | (e) | Secure the marking (white tape) of the cord using the tape so that the marking cannot be viewed from the passenger room. | | |
| (c) | Secure the cord to the roof pad clamp. | (f) | Align the center of the marking (red tape) on the cord with the roof trim end, then secure using the tape. | | |

- 5 door model/XV model

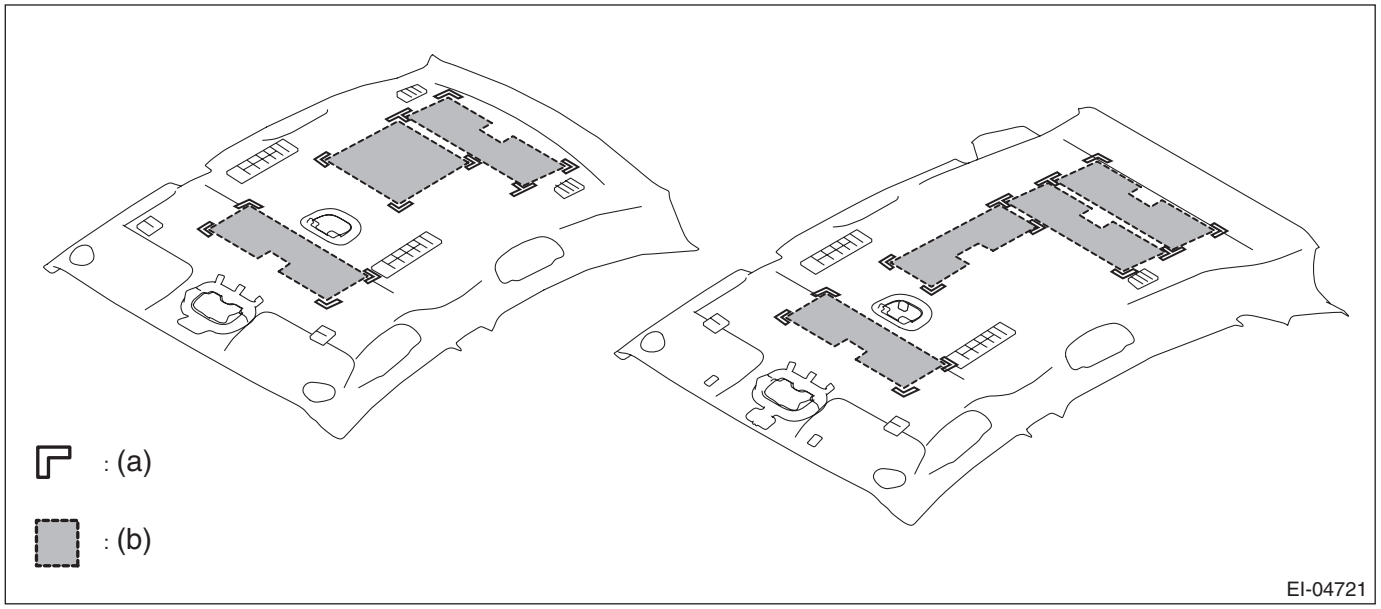


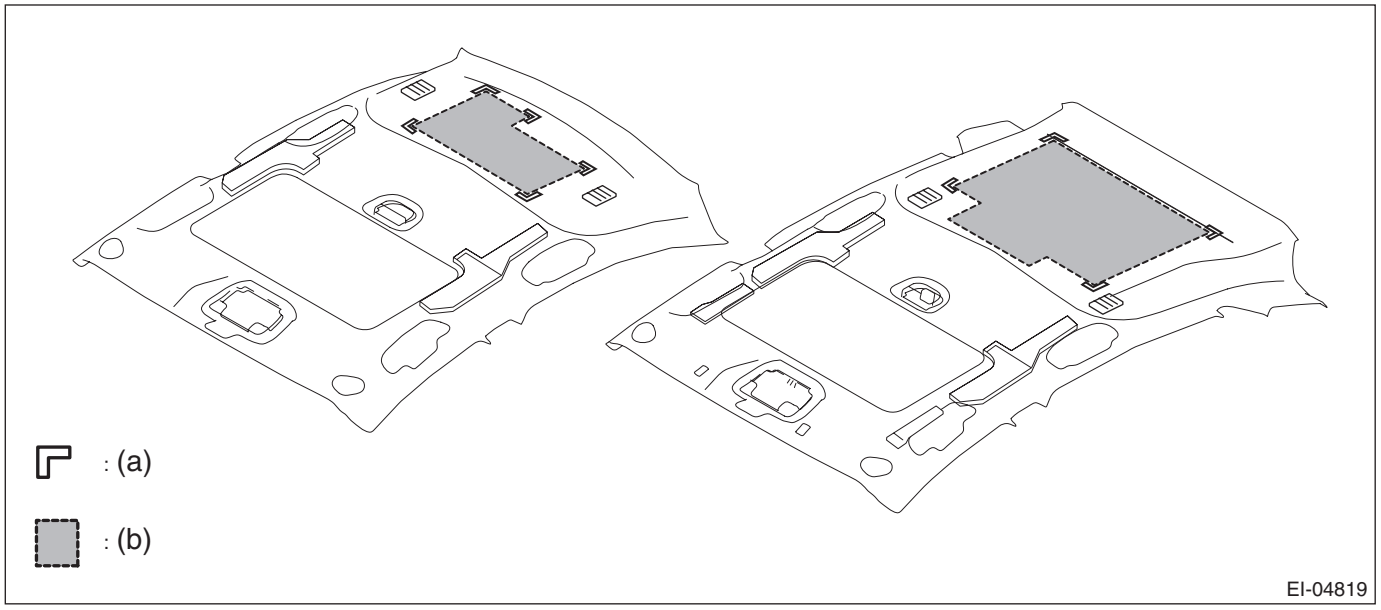




(1) Roof cord
(2) Feeder cord
(3) Trim panel - roof
(4) Cushion
(5) Tape

(a) Align the center of the marking (white tape) on the cord with the trim end, then secure using the tape.
(b) Align the marking (white tape) of the cord with the clamp to secure.
(c) Secure the cord to the roof pad clamp.
(d) Adjust the excess cord at (d) position and secure using the tape.
(e) Secure the marking (white tape) of the cord using the tape so that the marking cannot be viewed from the passenger room.
(f) Align the center of the marking (red tape) on the cord with the roof trim end, then secure using the tape.
(g) Route the cord along inside of the cushion (to the vehicle center) and secure using the tape.

2) Affix the insulator along with the mark-off line on the back surface of the roof trim.

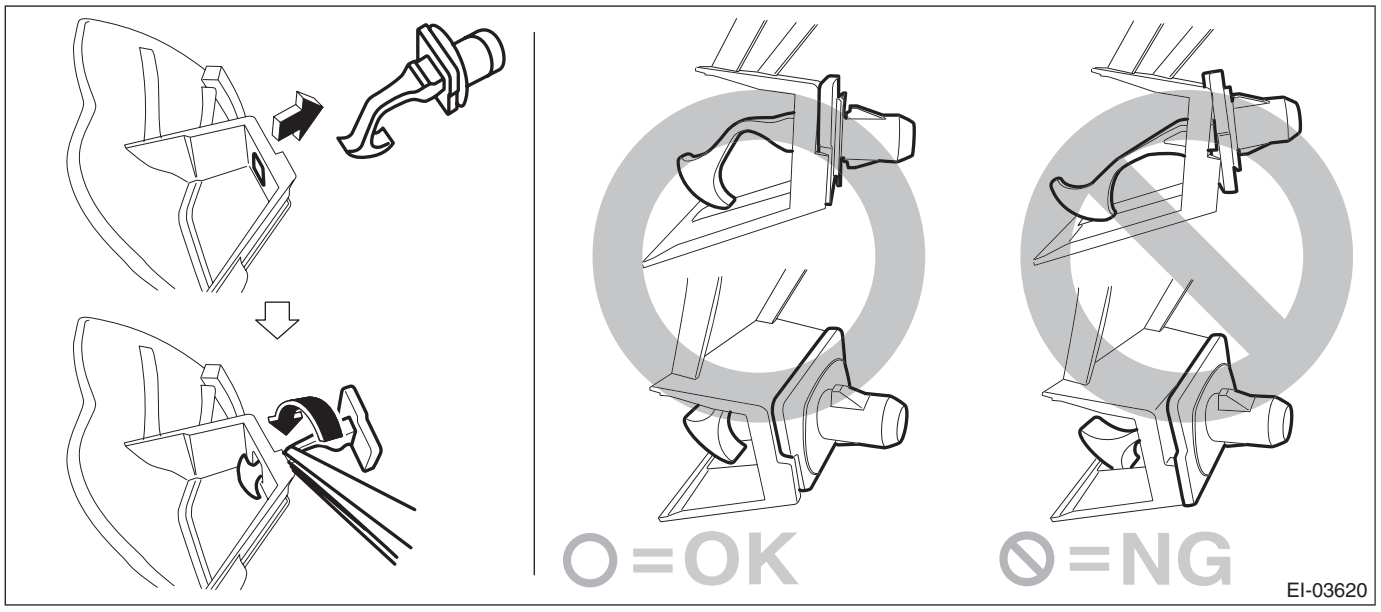



(a) Mark-off line (b) Insulator

3) Install each part in the reverse order of removal.

**CAUTION:**
**• When reusing the tether clip on the upper part of the trim panel - front pillar UPR, check that there is no damage to the tether clip. If the clip is damaged, its holding force is reduced and the trim panel - front pillar UPR may come off. Be sure to replace it with a new clip.**
**• Do not reuse the tether clip removed from the upper part of the trim panel - front pillar UPR. Always replace with a new part.**
**• Do not reuse the upper clips of the trim panel - center pillar UPR. Once the clip is removed, its holding force is reduced. Be sure to replace it with a new clip.**
**• Before installing the trim panel - front pillar UPR, check the condition of protective non-woven fabric (white) of the curtain airbag. If it is damaged (airbag module cloth is exposed), replace the curtain airbag module assembly with a new part.**
**• Check the installation status of the tether clips and install the trim panel - front pillar UPR.**

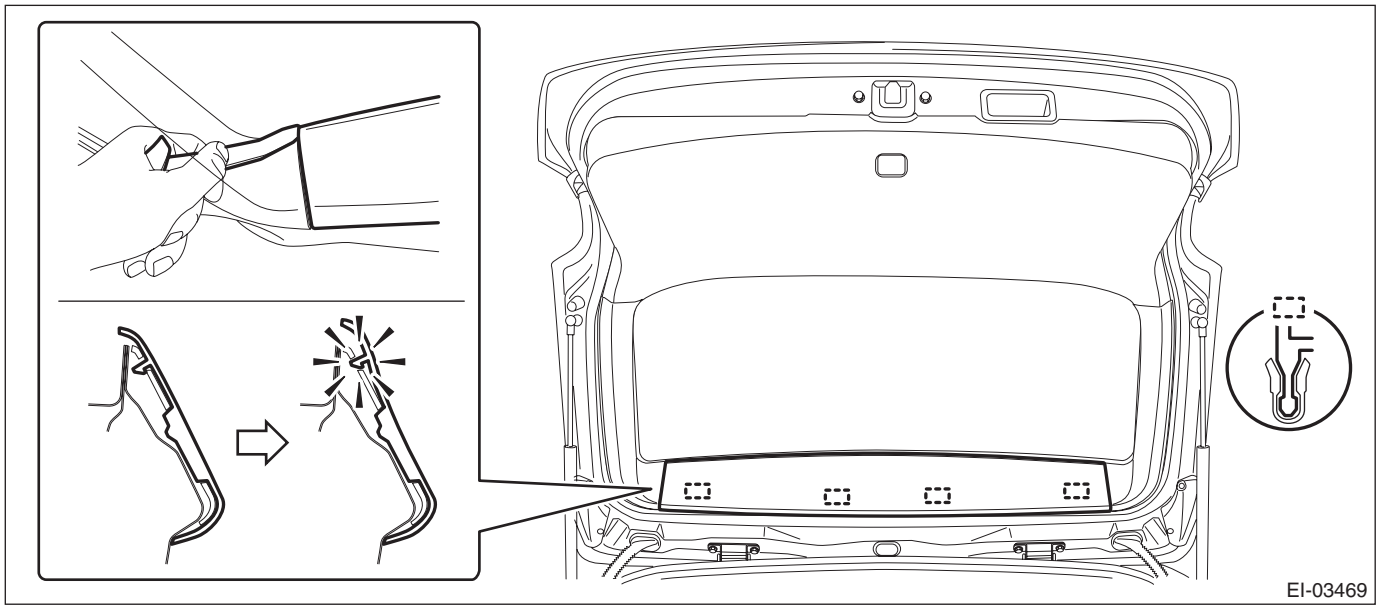



***Tightening torque:***
***Console box assembly: 6.5 N·m (0.66 kgf-m, 4.8 ft-lb)***
***Rear seat backrest assembly: <Ref. to SE-5, REAR SEAT, COMPONENT, General Description.>***

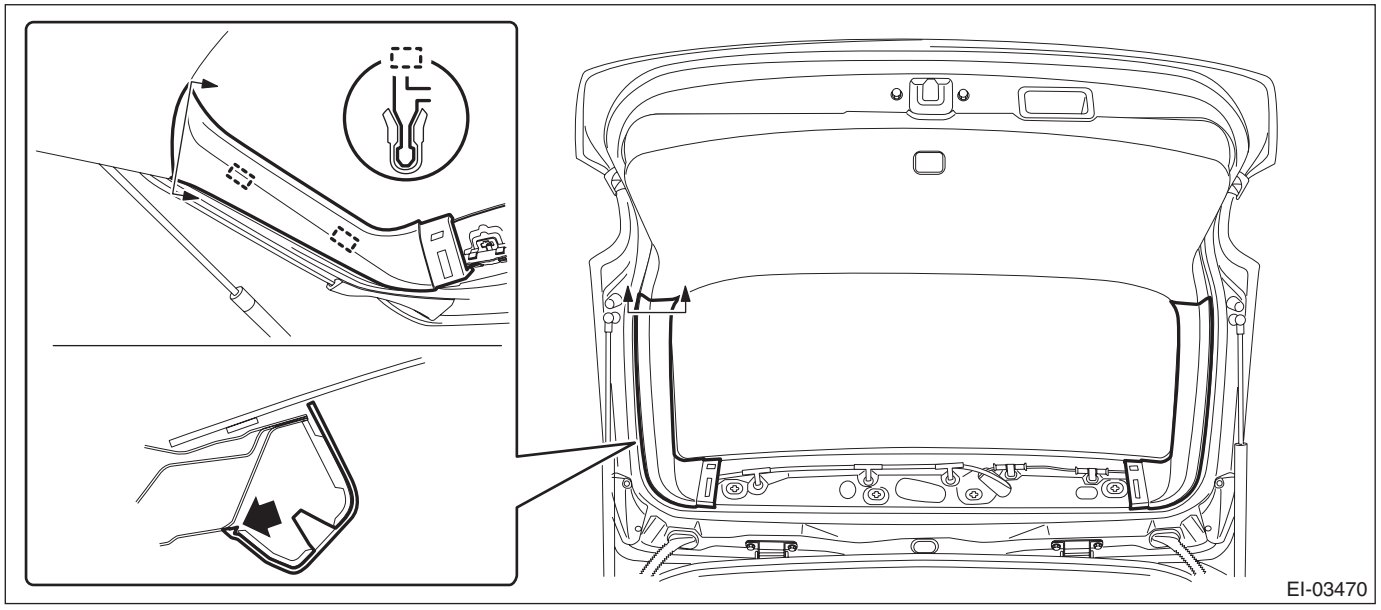
# 29.Rear Gate Trim

## A: REMOVAL

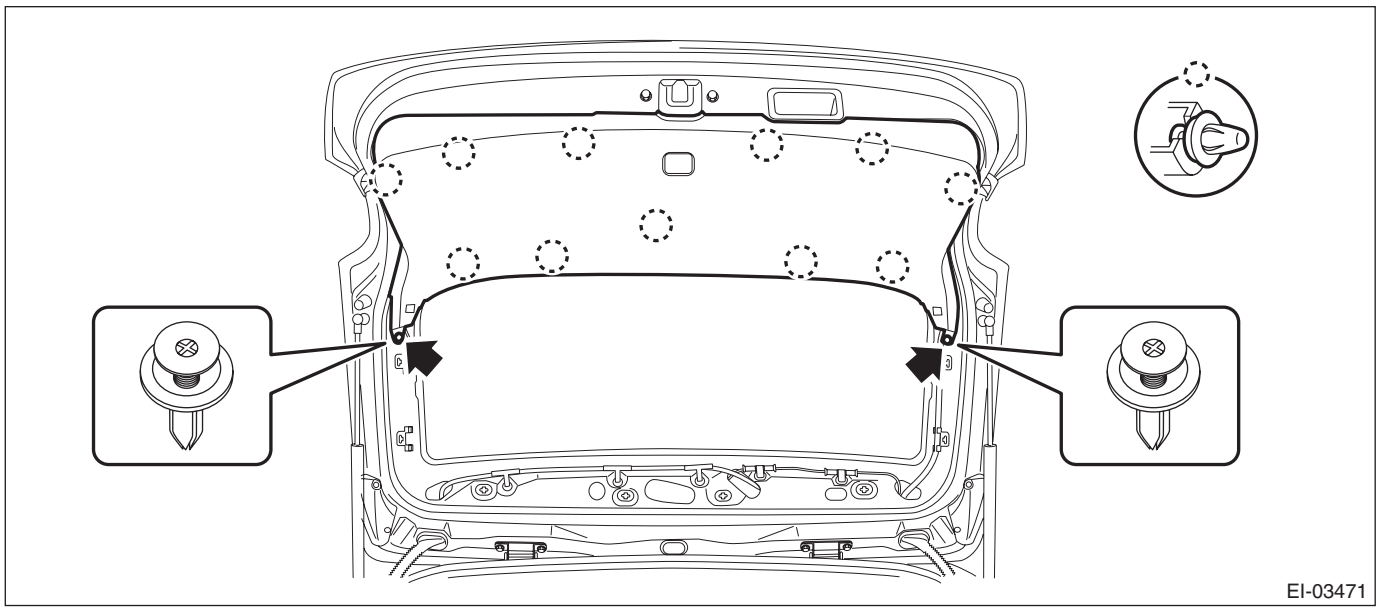
1) Remove the trim panel - rear gate UPR.
   (1) Remove the claws on the trim edge.
   (2) Release the claws in the center of trim, and remove the trim panel - rear gate UPR.




2) Remove the trim panel - rear gate pillar side.
   (1) Release the claws.
   (2) Remove the claws on the bottom of trim, and remove the trim panel - rear gate pillar side.



3) Remove the trim panel - rear gate LWR.
   (1) Remove the clips on both ends.
   (2) Release the clips, and remove the trim panel - rear gate LWR.



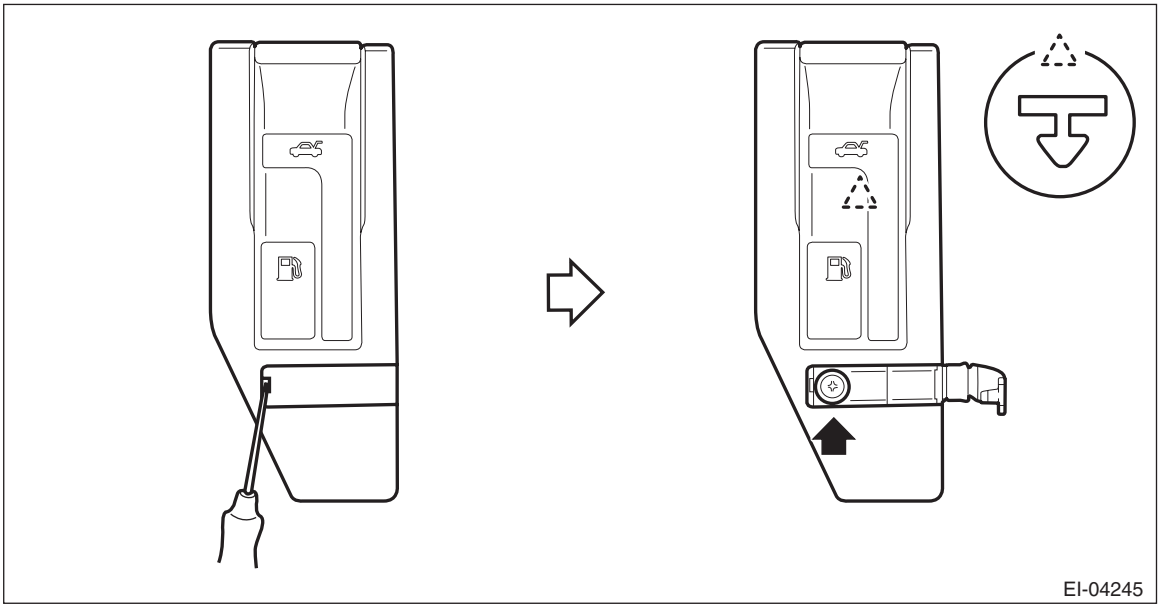

## B: INSTALLATION

Install each part in the reverse order of removal.

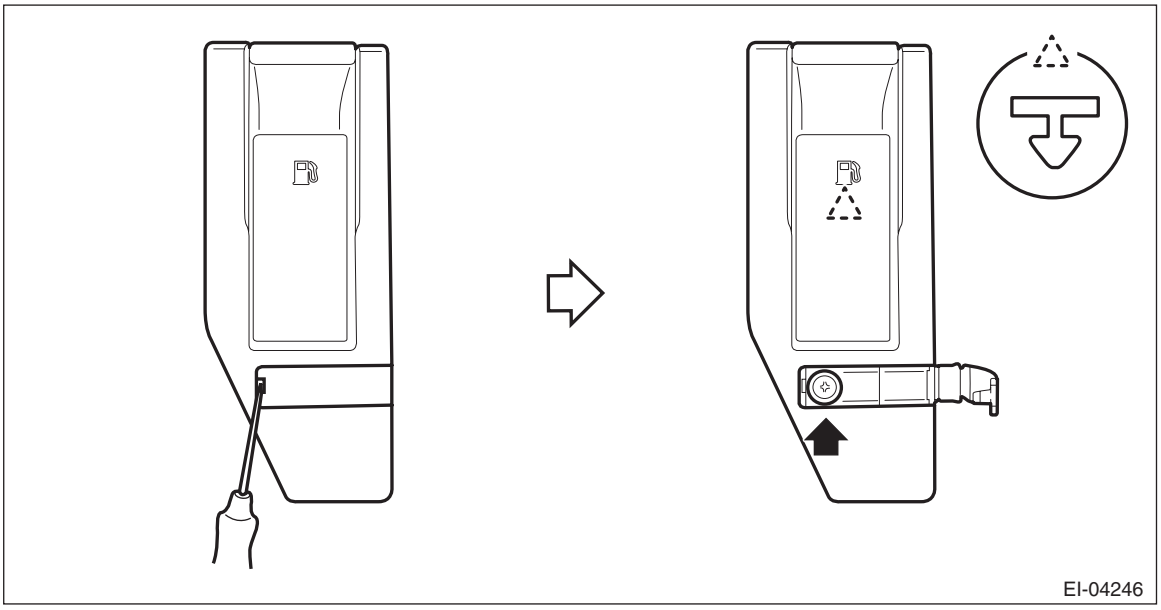
# 30.Floor Mat

## A: REMOVAL

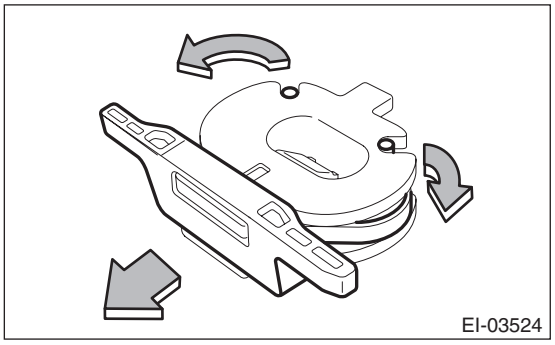
1) Remove the front seat assembly. <Ref. to SE-7, REMOVAL, Front Seat.>
2) Remove the rear seat cushion assembly. <Ref. to SE-23, REMOVAL, Rear Seat.>
3) Remove the console box assembly and panel center LWR. <Ref. to EI-81, REMOVAL, Console Box.>
4) Remove the lower inner trim. <Ref. to EI-102, REMOVAL, Lower Inner Trim.>
5) Remove the pull handle cover.
   (1) Open the cover by using a flat tip screwdriver.
   (2) Remove the screw and remove the pull handle cover.
   - 4 door model


EI-04245

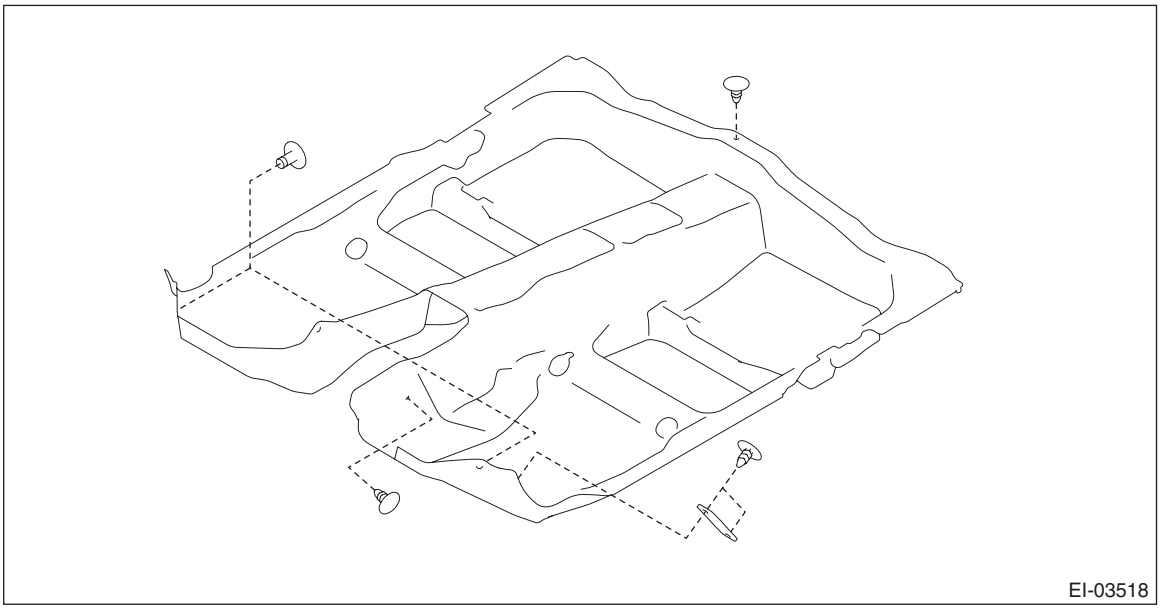
   - 5 door model/XV model


EI-04246

6) Remove the knobs of the hook - seat cushion rear.



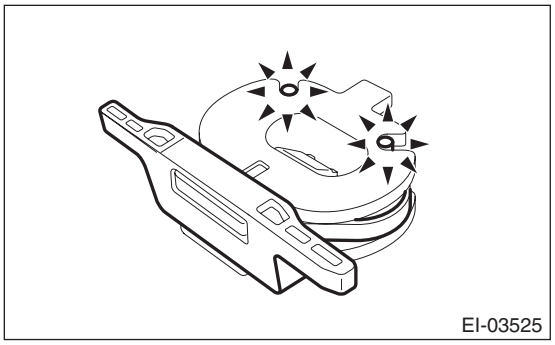

7) Take out the floor mat from the vehicle.
   (1) Remove the clips from the floor mat.
   (2) Remove the mat hook on both sides.
   (3) Take out the floor mat after folding down.




## B: INSTALLATION

Install each part in the reverse order of removal.

**CAUTION:**
**Make sure that the knobs of the hook - seat cushion rear are securely installed.**

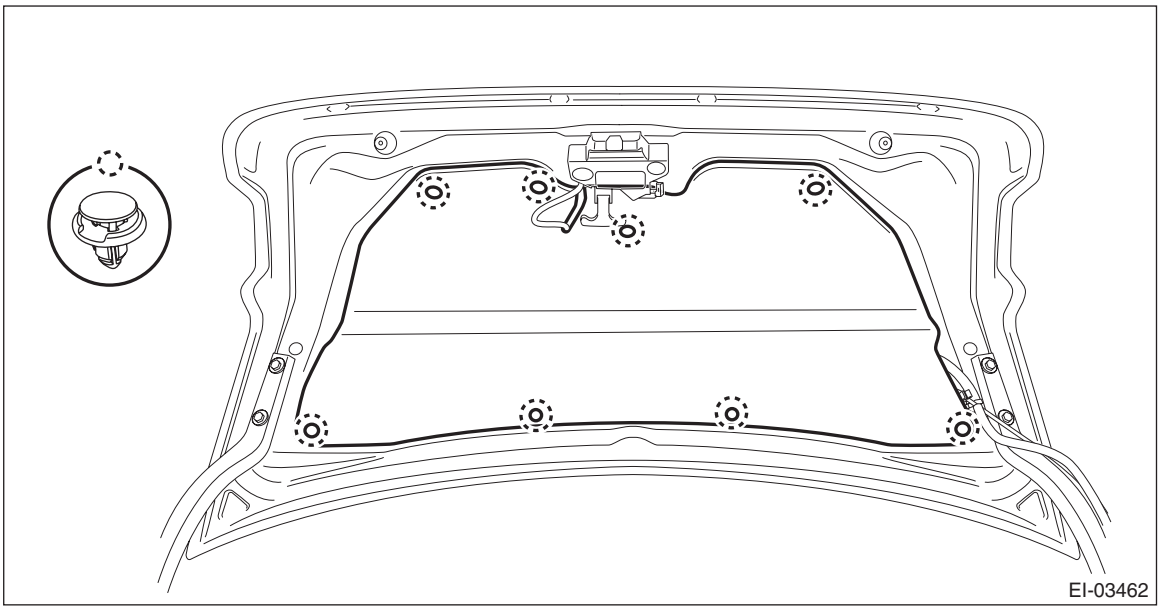



NOTE:
Secure the mat firmly with clips.

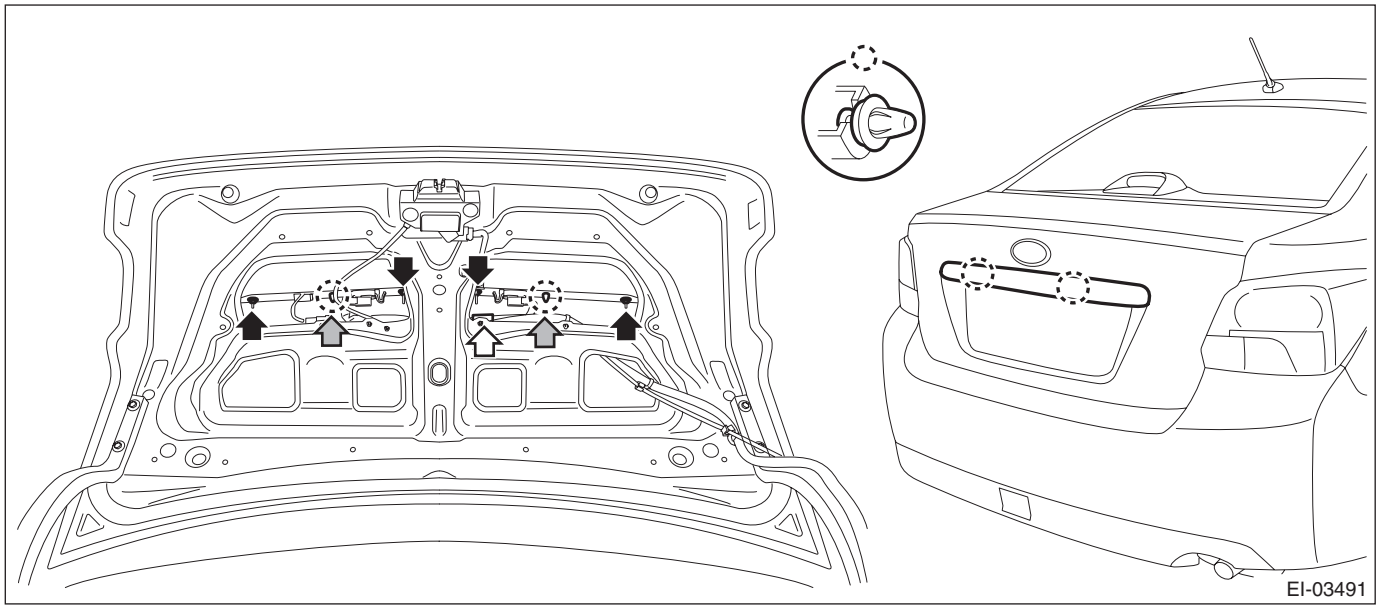
# 31.Trunk Lid Garnish

## A: REMOVAL

1) Remove the clips, and remove the trim panel - trunk lid.




2) Remove the garnish - trunk.
   (1) Remove the nut.
   (2) Remove the clips, and remove the garnish - trunk.




## B: INSTALLATION

Install each part in the reverse order of removal.

***Tightening torque:***
***4.5 N·m (0.46 kgf-m, 3.3 ft-lb)***

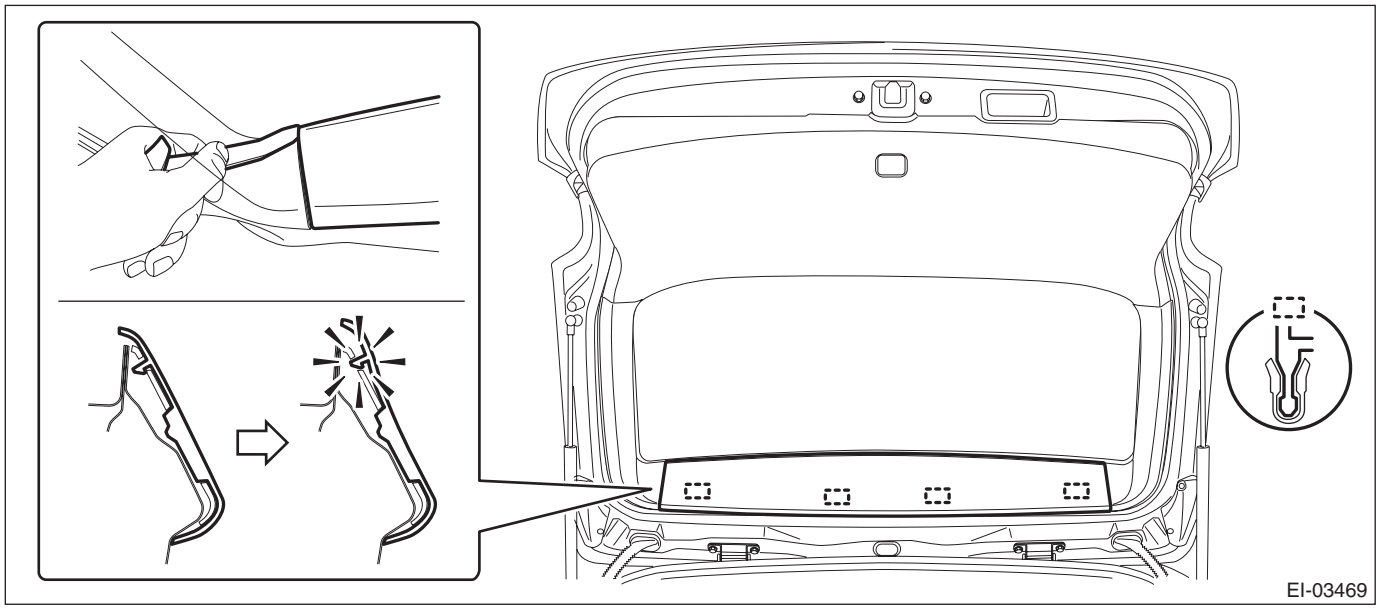
# 32.Rear Gate Garnish

## A: REMOVAL

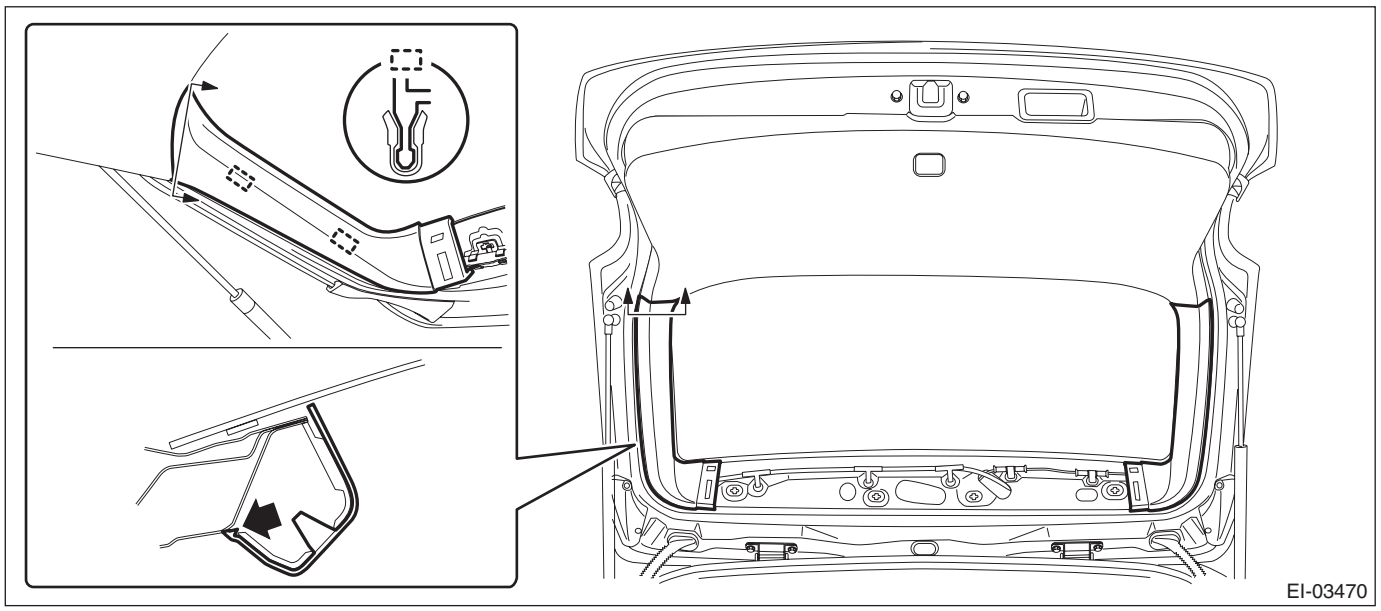
1) Disconnect the ground cable from battery. <Ref. to NT-5, BATTERY, NOTE, Note.>

NOTE:
For the 12 volt engine restart battery of HEV model, disconnect the ground terminal from 12V engine restart battery sensor.

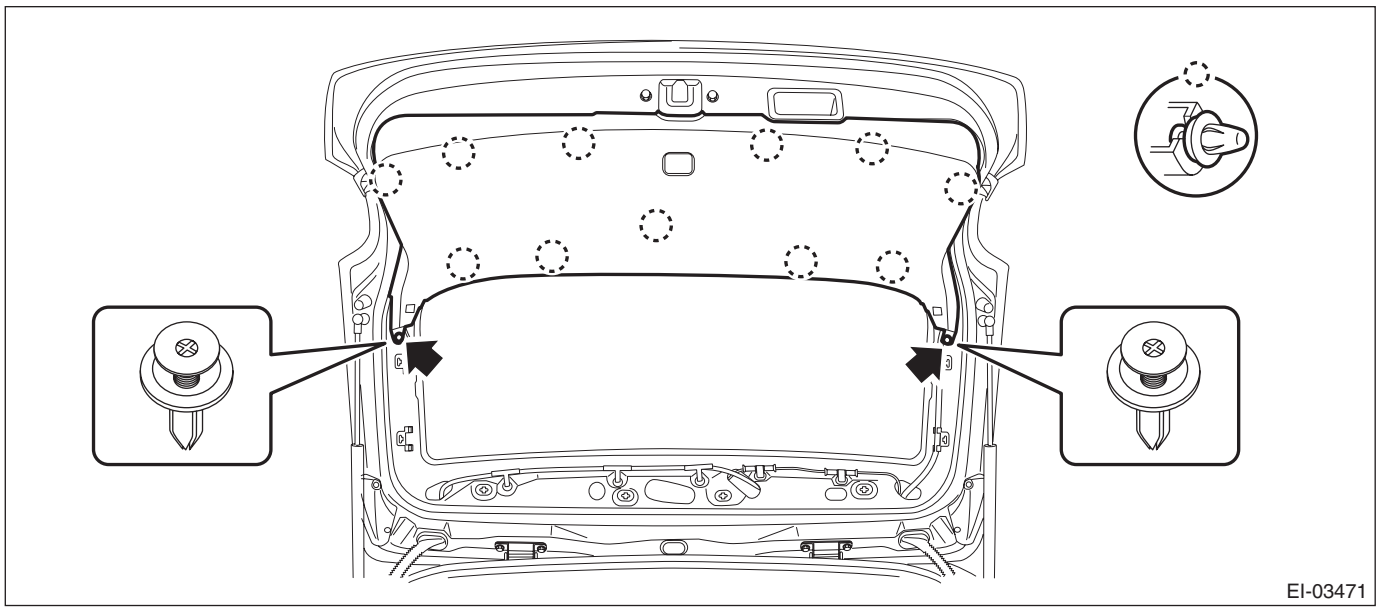
2) Remove the trim panel - rear gate UPR.
   (1) Remove the claws on the trim edge.
   (2) Release the claws in the center of trim, and remove the trim panel - rear gate UPR.



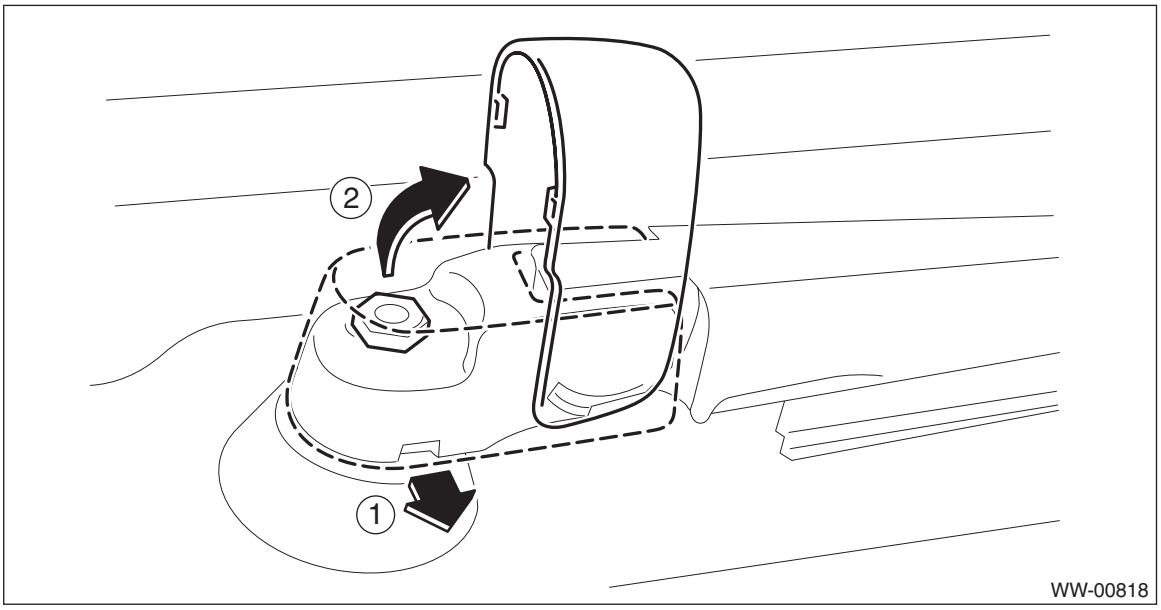

3) Remove the trim panel - rear gate pillar side.
   (1) Release the claws.
   (2) Remove the claws on the bottom of trim, and remove the trim panel - rear gate pillar side.



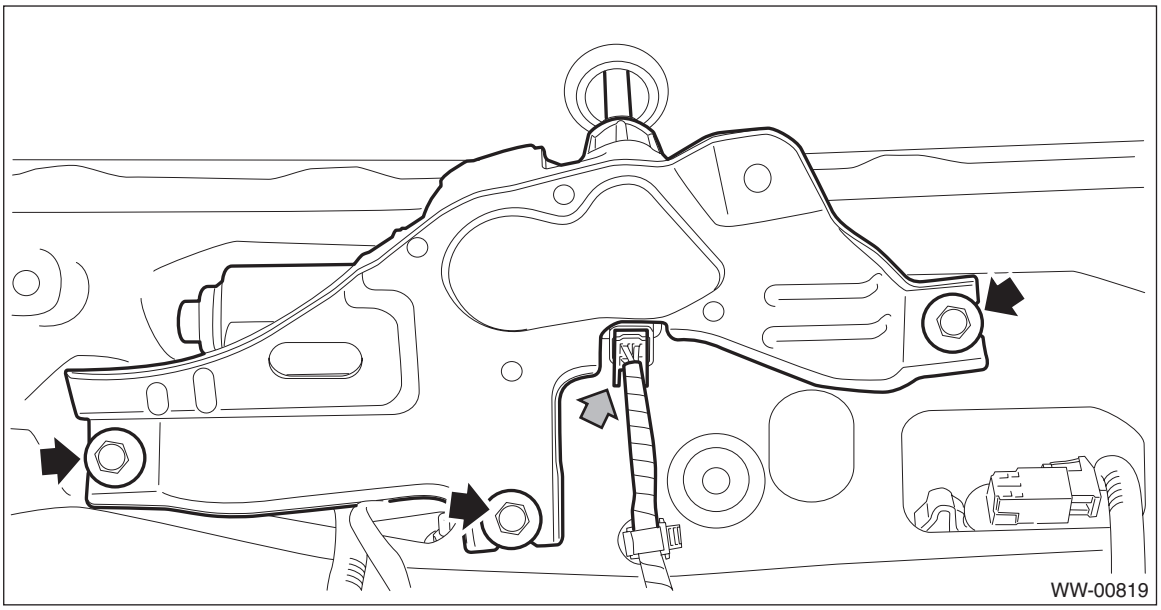
4) Remove the trim panel - rear gate LWR.
   (1) Remove the clips on both ends.
   (2) Release the clips, and remove the trim panel - rear gate LWR.



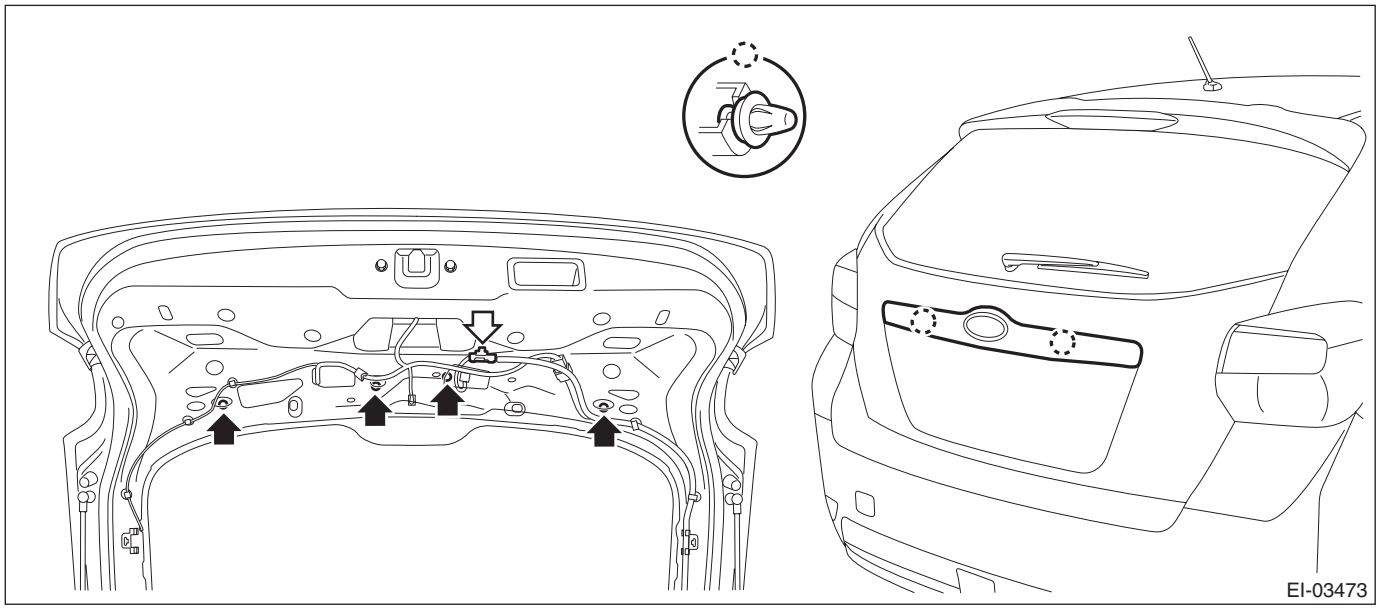

5) Remove the arm assembly - rear wiper.
   (1) Remove the cover - rear wiper arm.
   (2) Remove the nut, and remove the arm assembly - rear wiper.



6) Remove the motor assembly - rear wiper.
(1) Disconnect the harness connector of the motor assembly - rear wiper.
(2) Remove the bolts, and remove the motor assembly - rear wiper.




7) Remove the garnish assembly - rear gate.
(1) Disconnect the harness connector of license plate light assembly.
(2) Remove the nuts.
(3) Remove the clips and remove the garnish assembly - rear gate.




## B: INSTALLATION

**CAUTION:**
**Make sure that the harness grommet is securely installed.**
**If not properly installed, this may cause leaks.**
Install each part in the reverse order of removal.

***Tightening torque***
***Garnish assembly - rear gate: 4.5 N·m (0.46 kgf-m, 3.3 ft-lb)***
***Motor assembly - rear wiper: 6 N·m (0.61 kgf-m, 4.4 ft-lb)***
***Arm assembly - rear wiper: 8 N·m (0.82 kgf-m, 5.9 ft-lb)***

# 33.Heat Shield Cover

## A: NOTE

Refer to “EXHAUST” section for removal and installation procedure of the heat shield cover.

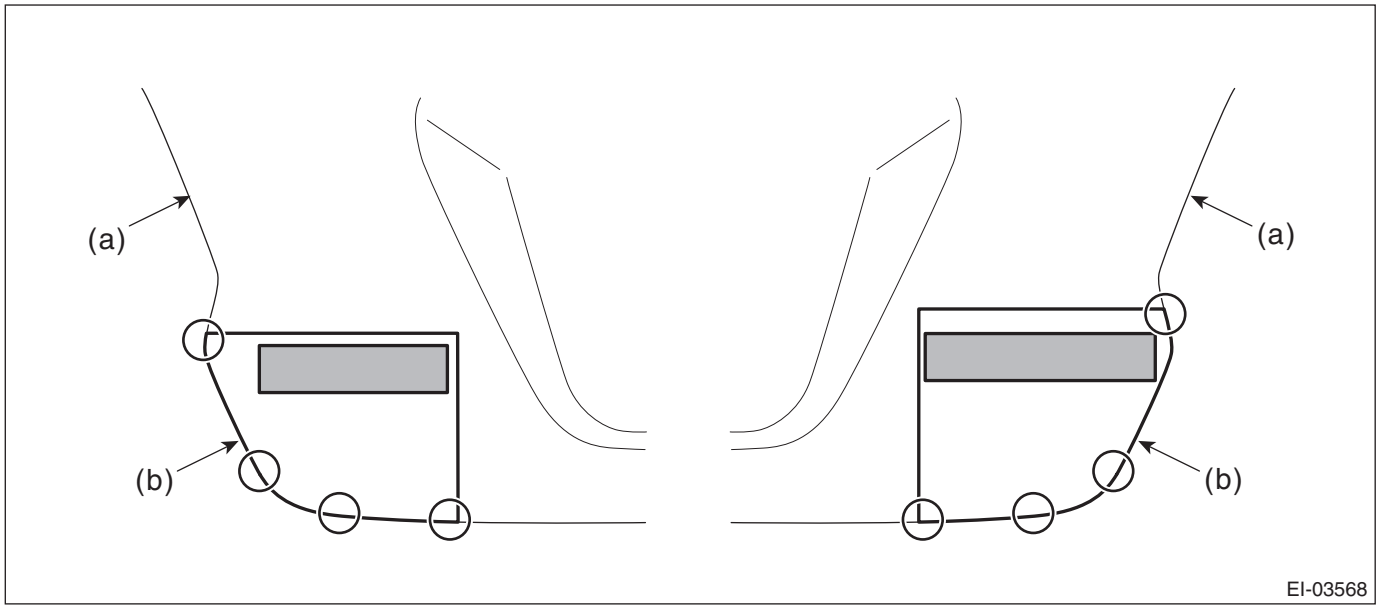
# 34.Ornament

## A: INSTALLATION

### 1. LETTER MARK

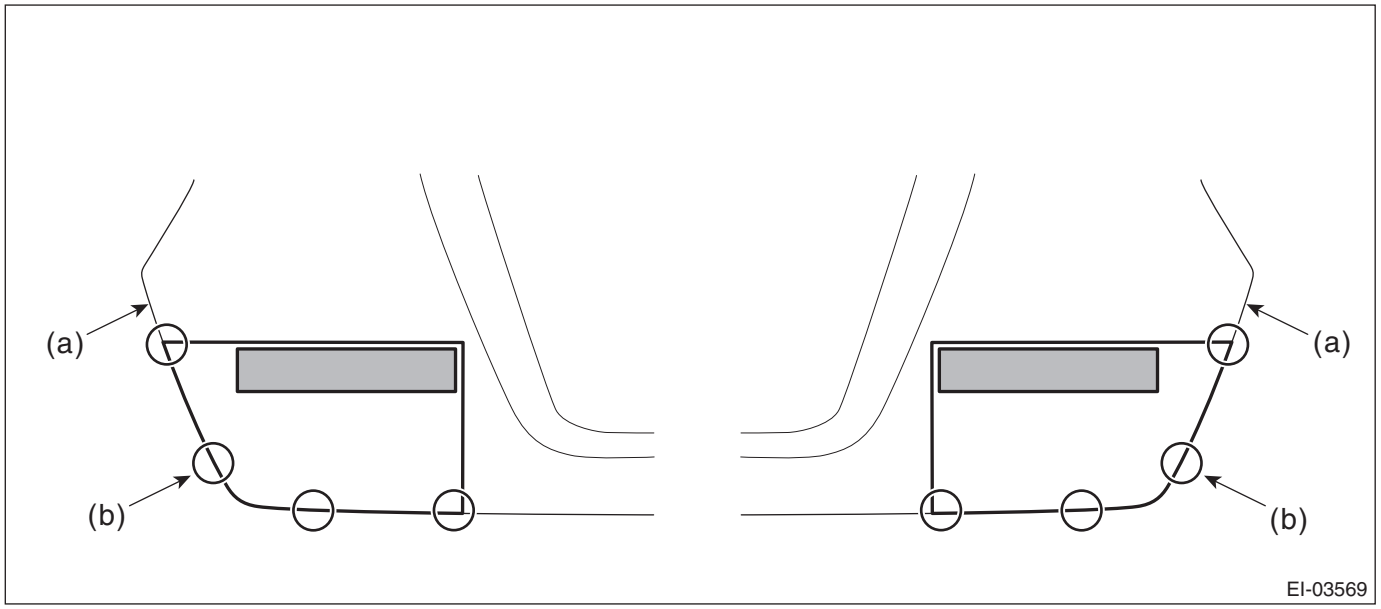
Align the end of application tape with the end of panel, then adhere the letter mark.

- 4 door model



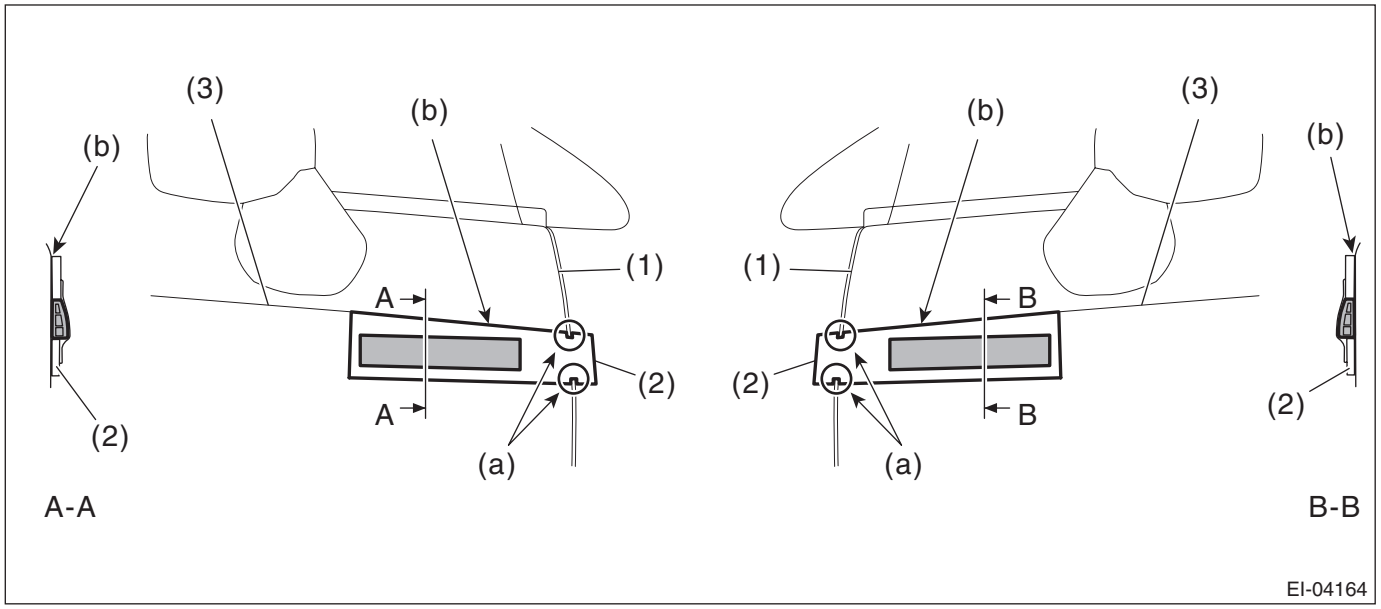

(a) Trunk lid COMPL end (b) Application tape end

- 5 door model/XV model




(a) Panel - rear gate end (b) Application tape end

- HEV model




(1) Front door end (2) Application tape end (3) Curved section of character line

NOTE:
- Align the cutout of application tape with the front door end standard. (a)
- Align the top end of application tape with the R section end of the character line. (b)

# EXTERIOR BODY PANELS

# EB


| | | Page |
|---|---|---|
| 1. | General Description | 2 |
| 2. | Front Hood | 9 |
| 3. | Front Fender | 16 |
| 4. | Front Door | 23 |
| 5. | Front Sealing Cover | 33 |
| 6. | Rear Door | 35 |
| 7. | Rear Sealing Cover | 43 |
| 8. | Door Sash Tape | 45 |
| 9. | Trunk Lid | 57 |
| 10. | Rear Gate | 61 |
| 11. | Protector Tape | 70 |

# 1. Basic Diagnostic Procedure

## A: PROCEDURE

**CAUTION:**
**• Start the diagnosis after the engine has started. (Cruise control main switch does not turn on even if it is pressed before the engine starts.)**
**• When performing diagnosis, observe the legal speed limit on the road.**
**• ECM cancel code and ACC cancel code are not the diagnostic trouble code (DTC). These codes will also appear when the cruise control is cancelled by the driver's operation. Do not confuse them.**
**• Be sure to get an assistant to support the diagnosis while driving, and have him/her operate the select monitor.**
**• Before clearing the memory, be sure to record the following data. (Obtain the data before inspection because the previous trouble or temporary stop history will be cleared once the memory clear is performed.)**
**– All diagnostic trouble codes (DTCs)**
**– DTC of stereo camera (current malfunction, past malfunction)**
**– Freeze frame data of stereo camera**
**– ACC cancel code of stereo camera**
**– EyeSight temporary stop code of stereo camera**
**– Current data of stereo camera**
**(To obtain the data concerning camera adjustment information, previous trouble or temporary stop history, all data must be measured for a few seconds after the engine has started.)**
**• When a temporary stop occurs, stereo camera may be affected by a small amount of dirt that the driver cannot recognize. In this case, cleaning of the windshield glass will be effective to eliminate this problem. <Ref. to ES(diag)-7, WINDSHIELD GLASS AND DASHBOARD, INSPECTION, General Description.>**

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **PREPARATION BEFORE INSPECTION.**<br>Using the Check List for Interview, confirm the condition of the malfunction occurrence from the user. <Ref. to ES(diag)-3, CHECK, Check List for Interview.> | Is there any component that obviously seems to affect the malfunction? | Repair or replace the component that seems to affect the malfunction. | Go to step **2**. |
| 2 | **CHECK DTC.**<br>Read the DTC using Subaru Select Monitor.<br>NOTE:<br>When communication with the stereo camera could not be established, check the circuit. <Ref. to ES(diag)-21, COMMUNICATION FOR INITIALIZING IMPOSSIBLE, INSPECTION, Subaru Select Monitor.> | Is DTC displayed on Subaru Select Monitor? | Perform the diagnosis according to DTC and freeze frame data. <Ref. to ES(diag)-39, Diagnostic Code(s) Display.> <Ref. to ES(diag)-44, Freeze Frame Data Display.> If the diagnostic codes other than the stereo camera are displayed, refer to the diagnosis for the relevant codes. | Go to step **3**. |
| 3 | **PERFORM DIAGNOSTICS WITH PHENOMENON.**<br>Using the diagnostics with phenomenon, perform inspection. <Ref. to ES(diag)-46, Diagnostics with Phenomenon.> | Is the vehicle free from any problem described in the diagnostics with phenomenon? / Are indicators normal? | Finish the diagnosis. | Perform the diagnosis according to the diagnostics with phenomenon. |

# 2. Check List for Interview

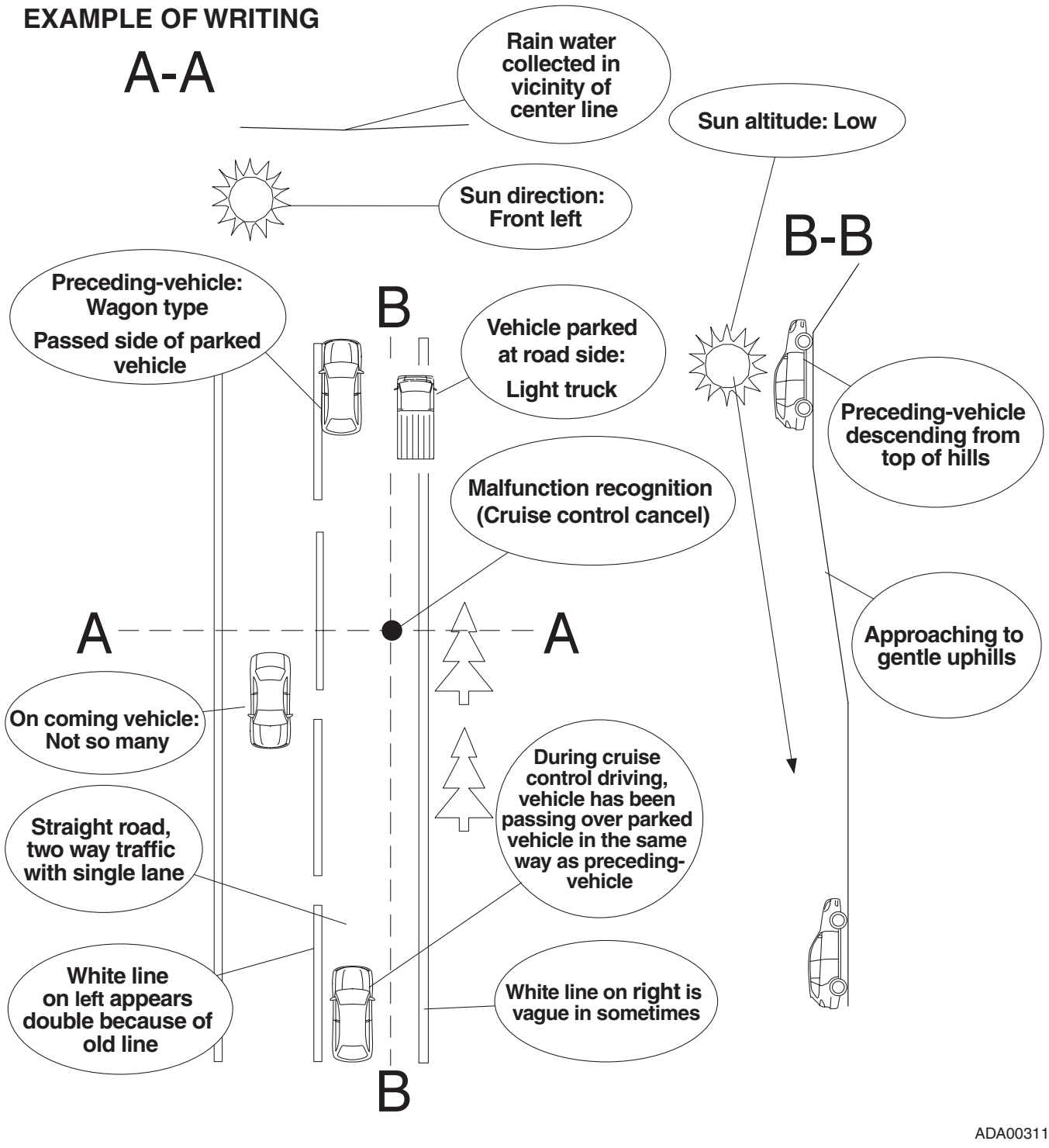
## A: CHECK

Inspect the following items regarding the vehicle's state.

| | | | |
|---|---|---|---|
| Writer/ Inspector | Writer's name | | |
| | Inspector's Name | | |
| Vehicle information | Car accessory equipment condition | Car accessory is installed to the windshield glass. | No/Yes (Position: ) |
| | | Other | No/Yes (Accessory's name: ) |
| | Is there any modification for the following items? | Suspension? | Not changed / Changed (Specifically: ) |
| | | Headlight? | Not changed / Changed (Specifically: ) |
| | | Tire size? | Not changed / Changed (Specifically: ) |
| | | Front wiper? | Not changed / Changed (Specifically: ) |
| | How is the condition around camera? | Is there any scratch or damage on the windshield glass? | No/Yes (Specifically: ) |
| | | Are antennas, etc. attached on the prohibited area? | No/Yes (Specifically: ) |
| | | Is wide mirror or accessory attached? | No/Yes (Specifically: ) |
| | How is the surface condition of the windshield glass? | Presence of oil film, fogging, dirt and/or glass coating | No/Yes (Specifically: ) |
| | How is the condition of the dashboard? | Is there anything that can be easily reflected against the windshield glass on the dashboard? | No/Yes (Specifically: ) |
| | How is the deterioration of the wiper? | Does any streak or uneven wiping area remain in front of the camera? | No/Yes (Specifically: ) |
| | How is the condition of the tire? | Is there any wear? Is there any excessive wear difference? | No/Yes (Specifically: ) |
| | | Is the air pressure proper? | Proper/Improper (Specifically: ) |
| | How is the condition of the camera lens filter? | Is there finger print adhesion or cracks on the lens filter? | No/Yes (Specifically: ) |
| Description of malfunction | What kind of malfunction has been detected? | Failure / temporary stop / faulty operation of adaptive cruise control / faulty operation of pre-collision brake / other faulty operations | |
| | What kind of DTC and/or cancel code is displayed? | | |
| | How is the meter display? | EyeSight warning light | Off/On/Blink |
| | | Pre-collision brake OFF indicator light | Off/On |
| | | Lane departure warning OFF indicator light | Off/On |
| | | Multi-information display | • EyeSight Disabled No Camera View<br>• EyeSight Disabled Temp Range<br>• EyeSight Disabled Check Manual |

# Check List for Interview

| | | | | |
|---|---|---|---|---|
| Occurrence conditions | Occurrence date | | Occurrence location | |
| | Vehicle speed at occurrence | Approx. km/h (MPH) | Occurrence timing | During driving / during stopping / continues after engine has started |
| | Road type | Express way / limited highway / main highway / general road | Weather | Fine/cloudy/rainy/snowy/other |
| | Road condition ① | Dry/slippery (Rainy • compacted snow • icy road) | Ambient temperature | Approx. ° C(°F) |
| | Road condition ② | Asphalt / gravel / earth and sand / other | Position of solar radiation | Described in the detailed chart when the weather is fine. |
| | Road shape | Uphill / downhill / bank / roll / uneven surface | Time elapsed after engine start | Immediately after engine start / within 5 minutes after engine start / more than 5 minutes after engine start |
| | Wiper operation status | OFF/INT/LO/HI/AUTO | Light on status | Off / LO On / HI On |
| | Vehicle weight | Number of passengers: ( ),<br>Did the vehicle carry heavy load? (No/Yes (Approx. kg)) | | |
| | Detailed chart<br>(Refer to the example of description.) | | | |
| | In case of malfunction caused by temporary stop or faulty operation, describe the details by referring to the example below so that the following conditions can be recognized. (It is OK to use images taken with a digital camera, etc.)<br>• Road shape (straight, curve, tunnel, number of lane, etc.)<br>• Road grade and it's change<br>• Presence of white line, guardrails and/or side wall (degree of clarity)<br>• Position of the sun<br>• Presence and shape of preceding vehicle, oncoming vehicle, vehicle running on the next lane or pedestrian<br>• Presence and shape of surrounding building or structure<br>• Traveled course of own vehicle and preceding vehicle | | | |


EXAMPLE OF WRITING
A-A
Rain water collected in vicinity of center line
Sun altitude: Low
Sun direction: Front left
B-B
Preceding-vehicle: Wagon type
Passed side of parked vehicle
B
Vehicle parked at road side:
Light truck
Preceding-vehicle descending from top of hills
Malfunction recognition (Cruise control cancel)
A
A
Approaching to gentle uphills
On coming vehicle: Not so many
During cruise control driving, vehicle has been passing over parked vehicle in the same way as preceding-vehicle
Straight road, two way traffic with single lane
White line on left appears double because of old line
White line on right is vague in sometimes
B
ADA00311

# 3. General Description

## A: CAUTION

### 1. AIRBAG SYSTEM

Airbag system wiring harness is routed near the cruise control command switch.

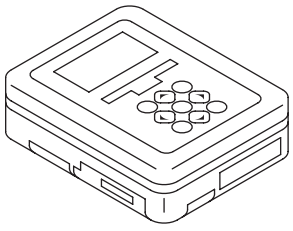
**CAUTION:**
**• Do not use the electrical test equipment on the airbag system wiring harnesses and connector circuits.**
**• Be careful not to damage the airbag system wiring harness when servicing the cruise control command switch.**

### 2. EyeSight

**CAUTION:**
**• Do not hold the camera unit of the stereo camera.**
**• Do not touch the lens on the stereo camera.**
**• Do not clean the lens of the stereo camera.**
**• When cleaning the windshield glass, use care so that the glass cleaner, etc. does not come in contact with the lens of the stereo camera.**
**• Do not make an impact or apply excessive force to the stereo camera.**
**• Do not disassemble the stereo camera.**
**• Do not change the installation position of the stereo camera or do not modify the surrounding structure.**
**• If the stereo camera or windshield glass is removed or replaced, always adjust or check the stereo camera.**
**• When lifting up the vehicle to rotate the tires, turn off the pre-crash function.**
**• Stereo camera axis may be displaced even in a minor collision. So be sure to adjust the stereo camera even when the EyeSight warning light is not illuminated or when the "Stereo Camera Temporary Stop" is not displayed on the multi-information display.**
**• When removing the stereo camera cover assembly, cover it with a copy paper or similar dust-free paper to avoid any interference to the camera lens, and tape the paper while being careful not to let the adhesive surface contact the glass surface. Be sure to remove the paper after the procedure. <Ref. to ES-7, REMOVAL, Stereo Camera.>**

## B: PREPARATION TOOL

### 1. SPECIAL TOOL

| ILLUSTRATION | TOOL NUMBER | DESCRIPTION | REMARKS |
|---|---|---|---|
|  ST1B022XU0 | 1B022XU0 | SUBARU SELECT MONITOR III KIT | Used for setting each function and troubleshooting the electrical system.<br>NOTE:<br>For detailed operation procedures of Subaru Select Monitor III, refer to "PC application help for Subaru Select Monitor". |

### 2. GENERAL TOOL

| TOOL NAME | REMARKS |
|---|---|
| Circuit tester | Used for measuring resistance, voltage and current. |

# C: INSPECTION

## 1. BATTERY

Check the battery. <Ref. to SC(H4DO(w/o HEV))-52, Battery.>

## 2. WINDSHIELD GLASS AND DASHBOARD

Remove the windshield glass and dashboard in front of the stereo camera.

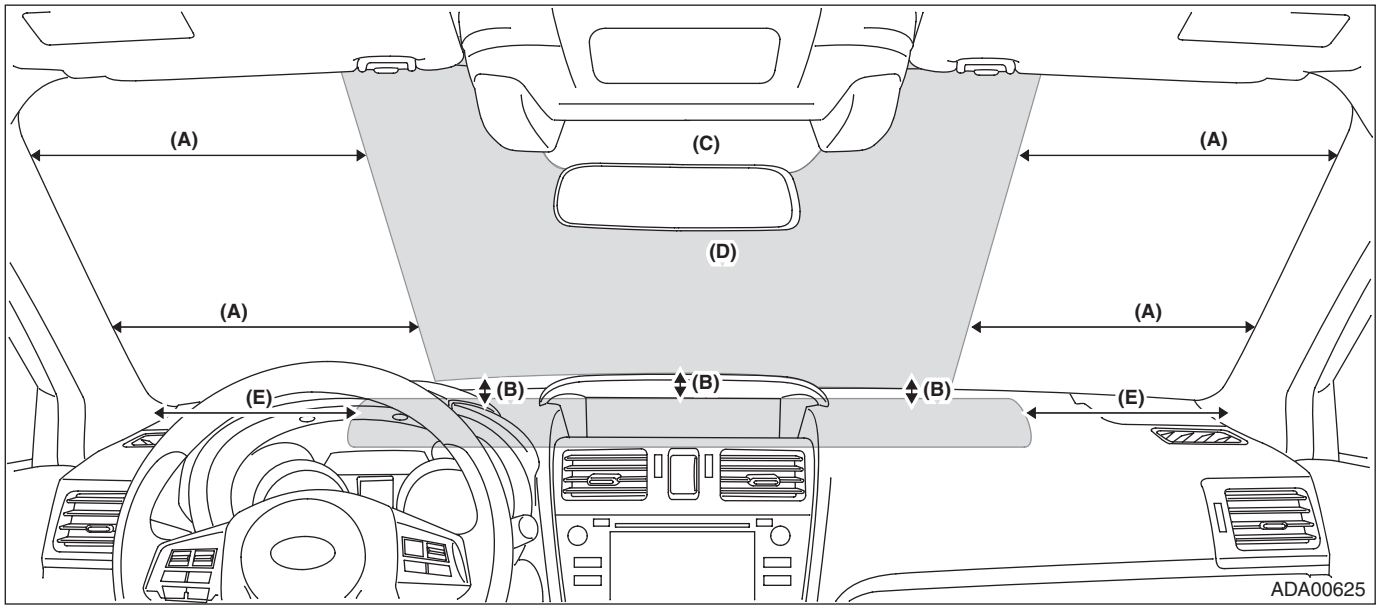
***Standard:***

***There must be no oil film, dirt, scratch or fogging that obstructs the forward visibility of the stereo camera.***

***Do not stick or attach the aftermarket parts on the prohibited area (D) shown in the figure below. Even outside the prohibited area, if the abnormal operation occurs due to the reflection of the light or the reflection on the glass, change the adhering position or installation position.***

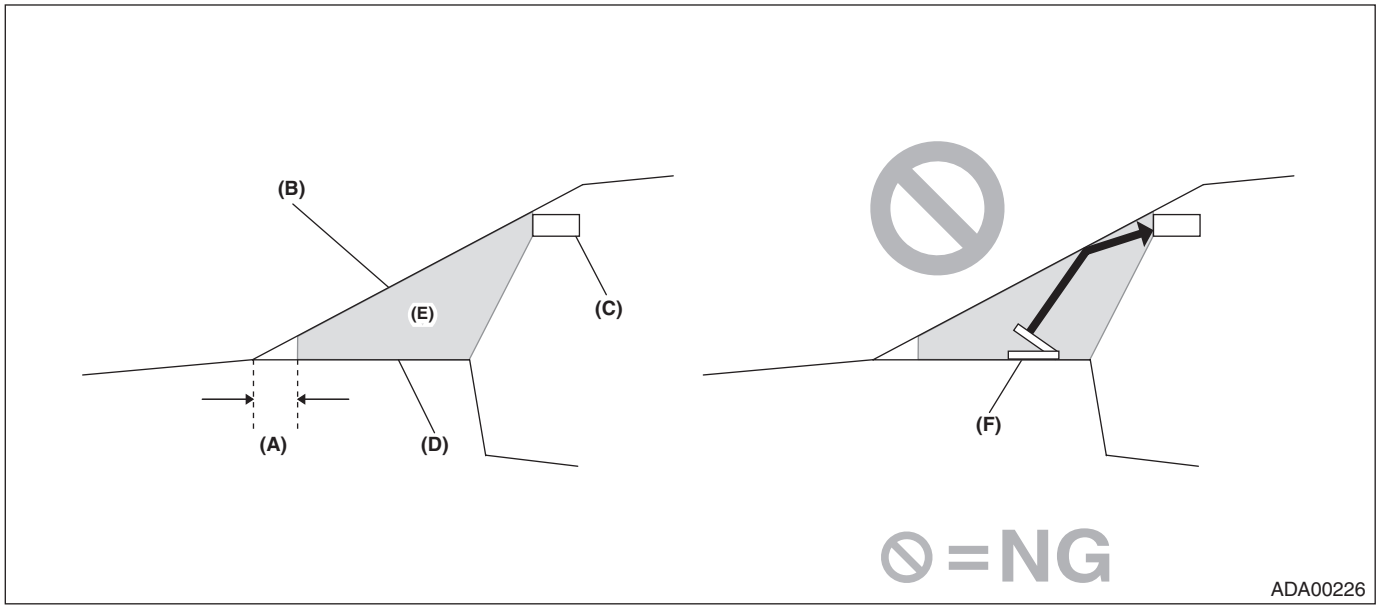
- ***Application of stickers or antennas, installation of wide-type mirror***
  - ***This will affect the visibility of the stereo camera, causing the function not to operate correctly.***
- ***Placement of navigation unit, ETC or other things on the dashboard***
  - ***These things will be reflected on the windshield glass, affecting the recognition of the stereo camera, thus causing the function not to operate correctly.***

- Front view



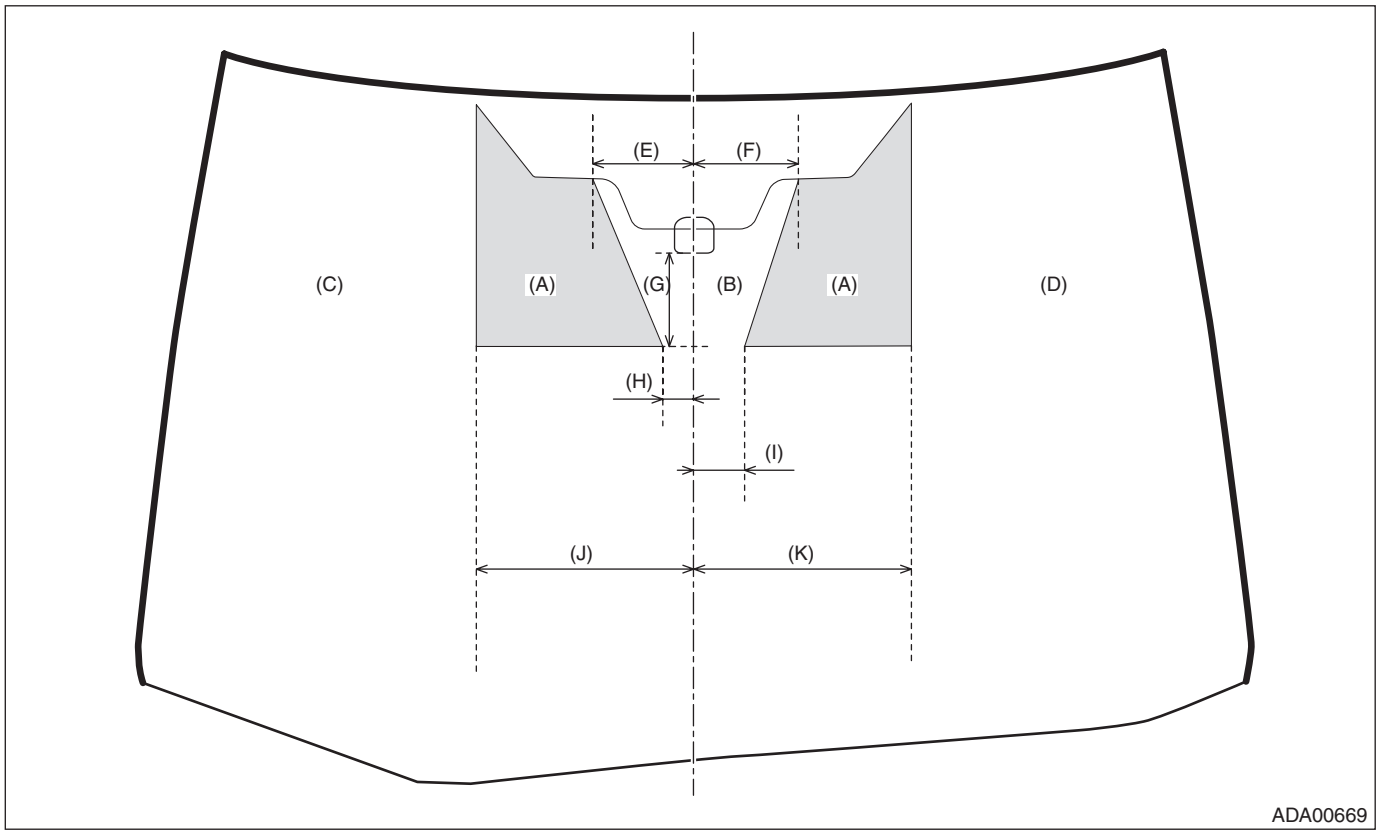

(A) 300 mm (11.8 in)
(B) 120 mm (4.7 in)
(C) Ceramic area
(D) Prohibited area
(E) 200 mm (7.9 in)

- Side view



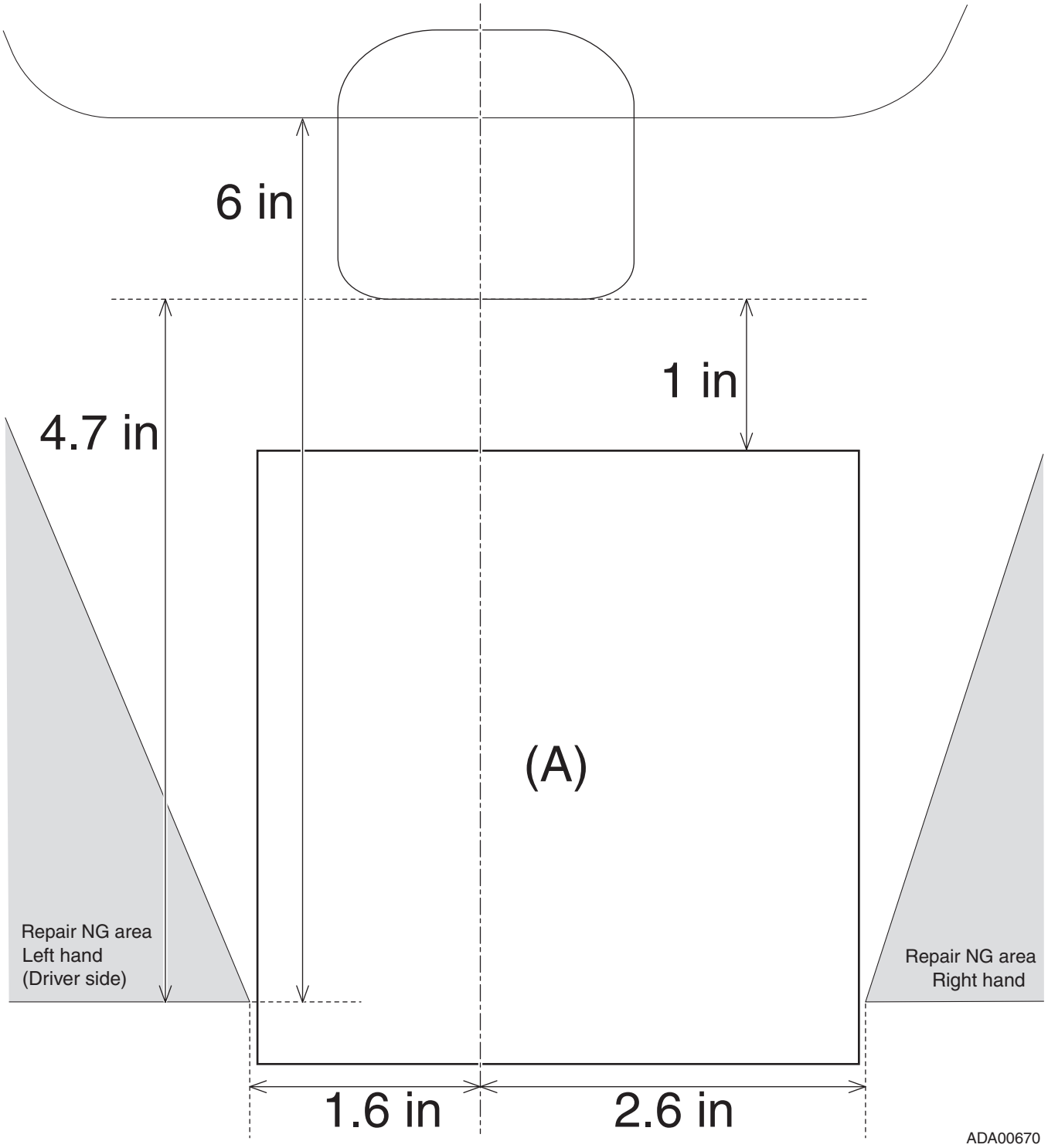

(A) 120 mm (4.7 in)
(B) Windshield glass
(C) Stereo camera cover
(D) Dashboard
(E) Prohibited area
(F) External monitor etc.

NOTE:
- Clean the windshield glass if dirt or fogging is found on the glass. Repair or replace the glass if damage is found.
  – When cleaning the inner side of the windshield glass, be careful not to touch the lens of the stereo camera. Take care so that the glass cleaner is not applied to the lens. (As with the removal procedure of the stereo camera, cover the opening of camera cover with a copy paper or similar dust-free paper before the procedure, in order to avoid any interference to the camera lens, and tape the paper while being careful not to let the adhesive surface contact the glass surface. After the procedure, be sure to remove the tape.) <Ref. to ES-7, REMOVAL, Stereo Camera.>
  – When replacing the windshield glass, be sure to replace the part for the EyeSight.
  – If the glass is removed or replaced, always perform the stereo camera adjustment and inspection.
- If the damage is found in the glass repair prohibited area shown in the figure below, replace the glass.
  – Damage in the prohibited area can affect the recognition of the stereo camera even if it is repaired, and thereby EyeSight function may not operate properly.




| | | | | | |
|---|---|---|---|---|---|
| (A) | Glass repair prohibited area | (E) | 130 mm (5.1 in) | (I) | 65 mm (2.6 in) |
| (B) | Glass repairable area | (F) | 135 mm (5.3 in) | (J) | 280 mm (11.0 in) |
| (C) | Glass repairable area (LHD side) | (G) | 120 mm (4.7 in) | (K) | 280 mm (11.0 in) |
| (D) | Glass repairable area (RHD side) | (H) | 40 mm (1.6 in) | | |

– Install the ETC transponder inside the area (A) shown in the figure below.
Before installing, attach a full-scale copy of the following figure onto the windshield glass surface to install the parts to correct positions.
  – Align the position with respect to the end of the ceramic area.
  – Prepare a full-scale copy in which the reference dimension on the upper part of the figure actually has 4 inches long.
  – Only the transponder with a thickness of 1.5 inches or less can be used.



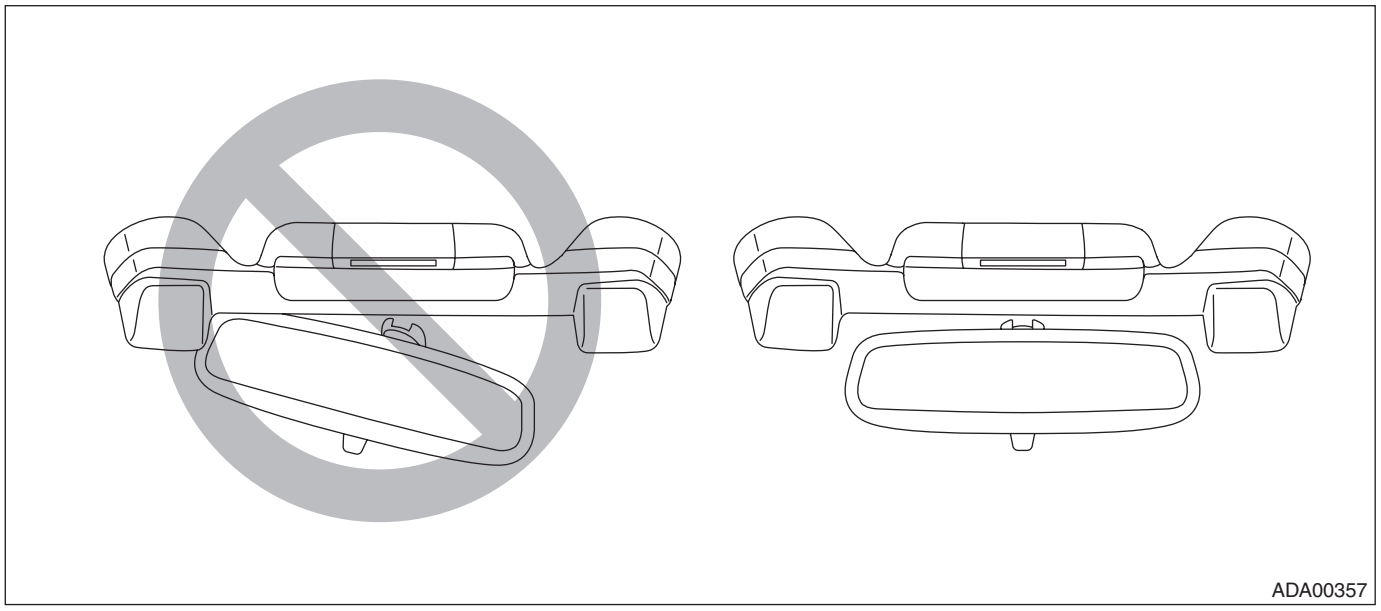

- Relocate any aftermarket parts out of the prohibited area.
- Do not touch the lens on the stereo camera. Do not clean the lens of the stereo camera. (If the lens surface is touched, the stereo camera must be replaced as it is impossible to clean the lens surface for ensuring quality.)

### 3. REAR VIEW MIRROR

Check the rear view mirror condition.

***Standard:***

***The rear view mirror other than genuine parts shall not be used. (Wide mirrors shall not be used)***
***The visibility of the stereo camera shall not be blocked.***
***— This will affect the visibility of the stereo camera, causing the system not to operate correctly.***




### 4. FRONT WIPER

Check the wiping condition of windshield glass.

***Standard:***

***Use Subaru genuine part only for wiper blade body and blade rubber.***
***— Using the part other than genuine part will affect the recognition of the stereo camera, which may cause the function not to operate correctly.***
***Do not continue using the damaged blade rubber.***
***— The glass may be damaged. If the wiping performance decreases, or if the distinct streak is found, replace it as soon as possible.***

NOTE:
Clean the windshield glass if there is an oil film or any dirt on the surface.

### 5. TIRE INFLATION PRESSURE

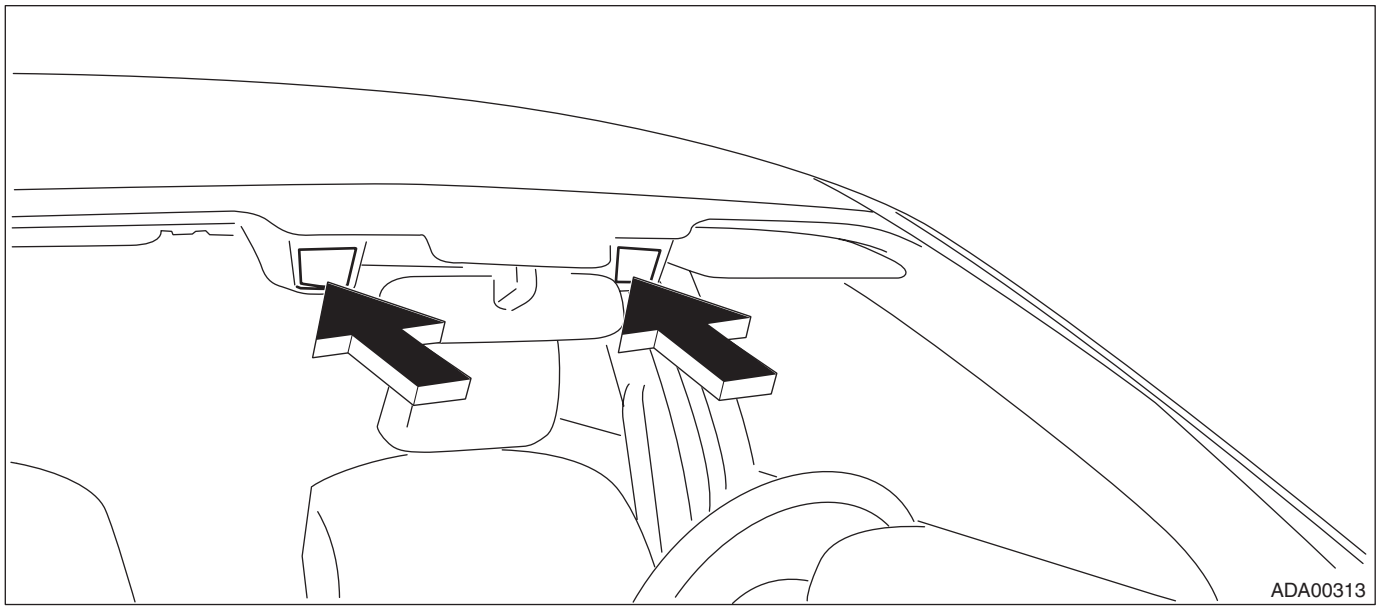
Check the tire air pressure.

***Standard:***

***Adjust to the specified air pressure. <Ref. to WT-2, SPECIFICATION, General Description.>***
***Do not install worn tire or tires with excessive wear difference.***
***Install tires with specified size.***

## 6. STEREO CAMERA

Through the windshield glass, check if there are any fingerprints or faults such as crack found on lens filters at the left and right camera lenses of the stereo camera.




NOTE:

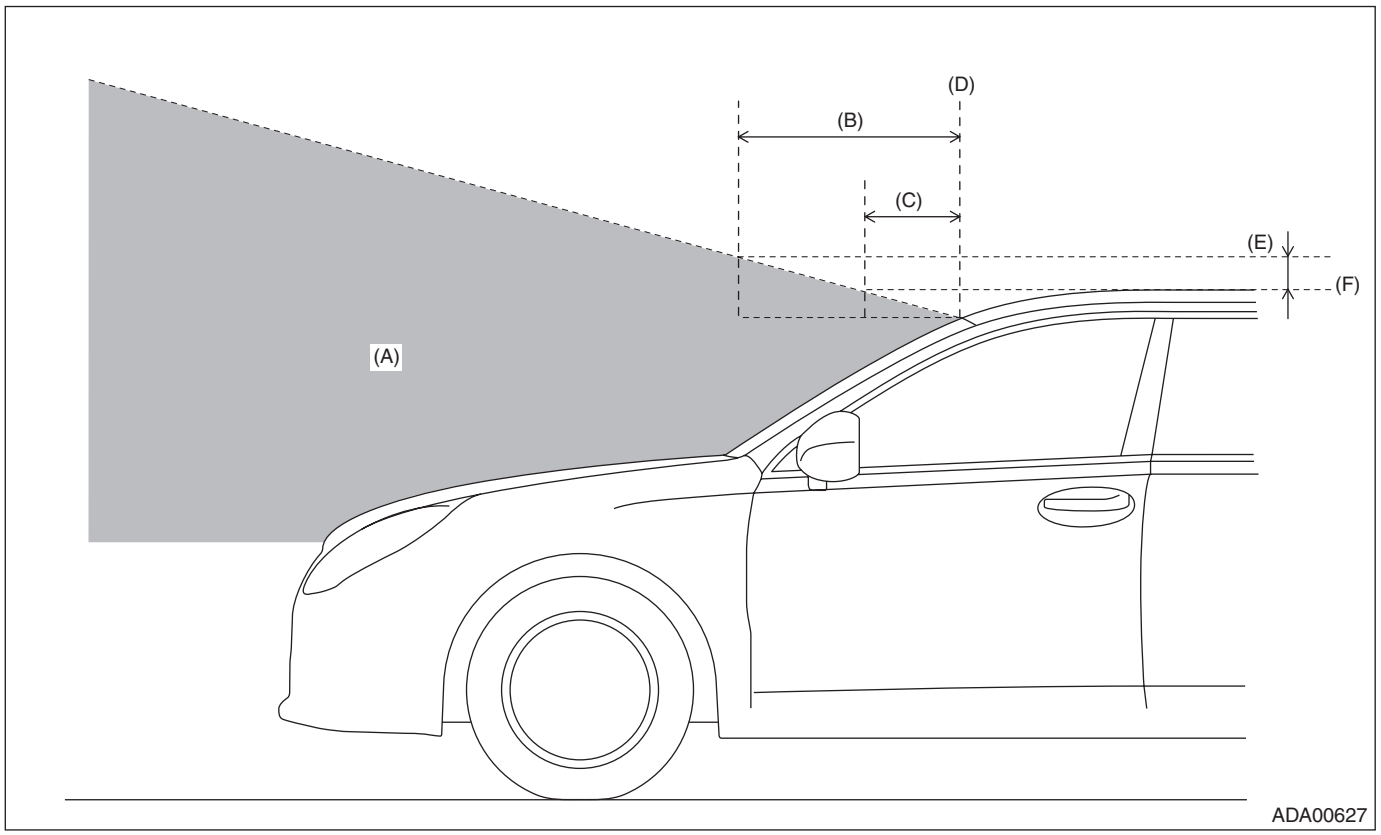
- Do not remove the camera or camera cover to check the lens.
- When spider's web or insects are found within the camera view or inside the lens hood, remove it by blowing air etc. while taking care not to touch the lens surface. Do not use a hand or a cloth.
- Thin and uniform adhesion of dust, dirt or tobacco stains to the lens filter surface resulting from normal use will not be an obstacle. Do not attempt to clean in such cases.
- If an oil film such as a fingerprint or any excessive dirt adheres, or if the lens filter cracks, replace the stereo camera. <Ref. to ES-7, Stereo Camera.>
- If the fingerprint adhesions or cracks occur on the lens filter, the following failures may arise.
  – The vehicle may not be able to detect the preceding vehicle or obstacle due to the effects of the headlight of the oncoming vehicle.
  – The vehicle may not be able to detect the preceding vehicle or obstacle due to the effects of the brake light operation of the preceding vehicle.
  – All the functions of the EyeSight may be suspended by the self-diagnosis function equipped with the camera.
  – When the lens filter is broken, the vehicle may not be able to detect the preceding vehicle or obstacle all day and all night.
- Do not clean the lens filter with any cleaner. It is quite difficult to uniformly clean both of the right and left lenses, and such an attempt just ends up spreading dirt and will cause problems as same as those from oil film.

## 7. LOAD ON THE ROOF

Check that load on the roof is not sticking out to the front of the stereo camera.

***Standard:***

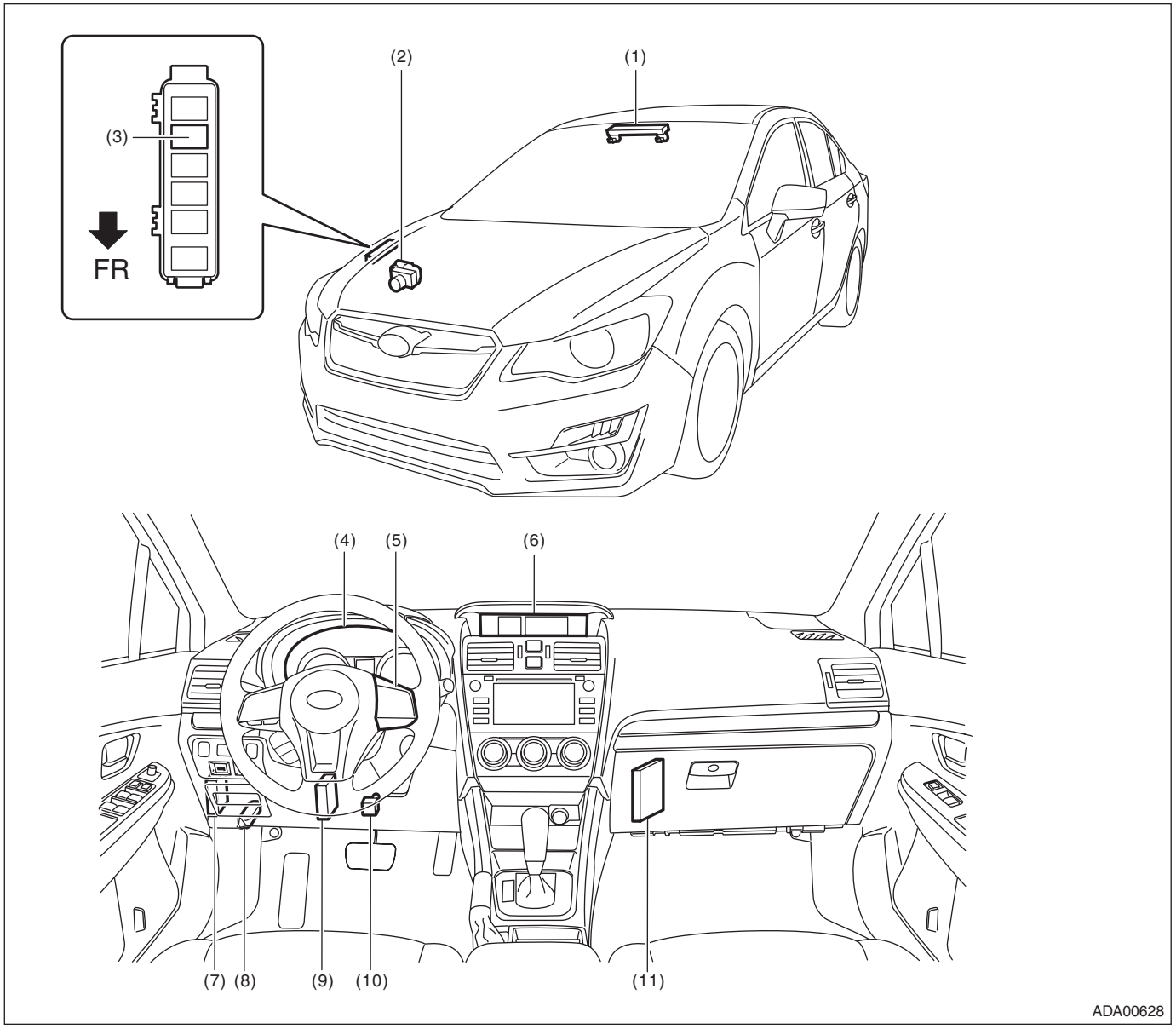
***The load on the roof is placed outside the prohibited area (A) shown in the figure below.***



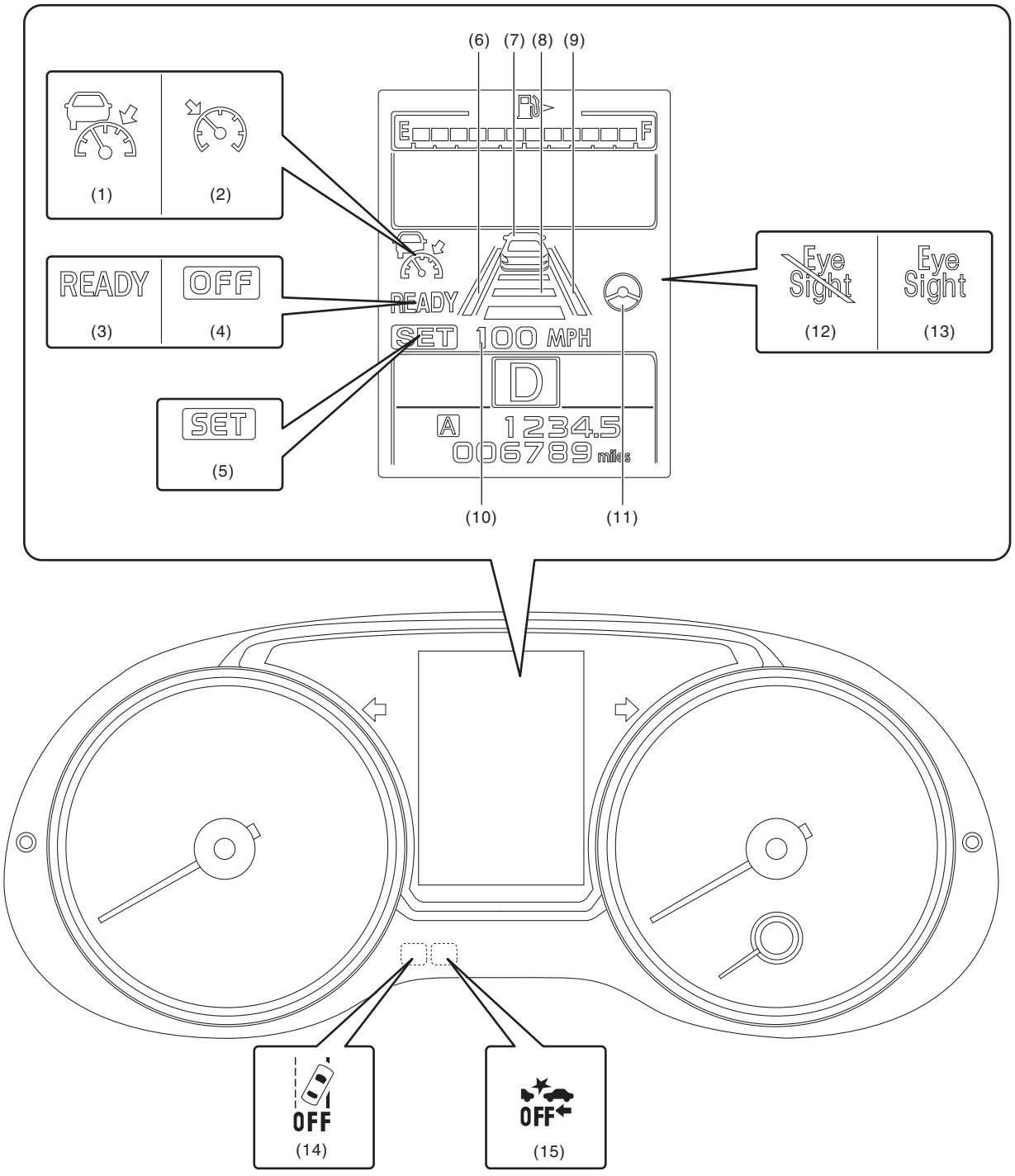

(A) Prohibited area
(B) 880 mm (34.6 in)
(C) 520 mm (20.5 in)
(D) Windshield glass upper end
(E) 100 mm (3.9 in)
(F) Highest surface of the roof

# 4. Electrical Component Location

## A: LOCATION

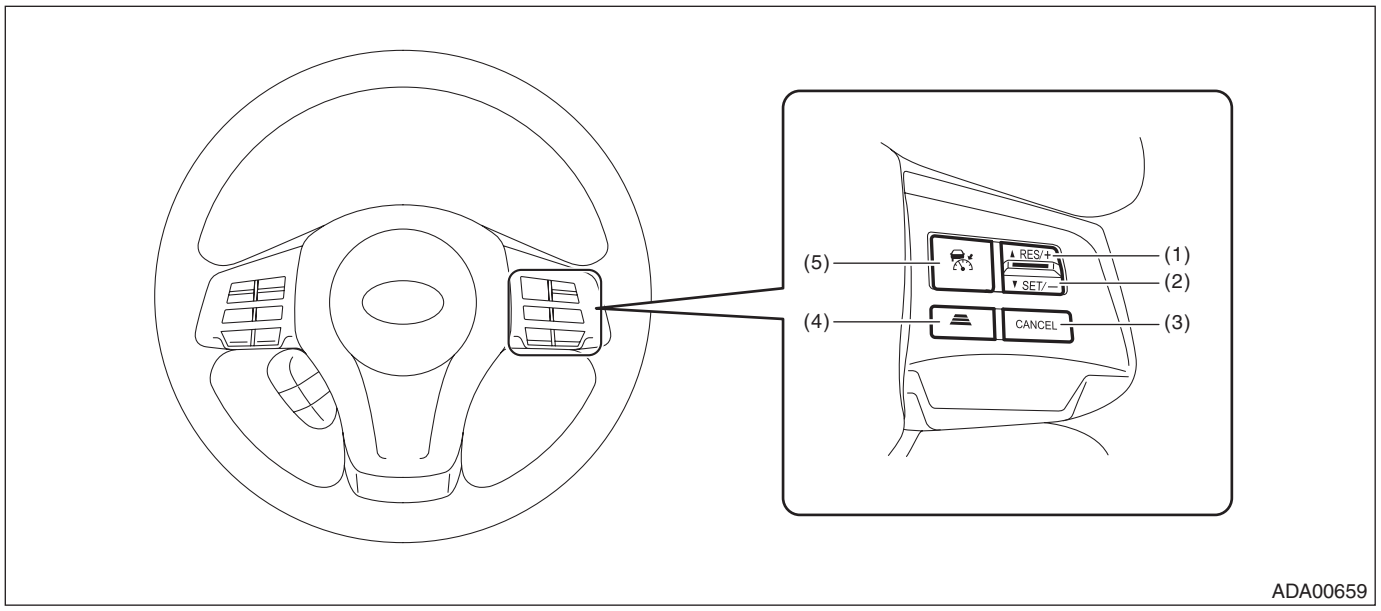



| | | | | | |
|---|---|---|---|---|---|
| (1) | Stereo camera | (5) | EyeSight steering switch | (9) | Transmission control module (TCM) |
| (2) | VDC control module (VDCCM) | (6) | MFD (multi-function display) | (10) | Stop light and brake switch |
| (3) | Brake light relay | (7) | Body integrated unit | (11) | ECM |
| (4) | Combination meter | (8) | Data link connector | | |




ADA00629

(1) Adaptive cruise display
(2) Conventional cruise display
(3) READY indicator
(4) OFF indicator
(5) SET indicator
(6) Lane indicator (left)
(7) Preceding vehicle indicator
(8) Following distance setting indicator
(9) Lane indicator (right)
(10) Set vehicle speed display
(11) Steering wheel indicator
(12) EyeSight temporary stop indicator
(13) EyeSight warning indicator
(14) Lane departure warning OFF indicator light
(15) Pre-collision brake OFF indicator light

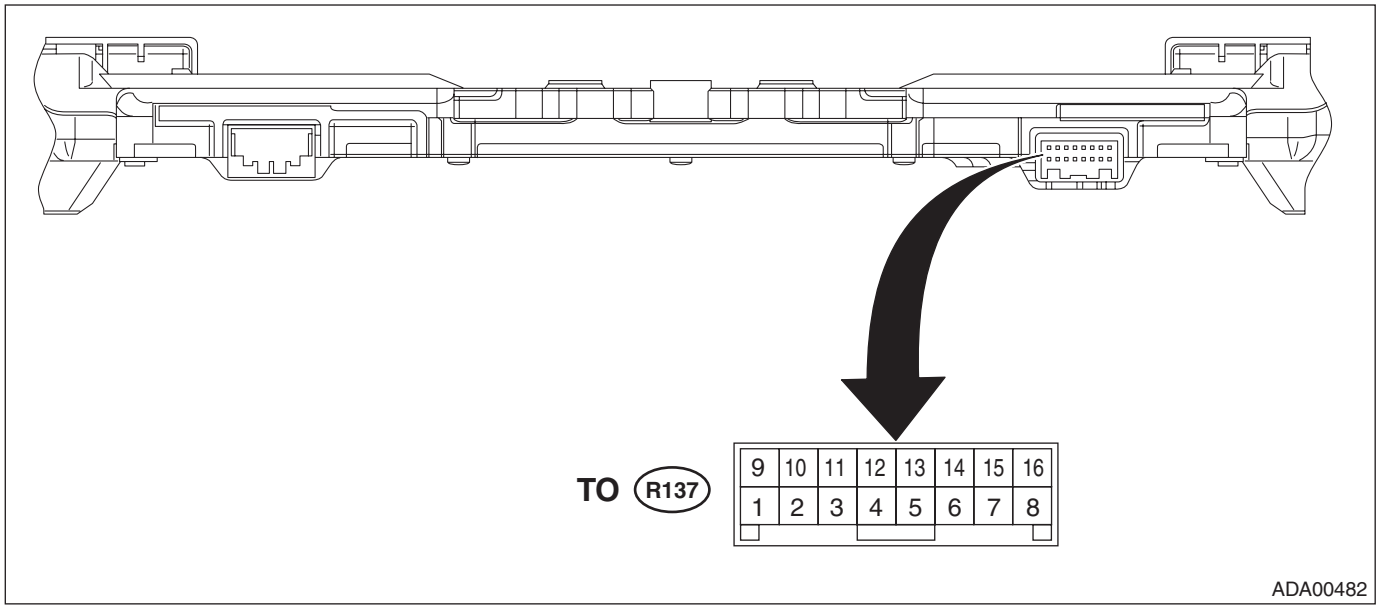



(1) RES/+ (resume/plus) switch
(2) SET/– (set/minus) switch
(3) CANCEL switch
(4) Following distance setting switch
(5) CRUISE switch

# 5. Control Module I/O Signal

## A: ELECTRICAL SPECIFICATION

### 1. STEREO CAMERA




| Terminal No. | Content | Measuring condition | Standard |
|---|---|---|---|
| (R137) No. 1 | — | — | — |
| (R137) No. 2 | — | — | — |
| (R137) No. 3 | — | — | — |
| (R137) No. 4 | — | — | — |
| (R137) No. 5 | — | — | — |
| (R137) No. 6 ←→ Chassis ground | Ignition power supply | Ignition switch OFF → ON | Less than 1 V → 9 — 16 V |
| (R137) No. 7 ←→ Chassis ground | GND | Always | Less than 1 Ω |
| (R137) No. 8 ←→ Chassis ground | Battery power supply | Always | 9 — 16 V |
| (R137) No. 9 ←→ Chassis ground | CAN L | Always | 1 kΩ or more |
| (R137) No. 10 ←→ Chassis ground | CAN H | Always | 1 kΩ or more |
| (R137) No. 11 | — | — | — |
| (R137) No. 12 ←→ Chassis ground | Pre-collision brake OFF switch input | Pre-collision brake OFF switch OFF → ON | Approx. 1 kΩ → less than 1 Ω |
| (R137) No. 13 ←→ Chassis ground | Lane departure warning OFF switch input | Lane departure warning OFF switch OFF → ON | Approx. 1 kΩ → less than 1 Ω |
| (R137) No. 14 ←→ (R137) No. 15 | EyeSight steering switch input | No switch operation | 3.5 V — 4.5 V |
| | | RES/+ OFF → ON | Less than 1 V → 2.5 V — 3.5 V |
| | | Following distance setting | Less than 1 V → 1.5 — 2.5 V |
| | | SET/– | Less than 1 V → 0.5 V — 1.5 V |
| | | CRUISE OFF → ON | Less than 1 V |
| (R137) No. 15 ←→ Chassis ground | EyeSight steering switch GND | Always | Less than 1 Ω |
| (R137) No. 16 ←→ (R137) No. 15 | EyeSight cruise switch input | Cruise switch OFF → ON | 0 V → approx. 5 V |

### 2. ENGINE CONTROL MODULE (ECM)

For details on the input/output signals for the engine control module, refer to ENGINE (DIAGNOSTICS). <Ref. to EN(H4DO w/o HEV)(diag)-19, Engine Control Module (ECM) I/O Signal.>

### 3. VDC CONTROL MODULE (VDCCM)

For details on the input/output signals for VDC control module, refer to VDC (DIAGNOSTICS). <Ref. to VDC(diag)-12, ELECTRICAL SPECIFICATION, Control Module I/O Signal.>

### 4. TRANSMISSION CONTROL MODULE (TCM)

For details on the input/output signals for the transmission control module, refer to AUTOMATIC TRANSMISSION (DIAGNOSTICS). <Ref. to CVT(w/o HEV)(diag)-10, Transmission Control Module (TCM) I/O Signal.>

### 5. BODY INTEGRATED UNIT

Refer to the BODY CONTROL SYSTEM (DIAGNOSTICS) for the I/O Signal of the body integrated unit. <Ref. to BC(diag)-6, ELECTRICAL SPECIFICATION, Control Module I/O Signal.>

### 6. COMBINATION METER

For details on the input/output signals for the combination meter, refer to INSTRUMENTATION/DRIVER INFO (DIAGNOSTICS). <Ref. to IDI(diag)-7, ELECTRICAL SPECIFICATION, Control Module I/O Signal.>

### 7. MFD

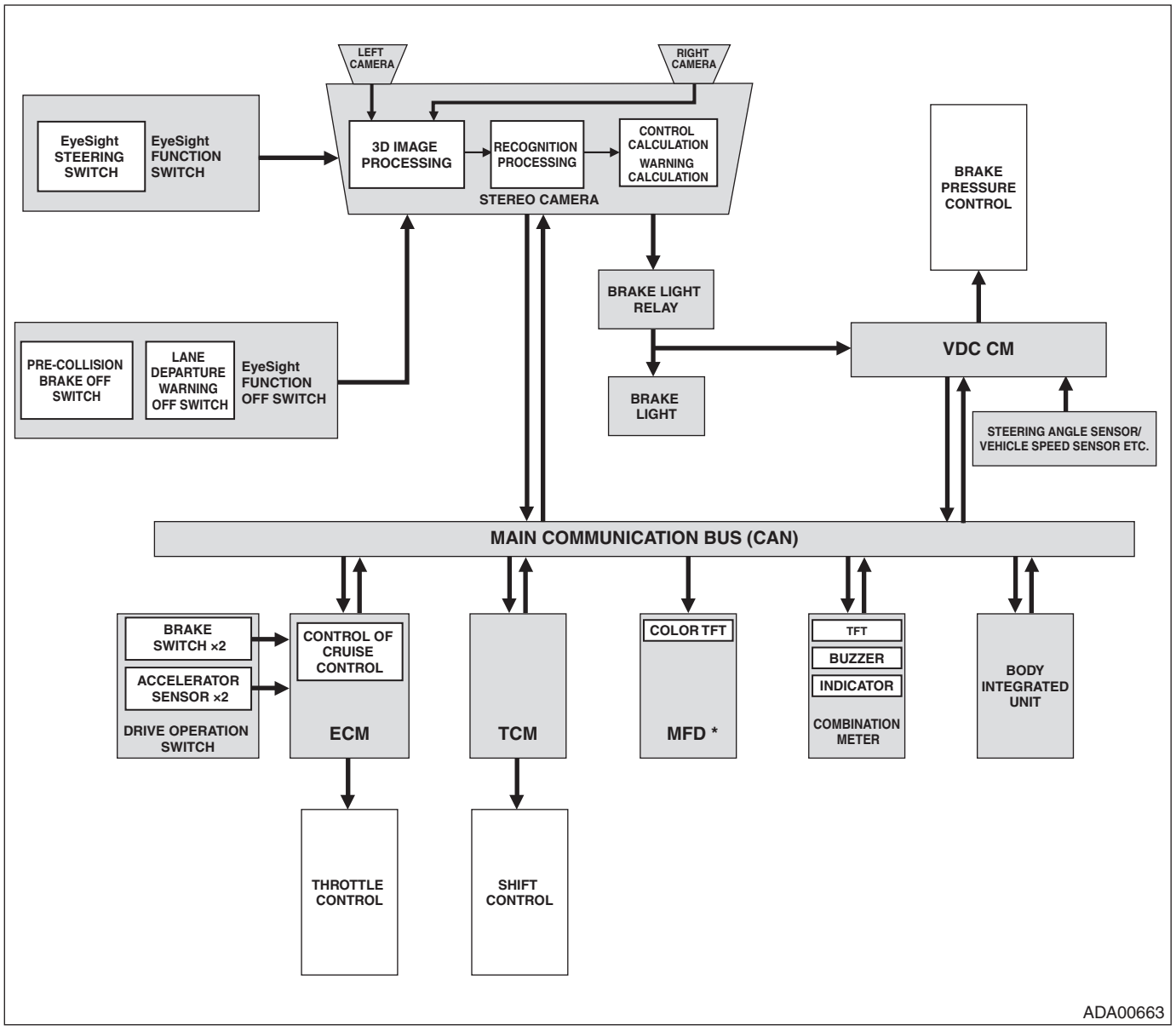
For details on the input/output signals for MFD, refer to INSTRUMENTATION/DRIVER INFO (DIAGNOSTICS). <Ref. to IDI(diag)-7, ELECTRICAL SPECIFICATION, Control Module I/O Signal.>

## B: WIRING DIAGRAM

Refer to “EyeSight System” in the wiring diagram. <Ref. to WI(w/o HEV)-126, EyeSight System.>

## C: SYSTEM BLOCK DIAGRAM

Main signals used between stereo camera and relevant CM




*: Only for models with high-grade MFD

# 6. Subaru Select Monitor

## A: OPERATION

### 1. GENERAL DESCRIPTION

For on-board diagnosis function of the EyeSight, use the Subaru Select Monitor.
The on-board diagnosis function operates in three categories, which are used depending on the type of problems.
1) Diagnosis with diagnostic trouble code (DTC):
When the electrical failure occurs in the EyeSight, DTC is detected from the stereo camera. If the DTC is detected, the relevant DTC is displayed by illuminating or blinking the EyeSight warning light. To check the details concerning the DTC, use the Subaru Select Monitor.
2) Diagnosis with cancel code:
(1) This category of diagnosis requires actual driving of the vehicle in order to determine the cause in such a case when the set speed is cancelled during cruise control driving although cruise cancel condition is not entered.
(2) With ECM cancel code and stereo camera ACC cancel code, cancel condition (Code No.) is stored when detected during cruise control driving.

**CAUTION:**
**• With ECM cancel code, not only the cruise control "cancel" occurred (although the driver does not input the "cancel" operation), but also the "cancel" condition input by the driver is stored.**
**• The latest memory contents of the ECM cancel code (latest code) is cleared when the ignition switch is turned to OFF. However, memory contents created by the diagnosis of switches related to system and cruise control will be kept as the trouble history (memory code) after turning the ignition switch to OFF.**
3) Real-time diagnosis:
Real-time diagnosis function is used to determine whether or not the input signal system is in good order, according to signal emitted from switches, sensors, etc.
(1) Vehicle cannot be driven at cruise speed when the problem occurs in the cruise control system or relevant circuits.
(2) Monitor the signal conditions from switches and sensors.

### 2. BASIC OPERATION

For operation procedures, refer to the "PC application help for Subaru Select Monitor".

# B: INSPECTION

## 1. COMMUNICATION FOR INITIALIZING IMPOSSIBLE

- Communication error with stereo camera

**DETECTING CONDITION:**

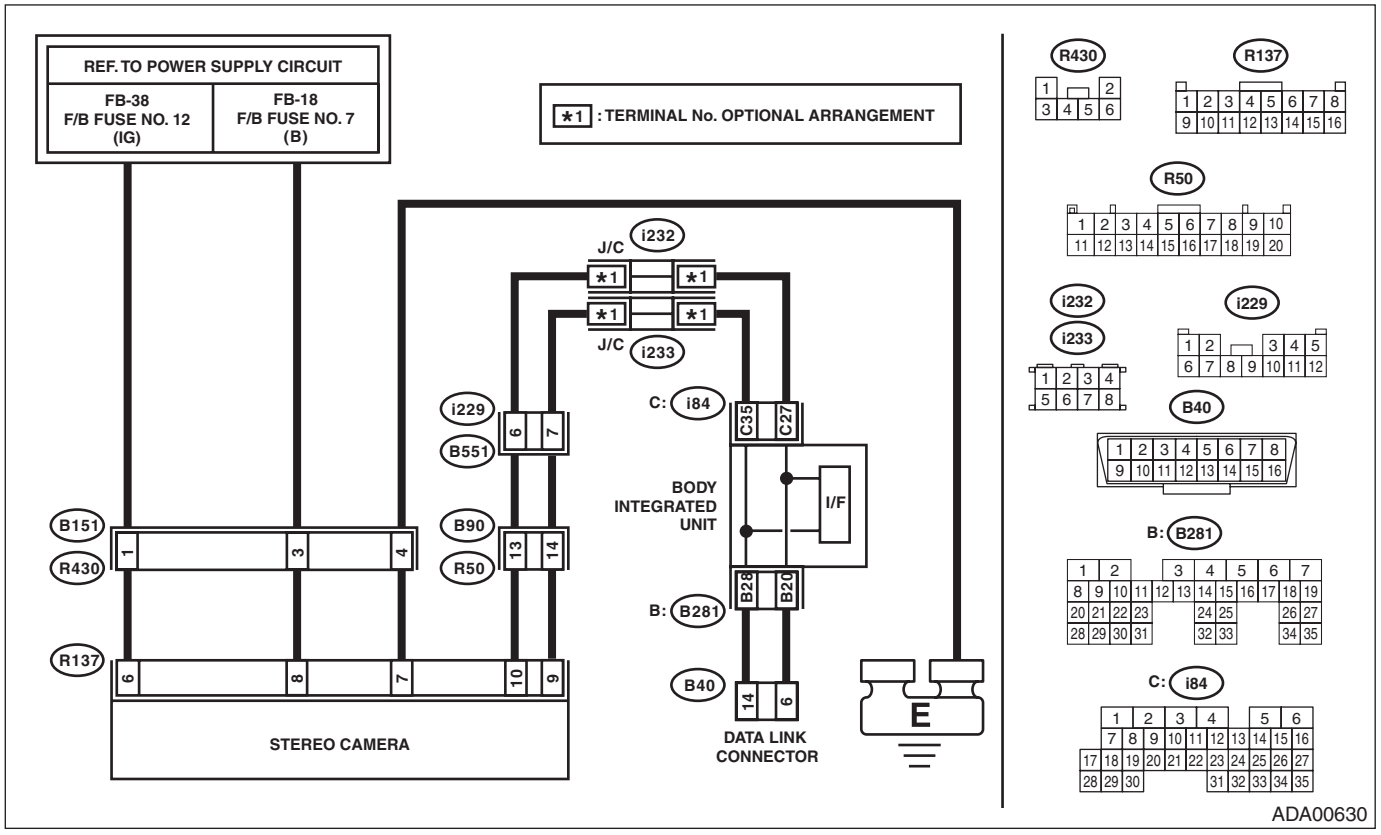
- Defective harness connector
- Power supply circuit malfunction
- Defective stereo camera
- Defective CAN system
- Defective Subaru Select Monitor

**TROUBLE SYMPTOM:**

- EyeSight warning light blinks.

**WIRING DIAGRAM:**

EyeSight System <Ref. to WI(w/o HEV)-126, WIRING DIAGRAM, EyeSight System.>




| Step | | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK IGNITION SWITCH.** | Is the ignition switch ON? | Go to step **2**. | Turn the ignition switch to ON, and select «ADA adaptive cruise control system» using the Subaru Select Monitor. |
| 2 | **CHECK BATTERY.**<br>1) Turn the ignition switch to OFF.<br>2) Measure the battery voltage. | Is the voltage 10 V or more? | Go to step **3**. | Charge or replace the battery. |
| 3 | **CHECK BATTERY TERMINAL.** | Is the battery terminal contact proper? | Go to step **4**. | Connect the battery terminal securely or replace it. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 4 | **CHECK SUBARU SELECT MONITOR COMMUNICATION.**<br>1) Turn the ignition switch to ON.<br>2) Using the Subaru Select Monitor, check whether the communication can be executed normally. | Is the communication between Subaru Select Monitor and body integrated unit normal? | Go to step **5**. | Check the connection of the Subaru Select Monitor, and perform communication with the body integrated unit again. |
| 5 | **READ DTC OF BODY INTEGRATED UNIT.**<br>Select «Integ. unit mode», and check DTC. | Is any DTC other than "Lost Communication With EyeSight" detected? | Perform the diagnosis according to DTC. | Go to step **6**. |
| 6 | **CHECK HARNESS CONNECTOR BETWEEN STEREO CAMERA AND DATA LINK CONNECTOR.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the stereo camera connector.<br>3) Measure the resistance between the stereo camera and the data link connector.<br>***Connector & terminal***<br>***(R137) No. 10 — (B40) No. 6:***<br>***(R137) No. 9 — (B40) No. 14:*** | Is the resistance less than 10 Ω? | Go to step **7**. | Repair or replace the harness and connectors between the stereo camera and data link connector. |
| 7 | **CHECK POWER SUPPLY CIRCUIT.**<br>1) Turn the ignition switch to ON.<br>2) Measure the voltage between stereo camera and chassis ground.<br>***Connector & terminal***<br>***(R137) No. 6 (+) — Chassis ground (–):***<br>***(R137) No. 8 (+) — Chassis ground (–):*** | Is the voltage 10 V or more? | Go to step **8**. | Repair or replace the harness and connectors between the stereo camera and fuse. |
| 8 | **CHECK GROUND CIRCUIT.**<br>1) Turn the ignition switch to OFF, then disconnect the ground cable from battery.<br>2) Measure the resistance between harness connector of stereo camera and chassis ground.<br>***Connector & terminal***<br>***(R137) No. 7 — Chassis ground:*** | Is the resistance less than 10 Ω? | Go to step **9**. | Check the harness from stereo camera to chassis ground. |
| 9 | **CHECK CONNECTOR.** | Is there poor contact of stereo camera connector? | Repair the connector, or replace harness. | Replace the stereo camera. <Ref. to ES-7, REMOVAL, Stereo Camera.> |

# 7. Read Current Data

## A: OPERATION

### 1. STEREO CAMERA

1) On «Main Menu» display, select «Each System Check».
2) On «System Selection Menu» display, select «ADA adaptive cruise control system».
3) On «ADA adaptive cruise control system» display, select «EyeSight (from 2009MY)».
4) Click the [OK] button after the information of stereo camera has been displayed.
5) On «EyeSight (from 2009MY)» display, select «Current Data Display & Save».
6) Using the scroll key, scroll the display screen up or down until the following data is shown.

NOTE:
For detailed operation procedures, refer to “PC application help for Subaru Select Monitor”.

- **List**

| Display | Content | Unit of measure | Reference |
|---|---|---|---|
| Camera ID | Display of serial No. inside the stereo camera | — | — |
| Control Software Version | Control software version | — | — |
| Recognition Software Version | Recognition software version | — | — |
| Model registration information | Display of displacement and vehicle model | — | — |
| ECU Power Supply Voltage (IG) | Display of input voltage of stereo camera | V | — |
| Initial Aiming Completion Status | Initial aiming completion flag | — | Finished<br>(After factory shipping, when stereo camera is replaced or adjusted, “Not Finish” is displayed.) |
| Aiming Completion Status | Aiming completion flag | — | Not Finish<br>(After factory shipping, when stereo camera is replaced or adjusted, “Finished” is displayed.) |
| Ignition SW ON Count | Total count of ignition switch ON | times | — |
| Trip Meter | Odometer value | • km<br>• mile | — |
| Front Axle Wheel Average Speed | Front axle average wheel speed | km/h | — |
| Engine Speed | Engine speed | rpm | — |
| Accel opening angle | Acceleration opening angle signal | % | — |
| ETC Throttle Angle Signal | Electronic throttle control opening angle signal | % | — |
| Steering Angle Sensor Value (Right +) (Left –) | Steering angle sensor value signal | deg | — |
| Longitudinal G Sensor Value (Deceleration +) (Acceleration –) | Longitudinal acceleration | $m/s^2$ | — |
| Brake Fluid Target Pressure | Target value of brake fluid pressure | MPa | — |
| Master Cylinder Actual Fluid Pressure | Brake pressure | MPa | — |
| Right Front Wheel W/C Actual Fluid Pressure | Right front wheel cylinder fluid pressure | MPa | — |
| Left Front Wheel W/C Actual Fluid Pressure | Left front wheel cylinder fluid pressure | MPa | — |
| Target Torque | Target torque command signal | Nm | — |
| Engine Torque | Actual engine shaft torque value | Nm | — |
| AT rapid start prevention, engine torque down command value | AT rapid start prevention control, engine torque down command value | Nm | — |

| Display | Content | Unit of measure | Reference |
|---|---|---|---|
| Warning Code | Warning code signal | — | • No Alarm<br>• HALT<br>• Brake More Warning or Following Distance Warning or Pre-Collision Brake(1st Braking)<br>• ACC Cancel<br>• Pre-Collision Brake (2nd Braking)<br>• LDW/Lane Departure Prevention Assist<br>• Stagger warning<br>• Detection/Lost of Vehicle Beep<br>• Lead Vehicle Start Alert<br>• Pre-Collision Throttle Management |
| Brake SW Input | Brake switch signal status | — | • OFF<br>• ON |
| Brake Lamp SW (BIU) | Brake light switch signal status | — | • OFF<br>• ON |
| Brake Lamp SW (VDC) | Brake light switch status | — | • OFF<br>• ON |
| Current gear position | Current gear position signal | — | • P<br>• R<br>• Automatic neutral<br>• 6<br>• 5<br>• 4<br>• 3<br>• 2<br>• 1<br>• N |
| SI Drive Mode | SI-DRIVE mode (display) | — | • OFF<br>• S#<br>• I<br>• S |
| Under Auto Start Stop control | Auto Start Stop under-control signal | — | • Except Controlling<br>• Controlling |
| Trip Count | Number of ignition ON | times | — |
| Count | Original count identification information | — | — |
| Time Count | Elapsed time after ignition switch ON | ms | — |
| Automatic Adjustment Status | Automatic adjustment status | — | — |
| Lane Recognition Status | Display of lane recognition status | — | • Other than follows: 00<br>• Both lanes are recognized at 40 km/h (25 MPH) or more: 03<br>• Both lanes are recognized at 65 km/h (40 MPH) or more: 05<br>• 11 (when right and left lanes are recognized) |
| Preceding vehicle distance | Display of distance from preceding vehicle | m | — |

| Display | Content | Unit of measure | Reference |
|---|---|---|---|
| EyeSight Temporary 0 Count | Occurrence count of EyeSight temporary stop 0 | times | Refer to “List of contents for camera temporary stop”. <Ref. to ES(diag)-68, LIST OF CONTENTS FOR CAMERA TEMPORARY STOP, LIST, EyeSight Temporary Code(s) Display.> |
| EyeSight Temporary 1 Count | Occurrence count of EyeSight temporary stop 1 | times | |
| EyeSight Temporary 2 Count | Occurrence count of EyeSight temporary stop 2 | times | |
| EyeSight Temporary 3 Count | Occurrence count of EyeSight temporary stop 3 | times | |
| EyeSight Temporary 4 Count | Occurrence count of EyeSight temporary stop 4 | times | |
| EyeSight Temporary 5 Count | Occurrence count of EyeSight temporary stop 5 | times | |
| EyeSight Temporary 6 Count | Occurrence count of EyeSight temporary stop 6 | times | |
| EyeSight Temporary 7 Count | Occurrence count of EyeSight temporary stop 7 | times | |
| EyeSight Temporary 8 Count | Occurrence count of EyeSight temporary stop 8 | times | |
| EyeSight Temporary 9 Count | Occurrence count of EyeSight temporary stop 9 | times | |
| EyeSight Temporary 10 Count | Occurrence count of EyeSight temporary stop 10 | times | |
| EyeSight Temporary 11 Count | Occurrence count of EyeSight temporary stop 11 | times | |
| EyeSight Temporary 12 Count | Occurrence count of EyeSight temporary stop 12 | times | |
| EyeSight Temporary 13 Count | Occurrence count of EyeSight temporary stop 13 | times | |
| EyeSight Temporary 14 Count | Occurrence count of EyeSight temporary stop 14 | times | |
| EyeSight Temporary 15 Count | Occurrence count of EyeSight temporary stop 15 | times | |
| EyeSight Temporary 16 Count | Occurrence count of EyeSight temporary stop 16 | times | |
| EyeSight Temporary 17 Count | Occurrence count of EyeSight temporary stop 17 | times | |
| EyeSight Temporary 18 Count | Occurrence count of EyeSight temporary stop 18 | times | |
| EyeSight Temporary 19 Count | Occurrence count of EyeSight temporary stop 19 | times | |
| EyeSight Temporary 20 Count | Occurrence count of EyeSight temporary stop 20 | times | |
| EyeSight Temporary 21 Count | Occurrence count of EyeSight temporary stop 21 | times | |
| EyeSight Temporary 22 Count | Occurrence count of EyeSight temporary stop 22 | times | |
| EyeSight Temporary 23 Count | Occurrence count of EyeSight temporary stop 23 | times | |
| EyeSight Temporary 24 Count | Occurrence count of EyeSight temporary stop 24 | times | |
| EyeSight Temporary 25 Count | Occurrence count of EyeSight temporary stop 25 | times | |
| EyeSight Temporary 26 Count | Occurrence count of EyeSight temporary stop 26 | times | |
| EyeSight Temporary 27 Count | Occurrence count of EyeSight temporary stop 27 | times | |
| EyeSight Temporary 28 Count | Occurrence count of EyeSight temporary stop 28 | times | |
| EyeSight Temporary 29 Count | Occurrence count of EyeSight temporary stop 29 | times | |
| EyeSight Temporary 30 Count | Occurrence count of EyeSight temporary stop 30 | times | |
| EyeSight Temporary 31 Count | Occurrence count of EyeSight temporary stop 31 | times | |
| Camera Failure Check 1 | Camera failure supplementary information | — | — |
| Camera Failure Check 2 | | | |
| Camera Failure Check 3 | | | |
| Camera Failure Check 4 | | | |
| Camera Failure Check 5 | | | |
| Cruise Control Main Status (ECM → EyeSight) | Cruise switch status | — | • OFF<br>• ON |
| Cruise Control Indicator (EyeSight → Combination Meter) | CRUISE indicator ON signal | — | • OFF<br>• ON |
| Cruise Control Main Display (ECM → EyeSight) | CRUISE indicator ON request signal | — | • OFF<br>• ON |
| Cruise Control SW | Cruise switch status | — | • OFF<br>• RES+ ON<br>• F.D. ON<br>• SET– ON<br>• Main ON<br>• Disconnect<br>• Cancel ON |

| Display | Content | Unit of measure | Reference |
|---|---|---|---|
| Cruise Control SW (Vehicle Distance Setting) | Status of the EyeSight steering switch 2 input side | — | • OFF<br>• RES+ (Shallow) ON<br>• F.D. Set+ ON<br>• SET– (Shallow) ON<br>• F.D. Set(-) ON<br>• Disconnect |
| Cruise Control SW (EyeSight → ECM) | Status of the EyeSight steering switch (EyeSight → ECM) | — | • OFF<br>• Main ON<br>• SET/– (Shallow) ON<br>• SET/– (Deep) ON<br>• RES/+ (Shallow) ON<br>• RES/+ (Deep) ON<br>• Cancel ON<br>• Open |
| Cruise Control Set Status (ECM → EyeSight) | Status of the cruise control set status | — | • Cancel<br>• Set |
| Cruise Control Set ON (EyeSight → Combination Meter) | SET indicator illumination signal | — | • OFF<br>• ON |
| Cruise Control Set Display (ECM → EyeSight) | Request signal for SET indicator illumination | — | • OFF<br>• ON |
| Cruise Control Mode | Cruise control mode signal | — | • ACC Mode<br>• CC Mode |
| Pre-Collision Brake OFF Display Signal | Pre-collision brake OFF indicator light illumination command signal | — | • OFF<br>• ON |
| Pre-Collision Brake Function | ON/OFF status of pre-collision brake function | — | • OFF<br>• ON |
| Pre-Collision Brake OFF SW | Pre-collision brake OFF switch status | — | • OFF<br>• ON<br>• Disconnect |
| Lane Departure Warning OFF Indicator | Lane departure warning OFF indicator light illumination command signal | — | • OFF<br>• ON |
| Lane Departure Warning Function | ON/OFF status of the lane departure warning function | — | • OFF<br>• ON |
| Lane Departure Warning OFF SW | Lane departure warning OFF switch status | — | • OFF<br>• ON<br>• Disconnect |
| Vehicle Speed Set Display | Cruise control set vehicle speed set value | • km/h<br>• MPH | — |
| Cruise Control Set Speed | Set vehicle speed value for cruise control | • km/h<br>• MPH | — |
| Drive Wheel Average Speed | Average wheel speed signal | km/h | — |
| Front Left Wheel Speed | Front left wheel speed signal | km/h | — |
| Front Right Wheel Speed | Front right wheel speed signal | km/h | — |
| Rear Left Wheel Speed | Rear left wheel speed signal | km/h | — |
| Rear Right Wheel Speed | Rear right wheel speed signal | km/h | — |
| Wheel Speed (Pulse) | Wheel speed pulse counter signal | — | — |
| CVT Target Revolution Speed Control Signal | CVT target revolution speed command signal | — | • OFF<br>• ON |
| CVT Target Revolution Speed Value | CVT target revolution speed | rpm | — |
| Transmission Turbine Speed | AT turbine speed signal | rpm | — |
| Driver Torque Request | Torque value requested by driver | Nm | — |
| Accelerator wide opening judgment status | Signal that judges the accelerator opening angle to be “wide” | — | • Not established<br>• Established |

| Display | Content | Unit of measure | Reference |
|---|---|---|---|
| Intake Manifold Pressure Absolute | Engine intake manifold pressure | mmHg | — |
| Gear Ratio | Current total reduction ratio signal | — | — |
| Atmospheric pressure | Atmospheric pressure signal | mmHg | — |
| Adaptive Cruise Control Brake Control Status | Brake control permission signal for adaptive cruise control | — | • OFF<br>• ON |
| Adaptive Cruise Control Braking Signal | Actuation signal of brake control | — | • Not performed<br>• Perform |
| Adaptive Cruise Control Braking (ACC or Driver) Status (for CVT) | Adaptive cruise control braking (driver or control) signal (for CVT) | — | • No Braking<br>• Braking applied |
| Hill Down Mode | Hill down mode signal | — | • Hill down cancelling<br>• Hill down |
| READY Display | READY indicator illumination signal | — | • OFF<br>• ON |
| Vehicle Distance Setting Display | Vehicle distance setting indicator signal | — | • Follow Far Distance<br>• Follow Medium Distance<br>• Follow Close Distance<br>• Conventional Cruise Control |
| Preceding vehicle indication | Preceding vehicle indicator signal | — | • OFF<br>• ON<br>• Blink |
| Preceding vehicle distance | Preceding vehicle distance signal | m | • $0 \leq x < 5$<br>• $5 \leq x < 10$<br>• $10 \leq x < 15$<br>• $15 \leq x < 20$<br>• $20 \leq x < 25$<br>• $25 \leq x < 30$<br>• $30 \leq x < 35$<br>• $35 \leq x < 40$<br>• $40 \leq x < 45$<br>• $45 \leq x < 50$<br>• $50 \leq x < 55$<br>• $55 \leq x < 60$<br>• $60 \leq x < 65$<br>• $65 \leq x < 70$<br>• $70 \leq x < 75$<br>• $75 \leq x$ |
| Adaptive Cruise Control OFF Display | OFF indicator signal | — | • OFF<br>• ON<br>• Blink |
| Adaptive Cruise Control Stop Hold Status | Signal of stop and hold status before reservation | — | • OFF<br>• ON (stop holding and before reserve) |
| EPB Hill Hold Prohibited | Hill hold prohibition signal | — | • ON<br>• OFF |
| Idling Stop Brake Input Status | Auto Start Stop brake cooperation signal | — | • Disengaged<br>• Engaged |
| Fuel Cut Control Status | Fuel cut control permission signal | — | • ON<br>• OFF |
| All Cylinder Fuel Cut Status | Fuel cut signal | — | • Normal<br>• Fuel Cut |
| Low Speed Following | Low speed following mode signal | — | • No<br>• Yes |

| Display | Content | Unit of measure | Reference |
|---|---|---|---|
| Display for Adaptive Cruise Control Cancel Reason | Display for adaptive cruise control cancel reason | — | • Not Cancel<br>• No Manual Mode or No D Position<br>• Door Open<br>• Driver's Seatbelt is Unfastened<br>• Parking Brake Operation<br>• Steering Operation<br>• High vehicle speed<br>• ABS Operation<br>• VDC operation<br>• Steeply sloping road<br>• Other |
| Adaptive Cruise Control Forced Cancel | Adaptive cruise control forced cancel signal | — | • No<br>• Yes |
| EyeSight Deceleration Request (VDC) | Deceleration request reception status signal from stereo camera | — | • Not yet received<br>• Receive |
| Parking Brake SW | Parking brake switch signal status | — | • OFF<br>• ON |
| Driver Brake Detection | Driver brake detection signal | — | • OFF<br>• ON |
| Driver Door Status | Driver's door switch signal status | — | • Close<br>• Open |
| Passenger Door Front Status | Passenger's door switch signal status | — | • Close<br>• Open |
| Right Rear Door Status | Right rear door switch signal status | — | • Close<br>• Open |
| Left Rear Door Status | Left rear door switch signal status | — | • Close<br>• Open |
| Rear Gate Status | Rear gate door switch signal status | — | • Close<br>• Open |
| Driver Seat Belt Status | Status of driver's seat belt | — | • OFF<br>• ON |
| VDC Over Steer Control | VDC operating status signal 1 | — | • Not Controlling<br>• Controlling |
| VDC Under Steer Control | VDC operating status signal 2 | — | • Not Controlling<br>• Controlling |
| ABS Operation | Operating status signal of ABS | — | • Not Operating<br>• Operate |
| TCS Operation | Operating status signal of TCS | — | • Not Operating<br>• Operate |
| Brake Control Actuation | Brake operation permission signal | — | • Not performed<br>• Perform |
| Ignition SW ON Count When Following Distance Warning at The Latest | Ignition switch ON count when the vehicle distance alarm is activated (the latest) | times | — |
| Ignition SW ON Count When Following Distance Warning at The 1 Time before | Ignition switch ON count when the vehicle distance alarm is activated (1 times before) | times | — |
| Ignition SW ON Count When Following Distance Warning at The 2 Time before | Ignition switch ON count when the vehicle distance alarm is activated (2 times before) | times | — |
| Ignition SW ON Count When Pre-Collision Throttle Management at The Latest | Ignition switch ON count when AT false start prevention control is activated (the latest) | times | — |

| Display | Content | Unit of measure | Reference |
|---|---|---|---|
| Ignition SW ON Count When Pre-Collision Throttle Management at The 1 Time before | Ignition switch ON count when AT false start prevention control is activated (1 times before) | times | — |
| Ignition SW ON Count When Pre-Collision Throttle Management at The 2 Time before | Ignition switch ON count when AT false start prevention control is activated (2 times before) | times | — |
| Ignition SW ON Count When Pre-Collision 1st Braking at The Latest | Ignition switch ON count when the pre-collision 1st braking is operated (at the latest) | times | — |
| Ignition SW ON Count When Pre-Collision 1st Braking at The 1 Time before | Ignition switch ON count when the pre-collision 1st braking is operated (1 times before) | times | — |
| Ignition SW ON Count When Pre-Collision 1st Braking at The 2 Time before | Ignition switch ON count when the pre-collision 1st braking is operated (2 times before) | times | — |
| Ignition SW ON Count When Pre-Collision 1st Braking at The 3 Time before | Ignition switch ON count when the pre-collision 1st braking is operated (3 times before) | times | — |
| Ignition SW ON Count When Pre-Collision 2nd Braking at The Latest | Ignition switch ON count when the pre-collision 2nd braking is operated (at the latest) | times | — |
| Ignition SW ON Count When Pre-Collision 2nd Braking at The 1 Time before | Ignition switch ON count when the pre-collision 2nd braking is operated (1 times before) | times | — |
| Ignition SW ON Count When Pre-Collision 2nd Braking at The 2 Time before | Ignition switch ON count when the pre-collision 2nd braking is operated (2 times before) | times | — |
| Ignition SW ON Count When Pre-Collision 2nd Braking at The 3 Time before | Ignition switch ON count when the pre-collision 2nd braking is operated (3 times before) | times | — |
| Pre-Collision Brake Assist Command | Pre-collision brake assist command signal | — | • OFF<br>• ON |
| Pre-Collision Brake Assist Operation | Pre-collision brake assist request reception status | — | • Not Operating<br>• Operate |
| Pre-Collision Brake Action | Pre-collision brake command signal | — | • OFF<br>• ON |
| Pre-Collision Brake Operation | Pre-collision brake operation status | — | • Not Operating<br>• Operate |
| Pre-Collision Brake Assist Threshold | Pre-collision brake threshold | — | • Normal<br>• Threshold 1<br>• Threshold 2<br>• No Request |
| Rear Wheel Slip Control Operation | Rear wheel slip detection signal | — | • Not operating<br>• Operating |
| Steering Responsive Fog Lamps Function | Presence/absence signal of the steering-interlocked fog light function | — | • OFF<br>• ON |
| Steering Responsive Fog Lamps "OFF" Indicator | Status of the steering-interlocked fog light OFF display | — | • OFF<br>• ON<br>• Blink |
| Steering Responsive Fog Lamp(R) Status | Illumination status of the steering-interlocked right fog light | — | • OFF<br>• ON |
| Steering Responsive Fog Lamp(L) Status | Illumination status of the steering-interlocked left fog light | — | • OFF<br>• ON |
| Active Lane Keep System | Presence/absence signal of the lane keep assist function | — | • OFF<br>• ON |

| Display | Content | Unit of measure | Reference |
|---|---|---|---|
| Lane Blink | Request signal for lane (solid line) blinking | — | • OFF<br>• ON<br>• Blinking 1<br>• Blinking 2 |
| Steering Wheel Display | Lane deviation warning light (steering wheel icon) illumination signal | — | • OFF<br>• ON<br>• Blinking 1<br>• Blinking 2 |
| Turn SW (Left) | Operation status of left turn switch | — | • OFF<br>• ON |
| Turn SW (Right) | Operation status of right turn switch | — | • OFF<br>• ON |
| Yaw Rate Value (Right –) (Left +) | Yaw rate value signal | rad/sec | — |
| Lateral G Sensor Value (Right –) (Left +) | Lateral acceleration signal | m/s² | — |
| Driver Throttle Input Override Control | Instruction signal of AT false start prevention control | — | • OFF<br>• ON |
| Warning Code (Sub) | Warning code signal for EyeSight | — | • No Alarm<br>• Limit Speed Warning<br>• Rear View Alarm<br>• Red Traffic Light Warning |
| Adaptive Cruise Control Torque Down | Torque down prohibition signal of stereo camera | — | • ON<br>• OFF |
| Initial Inspection Distance Accuracy Rate | Accuracy rate of initial inspection distance | % | — |
| Initial inspection distance | Initial inspection distance | — | — |
| Initial Optical Axis (X-Axis) | Initial optical axis (X-axis) | pix | — |
| Initial Optical Axis (X-Axis2) | Initial optical axis (X-axis 2) | pix | — |
| Initial Optical Axis (Y-Axis) | Initial optical axis (Y-axis) | pix | — |
| Initial Left Image Rotation Deviation Correction Value | Initial left image, rotation deviation correction value | — | — |
| Initial Left Image Vertical Deviation Correction Value | Initial left image, vertical deviation correction value | — | — |
| Initial Right Image Rotation Deviation Correction Value | Initial right image, rotation deviation correction value | — | — |
| Initial Distance Correction Value | Initial distance correction value | — | — |
| Initial Invalid Distance Data Count | Number of initial invalid distance data | — | — |
| Initial Other Inspection | Another initial inspection | — | — |
| Initial Error Code | Initial error code | — | — |
| DC-Ratio | Accuracy rate of inspection distance | % | — |
| Distance | Inspection distance | — | — |
| Optical Axis (X-Axis) | Optical axis (X-axis) | pix | — |
| Optical Axis (X-Axis2) | Optical axis (X-axis 2) | pix | — |
| Optical Axis (Y-Axis) | Optical axis (Y-axis) | pix | — |
| Left Image Rotation Deviation Correction Value | Left image, rotation deviation correction value | — | — |
| Left Image Vertical Deviation Correction Value | Left image, vertical deviation correction value | — | — |
| Right Image Rotation Deviation Correction Value | Right image, rotation deviation correction value | — | — |
| Distance Correction Value | Distance correction value | — | — |
| Invalid Distance Data Count | Number of invalid distance data | — | — |

| Display | Content | Unit of measure | Reference |
|---|---|---|---|
| Other Inspection | Other inspection | — | — |
| Error Code | Error code detailed information | — | — |
| Camera Battery Open Status (+B) | Display of stereo camera battery (+B circuit) status | — | • Connect<br>• Disconnect |
| Image ON/OFF status | ON/OFF status of present image sensor | — | • OFF<br>• ON |
| Camera Temperature (Current) | Current temperature display of stereo camera internal circuit | °C | — |
| Camera Temperature Operation Status | Camera temperature and operation status | — | • Normal<br>• High Temperature<br>• Low Temperature |
| Camera Temperature (Previous Maximum Value) | Display of stereo camera internal circuit temperature (past MAX value) | °C | — |
| Ignition SW ON Count When Camera Temperature (Previous Maximum Value) | Ignition switch ON count when stereo camera internal circuit temperature is displayed (past MAX value) | times | — |
| Camera Temperature (Previous Minimum Value) | Display of stereo camera internal circuit temperature (past MIN value) | °C | — |
| Ignition SW ON Count When Camera Temperature (Previous Minimum Value) | Ignition switch ON count when stereo camera internal circuit temperature is displayed (past MIN value) | times | — |
| EyeSight Temporary 0 Continuation Count | Continuation count of EyeSight temporary stop 0 | times | — |
| EyeSight Temporary 1 Continuation Count | Continuation count of EyeSight temporary stop 1 | times | — |
| EyeSight Temporary 2 Continuation Count | Continuation count of EyeSight temporary stop 2 | times | — |
| EyeSight Temporary 3 Continuation Count | Continuation count of EyeSight temporary stop 3 | times | — |
| EyeSight Temporary 4 Continuation Count | Continuation count of EyeSight temporary stop 4 | times | — |
| EyeSight Temporary 5 Continuation Count | Continuation count of EyeSight temporary stop 5 | times | — |
| EyeSight Temporary 6 Continuation Count | Continuation count of EyeSight temporary stop 6 | times | — |
| EyeSight Temporary 7 Continuation Count | Continuation count of EyeSight temporary stop 7 | times | — |
| EyeSight HALT Code | EyeSight halt code signal | — | • No HALT<br>• E1(No Camera View)<br>• E2(Out of Temp. Range)<br>• E3(Other) |
| Ambient Air Temperature(Indication) | Ambient air temperature signal | °C | — |
| Ambient Air Temperature(Control) | Outside temperature for control signal | °C | — |
| Head lamp : small | Headlight small signal status | — | • OFF<br>• ON |
| Headlight SW (LO) | Headlight LO switch operation status | — | • OFF<br>• ON |
| Head Lamp High Beam | Headlight Hi beam signal status | — | • OFF<br>• ON |
| Wiper SW (Front) | Front wiper switch operation status | — | • OFF<br>• ON |

| Display | Content | Unit of measure | Reference |
|---|---|---|---|
| VDC OFF SW | VDC OFF signal | — | • OFF<br>• ON |
| VDC "OFF" Indicator Status | VDC OFF indicator status | — | • OFF<br>• ON |
| Camera Failure Real-Time Check (At The Time of Failure) | Camera failure real-time information at the time of failure | — | — |
| Camera Temperature (At The Time of Failure) | Camera temperature sensor at the time of failure | °C | — |
| Image ON/OFF Status/Sensor Ready Status (At The Time of Failure) | Image ON/OFF status at the time of failure | — | • OFF<br>• ON |
| Adaptive Cruise Control Failure (EyeSight → Combination Meter) | Stereo camera failure signal for meter | — | • Normal<br>• Abnormal |
| VDC Sensor Failure | VDC sensor failure signal | — | • Normal<br>• Abnormal |
| ABS system failure | ABS system failure signal | — | • Normal<br>• Abnormal |
| Vehicle Speed Sensor Failure | Vehicle speed sensor failure signal | — | • Normal<br>• Abnormal |
| Adaptive Cruise Control Failure (EyeSight → VDC) | Failure signal of stereo camera to VDC control module | — | • Normal<br>• Abnormal |
| EyeSight Reception (VDC) | Failure signal of stereo camera | — | • Not yet received<br>• Receive |
| Hill Start Assist Operation Status | Hill start assist operation status signal | — | • Not Operating<br>• Operate |
| EyeSight Failure | EyeSight failure signal | — | • Normal<br>• Abnormal |
| Engine Failure | Engine failure signal | — | • Normal<br>• Abnormal |
| Transmission Failure | TCM failure signal | — | • Normal<br>• Abnormal |
| Adaptive Cruise Control Failure (EyeSight → EPS) | Stereo camera failure signal for EPS control module | — | • Normal<br>• Abnormal |
| ETC Failure | Electronic throttle control failure signal | — | • Normal<br>• Abnormal |
| EEPROM Failure | Failure signal of combination meter | — | • Normal<br>• Abnormal |
| Brake Lamp SW Fail Status | Brake light switch failure signal | — | • Normal<br>• Abnormal |
| EyeSight Communication Error (VDC) | Stereo camera communication failure signal | — | • Normal<br>• Abnormal |
| Judgment of Lost Communication with Adaptive Cruise Control ECM CAN | No-receive signal of EyeSight CAN data | — | • Normal<br>• Data no-receive |
| EyeSight Received Data (ECM) | NG signal of stereo camera data | — | • Normal<br>• Abnormal |
| EyeSight Customization Change Request (Combination Meter → EyeSight) | EyeSight customization change request signal | — | • OFF<br>• ON |
| EyeSight Customization Reset Request (Combination Meter → EyeSight) | EyeSight customization reset request signal | — | • OFF<br>• ON |

| Display | Content | Unit of measure | Reference |
|---|---|---|---|
| Target gear position | Target gear position signal | — | • P<br>• R<br>• Automatic neutral<br>• 6<br>• 5<br>• 4<br>• 3<br>• 2<br>• 1<br>• N |
| Transmission Shift Control Mode | TCM shift control mode signal | — | • Position Fixed Mode<br>• Gear Fixed Mode<br>• Position Fixed Temporary<br>• Gear Fixed Temporary<br>• M Position<br>• D Range<br>• ”–” display |
| Shift Position | Shift position information | — | • Error<br>• P<br>• R<br>• N<br>• D<br>• D-S<br>• 3<br>• 2<br>• 1 |
| CVT 8-speed Mode Control | CVT multi-stage speed control signal when EyeSight operates | — | • Not Operating<br>• Operate |
| Lock Up Status | Lock up information | — | • Converter<br>• Slip Lock Up<br>• Lock Up |
| Adaptive Cruise Control Specification | Adaptive cruise control judgment signal | — | • No<br>• Yes |
| EyeSight Specification | EyeSight judgment signal<br>Support: Model with adaptive cruise control<br>Not Support: Other than the model with adaptive cruise control (such as models with constant speed cruise control) | — | • No<br>• Yes |
| Brake System Specification | Brake system judgment signal | — | • VDC<br>• Active Booster |
| Vehicle Height | Vehicle height information | — | • Unknown<br>• OBK<br>• Standard |
| Fuel Type | Fuel type | — | • Gasoline<br>• Diesel |
| Engine Displacement | Engine displacement | — | • 1500 cc<br>• 2000 cc<br>• 2500 cc<br>• 3000 cc<br>• 3600 cc<br>• 1600 cc |
| Camshaft Type | Engine type | — | • SOHC<br>• DOHC |
| Number of Cylinders | Number of cylinder for engine | — | • 4 Cylinder<br>• 6 Cylinder |
| Turbo | Presence or absence of turbo | — | • Turbo<br>• NA |

| Display | Content | Unit of measure | Reference |
|---|---|---|---|
| Vehicle Type | Vehicle type information signal | — | • Impreza Type<br>• Forester Type<br>• Exiga Type<br>• Legacy/Outback Type<br>• WRX Type |
| Destination Code | Destination code signal | — | • Japan<br>• U.S(U4,U5,U6)<br>• Canada(C0)<br>• EURO(Left) (EC,EA,E2,EL)<br>• General(Left)(K4) & Latin America(C4)<br>• Middle & Near East(KS)<br>• U.K(EK)<br>• Thailand/Singapore(ER,EN)<br>• Australia(KA,KC)<br>• China(EH)<br>• South Korea(C6) |
| Tire Diameter | Tire diameter judgment signal | — | • Standard<br>• Special |
| WGN/SDN | Vehicle type signal | — | • SEDAN<br>• WAGON |
| Drive System | Driving method of AWD | — | • AWD<br>• VTD<br>• 2WD |
| AT Type | AT type | — | • CVT(TR58)<br>• 4AT<br>• 5AT<br>• 6AT<br>• CVT(TR690) |
| Idling Stop Specification | Auto Start Stop judgment signal | — | • No<br>• Yes |
| Camera Battery Voltage (At The Time of EyeSight Temporary) | ECM power supply voltage (at an EyeSight temporary stop) | V | — |
| Camera Temperature Sensor (At The Time of EyeSight Temporary) | Camera temperature (at an EyeSight temporary stop) | °C | — |
| Automatic Adjustment Status Check (At The Time of EyeSight Temporary) | Automatic adjustment status (at an EyeSight temporary stop) | — | — |
| Camera Adjustment Value 1 (At The Time of EyeSight Temporary) | Camera adjustment value detailed information 1 (at an EyeSight temporary stop) | — | — |
| Camera Adjustment Value 2 (At The Time of EyeSight Temporary) | Camera adjustment value detailed information 2 (at an EyeSight temporary stop) | — | — |
| Camera Adjustment Value 3 (At The Time of EyeSight Temporary) | Camera adjustment value detailed information 3 (at an EyeSight temporary stop) | — | — |
| EyeSight Temporary Detail Check 1 | EyeSight temporary stop, detailed information 1 | — | — |
| EyeSight Temporary Detail Check 2 | EyeSight temporary stop, detailed information 2 | — | — |
| EyeSight Temporary Detail Check 3 | EyeSight temporary stop, detailed information 3 | — | — |
| EyeSight Temporary Detail Check 4 | EyeSight temporary stop, detailed information 4 | — | — |

| Display | Content | Unit of measure | Reference |
|---|---|---|---|
| Details Check 1 (At The Time of EyeSight Temporary) | Detailed information 1 at the time of EyeSight temporary stop | — | — |
| Details Check 2 (At The Time of EyeSight Temporary) | Detailed information 2 at the time of EyeSight temporary stop | — | — |
| Details Check 3 (At The Time of EyeSight Temporary) | Detailed information 3 at the time of EyeSight temporary stop | — | — |
| Details Check 4 (At The Time of EyeSight Temporary) | Detailed information 4 at the time of EyeSight temporary stop | — | — |
| Camera Temperature Operation Status (At The Time of EyeSight Temporary) | Stereo camera operation status at the time of EyeSight temporary stop | — | • Normal<br>• High Temperature<br>• Low Temperature |
| Camera Failure Real-Time Check | Current camera failure information | — | — |
| Camera Failure Details Cumulative Check 1 | Camera failure details, cumulative information 1 | — | — |
| Camera Failure Details Cumulative Check 2 | Camera failure details, cumulative information 2 | — | — |
| Camera Failure Details Cumulative Check 3 | Camera failure details, cumulative information 3 | — | — |
| Camera Failure Details Cumulative Check 4 | Camera failure details, cumulative information 4 | — | — |
| Camera Failure Details Cumulative Check 5 | Camera failure details, cumulative information 5 | — | — |
| Camera Failure Details Cumulative Check 6 | Camera failure details, cumulative information 6 | — | — |
| Camera Failure Details Cumulative Check 7 | Camera failure details, cumulative information 7 | — | — |
| Camera Failure Details Cumulative Check 8 | Camera failure details, cumulative information 8 | — | — |
| Camera Failure Details Cumulative Check 9 | Camera failure details, cumulative information 9 | — | — |
| Camera Failure Details Cumulative Check 10 | Camera failure details, cumulative information 10 | — | — |
| Camera Failure Details Cumulative Check 11 | Camera failure details, cumulative information 11 | — | — |
| Camera Failure Details Cumulative Check 12 | Camera failure details, cumulative information 12 | — | — |
| Camera Failure Details Cumulative Check 13 | Camera failure details, cumulative information 13 | — | — |
| Camera Failure Details Cumulative Check 14 | Camera failure details, cumulative information 14 | — | — |
| Camera Temperature Abnormality Ignition SW ON Count Check 1 | Camera temperature abnormal IG ON count 1 | times | — |
| Camera Temperature Abnormality Ignition SW ON Count Check 2 | Camera temperature abnormal IG ON count 2 | times | — |
| Camera Temperature Abnormality Ignition SW ON Count Check 3 | Camera temperature abnormal IG ON count 3 | times | — |
| Camera Temperature Abnormality Ignition SW ON Count Check 4 | Camera temperature abnormal IG ON count 4 | times | — |
| Camera Temperature Abnormality Ignition SW ON Count Check 5 | Camera temperature abnormal IG ON count 5 | times | — |
| Camera Adjustment Value 1 | Camera adjustment value detailed information 1 | — | — |
| Camera Adjustment Value 2 | Camera adjustment value detailed information 2 | — | — |
| Camera Adjustment Value 3 | Camera adjustment value detailed information 3 | — | — |

| Display | Content | Unit of measure | Reference |
|---|---|---|---|
| Camera Status Check 1 | Camera status detailed information 1 | — | — |
| Camera Status Check 2 | Camera status detailed information 2 | — | — |
| Camera Status Check 3 | Camera status detailed information 3 | — | — |
| Camera Status Check 4 | Camera status detailed information 4 | — | — |
| Camera Status Check 5 | Camera status detailed information 5 | — | — |
| Camera Status Check 6 | Camera status detailed information 6 | — | — |
| Camera Status Check 7 | Camera status detailed information 7 | — | — |
| Camera Status Check 8 | Camera status detailed information 8 | — | — |
| Camera Status Check 9 | Camera status detailed information 9 | — | — |
| Camera Status Check 10 | Camera status detailed information 10 | — | — |
| Camera Status Check 11 | Camera status detailed information 11 | — | — |
| Camera Status Check 12 | Camera status detailed information 12 | — | — |
| Camera Status Check 13 | Camera status detailed information 13 | — | — |
| Camera Status Check 14 | Camera status detailed information 14 | — | — |
| Camera Status Check 15 | Camera status detailed information 15 | — | — |
| Camera Status Check 16 | Camera status detailed information 16 | — | — |
| Camera Status Check 17 | Camera status detailed information 17 | — | — |
| Camera Status Check 18 | Camera status detailed information 18 | — | — |
| Camera Status Check 19 | Camera status detailed information 19 | — | — |
| Camera Status Check 20 | Camera status detailed information 20 | — | — |
| Camera Status Check 21 | Camera status detailed information 21 | — | — |
| Camera Status Check 22 | Camera status detailed information 22 | — | — |
| Camera Status Check 23 | Camera status detailed information 23 | — | — |
| Camera Status Check 24 | Camera status detailed information 24 | — | — |
| Camera Status Check 25 | Camera status detailed information 25 | — | — |
| Front Axle Average Wheel Speed (At The Time of EyeSight Temporary) | Front axle wheel average speed at the time of EyeSight temporary stop | km/h | — |
| Ignition SW ON Count (At The Time of EyeSight Temporary) | IG ON count at the time of EyeSight temporary stop | times | — |
| Lead Vehicle Detected | Preceding vehicle follow signal | — | • Not operating<br>• Operating |
| Target Torque command | Target torque command signal | — | • Vehicle speed<br>• Torque |
| Right Front Wheel W/C Actual Fluid Pressure | Right front wheel cylinder actual fluid pressure | Mpa | — |
| Left Front Wheel W/C Actual Fluid Pressure | Left front wheel cylinder actual fluid pressure | Mpa | — |

### 2. ENGINE CONTROL MODULE (ECM)

For current data of engine control module, refer to ENGINE (DIAGNOSTICS). <Ref. to EN(H4DO w/o HEV)(diag)-37, Subaru Select Monitor.>

### 3. VDC CONTROL MODULE (VDCCM)

For current data of VDC control module, refer to VDC (DIAGNOSTICS). <Ref. to VDC(diag)-15, READ CURRENT DATA, OPERATION, Subaru Select Monitor.>

### 4. TRANSMISSION CONTROL MODULE (TCM)

For current data of transmission control module, refer to CVT (DIAGNOSTICS). <Ref. to CVT(w/o HEV)(diag)-14, READ CURRENT DATA, OPERATION, Subaru Select Monitor.>

### 5. BODY INTEGRATED UNIT

For current data of body integrated unit, refer to BODY CONTROL (DIAGNOSTICS). <Ref. to BC(diag)-12, LIST, Read Current Data.>

### 6. COMBINATION METER

For current data of the combination meter, refer to COMBINATION METER (DIAGNOSTICS). <Ref. to IDI(diag)-17, LIST, Read Current Data.>

# 8. Real-time Diagnosis

## A: OPERATION

1) On «EyeSight (from 2009MY)» display, select «Current Data Display & Save».
2) Check that the display changes and the contents are correct when performing the operations as follows.
- Depress and release the brake pedal. (Stop light switch and brake switch are turned ON.)
  – Item «Brake Lamp SW (BIU)» «Brake SW Input» «Brake Lamp SW (VDC)»
- Turn the main switch to ON.
  – Item «Cruise Control SW»
- Turn the “SET/–” switch to ON.
  – Item «Cruise Control SW»
- Turn the “RES/+” switch to ON.
  – Item «Cruise Control SW»
- Turn the “Vehicle distance” switch to ON.
  – Item «Cruise Control SW»
- Operate the shift lever.
  – Item «Current gear position»
- Press and hold the pre-collision brake OFF switch.
  – Item «Pre-Collision Brake OFF Indicator»
- Press and hold the lane departure warning OFF switch.
  – Item «Lane Departure Warning OFF Indicator»

NOTE:
For detailed operation procedures, refer to “PC application help for Subaru Select Monitor”.

# 9. Diagnostic Code(s) Display

## A: OPERATION

1) On «Main Menu» display, select «Each System Check».
2) On «System Selection Menu» display, select «ADA adaptive cruise control system».
3) On «ADA adaptive cruise control system» display, select «EyeSight (from 2009MY)».
4) On «EyeSight (from 2009MY)» display, select «Diagnostic Code(s) Display».

NOTE:
- For detailed operation procedures, refer to “PC application help for Subaru Select Monitor”.
- For details concerning DTC, refer to “List of Diagnostic Trouble Code (DTC)”. <Ref. to ES(diag)-39, LIST, Diagnostic Code(s) Display.>
- Up to ten codes can be stored. When more than ten codes are output, they will not be stored.
- The same code is stored only once, and even when the same code occurs several times, information will not be updated.

## B: LIST

- List of Diagnostic Trouble Code (DTC)

| DTC | Item | Contents of diagnosis | Reference |
|---|---|---|---|
| U0073 | Control Module Communication Bus Off | Detected when bus off status (the stereo camera detects the failure and is disconnected from CAN line) occurs. | <Ref. to ES(diag)-75, DTC U0073 CONTROL MODULE COMMUNICATION BUS OFF, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| U0100 | Lost Communication With ECM/PCM “A” | Detected when CAN data from ECM is not transmitted to stereo camera. | <Ref. to ES(diag)-75, DTC U0100 LOST COMMUNICATION WITH ECM/PCM “A”, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| U0101 | Lost Communication With TCM | Detected when CAN data from TCM is not transmitted to stereo camera. | <Ref. to ES(diag)-75, DTC U0101 LOST COMMUNICATION WITH TCM, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| U0122 | Lost Communication With Vehicle Dynamics Control Module | Detected when CAN data from VDC is not transmitted to stereo camera. | <Ref. to ES(diag)-75, DTC U0122 LOST COMMUNICATION WITH VEHICLE DYNAMICS CONTROL MODULE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| U0140 | Lost Communication With Body Control Module | Detected when CAN data from body integrated unit is not transmitted to stereo camera. | <Ref. to ES(diag)-75, DTC U0140 LOST COMMUNICATION WITH BODY CONTROL MODULE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| U0155 | Lost Communication With Instrument Panel Cluster (IPC) Control Module | Detected when CAN data from combination meter is not transmitted to stereo camera. | <Ref. to ES(diag)-75, DTC U0155 LOST COMMUNICATION WITH INSTRUMENT PANEL CLUSTER (IPC) CONTROL MODULE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| U0401 | Invalid Data Received From ECM/PCM “A” | Failure counter diagnosis of engine control module (ECM) | <Ref. to ES(diag)-75, DTC U0401 INVALID DATA RECEIVED FROM ECM/PCM “A”, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| U0402 | Invalid Data Received From TCM | Failure counter diagnosis of automatic transmission control module (TCM) | <Ref. to ES(diag)-76, DTC U0402 INVALID DATA RECEIVED FROM TCM, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |

| DTC | Item | Contents of diagnosis | Reference |
|---|---|---|---|
| U0416 | Invalid Data Received From Vehicle Dynamics Control Module | Failure counter diagnosis of VDC control module (VDC CM) | <Ref. to ES(diag)-76, DTC U0416 INVALID DATA RECEIVED FROM VEHICLE DYNAMICS CONTROL MODULE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| U0422 | Invalid Data Received From Body Control Module | Failure counter diagnosis of body integrated unit | <Ref. to ES(diag)-76, DTC U0422 INVALID DATA RECEIVED FROM BODY CONTROL MODULE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| U0423 | Invalid Data Received From Instrument Panel Cluster Control Module | Failure counter diagnosis of combination meter | <Ref. to ES(diag)-76, DTC U0423 INVALID DATA RECEIVED FROM INSTRUMENT PANEL CLUSTER CONTROL MODULE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| B2801 | TCM Abnormal | Detected when error occurs in the automatic transmission. | <Ref. to ES(diag)-76, DTC B2801 TCM ABNORMAL, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| B2802 | ETC Abnormal | Detected when error occurs in the electronic throttle control. | <Ref. to ES(diag)-76, DTC B2802 ETC ABNORMAL, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| B2806 | ECM Abnormal | Detected when error occurs in the engine control module (ECM). | <Ref. to ES(diag)-76, DTC B2806 ECM ABNORMAL, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| B2807 | | Detected when cruise indicator illumination request from ECM and ON/OFF information of cruise function do not match. | <Ref. to ES(diag)-77, DTC B2807 ECM ABNORMAL, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| B2809 | VDC Abnormal | Detected when error occurs in the VDC. (VDC failure) | <Ref. to ES(diag)-77, DTC B2809 VDC ABNORMAL, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| B280A | | Detected when error occurs in the VDC. (VDC brake control malfunction 1) | <Ref. to ES(diag)-77, DTC B280A VDC ABNORMAL, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| B280B | | Detected when error occurs in the VDC. (VDC brake control malfunction 2) | <Ref. to ES(diag)-77, DTC B280B VDC ABNORMAL, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| B280C | | Detected when error occurs in the VDC. (VDC fluid pressure control prohibited) | <Ref. to ES(diag)-77, DTC B280C VDC ABNORMAL, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| B280F | Meter Abnormal | Detected when error occurs in the CAN communication with combination meter. | <Ref. to ES(diag)-77, DTC B280F METER ABNORMAL, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| B2810 | | Detected when different (undesignated) type of combination meter is installed. | <Ref. to ES(diag)-77, DTC B2810 METER ABNORMAL, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |

| DTC | Item | Contents of diagnosis | Reference |
|---|---|---|---|
| B2814 | Power Supply Volt Error | Detected when battery voltage is below specified value or when the +B harness of the stereo camera is broken. | <Ref. to ES(diag)-78, DTC B2814 POWER SUPPLY VOLT ERROR, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| B2815 | | Detected when battery voltage exceeds the specified value. | <Ref. to ES(diag)-79, DTC B2815 POWER SUPPLY VOLT ERROR, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| B2817 | Brake Lamp Error | Detected when error occurs in the brake light illumination circuit. | <Ref. to ES(diag)-79, DTC B2817 BRAKE LAMP ERROR, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| B28A0 | Vehicle Model Judgment Abnormal | Detected when the model code stored in EEPROM and the model code used for CAN data are different, or when +B harness of the stereo camera is broken at aiming completion. | <Ref. to ES(diag)-80, DTC B28A0 VEHICLE MODEL JUDGMENT ABNORMAL, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| B28A1 | Adaptive CC ECM Communication Data Error | Abnormal judgment for stereo camera by ECM Or detected when the stereo camera or ECM is assembled incorrectly. | <Ref. to ES(diag)-82, DTC B28A1 ADAPTIVE CC ECM COMMUNICATION DATA ERROR, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| B28A2 | | Abnormal judgment for stereo camera data by VDC | <Ref. to ES(diag)-83, DTC B28A2 ADAPTIVE CC ECM COMMUNICATION DATA ERROR, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| B28A3 | | Abnormal judgment for stereo camera data by combination meter | <Ref. to ES(diag)-84, DTC B28A3 ADAPTIVE CC ECM COMMUNICATION DATA ERROR, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| B28A5 | | Detected when error occurs in the transmission data from stereo camera to ECM. | <Ref. to ES(diag)-85, DTC B28A5 ADAPTIVE CC ECM COMMUNICATION DATA ERROR, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |

| DTC | Item | Contents of diagnosis | Reference |
|---|---|---|---|
| B28A6 | Stereo Camera Abnormal | Detected when communication error occurs inside the stereo camera. | <Ref. to ES(diag)-86, DTC B28A6 STEREO CAMERA ABNORMAL, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| B28A7 | | Detected when error occurs in the communication data inside the control module due to external factors such as noises. | <Ref. to ES(diag)-86, DTC B28A7 STEREO CAMERA ABNORMAL, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| B28A8 | | | <Ref. to ES(diag)-86, DTC B28A8 STEREO CAMERA ABNORMAL, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| B28A9 | | | <Ref. to ES(diag)-86, DTC B28A9 STEREO CAMERA ABNORMAL, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| B28AA | | Detected when error occurs in the communication with microcomputer 1 system inside the stereo camera. | <Ref. to ES(diag)-86, DTC B28AA STEREO CAMERA ABNORMAL, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| B28AB | | Detected when error occurs in the communication with microcomputer 2 system inside the stereo camera. | <Ref. to ES(diag)-87, DTC B28AB STEREO CAMERA ABNORMAL, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| B28AC | | Detected when error occurs in the ASIC system inside the stereo camera. | <Ref. to ES(diag)-87, DTC B28AC STEREO CAMERA ABNORMAL, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| B28AD | | Detected when error occurs in the stereo camera image system. | <Ref. to ES(diag)-87, DTC B28AD STEREO CAMERA ABNORMAL, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| B28AE | | Detected when error occurs in the internal power supply system of stereo camera. | <Ref. to ES(diag)-87, DTC B28AE STEREO CAMERA ABNORMAL, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| B28AF | | Detected when adjustment/inspection of camera has not been completed normally. | <Ref. to ES(diag)-87, DTC B28AF STEREO CAMERA ABNORMAL, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| B28B1 | | Detected when the optical axis of stereo camera is deviated in lateral direction or when the fluctuation range of automatic adjustment value has been enlarged. | <Ref. to ES(diag)-88, DTC B28B1 STEREO CAMERA ABNORMAL, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| B28B2 | | Detected when the temperature of the stereo camera excessively increases.<br>(When this DTC is detected, the camera will not return to the normal state after performing adjustment or inspection. In this case, always replace the stereo camera.) | <Ref. to ES(diag)-88, DTC B28B2 STEREO CAMERA ABNORMAL, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| B28B3 | | Detected when the temperature of the stereo camera excessively decreases.<br>(When this DTC is detected, the camera will not return to the normal state after performing adjustment or inspection. In this case, always replace the stereo camera.) | <Ref. to ES(diag)-88, DTC B28B3 STEREO CAMERA ABNORMAL, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |

| DTC | Item | Contents of diagnosis | Reference |
|---|---|---|---|
| B28B5 | +B Circuit Abnormal | Detected when there is an open circuit in power supply line of the stereo camera. | <Ref. to ES(diag)-88, DTC B28B5 +B CIRCUIT ABNORMAL, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| B28B6 | Pre-Collision Off Switch Abnormal | Pre-collision brake switch or harness is faulty. Detected also when the switch is held down for over 45 minutes. | <Ref. to ES(diag)-89, DTC B28B6 PRE-COLLISION OFF SWITCH ABNORMAL, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| B28B7 | LDP Off Switch Abnormal | Lane departure warning OFF switch or harness is faulty. Detected also when the switch is held down for over 45 minutes. | <Ref. to ES(diag)-91, DTC B28B7 LDP OFF SWITCH ABNORMAL, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| B28B8 | EyeSight Switch 1 Abnormal | Detected when the EyeSight steering switch is not installed, when the switch is faulty, or when the harness is abnormal, open or stuck to ON. | <Ref. to ES(diag)-93, DTC B28B8 EyeSight SWITCH 1 ABNORMAL, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| B28B9 | EyeSight Switch 2 Abnormal | | <Ref. to ES(diag)-94, DTC B28B9 EyeSight SWITCH 2 ABNORMAL, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |

# 10.Freeze Frame Data Display

## A: OPERATION

1) On «Main Menu» display, select «Each System Check».
2) On «System Selection Menu» display, select «ADA adaptive cruise control system».
3) On «ADA adaptive cruise control system» display, select «EyeSight (from 2009MY)».
4) On «EyeSight (from 2009MY)» display, select «Freeze Frame Data Display».

NOTE:
- For detailed operation procedures, refer to “PC application help for Subaru Select Monitor”.
- Freeze frame data is stored for three DTCs. Allocation of the three DTCs are as follows:
  – DTC that occurred first.
  – DTC that occurred first during the latest driving cycle (from IGN ON to IGN OFF).
  – DTC that occurred first during the second latest driving cycle.
  – However, DTCs will be stored in order of occurrence until these three DTCs are stored.
- For details on freeze frame data, refer to List of freeze frame data. <Ref. to ES(diag)-44, LIST, Freeze Frame Data Display.>
- Freeze frame data is cleared in Clear Memory Mode. <Ref. to ES(diag)-45, Clear Memory Mode.>

## B: LIST

- List of freeze frame data

| Display | Content | Unit |
|---|---|---|
| ECU Power Supply Voltage (IG) | Display of input voltage of stereo camera | V |
| Engine Speed | Engine speed | rpm |
| Accel opening angle | Acceleration opening angle signal | % |
| Brake Fluid Target Pressure | Target value of brake fluid pressure | MPa |
| Master Cylinder Actual Fluid Pressure | Brake pressure | MPa |
| Right Front Wheel W/C Actual Fluid Pressure | Right front wheel cylinder fluid pressure | MPa |
| Left Front Wheel W/C Actual Fluid Pressure | Left front wheel cylinder fluid pressure | MPa |
| Brake SW Input | Brake switch signal status | — |
| Brake Lamp SW (BIU) | Brake light switch signal status | — |
| Brake Lamp SW (VDC) | Brake light switch status | — |
| Trip Count | Timestamp information_Trip counter | times |
| Count | Timestamp information_original count identification information | — |
| Time Count | Timestamp information_time counter | ms |
| Drive Wheel Average Speed | Average wheel speed signal | km/h |
| Brake Lamp Command | Brake lamp light up command signal | — |
| Driver Brake Detection | Driver brake detection signal | — |
| Brake Control Actuation | Brake operation permission signal | — |
| Pre-Collision Brake Assist Command | Pre-collision brake assist command signal | — |
| Pre-Collision Brake Action | Pre-collision brake command signal | — |
| Adaptive Cruise Control Torque Down | Torque down prohibition signal of stereo camera | — |
| Engine Failure | Engine failure signal | — |
| Brake Lamp SW Fail Status | Brake light switch failure signal | — |

# 11.Clear Memory Mode

## A: OPERATION

1) On «Main Menu» display, select «Each System Check».
2) On «System Selection Menu» display, select «ADA adaptive cruise control system».
3) On «ADA adaptive cruise control system» display, select «EyeSight (from 2009MY)».
4) On «EyeSight (from 2009MY)» display, select «Clear Memory».

NOTE:
For detailed operation procedures, refer to “PC application help for Subaru Select Monitor”.

# 12.Diagnostics with Phenomenon

## A: DIAGNOSTIC PROCEDURE WITH PHENOMENON

### 1. TEMPORARY STOP OF EyeSight

| Phenomenon | | Check Item | Reference |
|---|---|---|---|
| 1 | Temporary stop occurs frequently.<br>EyeSight temporary stop indicator illuminates frequently. | (1) Using CHECK LIST (CAMERA TEMPORARY STOP), check the condition and respond to it.<br>1. Does it apply to the condition that the stereo camera is difficult to be recognized?<br>2. Does it apply to the condition that the stereo camera temperature becomes excessively high or low?<br>3. Does it apply to the condition that the vertical deviation occurs on the stereo camera optical axis?<br>4. Does it apply to the condition that the engine speed drops to 300 rpm or below? | Check list (Camera temporary stop) <Ref. to ES(diag)-66, CHECK LIST (CAMERA TEMPORARY STOP), LIST, EyeSight Temporary Code(s) Display.><br>When there is a relevant item in the check list, it can be the cause of malfunction. Eliminate the cause, and check that the malfunction has been improved. If not solved, the stereo camera may be malfunctioning. |

### 2. ADAPTIVE CRUISE CONTROL, CONVENTIONAL CRUISE CONTROL

| Phenomenon | | Check Item | Reference |
|---|---|---|---|
| 1 | Cruise control switch is not turned to ON. (CRUISE indicator light does not illuminate)<br>Or cruise control was cancelled without operating the cruise switch. | (1) Check the ECM cruise control cancel code. | Perform the diagnosis according to displayed cancel code. <Ref. to ES(diag)-70, ECM Cancel Code(s) Display.><br>If not displayed, go to (2). |
| | | (2) Perform the real-time diagnosis.<br>Check the input signal of cruise control system. | Real-time Diagnosis <Ref. to ES(diag)-38, Real-time Diagnosis.><br>When normal, go to (4).<br>When abnormal, go to (3). |
| | | (3) Check the EyeSight steering switch. | Inspection of EyeSight steering switch <Ref. to ES(diag)-62, CHECK EyeSight STEERING SWITCH, Diagnostics with Phenomenon.> |
| | | (4) Check the CRUISE indicator. | Inspection of cruise indicator <Ref. to ES(diag)-61, CHECK ADAPTIVE CRUISE CONTROL INDICATOR LIGHT/CONSTANT SPEED CRUISE CONTROL INDICATOR LIGHT AND CRUISE SET INDICATOR LIGHT, Diagnostics with Phenomenon.> |

| Phenomenon | | Check Item | Reference |
|---|---|---|---|
| 2 | Cruise control cannot be set. Or cruise control is cancelled without releasing operation.<br>NOTE:<br>• Do not turn the ignition switch to OFF after the cruise control is deactivated.<br>• Do not operate the EyeSight steering switch after the cruise control is deactivated.<br>If the above is performed, the cancel code the ECM will be cleared. | (1) Check the ECM cruise control cancel code. | Perform the diagnosis according to displayed cancel code. <Ref. to ES(diag)-70, ECM Cancel Code(s) Display.><br>If not displayed, go to (2). |
| | | (2) Perform the real-time diagnosis.<br>Check the input signal of cruise control system. | Real-time Diagnosis <Ref. to ES(diag)-38, Real-time Diagnosis.><br>When normal, go to (6).<br>When abnormal, go to the relevant items for (3), (4), (5). |
| | | (3) Check the EyeSight steering switch. | Inspection of EyeSight steering switch <Ref. to ES(diag)-62, CHECK EyeSight STEERING SWITCH, Diagnostics with Phenomenon.> |
| | | (4) Check stop light switch and brake switch. | Inspection of stop light switch and brake switch <Ref. to BR-70, Brake Pedal.> <Ref. to CC(w/o HEV)(diag)-19, 12, Diagnostic Procedure with Cancel Code.> |
| | | (5) Check the neutral position switch. | Inspection of neutral position switch <Ref. to CC(w/o HEV)(diag)-22, 14, Diagnostic Procedure with Cancel Code.> <Ref. to CC(w/o HEV)(diag)-26, 62, Diagnostic Procedure with Cancel Code.> |
| | | (6) Check vehicle speed sensor. | Inspection of vehicle speed sensor <Ref. to CC(w/o HEV)(diag)-25, 22, Diagnostic Procedure with Cancel Code.> |
| 3 | SET indicator does not illuminate. | Check the SET indicator. | Inspection of SET indicator <Ref. to ES(diag)-61, CHECK ADAPTIVE CRUISE CONTROL INDICATOR LIGHT/ CONSTANT SPEED CRUISE CONTROL INDICATOR LIGHT AND CRUISE SET INDICATOR LIGHT, Diagnostics with Phenomenon.> |
| 4 | Vehicle speed is not held within set speed ±3 km/h (±2 MPH) on a level road. | Check the vehicle speed sensor. | Inspection of vehicle speed sensor <Ref. to CC(w/o HEV)(diag)-25, 22, Diagnostic Procedure with Cancel Code.> |
| 5 | Vehicle speed does not increase or does not return to set speed after RES/+ switch has been pressed. | (1) Perform the real-time diagnosis.<br>Check the input signal of cruise control system. | Real-time Diagnosis <Ref. to ES(diag)-38, Real-time Diagnosis.><br>When abnormal, go to (2). |
| | | (2) Check the RES/+ switch. | Inspection of RES/+ switch <Ref. to ES(diag)-62, CHECK EyeSight STEERING SWITCH, Diagnostics with Phenomenon.> |
| 6 | Vehicle speed does not decrease after SET/– switch has been pressed. | (1) Perform the real-time diagnosis.<br>Check the input signal of cruise control system. | Real-time Diagnosis <Ref. to ES(diag)-38, Real-time Diagnosis.><br>When abnormal, go to (2). |
| | | (2) Check the SET/– switch. | Inspection of SET/– switch <Ref. to ES(diag)-62, CHECK EyeSight STEERING SWITCH, Diagnostics with Phenomenon.> |
| 7 | Cruise control is not deactivated after the cruise switch is pressed. | (1) Perform the real-time diagnosis.<br>Check the input signal of cruise control system. | Real-time Diagnosis <Ref. to ES(diag)-38, Real-time Diagnosis.><br>When abnormal, go to (2). |
| | | (2) Check the cruise switch. | Inspection of cruise switch <Ref. to ES(diag)-62, CHECK EyeSight STEERING SWITCH, Diagnostics with Phenomenon.> |
| 8 | Following distance does not change, even after the following distance switch is pressed. | (1) Perform the real-time diagnosis.<br>Check the input signal of cruise control system. | Real-time Diagnosis <Ref. to ES(diag)-38, Real-time Diagnosis.><br>When abnormal, go to (2). |
| | | (2) Check the following distance switch. | Inspection of following distance switch <Ref. to ES(diag)-62, CHECK EyeSight STEERING SWITCH, Diagnostics with Phenomenon.> |

| Phenomenon | | Check Item | Reference |
|---|---|---|---|
| 9 | Cruise control is not released after brake pedal has been depressed. | (1) Perform the real-time diagnosis.<br>Check the input signal of cruise control system. | Real-time Diagnosis <Ref. to ES(diag)-38, Real-time Diagnosis.><br>When abnormal, go to (2). |
| | | (2) Check stop light switch and brake switch. | Inspection of stop light switch and brake switch <Ref. to CC(w/o HEV)(diag)-19, 12, Diagnostic Procedure with Cancel Code.> <Ref. to BR-75, INSTALLATION, Stop Light Switch.> |
| 10 | Cruise control is not released after shifting to the neutral position. | (1) Perform the real-time diagnosis.<br>Check the input signal of cruise control system. | Real-time Diagnosis <Ref. to ES(diag)-38, Real-time Diagnosis.><br>When abnormal, go to (2). |
| | | (2) Check the neutral position switch. | Inspection of neutral position switch <Ref. to CC(w/o HEV)(diag)-22, 14, Diagnostic Procedure with Cancel Code.> |
| 11 | Acceleration or deceleration does not occur according to the preceding vehicle. The preceding vehicle is difficult to be detected.<br>Braking force is weaker than usual.<br>Alarm for requiring more brake pedal force does not sound. | (1) Using CHECK LIST (ADAPTIVE CRUISE CONTROL), check the condition and respond to it.<br>1) Does it apply to the condition that the use of adaptive cruise control is not desired?<br>2) Does it apply to the condition or the object that is hard to be recognized by the stereo camera?<br>3) Does it apply to the driving condition that the preceding vehicle cannot be recognized or the vehicle on the next lane or the object on the roadside may be recognized by mistake?<br>4) Does it apply to the condition that brake force may become poor?<br>5) Does it apply to the condition that the alarm for requiring more brake pedal force does not sound even in a short vehicle distance? | CHECK LIST (ADAPTIVE CRUISE CONTROL) <Ref. to ES(diag)-53, CHECK LIST (ADAPTIVE CRUISE CONTROL), DIAGNOSTIC PROCEDURE WITH PHENOMENON, Diagnostics with Phenomenon.><br>When there is a relevant item in the check list, it can be the cause of malfunction. Eliminate the cause, and check that the malfunction has been improved. If not solved, go to (2). |
| | | (2) Check the windshield glass and dashboard. | Inspection of windshield glass and dashboard <Ref. to ES(diag)-7, WINDSHIELD GLASS AND DASHBOARD, INSPECTION, General Description.><br>When normal, go to (3). |
| | | (3) Check the front wiper. | Inspection of front wiper <Ref. to ES(diag)-11, FRONT WIPER, INSPECTION, General Description.><br>When normal, go to (4). |
| | | (4) Check the stereo camera. | Inspection of stereo camera <Ref. to ES(diag)-12, STEREO CAMERA, INSPECTION, General Description.><br>When normal, go to (5). |
| | | (5) Bleed air from brake system. | Air bleeding from brake system <Ref. to BR-64, BRAKE LINE, PROCEDURE, Air Bleeding.><br>Go to (6). |
| | | (6) Check the optical axis of the stereo camera. | Adjust the optical axis of the stereo camera. <Ref. to ES-12, PROCEDURE, Camera Adjustment, Inspection.> |

## 3. PRE-COLLISION BRAKE, AT RAPID START PREVENTION CONTROL

| Phenomenon | | Check Item | Reference |
|---|---|---|---|
| 1 | Pre-collision brake does not operate.<br>Or the pre-collision brake operates, but the vehicle cannot stop safely before collision.<br>Or the pre-collision brake is released automatically.<br>Or the pre-collision brake assist does not operate. | (1) Check that the pre-collision brake OFF indicator light goes off. | If this indicator light illuminates, the operation is not performed. |
| | | (2) Using CHECK LIST (PRE-COLLISION BRAKE), check the following and respond to it.<br>1) Does it apply to the condition that the pre-collision brake does not operate, or there is a high possibility that the vehicle cannot stop safely before collision with the pre-collision brake?<br>2) Does it apply to the condition that there is a high possibility that the pre-collision brake does not operate due to the recognition status of the stereo camera?<br>3) Does it apply to the condition that the system does not operate correctly and the turning OFF of the pre-collision brake is desired?<br>4) Does it apply to the condition that the pre-collision brake OFF indicator light illuminates? | Check list (Pre-collision brake) <Ref. to ES(diag)-55, CHECK LIST (PRE-COLLISION BRAKE), DIAGNOSTIC PROCEDURE WITH PHENOMENON, Diagnostics with Phenomenon.><br>When there is a relevant item in the check list, it can be the cause of malfunction. Eliminate the cause, and check that the malfunction has been improved. If not solved, the stereo camera may be malfunctioning. |
| 2 | Pre-collision brake operates improperly.<br>Or the pre-collision brake is not released.<br>Or the pre-collision brake assist operates improperly. | (1) Using CHECK LIST (PRE-COLLISION BRAKE), check the following and respond to it.<br>1) Does it apply to the condition that turning OFF of the pre-collision brake is desired?<br>2) Does it apply to the condition that the pre-collision brake may operate? | Check list (Pre-collision brake) <Ref. to ES(diag)-55, CHECK LIST (PRE-COLLISION BRAKE), DIAGNOSTIC PROCEDURE WITH PHENOMENON, Diagnostics with Phenomenon.><br>When there is a relevant item in the check list, it can be the cause of malfunction. Eliminate the cause, and check that the malfunction has been improved. If not solved, the stereo camera may be malfunctioning. |
| 3 | Pre-collision brake OFF indicator light does not go off.<br>Or the pre-collision brake OFF indicator light illuminates automatically. | (1) Check that this failure occurs during engine start. | Light illumination for a while after the engine start is a normal. |
| | | (2) Check EyeSight temporary stop code to see if temporary stop has occurred. | If the EyeSight temporary stop code is displayed, check the diagnosis from the List of EyeSight temporary stop code, and perform the corresponding operations. <Ref. to ES(diag)-63, EyeSight Temporary Code(s) Display.><br>If the cancel code is not displayed, go to (3). |
| | | (3) Check the pre-collision brake OFF switch. | Inspection of pre-collision brake OFF switch <Ref. to ES(diag)-89, DTC B28B6 PRE-COLLISION OFF SWITCH ABNORMAL, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| 4 | Pre-collision brake OFF indicator light does not illuminate.<br>Or the pre-collision brake OFF indicator light goes off automatically. | (1) Check that this failure occurs during engine start. | Even if the pre-collision brake is turned off, it is turned on again when the engine switch is turned off and the engine has restarted. |
| | | (2) Check the pre-collision brake OFF switch. | Inspection of pre-collision brake OFF switch <Ref. to ES(diag)-89, DTC B28B6 PRE-COLLISION OFF SWITCH ABNORMAL, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |

| Phenomenon | | Check Item | Reference |
|---|---|---|---|
| 5 | AT rapid start prevention control does not operate.<br>Or the AT rapid start prevention control is released automatically. | (1) Check that the pre-collision brake OFF indicator light goes off. | If this indicator light illuminates, the operation is not performed. |
| | | (2) Using CHECK LIST (AT RAPID START PREVENTION CONTROL), check the following and respond to it.<br>1) Does it apply to the condition that the AT rapid start prevention control may not operate?<br>2) Does it apply to the condition that the pre-collision brake OFF indicator light illuminates? | Check list (AT rapid start prevention control) <Ref. to ES(diag)-58, CHECK LIST (AT RAPID START PREVENTION CONTROL), DIAGNOSTIC PROCEDURE WITH PHENOMENON, Diagnostics with Phenomenon.><br>When there is a relevant item in the check list, it can be the cause of malfunction. Eliminate the cause, and check that the malfunction has been improved. If not solved, the stereo camera may be malfunctioning. |
| 6 | AT rapid start prevention control operates improperly.<br>Or the AT rapid start prevention control is not released. | (1) Using CHECK LIST (AT RAPID START PREVENTION CONTROL), check the following and respond to it.<br>1) Does it apply to the condition that turning OFF of the AT rapid start prevention control is desired?<br>2) Does it apply to the condition that the AT rapid start prevention control may operate? | Check list (AT rapid start prevention control) <Ref. to ES(diag)-58, CHECK LIST (AT RAPID START PREVENTION CONTROL), DIAGNOSTIC PROCEDURE WITH PHENOMENON, Diagnostics with Phenomenon.><br>When there is a relevant item in the check list, it can be the cause of malfunction. Eliminate the cause, and check that the malfunction has been improved. If not solved, the stereo camera may be malfunctioning. |

## 4. LANE DEPARTURE WARNING, SWAY WARNING, FORWARD VEHICLE'S START MONITORING FUNCTION

| Phenomenon | | Check Item | Reference |
|---|---|---|---|
| 1 | Lane departure warning does not operate.<br>Or the lane departure warning is released automatically. | (1) Check that the lane departure warning OFF indicator light goes off. | If this indicator light illuminates, the operation is not performed. |
| | | (2) Using CHECK LIST (LANE DEPARTURE WARNING, SWAY WARNING, FORWARD VEHICLE'S START MONITORING FUNCTION), check the following and respond to it.<br>1) Does it apply to the condition that the lane departure warning does not operate or is difficult to operate?<br>2) Does it apply to the condition that the lane departure warning OFF indicator light illuminates? | Check list (lane departure warning, sway warning, forward vehicle's start monitoring function) <Ref. to ES(diag)-59, CHECK LIST (LANE DEPARTURE WARNING, SWAY WARNING, FORWARD VEHICLE'S START MONITORING FUNCTION), DIAGNOSTIC PROCEDURE WITH PHENOMENON, Diagnostics with Phenomenon.><br>When there is a relevant item in the check list, it can be the cause of malfunction. Eliminate the cause, and check that the malfunction has been improved. If not solved, the stereo camera may be malfunctioning. |

| | Phenomenon | Check Item | Reference |
|---|---|---|---|
| 2 | Lane departure warning operates improperly.<br>Or the lane departure warning is not released. | (1) Using CHECK LIST (LANE DEPARTURE WARNING, SWAY WARNING, FORWARD VEHICLE'S START MONITORING FUNCTION), check the following and respond to it.<br>1) Does it apply to the condition that the vehicle lane is recognized erroneously and the lane departure warning may operate? | Check list (lane departure warning, sway warning, forward vehicle's start monitoring function) <Ref. to ES(diag)-59, CHECK LIST (LANE DEPARTURE WARNING, SWAY WARNING, FORWARD VEHICLE'S START MONITORING FUNCTION), DIAGNOSTIC PROCEDURE WITH PHENOMENON, Diagnostics with Phenomenon.><br>When there is a relevant item in the check list, it can be the cause of malfunction. Eliminate the cause, and check that the malfunction has been improved. If not solved, the stereo camera may be malfunctioning. |
| 3 | Lane departure warning OFF indicator light does not go off.<br>Or the lane departure warning OFF indicator light illuminates automatically. | (1) Check that this failure occurs during engine start. | Light illumination for a while after the engine start is a normal. Even if the engine switch is turned off and the engine is restarted, the status before the engine switch off is maintained. |
| | | (2) Check EyeSight temporary stop code to see if temporary stop has occurred. | If the EyeSight temporary stop code is displayed, check the diagnosis from the List of EyeSight temporary stop code, and perform the corresponding operations. <Ref. to ES(diag)-63, EyeSight Temporary Code(s) Display.><br>If the cancel code is not displayed, go to (3). |
| | | (3) Check the lane departure warning OFF indicator light. | Inspection of lane departure warning OFF indicator light <Ref. to ES(diag)-91, DTC B28B7 LDP OFF SWITCH ABNORMAL, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| 4 | Lane departure warning OFF indicator light does not illuminate.<br>Or the lane departure warning OFF indicator light goes off automatically. | (1) Check the lane departure warning OFF indicator light. | Inspection of lane departure warning OFF indicator light <Ref. to ES(diag)-91, DTC B28B7 LDP OFF SWITCH ABNORMAL, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| 5 | Sway warning does not operate.<br>Or the sway warning is released automatically. | (1) Check that the lane departure warning OFF indicator light goes off. | If this indicator light illuminates, the operation is not performed. |
| | | (2) Using CHECK LIST (LANE DEPARTURE WARNING, SWAY WARNING, FORWARD VEHICLE'S START MONITORING FUNCTION), check the following and respond to it.<br>1) Does it apply to the condition that the sway warning may not operate?<br>2) Does it apply to the condition that the lane departure warning OFF indicator light illuminates? | Check list (lane departure warning, sway warning, forward vehicle's start monitoring function) <Ref. to ES(diag)-59, CHECK LIST (LANE DEPARTURE WARNING, SWAY WARNING, FORWARD VEHICLE'S START MONITORING FUNCTION), DIAGNOSTIC PROCEDURE WITH PHENOMENON, Diagnostics with Phenomenon.><br>When there is a relevant item in the check list, it can be the cause of malfunction. Eliminate the cause, and check that the malfunction has been improved. If not solved, the stereo camera may be malfunctioning. |
| 6 | Sway warning operates improperly.<br>Or the sway warning is not released. | (1) Using CHECK LIST (LANE DEPARTURE WARNING, SWAY WARNING, FORWARD VEHICLE'S START MONITORING FUNCTION), check the following and respond to it.<br>1) Does it apply to the condition that the sway warning may operate improperly? | Check list (lane departure warning, sway warning, forward vehicle's start monitoring function) <Ref. to ES(diag)-59, CHECK LIST (LANE DEPARTURE WARNING, SWAY WARNING, FORWARD VEHICLE'S START MONITORING FUNCTION), DIAGNOSTIC PROCEDURE WITH PHENOMENON, Diagnostics with Phenomenon.><br>When there is a relevant item in the check list, it can be the cause of malfunction. Eliminate the cause, and check that the malfunction has been improved. If not solved, the stereo camera may be malfunctioning. |

| Phenomenon | | Check Item | Reference |
|---|---|---|---|
| 7 | Forward vehicle's start monitoring function does not operate.<br>Or the forward vehicle's start monitoring function is released automatically. | (1) Using CHECK LIST (LANE DEPARTURE WARNING, SWAY WARNING, FORWARD VEHICLE'S START MONITORING FUNCTION), check the following and respond to it.<br>1) Does it apply to the condition that the forward vehicle's start monitoring function does not operate even when the preceding vehicle has already started? | Check list (lane departure warning, sway warning, forward vehicle's start monitoring function) <Ref. to ES(diag)-59, CHECK LIST (LANE DEPARTURE WARNING, SWAY WARNING, FORWARD VEHICLE'S START MONITORING FUNCTION), DIAGNOSTIC PROCEDURE WITH PHENOMENON, Diagnostics with Phenomenon.><br>When there is a relevant item in the check list, it can be the cause of malfunction. Eliminate the cause, and check that the malfunction has been improved. If not solved, the stereo camera may be malfunctioning. |
| 8 | Forward vehicle's start monitoring function operates improperly.<br>Or the forward vehicle's start monitoring function is not released. | (1) Using CHECK LIST (LANE DEPARTURE WARNING, SWAY WARNING, FORWARD VEHICLE'S START MONITORING FUNCTION), check the following and respond to it.<br>1) Does it apply to the condition that the forward vehicle's start monitoring function operates even when the preceding vehicle has not yet started? | Check list (lane departure warning, sway warning, forward vehicle's start monitoring function) <Ref. to ES(diag)-59, CHECK LIST (LANE DEPARTURE WARNING, SWAY WARNING, FORWARD VEHICLE'S START MONITORING FUNCTION), DIAGNOSTIC PROCEDURE WITH PHENOMENON, Diagnostics with Phenomenon.><br>When there is a relevant item in the check list, it can be the cause of malfunction. Eliminate the cause, and check that the malfunction has been improved. If not solved, the stereo camera may be malfunctioning. |

## 5. CHECK LIST (ADAPTIVE CRUISE CONTROL)

| Item name | | | Yes/No | |
|---|---|---|---|---|
| **[1]: When the vehicle does not accelerate or decelerate according to the preceding vehicle, or when it is difficult to detect the preceding vehicle.** | | | | |
| 1 | Check that the current status applies to the condition that the use of adaptive cruise control is not desired. | | | |
| | 1 | Tire pressure is not correct. | Yes | No |
| | 2 | The vehicle is equipped with the temporary spare tire. | Yes | No |
| | 3 | The vehicle is equipped with worn tire or tires with excessive wear difference. | Yes | No |
| | 4 | The vehicle is equipped with the tires out of specification. | Yes | No |
| | 5 | The suspension has been modified. | Yes | No |
| | 6 | The vehicle is equipped with the tire chain. | Yes | No |
| | 7 | Headlight is dirty or the optical axis is deviated.<br>(The vehicle cannot correctly emit the headlight beam against the object and recognize it.) | Yes | No |
| | 8 | The driving of own vehicle is unstable due to an accident or failure. | Yes | No |
| | 9 | The brake warning light illuminates. | Yes | No |
| | 10 | Vehicle is tilted by the heavy load. | Yes | No |
| | 11 | Passenger capacity is exceeded. | Yes | No |
| | 12 | The vehicle is towing the trailer or other vehicle. | Yes | No |
| | 13 | The vehicle drives on the general road (other than limited highway).<br>(Depending on the road environment (complicated roads etc.), the vehicle may not be able to drive according to the traffic condition, which may lead to the traffic accident.) | Yes | No |
| | 14 | The vehicle drives on the sharp bend. | Yes | No |
| | 15 | The vehicle drives on the slippery roads such as icy road or snow-covered road.<br>(Tires can spin, losing the vehicle control.) | Yes | No |
| | 16 | The vehicle drives under the traffic condition that the certain vehicle distance is difficult to be maintained due to frequent acceleration and deceleration.<br>(The vehicle may not be able to drive according to the traffic condition.) | Yes | No |
| | 17 | There is a steep downhill.<br>(The vehicle may drive at higher speed than the set vehicle speed.) | Yes | No |
| | 18 | The vehicle performs adaptive driving while recognizing the preceding vehicle on the steep downhills.<br>(Brake can be overheated.) | Yes | No |
| | 19 | The vehicle drives on the road with repeated steep uphills and downhills or crossover.<br>(The vehicle may not be able to recognize the preceding vehicle or may recognize the road surface, and appropriate control may not be performed.) | Yes | No |
| | 20 | The vehicle is entering the interchange, service area, parking area, junction or tollgate.<br>(The vehicle may not be able to recognize the preceding vehicle.) | Yes | No |
| | 21 | When the surrounding brightness (such as inlet and outlet of a tunnel) suddenly changes. | Yes | No |
| | 22 | There are water, snow or sandy dust raised by the preceding vehicle or oncoming vehicle, or sand or smoke blown in the wind, or moisture in front of own vehicle.<br>(The vehicle may not be able to recognize the preceding vehicle or may recognize the water, and appropriate control may not be performed.) | Yes | No |
| | 23 | The windshield glass is covered with fog, snow, dirt, frost or sandy dust. | Yes | No |
| | 24 | The raindrops, water drops or dirt on the windshield glass are not wiped off sufficiently.<br>(The vehicle may not be able to recognize the preceding vehicle, and appropriate control may not be performed.) | Yes | No |
| | 25 | Canoes etc. loaded on the roof block the visibility of the stereo camera. | Yes | No |

| | | Item name | Yes/No | |
|---|---|---|---|---|
| 2 | Check that the current status applies to the condition or the object that is hard to be recognized by the stereo camera. | | | |
| | 1 | That was a vehicle with large speed difference (low-speed driving vehicle, stopping vehicle, oncoming vehicle). | Yes | No |
| | 2 | That was a cutting-in vehicle. | Yes | No |
| | 3 | That was a motorcycle, bicycle, pedestrian or animal, etc. | Yes | No |
| | 4 | It was dim in the evening or in the morning. | Yes | No |
| | 5 | The headlight did not illuminate during nighttime hours or inside the tunnel. | Yes | No |
| | 6 | The tail light of the preceding vehicle did not illuminate during nighttime hours or inside the tunnel. | Yes | No |
| | 7 | The vehicle was exposed to the intense light (backlight such as sunlight or headlight high-beam light) from the front of the vehicle. | Yes | No |
| | 8 | The rearmost surface of the preceding vehicle was small, low or uneven.<br>That was a truck equipped with an unloaded platform without gate, a vehicle that the luggage was protruding from the rear end of the vehicle, a vehicle of special shape (carrier car, side car, etc.) or a vehicle with low vehicle height. | Yes | No |
| | 9 | There was an object extremely close to the bumper of the own vehicle. | Yes | No |
| 3 | Check that the current status applies to the driving condition that the preceding vehicle cannot be recognized or the vehicle on the next lane or the object on the roadside may be recognized by mistake. | | | |
| | 1 | The vehicle began adaptive cruise control from the condition that the vehicle distance was short immediately after the preceding vehicle was cut in. | Yes | No |
| | 2 | The vehicle drives on the curve, outlet and inlet of the curve, or the road with many curves in succession. (Recognition may not be performed properly, because the preceding vehicle is out of recognition area.) | Yes | No |
| | 3 | The position against the preceding vehicle deviated laterally. | Yes | No |
| | 4 | There were some objects just near the road side. | | |
| | 5 | The speed difference against the preceding vehicle was large. | Yes | No |
| | 6 | Other vehicle cut ahead of the own vehicle. | Yes | No |
| | 7 | The vehicle distance was extremely short. | Yes | No |
| | 8 | The own vehicle swayed in the vehicle lane. | Yes | No |
| | 9 | The road surface was uneven due to roll or unpaved track. | Yes | No |
| | 10 | The vehicle drove on the narrow lane because of the lane closure or construction work. | Yes | No |
| | 11 | The driving of own vehicle was unstable due to an accident or failure. | Yes | No |
| | 12 | The own vehicle was loaded with the extremely heavy load in the luggage compartment or on the rear seat. | Yes | No |
| **[2]: When braking force is weaker than usual.** | | | | |
| 1 | Check that the current status applies to the condition that brake force may become poor. | | | |
| | 1 | The vehicle status (loading amount, passenger, etc.) was inappropriate. | Yes | No |
| | 2 | The road surface was very steep, slippery, sharp turn, or uneven. | Yes | No |
| | 3 | The service maintenance condition of the vehicle (brake system, tire wear, tire pressure, spare tire, etc.) was inappropriate. | Yes | No |
| | 4 | The brake was cold at low ambient temperature or immediately after the driving had started. | Yes | No |
| | 5 | The symptom occurred between immediately after engine started and after a while the vehicle started driving (Completion of warming up operation can be used as an indication.). | Yes | No |
| | 6 | The brake force becomes poor due to the overheating of the brake on the downhills. | Yes | No |
| | 7 | The brake force becomes poor because of the wet brake after driving onto the puddle or washing the vehicle. | Yes | No |
| **[3]: When the alarm for requiring more brake pedal force does not sound.** | | | | |
| 1 | Check that the current status applies to the condition that the alarm for requiring more brake pedal force does not sound even in a short vehicle distance. | | | |
| | 1 | The speed difference between own vehicle and preceding vehicle (when the vehicle speed of the own vehicle was approximately the same as that of the preceding vehicle) was small. | Yes | No |
| | 2 | The vehicle speed of the preceding vehicle was faster than that of the own vehicle (when the vehicle distance was getting longer). | Yes | No |
| | 3 | Other vehicle cut in extremely close to the own vehicle. | Yes | No |
| | 4 | The preceding vehicle decelerated abruptly. | Yes | No |
| | 5 | There are many continuous uphills and downhills. | Yes | No |

## 6. CHECK LIST (PRE-COLLISION BRAKE)

| Item name | | | Yes/No | |
|---|---|---|---|---|
| **[1]: When pre-collision brake did not operate, or when vehicle could not stop safely before collision in spite of pre-collision brake operation.** | | | | |
| 1 | Check that the current status applies to the condition that the pre-collision brake does not operate, or there is a high possibility that the vehicle cannot stop safely before collision in spite of pre-collision brake operation. | | | |
| | 1 | Conditions such as the followings occurred: 1) Vehicle speed difference with the preceding vehicle is small. 2) Distance from the preceding vehicle is long. 3) Lateral deviation (offset amount) is large. | Yes | No |
| | 2 | The vehicle status (loading amount, number of passenger, etc.) was inappropriate. | Yes | No |
| | 3 | The road surface was very steep, slippery, sharp turn, or uneven. | Yes | No |
| | 4 | There was problem for the frontal visibility (rain, snow, fog, smoke, etc.). | Yes | No |
| | 5 | The objects were livestock, animals, guardrail, telephone pole, tree, fence, wall, etc. | Yes | No |
| | 6 | The object was motorcycle, bicycle, or pedestrian. However, the system could not recognize the object due to surrounding brightness, motion, posture, and/or angle. | Yes | No |
| | 7 | Crash avoidance operation (accelerator pedal, brake pedal, steering wheel, etc.) was performed. | Yes | No |
| | 8 | The service maintenance condition of the vehicle (brake system, tire wear, tire pressure, spare tire, etc.) was inappropriate. | Yes | No |
| | 9 | The vehicle is towing the trailer or other vehicle. | Yes | No |
| | 10 | The brake was cold at low ambient temperature or immediately after the driving had started. | Yes | No |
| | 11 | The brake force becomes poor due to the overheating of the brake on the downhills. | Yes | No |
| | 12 | The brake force becomes poor because of the wet brake after driving onto the puddle or washing the vehicle. | Yes | No |

| | | Item name | Yes/No | |
|---|---|---|---|---|
| 2 | Check that the current status applies to the condition that there is a high possibility that the pre-collision brake does not operate depending on the recognition status of the stereo camera. | | | |
| | 1 | It was bad weather (heavy rain, snowstorm, dense fog). | Yes | No |
| | 2 | The field of view was insufficient due to water, snow or sandy dust raised by the preceding vehicle or oncoming vehicle, or the moisture, sand or smoke blown in the wind. | Yes | No |
| | 3 | The headlight did not illuminate during nighttime hours or inside the tunnel. | Yes | No |
| | 4 | The tail light of the preceding vehicle did not illuminate during nighttime hours or inside the tunnel. | Yes | No |
| | 5 | The vehicle approached the motorcycle, bicycle or pedestrian in the night. | Yes | No |
| | 6 | It was dark in the evening or in the morning. | Yes | No |
| | 7 | The rearmost surface of the preceding vehicle was small, low or uneven.<br>That was a truck equipped with an unloaded platform without gate, a vehicle that the luggage was protruding from the rear end of the vehicle, a vehicle of special shape (carrier car, side car, etc.) or a vehicle with low vehicle height. | Yes | No |
| | 8 | There was a wall in front of the stopping vehicle. | Yes | No |
| | 9 | There was an object close to the vehicle. | Yes | No |
| | 10 | That was a vehicle stopped sideways. | Yes | No |
| | 11 | That was a vehicle which was oncoming or driving in reverse. | Yes | No |
| | 12 | The object was small seen from the stereo camera. (small animals, infants, person squatting down or lying down) | Yes | No |
| | 13 | The preceding vehicle made a sharp turn, or performed abrupt acceleration or deceleration. | Yes | No |
| | 14 | Other vehicle, motorcycle, bicycle or pedestrian existed extremely close to the bumper of the own vehicle. | Yes | No |
| | 15 | The speed difference was 5 km/h (3.1 MPH) or less.<br>(The control is performed in close distance. Depending on the objects shape and size, the rear end surface may be outside the camera visibility area.) | Yes | No |
| | 16 | Other vehicle, motorcycle, bicycle or pedestrian cut in from the side or jumped in front of the own vehicle. | Yes | No |
| | 17 | The own vehicle changed the vehicle lane, and followed the preceding vehicle right behind. | Yes | No |
| | 18 | The vehicle was exposed to the intense light (backlight such as sunlight or headlight high-beam light) from the front of the vehicle. | Yes | No |
| | 19 | The windshield glass was covered with fog, snow, dirt, frost or sandy dust. | Yes | No |
| | 20 | The windshield glass has not yet been wiped off sufficiently during or after the use of the window washer. | Yes | No |
| | 21 | The recognition of the object was imperfect due to the raindrop or droplet of the window washer or the wiper blade blocking the visibility of the stereo camera. | Yes | No |
| | 22 | Canoes etc. loaded on the roof blocked the visibility of the stereo camera. | Yes | No |
| | 23 | Other vehicle, motorcycle, bicycle or pedestrian existed out of the illuminating area of the headlight. | Yes | No |
| | 24 | The vehicle drove on the sharp turn, steep uphills or steep downhills. | Yes | No |
| | 25 | The road surface was uneven due to roll or unpaved track. | Yes | No |
| | 26 | The vehicle passed through the outlet or inlet of a tunnel. | Yes | No |
| | 27 | The object was fence or wall. | Yes | No |
| | 28 | The object was a plate of glass, mirror wall or door. | Yes | No |
| 3 | Check that the current status applies to the condition that the system does not operate correctly and the turning OFF of the pre-collision brake is desired. | | | |
| | 1 | Tire pressure is not correct. | Yes | No |
| | 2 | The vehicle is equipped with the temporary spare tire. | Yes | No |
| | 3 | The vehicle is equipped with worn tire or tires with excessive wear difference. | Yes | No |
| | 4 | The vehicle is equipped with the tires out of specification. | Yes | No |
| | 5 | The suspension has been modified. | Yes | No |
| | 6 | The vehicle is equipped with the tire chain. | Yes | No |
| | 7 | Headlight is dirty or the optical axis is deviated. (The vehicle cannot correctly emit the headlight beam against the object and recognize it.) | Yes | No |
| | 8 | The driving status of own vehicle is unstable due to an accident or failure. | Yes | No |
| | 9 | The brake warning light illuminates. | Yes | No |
| | 10 | Vehicle is tilted by the heavy load. Or, passenger capacity is exceeded. | Yes | No |

| | | Item name | Yes/No | |
|---|---|---|---|---|
| 4 | Check that the current status applies to the condition that the pre-collision brake OFF indicator light illuminates. (When the pre-collision brake OFF indicator light illuminates, the pre-collision brake does not operate.) | | | |
| | 1 | The pre-collision brake is turned off, using the pre-collision brake OFF switch. | Yes | No |
| | 2 | Approximately for 7 seconds after the engine has started. | Yes | No |
| | 3 | EyeSight is malfunctioning. | Yes | No |
| | 4 | EyeSight is stopped temporarily. | Yes | No |
| **[2]: When pre-collision brake operated improperly.** | | | | |
| 1 | Check that the current status applies to the condition that turning OFF of the pre-collision brake is desired. | | | |
| | 1 | The vehicle is towed. | Yes | No |
| | 2 | The vehicle is loaded on the carrier car. | Yes | No |
| | 3 | The chassis dynamometer or free roller is used. | Yes | No |
| | 4 | The vehicle is lifted up, engine is started and the tire is spun. | Yes | No |
| | 5 | The vehicle passes through the banners, flags, drooping branches or grass while making contact with them. | Yes | No |
| | 6 | The vehicle performs sporty driving on the circuit. | Yes | No |
| | 7 | When the vehicle uses the movable type car wash machine. | Yes | No |
| 2 | Check that the current status applies to the condition that the pre-collision brake may operate. | | | |
| | 1 | The vehicle passes through the ETC gate at a speed exceeding the specification. | Yes | No |
| | 2 | The vehicle drives close to the preceding vehicle. | Yes | No |
| | 3 | The vehicle drives on the place where the road surface gradient changed suddenly. | Yes | No |
| | 4 | The vehicle passes through the moisture or mass of smoke. | Yes | No |
| | 5 | When the exhaust gas emitted from the preceding vehicle is visible clearly at cold weather. | Yes | No |
| | 6 | There is an obstacle on the curve or crossing. | Yes | No |
| | 7 | The vehicle passes through close to other vehicle or obstacle. | Yes | No |
| | 8 | The vehicle parks close to the wall in front or to other vehicle. | Yes | No |

## 7. CHECK LIST (AT RAPID START PREVENTION CONTROL)

| Item name | | | Yes/No | |
|---|---|---|---|---|
| **[1]: When AT rapid start prevention control did not operate.** | | | | |
| 1 | Check that the current status applies to the condition that the AT rapid start prevention control may not operate. | | | |
| | 1 | Conditions such as the followings occurred: 1) Distance from the front object is long. 2) Vehicle speed difference is small. 3) Lateral deviation (offset amount) is large. | Yes | No |
| | 2 | It was bad weather (heavy rain, snowstorm, dense fog). | Yes | No |
| | 3 | The visibility was insufficient due to sand or smoke blown in the air. | Yes | No |
| | 4 | The vehicle approached the object in the evening, in the morning or in the night. | Yes | No |
| | 5 | The vehicle approached the object in the dark place (e.g. closed-in parking lot). | Yes | No |
| | 6 | The height of the object was low.<br>(low wall, low guardrail, vehicle with low height etc.) | Yes | No |
| | 7 | The object was small seen from the stereo camera.<br>(Small animals, infants, person squatting down or lying down) | Yes | No |
| | 8 | The object or rearmost area of the preceding vehicle (trailer, etc.) was small. Or the vehicle approached them too close.<br>(The system triggers the operation by recognizing the area other than the rearmost section, resulting in insufficient control.) | Yes | No |
| | 9 | The object such as other vehicle, motorcycle, bicycle or pedestrian cut in from the side or jumped in front of the own vehicle. | Yes | No |
| | 10 | The own vehicle changed the vehicle lane when it started, and approached right behind the object. | Yes | No |
| | 11 | The vehicle was exposed to the intense light (backlight such as sunlight or headlight high-beam light) from the front of the vehicle. | Yes | No |
| | 12 | The windshield glass was covered with fog, snow, dirt, frost or sandy dust. | Yes | No |
| | 13 | The windshield glass has not yet been wiped off sufficiently during or after the use of the window washer. | Yes | No |
| | 14 | The recognition of the object was imperfect due to the raindrop or droplet of the window washer or the wiper blade blocking the visibility of the stereo camera. | Yes | No |
| | 15 | Canoes etc. loaded on the roof blocked the visibility of the stereo camera. | Yes | No |
| | 16 | The object existed out of the illuminating area of the headlight. | Yes | No |
| | 17 | The vehicle drove on the sharp turn, steep uphills or steep downhills. | Yes | No |
| | 18 | The object was a fence or wall with even pattern (striped pattern or bricks) or unpatterned surface. | Yes | No |
| | 19 | The object was a plate of glass, mirror wall or door. | Yes | No |
| | 20 | Crash avoidance operation (accelerator pedal, brake pedal, steering wheel, etc.) was performed. | Yes | No |
| 2 | Check that the current status applies to the condition that the pre-collision brake OFF indicator light illuminates. (When the pre-collision brake OFF indicator light illuminates, the AT rapid start prevention control does not operate.) | | | |
| | 1 | The pre-collision brake was turned off, using the pre-collision brake OFF switch. | Yes | No |
| | 2 | Approximately for 7 seconds after the engine has started. | Yes | No |
| | 3 | EyeSight is malfunctioning. | Yes | No |
| | 4 | EyeSight is stopped temporarily. | Yes | No |

| | | Item name | Yes/No | |
|---|---|---|---|---|
| **[2]: When AT rapid start prevention control operated improperly.** | | | | |
| 1 | Check that the current status applies to the condition that the releasing of the AT rapid start prevention control is desired. | | | |
| | 1 | The vehicle is towed. | Yes | No |
| | 2 | The vehicle is loaded on the carrier car. | Yes | No |
| | 3 | The chassis dynamometer or free roller is used. | Yes | No |
| | 4 | The vehicle is lifted up, engine is started and the tire is spun. | Yes | No |
| | 5 | The vehicle passes through the banners, flags, drooping branches or grass while making contact with them. | Yes | No |
| | 6 | The vehicle performs sporty driving on the circuit. | Yes | No |
| 2 | Check that the current status applies to the condition that the AT rapid start prevention control may operate. | | | |
| | 1 | The vehicle passes through the ETC gate at a speed exceeding the specification. | Yes | No |
| | 2 | The vehicle drives close to the preceding vehicle. | Yes | No |
| | 3 | The vehicle drives on the place where the road surface gradient changed suddenly. | Yes | No |
| | 4 | The vehicle passes through the moisture or mass of smoke. | Yes | No |
| | 5 | There is an obstacle on the curve or crossing. | Yes | No |
| | 6 | The vehicle passes through close to other vehicle or obstacle. | Yes | No |
| | 7 | The vehicle parks close to the wall in front or to other vehicle. | Yes | No |

## 8. CHECK LIST (LANE DEPARTURE WARNING, SWAY WARNING, FORWARD VEHICLE'S START MONITORING FUNCTION)

| | | Item name | Yes/No | |
|---|---|---|---|---|
| **[1]: When the lane departure warning did not operate.** | | | | |
| 1 | Check that the current status applies to the condition that the lane departure warning does not operate or is difficult to operate. | | | |
| | 1 | The lane departure warning is turned off. | Yes | No |
| | 2 | The vehicle speed of the own vehicle is approximately less than 50 km/h (31 MPH). | Yes | No |
| | 3 | That was approximately 7 seconds period after the lane departure warning had occurred once. | Yes | No |
| | 4 | The steering wheel was turned fully or rapidly. | Yes | No |
| | 5 | The brake pedal is depressed. | Yes | No |
| | 6 | The vehicle is accelerated by depressing the accelerator pedal. | Yes | No |
| | 7 | The vehicle distance from the preceding vehicle is short. | Yes | No |
| | 8 | That was approximately 7 seconds period while the turn signal indicator was operating or after the lever was returned. | Yes | No |
| | 9 | The vehicle has not returned inside the vehicle lane after the operation of the lane departure warning. | Yes | No |
| | 10 | The width of the vehicle lane is narrow. | Yes | No |
| | 11 | The vehicle lane is difficult to be recognized seen from the stereo camera.<br>(Lane line (white line, etc.) does not exist or is fading out. Or the color of the lane line is very similar to that of the road surface, and difficult to be seen. Or the width of the lane line is very thin.) | Yes | No |
| | 12 | The preceding vehicle performed crash avoidance action to avoid the obstacle, and the own vehicle performed steering operation after the preceding vehicle. | Yes | No |
| 2 | Check that the current status applies to the condition that the lane departure warning OFF indicator light illuminates.<br>(When the lane departure warning OFF indicator light illuminates, the lane departure warning does not operate.) | | | |
| | 1 | The lane departure warning is turned off, using the lane departure warning OFF switch. | Yes | No |
| | 2 | Approximately for 7 seconds after the engine has started. | Yes | No |
| | 3 | EyeSight is malfunctioning. | Yes | No |
| | 4 | EyeSight is stopped temporarily. | Yes | No |

| | | Item name | Yes/No | |
|---|---|---|---|---|
| **[2]: When the lane departure warning malfunctioned.** | | | | |
| 1 | Check that the current status applies to the condition that the vehicle lane is recognized erroneously and the lane departure warning may operate. | | | |
| | 1 | There was the tire track on the wet road or snow-covered road. | Yes | No |
| | 2 | There was the boundary line between snow-covered area and asphalt or on the trace of road repair. | Yes | No |
| | 3 | There was the double vehicle lane. | Yes | No |
| | 4 | The shadow of the guardrail was detected by mistake. | Yes | No |
| **[3]: When the sway warning did not operate.** | | | | |
| 1 | Check that the current status applies to the condition that the sway warning may not operate. | | | |
| | 1 | The vehicle drove on the road with many curves in succession. | Yes | No |
| | 2 | The vehicle speed changed greatly. | Yes | No |
| | 3 | That was immediately after the vehicle lane had changed. | Yes | No |
| | 4 | The vehicle lane was difficult to be recognized seen from the stereo camera.<br>(Lane line (white line, etc.) does not exist or is fading out. Or the color of the lane line is very similar to that of the road surface, and difficult to be seen. Or the width of the lane line is very thin.) | Yes | No |
| | 5 | That was immediately after the sway had begun. | Yes | No |
| 2 | Check that the current status applies to the condition that the lane departure warning OFF indicator light illuminates.<br>(When the lane departure warning OFF indicator light illuminates, the sway warning does not operate.) | | | |
| | 1 | The lane departure warning is turned off, using the lane departure warning OFF switch. | Yes | No |
| | 2 | Approximately for 7 seconds after the engine has started. | Yes | No |
| | 3 | EyeSight is malfunctioning. | Yes | No |
| | 4 | EyeSight is stopped temporarily. | Yes | No |
| **[4]: When the sway warning malfunctioned.** | | | | |
| 1 | Check that the current status applies to the condition that the sway warning may operate. | | | |
| | 1 | That was after the sway had stopped. | Yes | No |
| | 2 | The driver lost concentration on driving the vehicle due to fatigue or looking away. | Yes | No |
| **[5]: When the forward vehicle's start monitoring function did not operate or when it malfunctioned.** | | | | |
| 1 | Check that the current status applies to the condition that the forward vehicle's start monitoring function does not operate even when the preceding vehicle has already started, or that the forward vehicle's start monitoring function operates even when the preceding vehicle has not yet started. | | | |
| | 1 | The motorcycle cut in the space between the own vehicle and the stopped preceding vehicle. | Yes | No |
| | 2 | The vehicle could not recognize the preceding vehicle properly due to the weather condition or road shape. | Yes | No |
| | 3 | The stereo camera lost sight of the preceding vehicle. | Yes | No |
| | 4 | The driver did not depress the brake pedal with select lever in D, M or N range.<br>(At this time, forward vehicle's start monitoring function does not operate.) | Yes | No |
| | 5 | The forward vehicle's start monitoring function was turned OFF via the customization function. | Yes | No |

## B: CHECK ADAPTIVE CRUISE CONTROL INDICATOR LIGHT/CONSTANT SPEED CRUISE CONTROL INDICATOR LIGHT AND CRUISE SET INDICATOR LIGHT

**TROUBLE SYMPTOM:**
Adaptive cruise control or conventional cruise control can be set, but adaptive cruise control indicator light/constant speed cruise control indicator light and cruise SET indicator light do not illuminate.

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK ADAPTIVE CRUISE CONTROL INDICATOR LIGHT/CONSTANT SPEED CRUISE CONTROL INDICATOR LIGHT AND CRUISE SET INDICATOR LIGHT.**<br>Check the combination meter. <Ref. to IDI(diag)-21, OPERATION, System Operation Check Mode.> | Does adaptive cruise control indicator light/constant speed cruise control indicator light and cruise SET indicator light illuminate? | Go to step **2**. | Replace the meter case assembly. <Ref. to IDI-20, Combination Meter.> |
| 2 | **CHECK LAN SYSTEM.**<br>Perform the diagnosis for LAN system. <Ref. to LAN(w/o HEV)(diag)-2, Basic Diagnostic Procedure.> | Is there any fault? | Perform the diagnosis according to diagnosis for LAN system. | Replace the stereo camera. <Ref. to ES-7, REMOVAL, Stereo Camera.> |

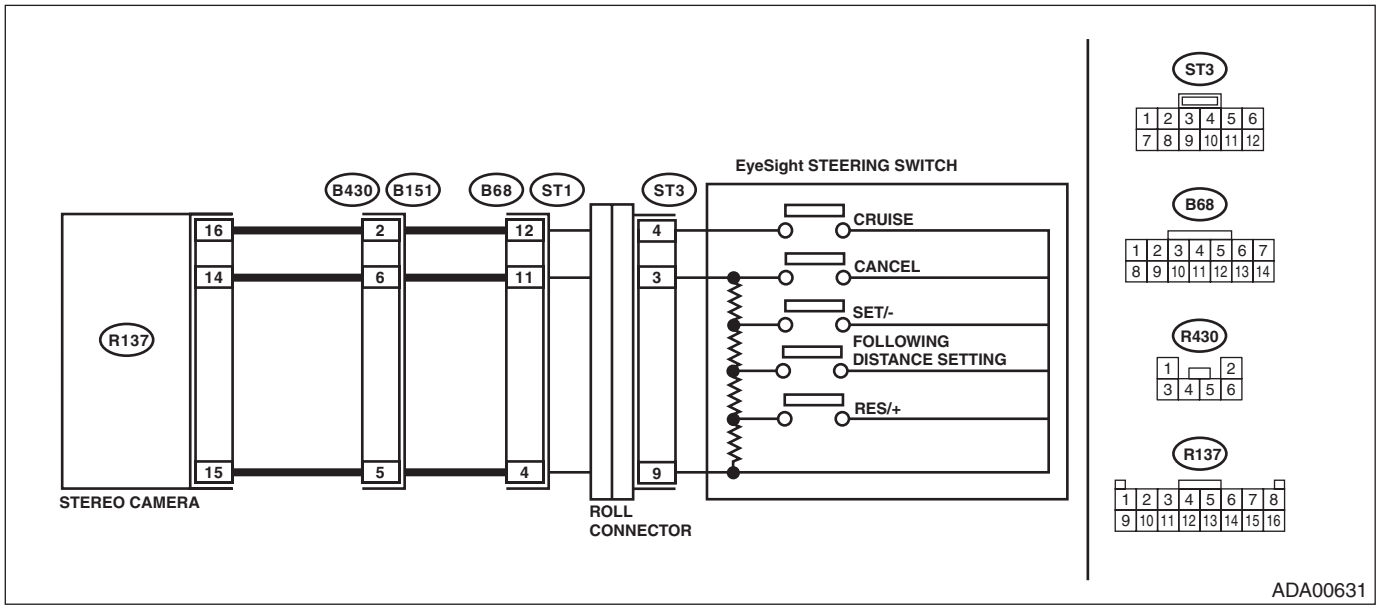
## C: CHECK EyeSight STEERING SWITCH

**TROUBLE SYMPTOM:**

- Cruise control cannot be set. (Cancelled immediately.)
- Cruise control cannot be released.

**WIRING DIAGRAM:**

EyeSight System <Ref. to WI(w/o HEV)-126, WIRING DIAGRAM, EyeSight System.>




| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK EyeSight STEERING SWITCH CIRCUIT.**<br>1) Remove the driver's airbag module. <Ref. to AB-32, REMOVAL, Driver's Airbag Module.><br>2) Disconnect the EyeSight steering switch harness connector.<br>3) Turn the ignition switch to ON.<br>4) Measure the voltage between harness connector terminal and chassis ground.<br>***Connector & terminal***<br>***(ST3) No. 3 (+) — Chassis ground (–):***<br>***(ST3) No. 4 (+) — Chassis ground (–):*** | Is the voltage 5 V or more? | Go to step **2**. | Check for open/short circuit or poor contact in the harness between EyeSight steering switch and ECM and in the steering roll connector. |
| 2 | **CHECK EyeSight STEERING SWITCH CIRCUIT.**<br>1) Turn the ignition switch to OFF.<br>2) Remove the EyeSight steering switch. <Ref. to ES-33, Cruise Control Command Switch.><br>3) Measure the resistance between harness connector terminal and chassis ground.<br>***Connector & terminal***<br>***(ST3) No. 9 — Chassis ground:*** | Is the resistance less than 10 Ω? | Go to step **3**. | Check for open circuit between EyeSight steering switch and chassis ground. |
| 3 | **CHECK EyeSight STEERING SWITCH.**<br>Check EyeSight steering switch. <Ref. to ES-33, Cruise Control Command Switch.> | Is the EyeSight steering switch normal? | Replace the ECM. <Ref. to FU(H4DO(w/o HEV))-100, REMOVAL, Engine Control Module (ECM).> | Replace the EyeSight steering switch. <Ref. to ES-33, Cruise Control Command Switch.> |

# 13.EyeSight Temporary Code(s) Display

## A: OPERATION

If the EyeSight pause code is detected from the stereo camera, all the functions of the EyeSight excluding the conventional cruise control stop temporarily and cannot be used. When the failure is resolved, the function starts operating.

1) On «Main Menu» display, select «Each System Check».
2) On «System Selection Menu» display, select «ADA adaptive cruise control system».
3) On «ADA adaptive cruise control system» display, select «EyeSight (from 2009MY)».
4) On «EyeSight (from 2009MY)» display, select «EyeSight Temporary Code(s) Display».

NOTE:

- For detailed operation procedures, refer to “PC application help for Subaru Select Monitor”.
- Temporary stop is not released even if the lane departure warning OFF switch or pre-collision brake OFF switch is pressed.
- Depending on the situation, temporary stop may not be released even if the ignition switch is turned off.
- Up to 20 codes can be stored.
- Stored codes will be cleared by Clear Memory.
- For details on EyeSight temporary stop codes, refer to List of ACC cancel code. <Ref. to ES(diag)-64, LIST, EyeSight Temporary Code(s) Display.>

## B: LIST

- List of EyeSight temporary stop code

| EyeSight pause code | Item | Contents of diagnosis | Reference |
|---|---|---|---|
| E5 | Camera temporary stop | The operation stopped temporarily due to vertical deviation of the optical axis of the stereo camera. (During CRUISE MAIN ON, “EyeSight Disabled Check Manual” is displayed in the multi-information display.) | Perform inspection concerning the item for E5 of the “CHECK LIST (CAMERA TEMPORARY STOP)”. <Ref. to ES(diag)-66, CHECK LIST (CAMERA TEMPORARY STOP), LIST, EyeSight Temporary Code(s) Display.><br>This code may be displayed when the rear of the vehicle is lowered by the overload. When the failure is resolved, and the operation returns from the temporary stop status after driving for a while, it is normal. If this item is displayed in an ordinary use under which the vehicle is not tilted, readjust the stereo camera. <Ref. to ES-12, PROCEDURE, Camera Adjustment, Inspection.><br>If the same cancel code is still detected after readjustment, replace the stereo camera. <Ref. to ES-7, REMOVAL, Stereo Camera.> |
| CC<br>CD | | Temporary stop was performed due to the bad weather, backlight, fogged window or dirty window interfering with the recognition function of the stereo camera. And this code may be displayed also when the front of the camera is blocked by the hand or when it is very dark around the vehicle or when the vehicle is surrounded by the blanket of snow and nothing can be seen from the stereo camera. (During CRUISE MAIN ON, “EyeSight Disabled No Camera View” is displayed in the multi-information display.) | Investigate the following items No. 1 and No. 2, and check that the possible cause of the temporary stop is applied either to No. 1 or No. 2.<br>1. Perform inspection concerning the item for CC and CD of the “CHECK LIST (CAMERA TEMPORARY STOP)”. <Ref. to ES(diag)-66, CHECK LIST (CAMERA TEMPORARY STOP), LIST, EyeSight Temporary Code(s) Display.><br>When there is a relevant item in the check list, it can be the cause of malfunction.<br>2. Read the temporary stop count stored in the temporary stop count of current data, and check the cause of the temporary stop occurred in the past from “LIST OF CONTENTS FOR CAMERA TEMPORARY STOP: 0 — 23 COUNTS”. <Ref. to ES(diag)-68, LIST OF CONTENTS FOR CAMERA TEMPORARY STOP, LIST, EyeSight Temporary Code(s) Display.><br>When the causes of the temporary stop for No. 1 and No. 2 correspond, drive the vehicle for a while after the cause of the temporary stop has been eliminated. If the operation returns from the temporary stop status, it is normal. (However, when the temporary stop takes place and is cancelled repeatedly, the temporary stop status is kept for a while to delay the return of the operation, which prevents the irritation.) When this is not the case, check the stereo camera and its periphery. <Ref. to ES(diag)-7, WINDSHIELD GLASS AND DASHBOARD, INSPECTION, General Description.> <Ref. to ES(diag)-11, FRONT WIPER, INSPECTION, General Description.> <Ref. to ES(diag)-12, STEREO CAMERA, INSPECTION, General Description.> |

# EyeSight Temporary Code(s) Display

| EyeSight pause code | Item | Contents of diagnosis | Reference |
|---|---|---|---|
| CE | Camera temporary stop | The temperature of the stereo camera became excessively high or low, and the operation stopped temporarily. (During CRUISE MAIN ON, “EyeSight Disabled Temp Range” is displayed in the multi-information display.) | Perform inspection concerning the item for CE of the “CHECK LIST (CAMERA TEMPORARY STOP)”. <Ref. to ES(diag)-66, CHECK LIST (CAMERA TEMPORARY STOP), LIST, EyeSight Temporary Code(s) Display.><br>When the failure is resolved, and the operation returns from the temporary stop status, it is normal. When the operation does not return from the temporary status even if driving the vehicle for a while after the failure has been resolved, replace the stereo camera. <Ref. to ES-7, REMOVAL, Stereo Camera.> |
| 33 | | Detected when engine speed is 300 rpm or less.<br>(Not detected at an initial ignition switch ON.)<br>(During CRUISE MAIN ON, “EyeSight Disabled Check Manual” is displayed in the multi-information display.) | Detected when the engine speed drops below 300 rpm after the engine has started once. (except during Auto Start Stop operation)<br>However, this code is detected when the seat belt is unfastened during Auto Start Stop operation or when the door is opened. If the same EyeSight temporary stop code is detected again when the engine is restarted, check the ECM. <Ref. to EN(H4DO w/o HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.> |
| C0 | Pre-Collision Second Braking Activation | Because the pre-collision secondary brake operated three times between engine starting and stopping, the temporary stop is performed. (This is not a normal driving operation, or the system may be malfunctioning.) (During CRUISE MAIN ON, “EyeSight Disabled Check Manual” is displayed in the multi-information display.) | This code may be displayed when the pre-collision brake is operated intentionally. Turn the ignition switch to OFF, and restart after a while. If the operation returns from the temporary stop status, it is normal. When temporary stop status continues with a code other than C0 after restart, perform diagnosis according to the code. When temporary stop status continues with the code of C0 after restart, the stereo camera may be malfunctioning. Replace the stereo camera. <Ref. to ES-7, REMOVAL, Stereo Camera.> |
| A0 | CAN Diagnosis Inhibition | The voltage dropped below 10 V immediately after IGN ON. (During CRUISE MAIN ON, “EyeSight Disabled Check Manual” is displayed in the multi-information display.) | This code may be displayed when the engine is not started for a while with the ignition switch ON and when the engine has started after that. This is a normal operation. If this is not the case, the supply voltage may be malfunctioning.<br><Ref. to ES(diag)-78, DTC B2814 POWER SUPPLY VOLT ERROR, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| A1 | ECM Reprogramming | Because the control module (CM) is being reprogrammed, temporary stop is performed. (During CRUISE MAIN ON, “EyeSight Disabled Check Manual” is displayed in the multi-information display.) | After the completion of the reprogramming operation, turn the ignition to OFF and restart. If the operation returns from the temporary stop status, it is normal. |

## 1. CHECK LIST (CAMERA TEMPORARY STOP)

Even when the set status of the adaptive cruise control is canceled or when a temporary stop status occurs, the EyeSight temporary stop code will not be retained for the following conditions.

- When the lane departure warning is stopped by pressing the lane departure warning OFF switch
- Immediately after the engine start

When these cases does not apply but the EyeSight temporary stop code is displayed, perform the inspection according to the following items.

| Item name | | | Yes/No | |
|---|---|---|---|---|
| [1]: EyeSight temporary stop code [CC, CD] (At this time, “EyeSight Disabled No Camera View” is displayed in the multi-information display.) | | | | |
| 1 | Check that the current status applies to the condition that are difficult to be recognized by the stereo camera. | | | |
| | 1 | It was bad weather (heavy rain, snowstorm, dense fog; especially when the oil film adheres to the windshield glass, the glass coating agent is used, or when the old wiper is used). | Yes | No |
| | 2 | The vehicle was exposed to the intense light (backlight such as sunlight or headlight high-beam light) from the front of the vehicle. | Yes | No |
| | 3 | The raindrops, water drops or dirt on the windshield glass are not wiped off sufficiently. | Yes | No |
| | 4 | The windshield glass is covered with fog, snow, dirt, frost or sandy dust, and either of them blocks the visibility of the stereo camera. | Yes | No |
| | 5 | The vehicle was tilted excessively by the heavy load. | Yes | No |
| | 6 | Canoes etc. loaded on the roof blocked the visibility of the stereo camera. | Yes | No |
| | 7 | The field of view was insufficient due to water or snow raised by the preceding vehicle or oncoming vehicle, or the moisture, sand, smoke or sandy dust blown in the wind. | Yes | No |
| | 8 | The vehicle passed through the outlet or inlet of a tunnel. | Yes | No |
| | 9 | The rearmost area of preceding vehicle was small (trailer, etc.), low or uneven. | Yes | No |
| | 10 | The object was a fence or wall with even pattern (striped pattern or bricks) or unpatterned surface. | Yes | No |
| | 11 | The object was a plate of glass, mirror wall or door. | Yes | No |
| | 12 | The tail light of the preceding vehicle did not illuminate during nighttime hours or inside the tunnel. | Yes | No |
| | 13 | The vehicle passed through the banners, flags, drooping branches or grass. | Yes | No |
| | 14 | The vehicle drove on the steep uphills or steep downhills. | Yes | No |
| | 15 | Front of the camera was blocked by the hand. | Yes | No |
| | 16 | It was very dark and there was no obstacle around the vehicle. | Yes | No |
| | 17 | The surrounding ground surface was similarly colored. (There is snow as far as the eye can see.) | Yes | No |
| | 18 | Dirt such as fingerprint adhered to the lens portion of the stereo camera. | Yes | No |
| | 19 | Stable recognition was difficult because of reflection to the windshield glass. | Yes | No |
| | 20 | The stereo camera was subject to impact, and the displacement or distortion occurred. | Yes | No |
| [2]: EyeSight temporary stop code [CE] (At this time, “EyeSight Disabled Temp Range” is displayed in the multi-information display.) | | | | |
| 1 | Check that the current status applies to the condition that the temperature of the stereo camera becomes excessively high or low. | | | |
| | 1 | The compartment temperature was high. (For example: The vehicle was left under the scorching sun.) Or the compartment temperature was low. (For example: The vehicle was left under the frigid environment.) | Yes | No |
| [3]: EyeSight temporary stop code [E5] (At this time, “EyeSight Disabled Check Manual” is displayed in the multi-information display.) | | | | |
| 1 | Check that the current status applies to the condition that the vertical deviation occurs on the stereo camera optical axis. | | | |
| | 1 | The vehicle was tilted excessively by the heavy load. | Yes | No |
| | 2 | The vehicle drove on the steep uphills or steep downhills. | Yes | No |
| | 3 | The stereo camera was subject to impact, and the displacement or distortion occurred. | Yes | No |

# EyeSight Temporary Code(s) Display

| | Item name | Yes/No | |
|---|---|---|---|
| [4]: EyeSight temporary stop code [33] (At this time, “EyeSight Disabled Check Manual” is displayed in the multi-information display.) | | | |
| 1 | Check that the current status applies to the condition that the engine speed drops to 300 rpm or below. | Yes | No |
| [5]: EyeSight temporary stop code [C0] (At this time, “EyeSight Disabled Check Manual” is displayed in the multi-information display.) | | | |
| 1 | Check that the current status applies to the condition that the pre-collision secondary brake operated three times between starting and stopping of engine. | Yes | No |
| [6]: EyeSight temporary stop code [A0] (At this time, “EyeSight Disabled Check Manual” is displayed in the multi-information display.) | | | |
| 1 | Check that the current status applies to the condition that the voltage dropped below 10 V immediately after the ignition ON. | Yes | No |
| [7]: EyeSight temporary stop code [A1] (At this time, “EyeSight Disabled Check Manual” is displayed in the multi-information display.) | | | |
| 1 | Check that the control module (CM) is currently being reprogrammed. | Yes | No |

## 2. LIST OF CONTENTS FOR CAMERA TEMPORARY STOP

Read the camera temporary stop count from Current Data Display & Save of Subaru Select Monitor, estimate the possible cause of the temporary stop according to the chart below. (After clearing the memory, the number of occurrences for each temporary stop is accumulated.)

| Displayed item | Main causes | Possible conditions for temporary stop (including events occurring less frequently) |
|---|---|---|
| Camera temporary stop 0 count | Front of the camera is blocked by hand, dirty window glass | Backlight, dirty window glass, fogged window glass, frost on the window glass, oil film on the window glass, raindrop adhering to the window glass, fingerprint adhering to the lens, deteriorated wiper, front of the camera is blocked by hand, bad weather (heavy rain, snowstorm, dense fog), unpatterned wall, water or snow raised by preceding vehicle |
| Camera temporary stop 1 count | Front of the camera is blocked by hand, dirty window glass | Backlight, dirty window glass, fogged window glass, frost on the window glass, oil film on the window glass, raindrop adhering to the window glass, fingerprint adhering to the lens, deteriorated wiper, front of the camera is blocked by hand, bad weather (heavy rain, snowstorm, dense fog), water or snow raised by preceding vehicle, very dark and no obstacle around the vehicle, unpatterned wall, blanket of snow around the vehicle and no obstacle is found |
| Camera temporary stop 2 count | Fogged window glass, frost on the window glass | Dirty window glass, fogged window glass, frost on the window glass, oil film on the window glass, raindrop adhering to the window glass, fingerprint adhering to the lens, deteriorated wiper, front of the camera is blocked by hand, bad weather (heavy rain, snowstorm, dense fog), unpatterned wall, water or snow raised by preceding vehicle |
| Camera temporary stop 3 count | Backlight | Backlight, dirty window glass, fogged window glass, frost on the window glass, oil film on the window glass, raindrop adhering to the window glass, fingerprint adhering to the lens, deteriorated wiper, bad weather (heavy rain, snowstorm, dense fog), unpatterned wall, water or snow raised by preceding vehicle |
| Camera temporary stop 4 count | Water raised by preceding vehicle | Backlight, dirty window glass, fogged window glass, frost on the window glass, oil film on the window glass, raindrop adhering to the window glass, fingerprint adhering to the lens, deteriorated wiper, front of the camera is blocked by hand, bad weather (heavy rain, snowstorm, dense fog), unpatterned wall, water or snow raised by preceding vehicle, use of the window washer |
| Camera temporary stop 5 count | Dirty window glass, fogged window glass, oil film on the window glass | Dirty window glass, fogged window glass, frost on the window glass, oil film on the window glass, raindrop adhering to the window glass, fingerprint adhering to the lens, deteriorated wiper, bad weather (heavy rain, snowstorm, dense fog), water or snow raised by preceding vehicle |
| Camera temporary stop 6 count | Storm of rain | Dirty window glass, fogged window glass, frost on the window glass, oil film on the window glass, raindrop adhering to the window glass, fingerprint adhering to the lens, deteriorated wiper, bad weather (heavy rain, snowstorm, dense fog), water or snow raised by preceding vehicle, use of the window washer |
| Camera temporary stop 7 count | Object on the dashboard reflected against the windshield glass | Object on the dashboard reflected against the windshield glass, snowstorm |
| Camera temporary stop 8 count | Dirty window glass, bad weather | Backlight, dirty window glass, fogged window glass, frost on the window glass, oil film on the window glass, raindrop adhering to the window glass, fingerprint adhering to the lens, deteriorated wiper, front of the camera is blocked by hand, object on the dashboard reflected against the windshield glass, bad weather (heavy rain, snowstorm, dense fog), unpatterned wall, water drop raised by preceding vehicle, steep slope, continuous sharp curve, banner, grass, preceding vehicle with large uneven surface (trailer, etc.), preceding vehicle driving in the night without illuminating the tail light, preceding vehicle with snow adhered, use of the window washer |
| Camera temporary stop 9 count | Not used | — |
| Camera temporary stop 10 count | Not used | — |
| Camera temporary stop 11 count | Not used | — |

# EyeSight Temporary Code(s) Display

| Displayed item | Main causes | Possible conditions for temporary stop (including events occurring less frequently) |
|---|---|---|
| Camera temporary stop 12 count | Camera has been deformed by hitting it. | The stereo camera was subject to impact, and the displacement or distortion occurred. |
| Camera temporary stop 13 count | Not used | — |
| Camera temporary stop 14 count | Not used | — |
| Camera temporary stop 15 count | Not used | — |
| Camera temporary stop 16 count | Not used | — |
| Camera temporary stop 17 count | Not used | — |
| Camera temporary stop 18 count | Not used | — |
| Camera temporary stop 19 count | Not used | — |
| Camera temporary stop 20 count | Not used | — |
| Camera temporary stop 21 count | The vehicle is tilted excessively by the heavy load. | • The vehicle is tilted excessively by the heavy load.<br>• The vehicle drives on the steep uphills or steep downhills.<br>• The stereo camera was subject to impact, and the displacement or distortion occurred. |
| Camera temporary stop 22 count | Camera has been deformed by hitting it. | The stereo camera was subject to impact, and the displacement or distortion occurred. |
| Camera temporary stop 23 count | Camera has been deformed by hitting it. | The stereo camera was subject to impact, and the displacement or distortion occurred. |
| Camera temporary stop 24 count | Camera has been deformed by hitting it. | The stereo camera was subject to impact, and the displacement or distortion occurred. |
| Camera temporary stop 25 count | Camera has been deformed by hitting it. | The stereo camera was subject to impact, and the displacement or distortion occurred. |
| Camera temporary stop 26 count | Dirty window glass left for a long time | Dirty window glass, fogged window glass, frost on the window glass, raindrop adhering to the window glass, fingerprint adhering to the lens |
| Camera temporary stop 27 count | Not used | — |
| Camera temporary stop 28 count | Can't see anything in a complete darkness. | The vehicle drove in a complete darkness with the headlight turned off. Or, the camera was blinded when driving. |
| Camera temporary stop 29 count | Not used | — |
| Camera temporary stop 30 count | Not used | — |
| Camera temporary stop 31 count | In a high temperature of 70°C (158°F) or more or in a low temperature of -10°C (14°F) or less | — |

# 14.ECM Cancel Code(s) Display

## A: OPERATION

1) On «Main Menu» display, select «Each System Check».
On «System Selection Menu» display, select «Engine Control System». Click the [OK] button after the information of engine type has been displayed.
2) Drive vehicle at 40 km/h (25 MPH) or more and set the cruise control.

**CAUTION:**
- **When performing diagnosis, observe the legal speed limit on the road.**
- **The cancel code will also appear when the cruise control is cancelled by the driver's operation. Do not confuse them.**
- **Be sure to get an assistant to support the diagnosis while driving, and have him/her operate the select monitor.**

3) When the set speed is cancelled by itself (without any cancel operations such as applying brake) or when the cruise control could not be set by performing the setting operation, select the «Cancel Code(s) Display» on the engine malfunction diagnosis screen.

NOTE:
The cancel code has a «Latest Cancel Code(s)» and «Memorized Cancel Code(s)». «Latest Cancel Code(s)» displays the latest code that occurred in this check drive. Cancel codes by the diagnosis of faulty switches relating to the system and cruise control are also displayed in the «Memorized Cancel Code(s)».
4) Perform Engine DTC Clear Memory operation. <Ref. to EN(H4DO w/o HEV)(diag)-65, Clear Memory Mode.>
Cancel codes for switches relating to the system and cruise control are deleted by clearing memory on the engine side.

NOTE:
- For detailed operation procedures, refer to "PC application help for Subaru Select Monitor".
- The latest code will be cleared by turning ignition switch to OFF.
- For details on cancel codes, refer to List of ECM cruise control cancel code. <Ref. to ES(diag)-70, LIST, ECM Cancel Code(s) Display.>

## B: LIST

- List of ECM cruise control cancel code(s)

When the cruise control is cancelled, the ECM outputs the following cancel codes.

| Cancel code | Item | Contents of diagnosis | Reference |
|---|---|---|---|
| 11 | Main switch | Main switch of the EyeSight steering switch is turned to OFF, and the cruise control is released. | This DTC is displayed without operating the main switch. <Ref. to ES(diag)-62, CHECK EyeSight STEERING SWITCH, Diagnostics with Phenomenon.> |
| 12 | Stop & Brake switch | Stop light switch or brake switch is turned to ON, and then the cruise control is released. | This DTC is displayed without depressing the brake pedal. <Ref. to CC(w/o HEV)(diag)-19, 12, Diagnostic Procedure with Cancel Code.> |
| 14 | Neutral switch | Neutral position switch is turned to ON, and then the cruise control is released. | This DTC is displayed without shifting to neutral position. <Ref. to CC(w/o HEV)(diag)-22, 14, Diagnostic Procedure with Cancel Code.> |

| Cancel code | Item | Contents of diagnosis | Reference |
|---|---|---|---|
| 15 | Cancel switch | Cancel switch is turned to ON, and then the cruise control is released. | This DTC is displayed without operating the cancel switch. <Ref. to CC(w/o HEV)(diag)-23, 15, Diagnostic Procedure with Cancel Code.> |
| 16 | Ignition switch | Ignition switch is turned to OFF, and then the cruise control is released. | This DTC is displayed without operating the ignition switch. <Ref. to CC(w/o HEV)(diag)-24, 16, Diagnostic Procedure with Cancel Code.> |
| 21 | Abnormality of switches when Ignition switch on | When the ignition switch is turned to ON, each switch of the EyeSight steering switch is already turned ON. | This DTC is displayed when turning ignition switch to ON without operating the EyeSight steering switch. <Ref. to CC(w/o HEV)(diag)-24, 21, Diagnostic Procedure with Cancel Code.> |
| 22 | Abnormality of change in vehicle speed | Malfunction of vehicle speed signal variation is detected. | <Ref. to CC(w/o HEV)(diag)-25, 22, Diagnostic Procedure with Cancel Code.> |
| 24 | Abnormality of switches related to cruise control | Open circuit of the EyeSight steering switch is detected during cruise driving. (The system is judged as model without cruise control.) | This DTC is displayed with normal operation. <Ref. to CC(w/o HEV)(diag)-25, 24, Diagnostic Procedure with Cancel Code.> |
| 31 | Engine Speed | • Abnormal increase of engine speed is detected.<br>• Gear is placed in Neutral, 1st or Reverse position. | Cruise in 2nd shift position or more. <Ref. to CC(w/o HEV)(diag)-25, 31, Diagnostic Procedure with Cancel Code.> |
| 32 | Cruse Control out of Range | • Vehicle speed exceeds the controllable range during cruising.<br>• Set operation was performed at vehicle speed unavailable for setting.<br>• RESUME operation was performed without memorized vehicle speed. | This DTC is displayed, though the vehicle speed is increased to the speed available for cruise set and set operation was performed again. <Ref. to CC(w/o HEV)(diag)-25, 32, Diagnostic Procedure with Cancel Code.> |
| 34 | Prohibition of cruise control at continuing big Accel. angle | The vehicle has been driven at higher speed than set vehicle speed for an abnormally long time (approximately 10 minutes) during cruise driving. | <Ref. to CC(w/o HEV)(diag)-25, 34, Diagnostic Procedure with Cancel Code.> |
| 35 | Prohibition of cruise control at vehicle speed F/B malfunction | Set vehicle speed cannot be kept because of some reasons (steep uphill, parking brake, abnormal decrease of engine output, etc.) during cruise driving. | <Ref. to CC(w/o HEV)(diag)-26, 35, Diagnostic Procedure with Cancel Code.> |
| 41 | VDC/TCS/EPB Operating | Vehicle dynamics control (VDC), TCS or EPB is operated during cruise driving or cruise setting. | <Ref. to CC(w/o HEV)(diag)-26, 41, Diagnostic Procedure with Cancel Code.> |
| 43 | ABS/VDC Failure | When the cruise switch is ON, ABS or vehicle dynamics control (VDC) system malfunction is detected. | <Ref. to CC(w/o HEV)(diag)-26, 43, Diagnostic Procedure with Cancel Code.> |

# ECM Cancel Code(s) Display

| Cancel code | Item | Contents of diagnosis | Reference |
|---|---|---|---|
| 44 | Body Integrated unit Failure | When the cruise switch is ON, body integrated unit system malfunction is detected. | <Ref. to CC(w/o HEV)(diag)-26, 44, Diagnostic Procedure with Cancel Code.> |
| 45 | Meter Failure | When the cruise switch is ON, combination meter malfunction is detected. | <Ref. to CC(w/o HEV)(diag)-26, 45, Diagnostic Procedure with Cancel Code.> |
| 47 | Adaptive cruise control ECM abnormal | When the cruise switch is ON, stereo camera malfunction is detected. | Check the DTCs related to stereo camera. |
| 49 | TCM Failure | Transmission control module (TCM) malfunction is detected during cruise driving or cruise setting. | <Ref. to CC(w/o HEV)(diag)-26, 49, Diagnostic Procedure with Cancel Code.> |
| 53 | Adaptive Cruise Control Forced Cancel | Stereo camera detects the release command of the cruise control during cruise driving or cruise setting operation. | Check the stereo camera. Check the ACC cancel code. <Ref. to ES(diag)-73, ACC Cancel Code(s) Display.> |
| 54 | Release SW | Brake control module detects the brake pedal operation by the driver during cruise driving or cruise setting operation. | If this code is detected when the brake pedal is not depressed intentionally, check the release switch. |
| 55 | Adaptive cruise control reception data abnormal | When the cruise switch is ON, malfunction is detected in the reception data from the stereo camera. | Check the cancel code of stereo camera. |
| 61 | Brake Switch Failure | Malfunction in the stop light & brake switch is detected. | <Ref. to CC(w/o HEV)(diag)-26, 61, Diagnostic Procedure with Cancel Code.> |
| 62 | Neutral Switch Failure | Neutral position switch malfunction is detected. | <Ref. to CC(w/o HEV)(diag)-26, 62, Diagnostic Procedure with Cancel Code.> |
| 63 | Abnormality 1 of change in vehicle speed | Malfunction of vehicle speed signal variation is detected. This code may be displayed by a sudden starting of the vehicle on a road with low $\mu$ and with the VDC OFF. In this case, restart the engine and perform the cruise setting again. If the cancel code is not displayed, the vehicle is in normal status. | <Ref. to CC(w/o HEV)(diag)-27, 63, Diagnostic Procedure with Cancel Code.> |
| 64 | Engine Sensor Failure 1 | Malfunction related to engine is detected. | <Ref. to CC(w/o HEV)(diag)-27, 64, Diagnostic Procedure with Cancel Code.> |
| 65 | Abnormality 1 of switches related to cruise control | Malfunction of the EyeSight steering switch is detected. (When the switch is pressed ON for a long time (approximately two minutes), stuck ON condition is detected.) | <Ref. to CC(w/o HEV)(diag)-27, 65, Diagnostic Procedure with Cancel Code.> |
| 66 | Cruise Control Calculation Error | Malfunction of the cruise control calculation (microcomputer) is detected. | <Ref. to CC(w/o HEV)(diag)-27, 66, Diagnostic Procedure with Cancel Code.> |

# 15.ACC Cancel Code(s) Display

## A: OPERATION

When the ACC cancel code is detected from the stereo camera, the cruise control will be cancelled.
1) On «Main Menu» display, select «Each System Check».
2) On «System Selection Menu» display, select «ADA adaptive cruise control system».
3) On «ADA adaptive cruise control system» display, select «EyeSight (from 2009MY)».
4) On «EyeSight (from 2009MY)» display, select «ACC Cancel Code(s) Display».

NOTE:
- For detailed operation procedures, refer to “PC application help for Subaru Select Monitor”.
- Up to 8 codes can be stored. When more than eight codes are output, the oldest code will be deleted to store the latest code.
- Stored codes will be cleared by Clear Memory.
- For details on ACC cancel codes, refer to List of ACC cancel code. <Ref. to ES(diag)-74, LIST, ACC Cancel Code(s) Display.>

## B: LIST

- List of ACC cancel code(s)

| ACC cancel code | Item | Contents of diagnosis |
|---|---|---|
| 02 | ACC Mode:Maintaining Standstill Position | Displayed when the cruise control is cancelled after the own vehicle stops following the preceding vehicle. |
| 04 | ACC Mode:Stereo Camera Temporary | Displayed when the cruise control is canceled by the EyeSight temporarily stop while driving in the adaptive cruise mode. |
| 08 | Common:Vehicle Speed Sensor Abnormal | Displayed when the cruise control is canceled due to a wheel speed sensor malfunction. |
| 09 | Common:Depress The Brake Pedal | Displayed when the cruise control is canceled by the brake operation of the driver. |
| 0A | Common:Pre-Collision Braking | Displayed when the cruise control is canceled because the pre-collision brake function is activated. |
| 0B | Common:AT Manual Mode | Displayed when the cruise control is canceled because the AT manual mode is selected or paddle operation is performed. |
| 0D | Common:Any Doors is Opened | Displayed when the cruise control is canceled because either of the driver's door, passenger's door, or rear doors is opened. |
| 0E | Common:Unfastened The Driver's Seatbelt | Displayed when the cruise control is canceled because the driver's seat belt is unfastened. |
| 12 | Common:AT Gear Range | Displayed in the following situations: The driver performed the SET or RES operation to drive the vehicle either in the adaptive cruise mode or in the constant speed mode, but that operation was not accepted because it was done immediately after shifting into D range. |
| 13 | Common:Steep Sloping Road | Displayed when the road surface was judged to be too steep and therefore the cruise control is canceled. |
| 14 | Common:ABS Activation | Displayed when the cruise control is canceled because the ABS is activated. |
| 15 | Common:Steering Angle Excessive | Displayed when the cruise control is canceled because the steering wheel is fully turned. |
| 16 | ACC Mode:Vehicle Stop Judge | Displayed when the cruise control is cancelled after the own vehicle stops following the preceding vehicle while driving in the adaptive cruise control mode. |
| 17 | Common:Parking Brake Activation | Displayed when the cruise control is cancelled because the parking brake is applied. |
| 18 | ACC Mode:Automatic Cancellation | Displayed when the cruise control is cancelled under the following situations: The own vehicle stops following the preceding vehicle while driving in the adaptive cruise control mode, and the driver repeats the SET or RES operation and the automatic brake control continues for 120 seconds. |
| 1B | VDC actuation | Displayed when the cruise control is canceled because the VDC is activated. |
| 1C | Common:Cancel SW Operation | Displayed when the cruise control is canceled because the cruise switch was operated while the cruise control is set. |
| 1D | Common:Cruise SW OFF | Displayed when the cruise control is canceled (turned OFF) because the cruise switch was operated while the cruise control is not set. |
| 1E | CC Mode:Max Speed Exceeded | Displayed when the cruise control is canceled because the own vehicle speed exceeds the controllable range while driving in the constant speed mode. |
| 1F | ACC Mode:Max Speed Exceeded | Displayed when the cruise control is canceled because the own vehicle speed exceeds the controllable range while driving in the adaptive cruise mode. |

NOTE:
- "Adaptive cruise mode": Adaptive cruise control
- "Constant speed mode": Conventional cruise control
- "Common": Adaptive cruise control and conventional cruise control

# 16.Diagnostic Procedure with Diagnostic Trouble Code (DTC)

## A: DTC U0073 CONTROL MODULE COMMUNICATION BUS OFF

Detected when an error occurs in the CAN line. (Bus off)

NOTE:
Perform the diagnosis for LAN system. <Ref. to LAN(w/o HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.>

## B: DTC U0100 LOST COMMUNICATION WITH ECM/PCM “A”

Detected when CAN data from engine control module (ECM) is not transmitted to stereo camera.

NOTE:
Perform the diagnosis for LAN system. <Ref. to LAN(w/o HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.>

## C: DTC U0101 LOST COMMUNICATION WITH TCM

Detected when CAN data from TCM is not transmitted to stereo camera.

NOTE:
Perform the diagnosis for LAN system. <Ref. to LAN(w/o HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.>

## D: DTC U0122 LOST COMMUNICATION WITH VEHICLE DYNAMICS CONTROL MODULE

Detected when CAN data from VDC is not transmitted to stereo camera.

NOTE:
Perform the diagnosis for LAN system. <Ref. to LAN(w/o HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.>

## E: DTC U0140 LOST COMMUNICATION WITH BODY CONTROL MODULE

Detected when CAN data from body integrated unit is not transmitted to stereo camera.

NOTE:
Perform the diagnosis for LAN system. <Ref. to LAN(w/o HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.>

## F: DTC U0155 LOST COMMUNICATION WITH INSTRUMENT PANEL CLUSTER (IPC) CONTROL MODULE

Detected when CAN data from combination meter is not transmitted to stereo camera.

NOTE:
Perform the diagnosis for LAN system. <Ref. to LAN(w/o HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.>

## G: DTC U0401 INVALID DATA RECEIVED FROM ECM/PCM “A”

Failure counter diagnosis of engine control module (ECM)

NOTE:
Perform the diagnosis for LAN system. <Ref. to LAN(w/o HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.>

## H: DTC U0402 INVALID DATA RECEIVED FROM TCM

Failure counter diagnosis of automatic transmission control module (TCM)

NOTE:
Perform the diagnosis for LAN system. <Ref. to LAN(w/o HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.>

## I: DTC U0416 INVALID DATA RECEIVED FROM VEHICLE DYNAMICS CONTROL MODULE

Failure counter diagnosis of VDC control module (VDC CM)

NOTE:
Perform the diagnosis for LAN system. <Ref. to LAN(w/o HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.>

## J: DTC U0422 INVALID DATA RECEIVED FROM BODY CONTROL MODULE

Failure counter diagnosis of body integrated unit

NOTE:
Perform the diagnosis for LAN system. <Ref. to LAN(w/o HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.>

## K: DTC U0423 INVALID DATA RECEIVED FROM INSTRUMENT PANEL CLUSTER CONTROL MODULE

Failure counter diagnosis of combination meter

NOTE:
Perform the diagnosis for LAN system. <Ref. to LAN(w/o HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.>

## L: DTC B2801 TCM ABNORMAL

Detected when error occurs in the automatic transmission.

NOTE:
Check the automatic transmission. <Ref. to CVT(w/o HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.>

## M: DTC B2802 ETC ABNORMAL

Detected when error occurs in the electronic throttle control.

NOTE:
Check the electronic throttle control. <Ref. to EN(H4DO w/o HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.>

## N: DTC B2806 ECM ABNORMAL

Detected when error occurs in the engine control module (ECM).

NOTE:
Perform check of the ECM. <Ref. to EN(H4DO w/o HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.>

## O: DTC B2807 ECM ABNORMAL

Detected when cruise indicator illumination request from ECM and ON/OFF information of cruise function do not match.

NOTE:
- Perform check of the ECM. <Ref. to EN(H4DO w/o HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.>
- Check the ECM cruise control cancel code. <Ref. to ES(diag)-70, ECM Cancel Code(s) Display.>

## P: DTC B2809 VDC ABNORMAL

Detected when error occurs in the VDC. (VDC failure)

NOTE:
Check the VDC. <Ref. to VDC(diag)-2, PROCEDURE, Basic Diagnostic Procedure.>

## Q: DTC B280A VDC ABNORMAL

Detected when error occurs in the VDC. (VDC brake control malfunction 1)

NOTE:
Check the VDC. <Ref. to VDC(diag)-2, PROCEDURE, Basic Diagnostic Procedure.>

## R: DTC B280B VDC ABNORMAL

Detected when error occurs in the VDC. (VDC brake control malfunction 2)

NOTE:
Check the VDC. <Ref. to VDC(diag)-2, PROCEDURE, Basic Diagnostic Procedure.>

## S: DTC B280C VDC ABNORMAL

Detected when error occurs in the VDC. (VDC fluid pressure control prohibited)

NOTE:
Check the VDC. <Ref. to VDC(diag)-2, PROCEDURE, Basic Diagnostic Procedure.>

## T: DTC B280F METER ABNORMAL

Malfunction is detected in the combination meter.
**DTC DETECTING CONDITION:**
Defective combination meter
**TROUBLE SYMPTOM:**
- All functions of EyeSight system do not operate.
- EyeSight warning light blinks or illuminates.
- Combination meter does not illuminate.

NOTE:
Check the combination meter. <Ref. to IDI-12, INSPECTION, Combination Meter System.>

## U: DTC B2810 METER ABNORMAL

Detected when the combination meter, which is not designed exclusively for EyeSight is installed.
**DTC DETECTING CONDITION:**
Incorrect specifications of combination meter
**TROUBLE SYMPTOM:**
All functions of EyeSight system do not operate.

NOTE:
Replace the combination meter with the one designed for EyeSight. <Ref. to IDI-20, Combination Meter.>

## V: DTC B2814 POWER SUPPLY VOLT ERROR

Detected when the status of 7.0 V or less continues approximately for 5 seconds and is judged to be low-voltage malfunction, or when the +B harness of the stereo camera is broken.

**DTC DETECTING CONDITION:**

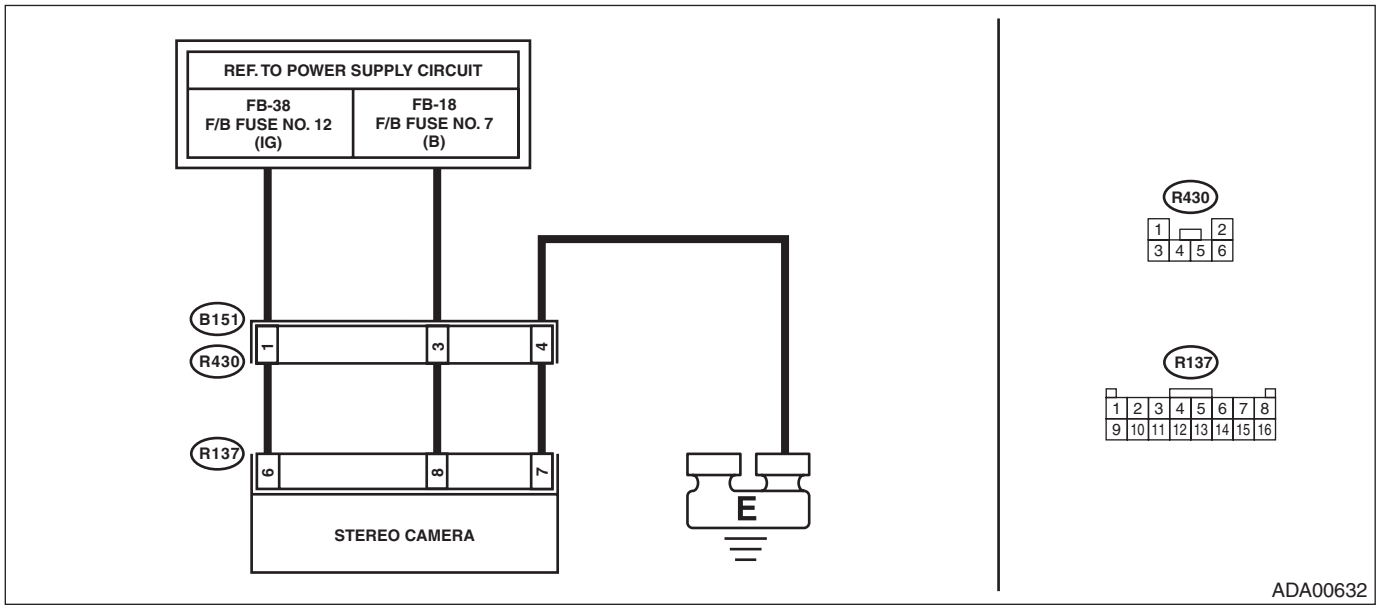
- Input voltage to stereo camera is out of specifications.
- Defective stereo camera control harness (open circuit in +B harness)
- Defective stereo camera

**TROUBLE SYMPTOM:**

- All functions of EyeSight system do not operate.
- EyeSight warning light blinks or illuminates.
- Cruise indicator light blinks.
- Malfunction indicator light illuminates.
- VDC warning light illuminates.
- ATF temperature warning light illuminates.

**WIRING DIAGRAM:**

EyeSight System <Ref. to WI(w/o HEV)-126, WIRING DIAGRAM, EyeSight System.>




| Step | | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK GENERATOR.**<br>1) Start the engine and idle for a while.<br>2) Measure the voltage between generator terminal B and chassis ground.<br>***Connector & terminal***<br>***Generator terminal B (+) — Chassis ground (–):*** | Is the voltage 10 V or more? | Go to step **2**. | Check the generator. |
| 2 | **CHECK BATTERY TERMINAL.**<br>Turn the ignition switch to OFF. | Is the battery terminal connected securely? | Go to step **3**. | Tighten the battery terminal securely. |
| 3 | **CHECK FUSE.**<br>Check the fuse. <Ref. to ES-4, Relay and Fuse.> | Is the fuse OK? | Go to step **4**. | Replace the faulty fuse. When the replaced fuse blows out easily, check the short circuit in harness. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 4 | **CHECK HARNESS (POWER SUPPLY CIRCUIT).**<br>1) Disconnect the stereo camera.<br>2) Turn the ignition switch to ON.<br>3) Measure the voltage between harness connector of stereo camera and chassis ground.<br>***Connector & terminal***<br>***(R137) No. 6 (+) — Chassis ground (–):***<br>***(R137) No. 8 (+) — Chassis ground (–):*** | Is the voltage 10 V or more? | Go to step **5**. | Check the power supply system circuit, and if any fault is found, repair the defective parts or replace the harness. |
| 5 | **CHECK HARNESS (GROUND CIRCUIT).**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the ground cable from battery.<br>3) Measure the resistance between stereo camera and chassis ground.<br>***Connector & terminal***<br>***(R137) No. 7 — Chassis ground:*** | Is the resistance less than 10 Ω? | Go to step **6**. | Check the ground system circuit, and if any fault is found, repair the defective parts or replace the harness. |
| 6 | **CHECK POOR CONTACT OF CONNECTORS.**<br>Check stereo camera connector. | Is there poor contact of the connector? | Repair the connector. | Go to step **7**. |
| 7 | **CHECK STEREO CAMERA.**<br>1) Connect all connectors and battery terminals securely.<br>2) Start the engine, drive the vehicle at 40 km/h (24.9 MPH) or more, stop the vehicle and then stop the engine.<br>3) After 3 seconds or more have elapsed, restart the engine.<br>4) Clear the memory.<br>5) Read the DTC. | Is the same DTC (DTC B2814 or B2815) displayed? | Replace the stereo camera. <Ref. to ES-7, REMOVAL, Stereo Camera.> | Even if DTC is displayed, the circuit has returned to a normal condition at this time. Reproduce the failure, and then perform the diagnosis again.<br>NOTE:<br>In this case, temporary poor contact of connector, or temporary open or short circuit of harness may be the cause. |

## W: DTC B2815 POWER SUPPLY VOLT ERROR

Detected when the status for the battery voltage of 16 V or more continues approximately for 5 seconds and is judged to be abnormally high voltage.
Refer to DTC B2814 for DTC detecting condition, trouble symptom and diagnostic procedure. <Ref. to ES(diag)-78, DTC B2814 POWER SUPPLY VOLT ERROR, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

## X: DTC B2817 BRAKE LAMP ERROR

**DTC DETECTING CONDITION:**

- Defective brake light relay
- Defective brake light switch
- Defective VDC

**TROUBLE SYMPTOM:**

- All functions of EyeSight system do not operate.
- EyeSight warning light illuminates.
- Brake light does not go off or illuminate.

NOTE:
When this DTC is detected, check VDC system. <Ref. to VDC(diag)-2, PROCEDURE, Basic Diagnostic Procedure.>

## Y: DTC B28A0 VEHICLE MODEL JUDGMENT ABNORMAL

Detected when the model code for stereo camera and the model code used for CAN data are different.

**DTC DETECTING CONDITION:**

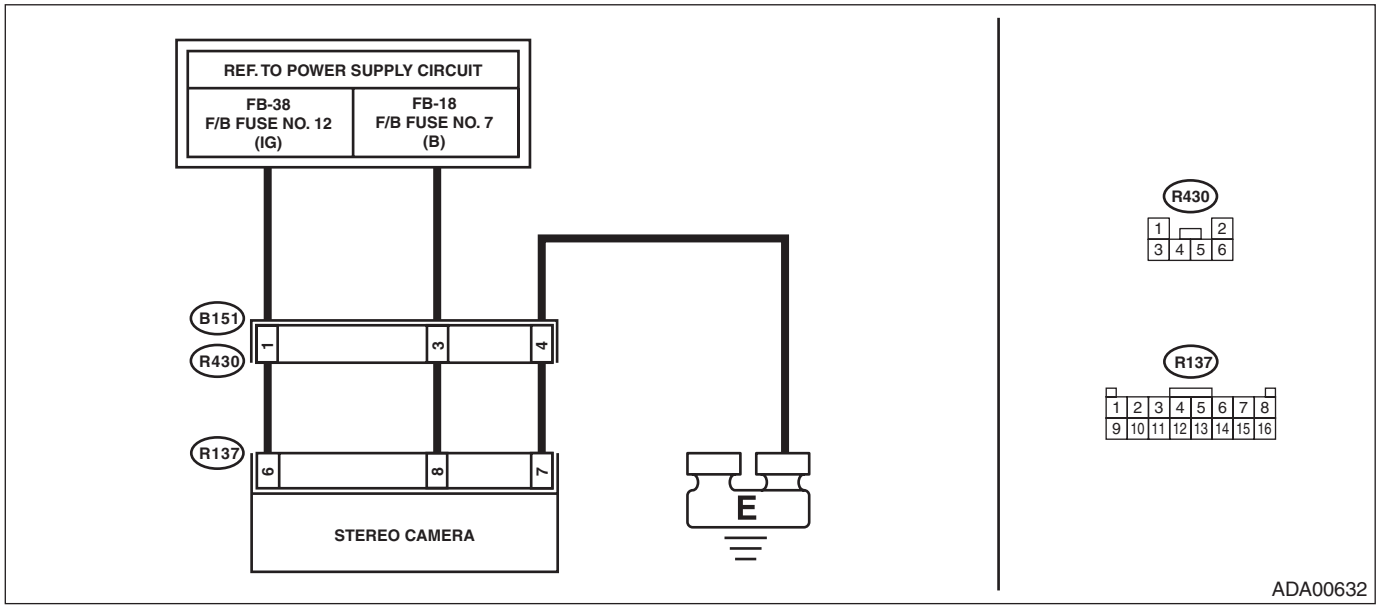
- Defective CAN system
- Defective stereo camera
- In the aiming operation, there is an open circuit in the +B harness of the stereo camera.
- In the completion of the aiming operation, the switching from IGN OFF to IGN ON takes place too early, and the recording of the model information has not yet been finished.
- Incorrect assembly of stereo camera (when the stereo camera designed for A-type vehicle is installed to the B-type vehicle, etc.)

**TROUBLE SYMPTOM:**

- All functions of EyeSight system do not operate.
- EyeSight warning light illuminates.

**WIRING DIAGRAM:**

EyeSight System <Ref. to WI(w/o HEV)-126, WIRING DIAGRAM, EyeSight System.>




| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK RELATED CM.**<br>Check the part number of the ECM, TCM, VDC CM and combination meter. | Is each CM a genuine part? | Go to step **2**. | Replace the non-genuine CM with a genuine one. |
| 2 | **CHECK STEREO CAMERA.**<br>1) Remove the camera cover.<br>2) Check the part number of the stereo camera. | Is the stereo camera genuine? | Go to step **3**. | Replace the stereo camera. <Ref. to ES-7, REMOVAL, Stereo Camera.> |
| 3 | **CHECK LAN SYSTEM.**<br>Perform the diagnosis for LAN system. <Ref. to LAN(w/o HEV)(diag)-2, Basic Diagnostic Procedure.> | Is DTC displayed? | Perform the diagnosis according to DTC. | Go to step **4**. |
| 4 | **CHECK MODEL REGISTRATION INFORMATION.**<br>Check the model registration information from the current data of stereo camera. | Does vehicle and data correspond? | Perform the adjustment or inspection of the camera. <Ref. to ES-12, Camera Adjustment, Inspection.> | Go to step **5**. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 5 | **CHECK FUSE.**<br>Check the fuse. <Ref. to ES-4, Relay and Fuse.> | Is the fuse OK? | Go to step **6**. | Replace the faulty fuse. When the replaced fuse blows out easily, check the short circuit in harness. |
| 6 | **CHECK HARNESS (POWER SUPPLY CIRCUIT).**<br>1) Disconnect the stereo camera.<br>2) Turn the ignition switch to ON.<br>3) Measure the voltage between harness connector of stereo camera and chassis ground.<br>***Connector & terminal***<br>***(R137) No. 6 (+) — Chassis ground (–):***<br>***(R137) No. 8 (+) — Chassis ground (–):*** | Is the voltage 10 V or more? | Go to step **7**. | Check the power supply system circuit, and if any fault is found, repair the defective parts or replace the harness. |
| 7 | **CHECK HARNESS (GROUND CIRCUIT).**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the ground cable from battery.<br>3) Measure the resistance between stereo camera and chassis ground.<br>***Connector & terminal***<br>***(R137) No. 7 — Chassis ground:*** | Is the resistance less than 10 Ω? | Go to step **8**. | Check the ground system circuit, and if any fault is found, repair the defective parts or replace the harness. |
| 8 | **CHECK POOR CONTACT OF CONNECTORS.**<br>Check stereo camera connector. | Is there poor contact of the connector? | Repair the connector. | Go to step **9**. |
| 9 | **CHECK STEREO CAMERA.**<br>1) Connect all connectors and battery terminals securely.<br>2) Clear the memory.<br>3) Read the DTC. | Is the same DTC (DTC B28A0) displayed? | Replace the stereo camera. <Ref. to ES-7, REMOVAL, Stereo Camera.> | Even if DTC is displayed, the circuit has returned to a normal condition at this time. Reproduce the failure, and then perform the diagnosis again.<br>NOTE:<br>In this case, temporary poor contact of connector, or temporary open or short circuit of harness may be the cause. |

## Z: DTC B28A1 ADAPTIVE CC ECM COMMUNICATION DATA ERROR

Detected when the engine control module (ECM) detects the malfunction of stereo camera, or when the stereo camera or ECM is assembled incorrectly.

**DTC DETECTING CONDITION:**

- Defective CAN system
- Defective engine control module (ECM)
- Defective stereo camera
- Incorrect assembly of stereo camera (when the stereo camera designed for A-type vehicle is installed to the B-type vehicle, etc.)
- Incorrect assembly of ECM (when the ECM designed for another model is installed, etc.)

**TROUBLE SYMPTOM:**

- All functions of EyeSight system do not operate.
- EyeSight warning light illuminates.

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK ECM.**<br>Check the part number of the ECM. | Is the ECM genuine? | Go to step **2**. | Replace the ECM. <Ref. to FU(H4DO(w/o HEV))-100, REMOVAL, Engine Control Module (ECM).> |
| 2 | **CHECK STEREO CAMERA.**<br>1) Remove the camera cover.<br>2) Check the part number of the stereo camera. | Is the stereo camera genuine? | Go to step **3**. | Replace the stereo camera. <Ref. to ES-7, REMOVAL, Stereo Camera.> |
| 3 | **CHECK LAN SYSTEM.**<br>Perform the diagnosis for LAN system. <Ref. to LAN(w/o HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.> | Is DTC displayed? | Perform the diagnosis according to DTC. | Go to step **4**. |
| 4 | **CHECK ECM.**<br>Perform the diagnosis for the engine. <Ref. to EN(H4DO w/o HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.> | Is DTC displayed? | Perform the diagnosis according to DTC. | Go to step **5**. |
| 5 | **CHECK CONNECTOR.**<br>Check the ECM connector and the stereo camera connector. | Is the connector OK? | Go to step **6**. | Repair or replace the connector. |
| 6 | **CHECK STEREO CAMERA.**<br>Read the DTC. | Is another DTC displayed? | Perform the diagnosis according to DTC. | Go to step **7**. |
| 7 | **CHECK STEREO CAMERA.**<br>1) Clear the memory.<br>2) Read the DTC. | Is the same DTC displayed? | Replace the stereo camera. <Ref. to ES-7, REMOVAL, Stereo Camera.> | Even if DTC is displayed, the circuit has returned to a normal condition at this time. Reproduce the failure, and then perform the diagnosis again.<br>NOTE:<br>In this case, temporary poor contact of connector, or temporary open or short circuit of harness may be the cause. |

## AA:DTC B28A2 ADAPTIVE CC ECM COMMUNICATION DATA ERROR

Detected when the VDC control module (VDCCM) detects the malfunction of stereo camera.

**DTC DETECTING CONDITION:**

- Defective CAN system
- Defective VDC control module (VDCCM)
- Defective stereo camera

**TROUBLE SYMPTOM:**

- All functions of EyeSight system do not operate.
- EyeSight warning light illuminates.

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK LAN SYSTEM.**<br>Perform the diagnosis for LAN system. <Ref. to LAN(w/o HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.> | Is DTC displayed? | Perform the diagnosis according to DTC. | Go to step **2**. |
| 2 | **CHECK VDC.**<br>Perform the diagnosis for VDC. <Ref. to VDC(diag)-2, PROCEDURE, Basic Diagnostic Procedure.> | Is DTC displayed? | Perform the diagnosis according to DTC. | Go to step **3**. |
| 3 | **CHECK CONNECTOR.**<br>Check the VDC connector and the stereo camera connector. | Is the connector OK? | Go to step **4**. | Repair or replace the connector. |
| 4 | **CHECK STEREO CAMERA.**<br>Read the DTC. | Is another DTC displayed? | Perform the diagnosis according to DTC. | Go to step **5**. |
| 5 | **CHECK STEREO CAMERA.**<br>1) Clear the memory.<br>2) Read the DTC. | Is the same DTC displayed? | Replace the stereo camera. <Ref. to ES-7, REMOVAL, Stereo Camera.> | Even if DTC is displayed, the circuit has returned to a normal condition at this time. Reproduce the failure, and then perform the diagnosis again.<br>NOTE:<br>In this case, temporary poor contact of connector, or temporary open or short circuit of harness may be the cause. |

## AB:DTC B28A3 ADAPTIVE CC ECM COMMUNICATION DATA ERROR

Detected when the combination meter detects the malfunction of stereo camera.

**DTC DETECTING CONDITION:**

- Defective CAN system
- Defective combination meter
- Defective stereo camera

**TROUBLE SYMPTOM:**

- All functions of EyeSight system do not operate.
- EyeSight warning light illuminates.

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK LAN SYSTEM.**<br>Perform the diagnosis for LAN system. <Ref. to LAN(w/o HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.> | Is the DTC displayed in the LAN system? | Perform the diagnosis according to DTC. | Go to step **2**. |
| 2 | **CHECK COMBINATION METER.**<br>Check the combination meter. <Ref. to IDI(diag)-2, Basic Diagnostic Procedure.> | Is combination meter OK? | Go to step **3**. | Perform the diagnosis for combination meter. |
| 3 | **CHECK CONNECTOR.**<br>Check the combination meter connector and the stereo camera connector. | Is the connector OK? | Go to step **4**. | Repair or replace the connector. |
| 4 | **CHECK STEREO CAMERA.**<br>Read the DTC. | Is another DTC displayed? | Perform the diagnosis according to DTC. | Go to step **5**. |
| 5 | **CHECK STEREO CAMERA.**<br>1) Clear the memory.<br>2) Read the DTC. | Is the same DTC displayed? | Replace the stereo camera. <Ref. to ES-7, REMOVAL, Stereo Camera.> | Even if DTC is displayed, the circuit has returned to a normal condition at this time. Reproduce the failure, and then perform the diagnosis again.<br>NOTE:<br>In this case, temporary poor contact of connector, or temporary open or short circuit of harness may be the cause. |

## AC:DTC B28A5 ADAPTIVE CC ECM COMMUNICATION DATA ERROR

Detected when abnormal data is transmitted from stereo camera to engine control module (ECM) and the engine control module (ECM) prohibits the AT rapid start prevention control, or when the engine control module (ECM) prohibits the AT rapid start prevention control.

**DTC DETECTING CONDITION:**

- Defective CAN system
- Defective engine control module (ECM)
- Defective stereo camera
- Defective combination meter
- Incorrect assembly of combination meter (when the combination meter that is not for EyeSight is installed.)

**TROUBLE SYMPTOM:**

- All functions of EyeSight system do not operate.
- EyeSight warning light illuminates.

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK COMBINATION METER.**<br>Check the part number of the combination meter. | Is the combination meter genuine? | Go to step **2**. | Replace the combination meter. <Ref. to IDI-20, Combination Meter.> |
| 2 | **CHECK LAN SYSTEM.**<br>Perform the diagnosis for LAN system. <Ref. to LAN(w/o HEV)(diag)-2, Basic Diagnostic Procedure.> | Is DTC displayed? | Perform the diagnosis according to DTC. | Go to step **3**. |
| 3 | **CHECK ECM.**<br>Perform the diagnosis for the engine. <Ref. to EN(H4DO w/o HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.> | Is DTC displayed? | Perform the diagnosis according to DTC. | Go to step **4**. |
| 4 | **CHECK CONNECTOR.**<br>Check the ECM connector and the stereo camera connector. | Is the connector OK? | Go to step **5**. | Repair or replace the connector. |
| 5 | **CHECK STEREO CAMERA.**<br>Read the DTC. | Is another DTC displayed? | Perform the diagnosis according to DTC. | Go to step **6**. |
| 6 | **CHECK STEREO CAMERA.**<br>1) Clear the memory.<br>2) Read the DTC again. | Is the same DTC displayed? | Replace the stereo camera. <Ref. to ES-7, REMOVAL, Stereo Camera.> | Even if DTC is displayed, the circuit has returned to a normal condition at this time. Reproduce the failure, and then perform the diagnosis again.<br>NOTE:<br>In this case, temporary poor contact of connector, or temporary open or short circuit of harness may be the cause. |

## AD:DTC B28A6 STEREO CAMERA ABNORMAL

Detected when communication error occurs inside the stereo camera.
**DTC DETECTING CONDITION:**
Communication error occurs inside the stereo camera.
**TROUBLE SYMPTOM:**
All functions of EyeSight system do not operate.

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK RESTARTING.**<br>1) Turn the ignition switch to OFF.<br>2) Start the engine.<br>3) Read the DTC related to the stereo camera using the Subaru Select Monitor. | Is DTC displayed after restarting the engine?*1 | Replace the stereo camera. <Ref. to ES-7, REMOVAL, Stereo Camera.> | Clear the memory, in which temporary communication failure occurs and complete the step. |

*1: When malfunction is detected after restarting the engine, 0 is registered in IG counter. Other values can be regarded as DTCs detected in the past.

## AE:DTC B28A7 STEREO CAMERA ABNORMAL

Detected when error occurs in the communication data inside the control module caused by external factors such as noises.

NOTE:
If the same DTC is still detected after the engine has restarted, replace the stereo camera. <Ref. to ES-7, REMOVAL, Stereo Camera.>

## AF:DTC B28A8 STEREO CAMERA ABNORMAL

Detected when error occurs in the communication data inside the control module caused by external factors such as noises.

NOTE:
If the same DTC is still detected after the engine has restarted, replace the stereo camera. <Ref. to ES-7, REMOVAL, Stereo Camera.>

## AG:DTC B28A9 STEREO CAMERA ABNORMAL

Detected when error occurs in the communication data inside the control module caused by external factors such as noises.

NOTE:
If the same DTC is still detected after the engine has restarted, replace the stereo camera. <Ref. to ES-7, REMOVAL, Stereo Camera.>

## AH:DTC B28AA STEREO CAMERA ABNORMAL

Detected when communication error occurs due to malfunction of microcomputer inside the stereo camera.
**DTC DETECTING CONDITION:**
Communication error occurs due to malfunction of microcomputer inside the stereo camera.
**TROUBLE SYMPTOM:**
All functions of EyeSight system do not operate.
For diagnostic procedure, refer to “DTC B28A6 STEREO CAMERA ABNORMAL”. <Ref. to ES(diag)-86, DTC B28A6 STEREO CAMERA ABNORMAL, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

## AI: DTC B28AB STEREO CAMERA ABNORMAL

Detected when communication error occurs due to malfunction of microcomputer inside the stereo camera.
**DTC DETECTING CONDITION:**
Communication error occurs due to malfunction of microcomputer inside the stereo camera.
**TROUBLE SYMPTOM:**
All functions of EyeSight system do not operate.
For diagnostic procedure, refer to “DTC B28A6 STEREO CAMERA ABNORMAL”. <Ref. to ES(diag)-86, DTC B28A6 STEREO CAMERA ABNORMAL, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

## AJ:DTC B28AC STEREO CAMERA ABNORMAL

Detected when communication error occurs due to malfunction of ASIC.
**DTC DETECTING CONDITION:**
Communication error occurs due to malfunction of ASIC.
**TROUBLE SYMPTOM:**
All functions of EyeSight system do not operate.
For diagnostic procedure, refer to “DTC B28A6 STEREO CAMERA ABNORMAL”. <Ref. to ES(diag)-86, DTC B28A6 STEREO CAMERA ABNORMAL, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

## AK:DTC B28AD STEREO CAMERA ABNORMAL

Detected when improper image recognition occurs in the microcomputer inside the stereo camera.
**DTC DETECTING CONDITION:**
Improper image recognition occurs in the microcomputer inside the stereo camera.
**TROUBLE SYMPTOM:**
All functions of EyeSight system do not operate.
For diagnostic procedure, refer to “DTC B28A6 STEREO CAMERA ABNORMAL”. <Ref. to ES(diag)-86, DTC B28A6 STEREO CAMERA ABNORMAL, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

## AL:DTC B28AE STEREO CAMERA ABNORMAL

Detected when improper power supply inside the stereo camera occurs.
**DTC DETECTING CONDITION:**
Improper power supply inside the stereo camera occurs.
**TROUBLE SYMPTOM:**
All functions of EyeSight system do not operate.
For diagnostic procedure, refer to “DTC B28A6 STEREO CAMERA ABNORMAL”. <Ref. to ES(diag)-86, DTC B28A6 STEREO CAMERA ABNORMAL, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

## AM:DTC B28AF STEREO CAMERA ABNORMAL

Detected when adjustment or inspection of stereo camera has not been completed normally.
**DTC DETECTING CONDITION:**
- Operation is aborted during adjustment or inspection of the stereo camera.
- After the replacement of the stereo camera, adjustment or inspection of camera has not yet been performed.

**TROUBLE SYMPTOM:**
All functions of EyeSight system do not operate.
For diagnostic procedure, perform adjustment/inspection of camera. When the adjustment or inspection of camera is performed, and if it is not completed successfully, replace the camera.

## AN:DTC B28B1 STEREO CAMERA ABNORMAL

Detected when the optical axis of stereo camera is deviated in lateral direction or when the fluctuation range of automatic adjustment value has expanded.

NOTE:
Readjust the stereo camera. <Ref. to ES-12, PROCEDURE, Camera Adjustment, Inspection.>
If the same DTC is still detected after readjustment, replace the stereo camera. <Ref. to ES-7, REMOVAL, Stereo Camera.>

## AO:DTC B28B2 STEREO CAMERA ABNORMAL

Detected when the temperature of the stereo camera excessively increases.

NOTE:
When this DTC is detected, performing adjustment or inspection of the camera will not return to the normal state. In this case, always replace the stereo camera. <Ref. to ES-7, REMOVAL, Stereo Camera.>

## AP:DTC B28B3 STEREO CAMERA ABNORMAL

Detected when the temperature of the stereo camera excessively decreases.

NOTE:
When this DTC is detected, performing adjustment or inspection of the camera will not return to the normal state. In this case, always replace the stereo camera. <Ref. to ES-7, REMOVAL, Stereo Camera.>

## AQ:DTC B28B5 +B CIRCUIT ABNORMAL

Detected when there is an open circuit in power supply line.

NOTE:
Refer to DTC B2814 for diagnostic procedure. <Ref. to ES(diag)-78, DTC B2814 POWER SUPPLY VOLT ERROR, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

## AR:DTC B28B6 PRE-COLLISION OFF SWITCH ABNORMAL

Detected when pre-collision brake OFF switch circuit is not installed, open-circuited or is stuck to ON.

**DTC DETECTING CONDITION:**

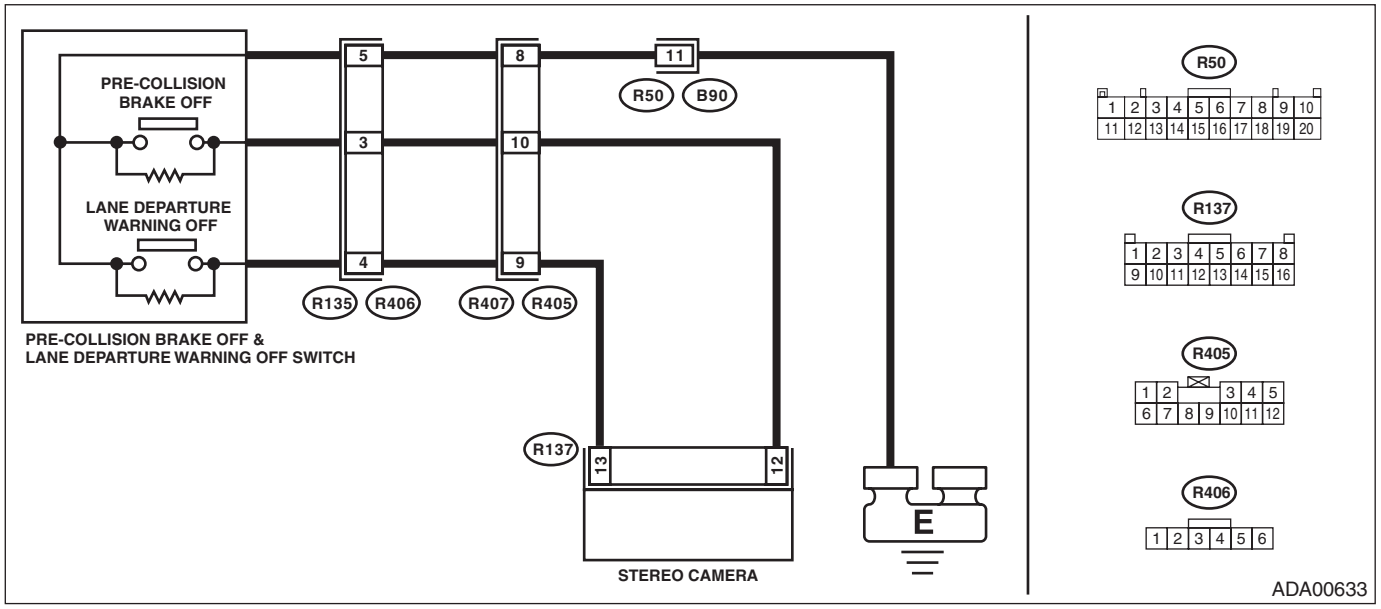
- Wiring of pre-collision brake OFF switch is not connected.
- Pre-collision brake OFF switch circuit is open.
- Pre-collision brake OFF switch circuit stays ON for 45 seconds or more.

**TROUBLE SYMPTOM:**

All functions of EyeSight system do not operate.

**WIRING DIAGRAM:**

EyeSight System <Ref. to WI(w/o HEV)-126, WIRING DIAGRAM, EyeSight System.>




| Step | | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK CURRENT DATA.**<br>Confirm the current data «Pre-Collision Brake OFF SW» of ADA adaptive cruise control system using Subaru Select Monitor. | Does the display change according to ON/OFF operation of the pre-collision brake OFF switch? | Even if DTC is displayed, the circuit has returned to a normal condition at this time. Reproduce the failure, and then perform the diagnosis again.<br>NOTE:<br>In this case, temporary poor contact of connector, or temporary open or short circuit of harness may be the cause. | Go to step **2**. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 2 | **CHECK HARNESS.**<br>1) Disconnect the stereo camera connector and the pre-collision brake OFF switch connector.<br>2) Using the tester, measure the resistance between the stereo camera connector and pre-collision brake OFF switch connector as well as chassis ground.<br>***Connector & terminal***<br>***(R406) No. 3 — (R137) No. 12:***<br>***(R406) No. 5 — Chassis ground:*** | Is the resistance less than 1 Ω? | Go to step **3**. | Repair or replace an open circuit in harness between the stereo camera connector and pre-collision brake OFF switch connector. |
| 3 | **CHECK HARNESS.**<br>Using the tester, measure the resistance between the pre-collision brake OFF switch connector and chassis ground.<br>***Connector & terminal***<br>***(R406) No. 3 — Chassis ground:*** | Is the resistance 1 MΩ or more? | Check the pre-collision brake OFF switch. <Ref. to ES-32, INSPECTION, Switches and Harness.> | Repair or replace the short circuit to ground in harness between the stereo camera connector and pre-collision brake OFF switch connector. |

## AS:DTC B28B7 LDP OFF SWITCH ABNORMAL

Detected when lane departure warning OFF switch circuit is not installed, open-circuited, or is stuck to ON.

**DTC DETECTING CONDITION:**

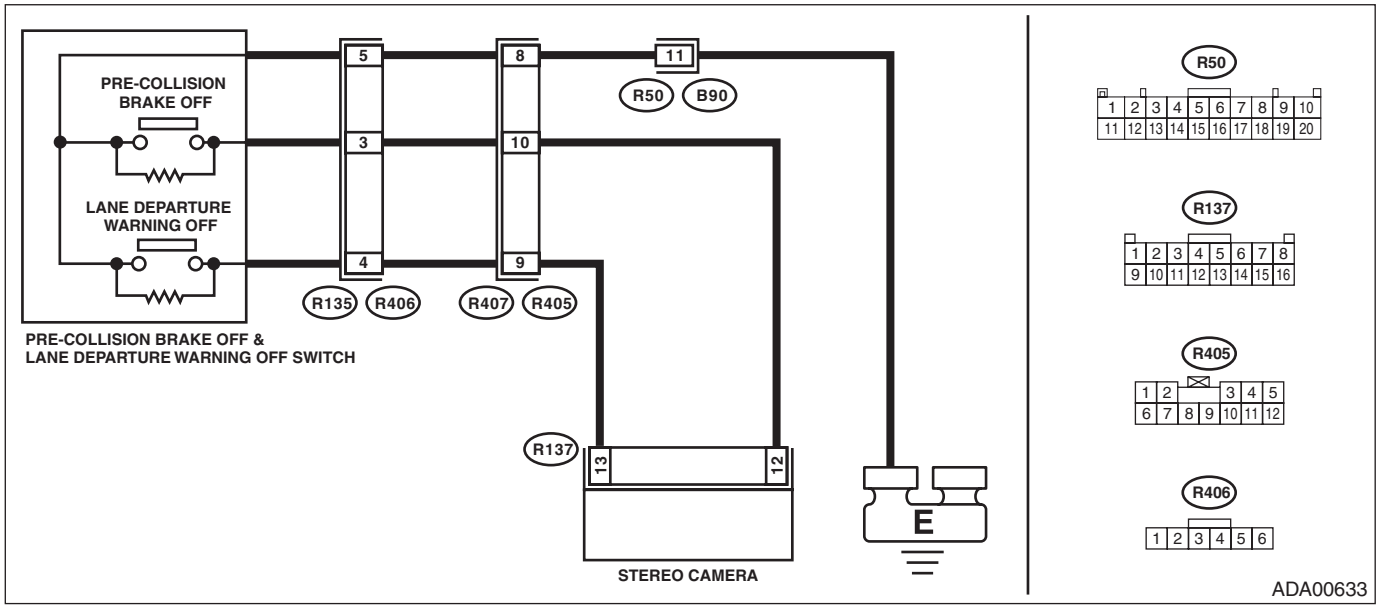
- Wiring of lane departure warning OFF switch is not connected.
- Lane departure warning OFF switch circuit is open.
- Lane departure warning OFF switch circuit stays ON for 45 seconds or more.

**TROUBLE SYMPTOM:**

All functions of EyeSight system do not operate.

**WIRING DIAGRAM:**

EyeSight System <Ref. to WI(w/o HEV)-126, WIRING DIAGRAM, EyeSight System.>




| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK CURRENT DATA.**<br>Confirm the current data «Lane Departure Warning OFF SW» of ADA adaptive cruise control system using Subaru Select Monitor. | Does the display change according to the lane departure warning OFF switch ON/OFF operation? | Even if DTC is displayed, the circuit has returned to a normal condition at this time. Reproduce the failure, and then perform the diagnosis again.<br>NOTE:<br>In this case, temporary poor contact of connector, or temporary open or short circuit of harness may be the cause. | Go to step **2**. |
| 2 | **CHECK HARNESS.**<br>1) Disconnect the stereo camera connector and the lane departure warning OFF switch connector.<br>2) Using the tester, measure the resistance between the stereo camera connector and lane departure warning OFF switch connector.<br>***Connector & terminal***<br>***(R406) No. 4 — (R137) No. 13:***<br>***(R406) No. 5 — Chassis ground:*** | Is the resistance less than 1 Ω? | Go to step **3**. | Repair or replace an open circuit in harness between the stereo camera connector and lane departure warning OFF switch connector. |

| Step | | Check | Yes | No |
|---|---|---|---|---|
| 3 | **CHECK HARNESS.**<br>Using the tester, measure the resistance between the lane departure warning OFF switch connector and chassis ground.<br>***Connector & terminal***<br>***(R406) No. 4 — Chassis ground:*** | Is the resistance 1 MΩ or more? | Check the lane departure warning OFF switch. <Ref. to ES-32, INSPECTION, Switches and Harness.> | Repair or replace the short circuit to ground in harness between the stereo camera connector and lane departure warning OFF switch connector. |

## AT:DTC B28B8 EyeSight SWITCH 1 ABNORMAL

Detected when EyeSight steering switch is not installed or has malfunction, or when the harness is faulty or open-circuited or in stuck ON condition.

**DTC DETECTING CONDITION:**

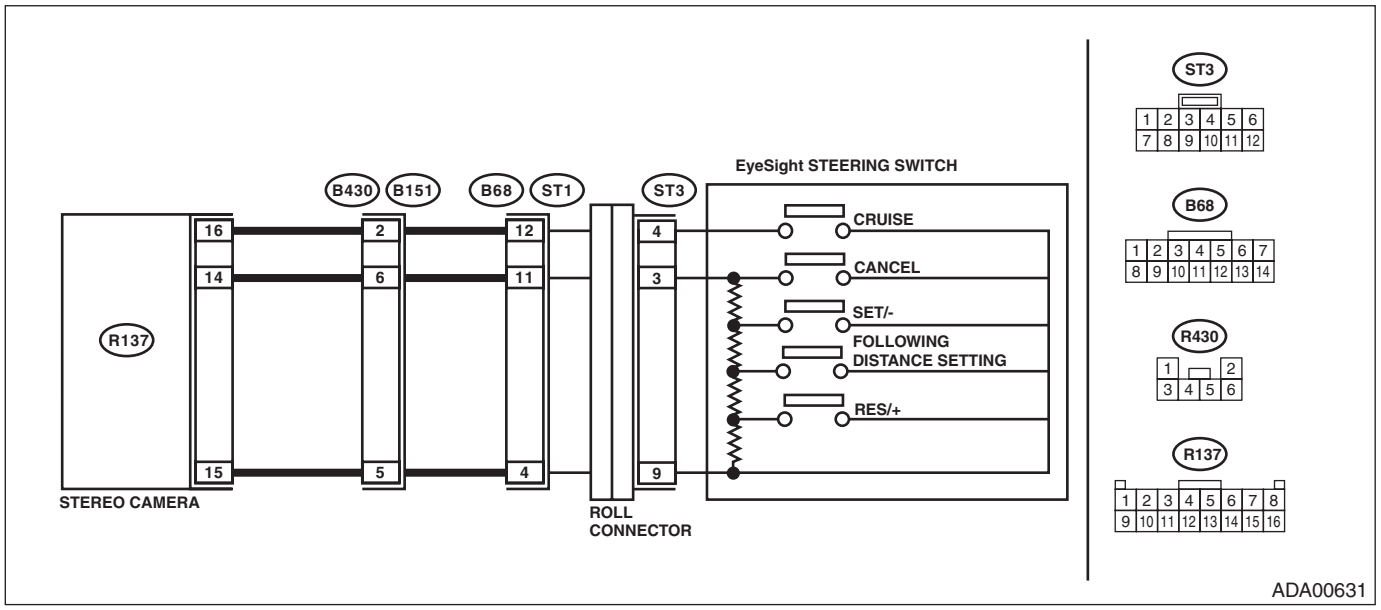
- Wiring of the EyeSight steering switch is not connected.
- EyeSight steering switch circuit is open.
- EyeSight steering switch circuit stays ON.

**TROUBLE SYMPTOM:**

All functions of EyeSight system do not operate.

**WIRING DIAGRAM:**

EyeSight System <Ref. to WI(w/o HEV)-126, WIRING DIAGRAM, EyeSight System.>




| Step | | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK CURRENT DATA.**<br>Confirm the current data «Cruise Control SW» of ADA adaptive cruise control system using Subaru Select Monitor. | Does the display change according to the EyeSight steering switch operation? | Even if DTC is displayed, the circuit has returned to a normal condition at this time. Reproduce the failure, and then perform the diagnosis again.<br>NOTE:<br>In this case, temporary poor contact of connector, or temporary open or short circuit of harness may be the cause. | Go to step **2**. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 2 | **CHECK HARNESS.**<br>1) Disconnect the stereo camera connector and EyeSight steering switch connector.<br>2) Using the tester, measure the resistance between stereo camera connector and EyeSight steering switch connector.<br>***Connector & terminal***<br>***(ST3) No. 4 — (R137) No. 16:***<br>***(ST3) No. 3 — (R137) No. 14:***<br>***(ST3) No. 9 — (R137) No. 15:*** | Is the resistance less than 1 Ω? | Go to step **3**. | Repair or replace an open circuit in harness between the stereo camera connector and the EyeSight steering switch connector. |
| 3 | **CHECK HARNESS.**<br>Using the tester, measure the resistance between EyeSight steering switch connector and chassis ground.<br>***Connector & terminal***<br>***(ST3) No. 4 — Chassis ground:***<br>***(ST3) No. 3 — Chassis ground:***<br>***(ST3) No. 9 — Chassis ground:*** | Is the resistance 1 MΩ or more? | Check the EyeSight steering switch. <Ref. to ES-33, INSPECTION, Cruise Control Command Switch.> | Repair or replace the short circuit to ground in harness between the stereo camera connector and the EyeSight steering switch connector. |

## AU:DTC B28B9 EyeSight SWITCH 2 ABNORMAL

Detected when EyeSight steering switch is not installed or has malfunction, or when the harness is faulty or open-circuited or in stuck ON condition.
Refer to DTC B28B8 for diagnostic procedure. <Ref. to ES(diag)-93, DTC B28B8 EyeSight SWITCH 1 ABNORMAL, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

# LAN SYSTEM (DIAGNOSTICS)

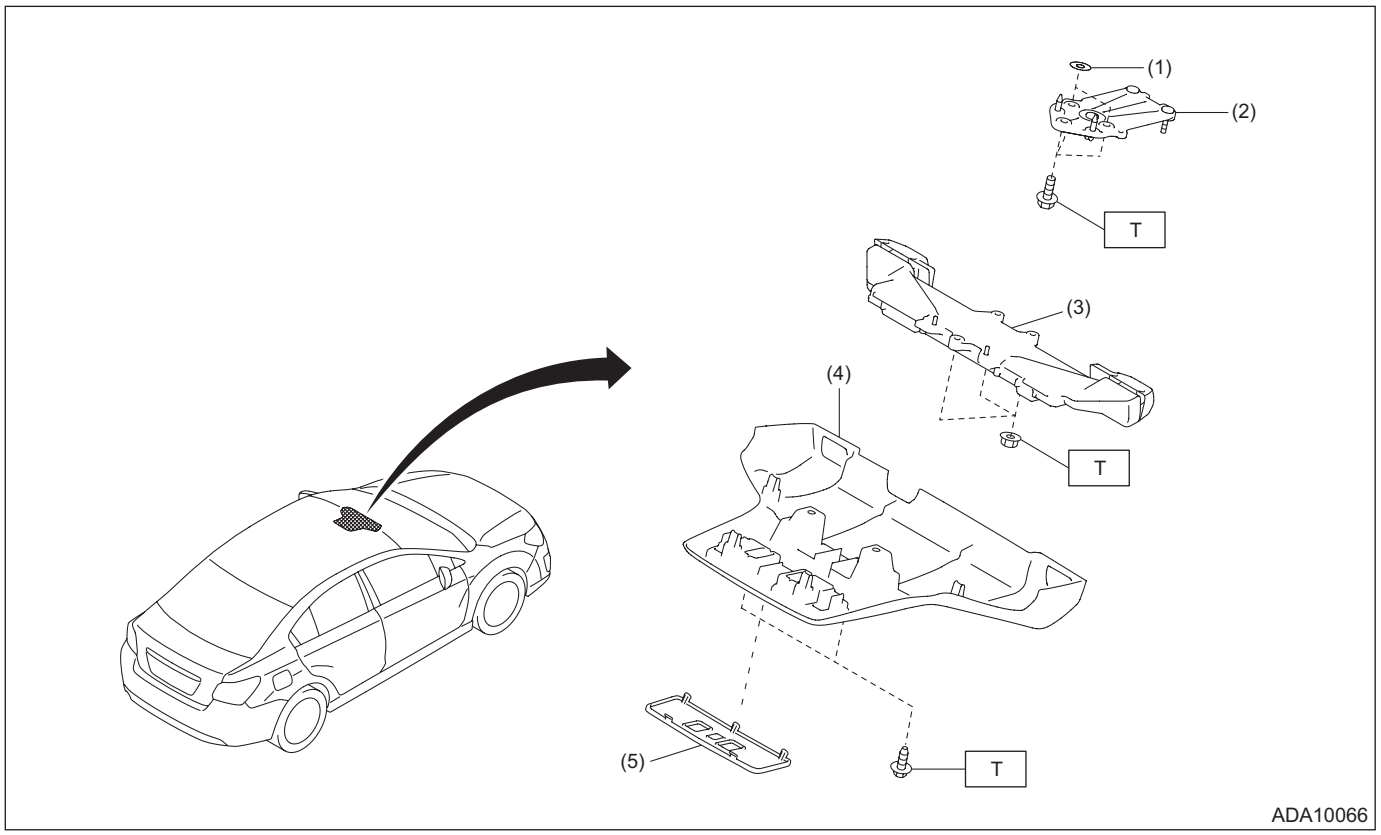
# *LAN(HEV)(diag)*


| | | Page |
|---|---|---|
| 1. | Basic Diagnostic Procedure | 2 |
| 2. | Check List for Interview | 4 |
| 3. | General Description | 5 |
| 4. | Electrical Component Location | 8 |
| 5. | Control Module I/O Signal | 9 |
| 6. | Subaru Select Monitor | 10 |
| 7. | Read Diagnostic Trouble Code (DTC) | 27 |
| 8. | Clear Memory Mode | 28 |
| 9. | CAN Communication Circuit Check | 29 |
| 10. | List of Diagnostic Trouble Code (DTC) | 87 |
| 11. | Diagnostic Procedure with Diagnostic Trouble Code (DTC) | 111 |
| 12. | General Diagnostic Table | 153 |

# 1. General Description

## A: COMPONENT

### 1. STEREO CAMERA




(1) Shim (washer)
(2) Camera plate
(3) Stereo camera
(4) Stereo camera cover ASSY
(5) Cap

***Tightening torque: N·m (kgf-m, ft-lb)***
***T: 5.5±1.0 (0.56±0.10, 4.1±0.7)***

## B: LOCATION

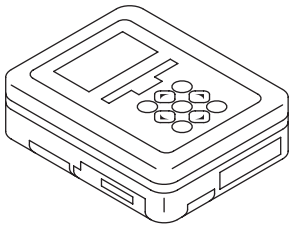
Refer to “LOCATION” of “EyeSight (DIAGNOSTICS)” section. <Ref. to ES(diag)-14, LOCATION, Electrical Component Location.>

## C: CAUTION

• Before disconnecting connectors of sensors or units, be sure to disconnect the ground cable from battery. When replacing the electrical parts provided with memory functions that store contents specified by a customer, record the memory contents before disconnecting the battery ground cable.
• Be careful of the following items. Failing to do so may cause the airbag system malfunction.
  – Yellow connectors and harnesses with yellow tapes around them are the connectors and harnesses for the airbag system. When using a tester on these circuits, follow the cautions of “AIRBAG SYSTEM”. <Ref. to AB-10, CAUTION, General Description.>
  – Be careful not to damage the airbag system wiring harness when servicing the electrical parts around the steering column.
• When removing, installing or replacing the VDCCM&H/U, VDCCM&H/U bracket, steering wheel or steering angle sensor (steering roll connector), perform the VDC setting mode. <Ref. to VDC-26, ADJUSTMENT, VDC Control Module and Hydraulic Control Unit (VDCCM&H/U).>
• If the damage is found in the glass repair prohibited area, always replace the glass. <Ref. to ES(diag)-7, WINDSHIELD GLASS AND DASHBOARD, INSPECTION, General Description.>
Damage in the prohibited area can affect the recognition of the stereo camera even if it is repaired, and thereby EyeSight function may not operate properly.

# D: PREPARATION TOOL

## 1. SPECIAL TOOL

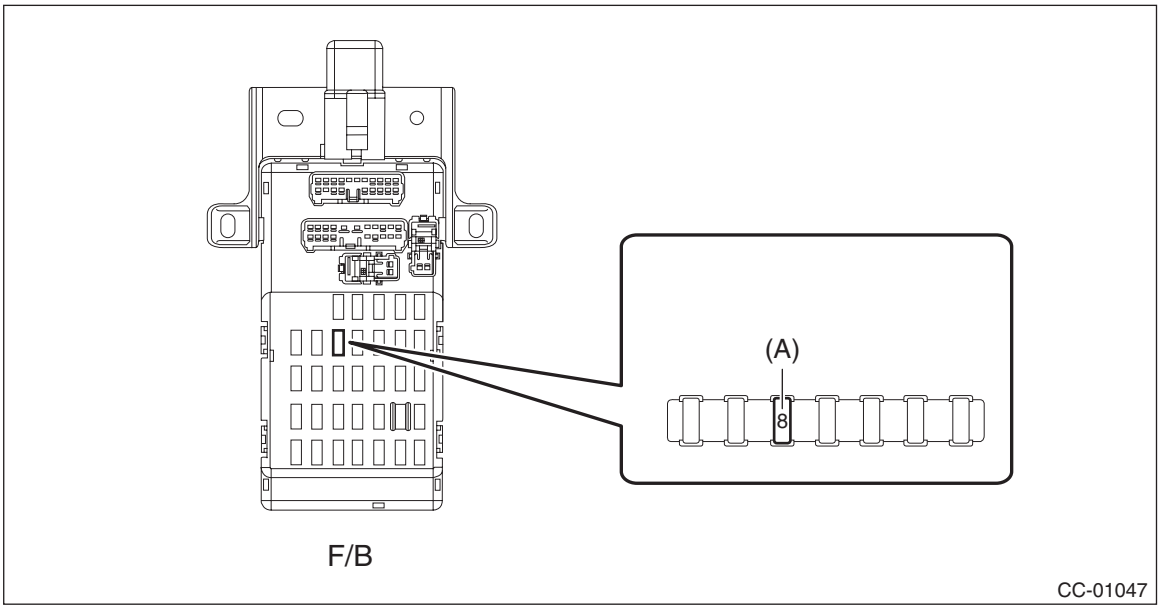
| ILLUSTRATION | TOOL NUMBER | DESCRIPTION | REMARKS |
|---|---|---|---|
| ST87599VA000 | 87599VA000 (Newly adopted tool) | RANDOM CHART | Used for adjusting stereo camera. |
|  ST1B022XU0 | 1B022XU0 | SUBARU SELECT MONITOR III KIT | Used for setting of each function and trouble-shooting for electrical system.<br>NOTE:<br>For detailed operation procedures of SUBARU SELECT MONITOR III, refer to “PC application help for Subaru Select Monitor”. |

## 2. GENERAL TOOL

| TOOL NAME | REMARKS |
|---|---|
| Circuit tester | Used for measuring resistance and voltage. |
| Measure (5 m (16 ft) or more) | Used for adjusting stereo camera. |
| Leveling line | |
| Plumb bob | |
| Packing tape | |

# 2. Relay and Fuse

## A: LOCATION




| | | |
|---|---|---|
| Relay & fuse box | Fuse 15 A (stop light and brake switch, brake relay) | (A) |

NOTE:
For other related fuses, refer to the wiring diagram. <Ref. to WI(w/o HEV)-16, Power Supply Circuit.>

## B: INSPECTION

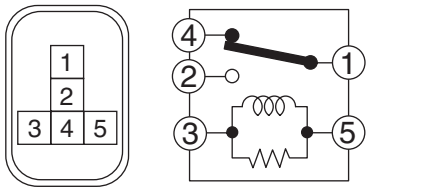
### 1. CHECK FUSE

1) Remove the fuse and inspect visually.
2) If the fuse is blown out, replace the fuse.

NOTE:
If the fuse is blown again, check the system wiring harness.

### 2. CHECK RELAY

1) Measure the resistance between relay terminals.

| Terminal No. | Inspection conditions | Standard | Circuit |
|---|---|---|---|
| 1 — 2 | Always | 1 MΩ or more |  |
| 1 — 4 | Always | Less than 1 Ω | |
| 1 — 2 | Apply battery voltage between terminals 3 and 5. | Less than 1 Ω | |



2) Replace the relay if the inspection result is not within the standard value.

# 3. EyeSight System

## A: WIRING DIAGRAM

Refer to “EyeSight System” in the wiring diagram. <Ref. to WI(w/o HEV)-126, WIRING DIAGRAM, EyeSight System.>

## B: INSPECTION

Refer to “Basic Diagnostic Procedure” of “EyeSight (DIAGNOSTICS)” section. <Ref. to ES(diag)-2, Basic Diagnostic Procedure.>

## C: NOTE

For procedure of each component in the EyeSight system, refer to the respective section.

- Control module: <Ref. to ES-6, Control Unit.>
- Stereo camera: <Ref. to ES-7, Stereo Camera.>
- Cruise control command switch: <Ref. to ES-33, Cruise Control Command Switch.>
- Combination meter: <Ref. to ES-34, Combination Meter.>
- Transmission control module (TCM): <Ref. to ES-35, Transmission Control Module (TCM).>
- Stop light and brake switch: <Ref. to ES-36, Stop Light & Brake Switch.>
- VDC control module & hydraulic control unit (VDCCM&H/U): <Ref. to ES-37, VDC Control Module and Hydraulic Control Unit (VDCCM&H/U).>
- Multi-function display (MFD): <Ref. to ES-38, Multi-function Display (MFD).>
- Switches and harness: <Ref. to ES-32, Switches and Harness.>
- Power steering control module: <Ref. to ES-39, Power Steering Control Module.>
- Roll connector (steering angle sensor): <Ref. to ES-40, Roll Connector.>
- Body integrated unit: <Ref. to ES-41, Body Integrated Unit.>

# 4. Control Unit

## A: NOTE

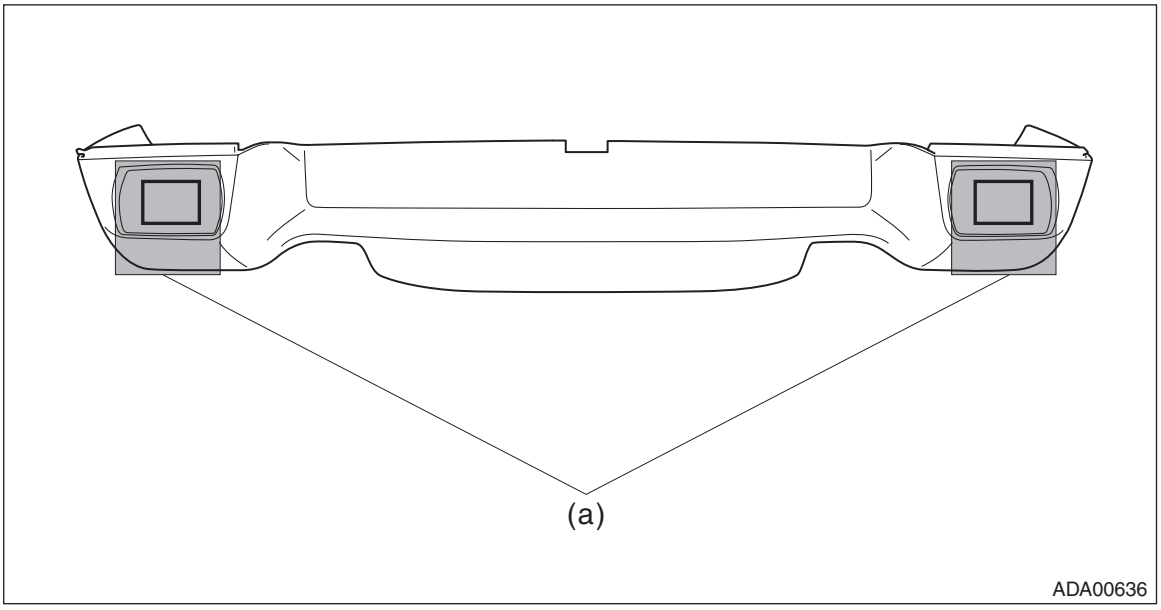
System control of the EyeSight is performed by each module. For procedure, refer to the following sections.

- Engine control module (ECM): <Ref. to FU(H4DO(w/o HEV))-100, Engine Control Module (ECM).>
- Transmission control module (TCM): <Ref. to CVT(TR580)-146, Transmission Control Module (TCM).>
- VDC control module (VDC CM): <Ref. to VDC-10, VDC Control Module and Hydraulic Control Unit (VDC-CM&H/U).>
- Stereo camera: <Ref. to ES-7, Stereo Camera.>

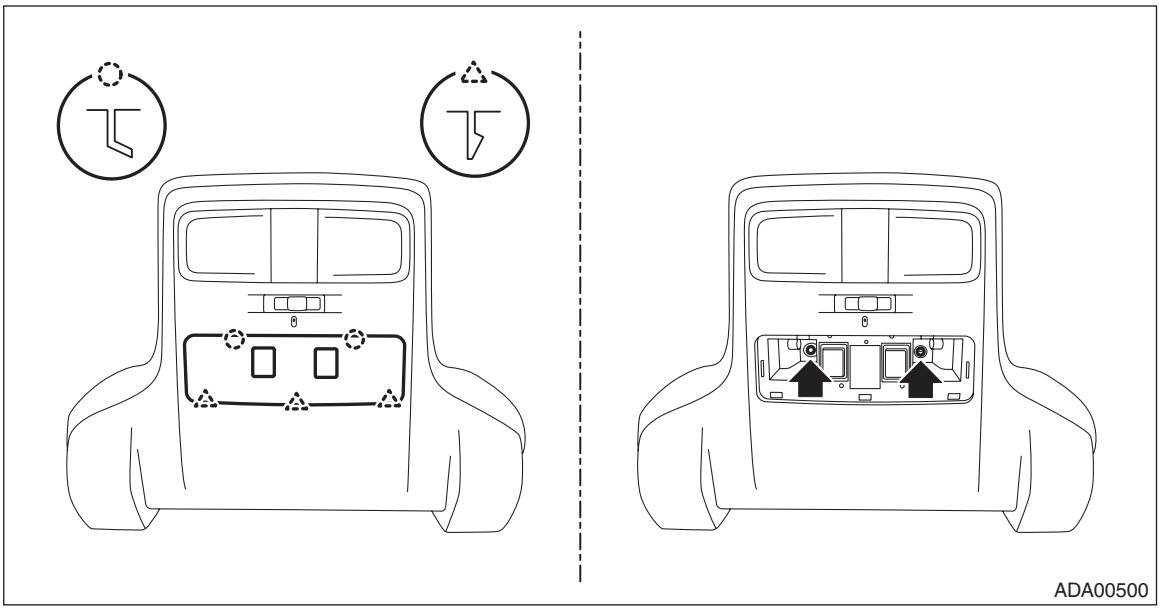
# 5. Stereo Camera

## A: REMOVAL

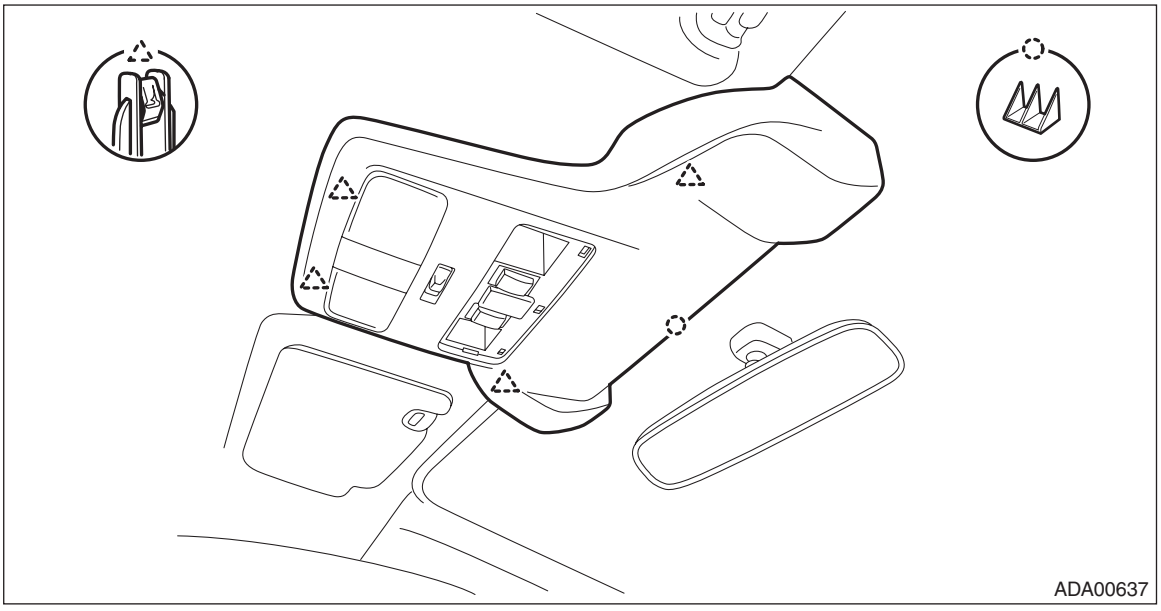
**CAUTION:**
**• When the stereo camera or windshield glass has been replaced, removed or installed, always perform the adjustment and inspection of the camera. (When the stereo camera has been replaced with a new part, the camera remains in a failed state until adjustment and inspection are performed.)**
**• Since the stereo camera is a precision equipment, install the protective cover before handling it. (New stereo camera is equipped with a protective cover as a service part.)**
**• During removal, do not hold at the left and right cameras.**
**• Do not apply any impact to the stereo camera. (Even the slightest shock will deviate the optical axis of the camera, resulting in the loss of normal operation of the camera.)**
**• Do not disassemble the stereo camera.**
**• Attach the protective cover to the replacement part, put it into the box in the same way as the other parts and return it. Cover the replaced stereo camera with a protective cover.**
**• Do not touch the lens filter on the stereo camera. If touched, replace the stereo camera.**
**• When removing the stereo camera cover assembly, cover with dust-free paper such as copy paper to avoid interference with the camera lens, and attach the paper using tape while being careful not to let the adhesive surface contact the glass surface. Be sure to remove the paper after the procedure.**
1) Disconnect the ground cable from battery.
2) Attach dust-free paper (a) such as copy paper to the stereo camera cover assembly.



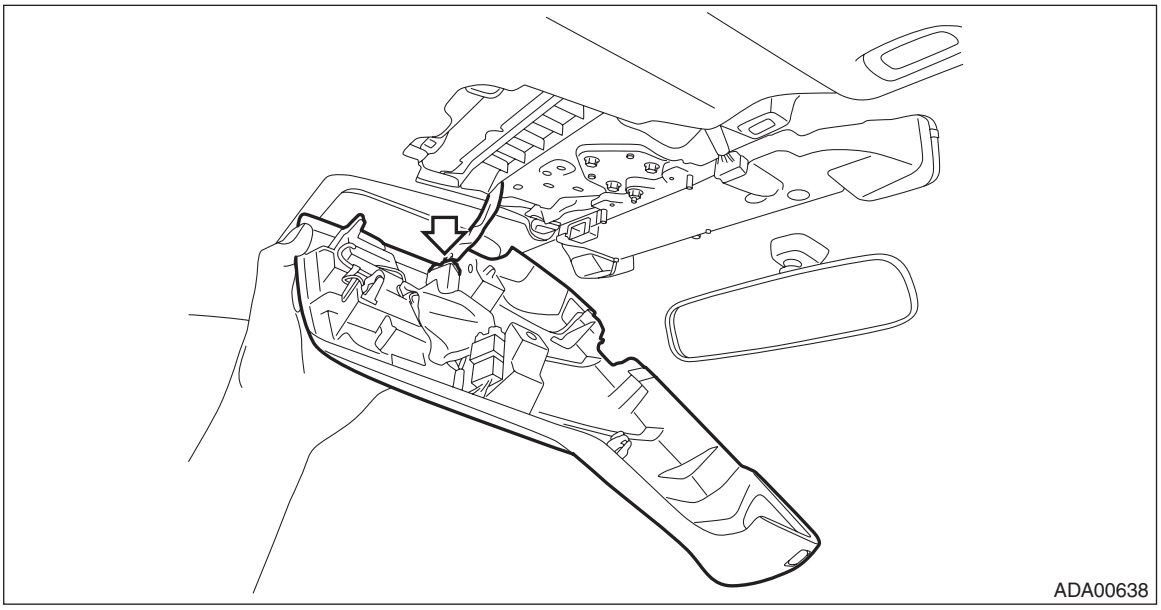
3) Remove the stereo camera cover assembly.
(1) Disconnect the claws and hooks and remove the cap.
(2) Remove the bolt.



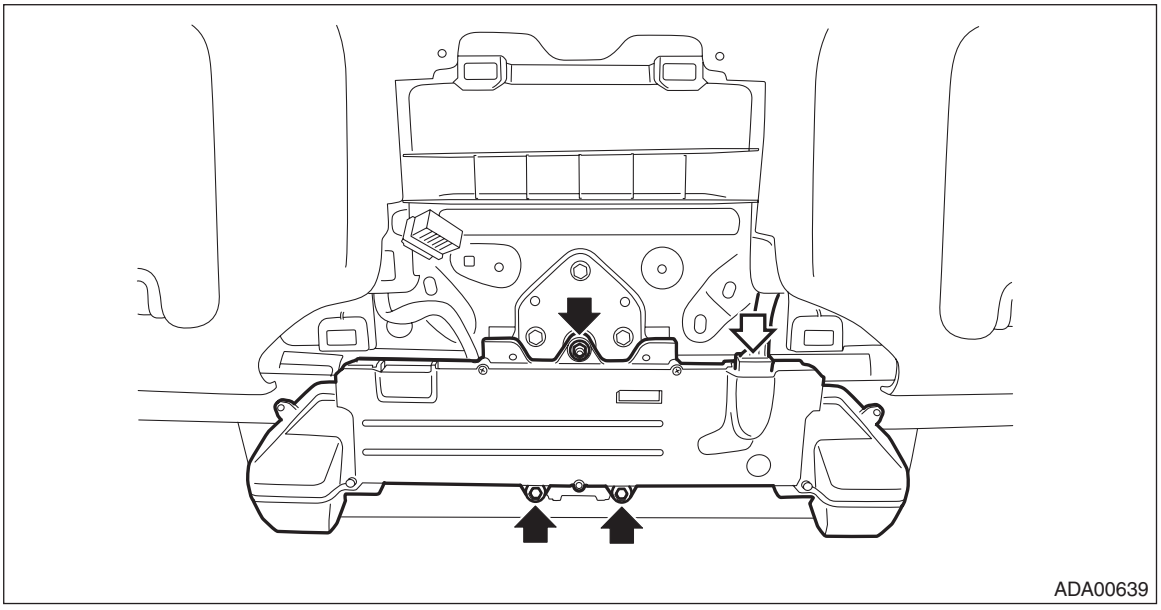

(3) Pull down the rear of the stereo camera cover assembly, and then release the clips.
(4) Release the hook on the front side of stereo camera cover assembly.



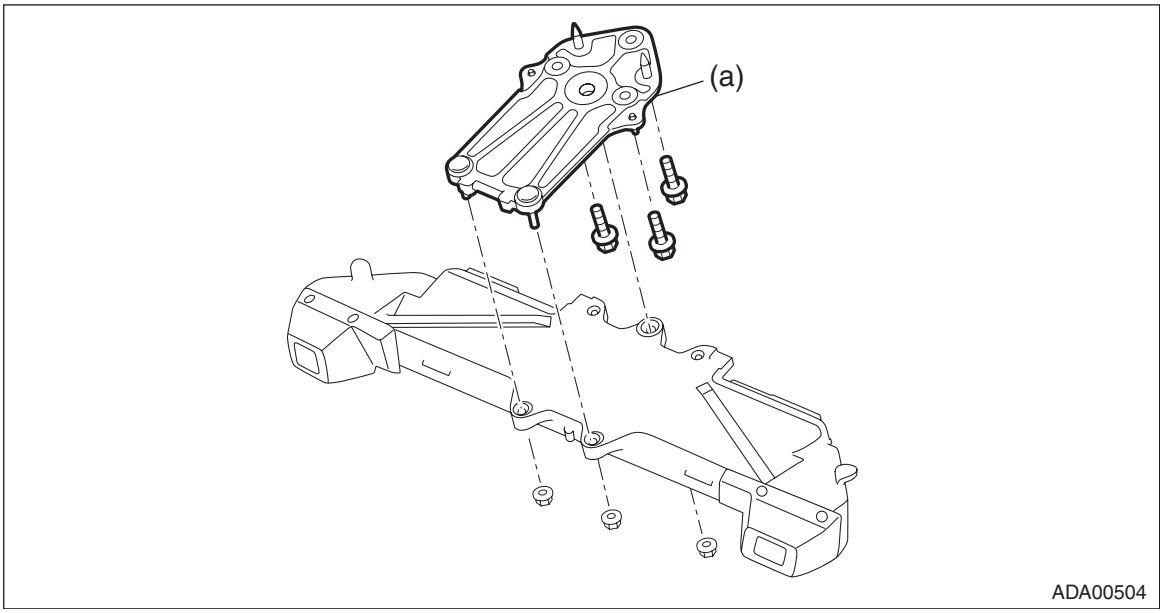
(5) Disconnect the connectors, and remove the stereo camera cover assembly.




4) Remove the stereo camera.
(1) Disconnect the connector.
(2) Remove the nuts, and then remove the stereo camera.



NOTE:
Remove the camera plate (a) as required.




## B: INSTALLATION

**CAUTION:**
**• Do not remove the protective cover until just before installing the stereo camera cover assembly. Using the bolt and nut, install the stereo camera with the protective cover attached, connect the connectors, and then remove the protective cover.**
**• Do not apply any impact to the stereo camera. (Even the slightest shock will deviate the optical axis of the camera, resulting in the loss of normal operation of the camera.)**
**• During installation, do not hold at the left and right cameras.**
**• Do not change the installation position of the stereo camera or do not modify the surrounding structure.**
**• Remove the protective cover, install the stereo camera cover assembly, and then perform adjustment and inspection of the stereo camera. <Ref. to ES-12, Camera Adjustment, Inspection.>**
**• Do not touch the lens filter on the stereo camera. If touched, replace the stereo camera.**
**• When installing the stereo camera cover assembly, cover with dust-free paper such as copy paper to avoid interference with the lens filter, and attach the paper using tape while being careful not to let the adhesive surface contact the glass surface. Be sure to remove the paper after the procedure.**
**• When installing the stereo camera cover assembly, take care so that the harness does not interfere with or is not caught by the stereo camera.**
**• Do not allow the stereo camera cover assembly to come in contact with the stereo camera. Install the stereo camera cover assembly precisely so that it will not block the visibility of the camera.**
**• Because the stereo camera is incompatible, be sure to check the part number before installation.**
1) Attach the camera plate.

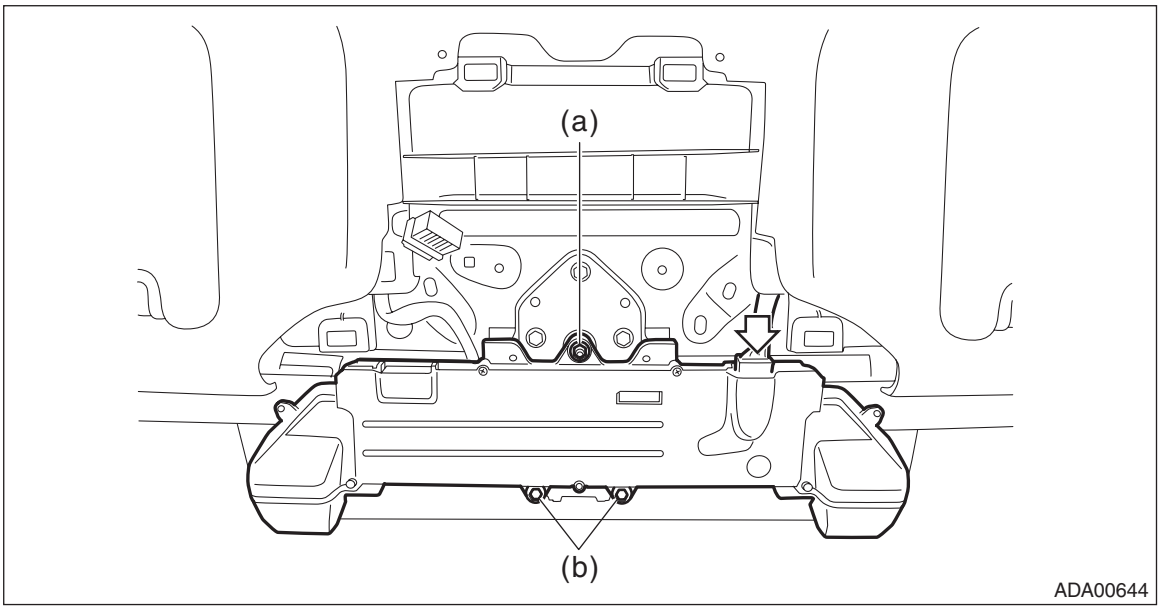
NOTE:
Align the positioning pins of camera plate to the positioning holes of front rail.

***Tightening torque:***
***5.5±1.0 N·m (0.56±0.10 kgf-m, 4.1±0.7 ft-lb)***

2) Install the stereo camera.

***Tightening torque:***
***5.5±1.0 N·m (0.56±0.10 kgf-m, 4.1±0.7 ft-lb)***

NOTE:
- Align the positioning holes of stereo camera to the positioning pins of camera plate.
- When installing the stereo camera, install the nuts (a) and (b).




3) Install the stereo camera cover assembly.
4) Connect the battery ground terminal.
5) Perform the adjustment or inspection of the stereo camera. <Ref. to ES-12, Camera Adjustment, Inspection.>

# 6. Camera Adjustment, Inspection

## A: PROCEDURE

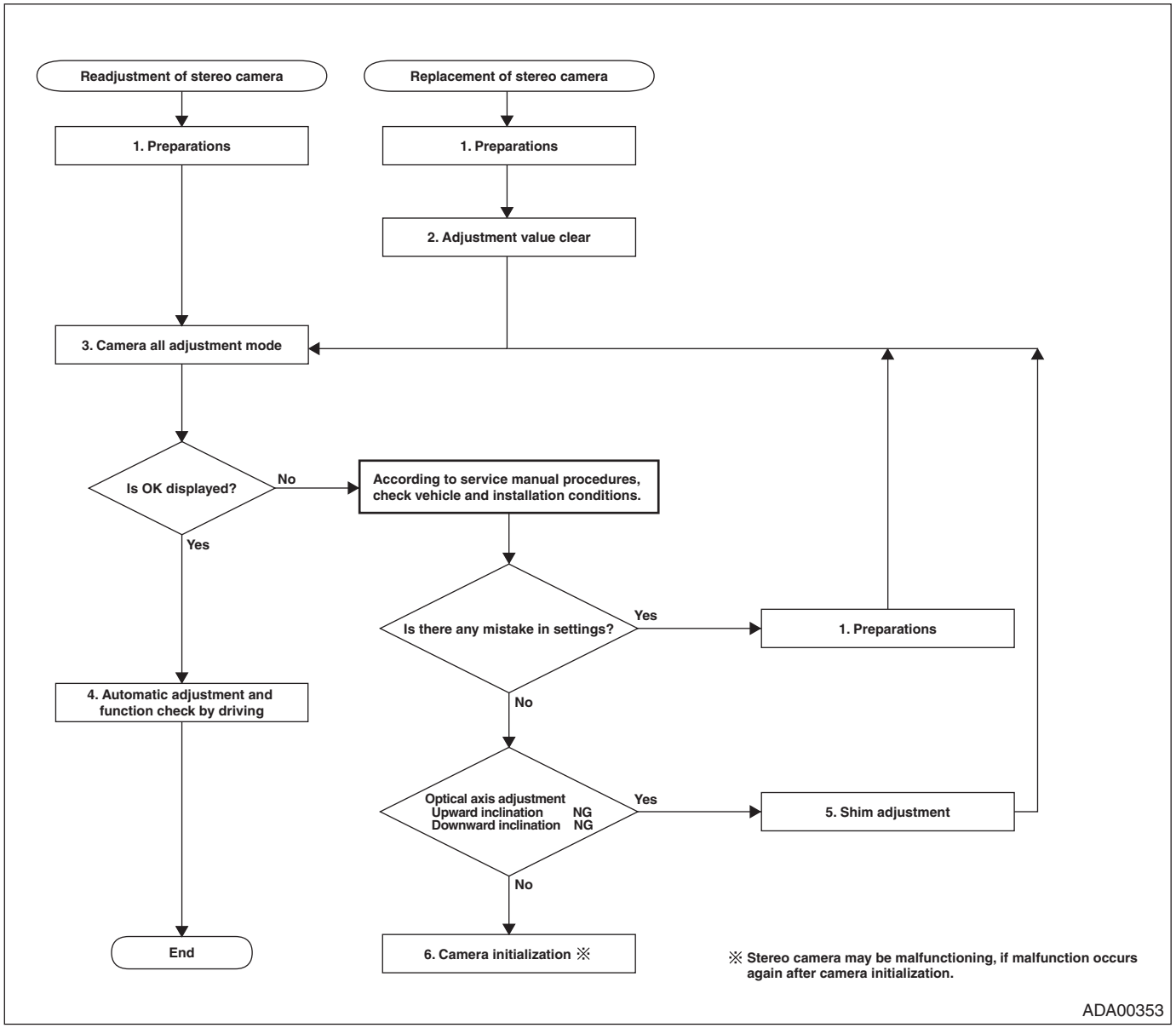
**CAUTION:**
- **Perform the camera adjustment and inspection at curb weight without passengers.**
- **Handle RANDOM CHART (ST: 87599VA000) carefully so as not to break it with the adhesive force of the tape.**

Perform inspection or adjustment according to the following procedures.
- Readjustment of stereo camera

Perform the adjustment in the following order: [1. Preparations] → [3. Camera all adjustment mode (replacement/removal)] → [4. Automatic adjustment and function check by driving].
- Replacement of stereo camera

Perform the replacement in the following order: [1. Preparations] → [2. Adjustment value clear] → [3. Camera all adjustment mode (replacement/removal)] → [4. Automatic adjustment and function check by driving].

NOTE:
When the stereo camera or windshield glass has been removed or installed, always perform readjustment of the stereo camera.



## 1. PREPARATIONS

Perform the preparation of the adjustment and inspection for the stereo camera.

- **When performing adjustment or inspection by affixing RANDOM CHART onto partition**

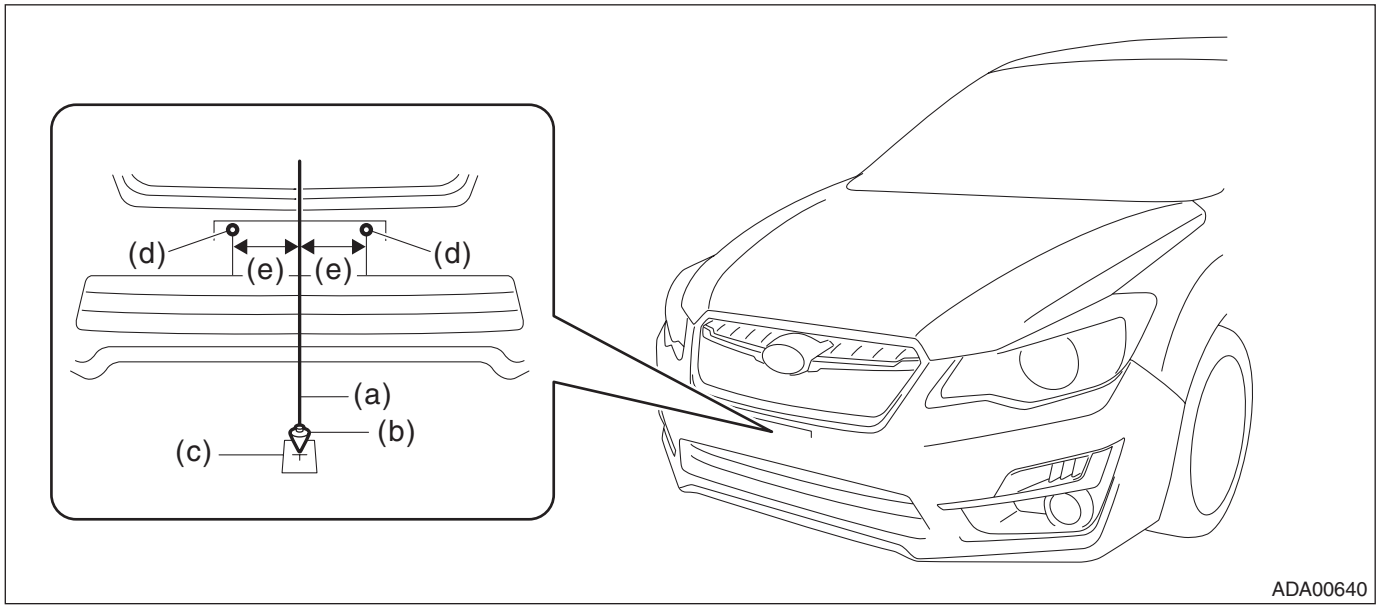
1) Before preparation, check the following items.
   (1) The headlight is off.
   (2) The vehicle is parked on a level surface.
   (3) The inflation pressure of tires is correct.
   (4) The vehicle does not have load.
   (5) The front wheels are directed to the straight ahead position, when the steering wheel is set to the center position.

NOTE:
When the front wheels are not directed to the straight ahead position, adjust the alignment. <Ref. to FS-12, ADJUSTMENT, Wheel Alignment.>

2) Prepare the Subaru Select Monitor, measure, plumb bob, leveling line and RANDOM CHART (ST: 87599VA000).

3) Stop the vehicle on a level surface where approximately 5 m (16.41 ft) space can be secured in front of the vehicle.

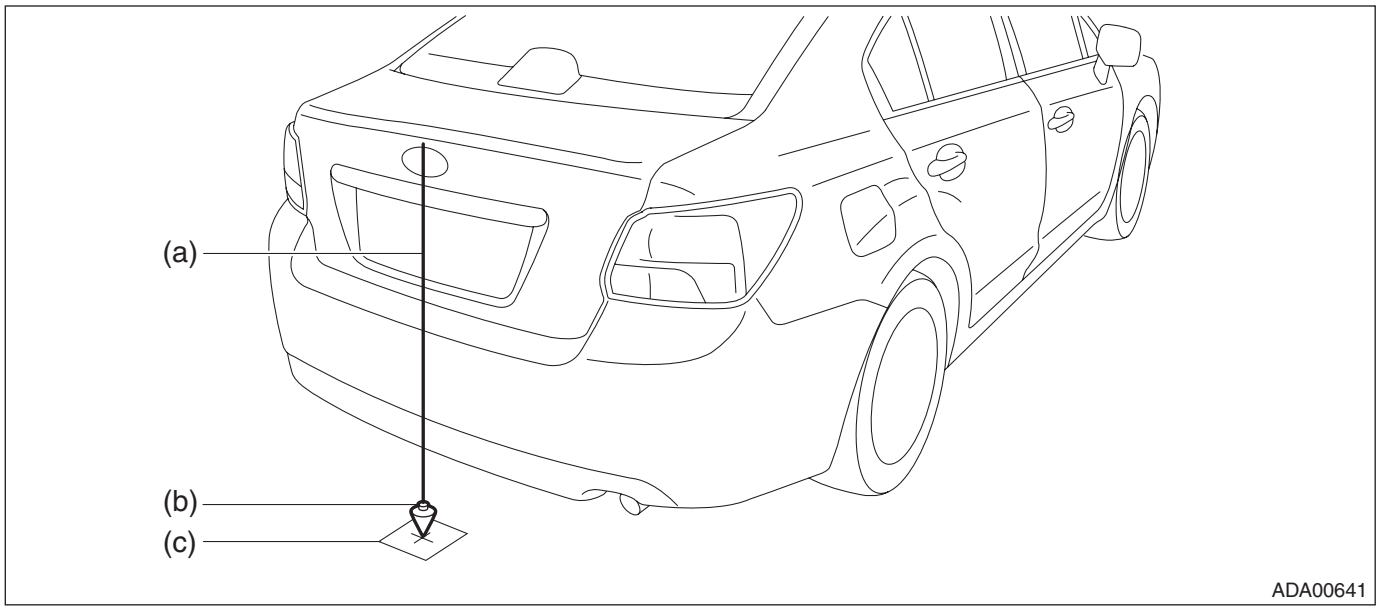
4) Suspend the plumb bob with leveling line from front center position of vehicle (center of number plate base), and mark the position where the plumb bob touches the ground. (Point A)




(a) Leveling line
(b) Plumb bob
(c) Point A
(d) License plate base
(e) Same distance

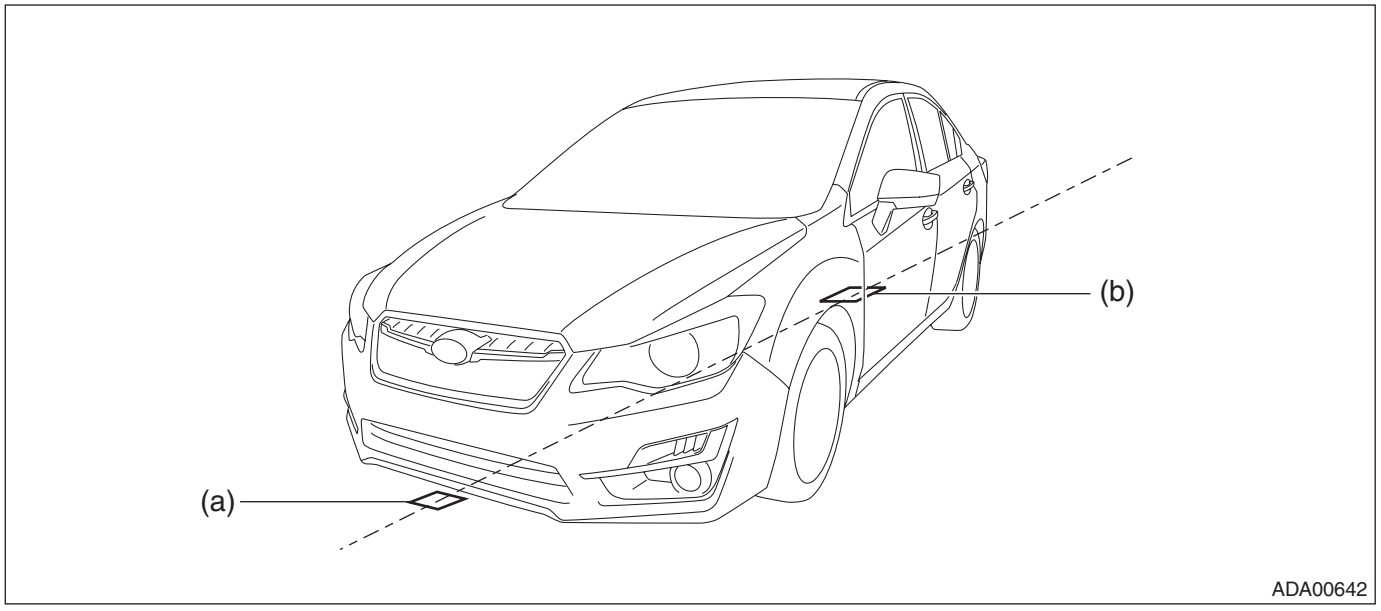
NOTE:
Stick the packing tape etc. on the floor, then make a marking on the tape.

5) Suspend the plumb bob with leveling line from rear center position of vehicle (center of rear bumper), and mark the position where the plumb bob touches the ground.




(a) Leveling line (b) Plumb bob (c) Point B

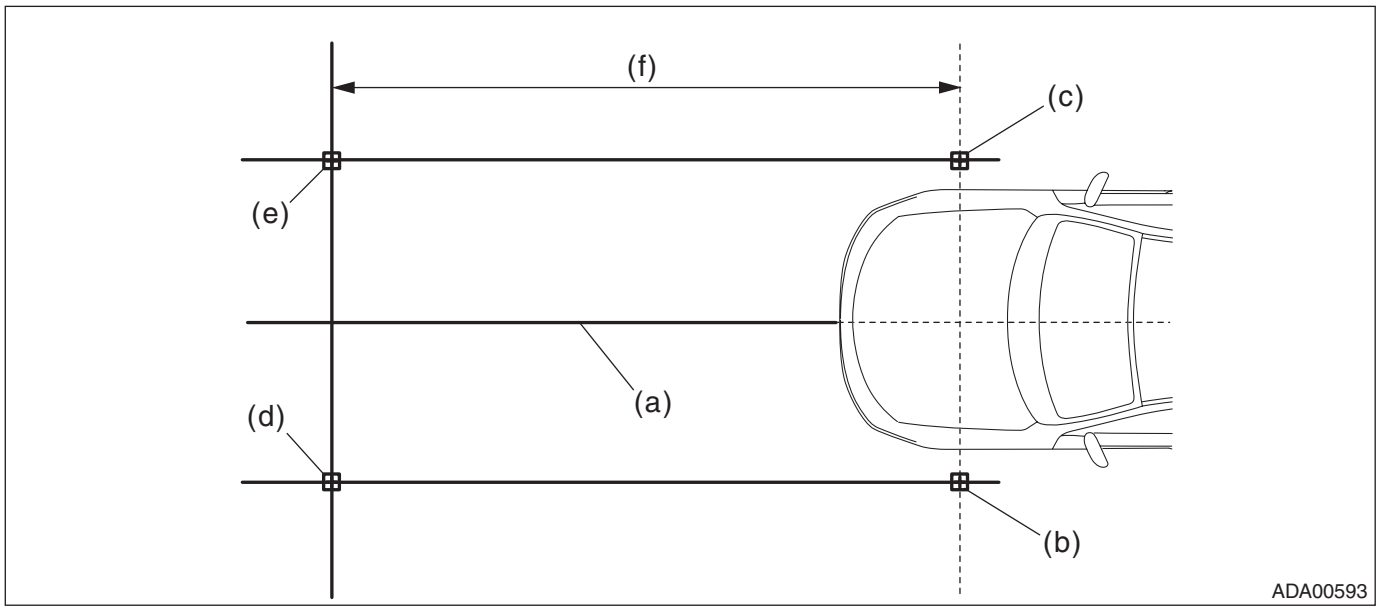
6) Strain approximately 5 m (16.41 ft) leveling line from the marking point B through the marking point A toward front of the vehicle, and fix it with packing tape. (A-B line)




(a) Point A (b) Point B

NOTE:
Confirm that there is no wet condition or unevenness on the floor, to strain the leveling line correctly.

7) Mark the installation position of the partition.
(1) Suspend the plumb bob from the center of each front wheel, and mark the point C and point D.
(2) Strain the leveling line from the point C and point D toward the front of vehicle parallel to the vehicle body center line (A-B line), and fix the leveling line with packing tape.
(3) Make markings at the points 4,000 mm (13 ft, 1 1/2 in) ahead of the vehicle from the point C and point D. (Point E and point F)
(4) Strain the leveling line so that it passes through the point E and point F. (E-F line)

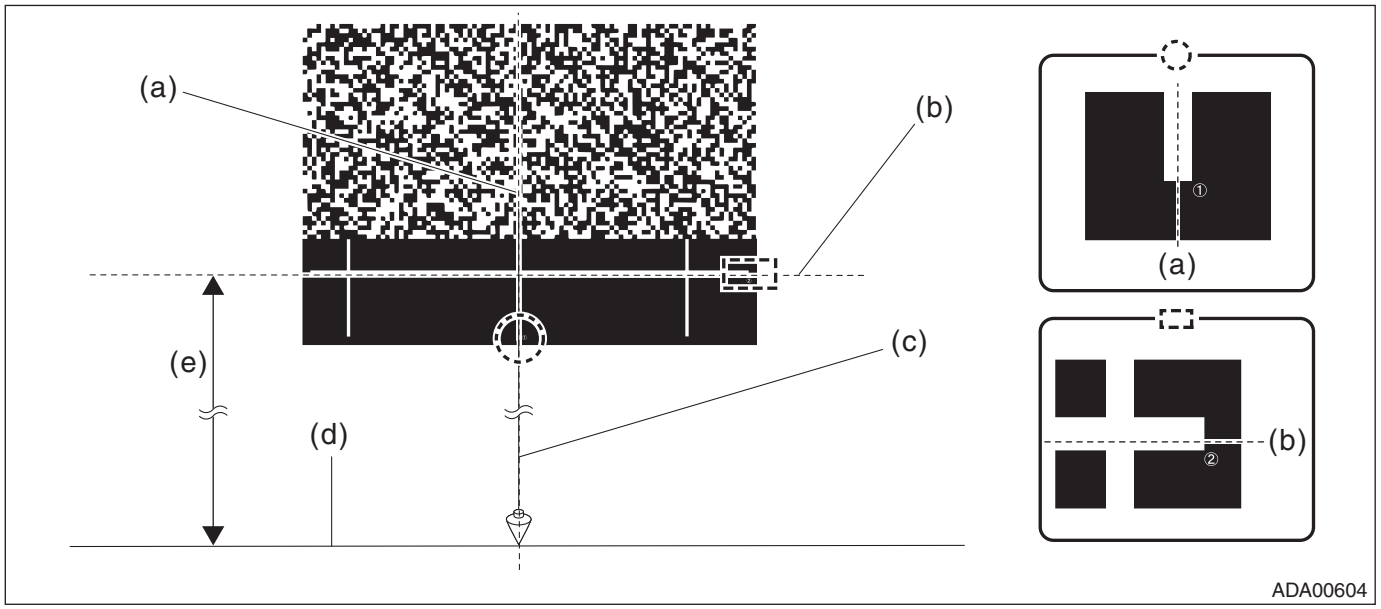



(a) Vehicle body center line (A-B line)
(b) Point C
(c) Point D
(d) Point E
(e) Point F
(f) 4,000 mm (13 ft, 1 1/2 in)

8) Place the partition and RANDOM CHART.

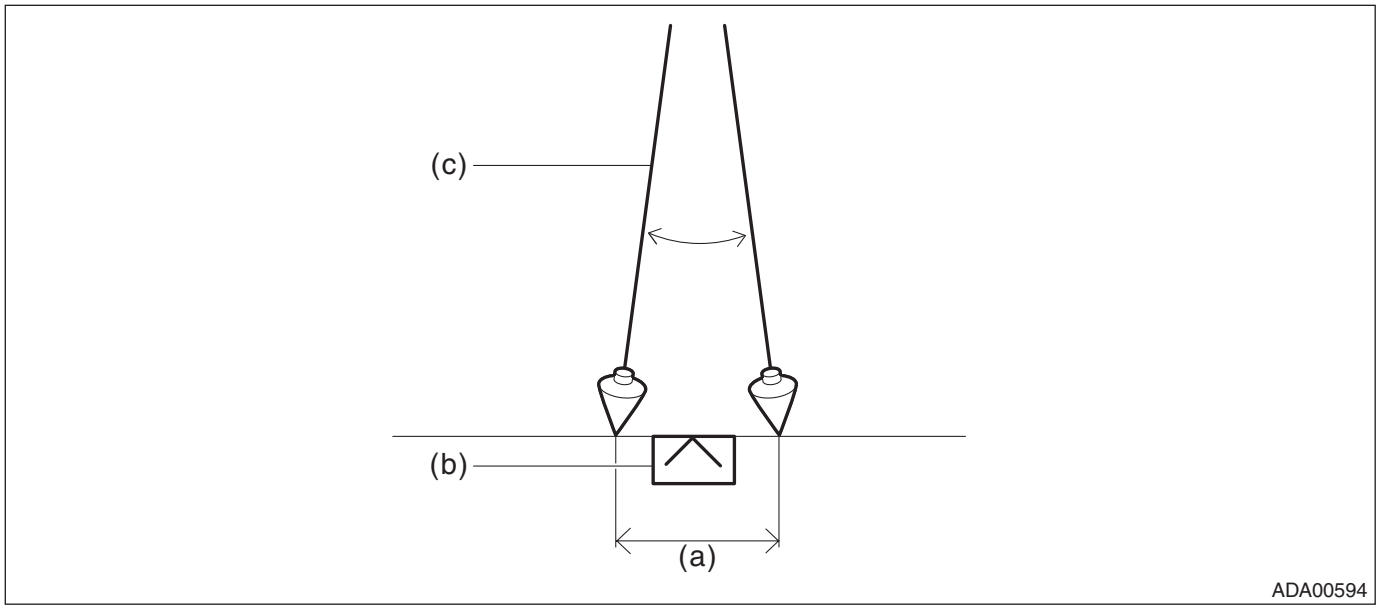
**CAUTION:**
**• Affix the RANDOM CHART onto the vertical partition with flat surface.**
**• When affixing the RANDOM CHART using tape, place the tape within 10 mm (0.39 in) from the edge of the CHART. In this case, do not affix with lustrous tapes which may reflect the light.**
**• Perform the adjustment work at lighted places. If the lighting is not enough, adjustment cannot be done, and accuracy rate may not be acquired.**
**• The adjustment in the outdoors cannot be recommended. Note the sun position, when adjusting it in outdoor by necessity. (It is not acceptable when the sunlight comes from front or rear of the vehicle)**

(1) Using the plumb bob, attach the RANDOM CHART on the partition, so that the setting reference (vertical line) center is aligned with the vehicle body center line (leveling line) and the height of the setting reference (horizontal line) center from the floor is 1,000 mm (3 ft, 3 3/8 in).
(2) Adjust the partition so that it is parallel to E-F line.



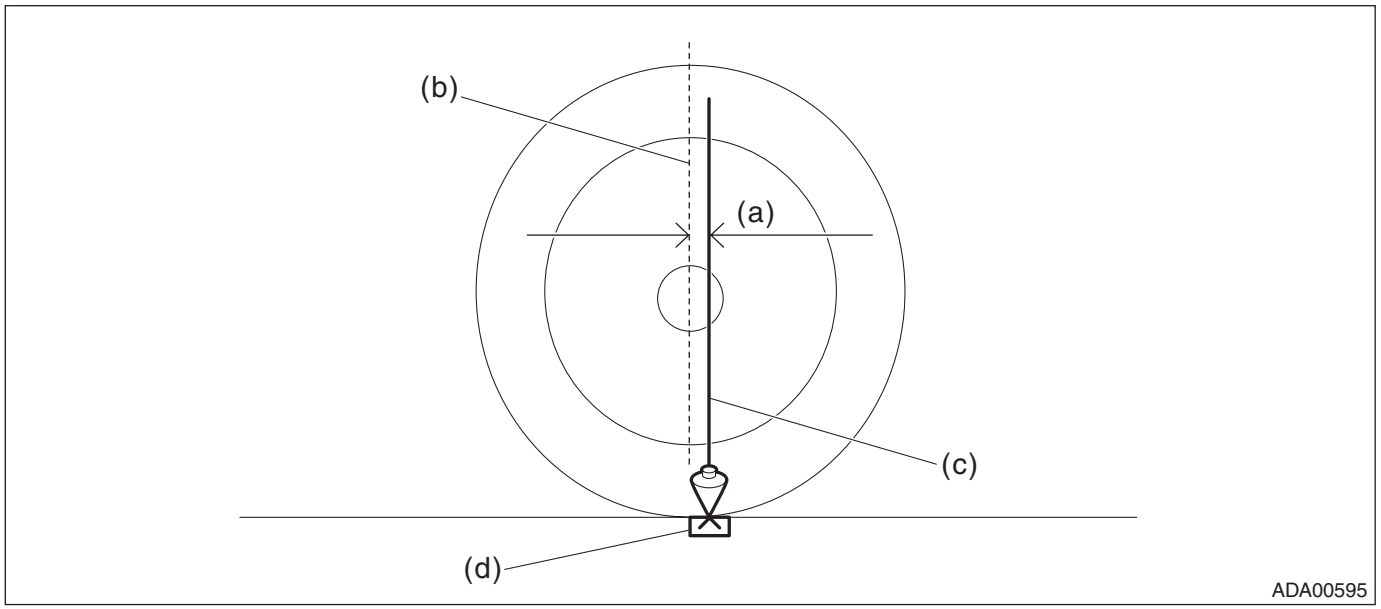

(a) ① = Setting reference (vertical line) and vehicle body center line (A-B line)
(b) ② = Setting reference (horizontal line)
(c) Plumb bob
(d) E-F line
(e) 1,000 mm (3 ft, 3 3/8 in)

**CAUTION:**
- **Centering accuracy of the plumb bob shall be ±4.0 mm (±0.16 in) or less.**



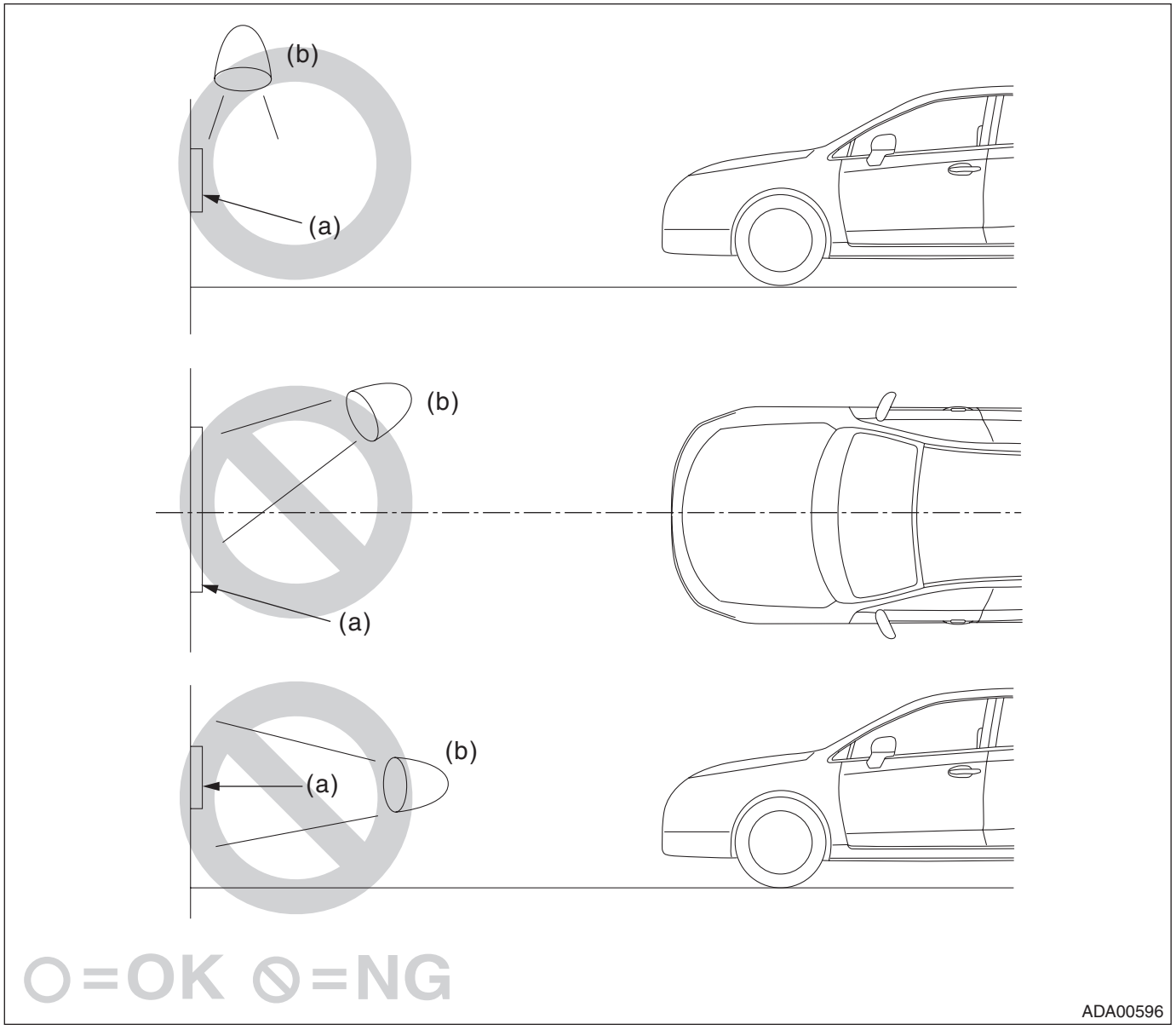

(a) ±4.0 mm (±0.16 in) (b) Marking (c) Plumb bob

- **Positioning accuracy of the measure shall be ±2.0 mm (±0.08 in) or less.**
- **Centering accuracy of the tire shall be ±4.0 mm (±0.16 in) or less.**



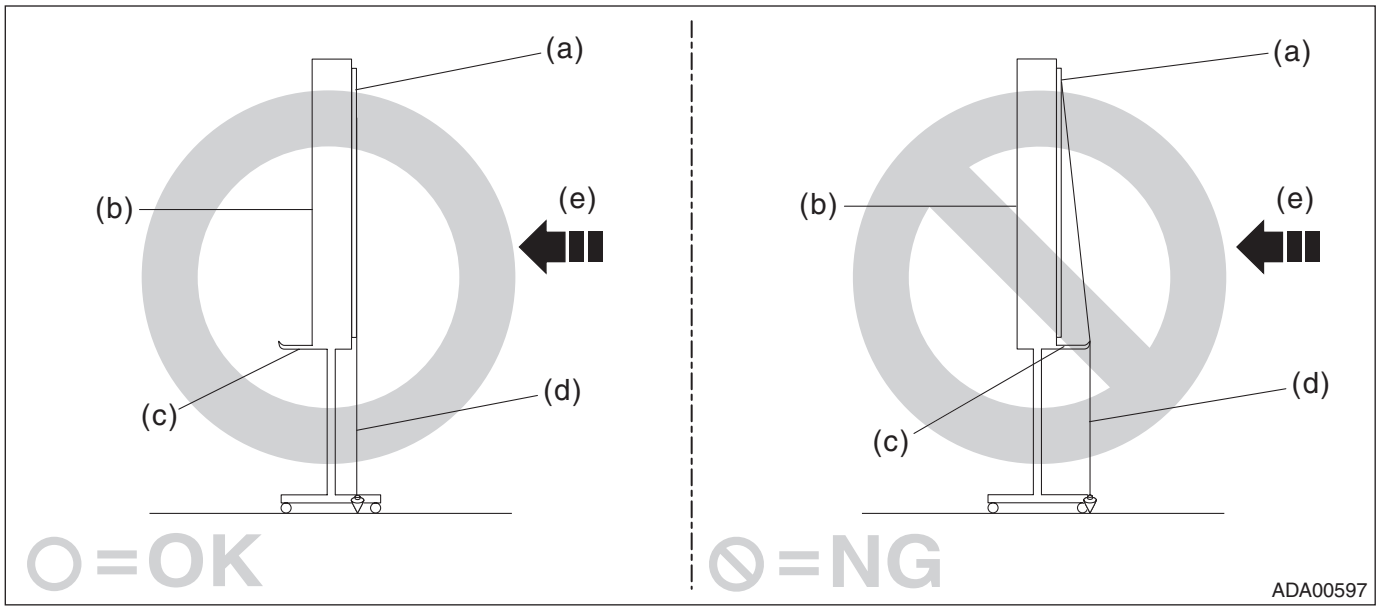

(a) ±4.0 mm (±0.16 in) (c) Plumb bob (d) Marking
(b) Tire center line

**• Apply the lighting from the upper direction of RANDOM CHART, and make adjustment so that brightness is even in the CHART. (If the lighting is applied from the position where light reflects at RANDOM CHART, the adjustment cannot be done, because the reflected light enters the camera.)**




(a) RANDOM CHART (b) Lighting

**• When using a white board as a partition, affix the RANDOM CHART on the flat surface without protrusion such as penholder. When suspending the plumb bob, suspend it vertically from the RANDOM CHART by avoiding protrusion.**




(a) RANDOM CHART
(b) White board
(c) Protrusion (penholder, etc.)
(d) Plumb bob
(e) Vehicle travel direction

9) Turn the ignition to OFF.
10) Check the windshield glass and the dashboard. <Ref. to ES(diag)-7, WINDSHIELD GLASS AND DASHBOARD, INSPECTION, General Description.>

**CAUTION:**
**If there are any dirt, object or reflection from dashboard within the visibility of stereo camera, the correct adjustment and inspection can not be performed. Especially, do not put paper etc. on the dashboard.**
11) Connect the Subaru Select Monitor.

NOTE:
Use the Subaru Select Monitor equipped with the latest version of the software.
12) Turn the ignition to ON.
13) Wait for 10 seconds.
14) On «Main Menu» display, select «Each System Check».
15) On «System Selection Menu» display, select «ADA adaptive cruise control system».
16) Select «EyeSight (from 2009MY)» while pressing the pre-collision brake OFF switch and lane departure warning OFF switch mounted on the stereo camera cover assembly at the same time.

NOTE:
If «EyeSight (from 2009MY)» is selected without pressing two switches at the same time, «Camera adjustment, inspection» is not displayed. (for preventing misoperation)
Also, the message is not displayed, when the camera is still not activated (approx. 10 seconds after ignition ON). In this case, repeat from the selection of «EyeSight (from 2009MY)».
17) On «EyeSight (from 2009MY)» display, select «Work Support».
18) On «Work Support» display, select «Camera adjustment, inspection», to perform the camera adjustment or inspection.

NOTE:
• When performing {Camera adjustment, inspection}, pre-collision brake OFF indicator light, lane departure warning OFF indicator light in the meter will illuminate, and the normal function will be disabled.
• After camera adjustment, the function will be enabled, when the ignition is turned to OFF and system is restarted.

- **When performing adjustment or inspection by affixing RANDOM CHART onto wall.**

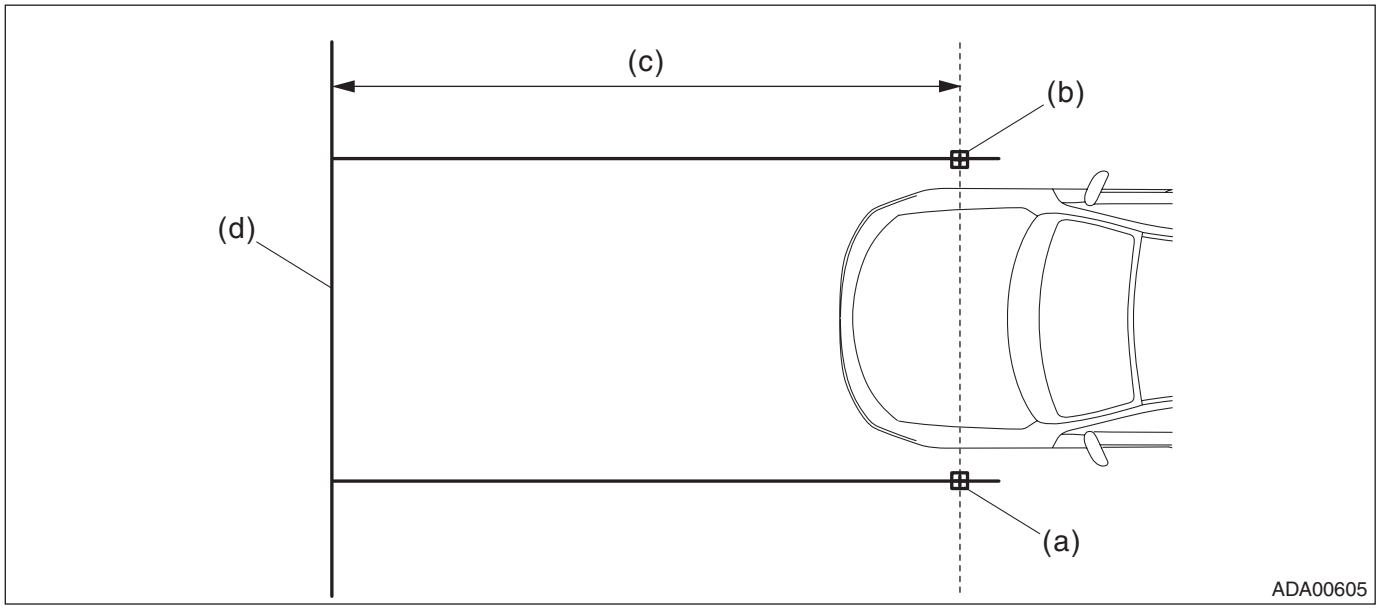
1) Before preparation, check the following items.
   (1) The headlight is off.
   (2) The vehicle is parked on a level surface.
   (3) The inflation pressure of tires is correct.
   (4) The vehicle does not have load.
   (5) The front wheels are directed to the straight ahead position, when the steering wheel is set to the center position.

NOTE:
When the front wheels are not directed to the straight ahead position, adjust the alignment. <Ref. to FS-12, ADJUSTMENT, Wheel Alignment.>

2) Prepare the Subaru Select Monitor, measure, plumb bob, leveling line and RANDOM CHART (ST: 87599VA000).

3) Mark the park position of the vehicle.
   (1) Strain the leveling line so that it is at right angles to wall on which the RANDOM CHART is affixed, and fix the leveling line with packing tape.
   (2) Make a marking 4,000 mm (13 ft, 1 1/2 in) away from the wall where the leveling line is fixed. (Point A and point B)

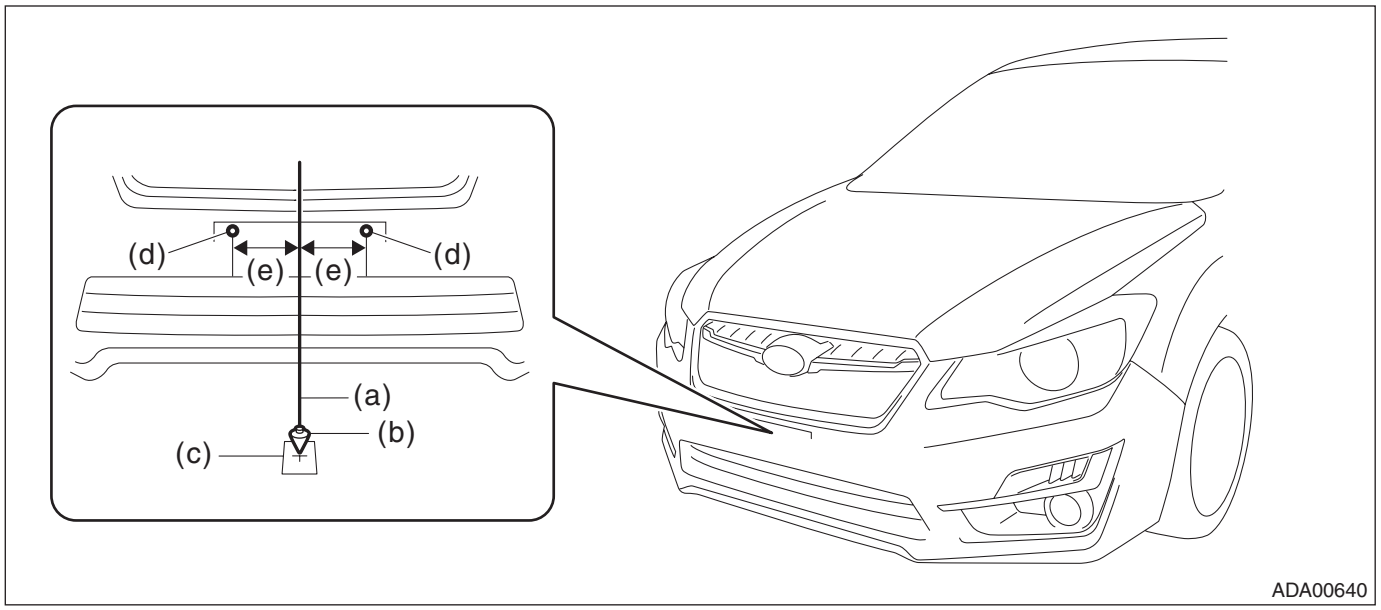
NOTE:
Stick the packing tape etc. on the floor, then make a marking on the tape.
   (3) Strain the leveling line so that it passes through the point A and point B. (A-B line)




(a) Point A
(b) Point B
(c) 4,000 mm (13 ft, 1 1/2 in)
(d) Wall

4) Suspend the plumb bob from the center of each front wheel of the vehicle, and place the vehicle so that it is aligned with the leveling line (A-B line).

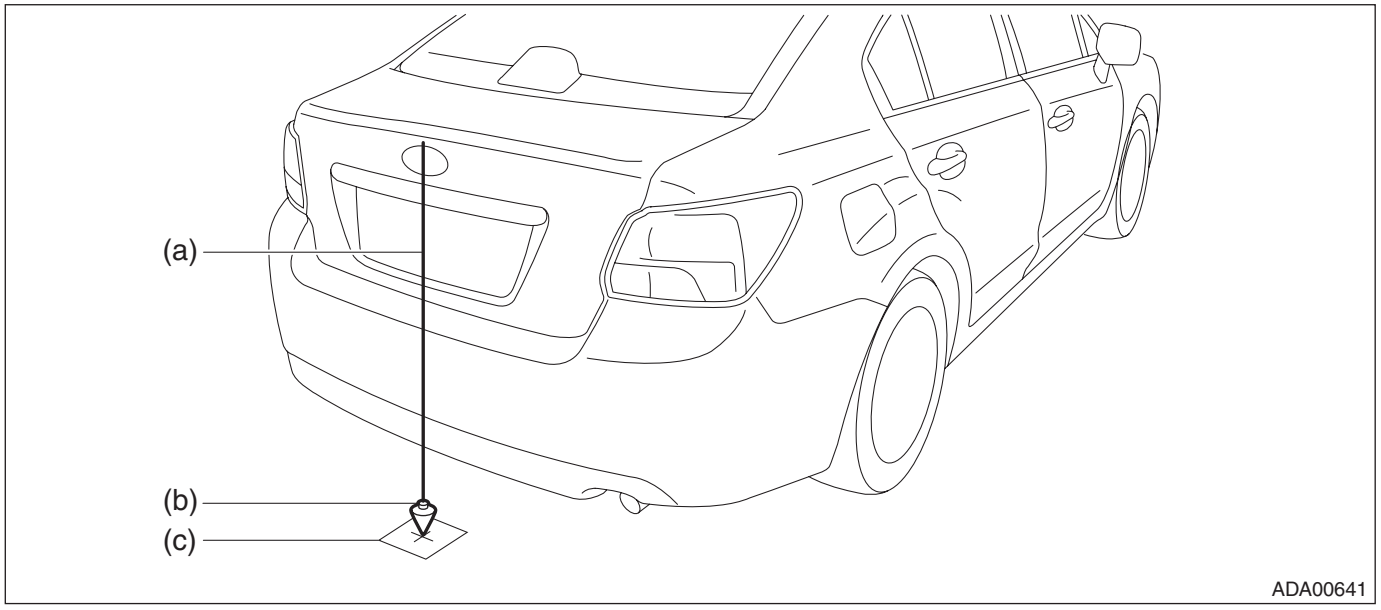
5) Suspend the plumb bob with leveling line from front center position of vehicle (center of number plate base), and mark the position where the plumb bob touches the ground. (Point C)




(a) Leveling line
(b) Plumb bob
(c) Point C
(d) License plate base
(e) Same distance

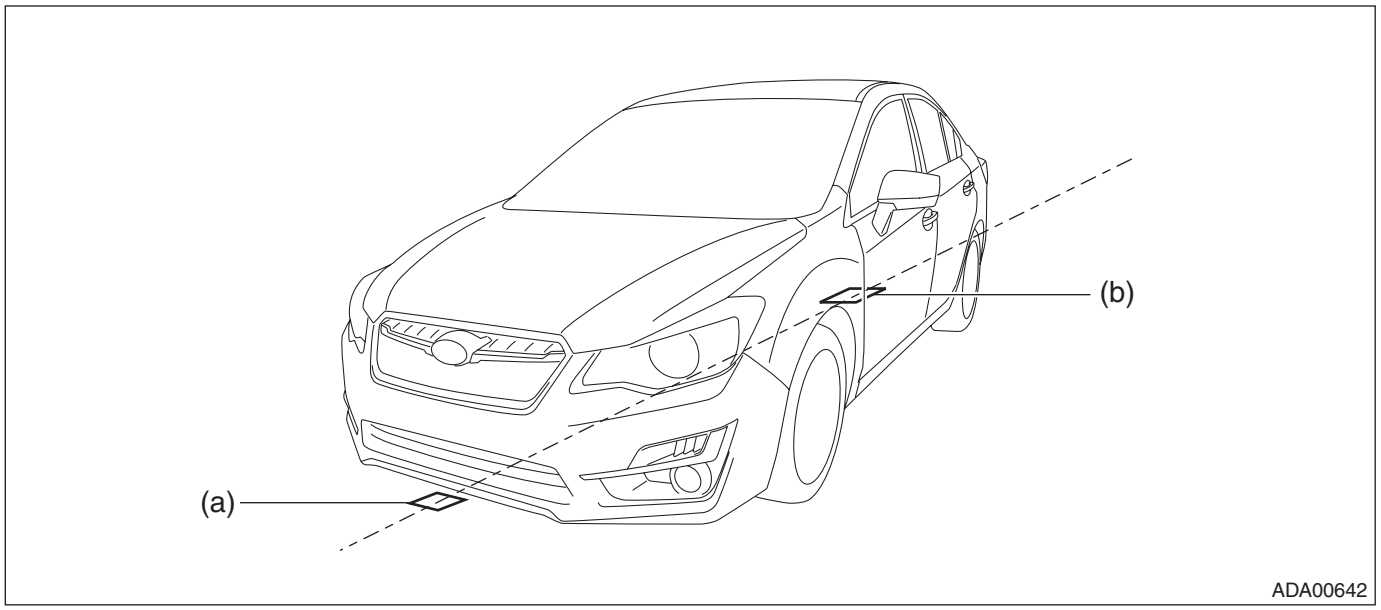
NOTE:
Stick the packing tape etc. on the floor, then make a marking on the tape.

6) Suspend the plumb bob with leveling line from rear center position of vehicle (center of rear bumper), and mark the position where the plumb bob touches the ground. (Point D)




(a) Leveling line
(b) Plumb bob
(c) Point D

7) Strain the leveling line from the making point D through the marking point C to the wall, and fix it with packing tape. (C-D line)



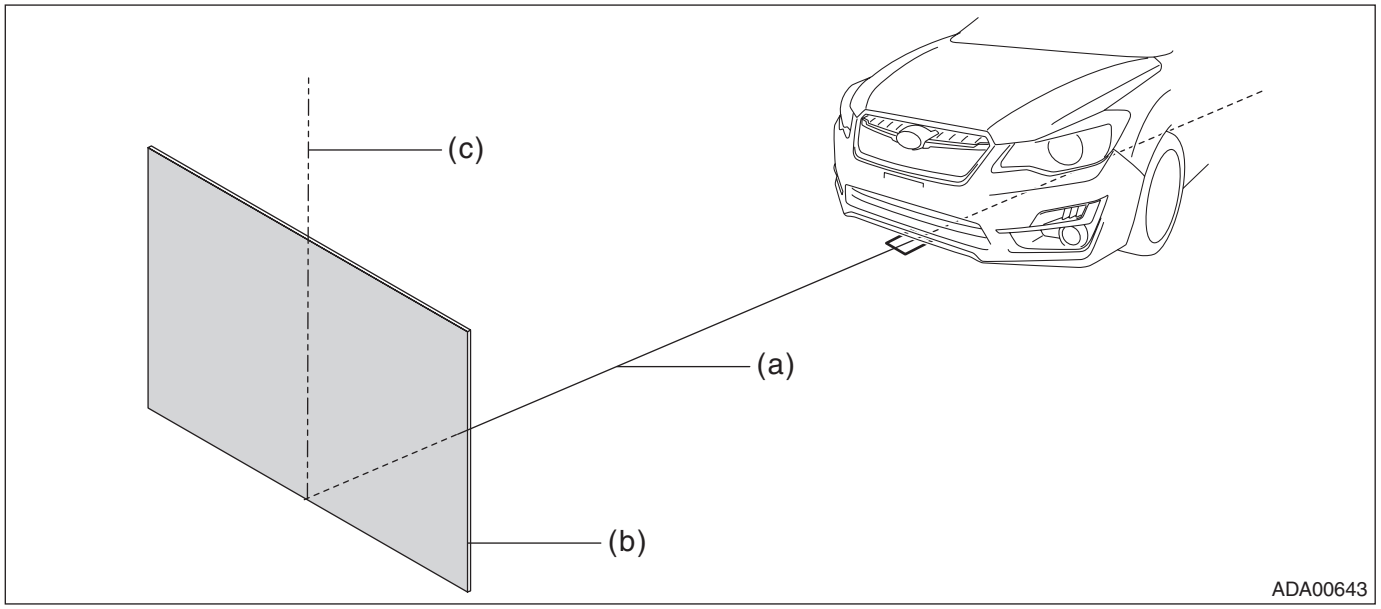

(a) Point C

(b) Point D

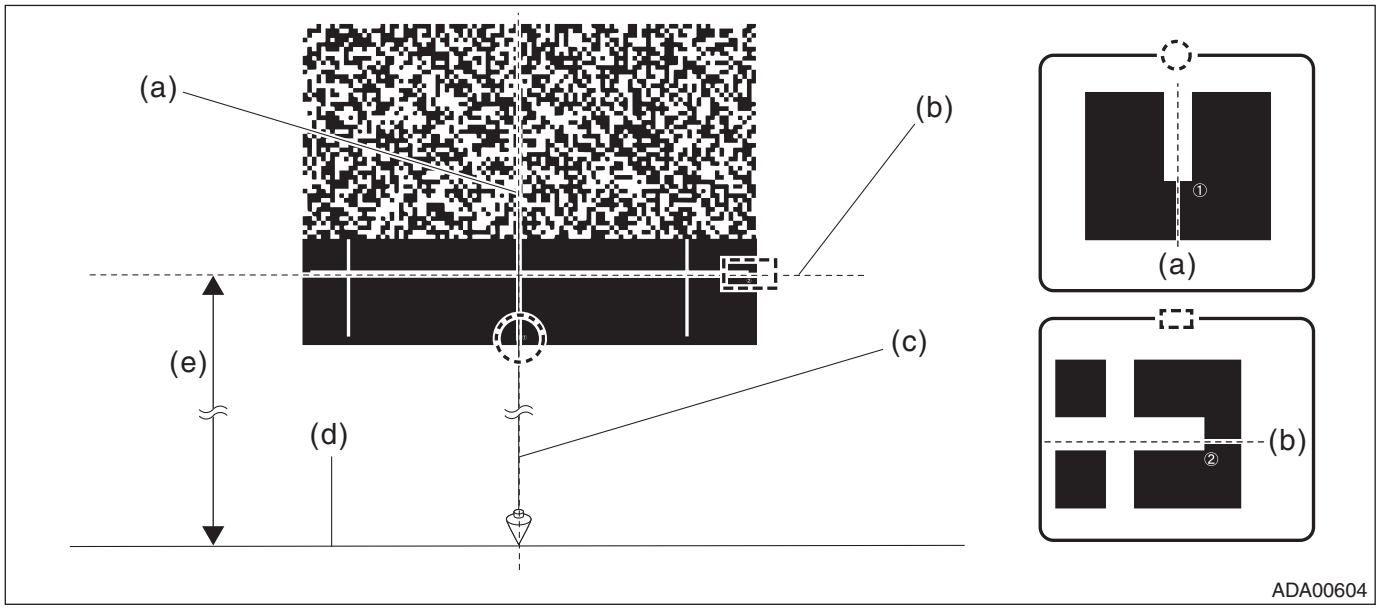
8) Place the RANDOM CHART.

**CAUTION:**
- **Affix the RANDOM CHART onto the vertical wall, etc. with flat surface.**
- **When affixing the RANDOM CHART using tape, place the tape within 10 mm (0.39 in) from the edge of the CHART. In this case, do not affix with lustrous tapes which may reflect the light.**
- **Perform the adjustment work at lighted places. If the lighting is not enough, adjustment cannot be done, and accuracy rate may not be acquired.**
- **The adjustment in the outdoors cannot be recommended. Note the sun position, when adjusting it in outdoor by necessity. (It is not acceptable when the sunlight comes from front or rear of the vehicle)**

(1) Using the plumb bob, attach the RANDOM CHART on the partition, so that the setting reference (vertical line) center is aligned with the vehicle body center line (leveling line) and the height of the setting reference (horizontal line) center from the floor is 1,000 mm (3 ft, 3 3/8 in).

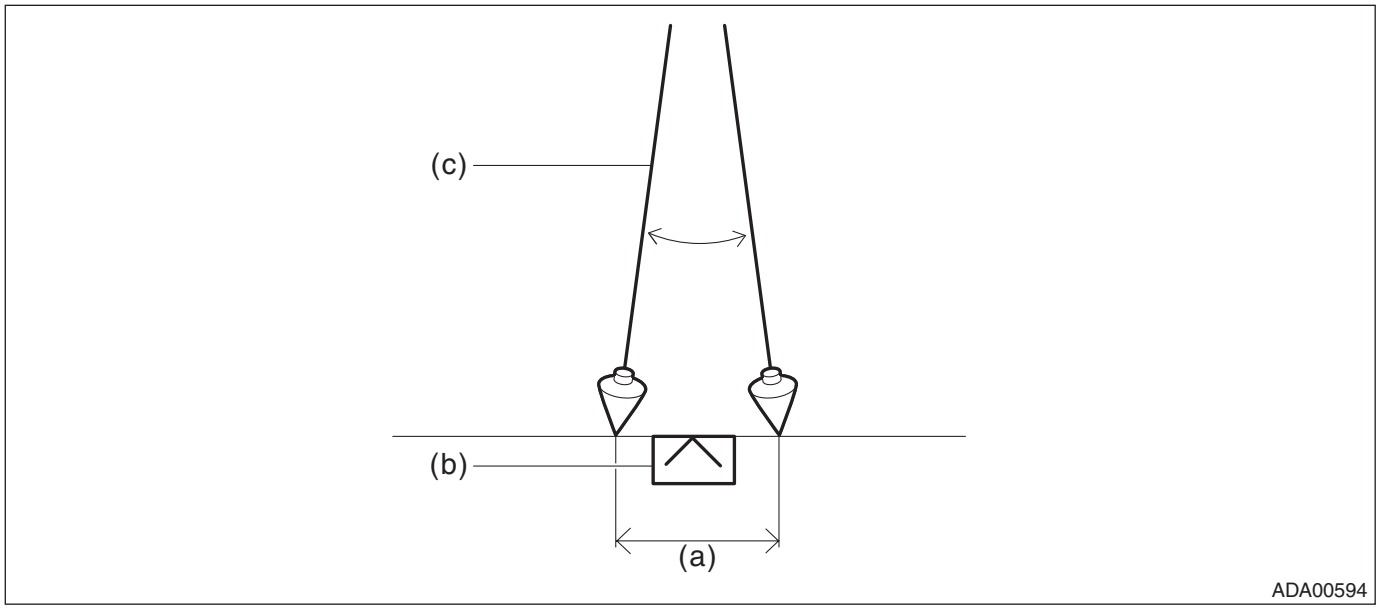



(a) Vehicle body center line (C-D line) (b) Wall (c) Setting reference (vertical line)



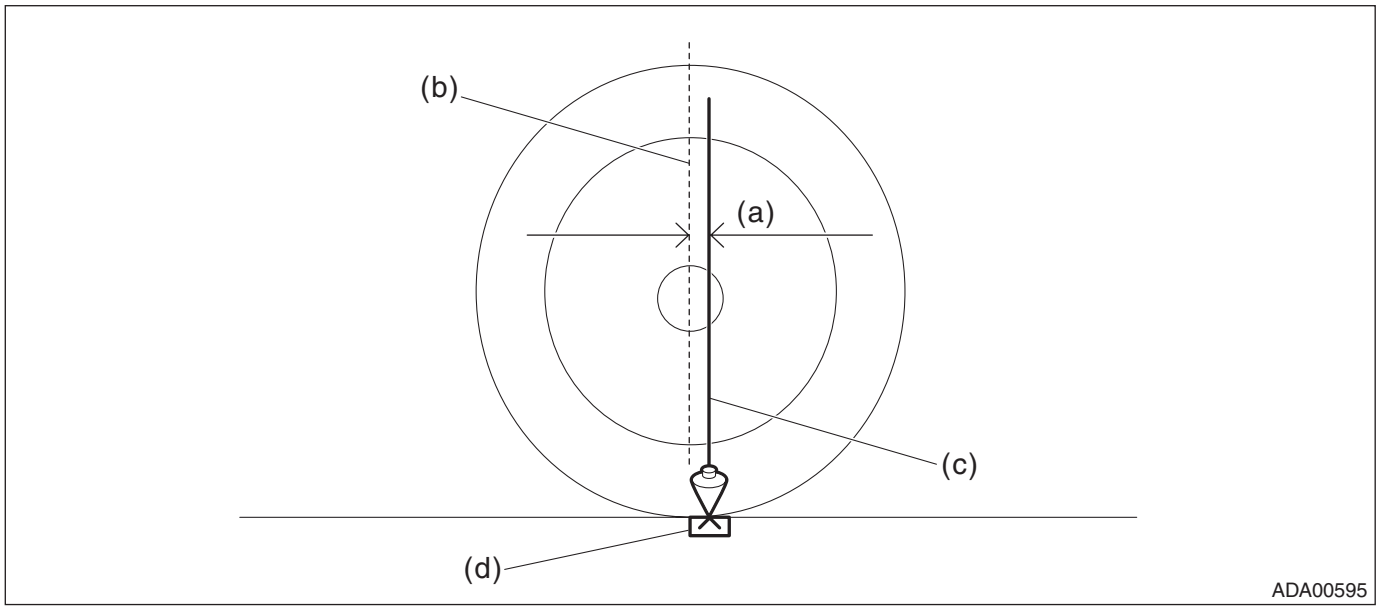

(a) ① = Setting reference (vertical line) and vehicle body center line (C-D line)
(b) ② = Setting reference (horizontal line)
(c) Plumb bob
(d) Floor
(e) 1,000 mm (3 ft, 3 3/8 in)

**CAUTION:**
- **Centering accuracy of the plumb bob shall be ±4.0 mm (±0.16 in) or less.**



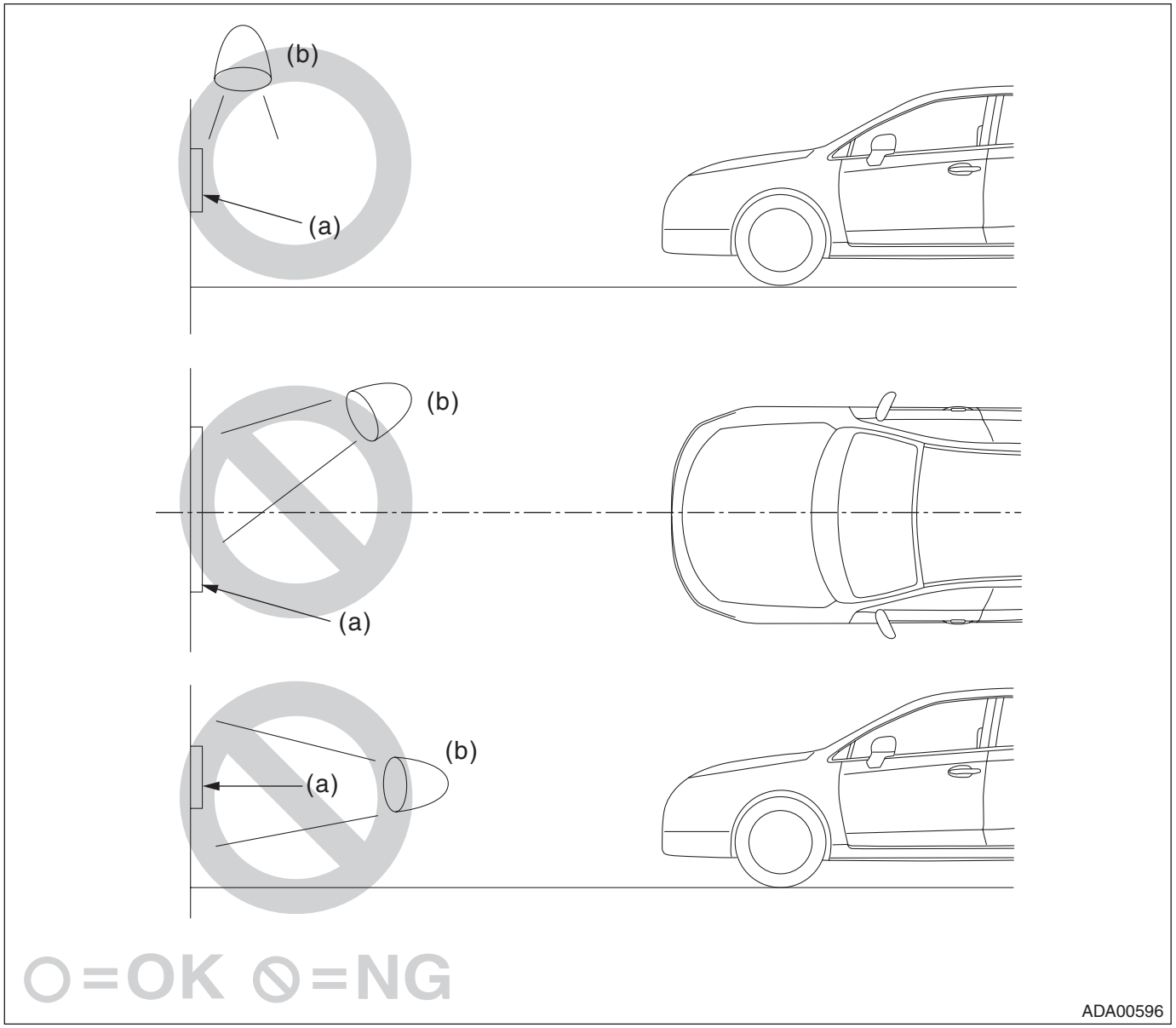

(a) ±4.0 mm (±0.16 in) (b) Marking (c) Plumb bob

- **Positioning accuracy of the measure shall be ±2.0 mm (±0.08 in) or less.**
- **Centering accuracy of the tire shall be ±4.0 mm (±0.16 in) or less.**




(a) ±4.0 mm (±0.16 in) (c) Plumb bob (d) Marking
(b) Tire center line

**• Apply the lighting from the upper direction of RANDOM CHART, and make adjustment so that brightness is even in the CHART. (If the lighting is applied from the position where light reflects at RANDOM CHART, the adjustment cannot be done, because the reflected light enters the camera.)**




(a) RANDOM CHART (b) Lighting

9) Turn the ignition to OFF.
10) Check the windshield glass and the dashboard. <Ref. to ES(diag)-7, WINDSHIELD GLASS AND DASHBOARD, INSPECTION, General Description.>

**CAUTION:**
**If there are any dirt, object or reflection from dashboard within the visibility of stereo camera, the correct adjustment and inspection can not be performed. Especially, do not put paper etc. on the dashboard.**
11) Connect the Subaru Select Monitor.

NOTE:
Use the Subaru Select Monitor equipped with the latest version of the software.
12) Turn the ignition to ON.

13) Wait for 10 seconds.
14) On «Main Menu» display, select «Each System Check».
15) On «System Selection Menu» display, select «ADA adaptive cruise control system».
16) Select «EyeSight (from 2009MY)» while pressing the pre-collision brake OFF switch and lane departure warning OFF switch mounted on the stereo camera cover assembly at the same time.

NOTE:
If «EyeSight (from 2009MY)» is selected without pressing two switches at the same time, «Camera adjustment, inspection» is not displayed. (for preventing misoperation)
Also, the message is not displayed, when the camera is still not activated (approx. 10 seconds after ignition ON). In this case, repeat from the selection of «EyeSight (from 2009MY)».
17) On «EyeSight (from 2009MY)» display, select «Work Support».
18) On «Work Support» display, select «Camera adjustment, inspection», to perform the camera adjustment or inspection.

NOTE:
• When performing {Camera adjustment, inspection}, pre-collision brake OFF indicator light, lane departure warning OFF indicator light in the meter will illuminate, and the normal function will be disabled.
• After camera adjustment, the function will be enabled, when the ignition is turned to OFF and system is re-started.

## 2. ADJUSTMENT VALUE CLEAR

Perform when replacing stereo camera. (Do not perform when performing stereo camera re-adjustment and inspection)
1) On «Camera adjustment, inspection» display, select «Camera individual adjustment mode».
2) On «Camera individual adjustment mode» display, select «Clear adjustment value».
3) When «Perform camera adjustment/inspection. Press OK when the preparations have been made.» is displayed, if preparation is ready, select «OK».
4) When «Clear the adjustment value.» is displayed, select «OK».
5) When «Clearing adjustment value...» is displayed, wait until process finishes.
6) When the adjustment value clear is finished correctly, and «Adjustment value cleared OK!» is displayed, select «OK» to finish.
7) Turn the ignition to OFF and wait for approx. 5 seconds or more.

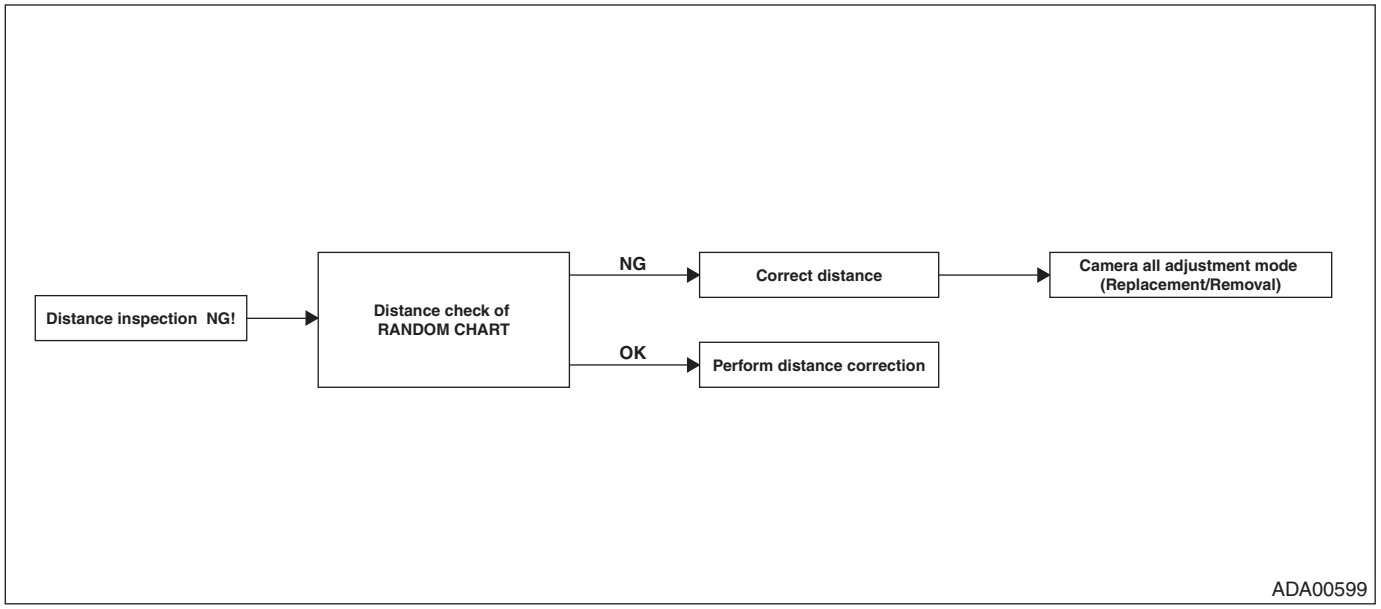
**CAUTION:**
**If the ignition OFF period is short, the adjustment value clear cannot be performed correctly.**
8) Next, perform the camera all adjustment mode (replacement/removal). <Ref. to ES-26, CAMERA ALL ADJUSTMENT MODE (REPLACEMENT/REMOVAL), PROCEDURE, Camera Adjustment, Inspection.>

## 3. CAMERA ALL ADJUSTMENT MODE (REPLACEMENT/REMOVAL)

Perform this procedure when the stereo camera is replaced or re-adjustment is necessary (when stereo camera malfunctioning, when stereo camera reinstalled, when windshield glass replaced).

**CAUTION:**
**• When the stereo camera is replaced, be sure to perform the «Clear adjustment value» first. When {Clear adjustment value} was skipped, restart the procedure from {Clear adjustment value} again. <Ref. to ES-26, ADJUSTMENT VALUE CLEAR, PROCEDURE, Camera Adjustment, Inspection.>**
**• Perform the camera adjustment and inspection at curb weight without passengers.**
**• When the camera all adjustment mode is performed, if the procedures are not completed correctly to the end, the warning light illuminates, when the vehicle moves.**
1) On «Camera adjustment, inspection» display, select «Camera all adjustment mode (replacement/removal)».
2) When «Perform camera adjustment/inspection. Press OK when the preparations have been made.» is displayed, if preparation is ready, select «OK».
3) When «In process...» is displayed, wait until inspection finishes.
4) When the accuracy rate inspection is finished correctly, and «Accuracy rate ○○% OK!» is displayed, select «OK» to go to step 9).

5) When «Distance inspection NG!» is displayed, refer to the NOTE below.

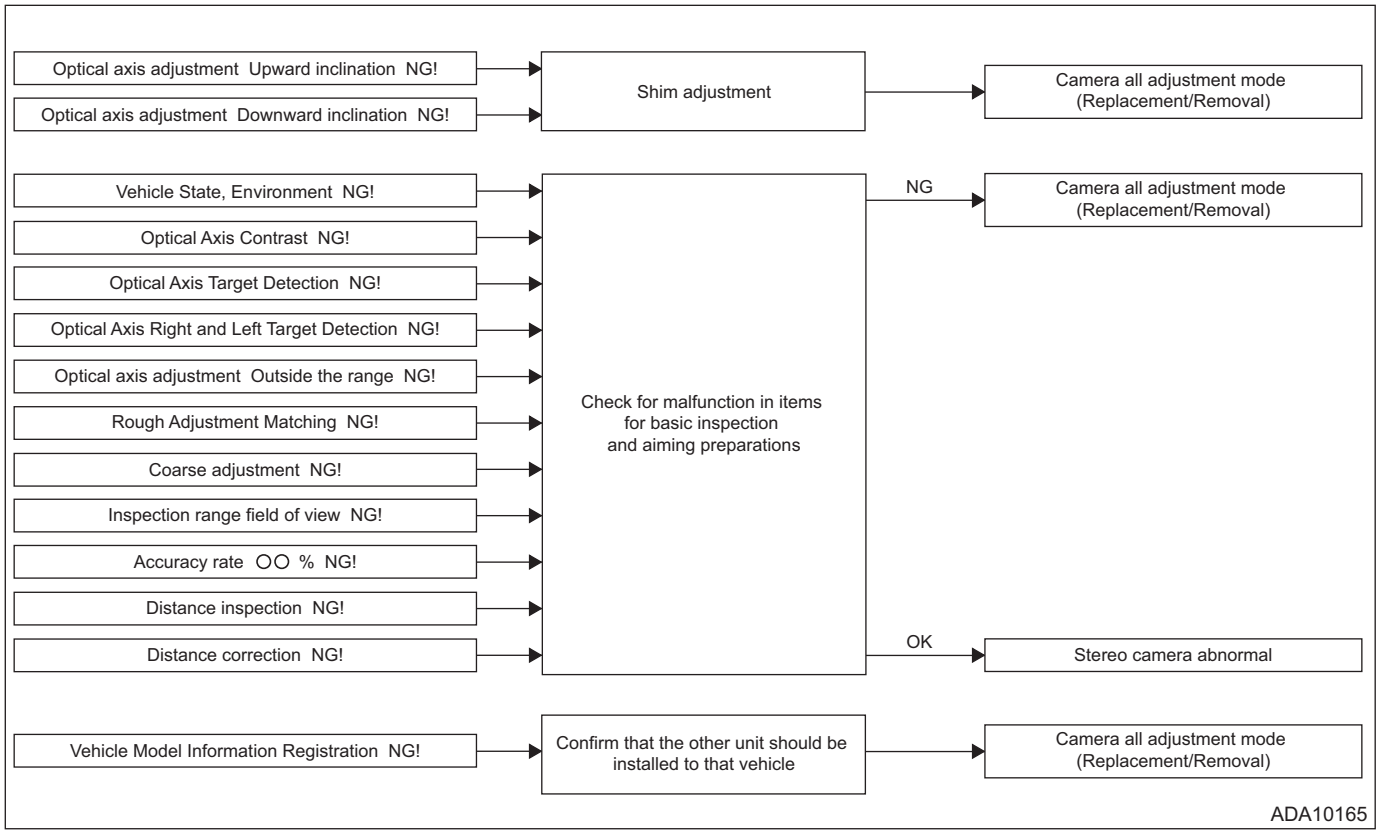



NOTE:
Distance check and adjustment of RANDOM CHART <Ref. to ES-13, PREPARATIONS, PROCEDURE, Camera Adjustment, Inspection.>

6) When «Perform distance correction.» is displayed, select «OK». When the distance correction is finished correctly, and «Distance correction OK!» is displayed, select «OK» and proceed to the accuracy rate inspection.

7) When «Perform accuracy rate inspection.» is displayed, select «OK». When the accuracy rate inspection is finished correctly, and «Accuracy rate ○○% OK!» is displayed, select «OK» to go to next.

8) When «○○ NG!» is displayed during adjustment, refer to the NOTE below.




**LIST**

| Error code | Display | Check items on error | Remarks |
|---|---|---|---|
| 1401 | «Vehicle State, Environment NG!» | Check body integrated unit. | — |
| 1402 | «Vehicle Model Information Registration NG!» | Confirm the part numbers of EyeSight system components, and reconfirm that the unit should be installed to that vehicle. To confirm the components, check each item. | — |
| 1403 | «Optical Axis Contrast NG!» | 1. Make sure that the stereo camera cover is installed correctly.<br>2. There should be no obstacles that blocks the stereo camera.<br>3. Stereo camera and camera plate are assembled with no gap.<br>4. Random chart for ver. 3 must be used.<br>5. There should be no obstacles that blocks the random chart.<br>6. Random chart must be set correctly for the vehicle.<br>7. Grid pattern of random chart should not be dirty or damaged.<br>8. Lighting circumstance for random chart should be normal.<br>9. Make sure that the headlight is off.<br>10.There should be no objects (reflection) on the instrument panel.<br>11.Dirt should not adhere to the windshield or the lens filter of the stereo camera.<br>12.There should be no crack on the windshield.<br>NOTE:<br>Detecting measures for the error codes 1403, 1404, 1405, 1406 and 1407 are different. Check items on error with high relevance are shown in the remarks. | Highly relevant with the check items 1 to 12. |
| 1404 | «Optical Axis Target Detection NG!» | | Highly relevant with the check items 4, 6, 7, 8, 9, 10, 11 and 12. |
| 1405 | «Optical Axis Target Detection NG!» | | Highly relevant with the check items 4, 6, 7, 8, 9, 10, 11 and 12. |
| 1406 | «Optical Axis Right and Left Target Detection NG!» | | Highly relevant with the check items 1 to 12. |
| 1407 | «Out of the Optical Axis Adjustment Range NG!» | | Highly relevant with the check items 3 and 6. |
| 1408 | «Optical axis adjustment Upward inclination NG!» | 1. Random chart must be set correctly for the vehicle.<br>2. Aiming is performed with the vehicle at curb weight.<br>3. There should be no malfunction in the suspension.<br>If there are no problems above, perform shim adjustment so that optical axis turns downward. | — |

| Error code | Display | Check items on error | Remarks |
|---|---|---|---|
| 1409 | «Optical axis adjustment Downward inclination NG!» | 1. Random chart must be set correctly for the vehicle.<br>2. Aiming is performed with the vehicle at curb weight.<br>3. There should be no malfunction in the suspension.<br>If there are no problems above, perform shim adjustment so that optical axis turns upward. | — |
| 140A | «Rough Adjustment Matching NG!» | 1. Make sure that the stereo camera cover is installed correctly.<br>2. There should be no obstacles that blocks the stereo camera.<br>3. Stereo camera and camera plate are assembled with no gap.<br>4. There should be no obstacles that blocks the random chart.<br>5. Random pattern of random chart should not be dirty or damaged.<br>6. Lighting circumstance for random chart should be normal.<br>7. There should be no objects (reflection) on the instrument panel.<br>8. Dirt should not adhere to the windshield or the lens filter of the stereo camera.<br>9. There should be no crack on the windshield.<br>NOTE:<br>Detecting measures for the error codes 140A, 140B and 140C are different. Check items on error with high relevance are shown in the remarks. | Highly relevant with the check items 1 to 9. |
| 140B | «Coarse adjustment NG!» | | Highly relevant with the check items 3, 5, 7 and 9. |
| 140C | «Coarse adjustment NG!» | | Highly relevant with the check items 3, 5, 7 and 9. |
| 140E | «Inspection range field of view NG!» | 1. Make sure that the stereo camera cover is installed correctly.<br>2. There should be no obstacles that blocks the random chart.<br>3. Random pattern of random chart should not be dirty or damaged.<br>4. Lighting circumstance for random chart should be normal.<br>5. There should be no objects (reflection) on the instrument panel.<br>6. Dirt should not adhere to the windshield or the lens filter of the stereo camera.<br>7. There should be no crack on the windshield.<br>8. Windshield for EyeSight should be assembled. | — |
| 140F | «Distance inspection NG!» | 1. Distance from random chart to wheel center of the vehicle should be 4,000 mm (13.12 ft).<br>2. Lighting circumstance for random chart should be normal. | — |
| 1410 | «Accuracy rate 00% NG !» | 1. Lighting circumstance for random chart should be normal.<br>2. Random pattern of random chart should not be dirty or damaged.<br>3. There should be no objects (reflection) on the instrument panel.<br>4. Dirt should not adhere to the windshield or the lens filter of the stereo camera.<br>5. There should be no crack on the windshield. | — |
| 1501 | «Distance correction NG!» | When «Distance inspection NG!» is displayed and distance correction is performed without inspection, check the following.<br>1. Distance from random chart to wheel center of the vehicle should be 4,000 mm (13.12 ft).<br>2. Lighting circumstance for random chart should be normal. | — |

NOTE:
• Shim adjustment: <Ref. to ES-31, SHIM ADJUSTMENT, PROCEDURE, Camera Adjustment, Inspection.>
• Basic inspection items: <Ref. to ES(diag)-7, INSPECTION, General Description.>
• Aiming preparation items: <Ref. to ES-13, PREPARATIONS, PROCEDURE, Camera Adjustment, Inspection.>

9) Turn the ignition to OFF and wait for 5 seconds. (time necessary to save adjustment and inspection result)

**CAUTION:**
**• If the ignition OFF period after adjustment and inspection finished is short, the adjustment and inspection result cannot be saved correctly. The warning is displayed on the meter LCD, when the vehicle moves.**
**• When aiming begins, normal recognition process stops and the warning is displayed on the meter LCD. The warning display will be cleared by turning the ignition OFF → ON.**

10) Turn the ignition to ON. Using the Subaru Select Monitor, confirm that «Aiming completion flag» of «Current Data Display & Save» is «Aiming completed». (Note that it is different from «Initial aiming completion flag»)
11) Perform the Clear Memory, and turn the ignition to OFF.
12) Subsequently perform the automatic adjustment and function check by a test driving. <Ref. to ES-30, AUTOMATIC ADJUSTMENT AND FUNCTION CHECK BY DRIVING, PROCEDURE, Camera Adjustment, Inspection.>

## 4. AUTOMATIC ADJUSTMENT AND FUNCTION CHECK BY DRIVING

NOTE:
• Perform the automatic adjustment and function check by driving to improve the recognition accuracy of stereo camera, when the stereo camera is replaced or re-adjusted, or the EyeSight function does not operate correctly.
• The automatic adjustment and function check by driving adjust the stereo camera more in detail, based on the stereo camera adjustment using RANDOM CHART.
1) Perform this procedure after finishing stereo camera adjustment and inspection.
2) On «ADA adaptive cruise control system» display, select «EyeSight (from 2009MY)».
3) On «EyeSight (from 2009MY)» display, select «Current Data Display & Save».
4) On «Current Data Display & Save» display, display the «Automatic adjustment status». <Ref. to ES(diag)-23, OPERATION, Read Current Data.>
5) Drive the vehicle until «Automatic adjustment status» displays «0F» or «1F».

**CAUTION:**
**• For the automatic adjustment, drive the vehicle on straight road with white lines on both sides at a speed of 40 km/h (25 MPH) or more for at least five minutes, while maintaining distance from the preceding vehicle 40 m (132 ft) or more.**
**• Maintain the following conditions until «Automatic adjustment status» displays «0F» or «1F».**
**– Turn the active lane keep and cruise main to OFF.**
**– Hold down the pre-collision brake OFF switch for two seconds to turn OFF the pre-collision brake function.**

| Display | Content | Unit of measure | Note (at idling) |
|---|---|---|---|
| Automatic adjustment status | Index for automatic adjustment operation performed by the driving test after the completion of the optical axis adjustment | — | «0F» or «1F» is displayed when completed. |

NOTE:
• How long time will be needed until «0F» or «1F» is displayed depends on the road condition etc.
• For new vehicles, «00» may be displayed. A test-drive is not necessary before delivery because high-accuracy aiming setting has been performed at the factory.

6) On «Current Data Display & Save» display, display «Lane recognition status» to check if any of the following appears.

NOTE:
When driving did not continue until «0F» or «1F» was displayed, it may take a while before recognition completes.
- Recognizing white lines on both sides during driving at 40 km/h (25 MPH) or more: «03»
- Recognizing white lines on both sides with lane width 3 m (10 ft) or more during driving at 65 km/h (40 MPH) or more: «05»

| Display | Content | Unit of measure | Note (at idling) |
|---|---|---|---|
| Lane recognition status | Display of lane recognition status | — | Recognized when vehicle lane can be seen by 20 m (66 ft) or more. |

7) On «Current Data Display & Save» display, display «Distance from leading vehicle» to check if the actual distance from the preceding vehicle is approximately the same as the data.

## 5. SHIM ADJUSTMENT

1) Turn the ignition to OFF.
2) Detach the stereo camera cover, and remove the stereo camera. <Ref. to ES-7, REMOVAL, Stereo Camera.>
3) Remove the stereo camera plate, and insert the shim into the vehicle body and camera plate.

***Shim (washer):***
***Part No. 031105000***

NOTE:
- Inserting the shim into the vehicle front side makes camera downward.
- Inserting the shim into the vehicle rear side makes camera upward.
- There is a case that the shim may be inserted at the production line, but it is not abnormal.

4) Install the stereo camera plate.

***Tightening torque:***
***5.5±1.0 N·m (0.56±0.10 kgf-m, 4.1±0.7 ft-lb)***
5) Install the stereo camera. <Ref. to ES-7, REMOVAL, Stereo Camera.>
6) Perform the camera all adjustment mode (replacement/removal). <Ref. to ES-26, CAMERA ALL ADJUSTMENT MODE (REPLACEMENT/REMOVAL), PROCEDURE, Camera Adjustment, Inspection.>

## 6. CAMERA INITIALIZATION

This is a recovery measures prepared for the data failure caused by the low battery voltage during data storage to inside the stereo camera.

**CAUTION:**
**Do not usually perform camera initialization because it will clear the aiming data and/or DTCs.**
Perform the camera initialization only when the aiming result is NG even if the vehicle is placed correctly as shown in the flowchart described in “A: Procedure”. After camera initialization, perform the aiming in the same procedure as for camera replacement.
1) Turn the ignition to ON.
2) Wait for 10 seconds.
3) On Main Menu display, select «Each System Check».
4) On «System Selection Menu» display, select «ADA adaptive cruise control system».
5) Select «EyeSight (from 2009MY)».
6) Select «Clear Memory» while pressing the pre-collision brake OFF switch and lane departure warning OFF switch at the same time.
7) Turn the ignition to OFF and wait for 5 seconds.
8) Next, perform the clear adjustment value. <Ref. to ES-26, ADJUSTMENT VALUE CLEAR, PROCEDURE, Camera Adjustment, Inspection.>

# 7. Switches and Harness

## A: NOTE

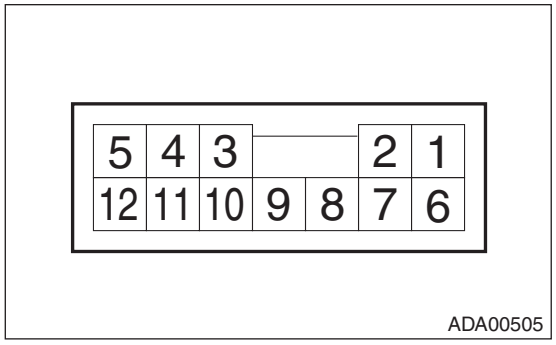
### 1. PRE-COLLISION BRAKE OFF SWITCH & LANE DEPARTURE WARNING OFF SWITCH

The pre-collision brake OFF & lane departure warning OFF switch is integrated in the stereo camera cover assembly.
If the pre-collision brake OFF & lane departure warning OFF switch is faulty, replace the stereo camera cover assembly. <Ref. to ES-7, Stereo Camera.>

## B: INSPECTION

1) Measure the resistance between connector terminals.

***Preparation tool:***
***Circuit tester***




- Pre-collision brake OFF switch

| Terminal No. | Inspection conditions | Standard |
|---|---|---|
| 10 — 8 | OFF | Approx. 1 kΩ |
| | ON | Less than 1 Ω |

- Lane departure warning OFF switch

| Terminal No. | Inspection conditions | Standard |
|---|---|---|
| 9 — 8 | OFF | Approx. 1 kΩ |
| | ON | Less than 1 Ω |

2) Apply battery voltage between the connector terminals to check lighting condition of illumination inside the switch.

| Terminal No. | Inspection conditions | Specification |
|---|---|---|
| 1 (+) — 2 (–) | Apply battery voltage. | Light ON |

3) If the result of the inspection is not within the standard value, replace the stereo camera cover assembly.

# 8. Cruise Control Command Switch

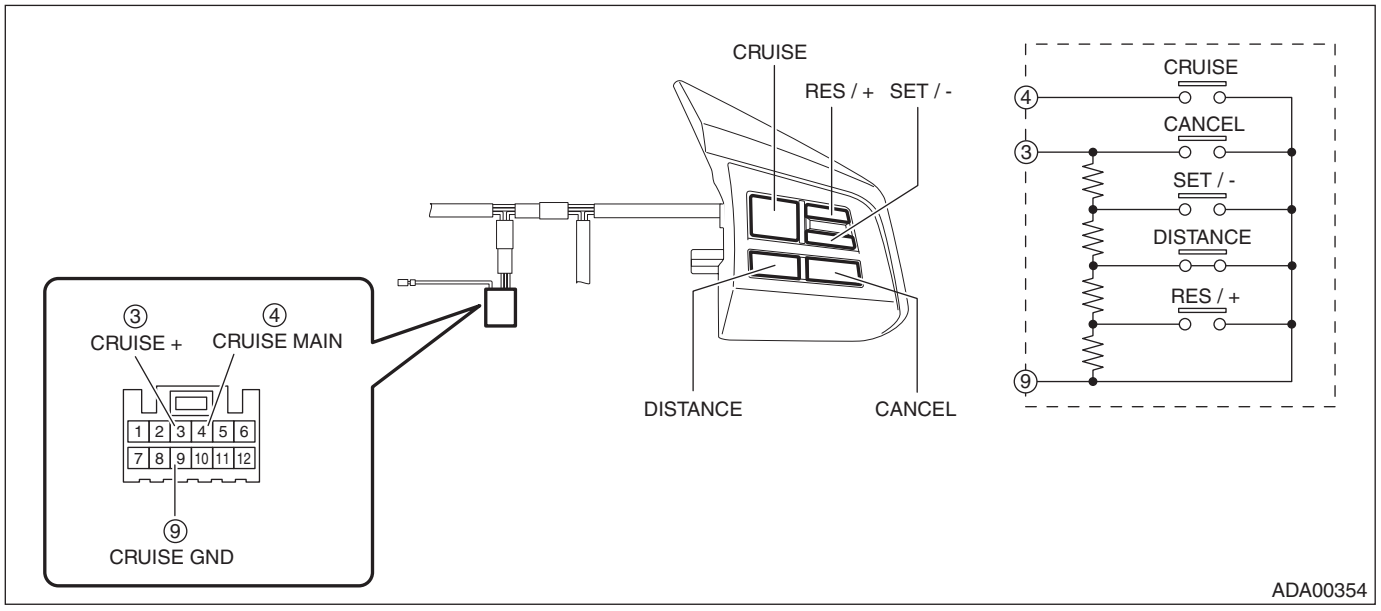
## A: NOTE

For the operation procedures for the EyeSight steering switch, refer to “CRUISE CONTROL SYSTEM” section. <Ref. to CC-6, Cruise Control Command Switch.>

## B: INSPECTION

1) Measure the resistance between connector terminals.

***Preparation tool:***
***Circuit tester***




| Terminal No. | Inspection conditions | | Standard |
|---|---|---|---|
| 3 — 9 | CANCEL<br>SET/–<br>DISTANCE<br>RES/+ | All OFF | Approx. 4020 Ω |
| | CANCEL | ON | Less than 1 Ω |
| | SET/– | ON | Approx. 250 Ω |
| | DISTANCE | ON | Approx. 680 Ω |
| | RES/+ | ON | Approx. 1470 Ω |
| 4 — 9 | CRUISE<br>(MAIN) | OFF | 1 MΩ or more |
| | | ON | Less than 1 Ω |

2) Apply battery voltage between the connector terminals to check lighting condition of illumination inside the switch.

| Terminal No. | Inspection conditions | Specification |
|---|---|---|
| 10 (+) — 11 (–) | Apply battery voltage. | Light ON |

3) Replace the EyeSight steering switch if the inspection result is not within the standard.

# 9. Combination Meter

## A: NOTE

For the operation procedures for combination meter, refer to “INSTRUMENTATION/DRIVER INFO” section. <Ref. to IDI-20, Combination Meter.>

# 10.Transmission Control Module (TCM)

## A: NOTE

For the operation procedures for transmission control module (TCM), refer to “CONTINUOUSLY VARIABLE TRANSMISSION” section. <Ref. to CVT(TR580)-146, Transmission Control Module (TCM).>

# 11.Stop Light & Brake Switch

## A: NOTE

For the operation procedures for stop light and brake switch, refer to “BRAKE” section. <Ref. to BR-74, Stop Light Switch.>

# 12.VDC Control Module and Hydraulic Control Unit (VDCCM&H/U)

## A: NOTE

For the operation procedures for VDC control module & hydraulic control module (VDCCM&H/U), refer to “VEHICLE DYNAMICS CONTROL (VDC)” section. <Ref. to VDC-10, VDC Control Module and Hydraulic Control Unit (VDCCM&H/U).>

# 13.Multi-function Display (MFD)

## A: NOTE

For the multi-function display (MFD), refer to “INSTRUMENTATION/DRIVER INFO” section. <Ref. to IDI-27, Multi-function Display (MFD).>

# 14.Power Steering Control Module

## A: NOTE

For the operation procedures for power steering control module, refer to “POWER ASSISTED SYSTEM (POWER STEERING)” section. <Ref. to PS-44, Power Steering Control Module.>

# 15.Roll Connector

## A: NOTE

For the operation procedures for roll connector (steering angle sensor), refer to “AIRBAG SYSTEM” section. <Ref. to AB-93, Roll Connector.>

# 16.Body Integrated Unit

## A: NOTE

For the operation procedures for body integrated unit, refer to “STARTING/CHARGING SYSTEMS” section. <Ref. to SL-87, Body Integrated Unit.>

# 17.Diagnostics with Phenomenon

## A: INSPECTION

Refer to “Diagnostics with Phenomenon” of “EyeSight (DIAGNOSTICS)” section. <Ref. to ES(diag)-46, Diagnostics with Phenomenon.>

# EyeSight (DIAGNOSTICS)

# *ES(diag)*


| | | Page |
|---|---|---|
| 1. | Basic Diagnostic Procedure | 2 |
| 2. | Check List for Interview | 3 |
| 3. | General Description | 6 |
| 4. | Electrical Component Location | 14 |
| 5. | Control Module I/O Signal | 17 |
| 6. | Subaru Select Monitor | 20 |
| 7. | Read Current Data | 23 |
| 8. | Real-time Diagnosis | 38 |
| 9. | Diagnostic Code(s) Display | 39 |
| 10. | Freeze Frame Data Display | 44 |
| 11. | Clear Memory Mode | 45 |
| 12. | Diagnostics with Phenomenon | 46 |
| 13. | EyeSight Temporary Code(s) Display | 63 |
| 14. | ECM Cancel Code(s) Display | 70 |
| 15. | ACC Cancel Code(s) Display | 73 |
| 16. | Diagnostic Procedure with Diagnostic Trouble Code (DTC) | 75 |

# 1. List of Diagnostic Trouble Code (DTC)

## A: LIST

### 1. HYBRID POWERTRAIN CONTROL SYSTEM

| DTC | Item | Note |
|---|---|---|
| P0506 | Idle Air Control System RPM Lower Than Expected | <Ref. to GD(HEV)-11, DTC P0506 IDLE AIR CONTROL SYSTEM RPM LOWER THAN EXPECTED, Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| P0507 | Idle Air Control System RPM Higher Than Expected | <Ref. to GD(HEV)-12, DTC P0507 IDLE AIR CONTROL SYSTEM RPM HIGHER THAN EXPECTED, Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| P0572 | Brake Switch "A" [Stop Lamp Switch] Circuit Low | <Ref. to GD(HEV)-13, DTC P0572 BRAKE SWITCH "A" [STOP LAMP SWITCH] CIRCUIT LOW, Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| P0573 | Brake Switch "A" [Stop Lamp Switch] Circuit High | <Ref. to GD(HEV)-14, DTC P0573 BRAKE SWITCH "A" [STOP LAMP SWITCH] CIRCUIT HIGH, Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| P057B | Brake Pedal Position Sensor Circuit Range/Performance | <Ref. to GD(HEV)-16, DTC P057B BRAKE PEDAL POSITION SENSOR CIRCUIT RANGE/PERFORMANCE, Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| P057C | Brake Pedal Position Sensor Circuit Low | <Ref. to GD(HEV)-18, DTC P057C BRAKE PEDAL POSITION SENSOR CIRCUIT LOW, Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| P057D | Brake Pedal Position Sensor Circuit High | <Ref. to GD(HEV)-19, DTC P057D BRAKE PEDAL POSITION SENSOR CIRCUIT HIGH, Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| P05DD | Brake Pedal Position Sensor "B" Circuit Low | <Ref. to GD(HEV)-20, DTC P05DD BRAKE PEDAL POSITION SENSOR "B" CIRCUIT LOW, Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| P05DE | Brake Pedal Position Sensor "B" Circuit High | <Ref. to GD(HEV)-21, DTC P05DE BRAKE PEDAL POSITION SENSOR "B" CIRCUIT HIGH , Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| P0604 | Internal Control Module Random Access Memory (RAM) Error | <Ref. to GD(HEV)-22, DTC P0604 INTERNAL CONTROL MODULE RANDOM ACCESS MEMORY (RAM) ERROR, Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| P0605 | Internal Control Module Read Only Memory (ROM) Error | <Ref. to GD(HEV)-24, DTC P0605 INTERNAL CONTROL MODULE READ ONLY MEMORY (ROM) ERROR, Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| P0719 | Brake Switch "B" Circuit Low | <Ref. to GD(HEV)-26, DTC P0719 BRAKE SWITCH "B" CIRCUIT LOW, Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| P0724 | Brake Switch "B" Circuit High | <Ref. to GD(HEV)-28, DTC P0724 BRAKE SWITCH "B" CIRCUIT HIGH, Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| P0A1D | Hybrid Powertrain Control Module | <Ref. to GD(HEV)-29, DTC P0A1D HYBRID POWERTRAIN CONTROL MODULE, Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| P1C16 | Idle Control System RPM Lower Than Expected(HPCM) | <Ref. to GD(HEV)-29, DTC P1C16 IDLE CONTROL SYSTEM RPM LOWER THAN EXPECTED(HPCM), Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| P1C17 | Idle Control System RPM Higher Than Expected(HPCM) | <Ref. to GD(HEV)-29, DTC P1C17 IDLE CONTROL SYSTEM RPM HIGHER THAN EXPECTED(HPCM), Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| P2158 | Vehicle Speed Sensor "B" | <Ref. to GD(HEV)-30, DTC P2158 VEHICLE SPEED SENSOR "B", Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| U0073 | CAN Failure, Bus ‘Off’ Detection | <Ref. to GD(HEV)-157, DTC U0073 CONTROL MODULE COMMUNICATION BUS OFF, Diagnostic Trouble Code (DTC) Detecting Criteria.> |

| DTC | Item | Note |
|---|---|---|
| U0075 | Control Module Communication Bus "PU-CAN" Off | <Ref. to GD(HEV)-158, DTC U0075 CONTROL MODULE COMMUNICATION BUS "PU-CAN" OFF, Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| U0076 | Control Module Communication Bus "HEV-CAN" Off | <Ref. to GD(HEV)-159, DTC U0076 CONTROL MODULE COMMUNICATION BUS "HEV-CAN" OFF, Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| U0100 | Lost Communication With ECM/PCM “A” | <Ref. to GD(HEV)-161, DTC U0100 LOST COMMUNICATION WITH ECM/PCM “A”, Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| U0101 | Lost Communication With TCM | <Ref. to GD(HEV)-162, DTC U0101 LOST COMMUNICATION WITH TCM, Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| U0110 | Lost Communication With Drive Motor Control Module "A" | <Ref. to GD(HEV)-163, DTC U0110 LOST COMMUNICATION WITH DRIVE MOTOR CONTROL MODULE "A", Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| U0111 | Lost Communication With Battery Energy Control Module | <Ref. to GD(HEV)-165, DTC U0111 LOST COMMUNICATION WITH BATTERY ENERGY CONTROL MODULE, Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| U0122 | Lost Communication With Vehicle Dynamics Control Module | <Ref. to GD(HEV)-167, DTC U0122 LOST COMMUNICATION WITH VEHICLE DYNAMICS CONTROL MODULE, Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| U0401 | Invalid Data Received From ECM/PCM “A” | <Ref. to GD(HEV)-168, DTC U0401 INVALID DATA RECEIVED FROM ECM/PCM “A”, Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| U0402 | Invalid Data Received From TCM | <Ref. to GD(HEV)-169, DTC U0402 INVALID DATA RECEIVED FROM TCM, Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| U0411 | Invalid Data Received From Drive Motor Control Module "A" | <Ref. to GD(HEV)-170, DTC U0411 INVALID DATA RECEIVED FROM DRIVE MOTOR CONTROL MODULE "A", Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| U0412 | Invalid Data Received From Battery Energy Control Module | <Ref. to GD(HEV)-172, DTC U0412 INVALID DATA RECEIVED FROM BATTERY ENERGY CONTROL MODULE, Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| U0416 | Invalid Data Received From Vehicle Dynamics Control Module | <Ref. to GD(HEV)-174, DTC U0416 INVALID DATA RECEIVED FROM VEHICLE DYNAMICS CONTROL MODULE, Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| U1100 | Lost Communication With ECM/PCM PU-CAN | <Ref. to GD(HEV)-175, DTC U1100 LOST COMMUNICATION WITH ECM/PCM PU-CAN, Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| U1101 | Lost Communication With TCM PU-CAN | <Ref. to GD(HEV)-176, DTC U1101 LOST COMMUNICATION WITH TCM PU-CAN, Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| U1401 | Invalid Data Received From ECM/PCM PU-CAN | <Ref. to GD(HEV)-179, DTC U1401 INVALID DATA RECEIVED FROM ECM/PCM PU-CAN, Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| U1402 | Invalid Data Received From TCM PU-CAN | <Ref. to GD(HEV)-180, DTC U1402 INVALID DATA RECEIVED FROM TCM PU-CAN, Diagnostic Trouble Code (DTC) Detecting Criteria.> |

## 2. DRIVE MOTOR CONTROL SYSTEM

| DTC | Item | Note |
|---|---|---|
| P0A2A | Drive Motor "A" Temperature Sensor Circuit | <Ref. to GD(HEV)-31, DTC P0A2A DRIVE MOTOR "A" TEMPERATURE SENSOR CIRCUIT, Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| P0A2C | Drive Motor "A" Temperature Sensor Circuit Low | <Ref. to GD(HEV)-32, DTC P0A2C DRIVE MOTOR "A" TEMPERATURE SENSOR CIRCUIT LOW, Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| P0A2D | Drive Motor "A" Temperature Sensor Circuit High | <Ref. to GD(HEV)-33, DTC P0A2D DRIVE MOTOR "A" TEMPERATURE SENSOR CIRCUIT HIGH, Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| P0A3C | Drive Motor "A" Inverter Over Temperature | <Ref. to GD(HEV)-34, DTC P0A3C DRIVE MOTOR "A" INVERTER OVER TEMPERATURE, Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| P0A3F | Drive Motor "A" Position Sensor Circuit | <Ref. to GD(HEV)-35, DTC P0A3F DRIVE MOTOR "A" POSITION SENSOR CIRCUIT, Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| P0A40 | Drive Motor "A" Position Sensor Circuit Range/Performance | <Ref. to GD(HEV)-36, DTC P0A40 DRIVE MOTOR "A" POSITION SENSOR CIRCUIT RANGE/PERFORMANCE, Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| P0A43 | Drive Motor "A" Position Sensor Circuit Intermittent | <Ref. to GD(HEV)-37, DTC P0A43 DRIVE MOTOR "A" POSITION SENSOR CIRCUIT INTERMITTENT, Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| P0A44 | Drive Motor "A" Position Sensor Circuit Overspeed | <Ref. to GD(HEV)-38, DTC P0A44 DRIVE MOTOR "A" POSITION SENSOR CIRCUIT OVERSPEED, Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| P0A5D | Drive Motor "A" Phase U Current | <Ref. to GD(HEV)-39, DTC P0A5D DRIVE MOTOR "A" PHASE U CURRENT, Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| P0A60 | Drive Motor "A" Phase V Current | <Ref. to GD(HEV)-40, DTC P0A60 DRIVE MOTOR "A" PHASE V CURRENT, Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| P0A63 | Drive Motor "A" Phase W Current | <Ref. to GD(HEV)-41, DTC P0A63 DRIVE MOTOR "A" PHASE W CURRENT, Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| P0A78 | Drive Motor "A" Inverter Performance | <Ref. to GD(HEV)-42, DTC P0A78 DRIVE MOTOR "A" INVERTER PERFORMANCE, Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| P0A82 | Hybrid/Ev Battery Pack Cooling Fan 1 Performance/Stuck Off | <Ref. to GD(HEV)-43, DTC P0A82 HYBRID/EV BATTERY PACK COOLING FAN 1 PERFORMANCE/STUCK OFF, Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| P0A83 | Hybrid/Ev Battery Pack Cooling Fan 1 Stuck On | <Ref. to GD(HEV)-44, DTC P0A83 HYBRID/EV BATTERY PACK COOLING FAN 1 STUCK ON, Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| P0A90 | Drive Motor "A" Performance | <Ref. to GD(HEV)-45, DTC P0A90 DRIVE MOTOR "A" PERFORMANCE, Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| P0AED | Drive Motor Inverter Temperature Sensor "A" Circuit | <Ref. to GD(HEV)-46, DTC P0AED DRIVE MOTOR INVERTER TEMPERATURE SENSOR "A" CIRCUIT, Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| P0AEE | Drive Motor Inverter Temperature Sensor "A" Circuit Range/Performance | <Ref. to GD(HEV)-47, DTC P0AEE DRIVE MOTOR INVERTER TEMPERATURE SENSOR "A" CIRCUIT RANGE/PERFORMANCE, Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| P0AF2 | Drive Motor Inverter Temperature Sensor "B" Circuit | <Ref. to GD(HEV)-49, DTC P0AF2 DRIVE MOTOR INVERTER TEMPERATURE SENSOR "B" CIRCUIT, Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| P0AF3 | Drive Motor Inverter Temperature Sensor "B" Circuit Range/Performance | <Ref. to GD(HEV)-50, DTC P0AF3 DRIVE MOTOR INVERTER TEMPERATURE SENSOR "B" CIRCUIT RANGE/PERFORMANCE, Diagnostic Trouble Code (DTC) Detecting Criteria.> |

| DTC | Item | Note |
|---|---|---|
| P0BD1 | Drive Motor Inverter Temperature Sensor "C" Circuit | <Ref. to GD(HEV)-52, DTC P0BD1 DRIVE MOTOR INVERTER TEMPERATURE SENSOR "C" CIRCUIT, Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| P0BD2 | Drive Motor Inverter Temperature Sensor "C" Circuit Range/Performance | <Ref. to GD(HEV)-53, DTC P0BD2 DRIVE MOTOR INVERTER TEMPERATURE SENSOR "C" CIRCUIT RANGE/PERFORMANCE, Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| P0BE6 | Drive Motor "A" Phase U Current Sensor Circuit Range/Performance | <Ref. to GD(HEV)-55, DTC P0BE6 DRIVE MOTOR "A" PHASE U CURRENT SENSOR CIRCUIT RANGE/PERFORMANCE, Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| P0BE7 | Drive Motor "A" Phase U Current Sensor Circuit Low | <Ref. to GD(HEV)-56, DTC P0BE7 DRIVE MOTOR "A" PHASE U CURRENT SENSOR CIRCUIT LOW, Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| P0BE8 | Drive Motor "A" Phase U Current Sensor Circuit High | <Ref. to GD(HEV)-57, DTC P0BE8 DRIVE MOTOR "A" PHASE U CURRENT SENSOR CIRCUIT HIGH, Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| P0BEA | Drive Motor "A" Phase V Current Sensor Circuit Range/Performance | <Ref. to GD(HEV)-58, DTC P0BEA DRIVE MOTOR "A" PHASE V CURRENT SENSOR CIRCUIT RANGE/PERFORMANCE, Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| P0BEB | Drive Motor "A" Phase V Current Sensor Circuit Low | <Ref. to GD(HEV)-59, DTC P0BEB DRIVE MOTOR "A" PHASE V CURRENT SENSOR CIRCUIT LOW, Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| P0BEC | Drive Motor "A" Phase V Current Sensor Circuit High | <Ref. to GD(HEV)-60, DTC P0BEC DRIVE MOTOR "A" PHASE V CURRENT SENSOR CIRCUIT HIGH, Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| P0BEE | Drive Motor "A" Phase W Current Sensor Circuit Range/Performance | <Ref. to GD(HEV)-61, DTC P0BEE DRIVE MOTOR "A" PHASE W CURRENT SENSOR CIRCUIT RANGE/PERFORMANCE, Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| P0BEF | Drive Motor "A" Phase W Current Sensor Circuit Low | <Ref. to GD(HEV)-62, DTC P0BEF DRIVE MOTOR "A" PHASE W CURRENT SENSOR CIRCUIT LOW, Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| P0BF0 | Drive Motor "A" Phase W Current Sensor Circuit High | <Ref. to GD(HEV)-63, DTC P0BF0 DRIVE MOTOR "A" PHASE W CURRENT SENSOR CIRCUIT HIGH, Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| P0BFD | Drive Motor "A" Phase U-V-W Current Sensor Correlation | <Ref. to GD(HEV)-64, DTC P0BFD DRIVE MOTOR "A" PHASE U-V-W CURRENT SENSOR CORRELATION, Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| P0C05 | Drive Motor "A" Phase U-V-W Circuit/Open | <Ref. to GD(HEV)-65, DTC P0C05 DRIVE MOTOR "A" PHASE U-V-W CIRCUIT/OPEN, Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| P0C0C | Drive Motor "A" Inverter Power Supply Circuit Low | <Ref. to GD(HEV)-66, DTC P0C0C DRIVE MOTOR "A" INVERTER POWER SUPPLY CIRCUIT LOW, Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| P0C0D | Drive Motor "A" Inverter Power Supply Circuit High | <Ref. to GD(HEV)-67, DTC P0C0D DRIVE MOTOR "A" INVERTER POWER SUPPLY CIRCUIT HIGH, Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| P0C52 | Drive Motor "A" Position Sensor Circuit "A" Low | <Ref. to GD(HEV)-68, DTC P0C52 DRIVE MOTOR "A" POSITION SENSOR CIRCUIT "A" LOW, Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| P0C5C | Drive Motor "A" Position Sensor Circuit "B" Low | <Ref. to GD(HEV)-69, DTC P0C5C DRIVE MOTOR "A" POSITION SENSOR CIRCUIT "B" LOW, Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| P0C79 | Drive Motor "A" Inverter Voltage Too High | <Ref. to GD(HEV)-70, DTC P0C79 DRIVE MOTOR "A" INVERTER VOLTAGE TOO HIGH, Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| P0CDC | Drive Motor "A" Position Sensor Circuit "C" Low | <Ref. to GD(HEV)-71, DTC P0CDC DRIVE MOTOR "A" POSITION SENSOR CIRCUIT "C" LOW, Diagnostic Trouble Code (DTC) Detecting Criteria.> |

| DTC | Item | Note |
|---|---|---|
| P0CDD | Drive Motor "A" Position Sensor Circuit "C" High | <Ref. to GD(HEV)-72, DTC P0CDD DRIVE MOTOR "A" POSITION SENSOR CIRCUIT "C" HIGH, Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| P0DA8 | Hybrid/Ev Battery Voltage/Drive Motor "A" Inverter Voltage Correlation | <Ref. to GD(HEV)-73, DTC P0DA8 HYBRID/EV BATTERY VOLTAGE/ DRIVE MOTOR "A" INVERTER VOLTAGE CORRELATION, Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| P1C20 | Drive Motor "A" Inverter Voltage Too Low | <Ref. to GD(HEV)-74, DTC P1C20 DRIVE MOTOR "A" INVERTER VOLTAGE TOO LOW, Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| P1C24 | Drive Motor "B" Temperature Sensor Circuit | <Ref. to GD(HEV)-75, DTC P1C24 DRIVE MOTOR "B" TEMPERATURE SENSOR CIRCUIT, Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| P1C25 | Drive Motor "B" Temperature Sensor Circuit Low | <Ref. to GD(HEV)-76, DTC P1C25 DRIVE MOTOR "B" TEMPERATURE SENSOR CIRCUIT LOW, Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| P1C26 | Drive Motor "B" Temperature Sensor Circuit High | <Ref. to GD(HEV)-77, DTC P1C26 DRIVE MOTOR "B" TEMPERATURE SENSOR CIRCUIT HIGH, Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| P1C27 | Drive Motor "A" and "B" Temperature Sensor Correlation | <Ref. to GD(HEV)-78, DTC P1C27 DRIVE MOTOR "A" AND "B" TEMPERATURE SENSOR CORRELATION, Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| P1C30 | Lost Communication With Drive Motor Inverter | <Ref. to GD(HEV)-80, DTC P1C30 LOST COMMUNICATION WITH DRIVE MOTOR INVERTER, Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| P1C31 | Invalid Data Received From Drive Motor Inverter | <Ref. to GD(HEV)-81, DTC P1C31 INVALID DATA RECEIVED FROM DRIVE MOTOR INVERTER, Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| P0604 | Internal Control Module Random Access Memory (RAM) Error | <Ref. to GD(HEV)-22, DTC P0604 INTERNAL CONTROL MODULE RANDOM ACCESS MEMORY (RAM) ERROR, Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| P0605 | Internal Control Module Read Only Memory (ROM) Error | <Ref. to GD(HEV)-24, DTC P0605 INTERNAL CONTROL MODULE READ ONLY MEMORY (ROM) ERROR, Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| P0A1B | Drive Motor "A" Control Module | <Ref. to GD(HEV)-82, DTC P0A1B DRIVE MOTOR "A" CONTROL MODULE, Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| P06B1 | Sensor Power Supply "A" Circuit Low | <Ref. to GD(HEV)-83, DTC P06B1 SENSOR POWER SUPPLY "A" CIRCUIT LOW, Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| P06B2 | Sensor Power Supply "A" Circuit High | <Ref. to GD(HEV)-84, DTC P06B2 SENSOR POWER SUPPLY "A" CIRCUIT HIGH, Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| U0076 | Control Module Communication Bus "HEV-CAN" Off | <Ref. to GD(HEV)-159, DTC U0076 CONTROL MODULE COMMUNICATION BUS "HEV-CAN" OFF, Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| U0111 | Lost Communication With Battery Energy Control Module | <Ref. to GD(HEV)-165, DTC U0111 LOST COMMUNICATION WITH BATTERY ENERGY CONTROL MODULE, Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| U0412 | Invalid Data Received From Battery Energy Control Module | <Ref. to GD(HEV)-172, DTC U0412 INVALID DATA RECEIVED FROM BATTERY ENERGY CONTROL MODULE, Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| U1290 | Lost Communication With Hybrid Powertrain Control Module HEV-CAN | <Ref. to GD(HEV)-177, DTC U1290 LOST COMMUNICATION WITH HYBRID POWERTRAIN CONTROL MODULE HEV-CAN, Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| U1591 | Invalid Data Received From Hybrid Powertrain Control Module HEV-CAN | <Ref. to GD(HEV)-181, DTC U1591 INVALID DATA RECEIVED FROM HYBRID POWERTRAIN CONTROL MODULE HEV-CAN, Diagnostic Trouble Code (DTC) Detecting Criteria.> |

## 3. BATTERY ENERGY CONTROL SYSTEM

| DTC | Item | Note |
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| P0604 | Internal Control Module Random Access Memory (RAM) Error | <Ref. to GD(HEV)-22, DTC P0604 INTERNAL CONTROL MODULE RANDOM ACCESS MEMORY (RAM) ERROR, Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| P0605 | Internal Control Module Read Only Memory (ROM) Error | <Ref. to GD(HEV)-24, DTC P0605 INTERNAL CONTROL MODULE READ ONLY MEMORY (ROM) ERROR, Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| P062F | Internal Control Module EEPROM Error | <Ref. to GD(HEV)-85, DTC P062F INTERNAL CONTROL MODULE EEPROM ERROR, Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| P0A1F | Battery Energy Control Module | <Ref. to GD(HEV)-86, DTC P0A1F BATTERY ENERGY CONTROL MODULE, Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| P0A7D | Hybrid Battery Pack State of Charge Low | <Ref. to GD(HEV)-87, DTC P0A7D HYBRID BATTERY PACK STATE OF CHARGE LOW, Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| P0A7E | Hybrid Battery Pack Over Temperature | <Ref. to GD(HEV)-88, DTC P0A7E HYBRID BATTERY PACK OVER TEMPERATURE, Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| P0A7F | Hybrid Battery Pack Deterioration | <Ref. to GD(HEV)-89, DTC P0A7F HYBRID BATTERY PACK DETERIORATION, Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| P0A95 | High Voltage Fuse | <Ref. to GD(HEV)-92, DTC P0A95 HIGH VOLTAGE FUSE, Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| P0A9C | Hybrid Battery Temperature Sensor "A" Circuit Range/Performance | <Ref. to GD(HEV)-93, DTC P0A9C HYBRID BATTERY TEMPERATURE SENSOR "A" CIRCUIT RANGE/PERFORMANCE, Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| P0A9D | Hybrid Battery Temperature Sensor "A" Circuit Low | <Ref. to GD(HEV)-94, DTC P0A9D HYBRID BATTERY TEMPERATURE SENSOR "A" CIRCUIT LOW, Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| P0A9E | Hybrid Battery Temperature Sensor "A" Circuit High | <Ref. to GD(HEV)-95, DTC P0A9E HYBRID BATTERY TEMPERATURE SENSOR "A" CIRCUIT HIGH, Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| P0AAD | Hybrid Battery Pack Air Temperature Sensor "A" Circuit Range/Performance | <Ref. to GD(HEV)-96, DTC P0AAD HYBRID BATTERY PACK AIR TEMPERATURE SENSOR "A" CIRCUIT RANGE/PERFORMANCE, Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| P0AAE | Hybrid Battery Pack Air Temperature Sensor "A" Circuit Low | <Ref. to GD(HEV)-97, DTC P0AAE HYBRID BATTERY PACK AIR TEMPERATURE SENSOR "A" CIRCUIT LOW, Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| P0AAF | Hybrid Battery Pack Air Temperature Sensor "A" Circuit High | <Ref. to GD(HEV)-98, DTC P0AAF HYBRID BATTERY PACK AIR TEMPERATURE SENSOR "A" CIRCUIT HIGH, Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| P0ABF | Hybrid Battery Pack Current Sensor "A" Circuit | <Ref. to GD(HEV)-99, DTC P0ABF HYBRID BATTERY PACK CURRENT SENSOR "A" CIRCUIT, Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| P0AC0 | Hybrid Battery Pack Current Sensor "A" Circuit Range/Performance | <Ref. to GD(HEV)-100, DTC P0AC0 HYBRID BATTERY PACK CURRENT SENSOR "A" CIRCUIT RANGE/PERFORMANCE, Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| P0AC1 | Hybrid Battery Pack Current Sensor "A" Circuit Low | <Ref. to GD(HEV)-101, DTC P0AC1 HYBRID BATTERY PACK CURRENT SENSOR "A" CIRCUIT LOW, Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| P0AC2 | Hybrid Battery Pack Current Sensor "A" Circuit High | <Ref. to GD(HEV)-102, DTC P0AC2 HYBRID BATTERY PACK CURRENT SENSOR "A" CIRCUIT HIGH, Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| P0AC3 | Hybrid Battery Pack Current Sensor "A" Circuit Intermittent/Erratic | <Ref. to GD(HEV)-103, DTC P0AC3 HYBRID BATTERY PACK CURRENT SENSOR "A" CIRCUIT INTERMITTENT/ERRATIC, Diagnostic Trouble Code (DTC) Detecting Criteria.> |

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| P0AC6 | Hybrid Battery Temperature Sensor "B" Circuit Range/Performance | <Ref. to GD(HEV)-105, DTC P0AC6 HYBRID BATTERY TEMPERATURE SENSOR "B" CIRCUIT RANGE/PERFORMANCE, Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| P0AC7 | Hybrid Battery Temperature Sensor "B" Circuit Low | <Ref. to GD(HEV)-106, DTC P0AC7 HYBRID BATTERY TEMPERATURE SENSOR "B" CIRCUIT LOW, Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| P0AC8 | Hybrid Battery Temperature Sensor "B" Circuit High | <Ref. to GD(HEV)-107, DTC P0AC8 HYBRID BATTERY TEMPERATURE SENSOR "B" CIRCUIT HIGH, Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| P0ACB | Hybrid Battery Temperature Sensor "C" Circuit Range/Performance | <Ref. to GD(HEV)-108, DTC P0ACB HYBRID BATTERY TEMPERATURE SENSOR "C" CIRCUIT RANGE/PERFORMANCE, Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| P0ACC | Hybrid Battery Temperature Sensor "C" Circuit Low | <Ref. to GD(HEV)-109, DTC P0ACC HYBRID BATTERY TEMPERATURE SENSOR "C" CIRCUIT LOW, Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| P0ACD | Hybrid Battery Temperature Sensor "C" Circuit High | <Ref. to GD(HEV)-110, DTC P0ACD HYBRID BATTERY TEMPERATURE SENSOR "C" CIRCUIT HIGH, Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| P0AD9 | Hybrid Battery Positive Contactor Control Circuit/Open | <Ref. to GD(HEV)-111, DTC P0AD9 HYBRID BATTERY POSITIVE CONTACTOR CONTROL CIRCUIT/OPEN, Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| P0ADB | Hybrid Battery Positive Contactor Control Circuit Low | <Ref. to GD(HEV)-112, DTC P0ADB HYBRID BATTERY POSITIVE CONTACTOR CONTROL CIRCUIT LOW, Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| P0ADD | Hybrid Battery Negative Contactor Control Circuit/Open | <Ref. to GD(HEV)-113, DTC P0ADD HYBRID BATTERY NEGATIVE CONTACTOR CONTROL CIRCUIT/OPEN, Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| P0AE4 | Hybrid Battery Precharge Contactor Control Circuit | <Ref. to GD(HEV)-114, DTC P0AE4 HYBRID BATTERY PRECHARGE CONTACTOR CONTROL CIRCUIT, Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| P0B25 | Hybrid Battery "A" Voltage Low | <Ref. to GD(HEV)-115, DTC P0B25 HYBRID BATTERY "A" VOLTAGE LOW, Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| P0B26 | Hybrid Battery "A" Voltage High | <Ref. to GD(HEV)-116, DTC P0B26 HYBRID BATTERY "A" VOLTAGE HIGH, Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| P0B37 | High Voltage Service Disconnect Open | <Ref. to GD(HEV)-117, DTC P0B37 HIGH VOLTAGE SERVICE DISCONNECT OPEN, Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| P0B3C | Hybrid Battery Voltage Sense "A" Circuit Range/Performance | <Ref. to GD(HEV)-118, DTC P0B3C HYBRID BATTERY VOLTAGE SENSE "A" CIRCUIT RANGE/PERFORMANCE, Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| P0B3D | Hybrid Battery Voltage Sense "A" Circuit Low | <Ref. to GD(HEV)-119, DTC P0B3D HYBRID BATTERY VOLTAGE SENSE "A" CIRCUIT LOW, Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| P0B3E | Hybrid Battery Voltage Sense "A" Circuit High | <Ref. to GD(HEV)-120, DTC P0B3E HYBRID BATTERY VOLTAGE SENSE "A" CIRCUIT HIGH, Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| P0B41 | Hybrid Battery Voltage Sense "B" Circuit Range/Performance | <Ref. to GD(HEV)-121, DTC P0B41 HYBRID BATTERY VOLTAGE SENSE "B" CIRCUIT RANGE/PERFORMANCE, Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| P0B42 | Hybrid Battery Voltage Sense "B" Circuit Low | <Ref. to GD(HEV)-122, DTC P0B42 HYBRID BATTERY VOLTAGE SENSE "B" CIRCUIT LOW, Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| P0B43 | Hybrid Battery Voltage Sense "B" Circuit High | <Ref. to GD(HEV)-123, DTC P0B43 HYBRID BATTERY VOLTAGE SENSE "B" CIRCUIT HIGH, Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| P0B46 | Hybrid Battery Voltage Sense "C" Circuit Range/Performance | <Ref. to GD(HEV)-124, DTC P0B46 HYBRID BATTERY VOLTAGE SENSE "C" CIRCUIT RANGE/PERFORMANCE, Diagnostic Trouble Code (DTC) Detecting Criteria.> |

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| P0B47 | Hybrid Battery Voltage Sense "C" Circuit Low | <Ref. to GD(HEV)-125, DTC P0B47 HYBRID BATTERY VOLTAGE SENSE "C" CIRCUIT LOW, Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| P0B48 | Hybrid Battery Voltage Sense "C" Circuit High | <Ref. to GD(HEV)-126, DTC P0B48 HYBRID BATTERY VOLTAGE SENSE "C" CIRCUIT HIGH, Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| P0B4A | Hybrid Battery Voltage Sense "D" Circuit | <Ref. to GD(HEV)-127, DTC P0B4A HYBRID BATTERY VOLTAGE SENSE "D" CIRCUIT, Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| P0B4B | Hybrid Battery Voltage Sense "D" Circuit Range/Performance | <Ref. to GD(HEV)-128, DTC P0B4B HYBRID BATTERY VOLTAGE SENSE "D" CIRCUIT RANGE/PERFORMANCE, Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| P0B4C | Hybrid Battery Voltage Sense "D" Circuit Low | <Ref. to GD(HEV)-129, DTC P0B4C HYBRID BATTERY VOLTAGE SENSE "D" CIRCUIT LOW, Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| P0B4D | Hybrid Battery Voltage Sense "D" Circuit High | <Ref. to GD(HEV)-130, DTC P0B4D HYBRID BATTERY VOLTAGE SENSE "D" CIRCUIT HIGH, Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| P0B50 | Hybrid Battery Voltage Sense "E" Circuit Range/Performance | <Ref. to GD(HEV)-131, DTC P0B50 HYBRID BATTERY VOLTAGE SENSE "E" CIRCUIT RANGE/PERFORMANCE, Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| P0B51 | Hybrid Battery Voltage Sense "E" Circuit Low | <Ref. to GD(HEV)-132, DTC P0B51 HYBRID BATTERY VOLTAGE SENSE "E" CIRCUIT LOW, Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| P0B52 | Hybrid Battery Voltage Sense "E" Circuit High | <Ref. to GD(HEV)-133, DTC P0B52 HYBRID BATTERY VOLTAGE SENSE "E" CIRCUIT HIGH, Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| P0B55 | Hybrid Battery Voltage Sense "F" Circuit Range/Performance | <Ref. to GD(HEV)-134, DTC P0B55 HYBRID BATTERY VOLTAGE SENSE "F" CIRCUIT RANGE/PERFORMANCE, Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| P0B56 | Hybrid Battery Voltage Sense "F" Circuit Low | <Ref. to GD(HEV)-135, DTC P0B56 HYBRID BATTERY VOLTAGE SENSE "F" CIRCUIT LOW, Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| P0B57 | Hybrid Battery Voltage Sense "F" Circuit High | <Ref. to GD(HEV)-136, DTC P0B57 HYBRID BATTERY VOLTAGE SENSE "F" CIRCUIT HIGH, Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| P0B5A | Hybrid Battery Voltage Sense "G" Circuit Range/Performance | <Ref. to GD(HEV)-137, DTC P0B5A HYBRID BATTERY VOLTAGE SENSE "G" CIRCUIT RANGE/PERFORMANCE, Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| P0B5B | Hybrid Battery Voltage Sense "G" Circuit Low | <Ref. to GD(HEV)-138, DTC P0B5B HYBRID BATTERY VOLTAGE SENSE "G" CIRCUIT LOW, Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| P0B5C | Hybrid Battery Voltage Sense "G" Circuit High | <Ref. to GD(HEV)-139, DTC P0B5C HYBRID BATTERY VOLTAGE SENSE "G" CIRCUIT HIGH, Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| P0BB8 | Hybrid Battery Voltage Sense "Z" Circuit | <Ref. to GD(HEV)-140, DTC P0BB8 HYBRID BATTERY VOLTAGE SENSE "Z" CIRCUIT, Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| P0C30 | Hybrid Battery Pack State of Charge High | <Ref. to GD(HEV)-141, DTC P0C30 HYBRID BATTERY PACK STATE OF CHARGE HIGH, Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| P0C78 | Hybrid Battery System Precharge Time Too Long | <Ref. to GD(HEV)-142, DTC P0C78 HYBRID BATTERY SYSTEM PRECHARGE TIME TOO LONG, Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| P0CA6 | Hybrid Battery Charging Current High | <Ref. to GD(HEV)-143, DTC P0CA6 HYBRID BATTERY CHARGING CURRENT HIGH, Diagnostic Trouble Code (DTC) Detecting Criteria.> |

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| P0CA7 | Hybrid Battery Discharging Current High | <Ref. to GD(HEV)-144, DTC P0CA7 HYBRID BATTERY DISCHARGING CURRENT HIGH, Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| P1C40 | Hybrid Battery Positive Contactor or Pre-Charge Contactor Circuit Stuck Closed | <Ref. to GD(HEV)-145, DTC P1C40 HYBRID BATTERY POSITIVE CONTACTOR OR PRE-CHARGE CONTACTOR CIRCUIT STUCK CLOSED, Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| P1C41 | High Voltage Circuit Short | <Ref. to GD(HEV)-146, DTC P1C41 HIGH VOLTAGE CIRCUIT SHORT, Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| P1C42 | High Voltage Circuit Open | <Ref. to GD(HEV)-147, DTC P1C42 HIGH VOLTAGE CIRCUIT OPEN, Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| P1C43 | Hybrid Battery Contactor Power Supply Circuit | <Ref. to GD(HEV)-148, DTC P1C43 HYBRID BATTERY CONTACTOR POWER SUPPLY CIRCUIT, Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| P1C44 | Sub CPU in BECM | <Ref. to GD(HEV)-149, DTC P1C44 SUB CPU IN BECM, Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| P1C45 | Hybrid Battery Block 1 Balancing Performance | <Ref. to GD(HEV)-150, DTC P1C45 HYBRID BATTERY BLOCK 1 BALANCING PERFORMANCE, Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| P1C46 | Hybrid Battery Block 2 Balancing Performance | <Ref. to GD(HEV)-151, DTC P1C46 HYBRID BATTERY BLOCK 2 BALANCING PERFORMANCE, Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| P1C47 | Hybrid Battery Block 3 Balancing Performance | <Ref. to GD(HEV)-152, DTC P1C47 HYBRID BATTERY BLOCK 3 BALANCING PERFORMANCE, Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| P1C48 | Hybrid Battery Block 4 Balancing Performance | <Ref. to GD(HEV)-153, DTC P1C48 HYBRID BATTERY BLOCK 4 BALANCING PERFORMANCE, Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| P1C49 | Hybrid Battery Block 5 Balancing Performance | <Ref. to GD(HEV)-154, DTC P1C49 HYBRID BATTERY BLOCK 5 BALANCING PERFORMANCE, Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| P1C4A | Hybrid Battery Block 6 Balancing Performance | <Ref. to GD(HEV)-155, DTC P1C4A HYBRID BATTERY BLOCK 6 BALANCING PERFORMANCE, Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| P1C5E | Hybrid Battery Block Voltage Too Low | <Ref. to GD(HEV)-156, DTC P1C5E HYBRID BATTERY BLOCK VOLTAGE TOO LOW, Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| U0076 | Control Module Communication Bus "HEV-CAN" Off | <Ref. to GD(HEV)-159, DTC U0076 CONTROL MODULE COMMUNICATION BUS "HEV-CAN" OFF, Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| U0110 | Lost Communication With Drive Motor Control Module "A" | <Ref. to GD(HEV)-163, DTC U0110 LOST COMMUNICATION WITH DRIVE MOTOR CONTROL MODULE "A", Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| U0411 | Invalid Data Received From Drive Motor Control Module "A" | <Ref. to GD(HEV)-170, DTC U0411 INVALID DATA RECEIVED FROM DRIVE MOTOR CONTROL MODULE "A", Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| U1290 | Lost Communication With Hybrid Powertrain Control Module HEV-CAN | <Ref. to GD(HEV)-177, DTC U1290 LOST COMMUNICATION WITH HYBRID POWERTRAIN CONTROL MODULE HEV-CAN, Diagnostic Trouble Code (DTC) Detecting Criteria.> |
| U1591 | Invalid Data Received From Hybrid Powertrain Control Module HEV-CAN | <Ref. to GD(HEV)-181, DTC U1591 INVALID DATA RECEIVED FROM HYBRID POWERTRAIN CONTROL MODULE HEV-CAN, Diagnostic Trouble Code (DTC) Detecting Criteria.> |

# 2. Diagnostic Trouble Code (DTC) Detecting Criteria

## A: DTC P0506 IDLE AIR CONTROL SYSTEM RPM LOWER THAN EXPECTED

### 1. OUTLINE OF DIAGNOSIS

Detect the malfunction of ISC.
Judge as NG when the detection result is out of specification.

### 2. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| 12V battery system voltage | ≥ 10.9 V |
| Measured lambda | ≥ 0.85<br>and<br>< 1.151 |
| Vehicle speed | = 0 mph |
| Engine Auto Stop command by HPCM | False |
| SOC of hybrid battery | ≤ 44% |
| CVT secondary pulley shaft speed | ≥ 100 rpm |
| Accelerator pedal position | = 0% |

### 3. DIAGNOSTIC METHOD

**• Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| (Actual engine speed) – (Target engine speed) | < – 100 rpm |

**Time Needed for Diagnosis:** 15 seconds
**Malfunction Indicator Light Illumination:** detects when malfunction occurs in 2 continuous driving cycles. (Single engine startup is counted as one drive cycle.)

**• Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| (Actual engine speed) – (Target engine speed) | ≥ – 100 rpm |

**Time Needed for Diagnosis:** 15 seconds

# B: DTC P0507 IDLE AIR CONTROL SYSTEM RPM HIGHER THAN EXPECTED

## 1. OUTLINE OF DIAGNOSIS

Detect the malfunction of ISC.
Judge as NG when the detection result is out of specification.

## 2. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| 12V battery system voltage | ≥ 10.9 V |
| Measured lambda | ≥ 0.85<br>and<br>< 1.151 |
| Vehicle speed | = 0 mph |
| Engine Auto Stop command by HPCM | False |
| SOC of hybrid battery | ≤ 44% |
| CVT secondary pulley shaft speed | ≥ 100 rpm |
| Accelerator pedal position | = 0% |

## 3. DIAGNOSTIC METHOD

- **Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| (Actual engine speed) – (Target engine speed) | > 200 rpm |

**Time Needed for Diagnosis:** 15 seconds
**Malfunction Indicator Light Illumination:** detects when malfunction occurs in 2 continuous driving cycles. (Single engine startup is counted as one drive cycle.)

- **Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| (Actual engine speed) – (Target engine speed) | ≤ 200 rpm |

**Time Needed for Diagnosis:** 15 seconds

# C: DTC P0572 BRAKE SWITCH "A" [STOP LAMP SWITCH] CIRCUIT LOW

## 1. OUTLINE OF DIAGNOSIS

Detect brake pedal SW-A ON/OFF stuck.
Judge as NG when the detection result is out of specification.

## 2. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| a: Ignition state | Run or crank |
| b: 12 V battery system voltage | ≥ 10.9 |
| Elapsed time of a and b | ≥ 0.2 s |
| Brake switch B signal from ECM | OFF |
| (Brake pedal) | (Not Pressed) |
| (Current BPP sensor 1 angle) – (BPP sensor 1 angle that was stored when the brake switch B status has been changed from ON to OFF) | ≤ –0.69 deg |
| (Brake pedal) | (Not Pressed) |

## 3. DIAGNOSTIC METHOD

- **Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Brake switch A signal from ECM | OFF |
| (Brake pedal) | Pressed |
| NOTE:<br>For a normal system, when applying the brakes switch B will go from ON to OFF immediately, and from switch B OFF, switch A will go OFF to ON after 0.69 degrees of travel in the direction of decreasing the value of the brake pedal angle. | |

**Time Needed for Diagnosis:** 1 s x 5 times
**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

- **Normality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as OK.
Do not clear NG during hybrid system activated.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Brake switch A signal from ECM | ON |
| (Brake pedal) | Not Pressed |
| NOTE:<br>For a normal system, when applying the brakes switch B will go from ON to OFF immediately, and from switch B OFF, switch A will go OFF to ON after 0.69 degrees of travel in the direction of decreasing the value of the brake pedal angle. | |

**Time Needed for Diagnosis:** 1 second

# D: DTC P0573 BRAKE SWITCH "A" [STOP LAMP SWITCH] CIRCUIT HIGH

## 1. OUTLINE OF DIAGNOSIS

Detect brake pedal SW-A ON/OFF stuck.
Judge as NG when the detection result is out of specification.

## 2. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| a: Ignition state | Run or crank |
| b: 12 V battery system voltage | ≥ 10.9 |
| Elapsed time of a and b | ≥ 0.2 s |
| Brake switch B signal from ECM | ON |
| (Brake pedal) | (Pressed) |
| (Current BPP sensor 1 angle) – (BPP sensor 1 angle that was stored when the brake switch B status has been changed from OFF to ON) | ≥ +0.69 deg |
| (Brake pedal) | (Pressed) |
| a: Ignition state | Run or crank |
| b: 12 V battery system voltage | ≥ 10.9 |
| Elapsed time of a and b | ≥ 0.2 s |
| (Current BPP sensor 1 angle) – (Minimum BPP sensor 1 angle that has experienced from ignition switch: ON) | ≥ +3.5 deg |
| (Brake pedal) | (Pressed) |

## 3. DIAGNOSTIC METHOD

- **Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Brake switch A signal from ECM | ON |
| (Brake pedal) | Not pressed |
| NOTE:<br>For a normal system, when applying the brakes switch B will go from OFF to ON immediately, and from switch B ON, switch A will go ON to OFF after 0.69 degrees of travel in the direction of increasing the value of the brake pedal angle. | |
| NOTE:<br>For a normal system, switch A will go ON to OFF within 3.5 degrees of travel in the direction of increasing the value of the brake pedal angle from initial brake pedal position. | |

**Time Needed for Diagnosis:** 1 s x 5 times
**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

- **Normality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as OK. Do not clear NG during hybrid system activated.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Brake switch A signal from ECM<br>(Brake pedal)<br>NOTE:<br>For a normal system, when applying the brakes switch B will go from OFF to ON immediately, and from switch B ON, switch A will go ON to OFF after 0.69 degrees of travel in the direction of increasing the value of the brake pedal angle.<br>NOTE:<br>For a normal system, switch A will go ON to OFF within 3.5 degrees of travel in the direction of increasing the value of the brake pedal angle from initial brake pedal position. | OFF<br>Pressed |

**Time Needed for Diagnosis:** 1 second

# E: DTC P057B BRAKE PEDAL POSITION SENSOR CIRCUIT RANGE/PERFORMANCE

## 1. OUTLINE OF DIAGNOSIS

Detect the malfunction of brake stroke sensor 1 and 2.
Judge as NG when the detection result is out of specification.

## 2. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| **Diagnosis 1** | |
| a: Ignition state | Run or crank |
| b: 12 V battery system voltage | ≥ 10.9 |
| Elapsed time of a and b | ≥ 0.2 s |
| **Diagnosis 2** | |
| a: Ignition state | Run or crank |
| b: 12 V battery system voltage | ≥ 10.9 |
| Elapsed time of a and b | ≥ 0.2 s |
| Current BPP sensor 1 angle – Min (BPP sensor 1 angle) | ≥ 1 deg<br>or |
| Current BPP sensor 2 angle – Min (BPP sensor 2 angle) | ≥ 1 deg |

## 3. DIAGNOSTIC METHOD

- **Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| **Diagnosis 1** | |
| Max (BPP sensor 1 angle) – Current BPP sensor 1 angle | < 0.5 deg<br>and |
| Max (BPP sensor 2 angle) – Current BPP sensor 2 angle | ≥ 2 deg<br>or |
| Max (BPP sensor 1 angle) – Current BPP sensor 1angle | ≥ 2 deg<br>and |
| Max (BPP sensor 2 angle) – Current BPP sensor 2 angle | < 0.5 deg |
| **Diagnosis 2** | |
| BPP sensor 1 voltage + BPP sensor 2 voltage | ≤ 3.5 V |
| NOTE:<br>The sum should be 5 V for typical sensors | or<br>≥ 6.5 V |

**Time Needed for Diagnosis:** 0.1 seconds
**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

- **Normality Judgment**

Judge as OK and clear NG when continuous time when the following conditions are met is predetermined time or more (diagnosis 1 and diagnosis 2).

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| **Diagnosis 1** | |
| Max (BPP sensor 1 angle) – Current BPP sensor 1 angle | ≥ 0.5 deg |
| Max (BPP sensor 2 angle) – Current BPP sensor 2 angle | ≥ 2 deg |
| Max (BPP sensor 1 angle) – Current BPP sensor 1angle | ≥ 2 deg |
| Max (BPP sensor 2 angle) – Current BPP sensor 2 angle | ≥ 0.5 deg |
| **Diagnosis 2** | |
| BPP sensor 1 voltage + BPP sensor 2 voltage<br>NOTE:<br>The sum should be 5 V for typical sensors | > 3.5 V<br>or<br>< 6.5 V |

**Time Needed for Diagnosis:** 0.2 seconds

# F: DTC P057C BRAKE PEDAL POSITION SENSOR CIRCUIT LOW

## 1. OUTLINE OF DIAGNOSIS

Detect the open circuit of brake stroke sensor 1 and ground short.
Judge as NG when the detection result is out of specification.

## 2. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| a: Ignition state | Run or crank |
| b: 12 V battery system voltage | ≥ 10.9 |
| Elapsed time of a and b | ≥ 0.2 s |

## 3. DIAGNOSTIC METHOD

- **Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Brake Pedal Position Sensor 1 (Mechanical pedal angle) | ≤ 0.25 V (≤ –11.25 deg) |

**Time Needed for Diagnosis:** 0.1 seconds
**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

- **Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Brake Pedal Position Sensor 1 (Mechanical pedal angle) | > 0.25 V (> –11.25 deg) |

**Time Needed for Diagnosis:** 0.2 seconds

# G: DTC P057D BRAKE PEDAL POSITION SENSOR CIRCUIT HIGH

## 1. OUTLINE OF DIAGNOSIS

Detect the power supply short of brake stroke sensor 1.
Judge as NG when the detection result is out of specification.

## 2. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| a: Ignition state | Run or crank |
| b: 12 V battery system voltage | ≥ 10.9 |
| Elapsed time of a and b | ≥ 0.2 s |

## 3. DIAGNOSTIC METHOD

- **Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Brake Pedal Position Sensor 1 (Mechanical pedal angle) | ≥ 3.4 V (≥ 36 deg) |

**Time Needed for Diagnosis:** 0.1 seconds
**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

- **Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Brake Pedal Position Sensor 1 (Mechanical pedal angle) | < 3.4 V (< 36 deg) |

**Time Needed for Diagnosis:** 0.2 seconds

# H: DTC P05DD BRAKE PEDAL POSITION SENSOR "B" CIRCUIT LOW

## 1. OUTLINE OF DIAGNOSIS

Detect the open circuit of brake stroke sensor 2 and ground short.
Judge as NG when the detection result is out of specification.

## 2. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| a: Ignition state | Run or crank |
| b: 12 V battery system voltage | ≥ 10.9 |
| Elapsed time of a and b | ≥ 0.2 s |

## 3. DIAGNOSTIC METHOD

- **Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Brake Pedal Position Sensor 2 | ≤ 1.5 V |
| (Mechanical pedal angle) | (≥ 37.5 deg) |

**Time Needed for Diagnosis:** 0.1 seconds
**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

- **Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Brake Pedal Position Sensor 1 | > 1.5 V |
| (Mechanical pedal angle) | (< 37.5 deg) |

**Time Needed for Diagnosis:** 0.2 seconds

# I: DTC P05DE BRAKE PEDAL POSITION SENSOR "B" CIRCUIT HIGH

## 1. OUTLINE OF DIAGNOSIS

Detect the power supply short of brake stroke sensor 2.
Judge as NG when the detection result is out of specification.

## 2. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| a: Ignition state | Run or crank |
| b: 12 V battery system voltage | ≥ 10.9 |
| Elapsed time of a and b | ≥ 0.2 s |

## 3. DIAGNOSTIC METHOD

- **Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Brake Pedal Position Sensor 2 | ≥ 4.7 V |
| (Mechanical pedal angle) | (≤ –10.5 deg) |

**Time Needed for Diagnosis:** 0.1 seconds
**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

- **Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Brake Pedal Position Sensor 1 | < 4.7 V |
| (Mechanical pedal angle) | (> –10.5 deg) |

**Time Needed for Diagnosis:** 0.2 seconds

# J: DTC P0604 INTERNAL CONTROL MODULE RANDOM ACCESS MEMORY (RAM) ERROR

**HYBRID POWERTRAIN CONTROL SYSTEM**

## 1. OUTLINE OF DIAGNOSIS

Detect the malfunction of microcomputer (RAM).
Judge as NG when the detection result is out of specification.

## 2. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| Ignition state | Run or crank |

## 3. DIAGNOSTIC METHOD

- **Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| The written data in the whole area of RAM | ≠ The read data |

**Time Needed for Diagnosis:** Immediately
**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

- **Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| The written data in the whole area of RAM | The read data |

**Time Needed for Diagnosis:** Immediately
**DRIVE MOTOR CONTROL SYSTEM**

## 4. OUTLINE OF DIAGNOSIS

Detect the malfunction of drive motor control module.
Judge as NG when the malfunction is detected at the peripheral function of drive motor control module microcomputer.

## 5. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| Ignition state | OFF to ON<br>(ON = Run or crank)<br>(OFF ≠ Run or crank) |

## 6. DIAGNOSTIC METHOD

**• Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Written data in RAM | ≠ The read data |

**Time Needed for Diagnosis:** Immediately
**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

**• Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Written data in RAM | Read data |

**Time Needed for Diagnosis:** Immediately
**BATTERY ENERGY CONTROL SYSTEM**

## 7. OUTLINE OF DIAGNOSIS

Detect the malfunction of microcomputer RAM.

## 8. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| Ignition state | Run or crank |
| 12V battery system voltage | ≥ 6.5 V<br>and<br>≤ 17 V |
| BECM precharge contactor command | Open |
| BECM positive contactor command | Open |
| BECM negative contactor command | Open |

## 9. DIAGNOSTIC METHOD

**• Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Inconsistency between the write and read to RAM within the BECM Main CPU | Detected |

**Time Needed for Diagnosis:** Less than 0.01 second
**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

**• Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Inconsistency between the write and read to RAM within the BECM Main CPU | Not Detected |

**Time Needed for Diagnosis:** Less than 0.01 second

# K: DTC P0605 INTERNAL CONTROL MODULE READ ONLY MEMORY (ROM) ERROR

**HYBRID POWERTRAIN CONTROL SYSTEM**

## 1. OUTLINE OF DIAGNOSIS

Detect the malfunction of microcomputer (ROM).
Judge as NG when the detection result is out of specification.

## 2. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| Ignition state | Run or crank |

## 3. DIAGNOSTIC METHOD

- **Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Checksum (ROM) | Error |

**Time Needed for Diagnosis:** Immediately
**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

- **Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Checksum (ROM) | ≠ Error |

**Time Needed for Diagnosis:** Immediately
**DRIVE MOTOR CONTROL SYSTEM**

## 4. OUTLINE OF DIAGNOSIS

Detect the malfunction of drive motor control module.
Judge as NG when the malfunction is detected at the peripheral function of drive motor control module microcomputer.

## 5. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| Ignition state | OFF to ON<br>(ON = Run or crank) |

## 6. DIAGNOSTIC METHOD

**• Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Checksum (ROM) | Error |

**Time Needed for Diagnosis:** Immediately
**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

**• Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Checksum (ROM) | ≠ Error |

**Time Needed for Diagnosis:** Less than 1 second
**BATTERY ENERGY CONTROL SYSTEM**

## 7. OUTLINE OF DIAGNOSIS

Detect the malfunction of microcomputer FlashROM.

## 8. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| Ignition state | Run or crank |
| 12V battery system voltage | ≥ 6.5 V<br>and<br>≤ 17 V |
| BECM precharge contactor command | Closed |
| BECM positive contactor command | Closed |
| BECM negative contactor command | Closed |

## 9. DIAGNOSTIC METHOD

**• Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Checksum error of Flash EEPROM within the BECM Main CPU (Program area) | Detected |

**Time Needed for Diagnosis:** 2 seconds
**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

**• Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Checksum error of Flash EEPROM within the BECM Main CPU (Program area) | Not Detected |

**Time Needed for Diagnosis:** Less than 2 second

# L: DTC P0719 BRAKE SWITCH "B" CIRCUIT LOW

## 1. OUTLINE OF DIAGNOSIS

Detect brake pedal SW-B ON/OFF stuck.
Judge as NG when the detection result is out of specification.

## 2. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| a: Ignition state | Run or crank |
| b: 12 V battery system voltage | ≥ 10.9 |
| Elapsed time of a and b | ≥ 0.2 s |
| Brake switch B signal from ECM | OFF |
| (Brake pedal) | (Pressed) |
| (Current BPP sensor 1 angle) – (BPP sensor 1 angle that was stored when the brake switch A status has been changed from ON to OFF) | ≥ +0.69 deg |
| (Brake pedal) | (Pressed) |
| (Current BPP sensor 1 angle) – (Minimum BPP sensor 1 value that has experienced from ignition switch: ON) | ≥ +3.5 deg |
| (Brake pedal) | (Pressed) |

## 3. DIAGNOSTIC METHOD

- **Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Brake switch B signal from ECM | OFF |
| (Brake pedal) | Not pressed |
| NOTE:<br>For a normal system, when applying the brakes switch A will go from ON to OFF immediately, and from switch A OFF, switch B will go OFF to ON after 0.69 degrees of travel in the direction of increasing the value of the brake pedal angle. | |
| NOTE:<br>For a normal system, switch B will go OFF to ON within 3.5 degrees of travel in the direction of increasing the value of the brake pedal angle from initial brake pedal position. | |

**Time Needed for Diagnosis:** 1 s x 5 times
**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

- **Normality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as OK. Do not clear NG during hybrid system activated.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Brake switch B signal from ECM<br>(Brake pedal)<br>NOTE:<br>For a normal system, when applying the brakes switch A will go from ON to OFF immediately, and from switch A OFF, switch B will go OFF to ON after 0.69 degrees of travel in the direction of increasing the value of the brake pedal angle.<br>NOTE:<br>For a normal system, switch B will go OFF to ON within 3.5 degrees of travel in the direction of increasing the value of the brake pedal angle from initial brake pedal position. | ON<br>Pressed |

**Time Needed for Diagnosis:** 1 second

# M: DTC P0724 BRAKE SWITCH "B" CIRCUIT HIGH

## 1. OUTLINE OF DIAGNOSIS

Detect brake pedal SW-B ON/OFF stuck.
Judge as NG when the detection result is out of specification.

## 2. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| a: Ignition state | Run or crank |
| b: 12 V battery system voltage | ≥ 10.9 |
| Elapsed time of a and b | ≥ 0.2 s |
| Brake switch B signal from ECM | ON |
| (Brake pedal) | (Not pressed) |
| (Current BPP sensor 1 angle) – (BPP sensor 1 angle that was stored when the brake switch A status has been changed from OFF to ON) | ≤ –0.69 deg |
| (Brake pedal) | (Not pressed) |

## 3. DIAGNOSTIC METHOD

- **Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Brake switch B signal from ECM | ON |
| (Brake pedal) | Pressed |
| NOTE:<br>For a normal system, when applying the brakes switch A will go from OFF to ON immediately, and from switch A ON, switch B will go ON to OFF after 0.69 degrees of travel in the direction of decreasing the value of the brake pedal angle. | |

**Time Needed for Diagnosis:** 1 s x 5 times
**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

- **Normality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as OK.
Do not clear NG during hybrid system activated.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Brake switch B signal from ECM | OFF |
| (Brake pedal) | Pressed |
| NOTE:<br>For a normal system, when applying the brakes switch A will go from OFF to ON immediately, and from switch A ON, switch B will go ON to OFF after 0.69 degrees of travel in the direction of decreasing the value of the brake pedal angle. | |

**Time Needed for Diagnosis:** 1 second

# N: DTC P0A1D HYBRID POWERTRAIN CONTROL MODULE

## 1. OUTLINE OF DIAGNOSIS

Detect the malfunction of hybrid powertrain control module.
Judge as NG when the detection result is out of specification.

## 2. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| Ignition state | Run or crank |

## 3. DIAGNOSTIC METHOD

- **Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Internal Hardware module error<br><br>Exception interrupt by the HPCM CPU | Detected<br>or<br>Detected |

**Time Needed for Diagnosis:** Immediately
**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

- **Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Internal Hardware module error<br><br>Exception interrupt by the HPCM CPU | ≠ Detected<br>and<br>≠ Detected |

**Time Needed for Diagnosis:** Immediately

# O: DTC P1C16 IDLE CONTROL SYSTEM RPM LOWER THAN EXPECTED(HPCM)

## 1. OUTLINE OF DIAGNOSIS

NOTE:
For the detection standard, refer to DTC P0506. <Ref. to GD(HEV)-11, DTC P0506 IDLE AIR CONTROL SYSTEM RPM LOWER THAN EXPECTED, Diagnostic Trouble Code (DTC) Detecting Criteria.>

# P: DTC P1C17 IDLE CONTROL SYSTEM RPM HIGHER THAN EXPECTED(HPCM)

## 1. OUTLINE OF DIAGNOSIS

NOTE:
For the detection standard, refer to DTC P0507. <Ref. to GD(HEV)-12, DTC P0507 IDLE AIR CONTROL SYSTEM RPM HIGHER THAN EXPECTED, Diagnostic Trouble Code (DTC) Detecting Criteria.>

# Q: DTC P2158 VEHICLE SPEED SENSOR "B"

## 1. OUTLINE OF DIAGNOSIS

Detect the malfunction of the wheel speed of rear wheels.
Judge as NG when the detection result is out of specification.

## 2. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| a: Ignition state | Run or crank |
| b: 12 V battery system voltage | ≥ 10.9 |
| Elapsed time of a and b | ≥ 0.2 s |

## 3. DIAGNOSTIC METHOD

- **Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Vehicle speed (Rear) from Vehicle Dynamics<br>NOTE:<br>The VDC controller detects malfunction if one of the speed sensors does not output a signal and the other vehicle speed sensor output signal is above 7.46 MPH. | ≥ 186.4 MPH |

**Time Needed for Diagnosis:** 2.5 seconds
**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

- **Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Wheel speed of rear wheel (either left or right)<br>and | < 186 MPH |
| Wheel speed of rear wheel (both left and right) | > 0 MPH |

**Time Needed for Diagnosis:** 2.5 seconds

# R: DTC P0A2A DRIVE MOTOR "A" TEMPERATURE SENSOR CIRCUIT

## 1. OUTLINE OF DIAGNOSIS

Detect the open or short circuit of drive motor temperature sensor.
Judge as NG when the value of drive motor temperature sensor is out of specification.

## 2. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| PWM output to the drive motor inverter | ON |
| a: Ignition state | Run or crank |
| b: 12 V battery system voltage | > 10 V |
| Continuous time of a and b | ≥ 15 s |
| Generated energy of drive motor | ≥ Map1 |
| Assist energy of drive motor | ≥ Map2 |

**Map 1**

| Hybrid battery temperature and Drive motor inverter temperature either lower temperature (°C (°F)) | –30 (–22) | –10 (14) | 0 (32) | 10 (50) | 30 (86) | 40 (104) |
|---|---|---|---|---|---|---|
| Generated energy of drive motor (Wh) | 630 | 320 | 200 | 130 | 0 | 0 |

**Map 2**

| Hybrid battery temperature and Drive motor inverter temperature either lower temperature (°C (°F)) | –30 (–22) | –10 (14) | 0 (32) | 10 (50) | 30 (86) | 40 (104) |
|---|---|---|---|---|---|---|
| Assist energy of drive motor (Wh) | 270 | 130 | 75 | 50 | 0 | 0 |

## 3. DIAGNOSTIC METHOD

- **Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Output voltage<br>(Temperature equivalent) | > 4.5 V<br>< –3.4°C (25.9°F) |

**Time Needed for Diagnosis:** 2 seconds
**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

- **Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Output voltage<br>(Temperature equivalent) | ≤ 4.5 V<br>≥ -3.4°C (25.9°F) |

**Time Needed for Diagnosis:** 4 seconds

# S: DTC P0A2C DRIVE MOTOR "A" TEMPERATURE SENSOR CIRCUIT LOW

## 1. OUTLINE OF DIAGNOSIS

Detect the open or short circuit of drive motor temperature sensor.
Judge as NG when the value of drive motor temperature sensor is out of specification.

## 2. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| Ignition state | Run or crank |

## 3. DIAGNOSTIC METHOD

- **Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Output voltage<br>(Temperature equivalent) | < 0.23 V<br>> 234°C (453.2°F) |

**Time Needed for Diagnosis:** 1 second
**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

- **Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Output voltage<br>(Temperature equivalent) | ≥ 0.23 V<br>≤ 234°C (453.2°F) |

**Time Needed for Diagnosis:** 2 seconds

# T: DTC P0A2D DRIVE MOTOR "A" TEMPERATURE SENSOR CIRCUIT HIGH

## 1. OUTLINE OF DIAGNOSIS

Detect the open or short circuit of drive motor temperature sensor.
Judge as NG when the value of drive motor temperature sensor is out of specification.

## 2. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| Ignition state | Run or crank |

## 3. DIAGNOSTIC METHOD

- **Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Output voltage<br>(Temperature equivalent) | > 4.6 V<br>(< –55°C (–67°F)) |

**Time Needed for Diagnosis:** 1 second
**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

- **Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Output voltage<br>(Temperature equivalent) | ≤ 4.6 V<br>(≥ -55°C (–67°F)) |

**Time Needed for Diagnosis:** 2 seconds

# U: DTC P0A3C DRIVE MOTOR "A" INVERTER OVER TEMPERATURE

## 1. OUTLINE OF DIAGNOSIS

Detect the malfunction of drive motor inverter temperature.
Judge as NG when the value of drive motor inverter temperature is out of specification.

## 2. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| a: Ignition state | Run or crank |
| b: 12 V battery system voltage | > 8 V |
| Continuous time of a and b | ≥ 1 s |
| First SCI data from drive motor inverter | Received |

## 3. DIAGNOSTIC METHOD

- **Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Malfunction signal (over temperature) from IC in the drive motor inverter | ON |

**Time Needed for Diagnosis:** 0.2 seconds
**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

- **Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Malfunction signal (over temperature) from IC in the drive motor inverter | OFF |

**Time Needed for Diagnosis:** 0.2 seconds

# V: DTC P0A3F DRIVE MOTOR "A" POSITION SENSOR CIRCUIT

## 1. OUTLINE OF DIAGNOSIS

Detect the malfunction of the drive motor rotation angle sensor.
Judge as NG when the malfunction of drive motor rotation angle sensor is detected.

## 2. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| **Diagnosis 1** | |
| Ignition state | OFF to ON<br>(ON = Run or crank)<br>(OFF ≠ Run or crank) |
| **Diagnosis 2** | |
| a: Ignition state | Run or crank |
| b: 12 V battery system voltage | > 9 V |
| Continuous time of a and b | ≥ 1 s |

## 3. DIAGNOSTIC METHOD

- **Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| **Diagnosis 1** | |
| SCI data from the resolver to digital (R/D) converter | Parity error |
| **Diagnosis 2** | |
| R/D converter error output (Internal tracking error) | Detected |

**Time Needed for Diagnosis:**
- **Diagnosis 1:** 0.0002 s
- **Diagnosis 2:** 0.5 s

**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

- **Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| **Diagnosis 1** | |
| SCI data from the resolver to digital (R/D) converter | ≠ Parity error |
| **Diagnosis 2** | |
| R/D converter error output (Internal tracking error) | Not detected |

**Time Needed for Diagnosis:**
- **Diagnosis 1:** Immediately
- **Diagnosis 2:** 0.02 s

# W: DTC P0A40 DRIVE MOTOR "A" POSITION SENSOR CIRCUIT RANGE/PERFORMANCE

## 1. OUTLINE OF DIAGNOSIS

Detect the malfunction of the drive motor rotation angle sensor.
Judge as NG when the detected angle of drive motor rotation angle sensor is out of specification.

## 2. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| Ignition state | Run or crank |
| Resolver initialization<br>NOTE:<br>It is defined that "Resolver initialization=Completed", if all of the following conditions are satisfied:<br>1. The communication between the R/D converter and DMCM is established.<br>2. The R/D converter succeed to recognize the first motor position (angle) after power-up. | Completed |

## 3. DIAGNOSTIC METHOD

- **Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| **Diagnosis 1**<br>Measured drive motor angle | > 180.5 deg |
| **Diagnosis 2**<br>Measured drive motor angle (When the reference pulse occurs)<br>NOTE:<br>Diagnosis will be performed only when the reference pulse is generated | < 179.5 deg<br>and<br>> 0.5 deg |

**Time Needed for Diagnosis:** 0.0003 seconds
**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

- **Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| **Diagnosis 1**<br>Measured drive motor angle | ≤ 180.5 deg |
| **Diagnosis 2**<br>Measured drive motor angle (When the reference pulse occurs) | ≥ 179.5 deg<br>and<br>≤ 0.5 deg |

**Time Needed for Diagnosis:** 0.02 seconds

# X: DTC P0A43 DRIVE MOTOR "A" POSITION SENSOR CIRCUIT INTERMITTENT

## 1. OUTLINE OF DIAGNOSIS

Detect the malfunction of the drive motor rotation angle sensor.
Judge as NG when the angle detected by drive motor rotation angle sensor is not continuous.

## 2. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| Resolver initialization | Completed |
| a: Ignition state | Run or crank |
| b: 12 V battery system voltage | > 9 V |
| Continuous time of a and b | ≥ 1 s |

## 3. DIAGNOSTIC METHOD

**• Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| ABS (Difference between the current and previous values of Measured drive motor angle)<br>NOTE:<br>• ABS: Absolute value<br>• Sampling time = 0.001 s | > 11.25 deg |

**Time Needed for Diagnosis:** 0.5 seconds
**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

**• Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| ABS (Difference between the current and previous values of Measured drive motor angle) | ≤ 11.25 deg |

**Time Needed for Diagnosis:** 0.02 seconds

# Y: DTC P0A44 DRIVE MOTOR "A" POSITION SENSOR CIRCUIT OVERSPEED

## 1. OUTLINE OF DIAGNOSIS

Detect the malfunction of drive motor rotation count.
Judge as NG when the rotation count of drive motor is out of specification.

## 2. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| Resolver initialization | Completed |
| a: Ignition state | Run or crank |
| b: 12 V battery system voltage | > 9 V |
| Continuous time of a and b | ≥ 1 s |

## 3. DIAGNOSTIC METHOD

- **Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| ABS (Motor speed)<br>NOTE:<br>ABS: Absolute value | > 7000 rpm |

**Time Needed for Diagnosis:** 1 second
**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

- **Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| ABS (Motor speed)<br>NOTE:<br>ABS: Absolute value | ≤ 7000 rpm |

**Time Needed for Diagnosis:** 2 seconds

# Z: DTC P0A5D DRIVE MOTOR "A" PHASE U CURRENT

## 1. OUTLINE OF DIAGNOSIS

Detect the malfunction of the current flowing in drive motor.
Judge as NG when the current flowing in drive motor is out of specification.

## 2. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| PWM output to the drive motor inverter | ON |

## 3. DIAGNOSTIC METHOD

**• Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| ABS (Iu)<br>NOTE:<br>• ABS: Absolute value<br>• Iu: U phase current | > 350 A |

**Time Needed for Diagnosis:** 0.0003 seconds
**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

**• Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| ABS (Iu) | ≤ 350 A |

**Time Needed for Diagnosis:** 0.0006 seconds

# AA:DTC P0A60 DRIVE MOTOR "A" PHASE V CURRENT

## 1. OUTLINE OF DIAGNOSIS

Detect the malfunction of the current flowing in drive motor.
Judge as NG when the current flowing in drive motor is out of specification.

## 2. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| PWM output to the drive motor inverter | ON |

## 3. DIAGNOSTIC METHOD

**• Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| ABS (Iv)<br>NOTE:<br>• ABS: Absolute value<br>• Iv: V phase current | > 350 A |

**Time Needed for Diagnosis:** 0.0003 seconds
**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

**• Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| ABS (Iv) | ≤ 350 A |

**Time Needed for Diagnosis:** 0.0006 seconds

# AB:DTC P0A63 DRIVE MOTOR "A" PHASE W CURRENT

## 1. OUTLINE OF DIAGNOSIS

Detect the malfunction of the current flowing in drive motor.
Judge as NG when the current flowing in drive motor is out of specification.

## 2. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| PWM output to the drive motor inverter | ON |

## 3. DIAGNOSTIC METHOD

**• Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| ABS (Iw)<br>NOTE:<br>• ABS: Absolute value<br>• Iw: W phase current | > 350 A |

**Time Needed for Diagnosis:** 0.0003 seconds
**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

**• Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| ABS (Iw) | ≤ 350 A |

**Time Needed for Diagnosis:** 0.0006 seconds

# AC:DTC P0A78 DRIVE MOTOR "A" INVERTER PERFORMANCE

## 1. OUTLINE OF DIAGNOSIS

Detect the malfunction of drive motor inverter.
Judge as NG when the malfunction is detected in the internal circuit of drive motor inverter.

## 2. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| a: Ignition state | Run or crank |
| b: 12 V battery system voltage | > 8 V |
| Continuous time of a and b | ≥ 1 s |
| First SCI data from drive motor inverter | Received |

## 3. DIAGNOSTIC METHOD

- **Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Malfunction signal (internal data) from IC in the drive motor inverter | ON |

**Time Needed for Diagnosis:** 0.03 seconds
**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

- **Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Malfunction signal (internal data) from IC in the drive motor inverter | OFF |

**Time Needed for Diagnosis:** 0.02 seconds

# AD:DTC P0A82 HYBRID/EV BATTERY PACK COOLING FAN 1 PERFORMANCE/ STUCK OFF

## 1. OUTLINE OF DIAGNOSIS

Detect the malfunction of high voltage battery cooling fan.
Judge as NG when the performance of high voltage battery cooling fan is out of specification.

## 2. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| Commanded cooling fan duty | ≥ 20% |
| 12V battery system voltage | > 9.3 V |

## 3. DIAGNOSTIC METHOD

- **Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Measured cooling fan speed | < Map |

**Map**

| Commanded cooling fan duty (%) | 20 | 40 | 60 | 80 | 100 |
|---|---|---|---|---|---|
| Measured inverter cooling fan motor speed (rpm) | 300 | 700 | 1050 | 1200 | 1200 |

**Time Needed for Diagnosis:** 20 seconds
**Malfunction Indicator Light Illumination:** detects when malfunction occurs in 2 continuous driving cycles. (Single engine startup is counted as one drive cycle.)

- **Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Measured cooling fan speed | ≥ Map |

**Time Needed for Diagnosis:** 1 second

# AE:DTC P0A83 HYBRID/EV BATTERY PACK COOLING FAN 1 STUCK ON

## 1. OUTLINE OF DIAGNOSIS

Detect the malfunction of high voltage battery cooling fan.
Judge as NG when the performance of high voltage battery cooling fan is out of specification.

## 2. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| Commanded cooling fan duty | = 0% |
| 12V battery system voltage | > 9.3 V |

## 3. DIAGNOSTIC METHOD

- **Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Measured cooling fan speed | > 300 rpm |

**Time Needed for Diagnosis:** 20 seconds
**Malfunction Indicator Light Illumination:** detects when malfunction occurs in 2 continuous driving cycles. (Single engine startup is counted as one drive cycle.)

- **Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Measured cooling fan speed | ≤ 300 rpm |

**Time Needed for Diagnosis:** 20 seconds

# AF:DTC P0A90 DRIVE MOTOR "A" PERFORMANCE

## 1. OUTLINE OF DIAGNOSIS

Detect the malfunction of drive motor.
Judge as NG when the performance of drive motor is out of specification.

## 2. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| a: PWM output to the drive motor inverter | ON |
| b: ABS (Commanded motor output power)<br>NOTE:<br>ABS: Absolute value | > 5 kW |
| c: Motor speed | > 1000 rpm<br>and<br>< 3500 rpm |
| Continuous time of a, b and c | > 0.5 s |

## 3. DIAGNOSTIC METHOD

**• Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| (Estimated motor output power / Commanded motor output power) × 100<br>NOTE:<br>• Estimated motor output power = (V × I)<br>• Commanded motor output power = (N × T × 2 × π) / 60<br>• V: Commanded motor voltage<br>• I: Measured motor current<br>• N: Motor speed<br>• T: Commanded motor torque | < 40% |

**Time Needed for Diagnosis:** 1 second
**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

**• Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| (Estimated motor output power / Commanded motor output power) × 100 | ≥ 40% |

**Time Needed for Diagnosis:** 2 seconds

# AG:DTC P0AED DRIVE MOTOR INVERTER TEMPERATURE SENSOR "A" CIRCUIT

## 1. OUTLINE OF DIAGNOSIS

Detect the open or short circuit of drive motor inverter temperature sensor.
Judge as NG when the value of drive motor inverter temperature sensor is out of specification.

## 2. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| a: Ignition state | Run or crank |
| b: 12 V battery system voltage | > 8 V |
| Continuous time of a and b | ≥ 1 s |
| First SCI data from drive motor inverter | Received |

## 3. DIAGNOSTIC METHOD

- **Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Fault data (temperature sensor) from IC in the drive motor inverter | Received |

**Time Needed for Diagnosis:** 2 seconds
**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

- **Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Fault data (temperature sensor) from IC in the drive motor inverter | Not received |

**Time Needed for Diagnosis:** 0.02 seconds

# AH:DTC P0AEE DRIVE MOTOR INVERTER TEMPERATURE SENSOR "A" CIRCUIT RANGE/PERFORMANCE

## 1. OUTLINE OF DIAGNOSIS

Detect the malfunction of drive motor inverter temperature sensor.
Judge as NG when the characteristic of drive motor inverter temperature sensor is out of specification.

## 2. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| **Diagnosis 1** | |
| a: Ignition state | Run or crank |
| b: 12 V battery system voltage | > 10 V |
| Continuous time of a and b | ≥ 240 s |
| c: ABS (Drive motor speed) | > 125 rpm |
| NOTE:<br>ABS: Absolute value | |
| or | |
| d: ABS (Commanded motor torque) | < 15 N·m (1.5 kgf-m, 11.1 ft-lb) |
| Continuous time of c or d | ≥ 240 s |
| Inverter temperature median | > 30°C (86°F) |
| NOTE:<br>Inverter temperature median: The median value of the Inverter temperature sensor A, B and C | |
| First SCI data from drive motor inverter | Received |
| **Diagnosis 2** | |
| a: Ignition state | Run or crank |
| b: 12 V battery system voltage | > 10 V |
| Continuous time of a and b | ≥ 240 s |
| c: ABS (Drive motor speed) | > 125 rpm |
| NOTE:<br>ABS: Absolute value | |
| or | |
| d: ABS (Commanded motor torque) | < 15 N·m (1.5 kgf-m, 11.1 ft-lb) |
| Continuous time of c or d | ≥ 240 s |
| Inverter temperature median | > 30°C (86°F) |
| NOTE:<br>Inverter temperature median: The median value of the Inverter temperature sensor A, B and C | |
| First SCI data from drive motor inverter | Received |
| ABS (Variation of inverter temperature median) | > 20°C (68°F) |

## 3. DIAGNOSTIC METHOD

**• Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| **Diagnosis 1**<br>ABS (Inverter temperature A – Inverter temperature median) | > 30°C (54°F) |
| **Diagnosis 2**<br>ABS ((Variation of Inverter temperature A) – (Variation of Inverter temperature median))<br>NOTE:<br>• Variation of Inverter temperature A = Max (Inverter temperature A) – Min (Inverter temperature A)<br>• Variation of Inverter temperature median = Max (Inverter temperature median) – Min (Inverter temperature median)<br>• Max: The maximum value of the experience in the current driving cycle<br>• Min: The minimum value of the experience in the current driving cycle | > 10°C (18°F) |

**Time Needed for Diagnosis:** 10 seconds
**Malfunction Indicator Light Illumination:** detects when malfunction occurs in 2 continuous driving cycles. (Single engine startup is counted as one drive cycle.)

**• Normality Judgment**

Judge as OK and clear NG when continuous time when the following conditions are met is predetermined time or more (diagnosis 1 and diagnosis 2).

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| **Diagnosis 1**<br>ABS (Inverter temperature A – Inverter temperature median) | ≤ 30°C (54°F) |
| **Diagnosis 2**<br>ABS ((Variation of Inverter temperature A) – (Variation of Inverter temperature median)) | ≤ 10°C (18°F) |

**Time Needed for Diagnosis:** 20 seconds

# AI: DTC P0AF2 DRIVE MOTOR INVERTER TEMPERATURE SENSOR "B" CIRCUIT

## 1. OUTLINE OF DIAGNOSIS

Detect the open or short circuit of drive motor inverter temperature sensor.
Judge as NG when the value of drive motor inverter temperature sensor is out of specification.

## 2. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| a: Ignition state | Run or crank |
| b: 12 V battery system voltage | > 8 V |
| Continuous time of a and b | ≥ 1 s |
| First SCI data from drive motor inverter | Received |

## 3. DIAGNOSTIC METHOD

- **Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Fault data (temperature sensor) from IC in the drive motor inverter | Received |

**Time Needed for Diagnosis:** 2 seconds
**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

- **Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Fault data (temperature sensor) from IC in the drive motor inverter | Not received |

**Time Needed for Diagnosis:** 2 seconds

# AJ:DTC P0AF3 DRIVE MOTOR INVERTER TEMPERATURE SENSOR "B" CIRCUIT RANGE/PERFORMANCE

## 1. OUTLINE OF DIAGNOSIS

Detect the malfunction of drive motor inverter temperature sensor.
Judge as NG when the characteristic of drive motor inverter temperature sensor is out of specification.

## 2. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| **Diagnosis 1** | |
| a: Ignition state | Run or crank |
| b: 12 V battery system voltage | > 10 V |
| Continuous time of a and b | ≥ 240 s |
| c: ABS (Drive motor speed) | > 125 rpm |
| NOTE:<br>ABS: Absolute value | |
| or | |
| d: ABS (Commanded motor torque) | < 15 N·m (1.5 kgf-m, 11.1 ft-lb) |
| Continuous time of c or d | ≥ 240 s |
| Inverter temperature median | > 30°C (86°F) |
| NOTE:<br>Inverter temperature median: The median value of the Inverter temperature sensor A, B and C | |
| First SCI data from drive motor inverter | Received |
| **Diagnosis 2** | |
| a: Ignition state | Run or crank |
| b: 12 V battery system voltage | > 10 V |
| Continuous time of a and b | ≥ 240 s |
| c: ABS (Drive motor speed) | > 125 rpm |
| NOTE:<br>ABS: Absolute value | |
| or | |
| d: ABS (Commanded motor torque) | < 15 N·m (1.5 kgf-m, 11.1 ft-lb) |
| Continuous time of c or d | ≥ 240 s |
| Inverter temperature median | > 30°C (86°F) |
| NOTE:<br>Inverter temperature median: The median value of the Inverter temperature sensor A, B and C | |
| First SCI data from drive motor inverter | Received |
| ABS (Variation of inverter temperature median) | > 20°C (68°F) |

## 3. DIAGNOSTIC METHOD

**• Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| **Diagnosis 1**<br>ABS (Inverter temperature B – Inverter temperature median) | > 30°C (54°F) |
| **Diagnosis 2**<br>ABS ((Variation of Inverter temperature B) – (Variation of Inverter temperature median))<br>NOTE:<br>• Variation of Inverter temperature B = Max (Inverter temperature B) – Min (Inverter temperature B)<br>• Variation of Inverter temperature median = Max (Inverter temperature median) – Min (Inverter temperature median)<br>• Max: The maximum value of the experience in the current driving cycle<br>• Min: The minimum value of the experience in the current driving cycle | > 10°C (18°F) |

**Time Needed for Diagnosis:** 10 seconds
**Malfunction Indicator Light Illumination:** detects when malfunction occurs in 2 continuous driving cycles. (Single engine startup is counted as one drive cycle.)

**• Normality Judgment**

Judge as OK and clear NG when continuous time when the following conditions are met is predetermined time or more (diagnosis 1 and diagnosis 2).

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| **Diagnosis 1**<br>ABS (Inverter temperature B – Inverter temperature median) | ≤ 30°C (54°F) |
| **Diagnosis 2**<br>ABS ((Variation of Inverter temperature B) – (Variation of Inverter temperature median)) | ≤ 10°C (18°F) |

**Time Needed for Diagnosis:** 20 seconds

# AK:DTC P0BD1 DRIVE MOTOR INVERTER TEMPERATURE SENSOR "C" CIRCUIT

## 1. OUTLINE OF DIAGNOSIS

Detect the open or short circuit of drive motor inverter temperature sensor.
Judge as NG when the value of drive motor inverter temperature sensor is out of specification.

## 2. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| a: Ignition state | Run or crank |
| b: 12 V battery system voltage | > 8 V |
| Continuous time of a and b | ≥ 1 s |
| First SCI data from drive motor inverter | Received |

## 3. DIAGNOSTIC METHOD

- **Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Fault data (temperature sensor) from IC in the drive motor inverter | Received |

**Time Needed for Diagnosis:** 2 seconds
**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

- **Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Fault data (temperature sensor) from IC in the drive motor inverter | Not received |

**Time Needed for Diagnosis:** 2 seconds

# AL:DTC P0BD2 DRIVE MOTOR INVERTER TEMPERATURE SENSOR "C" CIRCUIT RANGE/PERFORMANCE

## 1. OUTLINE OF DIAGNOSIS

Detect the malfunction of drive motor inverter temperature sensor.
Judge as NG when the characteristic of drive motor inverter temperature sensor is out of specification.

## 2. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| **Diagnosis 1** | |
| a: Ignition state | Run or crank |
| b: 12 V battery system voltage | > 10 V |
| Continuous time of a and b | ≥ 240 s |
| c: ABS (Drive motor speed) | > 125 rpm |
| NOTE:<br>ABS: Absolute value | |
| or | |
| d: ABS (Commanded motor torque) | < 15 N·m (1.5 kgf-m, 11.1 ft-lb) |
| Continuous time of c or d | ≥ 240 s |
| Inverter temperature median | > 30°C (86°F) |
| NOTE:<br>Inverter temperature median: The median value of the Inverter temperature sensor A, B and C | |
| First SCI data from drive motor inverter | Received |
| **Diagnosis 2** | |
| a: Ignition state | Run or crank |
| b: 12 V battery system voltage | > 10 V |
| Continuous time of a and b | ≥ 240 s |
| c: ABS (Drive motor speed) | > 125 rpm |
| NOTE:<br>ABS: Absolute value | |
| or | |
| d: ABS (Commanded motor torque) | < 15 N·m (1.5 kgf-m, 11.1 ft-lb) |
| Continuous time of c or d | ≥ 240 s |
| Inverter temperature median | > 30°C (86°F) |
| NOTE:<br>Inverter temperature median: The median value of the Inverter temperature sensor A, B and C | |
| First SCI data from drive motor inverter | Received |
| ABS (Variation of inverter temperature median) | > 20°C (68°F) |

## 3. DIAGNOSTIC METHOD

**• Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| **Diagnosis 1**<br>ABS (Inverter temperature C – Inverter temperature median) | > 30°C (54°F) |
| **Diagnosis 2**<br>ABS ((Variation of Inverter temperature C) – (Variation of Inverter temperature median))<br>NOTE:<br>• Variation of Inverter temperature C = Max (Inverter temperature C) – Min (Inverter temperature C)<br>• Variation of Inverter temperature median = Max (Inverter temperature median) – Min (Inverter temperature median)<br>• Max: The maximum value of the experience in the current driving cycle<br>• Min: The minimum value of the experience in the current driving cycle | > 10°C (18°F) |

**Time Needed for Diagnosis:** 10 seconds
**Malfunction Indicator Light Illumination:** detects when malfunction occurs in 2 continuous driving cycles. (Single engine startup is counted as one drive cycle.)

**• Normality Judgment**

Judge as OK and clear NG when continuous time when the following conditions are met is predetermined time or more (diagnosis 1 and diagnosis 2).

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| **Diagnosis 1**<br>ABS (Inverter temperature C – Inverter temperature median) | ≤ 30°C (54°F) |
| **Diagnosis 2**<br>ABS ((Variation of Inverter temperature C) – (Variation of Inverter temperature median)) | ≤ 10°C (18°F) |

**Time Needed for Diagnosis:** 20 seconds

# AM:DTC P0BE6 DRIVE MOTOR "A" PHASE U CURRENT SENSOR CIRCUIT RANGE/PERFORMANCE

## 1. OUTLINE OF DIAGNOSIS

Detect the malfunction of drive motor inverter amperage sensor circuit.
Judge as NG when the value of drive motor inverter amperage sensor is out of specification.

## 2. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| PWM output to the drive motor inverter | OFF |

## 3. DIAGNOSTIC METHOD

- **Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| ABS (U phase average offset current)<br>NOTE:<br>ABS: Absolute value | > 31 A |

**Time Needed for Diagnosis:** 0.01 seconds
**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

- **Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| ABS (U phase average offset current) | ≤ 31 A |

**Time Needed for Diagnosis:** 0.01 seconds

# AN:DTC P0BE7 DRIVE MOTOR "A" PHASE U CURRENT SENSOR CIRCUIT LOW

## 1. OUTLINE OF DIAGNOSIS

Detect the open or short circuit of drive motor inverter amperage sensor.
Judge as NG when the value of drive motor inverter amperage sensor is out of specification.

## 2. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| Ignition state | Run or crank |

## 3. DIAGNOSTIC METHOD

- **Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| U phase current sensor output voltage | ≤ 0.5 V |
| (Current equivalent) | ≤ –400 A |

**Time Needed for Diagnosis:** 0.03 seconds
**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

- **Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| U phase current sensor output voltage | > 0.5 V |
| (Current equivalent) | > –400 A |

**Time Needed for Diagnosis:** 0.06 seconds

# AO:DTC P0BE8 DRIVE MOTOR "A" PHASE U CURRENT SENSOR CIRCUIT HIGH

## 1. OUTLINE OF DIAGNOSIS

Detect the open or short circuit of drive motor inverter amperage sensor.
Judge as NG when the value of drive motor inverter amperage sensor is out of specification.

## 2. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| Ignition state | Run or crank |

## 3. DIAGNOSTIC METHOD

- **Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| U phase current sensor output voltage | ≥ 4.5 V |
| (Current equivalent) | ≥ 400 A |

**Time Needed for Diagnosis:** 0.03 seconds
**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

- **Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| U phase current sensor output voltage | < 4.5 V |
| (Current equivalent) | < 400 A |

**Time Needed for Diagnosis:** 0.06 seconds

# AP:DTC P0BEA DRIVE MOTOR "A" PHASE V CURRENT SENSOR CIRCUIT RANGE/PERFORMANCE

## 1. OUTLINE OF DIAGNOSIS

Detect the malfunction of drive motor inverter amperage sensor circuit.
Judge as NG when the value of drive motor inverter amperage sensor is out of specification.

## 2. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| PWM output to the drive motor inverter | OFF |

## 3. DIAGNOSTIC METHOD

- **Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| ABS (V phase average offset current)<br>NOTE:<br>ABS: Absolute value | > 31 A |

**Time Needed for Diagnosis:** 0.01 seconds
**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

- **Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| ABS (V phase average offset current) | ≤ 31 A |

**Time Needed for Diagnosis:** 0.01 seconds

# AQ:DTC P0BEB DRIVE MOTOR "A" PHASE V CURRENT SENSOR CIRCUIT LOW

## 1. OUTLINE OF DIAGNOSIS

Detect the open or short circuit of drive motor inverter amperage sensor.
Judge as NG when the value of drive motor inverter amperage sensor is out of specification.

## 2. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| Ignition state | Run or crank |

## 3. DIAGNOSTIC METHOD

- **Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| V phase current sensor output voltage | ≤ 0.5 V |
| (Current equivalent) | ≤ –400 A |

**Time Needed for Diagnosis:** 0.03 seconds
**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

- **Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| V phase current sensor output voltage | > 0.5 V |
| (Current equivalent) | > –400 A |

**Time Needed for Diagnosis:** 0.06 seconds

# AR:DTC P0BEC DRIVE MOTOR "A" PHASE V CURRENT SENSOR CIRCUIT HIGH

## 1. OUTLINE OF DIAGNOSIS

Detect the open or short circuit of drive motor inverter amperage sensor.
Judge as NG when the value of drive motor inverter amperage sensor is out of specification.

## 2. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| Ignition state | Run or crank |

## 3. DIAGNOSTIC METHOD

- **Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| V phase current sensor output voltage | ≥ 4.5 V |
| (Current equivalent) | ≥ 400 A |

**Time Needed for Diagnosis:** 0.03 seconds
**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

- **Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| V phase current sensor output voltage | < 4.5 V |
| (Current equivalent) | < 400 A |

**Time Needed for Diagnosis:** 0.06 seconds

# AS:DTC P0BEE DRIVE MOTOR "A" PHASE W CURRENT SENSOR CIRCUIT RANGE/PERFORMANCE

## 1. OUTLINE OF DIAGNOSIS

Detect the malfunction of drive motor inverter amperage sensor circuit.
Judge as NG when the value of drive motor inverter amperage sensor is out of specification.

## 2. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| PWM output to the drive motor inverter | OFF |

## 3. DIAGNOSTIC METHOD

- **Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| ABS (W phase average offset current)<br>NOTE:<br>ABS: Absolute value | > 31 A |

**Time Needed for Diagnosis:** 0.01 seconds
**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

- **Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| ABS (W phase average offset current) | ≤ 31 A |

**Time Needed for Diagnosis:** 0.01 seconds

# AT:DTC P0BEF DRIVE MOTOR "A" PHASE W CURRENT SENSOR CIRCUIT LOW

## 1. OUTLINE OF DIAGNOSIS

Detect the open or short circuit of drive motor inverter amperage sensor.
Judge as NG when the value of drive motor inverter amperage sensor is out of specification.

## 2. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| Ignition state | Run or crank |

## 3. DIAGNOSTIC METHOD

- **Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| W phase current sensor output voltage | ≤ 0.5 V |
| (Current equivalent) | ≤ –400 A |

**Time Needed for Diagnosis:** 0.03 seconds
**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

- **Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| W phase current sensor output voltage | > 0.5 V |
| (Current equivalent) | > –400 A |

**Time Needed for Diagnosis:** 0.06 seconds

# AU:DTC P0BF0 DRIVE MOTOR "A" PHASE W CURRENT SENSOR CIRCUIT HIGH

## 1. OUTLINE OF DIAGNOSIS

Detect the open or short circuit of drive motor inverter amperage sensor.
Judge as NG when the value of drive motor inverter amperage sensor is out of specification.

## 2. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| Ignition state | Run or crank |

## 3. DIAGNOSTIC METHOD

- **Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| W phase current sensor output voltage | ≥ 4.5 V |
| (Current equivalent) | ≥ 400 A |

**Time Needed for Diagnosis:** 0.03 seconds
**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

- **Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| W phase current sensor output voltage | < 4.5 V |
| (Current equivalent) | < 400 A |

**Time Needed for Diagnosis:** 0.06 seconds

# AV:DTC P0BFD DRIVE MOTOR "A" PHASE U-V-W CURRENT SENSOR CORRELATION

## 1. OUTLINE OF DIAGNOSIS

Detect the malfunction of drive motor inverter amperage sensor circuit.
Judge as NG when the value of drive motor inverter amperage sensor is out of specification.

## 2. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| Ignition state | Run or crank |

## 3. DIAGNOSTIC METHOD

**• Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| ABS (Iu + Iv + Iw)<br>NOTE:<br>• ABS: Absolute value<br>• Iu: U phase current<br>• Iv: V phase current<br>• Iw: W phase current | > 45 A |

**Time Needed for Diagnosis:** 1 second
**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

**• Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| ABS (Iu + Iv + Iw) | ≤ 45 A |

**Time Needed for Diagnosis:** 2 seconds

# AW:DTC P0C05 DRIVE MOTOR "A" PHASE U-V-W CIRCUIT/OPEN

## 1. OUTLINE OF DIAGNOSIS

Detect the malfunction of the current flowing in drive motor.
Judge as NG when the current flowing in drive motor is out of specification.

## 2. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| PWM output to the drive motor inverter | ON |
| a: Ignition state | Run or crank |
| b: 12 V battery system voltage | > 10 V |
| Continuous time of a and b | ≥ 1 s |
| c: ABS (Motor speed)<br>NOTE:<br>ABS: Absolute value | ≥ 125 rpm<br>and<br>≤ 1500 rpm |
| Continuous time of c | ≥ 0.12 s |
| d: ABS (Commanded motor torque) | ≥ 7 N·m (0.7 kgf-m, 5.2 ft-lb) |
| Continuous time of d | ≥ 0.13 s |

## 3. DIAGNOSTIC METHOD

**• Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Tu1 – Tu2<br>or<br>Tv1 – Tv2<br>or<br>Tw1 – Tw2<br>NOTE:<br>• Tu1: Integrated time that ABS (Iu) is less than or equal to 13.5 A<br>• Tu2: Integrated time that ABS (Iu) is greater than 13.5 A<br>• Tv1, Tw1: Similar to Tu1<br>• Tv2, Tw2: Similar to Tu2<br>• Iu: U phase current<br>• Iv: V phase current<br>• Iw: W phase current | ≥ 0.3 s |

**Time Needed for Diagnosis:** Immediately
**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

**• Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Tu1 – Tu2<br>and<br>Tv1 – Tv2<br>and<br>Tw1 – Tw2 | < 0.3 s |

**Time Needed for Diagnosis:** 0.6 seconds

# AX:DTC P0C0C DRIVE MOTOR "A" INVERTER POWER SUPPLY CIRCUIT LOW

## 1. OUTLINE OF DIAGNOSIS

Detect the open or short circuit of high voltage battery cooling fan and drive motor inverter power supply relay.
Judge as NG when the drive signal of high voltage battery cooling fan and drive motor inverter power supply relay circuit is abnormal.

## 2. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| **Diagnosis 1** | |
| a: Ignition state | Run or crank |
| Continuous time of a | ≥ 0.142 s |
| DMCM commanded inverter power supply relay | Open |
| b: DMCM measured inverter power supply relay | Closed |
| Continuous time of b | ≥ 0.051 s |
| **Diagnosis 2** | |
| c: 12V battery system voltage | ≥ 8 V |
| Continuous time of c | ≥ 1 s |
| DMCM commanded inverter power supply relay | Closed |

## 3. DIAGNOSTIC METHOD

- **Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| **Diagnosis 1** | |
| SCI data from drive motor Inverter | Not received |
| **Diagnosis 2** | |
| DMCM measured inverter power supply relay | Open |

**Time Needed for Diagnosis:**
- **Diagnosis 1:** 0.0104 s
- **Diagnosis 2:** 0.04 s

**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

- **Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| **Diagnosis 1** | |
| SCI data from drive motor Inverter | Received |
| **Diagnosis 2** | |
| DMCM measured inverter power supply relay | Closed |

**Time Needed for Diagnosis:**
- **Diagnosis 1:** 0.0104 s
- **Diagnosis 2:** 0.08 s

# AY:DTC P0C0D DRIVE MOTOR "A" INVERTER POWER SUPPLY CIRCUIT HIGH

## 1. OUTLINE OF DIAGNOSIS

Detect the open or short circuit of high voltage battery cooling fan and drive motor inverter power supply relay.
Judge as NG when the drive signal of high voltage battery cooling fan and drive motor inverter power supply relay circuit is abnormal.

## 2. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| **Diagnosis 1** | |
| a: Ignition state | Run or crank |
| Continuous time of a | ≥ 0.142 s |
| DMCM commanded inverter power supply relay | Open |
| b: DMCM measured inverter power supply relay | Open |
| Continuous time of b | ≥ 0.051 s |
| **Diagnosis 2** | |
| a: Ignition state | Run or crank |
| Continuous time of a | ≥ 0.142 s |
| DMCM commanded inverter power supply relay | Open |
| b: DMCM measured inverter power supply relay | Closed |
| Continuous time of b | ≥ 0.051 s |

## 3. DIAGNOSTIC METHOD

- **Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| SCI message from the drive motor Inverter | Received |

**Time Needed for Diagnosis:** 0.0104 seconds
**Malfunction Indicator Light Illumination:** detects when malfunction occurs in 2 continuous driving cycles. (Single engine startup is counted as one drive cycle.)

- **Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| SCI message from the drive motor Inverter | Not received |

**Time Needed for Diagnosis:** 0.0104 seconds

# AZ:DTC P0C52 DRIVE MOTOR "A" POSITION SENSOR CIRCUIT "A" LOW

## 1. OUTLINE OF DIAGNOSIS

Detect the open or short circuit of drive motor rotation angle sensor.
Judge as NG when the voltage of drive motor rotation angle sensor terminal (S1) is out of specification.

## 2. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| a: Ignition state | Run or crank |
| b: 12 V battery system voltage | > 9 V |
| Continuous time of a and b | ≥ 1 s |

## 3. DIAGNOSTIC METHOD

- **Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Resolver S13 circuit error | Detected |

**Time Needed for Diagnosis:** 0.01 seconds
**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

- **Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Resolver S13 circuit error | Not Detected |

**Time Needed for Diagnosis:** 0.01 seconds

# BA:DTC P0C5C DRIVE MOTOR "A" POSITION SENSOR CIRCUIT "B" LOW

## 1. OUTLINE OF DIAGNOSIS

Detect the open or short circuit of drive motor rotation angle sensor.
Judge as NG when the voltage of drive motor rotation angle sensor terminal (S2) is out of specification.

## 2. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| a: Ignition state | Run or crank |
| b: 12 V battery system voltage | > 9 V |
| Continuous time of a and b | ≥ 1 s |

## 3. DIAGNOSTIC METHOD

- **Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Resolver S24 circuit error | Detected |

**Time Needed for Diagnosis:** 0.01 seconds
**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

- **Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Resolver S24 circuit error | Not Detected |

**Time Needed for Diagnosis:** 0.01 seconds

# BB:DTC P0C79 DRIVE MOTOR "A" INVERTER VOLTAGE TOO HIGH

## 1. OUTLINE OF DIAGNOSIS

Detect the malfunction of drive motor inverter input voltage.
Judge as NG when the input voltage value of drive motor inverter is out of specification.

## 2. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| a: Ignition state | Run or crank |
| b: 12 V battery system voltage | > 8 V |
| Continuous time of a and b | ≥ 1 s |
| First SCI data from drive motor inverter | Received |

## 3. DIAGNOSTIC METHOD

- **Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Inverter voltage | ≥ 155 V |

**Time Needed for Diagnosis:** Immediately
**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

- **Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Inverter voltage | < 155 V |

**Time Needed for Diagnosis:** 0.02 seconds

# BC:DTC P0CDC DRIVE MOTOR "A" POSITION SENSOR CIRCUIT "C" LOW

## 1. OUTLINE OF DIAGNOSIS

Detect the open or short circuit of drive motor rotation angle sensor.
Judge as NG when the voltage of drive motor rotation angle sensor terminal (R1, R2) is out of specification.

## 2. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| a: Ignition state | Run or crank |
| b: 12 V battery system voltage | > 9 V |
| Continuous time of a and b | ≥ 1 s |

## 3. DIAGNOSTIC METHOD

- **Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Resolver R12 circuit error | Detected |

**Time Needed for Diagnosis:** 0.01 seconds
**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

- **Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Resolver R12 circuit error | Not Detected |

**Time Needed for Diagnosis:** 0.01 seconds

# BD:DTC P0CDD DRIVE MOTOR "A" POSITION SENSOR CIRCUIT "C" HIGH

## 1. OUTLINE OF DIAGNOSIS

Detect the open or short circuit of drive motor rotation angle sensor.
Judge as NG when the voltage of drive motor rotation angle sensor terminal (R1, R2) is out of specification.

## 2. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| a: Ignition state | Run or crank |
| b: 12 V battery system voltage | > 9 V |
| Continuous time of a and b | ≥ 1 s |

## 3. DIAGNOSTIC METHOD

- **Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Resolver R12 circuit error | Detected |

**Time Needed for Diagnosis:** 0.01 seconds
**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

- **Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Resolver R12 circuit error | Not Detected |

**Time Needed for Diagnosis:** 0.05 seconds

# BE:DTC P0DA8 HYBRID/EV BATTERY VOLTAGE/DRIVE MOTOR "A" INVERTER VOLTAGE CORRELATION

## 1. OUTLINE OF DIAGNOSIS

Detect the malfunction of drive motor inverter input voltage.
Judge as NG when the difference between the input voltage value of drive motor inverter and the total voltage of high voltage battery is out of specification.

## 2. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| a: Ignition state | Run or crank |
| b: 12 V battery system voltage | > 10 V |
| Continuous time of a and b | ≥ 1 s |
| HPCM contactor request | Closed |
| BECM pre-charge contactor command | Open |
| BECM positive contactor command | Closed |
| BECM negative contactor command | Closed |
| First SCI data from drive motor inverter | Received |

## 3. DIAGNOSTIC METHOD

- **Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| ABS (Inverter voltage – Battery pack voltage)<br>NOTE:<br>ABS: Absolute value | > 20 V |

**Time Needed for Diagnosis:** 2 seconds
**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

- **Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| ABS (Inverter voltage – Battery pack voltage) | ≤ 20 V |

**Time Needed for Diagnosis:** 4 seconds

# BF:DTC P1C20 DRIVE MOTOR "A" INVERTER VOLTAGE TOO LOW

## 1. OUTLINE OF DIAGNOSIS

Detect the malfunction of drive motor inverter input voltage.
Judge as NG when the input voltage value of drive motor inverter is out of specification.

## 2. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| a: Ignition state | Run or crank |
| b: 12 V battery system voltage | > 8 V |
| Continuous time of a and b | ≥ 1 s |
| First SCI data from drive motor inverter | Received |
| HPCM contactor request | Closed |
| BECM pre-charge contactor command | Open |
| BECM positive contactor command | Closed |
| BECM negative contactor command | Closed |

## 3. DIAGNOSTIC METHOD

- **Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Inverter voltage | ≤ 70 V |

**Time Needed for Diagnosis:** Immediately
**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

- **Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Inverter voltage | > 70 V |

**Time Needed for Diagnosis:** 0.02 seconds

# BG:DTC P1C24 DRIVE MOTOR "B" TEMPERATURE SENSOR CIRCUIT

## 1. OUTLINE OF DIAGNOSIS

Detect the open or short circuit of drive motor temperature sensor.
Judge as NG when the value of drive motor temperature sensor is out of specification.

## 2. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| PWM output to the drive motor inverter | ON |
| a: Ignition state | Run or crank |
| b: 12 V battery system voltage | > 10 V |
| Continuous time of a and b | ≥ 15 s |
| Generated energy of drive motor | > Map1 |
| Assist energy of drive motor | > Map2 |
| First SCI data from drive motor inverter | Received |

**Map 1**

| Hybrid battery temperature and Drive motor inverter temperature either lower temperature (°C (°F)) | –30 (–22) | –10 (14) | 0 (32) | 10 (50) | 30 (86) | 40 (104) |
|---|---|---|---|---|---|---|
| Generated energy of drive motor (Wh) | 630 | 320 | 200 | 130 | 0 | 0 |

**Map 2**

| Hybrid battery temperature and Drive motor inverter temperature either lower temperature (°C (°F)) | –30 (–22) | –10 (14) | 0 (32) | 10 (50) | 30 (86) | 40 (104) |
|---|---|---|---|---|---|---|
| Assist energy of drive motor (Wh) | 270 | 130 | 75 | 50 | 0 | 0 |

## 3. DIAGNOSTIC METHOD

- **Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Output voltage | > 4.5 V |
| (Temperature equivalent) | < –3.4°C (25.9°F) |

**Time Needed for Diagnosis:** 2 seconds
**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

- **Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Output voltage | ≤ 4.5 V |
| (Temperature equivalent) | ≥ –3.4°C (25.9°F) |

**Time Needed for Diagnosis:** 4 seconds

# BH:DTC P1C25 DRIVE MOTOR "B" TEMPERATURE SENSOR CIRCUIT LOW

## 1. OUTLINE OF DIAGNOSIS

Detect the open or short circuit of drive motor temperature sensor.
Judge as NG when the value of drive motor temperature sensor is out of specification.

## 2. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| Ignition state | Run or crank |

## 3. DIAGNOSTIC METHOD

- **Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Output voltage<br>(Temperature equivalent) | < 0.23 V<br>> 234°C (453.2°F) |

**Time Needed for Diagnosis:** 1 second
**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

- **Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Output voltage<br>(Temperature equivalent) | ≥ 0.23 V<br>≤ 234°C (453.2°F) |

**Time Needed for Diagnosis:** 2 seconds

# BI: DTC P1C26 DRIVE MOTOR "B" TEMPERATURE SENSOR CIRCUIT HIGH

## 1. OUTLINE OF DIAGNOSIS

Detect the open or short circuit of drive motor temperature sensor.
Judge as NG when the value of drive motor temperature sensor is out of specification.

## 2. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| Ignition state | Run or crank |

## 3. DIAGNOSTIC METHOD

- **Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Output voltage<br>(Temperature equivalent) | > 4.6 V<br>< –55°C (–67°F) |

**Time Needed for Diagnosis:** 1 second
**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

- **Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Output voltage<br>(Temperature equivalent) | ≤ 4.6 V<br>≥ –55°C (–67°F) |

**Time Needed for Diagnosis:** 2 seconds

# BJ:DTC P1C27 DRIVE MOTOR "A" AND "B" TEMPERATURE SENSOR CORRELATION

## 1. OUTLINE OF DIAGNOSIS

Detect the malfunction of drive motor temperature sensor.
Judge as NG when the characteristic of drive motor temperature sensor is out of specification.

## 2. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| **Diagnosis 1** | |
| a: Ignition state | Run or crank |
| b: 12 V battery system voltage | > 10 V |
| Continuous time of a and b | ≥ 240 s |
| c: ABS (Drive motor speed) | > 125 rpm |
| NOTE:<br>ABS: Absolute value | |
| or | |
| d: ABS (Commanded motor torque) | < 15 N·m (1.5 kgf-m, 11.1 ft-lb) |
| Continuous time of c or d | ≥ 240 s |
| Drive motor temperature A | > 30°C (86°F)<br>and<br>< 140°C (284°F) |
| or | |
| Drive motor temperature B | > 30°C (86°F)<br>and<br>< 140°C (284°F) |
| **Diagnosis 2** | |
| a: Ignition state | Run or crank |
| b: 12 V battery system voltage | > 10 V |
| Continuous time of a and b | ≥ 240 s |
| c: ABS (Drive motor speed) | > 125 rpm |
| NOTE:<br>ABS: Absolute value | |
| or | |
| d: ABS (Commanded motor torque) | < 15 N·m (1.5 kgf-m, 11.1 ft-lb) |
| Continuous time of c or d | ≥ 240 s |
| Drive motor temperature A | > 30°C (86°F)<br>and<br>< 140°C (284°F) |
| or | |
| Drive motor temperature B | > 30°C (86°F)<br>and<br>< 140°C (284°F) |
| Variation of motor temperature A<br>or<br>Variation of motor temperature B | > 25°C (77°F) |

## 3. DIAGNOSTIC METHOD

**• Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| **Diagnosis 1**<br>ABS (Motor temperature A – Motor temperature B)<br>NOTE:<br>ABS: Absolute value | > 20°C (36°F) |
| **Diagnosis 2**<br>ABS (Variation of motor temperature A – Variation of motor temperature B)<br>NOTE:<br>• Variation of motor temperature A = Max (Motor temperature A) – Min (Motor temperature A)<br>• Variation of motor temperature B = Max (Motor temperature B) – Min (Motor temperature B)<br>• Max: The maximum value of the experience in the current driving cycle<br>• Min: The minimum value of the experience in the current driving cycle | > 20°C (36°F) |

**Time Needed for Diagnosis:** 10 seconds
**Malfunction Indicator Light Illumination:** detects when malfunction occurs in 2 continuous driving cycles. (Single engine startup is counted as one drive cycle.)

**• Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| **Diagnosis 1**<br>ABS (Motor temperature A – Motor temperature B) | ≤ 20°C (36°F) |
| **Diagnosis 2**<br>ABS (Variation of motor temperature A – Variation of motor temperature B) | ≤ 20°C (36°F) |

**Time Needed for Diagnosis:** 20 seconds

# BK:DTC P1C30 LOST COMMUNICATION WITH DRIVE MOTOR INVERTER

## 1. OUTLINE OF DIAGNOSIS

Detect the malfunction of serial communication with drive motor inverter.
Judge as NG when the serial data from drive motor inverter is not received.

## 2. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| a: Ignition state | Run or crank |
| b: 12 V battery system voltage | > 8 V |
| Continuous time of a and b | ≥ 1 s |
| Inverter power supply relay control signal | ON |

## 3. DIAGNOSTIC METHOD

- **Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| SCI data from drive motor inverter | Lost |

**Time Needed for Diagnosis:** 0.5 seconds
**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

- **Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| SCI data from drive motor inverter | Received |

**Time Needed for Diagnosis:** 1 second

# BL:DTC P1C31 INVALID DATA RECEIVED FROM DRIVE MOTOR INVERTER

## 1. OUTLINE OF DIAGNOSIS

Detect the malfunction of serial communication with drive motor inverter.
Judged as NG when incorrect serial data is received from drive motor inverter.

## 2. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| **Diagnosis 1 and 2** | |
| a: Ignition state | Run or crank |
| b: 12 V battery system voltage | > 8 V |
| Continuous time of a and b | ≥ 1 s |
| SCI data from drive motor inverter | Received |
| **Diagnosis 3** | |
| a: Ignition state | Run or crank |
| b: 12 V battery system voltage | > 8 V |
| Continuous time of a and b | ≥ 1 s |
| SCI data from drive motor inverter | Received |
| SCI data from drive motor inverter | ≠ Parity error |
| SCI data from drive motor inverter | ≠ Framing error |

## 3. DIAGNOSTIC METHOD

- **Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| **Diagnosis 1** | |
| SCI data from drive motor inverter | Parity error |
| **Diagnosis 2** | |
| SCI data from drive motor inverter | Framing error |
| **Diagnosis 3** | |
| SCI data from drive motor inverter | Checksum error |

**Time Needed for Diagnosis:** 0.015 seconds
**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

- **Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| **Diagnosis 1** | |
| SCI data from drive motor inverter | ≠ Parity error |
| **Diagnosis 2** | |
| SCI data from drive motor inverter | ≠ Framing error |
| **Diagnosis 3** | |
| SCI data from drive motor inverter | ≠ Checksum error |

**Time Needed for Diagnosis:** 0.03 seconds

# BM:DTC P0A1B DRIVE MOTOR "A" CONTROL MODULE

## 1. OUTLINE OF DIAGNOSIS

Detect the malfunction of drive motor control module.
Judge as NG when the malfunction is detected at the peripheral function of drive motor control module microcomputer.

## 2. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| Ignition state | Run or crank |

## 3. DIAGNOSTIC METHOD

**• Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| **Diagnosis 1**<br>Internal Hardware module error | Detected |
| **Diagnosis 2**<br>Exception interrupt by the DMCM CPU | Detected |

**Time Needed for Diagnosis:** Immediately
**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

**• Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| **Diagnosis 1**<br>Internal Hardware module error | Not detected |
| **Diagnosis 2**<br>Exception interrupt by the DMCM CPU | Not detected |

**Time Needed for Diagnosis:** Immediately

# BN:DTC P06B1 SENSOR POWER SUPPLY "A" CIRCUIT LOW

## 1. OUTLINE OF DIAGNOSIS

Detect the malfunction of drive motor inverter amperage sensor power supply circuit.
Judge as NG when the power supply voltage of drive motor inverter amperage sensor is out of specification.

## 2. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| Ignition state | Run or crank |

## 3. DIAGNOSTIC METHOD

- **Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Measured sensor power supply output voltage at DMCM | ≤ 4.536 V |

**Time Needed for Diagnosis:** 1 second
**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

- **Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Measured sensor power supply output voltage at DMCM | > 4.536 V |

**Time Needed for Diagnosis:** 2 seconds

# BO:DTC P06B2 SENSOR POWER SUPPLY "A" CIRCUIT HIGH

## 1. OUTLINE OF DIAGNOSIS

Detect the malfunction of drive motor inverter amperage sensor power supply circuit.
Judge as NG when the power supply voltage of drive motor inverter amperage sensor is out of specification.

## 2. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| Ignition state | Run or crank |

## 3. DIAGNOSTIC METHOD

- **Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Measured sensor power supply output voltage at DMCM | > 5.418 V |

**Time Needed for Diagnosis:** 1 second
**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

- **Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Measured sensor power supply output voltage at DMCM | ≤ 5.418 V |

**Time Needed for Diagnosis:** 2 seconds

# BP:DTC P062F INTERNAL CONTROL MODULE EEPROM ERROR

## 1. OUTLINE OF DIAGNOSIS

Detect the malfunction of microcomputer DataFlashROM.

## 2. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| Ignition state | Run or crank |
| 12V battery system voltage | ≥ 6.5 V<br>and<br>≤ 17 V |
| BECM precharge contactor command | Open |
| BECM positive contactor command | Open |
| BECM negative contactor command | Open |

## 3. DIAGNOSTIC METHOD

- **Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Checksum error of Flash EEPROM within the BECM Main CPU (Data area) | Detected |

**Time Needed for Diagnosis:** Immediately
**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

- **Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Checksum error of Flash EEPROM within the BECM Main CPU (Data area) | Not Detected |

**Time Needed for Diagnosis:** Less than 0.01 second

# BQ:DTC P0A1F BATTERY ENERGY CONTROL MODULE

## 1. OUTLINE OF DIAGNOSIS

Detect the malfunction of microcomputer AD converter.

## 2. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| **Diagnosis 1** | |
| Ignition state | Run or crank |
| 12V battery system voltage | ≥ 6.5 V<br>and<br>≤ 17 V |
| **Diagnosis 2 and 3** | |
| Ignition state | OFF to ON<br>(Run or crank) |
| 12V battery system voltage | ≥ 6.5 V<br>and<br>≤ 17 V |
| BECM precharge contactor command | Open |
| BECM positive contactor command | Open |
| BECM negative contactor command | Open |

## 3. DIAGNOSTIC METHOD

- **Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| **Diagnosis 1** | |
| Power sustain circuit monitor signal | High<br>(Power ON) |
| **Diagnosis 2** | |
| Power sustain circuit monitor signal | Low<br>(Power OFF) |
| **Diagnosis 3** | |
| Elapsed time of A / D conversion | ≤ 0.0002 s |

**Time Needed for Diagnosis:** Less than 0.05 second
**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

- **Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| **Diagnosis 1** | |
| Power sustain circuit monitor signal | ≠ High<br>(Power ON) |
| **Diagnosis 2** | |
| Power sustain circuit monitor signal | ≠ Low<br>(Power OFF) |
| **Diagnosis 3** | |
| Elapsed time of A / D conversion | > 0.0002 s |

**Time Needed for Diagnosis:** Less than 0.05 second

# BR:DTC P0A7D HYBRID BATTERY PACK STATE OF CHARGE LOW

## 1. OUTLINE OF DIAGNOSIS

Detect high voltage battery SOC low.
Judge as NG when the high voltage battery SOC is at the specified value or less.

## 2. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| Ignition state | Run or crank |
| 12V battery system voltage | ≥ 6.5 V<br>and<br>≤ 17 V |

## 3. DIAGNOSTIC METHOD

- **Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| SOC<br>NOTE:<br>SOC: State Of Charge | ≤ 5% |

**Time Needed for Diagnosis:** 10 seconds
**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

- **Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| SOC | > 5% |

**Time Needed for Diagnosis:** 10 seconds

# BS:DTC P0A7E HYBRID BATTERY PACK OVER TEMPERATURE

## 1. OUTLINE OF DIAGNOSIS

Detect high temperature abnormality of high voltage battery.
Judge as NG when the high voltage battery temperature is above the specified value.

## 2. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| Ignition state | Run or crank |
| 12V battery system voltage | ≥ 6.5 V<br>and<br>≤ 17 V |

## 3. DIAGNOSTIC METHOD

- **Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Maximum temperature of hybrid battery | > 63°C (145.4°F) |

**Time Needed for Diagnosis:** 1 second
**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

- **Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Maximum temperature of hybrid battery | ≤ 63°C (145.4°F) |

**Time Needed for Diagnosis:** 1 second

# BT:DTC P0A7F HYBRID BATTERY PACK DETERIORATION

## 1. OUTLINE OF DIAGNOSIS

Detect the low output (longevity) of high voltage battery.
Judge as NG when the internal resistance value of high voltage battery is at the specified value or more.

## 2. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| **Condition #1** | |
| Ignition state | Run or crank |
| 12V battery system voltage | ≥ 6.5 V<br>and<br>≤ 17 V |
| \| Hybrid battery current x Hybrid battery voltage \|<br>NOTE:<br>Hybrid battery current < 0: Discharge | ≥ Map1 ×0.1 kw<br>< Map1 kw |
| or | |
| \| Hybrid battery current x Hybrid battery voltage \|<br>NOTE:<br>Hybrid battery current ≥ 0: Discharge | ≥ Map2 ×0.1 kw<br>< Map2 kw |
| HPCM contactor request | Closed |
| **Condition #2** | |
| NOTE:<br>During a 60 second block the following conditions must be satisfied: | |
| Number of the Hybrid battery current and the Hybrid battery voltage data that satisfies Condition #1 | ≥ 50 counts |
| Number of the Hybrid battery current and Hybrid battery voltage data that satisfies the following: | ≥ 1 count |
| \| Hybrid battery current x Hybrid battery voltage \| | ≥ Map1 ×0.5 kw |
| Number of the Hybrid battery current and Hybrid battery voltage data that satisfies the following: | ≥ 1 count |
| \| Hybrid battery current x Hybrid battery voltage \| | ≥ Map2 ×0.5 kw |
| The highest value among the Hybrid battery temperature A, B and C | ≥ – 5.0°C (23°F))<br>and<br>≤ 45°C (113°F) |
| \|Change of the highest value among the Hybrid battery temperature A, B and C\| | ≤ 2.0°C (35.6°F)/60 s |

**Map 1**

| Maximum discharge Power (kW) | | SOH (%) | | |
|---|---|---|---|---|
| | | 100 | 62.5 | 25 |
| Battery Temperature (°C (°F)) | –10 (14) | 4.7 | 3.3 | 1.9 |
| | 0 (32) | 7.0 | 4.7 | 2.7 |
| | 10 (50) | 10.4 | 6.3 | 3.6 |
| | 15 (59) | 11.7 | 7.2 | 4.1 |
| | 25 (77) | 13.5 | 9.9 | 5.5 |
| | 30 (86) | 14.0 | 9.9 | 5.5 |
| | 45 (113) | 14.0 | 9.9 | 5.5 |

**Map 2**

| Maximum charge power (kW) | | SOH (%) | | |
|---|---|---|---|---|
| | | 100 | 62.5 | 25 |
| Battery Temperature (°C (°F)) | –10 (14) | 4.6 | 3.5 | 2.2 |
| | 0 (32) | 7.1 | 5.0 | 3.0 |
| | 10 (50) | 10.1 | 6.7 | 4.0 |
| | 15 (59) | 11.6 | 7.5 | 4.4 |
| | 25 (77) | 13.4 | 10.5 | 6.0 |
| | 45 (113) | 13.4 | 10.5 | 6.0 |

## 3. DIAGNOSTIC METHOD

**• Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Diagnostic Value (DV)<br>(Hybrid battery internal resistance) | > Map 3 Ω |

**Map 3**

| Minimum hybrid battery temperature (°C (°F)) | –5 (23) | 0 (32) | 5 (41) | 20 (68) | 25 (77) | 45 (113) |
|---|---|---|---|---|---|---|
| Hybrid battery internal resistance (Ω) | 1.21 | 0.97 | 0.79 | 0.46 | 0.43 | 0.36 |

**Time Needed for Diagnosis:** 60 s x 10 times

NOTE:
Failure count can increment over multiple driving cycles until cleared by passing result
**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

**• Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Diagnostic Value (DV)<br>(Hybrid battery internal resistance) | ≤ Map 3 Ω |

**Time Needed for Diagnosis:** depends on driving (charge/discharge amount)

# BU:DTC P0A95 HIGH VOLTAGE FUSE

## 1. OUTLINE OF DIAGNOSIS

Detect the malfunction of the fuse.
Judge as NG when the fuse is open.

## 2. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| Ignition state | Run or crank |

## 3. DIAGNOSTIC METHOD

**• Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Any two of following conditions are satisfied | |
| Hybrid battery voltage “C” | < –25 mV |
| Hybrid battery voltage “D” | < –25 mV |

**Time Needed for Diagnosis:** 0.1 seconds
**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

**• Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Any two of following conditions are satisfied | |
| Hybrid battery voltage “C” | ≥ –25 mV |
| Hybrid battery voltage “D” | ≥ –25 mV |

**Time Needed for Diagnosis:** 0.1 seconds

# BV:DTC P0A9C HYBRID BATTERY TEMPERATURE SENSOR "A" CIRCUIT RANGE/PERFORMANCE

## 1. OUTLINE OF DIAGNOSIS

Detect the abnormality of high voltage battery temperature 1.
Judge as NG when the deviation of high voltage battery temperature is large.

## 2. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| Ignition state | Run or crank |
| 12V battery system voltage | ≥ 6.5 V<br>and<br>≤ 17 V |

## 3. DIAGNOSTIC METHOD

- **Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| **Diagnosis 1** | |
| Hybrid battery temperature A – Hybrid battery temperature B | > 20°C (68°F) |
| Hybrid battery temperature A – Hybrid battery temperature C | > 20°C (68°F) |
| **Diagnosis 2** | |
| Hybrid battery temperature B – Hybrid battery temperature A | > 20°C (68°F) |
| Hybrid battery temperature C – Hybrid battery temperature A | > 20°C (68°F) |

**Time Needed for Diagnosis:** 10 seconds
**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

- **Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| **Diagnosis 1** | |
| Hybrid battery temperature A – Hybrid battery temperature B | ≤ 20°C (68°F) |
| Hybrid battery temperature A – Hybrid battery temperature C | ≤ 20°C (68°F) |
| **Diagnosis 2** | |
| Hybrid battery temperature B – Hybrid battery temperature A | ≤ 20°C (68°F) |
| Hybrid battery temperature C – Hybrid battery temperature A | ≤ 20°C (68°F) |

**Time Needed for Diagnosis:** 10 seconds

# BW:DTC P0A9D HYBRID BATTERY TEMPERATURE SENSOR "A" CIRCUIT LOW

## 1. OUTLINE OF DIAGNOSIS

Detect the abnormality of high voltage battery temperature 1.
Judge as NG when the high voltage battery temperature 1 is below the specified value.

## 2. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| Ignition state | Run or crank |
| 12V battery system voltage | ≥ 6.5 V<br>and<br>≤ 17 V |

## 3. DIAGNOSTIC METHOD

- **Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Hybrid battery temperature A sensor output voltage (temperature equivalent) | < 0.49 V (> 95°C (203°F)) |

**Time Needed for Diagnosis:** 8 seconds
**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

- **Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Hybrid battery temperature A sensor output voltage (temperature equivalent) | ≥ 0.49 V (≤ 95°C (203°F)) |

**Time Needed for Diagnosis:** 8 seconds

# BX:DTC P0A9E HYBRID BATTERY TEMPERATURE SENSOR "A" CIRCUIT HIGH

## 1. OUTLINE OF DIAGNOSIS

Detect the abnormality of high voltage battery temperature 1.
Judge as NG when the high voltage battery temperature 1 is above the specified value.

## 2. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| Ignition state | Run or crank |
| 12V battery system voltage | ≥ 6.5 V<br>and<br>≤ 17 V |

## 3. DIAGNOSTIC METHOD

- **Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Hybrid battery temperature A sensor output voltage (temperature equivalent) | > 4.82 V (< –45°C (–49°F)) |

**Time Needed for Diagnosis:** 8 seconds
**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

- **Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Hybrid battery temperature A sensor output voltage (temperature equivalent) | ≤ 4.82 V (≥ –45°C (–49°F)) |

**Time Needed for Diagnosis:** 8 seconds

# BY:DTC P0AAD HYBRID BATTERY PACK AIR TEMPERATURE SENSOR "A" CIRCUIT RANGE/PERFORMANCE

## 1. OUTLINE OF DIAGNOSIS

Detect the malfunction of the intake air temperature sensor.
Judge as NG when the deviation of high voltage battery temperature is large.

## 2. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| Ignition state | Run or crank |
| 12V battery system voltage | ≥ 6.5 V<br>and<br>≤ 17 V |
| Soak time from ECM | ≥ 6.0 h |

## 3. DIAGNOSTIC METHOD

**• Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Diagnostic Value (DV)<br>NOTE:<br>The smallest value among follows<br>\|Hybrid Battery Pack Air Temperature – Hybrid battery temperature A\|<br>\|Hybrid Battery Pack Air Temperature – Hybrid battery temperature B\|<br>\|Hybrid Battery Pack Air Temperature – Hybrid battery temperature C\| | > 16°C (60.8°F) |

**Time Needed for Diagnosis:** 15 seconds
**Malfunction Indicator Light Illumination:** detects when malfunction occurs in 2 continuous driving cycles. (Single engine startup is counted as one drive cycle.)

**• Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Diagnostic Value (DV)<br>NOTE:<br>The smallest value among follows<br>\|Hybrid Battery Pack Air Temperature – Hybrid battery temperature A\|<br>\|Hybrid Battery Pack Air Temperature – Hybrid battery temperature B\|<br>\|Hybrid Battery Pack Air Temperature – Hybrid battery temperature C\| | ≤ 16°C (60.8°F) |

**Time Needed for Diagnosis:** 15 seconds

# BZ:DTC P0AAE HYBRID BATTERY PACK AIR TEMPERATURE SENSOR "A" CIRCUIT LOW

## 1. OUTLINE OF DIAGNOSIS

Detect the malfunction of the intake air temperature sensor.
Judge as NG when the intake air temperature is out of specification.

## 2. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| Ignition state | Run or crank |
| 12V battery system voltage | ≥ 6.5 V<br>and<br>≤ 17 V |

## 3. DIAGNOSTIC METHOD

- **Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Hybrid battery pack air temperature sensor output voltage (temperature equivalent) | < 0.49 V<br>(> 95°C (203°F)) |

**Time Needed for Diagnosis:** 10 seconds
**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

- **Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Hybrid battery pack air temperature sensor output voltage (temperature equivalent) | ≥ 0.49 V<br>(≤ 95°C (203°F)) |

**Time Needed for Diagnosis:** 10 seconds

# CA:DTC P0AAF HYBRID BATTERY PACK AIR TEMPERATURE SENSOR "A" CIRCUIT HIGH

## 1. OUTLINE OF DIAGNOSIS

Detect the malfunction of the intake air temperature sensor.
Judge as NG when the intake air temperature is out of specification.

## 2. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| Ignition state | Run or crank |
| 12V battery system voltage | ≥ 6.5 V<br>and<br>≤ 17 V |

## 3. DIAGNOSTIC METHOD

- **Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Hybrid battery pack air temperature sensor output voltage (temperature equivalent) | > 4.82 V<br>(< –45°C (–49°F)) |

**Time Needed for Diagnosis:** 10 seconds
**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

- **Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Hybrid battery pack air temperature sensor output voltage (temperature equivalent) | ≤ 4.82 V<br>(≥ –45°C (–49°F)) |

**Time Needed for Diagnosis:** 10 seconds

# CB:DTC P0ABF HYBRID BATTERY PACK CURRENT SENSOR "A" CIRCUIT

## 1. OUTLINE OF DIAGNOSIS

Detect the malfunction of the current sensor circuit.
Judge as NG when the high voltage battery current value is below the specified value under the condition that the motor operates at overload.

## 2. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| Ignition state | Run or crank |
| 12V battery system voltage | ≥ 6.5 V<br>and<br>≤ 17 V |
| (Commanded Drive Motor Torque | › 15 Nm |
| Measured Drive Motor Speed) | › 125 rpm |
| or | |
| (Commanded Drive Motor Torque | < –40 Nm |
| Measured Drive Motor Speed) | › 1700 rpm |

## 3. DIAGNOSTIC METHOD

- **Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Absolute value of hybrid battery pack current | < 1 A |

**Time Needed for Diagnosis:** 1 second
**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

- **Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Absolute value of hybrid battery pack current | ≥ 1 A |

**Time Needed for Diagnosis:** 1 second

# CC:DTC P0AC0 HYBRID BATTERY PACK CURRENT SENSOR "A" CIRCUIT RANGE/PERFORMANCE

## 1. OUTLINE OF DIAGNOSIS

Detect the offset malfunction of high voltage battery current sensor.
Judge as NG when the high voltage battery current offset is above the specified value.

## 2. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| a: Ignition state | Run or crank |
| Continuous time of a | ≤ 0.2 s |
| 12V battery system voltage | ≥ 6.5 V<br>and<br>≤ 17 V |

## 3. DIAGNOSTIC METHOD

- **Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Absolute value of hybrid battery pack current | > 1 A |

**Time Needed for Diagnosis:** 0.01 seconds
**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

- **Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Absolute value of hybrid battery pack current | ≤ 1 A |

**Time Needed for Diagnosis:** 0.01 seconds

# CD:DTC P0AC1 HYBRID BATTERY PACK CURRENT SENSOR "A" CIRCUIT LOW

## 1. OUTLINE OF DIAGNOSIS

Detect the malfunction of high voltage battery current sensor.
Judge as NG when the high voltage battery current value is below the specified value.

## 2. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| Ignition state | Run or crank |
| 12V battery system voltage | ≥ 6.5 V<br>and<br>≤ 17 V |
| HPCM contactor request | Closed |
| BECM positive contactor command | Closed |
| BECM negative contactor command | Closed |

## 3. DIAGNOSTIC METHOD

- **Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Hybrid battery pack current sensor output voltage (current equivalent) | < –1.91 V<br>(< –240 A) |

**Time Needed for Diagnosis:** 0.4 seconds
**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

- **Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Hybrid battery pack current sensor output voltage (current equivalent) | ≥ –1.91 V<br>(≥ –240 A) |

**Time Needed for Diagnosis:** 0.4 seconds

# CE:DTC P0AC2 HYBRID BATTERY PACK CURRENT SENSOR "A" CIRCUIT HIGH

## 1. OUTLINE OF DIAGNOSIS

Detect the malfunction of high voltage battery current sensor.
Judge as NG when the high voltage battery current value is above the specified value.

## 2. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| Ignition state | Run or crank |
| 12V battery system voltage | ≥ 6.5 V<br>and<br>≤ 17 V |
| HPCM contactor request | Closed |
| BECM positive contactor command | Closed |
| BECM negative contactor command | Closed |

## 3. DIAGNOSTIC METHOD

- **Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Hybrid battery pack current sensor output voltage (current equivalent) | > 1.91 V (> 240 A) |

**Time Needed for Diagnosis:** 0.4 seconds
**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

- **Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Hybrid battery pack current sensor output voltage (current equivalent) | ≤ 1.91 V (≤ 240 A) |

**Time Needed for Diagnosis:** 0.4 seconds

# CF:DTC P0AC3 HYBRID BATTERY PACK CURRENT SENSOR "A" CIRCUIT INTERMITTENT/ERRATIC

## 1. OUTLINE OF DIAGNOSIS

Detect the malfunction of high voltage battery current sensor.
Judge as NG when the stuck of high voltage battery current sensor value is detected.

## 2. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| **Diagnosis 1** | |
| Ignition state | Run or crank |
| 12V battery system voltage | ≥ 6.5 V<br>and<br>≤ 17 V |
| Hybrid battery voltage D (Actual state: discharge) | < –120 mV |
| HPCM contactor request | Closed |
| BECM positive contactor command | Closed |
| BECM negative contactor command | Closed |
| **Diagnosis 2** | |
| Ignition state | Run or crank |
| 12V battery system voltage | ≥ 6.5 V<br>and<br>≤ 17 V |
| Hybrid battery voltage D (Actual state: discharge) | > 120 mV |
| HPCM contactor request | Closed |
| BECM positive contactor command | Closed |
| BECM negative contactor command | Closed |

## 3. DIAGNOSTIC METHOD

- **Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| **Diagnosis 1** | |
| Hybrid battery pack current | ≥ 10 A |
| (Detected state: charge) | ≤ 110 A |
| NOTE:<br>(The system should be discharging, but a charge condition is detected.) | |
| **Diagnosis 2** | |
| Hybrid battery pack current | ≤ –10 A |
| (Detected state: discharge) | ≥ –190 A |
| NOTE:<br>(The system should be charging, but a discharge condition is detected.) | |

**Time Needed for Diagnosis:** 1 second
**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

- **Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| **Diagnosis 1** | |
| Hybrid battery pack current | ≤ –10 A |
| (Detected state: discharge) | ≥ –190 A |
| **Diagnosis 2** | |
| Hybrid battery pack current | ≥ 10 A |
| (Detected state: charge) | ≤ 110 A |

**Time Needed for Diagnosis:** 1 second

# CG:DTC P0AC6 HYBRID BATTERY TEMPERATURE SENSOR "B" CIRCUIT RANGE/PERFORMANCE

## 1. OUTLINE OF DIAGNOSIS

Detect the abnormality of high voltage battery temperature 2.
Judge as NG when the deviation of high voltage battery temperature is large.

## 2. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| Ignition state | Run or crank |
| 12V battery system voltage | ≥ 6.5 V<br>and<br>≤ 17 V |

## 3. DIAGNOSTIC METHOD

- **Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| **Diagnosis 1** | |
| Hybrid battery temperature B – Hybrid battery temperature A | > 20°C (68°F) |
| Hybrid battery temperature B – Hybrid battery temperature C | > 20°C (68°F) |
| **Diagnosis 2** | |
| Hybrid battery temperature A – Hybrid battery temperature B | > 20°C (68°F) |
| Hybrid battery temperature C – Hybrid battery temperature B | > 20°C (68°F) |

**Time Needed for Diagnosis:** 10 seconds
**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

- **Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| **Diagnosis 1** | |
| Hybrid battery temperature B – Hybrid battery temperature A | ≤ 20°C (68°F) |
| Hybrid battery temperature B – Hybrid battery temperature C | ≤ 20°C (68°F) |
| **Diagnosis 2** | |
| Hybrid battery temperature A – Hybrid battery temperature B | ≤ 20°C (68°F) |
| Hybrid battery temperature C – Hybrid battery temperature B | ≤ 20°C (68°F) |

**Time Needed for Diagnosis:** 10 seconds

# CH:DTC P0AC7 HYBRID BATTERY TEMPERATURE SENSOR "B" CIRCUIT LOW

## 1. OUTLINE OF DIAGNOSIS

Detect the abnormality of high voltage battery temperature 2.
Judge as NG when the high voltage battery temperature 2 is below the specified value.

## 2. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| Ignition state | Run or crank |
| 12V battery system voltage | ≥ 6.5 V<br>and<br>≤ 17 V |

## 3. DIAGNOSTIC METHOD

- **Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Hybrid battery temperature B sensor output voltage (temperature equivalent) | < 0.49 V (> 95°C (203°F)) |

**Time Needed for Diagnosis:** 8 seconds
**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

- **Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Hybrid battery temperature B sensor output voltage (temperature equivalent) | ≥ 0.49 V (≤ 95°C (203°F)) |

**Time Needed for Diagnosis:** 8 seconds

# CI: DTC P0AC8 HYBRID BATTERY TEMPERATURE SENSOR "B" CIRCUIT HIGH

## 1. OUTLINE OF DIAGNOSIS

Detect the abnormality of high voltage battery temperature 2.
Judge as NG when the high voltage battery temperature 2 is above the specified value.

## 2. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| Ignition state | Run or crank |
| 12V battery system voltage | ≥ 6.5 V<br>and<br>≤ 17 V |

## 3. DIAGNOSTIC METHOD

- **Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Hybrid battery temperature B sensor output voltage (temperature equivalent) | > 4.82 V (< –45°C (–49°F)) |

**Time Needed for Diagnosis:** 8 seconds
**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

- **Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Hybrid battery temperature B sensor output voltage (temperature equivalent) | ≤ 4.82 V (≥ –45°C (–49°F)) |

**Time Needed for Diagnosis:** 8 seconds

# CJ:DTC P0ACB HYBRID BATTERY TEMPERATURE SENSOR "C" CIRCUIT RANGE/PERFORMANCE

## 1. OUTLINE OF DIAGNOSIS

Detect the abnormality of high voltage battery temperature 3.
Judge as NG when the deviation of high voltage battery temperature is large.

## 2. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| Ignition state | Run or crank |
| 12V battery system voltage | ≥ 6.5 V<br>and<br>≤ 17 V |

## 3. DIAGNOSTIC METHOD

- **Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| **Diagnosis 1** | |
| Hybrid battery temperature C – Hybrid battery temperature B | > 20°C (68°F) |
| Hybrid battery temperature C – Hybrid battery temperature A | > 20°C (68°F) |
| **Diagnosis 2** | |
| Hybrid battery temperature A – Hybrid battery temperature C | > 20°C (68°F) |
| Hybrid battery temperature B – Hybrid battery temperature C | > 20°C (68°F) |

**Time Needed for Diagnosis:** 10 seconds
**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

- **Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| **Diagnosis 1** | |
| Hybrid battery temperature C – Hybrid battery temperature B | ≤ 20°C (68°F) |
| Hybrid battery temperature C – Hybrid battery temperature A | ≤ 20°C (68°F) |
| **Diagnosis 2** | |
| Hybrid battery temperature A – Hybrid battery temperature C | ≤ 20°C (68°F) |
| Hybrid battery temperature B – Hybrid battery temperature C | ≤ 20°C (68°F) |

**Time Needed for Diagnosis:** 10 seconds

# CK:DTC P0ACC HYBRID BATTERY TEMPERATURE SENSOR "C" CIRCUIT LOW

## 1. OUTLINE OF DIAGNOSIS

Detect the abnormality of high voltage battery temperature 3.
Judge as NG when the high voltage battery temperature 3 is below the specified value.

## 2. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| Ignition state | Run or crank |
| 12V battery system voltage | ≥ 6.5 V<br>and<br>≤ 17 V |

## 3. DIAGNOSTIC METHOD

- **Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Hybrid battery temperature C sensor output voltage (temperature equivalent) | < 0.49 V (> 95°C (203°F)) |

**Time Needed for Diagnosis:** 8 seconds
**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

- **Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Hybrid battery temperature C sensor output voltage (temperature equivalent) | ≥ 0.49 V (≤ 95°C (203°F)) |

**Time Needed for Diagnosis:** 8 seconds

# CL:DTC P0ACD HYBRID BATTERY TEMPERATURE SENSOR "C" CIRCUIT HIGH

## 1. OUTLINE OF DIAGNOSIS

Detect the abnormality of high voltage battery temperature 3.
Judge as NG when the high voltage battery temperature 3 is above the specified value.

## 2. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| Ignition state | Run or crank |
| 12V battery system voltage | ≥ 6.5 V<br>and<br>≤ 17 V |

## 3. DIAGNOSTIC METHOD

- **Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Hybrid battery temperature C sensor output voltage (temperature equivalent) | > 4.82 V (< –45°C (–49°F)) |

**Time Needed for Diagnosis:** 8 seconds
**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

- **Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Hybrid battery temperature C sensor output voltage (temperature equivalent) | ≤ 4.82 V (≥ –45°C (–49°F)) |

**Time Needed for Diagnosis:** 8 seconds

# CM:DTC P0AD9 HYBRID BATTERY POSITIVE CONTACTOR CONTROL CIRCUIT/OPEN

## 1. OUTLINE OF DIAGNOSIS

Detect the open circuit of +side contactor drive signal line.
Judge as NG when the open circuit of +side contactor drive signal line is detected.

## 2. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| Ignition state | Run or crank |
| 12V battery system voltage | ≥ 6.5 V<br>and<br>≤ 17 V |
| HPCM contactor request | Closed |
| BECM positive contactor command | Closed |
| Measured Positive contactor control signal (BECM main CPU output) | Closed |

## 3. DIAGNOSTIC METHOD

- **Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Measured Positive contactor control signal (BECM output) | Open |

**Time Needed for Diagnosis:** 0.5 seconds
**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

- **Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Measured Positive contactor control signal (BECM output) | Closed |

**Time Needed for Diagnosis:** 0.5 seconds

# CN:DTC P0ADB HYBRID BATTERY POSITIVE CONTACTOR CONTROL CIRCUIT LOW

## 1. OUTLINE OF DIAGNOSIS

Detect the short circuit of +side contactor drive signal line.
Judge as NG when the short circuit of +side contactor drive signal line is detected.

## 2. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| **Diagnosis 1** | |
| Ignition state | Run or crank |
| 12V battery system voltage | ≥ 6.5 V<br>and<br>≤ 17 V |
| HPCM contactor request | Open |
| BECM positive contactor command | Open |
| Measured Positive contactor control signal (BECM main CPU output) | Open |
| **Diagnosis 2** | |
| Ignition state | Run or crank |
| 12V battery system voltage | ≥ 6.5 V<br>and<br>≤ 17 V |
| HPCM contactor request | Open |
| BECM positive contactor command | Open |

## 3. DIAGNOSTIC METHOD

- **Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| **Diagnosis 1** | |
| Measured Positive contactor control signal (BECM output) | Closed |
| **Diagnosis 2** | |
| Measured Positive contactor control signal | Closed |

**Time Needed for Diagnosis:** 0.1 seconds
**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

- **Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| **Diagnosis 1** | |
| Measured Positive contactor control signal (BECM output) | Open |
| **Diagnosis 2** | |
| Measured Positive contactor control signal | Open |

**Time Needed for Diagnosis:** 0.1 seconds

# CO:DTC P0ADD HYBRID BATTERY NEGATIVE CONTACTOR CONTROL CIRCUIT/OPEN

## 1. OUTLINE OF DIAGNOSIS

Detect the open circuit of –side contactor drive signal line.
Judge as NG when the open circuit of –side contactor drive signal line is detected.

## 2. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| Ignition state | Run or crank |
| 12V battery system voltage | ≥ 6.5 V<br>and<br>≤ 17 V |
| HPCM contactor request | Closed |
| BECM negative contactor command | Closed |
| Measured negative contactor control signal (BECM main CPU output) | Closed |

## 3. DIAGNOSTIC METHOD

- **Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Measured Negative contactor control signal (BECM output) | Open |

**Time Needed for Diagnosis:** 0.5 seconds
**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

- **Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Measured Negative contactor control signal (BECM output) | Closed |

**Time Needed for Diagnosis:** 0.5 seconds

# CP:DTC P0AE4 HYBRID BATTERY PRECHARGE CONTACTOR CONTROL CIRCUIT

## 1. OUTLINE OF DIAGNOSIS

Detect the open circuit of precharge contactor drive signal line.
Judge as NG when the open circuit of precharge contactor drive signal line is detected.

## 2. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| Ignition state | Run or crank |
| 12V battery system voltage | ≥ 6.5 V<br>and<br>≤ 17 V |
| Request contractors from HPCM | Closed |
| Precharge contactor command | Closed |
| Precharge contactor control circuit monitor signal<br>(Drive control circuit output) | High<br>(Closed) |

## 3. DIAGNOSTIC METHOD

- **Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Precharge contactor control signal (BECM main CPU output) | High<br>(Open) |

**Time Needed for Diagnosis:** 0.5 seconds
**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

- **Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Precharge contactor control signal (BECM main CPU output) | Low<br>(Close) |

**Time Needed for Diagnosis:** 0.5 seconds

# CQ:DTC P0B25 HYBRID BATTERY "A" VOLTAGE LOW

## 1. OUTLINE OF DIAGNOSIS

Detect that the high voltage battery voltage is below the lowest voltage.
Judge as NG when the high voltage battery voltage value is below the specified value.

## 2. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| Ignition state | Run or crank |
| 12V battery system voltage | ≥ 6.5 V<br>and<br>≤ 17 V |

## 3. DIAGNOSTIC METHOD

- **Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Hybrid battery pack voltage | < 73.6 V |

**Time Needed for Diagnosis:** 5 seconds
**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

- **Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Hybrid battery pack voltage | ≥ 73.6 V |

**Time Needed for Diagnosis:** 5 seconds

# CR:DTC P0B26 HYBRID BATTERY "A" VOLTAGE HIGH

## 1. OUTLINE OF DIAGNOSIS

Detect that the high voltage battery voltage exceeds the highest voltage.
Judge as NG when the voltage value of high voltage battery is above the specified value.

## 2. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| Ignition state | Run or crank |
| 12V battery system voltage | ≥ 6.5 V<br>and<br>≤ 17 V |

## 3. DIAGNOSTIC METHOD

- **Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Hybrid battery pack voltage | > 136.4 V |

**Time Needed for Diagnosis:** 5 seconds
**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

- **Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Hybrid battery pack voltage | ≤ 136.4 V |

**Time Needed for Diagnosis:** 5 seconds

# CS:DTC P0B37 HIGH VOLTAGE SERVICE DISCONNECT OPEN

## 1. OUTLINE OF DIAGNOSIS

Detect the malfunction of service disconnect plug.
Judge as NG when service disconnect plug unplugs or service disconnect plug SW is open.

## 2. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| Ignition state | Run or crank |

## 3. DIAGNOSTIC METHOD

- **Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Interlock switch signal | Open |

**Time Needed for Diagnosis:** 0.05 seconds
**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

- **Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Interlock switch signal | Closed |

**Time Needed for Diagnosis:** 0.05 seconds

# CT:DTC P0B3C HYBRID BATTERY VOLTAGE SENSE "A" CIRCUIT RANGE/ PERFORMANCE

## 1. OUTLINE OF DIAGNOSIS

Detect the malfunction of high voltage battery voltage sensor 0.
Judge as NG when the stuck of high voltage battery voltage 0 is detected.

## 2. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| Ignition state | Run or crank |
| 12V battery system voltage | ≥ 6.5 V<br>and<br>≤ 17 V |

## 3. DIAGNOSTIC METHOD

- **Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| **Diagnosis 1**<br>Hybrid battery voltage A | <br>> 96.0 V<br>≤ 98.54 V<br>(High side) |
| **Diagnosis 2**<br>Hybrid battery voltage A | <br>≥ –98.54 V<br>< 9.60 V<br>(Low side) |

**Time Needed for Diagnosis:** 1 second
**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

- **Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| **Diagnosis 1**<br>Hybrid battery voltage A | <br>≤ 96.0 V<br>> 98.54 V<br>(High side) |
| **Diagnosis 2**<br>Hybrid battery voltage A | <br>< –98.54 V<br>≥ 9.60 V<br>(Low side) |

**Time Needed for Diagnosis:** 1 second

# CU:DTC P0B3D HYBRID BATTERY VOLTAGE SENSE "A" CIRCUIT LOW

## 1. OUTLINE OF DIAGNOSIS

Detect the malfunction of high voltage battery voltage sensor 0.
Judge as NG when the high voltage battery voltage 0 is below the specified value.

## 2. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| Ignition state | Run or crank |
| 12V battery system voltage | ≥ 6.5 V<br>and<br>≤ 17 V |

## 3. DIAGNOSTIC METHOD

- **Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Hybrid battery voltage A | < –98.54 V |

**Time Needed for Diagnosis:** 0.1 seconds
**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

- **Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Hybrid battery voltage A | ≥ –98.54 V |

**Time Needed for Diagnosis:** 0.1 seconds

# CV:DTC P0B3E HYBRID BATTERY VOLTAGE SENSE "A" CIRCUIT HIGH

## 1. OUTLINE OF DIAGNOSIS

Detect the malfunction of high voltage battery voltage sensor 0.
Judge as NG when the high voltage battery voltage 0 is above the specified value.

## 2. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| Ignition state | Run or crank |
| 12V battery system voltage | ≥ 6.5 V<br>and<br>≤ 17 V |

## 3. DIAGNOSTIC METHOD

- **Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Hybrid battery voltage A | > 98.54 V |

**Time Needed for Diagnosis:** 0.1 seconds
**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

- **Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Hybrid battery voltage A | ≤ 98.54 V |

**Time Needed for Diagnosis:** 0.1 seconds

# CW:DTC P0B41 HYBRID BATTERY VOLTAGE SENSE "B" CIRCUIT RANGE/ PERFORMANCE

## 1. OUTLINE OF DIAGNOSIS

Detect the malfunction of high voltage battery voltage sensor 1.
Judge as NG when the stuck of high voltage battery voltage 1 is detected.

## 2. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| Ignition state | Run or crank |
| 12V battery system voltage | ≥ 6.5 V<br>and<br>≤ 17 V |

## 3. DIAGNOSTIC METHOD

- **Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| **Diagnosis 1**<br>Hybrid battery voltage B | > 64.0 V<br>≤ 66.27 V<br>(High side) |
| **Diagnosis 2**<br>Hybrid battery voltage B | ≥ –66.27 V<br>< 6.40 V<br>(Low side) |

**Time Needed for Diagnosis:** 1 second
**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

- **Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| **Diagnosis 1**<br>Hybrid battery voltage B | ≤ 64.0 V<br>> 66.27 V<br>(High side) |
| **Diagnosis 2**<br>Hybrid battery voltage B | < –66.27 V<br>≥ 6.40 V<br>(Low side) |

**Time Needed for Diagnosis:** 1 second

# CX:DTC P0B42 HYBRID BATTERY VOLTAGE SENSE "B" CIRCUIT LOW

## 1. OUTLINE OF DIAGNOSIS

Detect the malfunction of high voltage battery voltage sensor 1.
Judge as NG when the high voltage battery voltage 1 is below the specified value.

## 2. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| Ignition state | Run or crank |
| 12V battery system voltage | ≥ 6.5 V<br>and<br>≤ 17 V |

## 3. DIAGNOSTIC METHOD

- **Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Hybrid battery voltage B | < –66.27 V |

**Time Needed for Diagnosis:** 1 second
**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

- **Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Hybrid battery voltage B | ≥ –66.27 V |

**Time Needed for Diagnosis:** 1 second

# CY:DTC P0B43 HYBRID BATTERY VOLTAGE SENSE "B" CIRCUIT HIGH

## 1. OUTLINE OF DIAGNOSIS

Detect the malfunction of high voltage battery voltage sensor 1.
Judge as NG when the high voltage battery voltage 1 is above the specified value.

## 2. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| Ignition state | Run or crank |
| 12V battery system voltage | ≥ 6.5 V<br>and<br>≤ 17 V |

## 3. DIAGNOSTIC METHOD

- **Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Hybrid battery voltage B | > 66.27 V |

**Time Needed for Diagnosis:** 1 second
**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

- **Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Hybrid battery voltage B | ≤ 66.27 V |

**Time Needed for Diagnosis:** 1 second

# CZ:DTC P0B46 HYBRID BATTERY VOLTAGE SENSE "C" CIRCUIT RANGE/ PERFORMANCE

## 1. OUTLINE OF DIAGNOSIS

Detect the malfunction of high voltage battery voltage sensor 2.
Judge as NG when the stuck of high voltage battery voltage 2 is detected.

## 2. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| Ignition state | Run or crank |
| 12V battery system voltage | ≥ 6.5 V<br>and<br>≤ 17 V |

## 3. DIAGNOSTIC METHOD

- **Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| **Diagnosis 1**<br>Hybrid battery voltage C | <br>> 32.0 V<br>≤ 56.34 V<br>(High side) |
| **Diagnosis 2**<br>Hybrid battery voltage C | <br>≥ –56.34 V<br>< 3.20 V<br>(Low side) |

**Time Needed for Diagnosis:** 1 second
**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

- **Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| **Diagnosis 1**<br>Hybrid battery voltage C | <br>≤ 32.0 V<br>> 56.34 V<br>(High side) |
| **Diagnosis 2**<br>Hybrid battery voltage C | <br>< –56.34 V<br>≥ 3.20 V<br>(Low side) |

**Time Needed for Diagnosis:** 1 second

# DA:DTC P0B47 HYBRID BATTERY VOLTAGE SENSE "C" CIRCUIT LOW

## 1. OUTLINE OF DIAGNOSIS

Detect the malfunction of high voltage battery voltage sensor 2.
Judge as NG when the high voltage battery voltage 2 is below the specified value.

## 2. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| Ignition state | Run or crank |
| 12V battery system voltage | ≥ 6.5 V<br>and<br>≤ 17 V |

## 3. DIAGNOSTIC METHOD

- **Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Hybrid battery voltage C | < –56.34 V |

**Time Needed for Diagnosis:** 1 second
**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

- **Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Hybrid battery voltage C | ≥ –56.34 V |

**Time Needed for Diagnosis:** 1 second

# DB:DTC P0B48 HYBRID BATTERY VOLTAGE SENSE "C" CIRCUIT HIGH

## 1. OUTLINE OF DIAGNOSIS

Detect the malfunction of high voltage battery voltage sensor 2.
Judge as NG when the high voltage battery voltage 2 is above the specified value.

## 2. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| Ignition state | Run or crank |
| 12V battery system voltage | ≥ 6.5 V<br>and<br>≤ 17 V |

## 3. DIAGNOSTIC METHOD

- **Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Hybrid battery voltage C | > 56.34 V |

**Time Needed for Diagnosis:** 1 second
**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

- **Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Hybrid battery voltage C | ≤ 56.34 V |

**Time Needed for Diagnosis:** 1 second

# DC:DTC P0B4A HYBRID BATTERY VOLTAGE SENSE "D" CIRCUIT

## 1. OUTLINE OF DIAGNOSIS

Detect the malfunction of high voltage battery voltage sensor 3.
Judge as NG when the open circuit of high voltage battery voltage sensor 3 is detected.

## 2. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| a: Ignition state | Run or crank |
| Elapsed time of a | ≤ 0.2 s |
| 12V battery system voltage | ≥ 6.5 V<br>and<br>≤ 17 V |

## 3. DIAGNOSTIC METHOD

- **Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Status fault flag for 'Voltage Sense "D" Circuit' as determined by the BECM Sub CPU | Open |

**Time Needed for Diagnosis:** 0.01 seconds
**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

- **Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Status fault flag for 'Voltage Sense "D" Circuit' as determined by the BECM Sub CPU | Close |

**Time Needed for Diagnosis:** 0.01 seconds

# DD:DTC P0B4B HYBRID BATTERY VOLTAGE SENSE "D" CIRCUIT RANGE/ PERFORMANCE

## 1. OUTLINE OF DIAGNOSIS

Detect the malfunction of high voltage battery voltage sensor 3.
Judge as NG when the stuck of high voltage battery voltage 3 is detected.

## 2. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| Ignition state | Run or crank |
| 12V battery system voltage | ≥ 6.5 V<br>and<br>≤ 17 V |

## 3. DIAGNOSTIC METHOD

- **Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| **Diagnosis 1**<br>Hybrid battery voltage D | > 2.10V<br>≤ 76.2V<br>(High side) |
| **Diagnosis 2**<br>Hybrid battery voltage C | ≥ –76.2 V<br>< –2.10V<br>(Low side) |

**Time Needed for Diagnosis:** 10 seconds
**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

- **Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| **Diagnosis 1**<br>Hybrid battery voltage C | ≤ 2.10 V<br>> 76.2 V<br>(High side) |
| **Diagnosis 2**<br>Hybrid battery voltage C | < –76.2 V<br>≥ –2.10V<br>(Low side) |

**Time Needed for Diagnosis:** 10 seconds

# DE:DTC P0B4C HYBRID BATTERY VOLTAGE SENSE "D" CIRCUIT LOW

## 1. OUTLINE OF DIAGNOSIS

Detect the malfunction of high voltage battery voltage sensor 3.
Judge as NG when the high voltage battery voltage 3 is below the specified value.

## 2. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| Ignition state | Run or crank |
| 12V battery system voltage | ≥ 6.5 V<br>and<br>≤ 17 V |

## 3. DIAGNOSTIC METHOD

- **Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Hybrid battery voltage D | < –76.20 V |

**Time Needed for Diagnosis:** 0.1 seconds
**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

- **Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Hybrid battery voltage D | > –76.20 V |

**Time Needed for Diagnosis:** 0.1 seconds

# DF:DTC P0B4D HYBRID BATTERY VOLTAGE SENSE "D" CIRCUIT HIGH

## 1. OUTLINE OF DIAGNOSIS

Detect the malfunction of high voltage battery voltage sensor 3.
Judge as NG when the high voltage battery voltage 3 is above the specified value.

## 2. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| Ignition state | Run or crank |
| 12V battery system voltage | ≥ 6.5 V<br>and<br>≤ 17 V |

## 3. DIAGNOSTIC METHOD

- **Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Hybrid battery voltage D | > 76.20 V |

**Time Needed for Diagnosis:** 0.1 seconds
**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

- **Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Hybrid battery voltage D | ≤ 76.20 V |

**Time Needed for Diagnosis:** 0.1 seconds

# DG:DTC P0B50 HYBRID BATTERY VOLTAGE SENSE "E" CIRCUIT RANGE/ PERFORMANCE

## 1. OUTLINE OF DIAGNOSIS

Detect the malfunction of high voltage battery voltage sensor 4.
Judge as NG when the stuck of high voltage battery voltage 4 is detected.

## 2. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| Ignition state | Run or crank |
| 12V battery system voltage | ≥ 6.5 V<br>and<br>≤ 17 V |

## 3. DIAGNOSTIC METHOD

- **Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| **Diagnosis 1**<br>Hybrid battery voltage E | > –1.60V<br>≤ 23.03 V<br>(High side) |
| **Diagnosis 2**<br>Hybrid battery voltage E | ≥ –23.03 V<br>< –16.00 V<br>(Low side) |

**Time Needed for Diagnosis:** 1 second
**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

- **Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| **Diagnosis 1**<br>Hybrid battery voltage E | ≤ –1.60 V<br>> 23.03 V<br>(High side) |
| **Diagnosis 2**<br>Hybrid battery voltage E | < –23.03 V<br>≥ –16.00 V<br>(Low side) |

**Time Needed for Diagnosis:** 1 second

# DH:DTC P0B51 HYBRID BATTERY VOLTAGE SENSE "E" CIRCUIT LOW

## 1. OUTLINE OF DIAGNOSIS

Detect the malfunction of high voltage battery voltage sensor 4.
Judge as NG when the high voltage battery voltage 4 is below the specified value.

## 2. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| Ignition state | Run or crank |
| 12V battery system voltage | ≥ 6.5 V<br>and<br>≤ 17 V |

## 3. DIAGNOSTIC METHOD

- **Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Hybrid battery voltage E | < –23.03 V |

**Time Needed for Diagnosis:** 1 second
**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

- **Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Hybrid battery voltage E | ≥ –23.03 V |

**Time Needed for Diagnosis:** 1 second

# DI: DTC P0B52 HYBRID BATTERY VOLTAGE SENSE "E" CIRCUIT HIGH

## 1. OUTLINE OF DIAGNOSIS

Detect the malfunction of high voltage battery voltage sensor 4.
Judge as NG when the high voltage battery voltage 4 is above the specified value.

## 2. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| Ignition state | Run or crank |
| 12V battery system voltage | ≥ 6.5 V<br>and<br>≤ 17 V |

## 3. DIAGNOSTIC METHOD

- **Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Hybrid battery voltage E | > 23.03 V |

**Time Needed for Diagnosis:** 1 second
**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

- **Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Hybrid battery voltage E | ≤ 23.03 V |

**Time Needed for Diagnosis:** 1 second

# DJ:DTC P0B55 HYBRID BATTERY VOLTAGE SENSE "F" CIRCUIT RANGE/PERFORMANCE

## 1. OUTLINE OF DIAGNOSIS

Detect the malfunction of high voltage battery voltage sensor 5.
Judge as NG when the stuck of high voltage battery voltage 5 is detected.

## 2. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| Ignition state | Run or crank |
| 12V battery system voltage | ≥ 6.5 V<br>and<br>≤ 17 V |

## 3. DIAGNOSTIC METHOD

- **Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| **Diagnosis 1**<br>Hybrid battery voltage F | <br>> –4.80 V<br>≤ 98.54 V<br>(High side) |
| **Diagnosis 2**<br>Hybrid battery voltage F | <br>≥ –98.54 V<br>< –48.00 V<br>(Low side) |

**Time Needed for Diagnosis:** 1 second
**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

- **Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| **Diagnosis 1**<br>Hybrid battery voltage F | <br>≤ –4.80 V<br>> 98.54 V<br>(High side) |
| **Diagnosis 2**<br>Hybrid battery voltage F | <br>< –98.54 V<br>≥ –48.00 V<br>(Low side) |

**Time Needed for Diagnosis:** 1 second

# DK:DTC P0B56 HYBRID BATTERY VOLTAGE SENSE "F" CIRCUIT LOW

## 1. OUTLINE OF DIAGNOSIS

Detect the malfunction of high voltage battery voltage sensor 5.
Judge as NG when the high voltage battery voltage 5 is below the specified value.

## 2. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| Ignition state | Run or crank |
| 12V battery system voltage | ≥ 6.5 V<br>and<br>≤ 17 V |

## 3. DIAGNOSTIC METHOD

- **Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Hybrid battery voltage F | < –98.54 V |

**Time Needed for Diagnosis:** 1 second
**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

- **Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Hybrid battery voltage F | ≥ –98.54 V |

**Time Needed for Diagnosis:** 1 second

# DL:DTC P0B57 HYBRID BATTERY VOLTAGE SENSE "F" CIRCUIT HIGH

## 1. OUTLINE OF DIAGNOSIS

Detect the malfunction of high voltage battery voltage sensor 5.
Judge as NG when the high voltage battery voltage 5 is above the specified value.

## 2. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| Ignition state | Run or crank |
| 12V battery system voltage | ≥ 6.5 V<br>and<br>≤ 17 V |

## 3. DIAGNOSTIC METHOD

- **Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Hybrid battery voltage F | > 98.54 V |

**Time Needed for Diagnosis:** 1 second
**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

- **Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Hybrid battery voltage F | ≤ 98.54 V |

**Time Needed for Diagnosis:** 1 second

# DM:DTC P0B5A HYBRID BATTERY VOLTAGE SENSE "G" CIRCUIT RANGE/ PERFORMANCE

## 1. OUTLINE OF DIAGNOSIS

Detect the malfunction of high voltage battery voltage sensor 6.
Judge as NG when the stuck of high voltage battery voltage 6 is detected.

## 2. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| Ignition state | Run or crank |
| 12V battery system voltage | ≥ 6.5 V<br>and<br>≤ 17 V |

## 3. DIAGNOSTIC METHOD

- **Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| **Diagnosis 1**<br>Hybrid battery voltage G | <br>> –7.20 V<br>≤ 98.54 V<br>(High side) |
| **Diagnosis 2**<br>Hybrid battery voltage G | <br>≥ –98.54 V<br>< –72.00 V<br>(Low side) |

**Time Needed for Diagnosis:** 1 second
**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

- **Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| **Diagnosis 1**<br>Hybrid battery voltage G | <br>≤ –7.20 V<br>> 98.54 V<br>(High side) |
| **Diagnosis 2**<br>Hybrid battery voltage G | <br>< –98.54 V<br>≥ –72.00 V<br>(Low side) |

**Time Needed for Diagnosis:** 1 second

# DN:DTC P0B5B HYBRID BATTERY VOLTAGE SENSE "G" CIRCUIT LOW

## 1. OUTLINE OF DIAGNOSIS

Detect the malfunction of high voltage battery voltage sensor 6.
Judge as NG when the high voltage battery voltage 6 is below the specified value.

## 2. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| Ignition state | Run or crank |
| 12V battery system voltage | ≥ 6.5 V<br>and<br>≤ 17 V |

## 3. DIAGNOSTIC METHOD

- **Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Hybrid battery voltage G | < –98.54 V |

**Time Needed for Diagnosis:** 0.1 seconds
**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

- **Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Hybrid battery voltage G | ≥ –98.54 V |

**Time Needed for Diagnosis:** 0.1 seconds

# DO:DTC P0B5C HYBRID BATTERY VOLTAGE SENSE "G" CIRCUIT HIGH

## 1. OUTLINE OF DIAGNOSIS

Detect the malfunction of high voltage battery voltage sensor 6.
Judge as NG when the high voltage battery voltage 6 is above the specified value.

## 2. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| Ignition state | Run or crank |
| 12V battery system voltage | ≥ 6.5 V<br>and<br>≤ 17 V |

## 3. DIAGNOSTIC METHOD

- **Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Hybrid battery voltage G | > 98.54 V |

**Time Needed for Diagnosis:** 0.1 seconds
**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

- **Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Hybrid battery voltage G | ≤ 98.54 V |

**Time Needed for Diagnosis:** 0.1 seconds

# DP:DTC P0BB8 HYBRID BATTERY VOLTAGE SENSE "Z" CIRCUIT

## 1. OUTLINE OF DIAGNOSIS

Detect the abnormality of high voltage battery GND.
Judge as NG when the high voltage battery GND is out of specification.

## 2. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| Ignition state | Run or crank |
| 12V battery system voltage | ≥ 6.5 V<br>and<br>≤ 17 V |

## 3. DIAGNOSTIC METHOD

**• Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Status fault flag for 'Voltage Sense "Z" Circuit' as determined by the BECM Sub CPU | Open |

**Time Needed for Diagnosis:** 0.1 seconds
**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

**• Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Status fault flag for 'Voltage Sense "Z" Circuit' as determined by the BECM Sub CPU | Close |

**Time Needed for Diagnosis:** 0.1 seconds

# DQ:DTC P0C30 HYBRID BATTERY PACK STATE OF CHARGE HIGH

## 1. OUTLINE OF DIAGNOSIS

Detect high voltage battery SOC high.
Judge as NG when the high voltage battery SOC is at the specified value or more.

## 2. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| Ignition state | Run or crank |
| 12V battery system voltage | ≥ 6.5 V<br>and<br>≤ 17 V |

## 3. DIAGNOSTIC METHOD

- **Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| SOC<br>NOTE:<br>SOC: State Of Charge | ≥ 95% |

**Time Needed for Diagnosis:** 60 seconds
**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

- **Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| SOC | < 95% |

**Time Needed for Diagnosis:** 60 seconds

# DR:DTC P0C78 HYBRID BATTERY SYSTEM PRECHARGE TIME TOO LONG

## 1. OUTLINE OF DIAGNOSIS

Detect the abnormality of high voltage circuit open and precharge resistance.
Judge as NG when the difference between the total voltage value of high voltage battery when contactor is close and the inverter voltage is above the specified value.

## 2. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| Ignition state | Run or crank |
| 12V battery system voltage | ≥ 6.5 V<br>and<br>≤ 17 V |
| HPCM contactor request | Closed |
| BECM precharge contactor command | Closed |
| BECM positive contactor command | Open |
| BECM negative contactor command | Closed |

## 3. DIAGNOSTIC METHOD

- **Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| ABS (Hybrid battery pack voltage – Inverter voltage)<br>NOTE:<br>ABS: Absolute value | > 20 V |

**Time Needed for Diagnosis:** 0.6 seconds
**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

- **Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| ABS (Hybrid battery pack voltage – Inverter voltage)<br>NOTE:<br>ABS: Absolute value | ≤ 20 V |

**Time Needed for Diagnosis:** 0.6 seconds

# DS:DTC P0CA6 HYBRID BATTERY CHARGING CURRENT HIGH

## 1. OUTLINE OF DIAGNOSIS

Detect that the high voltage battery current exceeds the rated charging current.
Judge as NG when the current value (charging) is above the specified value.

## 2. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| Ignition state | Run or crank |
| 12V battery system voltage | ≥ 6.5 V<br>and<br>≤ 17 V |
| HPCM contactor request | Closed |
| BECM positive contactor command | Closed |
| BECM negative contactor command | Closed |

## 3. DIAGNOSTIC METHOD

- **Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Hybrid battery pack current<br>(Detected state: charge)<br>NOTE:<br>(Detected state: charge) | > 110 A |

**Time Needed for Diagnosis:** 2 seconds
**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

- **Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Hybrid battery pack current<br>(Detected state: charge)<br>NOTE:<br>(Detected state: charge) | ≤ 110 A |

**Time Needed for Diagnosis:** 2 seconds

# DT:DTC P0CA7 HYBRID BATTERY DISCHARGING CURRENT HIGH

## 1. OUTLINE OF DIAGNOSIS

Detect that the high voltage battery current exceeds the rated charging current.
Judge as NG when the current value (discharging) is above the specified value.

## 2. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| Ignition state | Run or crank |
| 12V battery system voltage | ≥ 6.5 V<br>and<br>≤ 17 V |
| HPCM contactor request | Closed |
| BECM positive contactor command | Closed |
| BECM negative contactor command | Closed |

## 3. DIAGNOSTIC METHOD

- **Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Hybrid battery pack current<br>(Detected state: discharge) | < –190 A |

**Time Needed for Diagnosis:** 2 seconds
**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

- **Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Hybrid battery pack current<br>(Detected state: discharge) | ≥ –190 A |

**Time Needed for Diagnosis:** 2 seconds

# DU:DTC P1C40 HYBRID BATTERY POSITIVE CONTACTOR OR PRE-CHARGE CONTACTOR CIRCUIT STUCK CLOSED

## 1. OUTLINE OF DIAGNOSIS

Detect the adhesion of +side contactor and precharge contactor.
Judge as NG when the difference between the total voltage value of high voltage battery when contactor is open and the inverter voltage is at the specified value or more.

## 2. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| Ignition state | Run or crank |
| 12V battery system voltage | ≥ 6.5 V<br>and<br>≤ 17 V |
| HPCM contactor request | Open |
| BECM precharge contactor command | Open |
| BECM positive contactor command | Open |
| BECM negative contactor command | Closed |

## 3. DIAGNOSTIC METHOD

- **Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Inverter voltage / Hybrid battery pack voltage | ≥ 0.8 V |

**Time Needed for Diagnosis:** 1.3 seconds
**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

- **Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Inverter voltage / Hybrid battery pack voltage | < 0.8 V |

**Time Needed for Diagnosis:** 1.3 seconds

# DV:DTC P1C41 HIGH VOLTAGE CIRCUIT SHORT

## 1. OUTLINE OF DIAGNOSIS

Detect the short circuit of high voltage line + and –.
Judge as NG when the current at contactor close is at the specified value or more.
Judge as NG when the high voltage battery voltage value at close is below the specified value.

## 2. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| **Diagnosis 1** | |
| Ignition state | Run or crank |
| 12V battery system voltage | ≥ 6.5 V<br>and<br>≤ 17 V |
| HPCM contactor request | Closed |
| BECM precharge contactor command | Closed |
| BECM positive contactor command | Open |
| BECM negative contactor command | Closed |
| **Diagnosis 2** | |
| Ignition state | Run or crank |
| 12V battery system voltage | ≥ 6.5 V<br>and<br>≤ 17 V |
| HPCM contactor request | Closed |
| BECM precharge contactor command | Open |
| BECM positive contactor command | Closed |
| BECM negative contactor command | Closed |

## 3. DIAGNOSTIC METHOD

- **Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| **Diagnosis 1** | |
| Hybrid battery pack discharge current | > 1.75 A |
| **Diagnosis 2** | |
| Hybrid battery pack voltage | < 48 V |

**Time Needed for Diagnosis:**
- **Diagnosis 1:** less than 0.6 s
- **Diagnosis 2:** 0.1 s

**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

- **Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| **Diagnosis 1** | |
| Hybrid battery pack discharge current | ≤ 1.75 A |
| **Diagnosis 2** | |
| Hybrid battery pack voltage | ≥ 48 V |

**Time Needed for Diagnosis:** 0.6 s after engine start

# DW:DTC P1C42 HIGH VOLTAGE CIRCUIT OPEN

## 1. OUTLINE OF DIAGNOSIS

Detect the high voltage circuit open at driving.
Judge as NG both when the difference between the high voltage battery voltage value and the inverter voltage value is at the specified value or more, and when the high voltage battery current value is within specification.

## 2. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| Ignition state | Run or crank |
| 12V battery system voltage | ≥ 6.5 V<br>and<br>≤ 17 V |
| HPCM contactor request | Closed |
| Measured Positive contactor control signal (BECM main CPU output) | Closed |
| Measured Positive contactor control signal (BECM output) | Closed |
| Measured Negative contactor control signal (BECM main CPU output) | Closed |
| Measured Negative contactor control signal (BECM output) | Closed |
| Measured contactor power supply control signal | ON |
| Measured contactor power supply voltage | ≥ 4 V |

## 3. DIAGNOSTIC METHOD

- **Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Absolute value of hybrid battery pack current | ≤ 1 A |
| Inverter voltage / Hybrid battery voltage | ≤ 0.8 |

**Time Needed for Diagnosis:** 1 second
**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

- **Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Absolute value of hybrid battery pack current | > 1 A |
| Inverter voltage / Hybrid battery voltage | > 0.8 |

**Time Needed for Diagnosis:** 1 second

# DX:DTC P1C43 HYBRID BATTERY CONTACTOR POWER SUPPLY CIRCUIT

## 1. OUTLINE OF DIAGNOSIS

Detect the malfunction of power supply instantaneous interruption detection circuit and power supply circuit of contactor.
Judge as NG when the open circuit of power supply instantaneous interruption detection circuit and power supply circuit of contactor is detected.

## 2. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| **Diagnosis 1** | |
| Ignition state | Run or crank |
| 12V battery system voltage | ≥ 6.5 V<br>and<br>≤ 17 V |
| BECM positive contactor command | Closed<br>or |
| BECM negative contactor command | Closed<br>or |
| BECM precharge contactor command | Closed |
| **Diagnosis 2** | |
| Ignition state | Run or crank |
| 12V battery system voltage | ≥ 6.5 V<br>and<br>≤ 17 V |
| Measured Contactor power supply monitoring signal | Power on |

## 3. DIAGNOSTIC METHOD

- **Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| **Diagnosis 1** | |
| Measured Contactor power supply monitoring signal | Power off |
| **Diagnosis 2** | |
| Measured contactor power supply voltage dropped signal | ON |

**Time Needed for Diagnosis:** 0.5 seconds
**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

- **Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| **Diagnosis 1** | |
| Measured contactor power supply monitoring signal | Power on |
| **Diagnosis 2** | |
| Measured contactor power supply voltage dropped signal | Off |

**Time Needed for Diagnosis:** 0.5 seconds

# DY:DTC P1C44 SUB CPU IN BECM

## 1. OUTLINE OF DIAGNOSIS

Detect the communication failure of MAINCPU and SubCPU.
Judge as NG when data is not received from SubCPU.

## 2. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| Ignition state | Run or crank |
| 12V battery system voltage | ≥ 6.5 V<br>and<br>≤ 17 V |

## 3. DIAGNOSTIC METHOD

**• Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| **Diagnosis 1**<br>Serial communication between BECM Main CPU and BECM Sub CPU is lost (no message received) | Detected |
| **Diagnosis 2**<br>Hybrid Battery voltage input circuit error for BECM Sub CPU | Detected |
| **Diagnosis 3**<br>A/D Converter failure for BECM Sub CPU | Detected |
| **Diagnosis 4**<br>Multiplex connection error for BECM Sub CPU | Detected |

**Time Needed for Diagnosis:** 10 seconds
**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

**• Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| **Diagnosis 1**<br>Serial communication between BECM Main CPU and BECM Sub CPU is lost (no message received) | Not detected |
| **Diagnosis 2**<br>Hybrid Battery voltage input circuit error for BECM Sub CPU | Not detected |
| **Diagnosis 3**<br>A/D Converter failure for BECM Sub CPU | Not detected |
| **Diagnosis 4**<br>Multiplex connection error for BECM Sub CPU | Not detected |

**Time Needed for Diagnosis:** 10 seconds

# DZ:DTC P1C45 HYBRID BATTERY BLOCK 1 BALANCING PERFORMANCE

## 1. OUTLINE OF DIAGNOSIS

Detect the cell malfunction of high voltage battery block 1.
Judge as NG when the deviation of high voltage battery block voltage is large.

## 2. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| Ignition state | Run or crank |
| 12V battery system voltage | ≥ 6.5 V<br>and<br>≤ 17 V |

## 3. DIAGNOSTIC METHOD

- **Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Diagnostic value = (Adjusted average module voltage – Min. module voltage) x N<br>N=4<br>NOTE:<br>This DTC will be stored only if the “Min. module voltage” equal to the average module voltage of Block 1. | > 1.2 V |

**Time Needed for Diagnosis:** 10 seconds
**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

- **Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Diagnostic value = (Adjusted average module voltage – Min. module voltage) x N<br>N=4<br>NOTE:<br>This DTC will be stored only if the “Min. module voltage” equal to the average module voltage of Block 1. | ≤ 1.2 V |

**Time Needed for Diagnosis:** 10 seconds

# EA:DTC P1C46 HYBRID BATTERY BLOCK 2 BALANCING PERFORMANCE

## 1. OUTLINE OF DIAGNOSIS

Detect the cell malfunction of high voltage battery block 2.
Judge as NG when the deviation of high voltage battery block voltage is large.

## 2. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| Ignition state | Run or crank |
| 12V battery system voltage | ≥ 6.5 V<br>and<br>≤ 17 V |

## 3. DIAGNOSTIC METHOD

**• Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Diagnostic value = (Adjusted average module voltage – Min. module voltage) x N<br>N=4<br>NOTE:<br>This DTC will be stored only if the “Min. module voltage” equal to the average module voltage of Block 2. | > 1.2 V |

**Time Needed for Diagnosis:** 10 seconds
**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

**• Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Diagnostic value = (Adjusted average module voltage – Min. module voltage) x N<br>N=4<br>NOTE:<br>This DTC will be stored only if the “Min. module voltage” equal to the average module voltage of Block 2. | ≤ 1.2 V |

**Time Needed for Diagnosis:** 10 seconds

# EB:DTC P1C47 HYBRID BATTERY BLOCK 3 BALANCING PERFORMANCE

## 1. OUTLINE OF DIAGNOSIS

Detect the abnormality of voltage deviation between high voltage battery cells.
Judge as NG when the deviation of high voltage battery block voltage is large.

## 2. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| Ignition state | Run or crank |
| 12V battery system voltage | ≥ 6.5 V<br>and<br>≤ 17 V |

## 3. DIAGNOSTIC METHOD

**• Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Diagnostic value = (Adjusted average module voltage – Min. module voltage) x N<br>N=4<br>NOTE:<br>This DTC will be stored only if the “Min. module voltage” equal to the average module voltage of Block 3. | > 1.2 V |

**Time Needed for Diagnosis:** 10 seconds
**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

**• Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Diagnostic value = (Adjusted average module voltage – Min. module voltage) x N<br>N=4<br>NOTE:<br>This DTC will be stored only if the “Min. module voltage” equal to the average module voltage of Block 3. | ≤ 1.2 V |

**Time Needed for Diagnosis:** 10 seconds

# EC:DTC P1C48 HYBRID BATTERY BLOCK 4 BALANCING PERFORMANCE

## 1. OUTLINE OF DIAGNOSIS

Detect the abnormality of voltage deviation between high voltage battery cells.
Judge as NG when the deviation of high voltage battery block voltage is large.

## 2. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| Ignition state | Run or crank |
| 12V battery system voltage | ≥ 6.5 V<br>and<br>≤ 17 V |

## 3. DIAGNOSTIC METHOD

**• Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Diagnostic value = (Adjusted average module voltage – Min. module voltage) x N<br>N=2<br>NOTE:<br>This DTC will be stored only if the “Min. module voltage” equal to the average module voltage of Block 4. | > 1.2 V |

**Time Needed for Diagnosis:** 10 seconds
**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

**• Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Diagnostic value = (Adjusted average module voltage – Min. module voltage) x N<br>N=2<br>NOTE:<br>This DTC will be stored only if the “Min. module voltage” equal to the average module voltage of Block 4. | ≤ 1.2 V |

**Time Needed for Diagnosis:** 10 seconds

# ED:DTC P1C49 HYBRID BATTERY BLOCK 5 BALANCING PERFORMANCE

## 1. OUTLINE OF DIAGNOSIS

Detect the abnormality of voltage deviation between high voltage battery cells.
Judge as NG when the deviation of high voltage battery block voltage is large.

## 2. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| Ignition state | Run or crank |
| 12V battery system voltage | ≥ 6.5 V<br>and<br>≤ 17 V |

## 3. DIAGNOSTIC METHOD

**• Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Diagnostic value = (Adjusted average module voltage – Min. module voltage) x N<br>N=4<br>NOTE:<br>This DTC will be stored only if the “Min. module voltage” equal to the average module voltage of Block 5. | > 1.2 V |

**Time Needed for Diagnosis:** 10 seconds
**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

**• Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Diagnostic value = (Adjusted average module voltage – Min. module voltage) x N<br>N=4<br>NOTE:<br>This DTC will be stored only if the “Min. module voltage” equal to the average module voltage of Block 5. | ≤ 1.2 V |

**Time Needed for Diagnosis:** 10 seconds

# EE:DTC P1C4A HYBRID BATTERY BLOCK 6 BALANCING PERFORMANCE

## 1. OUTLINE OF DIAGNOSIS

Detect the abnormality of voltage deviation between high voltage battery cells.
Judge as NG when the deviation of high voltage battery block voltage is large.

## 2. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| Ignition state | Run or crank |
| 12V battery system voltage | ≥ 6.5 V<br>and<br>≤ 17 V |

## 3. DIAGNOSTIC METHOD

- **Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Diagnostic value = (Adjusted average module voltage – Min. module voltage) x N<br>N=3<br>NOTE:<br>This DTC will be stored only if the “Min. module voltage” equal to the average module voltage of Block 6. | > 1.2 V |

**Time Needed for Diagnosis:** 10 seconds
**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

- **Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Diagnostic value = (Adjusted average module voltage – Min. module voltage) x N<br>N=3<br>NOTE:<br>This DTC will be stored only if the “Min. module voltage” equal to the average module voltage of Block 6. | ≤ 1.2 V |

**Time Needed for Diagnosis:** 10 seconds

# EF:DTC P1C5E HYBRID BATTERY BLOCK VOLTAGE TOO LOW

## 1. OUTLINE OF DIAGNOSIS

Detect high voltage battery block voltage low.
Judge as NG when the high voltage battery block voltage is less than specified value.

## 2. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| Ignition state | Run or crank |
| 12V battery system voltage | ≥ 6.5 V<br>and<br>≤ 17 V |
| HPCM contactor request | Open |
| BECM precharge contactor command | Open |
| BECM positive contactor command | Open |
| BECM negative contactor command | Open |

## 3. DIAGNOSTIC METHOD

**• Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Minimum average module voltage of block | < Map4 |

**Map 4**

| Minimum Hybrid battery temperature (°C (°F)) | –40 (–40) | –20 (–4) | –10 (14) | 0 (32) | 10 (50) | 25 (77) | 35 (95) | 45 (113) | 50 (122) |
|---|---|---|---|---|---|---|---|---|---|
| Minimum average module voltage of block (V) | 4.485 | 4.365 | 4.340 | 4.320 | 4.290 | 4.230 | 4.195 | 4.170 | 4.170 |

**Time Needed for Diagnosis:** 0.1 seconds
**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

**• Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| Minimum average module voltage of block | ≥ Map4 |

**Time Needed for Diagnosis:** 0.1 seconds

# EG:DTC U0073 CONTROL MODULE COMMUNICATION BUS OFF

## 1. OUTLINE OF DIAGNOSIS

Detect the bus error of CAN channel 1.
Judge as NG when the detection result is out of specification.

## 2. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| a: Ignition state | Run or crank |
| b: 12 V battery system voltage | ≥ 10.9 V |
| Elapsed time of a and b | ≥ 1 s |

## 3. DIAGNOSTIC METHOD

- **Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| CAN bus condition | Bus off |

**Time Needed for Diagnosis:** 0.48 seconds
**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

- **Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| CAN bus condition | ≠ Bus off |

**Time Needed for Diagnosis:** 0 seconds

# EH:DTC U0075 CONTROL MODULE COMMUNICATION BUS "PU-CAN" OFF

## 1. OUTLINE OF DIAGNOSIS

Detect the bus error of CAN channel 2.
Judge as NG when the detection result is out of specification.

## 2. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| a: Ignition state | Run or crank |
| b: 12 V battery system voltage | ≥ 10.9 |
| Elapsed time of a and b | ≥ 1 s |

## 3. DIAGNOSTIC METHOD

- **Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| CAN bus condition | Bus off |

**Time Needed for Diagnosis:** 0.48 seconds
**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

- **Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| CAN bus condition | ≠ Bus off |

**Time Needed for Diagnosis:** 0 seconds

# EI: DTC U0076 CONTROL MODULE COMMUNICATION BUS "HEV-CAN" OFF

**HYBRID POWERTRAIN CONTROL SYSTEM**

## 1. OUTLINE OF DIAGNOSIS

Detect the CAN failure and bus error of HEV-CAN.
Judge as NG when the detection result is out of specification.

## 2. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| a: Ignition state | Run or crank |
| b: 12 V battery system voltage | ≥ 10.9 |
| Elapsed time of a and b | ≥ 1 s |

## 3. DIAGNOSTIC METHOD

- **Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| CAN bus condition | Bus off |

**Time Needed for Diagnosis:** Less than 0.48 second
**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

- **Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| CAN bus condition | ≠ Bus off |

**Time Needed for Diagnosis:** 0 seconds
**DRIVE MOTOR CONTROL SYSTEM**

## 4. OUTLINE OF DIAGNOSIS

Detect the serial communication failure with inverter.
Judge as NG when the data from inverter is not received correctly.

## 5. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| a: 12 V battery system voltage | ≥ 10 V |
| Continuous time of a | ≥ 1 s |

## 6. DIAGNOSTIC METHOD

**• Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| CAN bus condition | Bus off |

**Time Needed for Diagnosis:** Immediately
**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

**• Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| CAN bus condition | ≠ Bus off |

**Time Needed for Diagnosis:** Immediately
**BATTERY ENERGY CONTROL SYSTEM**

## 7. OUTLINE OF DIAGNOSIS

Detect CAN bus off error.

## 8. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| a: (Ignition state | Run or crank |
| 12 V battery system voltage) | ≥ 9 V<br>and<br>≤ 17 V |
| Continuous time of a | ≥ 1 s |

## 9. DIAGNOSTIC METHOD

**• Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| CAN bus condition | Bus off |

**Time Needed for Diagnosis:** 0.2 seconds
**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

**• Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| CAN bus condition | ≠ Bus off |

**Time Needed for Diagnosis:** 0.2 seconds

# EJ:DTC U0100 LOST COMMUNICATION WITH ECM/PCM "A"

## 1. OUTLINE OF DIAGNOSIS

Detect the engine data not received.
Judge as NG when the detection result is out of specification.

## 2. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| a: Ignition state | Run or crank |
| b: 12 V battery system voltage | ≥ 10.9 |
| Elapsed time of a and b | ≥ 1 s |

## 3. DIAGNOSTIC METHOD

- **Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| CAN data from ECM | Lost |

**Time Needed for Diagnosis:** 0.5 seconds
**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

- **Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| CAN data from ECM | ≠ Lost |

**Time Needed for Diagnosis:** 0 seconds

# EK:DTC U0101 LOST COMMUNICATION WITH TCM

## 1. OUTLINE OF DIAGNOSIS

Detect the transmission data not received.
Judge as NG when the detection result is out of specification.

## 2. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| a: Ignition state | Run or crank |
| b: 12 V battery system voltage | ≥ 10.9 |
| Elapsed time of a and b | ≥ 1 s |

## 3. DIAGNOSTIC METHOD

- **Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| CAN data from TCM | Lost |

**Time Needed for Diagnosis:** 0.5 seconds
**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

- **Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| CAN data from ECM | ≠ Lost |

**Time Needed for Diagnosis:** 0 seconds

# EL:DTC U0110 LOST COMMUNICATION WITH DRIVE MOTOR CONTROL MODULE "A"

**HYBRID POWERTRAIN CONTROL SYSTEM**

## 1. OUTLINE OF DIAGNOSIS

Detect the motor control module data not received.

## 2. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| a: Ignition state | Run or crank |
| b: 12 V battery system voltage | ≥ 10.9 |
| Elapsed time of a and b | ≥ 1 s |

## 3. DIAGNOSTIC METHOD

- **Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| CAN data from DMCM | Lost |

**Time Needed for Diagnosis:** 1 second
**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

- **Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| CAN bus condition | ≠ Lost |

**Time Needed for Diagnosis:** 0 seconds
**BATTERY ENERGY CONTROL SYSTEM**

## 4. OUTLINE OF DIAGNOSIS

Detect the malfunction of CAN data not received from drive motor control module.

## 5. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| a: (Ignition state | Run or crank |
| 12 V battery system voltage) | ≥ 9 V<br>and<br>≤ 17 V |
| Continuous time of a | ≥ 1 s |

## 6. DIAGNOSTIC METHOD

- **Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| CAN data from DMCM | Lost |

**Time Needed for Diagnosis:** 1 second
**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

- **Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| CAN bus condition | Received |

**Time Needed for Diagnosis:** 1 second

# EM:DTC U0111 LOST COMMUNICATION WITH BATTERY ENERGY CONTROL MODULE

**HYBRID POWERTRAIN CONTROL SYSTEM**

## 1. OUTLINE OF DIAGNOSIS

Detect the battery energy control module data not received.
Judge as NG when the detection result is out of specification.

## 2. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| a: Ignition state | Run or crank |
| b: 12 V battery system voltage | ≥ 10.9 |
| Elapsed time of a and b | ≥ 1 s |

## 3. DIAGNOSTIC METHOD

- **Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| CAN data from BECM | Lost |

**Time Needed for Diagnosis:** 2 seconds
**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

- **Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| CAN data from BECM | ≠ Lost |

**Time Needed for Diagnosis:** 0 seconds
**DRIVE MOTOR CONTROL SYSTEM**

## 4. OUTLINE OF DIAGNOSIS

Detect the serial communication failure with inverter.
Judge as NG when the data from inverter is not received correctly.

## 5. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| a: 12 V battery system voltage | ≥ 10 V |
| Continuous time of a | ≥ 1 s |

## 6. DIAGNOSTIC METHOD

- **Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| CAN data from BECM | Lost |

**Time Needed for Diagnosis:** 0.5 seconds
**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

- **Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| CAN data from BECM | Received |

**Time Needed for Diagnosis:** 8 seconds

# EN:DTC U0122 LOST COMMUNICATION WITH VEHICLE DYNAMICS CONTROL MODULE

## 1. OUTLINE OF DIAGNOSIS

Detect the VDC data not received.
Judge as NG when the detection result is out of specification.

## 2. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| a: Ignition state | Run or crank |
| b: 12 V battery system voltage | ≥ 10.9 |
| Elapsed time of a and b | ≥ 1 s |

## 3. DIAGNOSTIC METHOD

- **Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| CAN data from Vehicle Dynamics Control Module | Lost |

**Time Needed for Diagnosis:** 0.5 seconds
**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

- **Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| CAN data from ECM | ≠ Lost |

**Time Needed for Diagnosis:** 0 seconds

# EO:DTC U0401 INVALID DATA RECEIVED FROM ECM/PCM "A"

## 1. OUTLINE OF DIAGNOSIS

Detect the engine data error.
Judge as NG when the detection result is out of specification.

## 2. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| a: Ignition state | Run or crank |
| b: 12 V battery system voltage | ≥ 10.9 |
| Elapsed time of a and b | ≥ 1 s |

## 3. DIAGNOSTIC METHOD

- **Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| **Diagnosis 1**<br>CAN data from ECM | Parity error |
| **Diagnosis 2**<br>CAN data from ECM | Did not change |

**Time Needed for Diagnosis:**
- **Diagnosis 1:** 0.15 s
- **Diagnosis 2:** 2.5 s

**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

- **Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| **Diagnosis 1**<br>CAN data from ECM | ≠ Parity error |
| **Diagnosis 2**<br>CAN data from ECM | ≠ Did not change |

**Time Needed for Diagnosis:** 0 seconds

# EP:DTC U0402 INVALID DATA RECEIVED FROM TCM

## 1. OUTLINE OF DIAGNOSIS

Detect the transmission data error.
Judge as NG when the detection result is out of specification.

## 2. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| a: Ignition state | Run or crank |
| b: 12 V battery system voltage | ≥ 10.9 |
| Elapsed time of a and b | ≥ 1 s |

## 3. DIAGNOSTIC METHOD

- **Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| **Diagnosis 1**<br>CAN data from TCM | Parity error |
| **Diagnosis 2**<br>CAN data from TCM | Did not change |

**Time Needed for Diagnosis:**
- **Diagnosis 1:** 0.15 s
- **Diagnosis 2:** 0.5 s

**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

- **Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| **Diagnosis 1**<br>CAN data from TCM | ≠ Parity error |
| **Diagnosis 2**<br>CAN data from TCM | ≠ Did not change |

**Time Needed for Diagnosis:** 0 seconds

# EQ:DTC U0411 INVALID DATA RECEIVED FROM DRIVE MOTOR CONTROL MODULE "A"

**HYBRID POWERTRAIN CONTROL SYSTEM**

## 1. OUTLINE OF DIAGNOSIS

Detect the data error of drive motor control module.
Judge as NG when the detection result is out of specification.

## 2. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| a: Ignition state | Run or crank |
| b: 12 V battery system voltage | ≥ 10.9 |
| Elapsed time of a and b | ≥ 1 s |

## 3. DIAGNOSTIC METHOD

- **Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| **Diagnosis 1**<br>CAN data from DMCM | Checksum error |
| **Diagnosis 2**<br>CAN data from DMCM | Did not change |

**Time Needed for Diagnosis:**
- **Diagnosis 1:** 0.3 s
- **Diagnosis 2:** 0.5 s

**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

- **Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| **Diagnosis 1**<br>CAN data from DMCM | ≠ Checksum error |
| **Diagnosis 2**<br>CAN data from DMCM | ≠ Did not change |

**Time Needed for Diagnosis:** 0 seconds

**BATTERY ENERGY CONTROL SYSTEM**

## 4. OUTLINE OF DIAGNOSIS

Detect the CAN data stuck failure from drive motor control module.

## 5. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| **Diagnosis 1** | |
| a: (Ignition state | Run or crank |
| 12 V battery system voltage) | ≥ 9 V<br>and<br>≤ 17 V |
| Continuous time of a | ≥ 1 s |
| **Diagnosis 2** | |
| a: (Ignition state | Run or crank |
| 12 V battery system voltage) | ≥ 9 V<br>and<br>≤ 17 V |
| Continuous time of a | ≥ 1 s |
| CAN data from DMCM | Changed |

## 6. DIAGNOSTIC METHOD

- **Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| **Diagnosis 1** | |
| CAN data from DMCM | Did not change |
| **Diagnosis 2** | |
| CAN data from DMCM | Checksum error |

**Time Needed for Diagnosis:**
- **Diagnosis 1:** 0.5 s
- **Diagnosis 2:** 3 times

**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

- **Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| **Diagnosis 1** | |
| CAN data from DMCM | change |
| **Diagnosis 2** | |
| CAN data from DMCM | ≠ Checksum error |

**Time Needed for Diagnosis:** 0.5 seconds

# ER:DTC U0412 INVALID DATA RECEIVED FROM BATTERY ENERGY CONTROL MODULE

**HYBRID POWERTRAIN CONTROL SYSTEM**

## 1. OUTLINE OF DIAGNOSIS

Detect the data error of battery energy control module.
Judge as NG when the detection result is out of specification.

## 2. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| a: Ignition state | Run or crank |
| b: 12 V battery system voltage | ≥ 10.9 |
| Elapsed time of a and b | ≥ 1 s |

## 3. DIAGNOSTIC METHOD

- **Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| **Diagnosis 1**<br>CAN data from BECM | Checksum error |
| **Diagnosis 2**<br>CAN data from BECM | Did not change |

**Time Needed for Diagnosis:**
- **Diagnosis 1:** 0.3 s
- **Diagnosis 2:** 20 s

**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

- **Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| **Diagnosis 1**<br>CAN data from BECM | ≠ Checksum error |
| **Diagnosis 2**<br>CAN data from BECM | Changed |

**Time Needed for Diagnosis:** 0 seconds

**DRIVE MOTOR CONTROL SYSTEM**

## 4. OUTLINE OF DIAGNOSIS

Detect the communication error with battery energy control module.
Judge as NG when the data from battery energy control module is not received correctly.

## 5. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| **Diagnosis 1** | |
| CAN data from BECM | Received |
| CAN data from BECM | ≠ Checksum error |
| a: 12 V battery system voltage | ≥ 10 V |
| Continuous time of a | ≥ 1 s |
| **Diagnosis 2** | |
| CAN data from BECM | Received |
| a: 12 V battery system voltage | ≥ 10 V |
| Continuous time of a | ≥ 1 s |

## 6. DIAGNOSTIC METHOD

- **Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| **Diagnosis 1** | |
| CAN data from BECM | Did not change |
| **Diagnosis 2** | |
| CAN data from BECM | Checksum error |

**Time Needed for Diagnosis:**
- **Diagnosis 1:** 0.6 s
- **Diagnosis 2:** 0.03 s

**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

- **Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| **Diagnosis 1** | |
| CAN data from BECM | Changed |
| **Diagnosis 2** | |
| CAN data from BECM | ≠ Checksum error |

**Time Needed for Diagnosis:**
- **Diagnosis 1:** 2.2 s
- **Diagnosis 2:** 0.6 s

# ES:DTC U0416 INVALID DATA RECEIVED FROM VEHICLE DYNAMICS CONTROL MODULE

## 1. OUTLINE OF DIAGNOSIS

Detect the VDC data error.
Judge as NG when the detection result is out of specification.

## 2. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| a: Ignition state | Run or crank |
| b: 12 V battery system voltage | ≥ 10.9 |
| Elapsed time of a and b | ≥ 1 s |

## 3. DIAGNOSTIC METHOD

- **Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| **Diagnosis 1**<br>CAN data from Vehicle Dynamics Control Module | Parity error |
| **Diagnosis 2**<br>CAN data from Vehicle Dynamics Control Module | Did not change |

**Time Needed for Diagnosis:**
- **Diagnosis 1:** 0.06 s
- **Diagnosis 2:** 0.5 s

**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

- **Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| **Diagnosis 1**<br>CAN data from Vehicle Dynamics Control Module | ≠ Parity error |
| **Diagnosis 2**<br>CAN data from Vehicle Dynamics Control Module | ≠ Did not change |

**Time Needed for Diagnosis:** 0 seconds

# ET:DTC U1100 LOST COMMUNICATION WITH ECM/PCM PU-CAN

## 1. OUTLINE OF DIAGNOSIS

Detect the engine PU-CAN data not received.
Judge as NG when the detection result is out of specification.

## 2. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| a: Ignition state | Run or crank |
| b: 12 V battery system voltage | ≥ 10.9 |
| Elapsed time of a and b | ≥ 1 s |

## 3. DIAGNOSTIC METHOD

- **Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| CAN data from ECM | Lost |

**Time Needed for Diagnosis:** 2 seconds
**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

- **Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| CAN data from ECM | ≠ Lost |

**Time Needed for Diagnosis:** 0 seconds

# EU:DTC U1101 LOST COMMUNICATION WITH TCM PU-CAN

## 1. OUTLINE OF DIAGNOSIS

Detect the transmission PU-CAN data not received.
Judge as NG when the detection result is out of specification.

## 2. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| a: Ignition state | Run or crank |
| b: 12 V battery system voltage | ≥ 10.9 |
| Elapsed time of a and b | ≥ 1 s |

## 3. DIAGNOSTIC METHOD

- **Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| CAN data from TCM | Lost |

**Time Needed for Diagnosis:** 0.5 seconds
**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

- **Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| CAN data from TCM | ≠ Lost |

**Time Needed for Diagnosis:** 0 seconds

# EV:DTC U1290 LOST COMMUNICATION WITH HYBRID POWERTRAIN CONTROL MODULE HEV-CAN

**DRIVE MOTOR CONTROL SYSTEM**

## 1. OUTLINE OF DIAGNOSIS

Detect the communication error with hybrid powertrain control module.
Judge as NG when the data from hybrid powertrain control module is not received correctly.

## 2. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| a: 12 V battery system voltage | ≥ 10 V |
| Continuous time of a | ≥ 1 s |

## 3. DIAGNOSTIC METHOD

- **Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| CAN data from HPCM | Lost |

**Time Needed for Diagnosis:** 0.5 seconds
**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

- **Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| CAN data from HPCM | Received |

**Time Needed for Diagnosis:** 2 seconds

**BATTERY ENERGY CONTROL SYSTEM**

## 4. OUTLINE OF DIAGNOSIS

Detect the malfunction of CAN data not received from hybrid powertrain control module.

## 5. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| a: (Ignition state | Run or crank |
| 12 V battery system voltage) | ≥ 9 V<br>and<br>≤ 17 V |
| Continuous time of a | ≥ 1 s |

## 6. DIAGNOSTIC METHOD

- **Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| CAN data from HPCM | Lost |

**Time Needed for Diagnosis:** 0.5 seconds
**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

- **Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| CAN data from HPCM | Received |

**Time Needed for Diagnosis:** 0.5 seconds

# EW:DTC U1401 INVALID DATA RECEIVED FROM ECM/PCM PU-CAN

## 1. OUTLINE OF DIAGNOSIS

Detect the engine PU-CAN data error.
Judge as NG when the detection result is out of specification.

## 2. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| a: Ignition state | Run or crank |
| b: 12 V battery system voltage | ≥ 10.9 |
| Elapsed time of a and b | ≥ 1 s |

## 3. DIAGNOSTIC METHOD

- **Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| **Diagnosis 1**<br>CAN data from ECM | Checksum error |
| **Diagnosis 2**<br>CAN data from ECM | Did not change |

**Time Needed for Diagnosis:**
- **Diagnosis 1:** 0.03 s
- **Diagnosis 2:** 0.5 s

**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

- **Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| **Diagnosis 1**<br>CAN data from ECM | ≠ Checksum error |
| **Diagnosis 2**<br>CAN data from ECM | ≠ Did not change |

**Time Needed for Diagnosis:** 0 seconds

# EX:DTC U1402 INVALID DATA RECEIVED FROM TCM PU-CAN

## 1. OUTLINE OF DIAGNOSIS

Detect the transmission PU-CAN data error.
Judge as NG when the detection result is out of specification.

## 2. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| a: Ignition state | Run or crank |
| b: 12 V battery system voltage | ≥ 10.9 |
| Elapsed time of a and b | ≥ 1 s |

## 3. DIAGNOSTIC METHOD

- **Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| **Diagnosis 1**<br>CAN data from TCM | Checksum error |
| **Diagnosis 2**<br>CAN data from TCM | Did not change |

**Time Needed for Diagnosis:**
- **Diagnosis 1:** 0.03 s
- **Diagnosis 2:** 0.5 s

**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

- **Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| **Diagnosis 1**<br>CAN data from TCM | ≠ Checksum error |
| **Diagnosis 2**<br>CAN data from TCM | ≠ Did not change |

**Time Needed for Diagnosis:** 0 seconds

# EY:DTC U1591 INVALID DATA RECEIVED FROM HYBRID POWERTRAIN CONTROL MODULE HEV-CAN

**Drive motor control module**

## 1. OUTLINE OF DIAGNOSIS

Detect the CAN communication error with hybrid powertrain control module.
Judge as NG when the data from hybrid powertrain control module is not received correctly.

## 2. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| **Diagnosis 1** | |
| CAN data from HPCM | Received |
| CAN data from HPCM | ≠ Checksum error |
| a: 12 V battery system voltage | ≥ 10 V |
| Continuous time of a | ≥ 1 s |
| **Diagnosis 2** | |
| CAN data from HPCM | Received |
| a: 12 V battery system voltage | ≥ 10 V |
| Continuous time of a | ≥ 1 s |

## 3. DIAGNOSTIC METHOD

- **Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| **Diagnosis 1** | |
| CAN data from HPCM | Did not change |
| **Diagnosis 2** | |
| CAN data from HPCM | Checksum error |

**Time Needed for Diagnosis:**
- **Diagnosis 1:** 0.6 s
- **Diagnosis 2:** 0.03 s

**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

- **Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| **Diagnosis 1** | |
| CAN data from HPCM | Changed |
| **Diagnosis 2** | |
| CAN data from HPCM | ≠ Checksum error |

**Time Needed for Diagnosis:**
- **Diagnosis 1:** 2.2 s
- **Diagnosis 2:** 0.3 s

**Battery energy control module**

## 4. OUTLINE OF DIAGNOSIS

Detect the CAN data stuck failure from hybrid powertrain control module.

## 5. ENABLE CONDITIONS

| Secondary Parameters | Enable Conditions |
|---|---|
| **Diagnosis 1** | |
| a: (Ignition state | Run or crank |
| 12 V battery system voltage) | ≥ 9 V<br>and<br>≤ 17 V |
| Continuous time of a | ≥ 1 s |
| **Diagnosis 2** | |
| a: (Ignition state | Run or crank |
| 12 V battery system voltage) | ≥ 9 V<br>and<br>≤ 17 V |
| Continuous time of a | ≥ 1 s |
| CAN data from HPCM | Changed |

## 6. DIAGNOSTIC METHOD

- **Abnormality Judgment**

If the duration of time while the following conditions are met is longer than the time indicated, judge as NG.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| **Diagnosis 1** | |
| CAN data from HPCM | Did not change |
| **Diagnosis 2** | |
| CAN data from HPCM | Checksum error |

**Time Needed for Diagnosis:**

- **Diagnosis 1:** 0.5 s
- **Diagnosis 2:** 3 times

**Malfunction Indicator Light Illumination:** Illuminates as soon as a malfunction occurs.

- **Normality Judgment**

Judge as OK and clear the NG if the continuous time while the following conditions are established is more than the predetermined time.

**Judgment Value**

| Malfunction Criteria | Threshold Value |
|---|---|
| **Diagnosis 1** | |
| CAN data from HPCM | Changed |
| **Diagnosis 2** | |
| CAN data from HPCM | ≠ Checksum error |

**Time Needed for Diagnosis:**

- **Diagnosis 1:** 0.5 s
- **Diagnosis 2:** 0.5 s

# PEDESTRIAN ALERT SYSTEM

# PA


Page

1. General Description .....2
2. Relay and Fuse .....4
3. Pedestrian Alert System .....5
4. Pedestrian Alert Control Unit .....6
5. Pedestrian Alert Speaker .....7
6. Combination Meter .....9
7. Stop Light & Brake Switch .....10
8. Diagnostics with Phenomenon .....11

# 1. Basic Diagnostic Procedure

## A: PROCEDURE

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK PRE-INSPECTION.**<br>Ask the customer when and how the trouble occurred using the interview check list. <Ref. to HEV(diag)-5, Check List for Interview.> | Was the customer interview performed? | Go to step **2**. | Perform customer interview. |
| 2 | **CHECK HYBRID FAIL LAMP.**<br>Check the hybrid fail lamp. | Does the hybrid fail lamp illuminate after starting the engine? | Go to step **3**. | Perform appropriate inspection using Diagnostics with Phenomenon. <Ref. to HEV(diag)-341, Diagnostics with Phenomenon.> |
| 3 | **CHECK COMBINATION METER.**<br>Using the Subaru Select Monitor, read DTC of combination meter. | Is either DTC U0073, U0293, or U0594 detected? (current malfunction) | Perform the inspection according to the diagnosis for LAN system. <Ref. to LAN(HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.> | Go to step **4**. |
| 4 | **CHECK DTC.**<br>Using the Subaru Select Monitor, read DTC of the hybrid powertrain control module.<br>NOTE:<br>• Refer to “Read Diagnostic Trouble Code (DTC)” for detailed operation procedure. <Ref. to HEV(diag)-24, OPERATION, Read Diagnostic Trouble Code (DTC).><br>• If the communication function of the Subaru Select Monitor does not operate properly, check the communication circuit. <Ref. to HEV(diag)-18, COMMUNICATION FOR INITIALIZING IMPOSSIBLE, Subaru Select Monitor.> | Is DTC detected? (current malfunction) | Record DTC, time stamp, and freeze frame data, then perform inspection using “Diagnostic Procedure with Diagnostic Trouble Code (DTC)”. <Ref. to HEV(diag)-74, List of Diagnostic Trouble Code (DTC).><br>After repair, Go to step **10**.<br>NOTE:<br>• For the time stamp, refer to LAN section. <Ref. to LAN(HEV)(diag)-6, TIME STAMP, CAUTION, General Description.><br>• Depending on DTCs, time stamp may not be stored. | Go to step **5**. |
| 5 | **CHECK CURRENT DATA.**<br>Confirm the current data of hybrid powertrain control system, the value of «Hybrid Fail Lamp Signal (DMCU)» using the Subaru Select Monitor. <Ref. to HEV(diag)-40, HYBRID POWERTRAIN CONTROL SYSTEM, OPERATION, Read Current Data.> | Does the value show «ON»? | Go to step **6**. | Go to step **7**. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 6 | **CHECK DTC.**<br>Read the DTC of the drive motor control system using the Subaru Select Monitor.<br>NOTE:<br>• Refer to “Read Diagnostic Trouble Code (DTC)” for detailed operation procedure. <Ref. to HEV(diag)-24, OPERATION, Read Diagnostic Trouble Code (DTC).><br>• If the communication function of the Subaru Select Monitor does not operate properly, check the communication circuit. <Ref. to HEV(diag)-18, COMMUNICATION FOR INITIALIZING IMPOSSIBLE, Subaru Select Monitor.> | Is DTC detected? (current malfunction) | Record DTC, time stamp, and freeze frame data, then perform inspection using “Diagnostic Procedure with Diagnostic Trouble Code (DTC)”. <Ref. to HEV(diag)-74, List of Diagnostic Trouble Code (DTC).><br>After repair, Go to step **10**.<br>NOTE:<br>• For the time stamp, refer to LAN section. <Ref. to LAN(HEV)(diag)-6, TIME STAMP, CAUTION, General Description.><br>• Depending on DTCs, time stamp may not be stored. | Replace DMCM. <Ref. to CVT(TH58A)-157, Drive Motor Control Module.> |
| 7 | **CHECK CURRENT DATA.**<br>Confirm the current data of hybrid powertrain control system, the value of «Hybrid Fail Lamp Signal (BECU)» using the Subaru Select Monitor. <Ref. to HEV(diag)-40, HYBRID POWERTRAIN CONTROL SYSTEM, OPERATION, Read Current Data.> | Does the value show «ON»? | Go to step **8**. | Go to step **9**. |
| 8 | **CHECK DTC.**<br>Read DTC of the battery energy control system using the Subaru Select Monitor.<br>NOTE:<br>• Refer to “Read Diagnostic Trouble Code (DTC)” for detailed operation procedure. <Ref. to HEV(diag)-24, OPERATION, Read Diagnostic Trouble Code (DTC).><br>• If the communication function of the Subaru Select Monitor does not operate properly, check the communication circuit. <Ref. to HEV(diag)-18, COMMUNICATION FOR INITIALIZING IMPOSSIBLE, Subaru Select Monitor.> | Is DTC detected? (current malfunction) | Record DTC, time stamp, and freeze frame data, then perform inspection using “Diagnostic Procedure with Diagnostic Trouble Code (DTC)”. <Ref. to HEV(diag)-74, List of Diagnostic Trouble Code (DTC).><br>After repair, Go to step **10**.<br>NOTE:<br>• For the time stamp, refer to LAN section. <Ref. to LAN(HEV)(diag)-6, TIME STAMP, CAUTION, General Description.><br>• Depending on DTCs, time stamp may not be stored. | Replace the high voltage battery. <Ref. to HEV-17, High Voltage Battery.> |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 9 | **CHECK HYBRID FAIL LAMP.**<br>1) Turn the ignition switch to OFF.<br>2) Wait at least 30 seconds.<br>3) Turn the ignition switch to ON. | Does the hybrid fail lamp illuminate? | Replace the HPCM. <Ref. to HEV-37, Hybrid Powertrain Control Module.> | It is possible that temporary poor communication occurs. |
| 10 | **PERFORM DIAGNOSIS.**<br>1) Perform the Clear Memory Mode. <Ref. to HEV(diag)-25, Clear Memory Mode.><br>2) Perform the Inspection Mode or Drive Cycle. <Ref. to HEV(diag)-27, Inspection Mode.> <Ref. to HEV(diag)-32, Drive Cycle.> | Is DTC displayed on Subaru Select Monitor? | Inspect using “Diagnostic Procedure with Diagnostic Trouble Code (DTC)”. <Ref. to HEV(diag)-74, List of Diagnostic Trouble Code (DTC).> | Finish the diagnosis. |

# 2. Check List for Interview

## A: CHECK

### 1. CHECK LIST NO. 1

When a problem occurs, perform the following customer interview.

| | |
|---|---|
| Customer's name | |
| Date of purchase | |
| Date of repair | |
| V.I.N. | |
| Engine No. | |
| Fuel type | |
| Transmission model | |
| Odometer reading | km (miles) |
| Weather | ❑ Fine ❑ Cloudy ❑ Rainy ❑ Snowy |
| | ❑ Others: |
| Ambient air temperature | °C (°F) |
| | ❑ Hot ❑ Warm ❑ Cool ❑ Cold |
| Place | ❑ Highway ❑ Suburbs ❑ Inner city ❑ Uphill ❑ Downhill ❑ Rough road |
| | ❑ Others: |
| Engine temperature | ❑ Cold ❑ During warming-up ❑ After warming-up ❑ Temp. of either of them |
| | ❑ Others: |
| Engine speed | rpm |
| Vehicle speed | km/h (MPH) |
| Driving conditions | ❑ No effect ❑ Start-up ❑ Restart ❑ Idling ❑ Racing ❑ Accelerating<br>❑ Cruising ❑ Decelerating ❑ Cornering (right/left turn)<br>❑ Cruise control<br>❑ Other |
| Vehicle conditions | ❑ EV traveling ❑ Auto Start Stop active |
| Select lever position | ❑ P ❑ R ❑ N ❑ D ❑ Manual mode |
| Hybrid READY indicator light | ❑ ON❑ OFF |
| EV mode lamp | ❑ ON❑ OFF |
| Remaining high voltage battery level of MFD | |
| Manual mode | ❑ ON ❑ OFF |
| Headlight | ❑ ON ❑ OFF |
| Rear defogger | ❑ ON ❑ OFF |
| Blower | ❑ ON ❑ OFF |
| Audio | ❑ ON ❑ OFF |
| A/C compressor | ❑ ON ❑ OFF |
| Rear entertainment system | ❑ ON ❑ OFF |
| Radiator fan | ❑ ON ❑ OFF |
| Car phone | ❑ ON ❑ OFF |
| Front wiper | ❑ ON ❑ OFF |
| Rear wiper | ❑ ON ❑ OFF |
| Wireless device | ❑ ON ❑ OFF |

## 2. CHECK LIST NO. 2

If any indicator lights illuminate, perform the following additional customer interview.

| | |
|---|---|
| a) Warning lights or indicators illuminate. | ❑ Yes ❑ No |
| ❑ ABS warning light ❑ Steering control warning light ❑ AT oil temperature warning light ❑ AWD warning light<br>❑ VDC warning light/VDC indicator light<br>❑ Fuel level warning light ❑ Malfunction Indicator Light ❑ SRS airbag warning light<br>❑ Water temperature warning light (red) ❑ Oil pressure warning light ❑ Charge warning Light<br>❑ Security indicator light ❑ Brake warning light ❑ Vacuum pump fail lamp<br>❑ Hybrid fail lamp<br>❑ Others: | |
| b) 12 volt auxiliary battery | |
| Manufacturer's genuine battery is equipped | ❑ Yes ❑ No |
| Battery voltage | V |
| Battery replacement | ❑ Yes ❑ No |
| Travel distance at replacement | km (miles) |
| c) 12 volt engine restart battery | |
| Manufacturer's genuine battery is equipped | ❑ Yes ❑ No |
| Battery voltage | V |
| Battery replacement | ❑ Yes ❑ No |
| Travel distance at replacement | km (miles) |
| d) Starter | |
| Start count (refer to current data) | |
| Starter has ever been replaced | ❑ Yes ❑ No |
| e) Fuel level | |
| Lack of fuel | ❑ Yes ❑ No |
| Indicator position of fuel gauge | ❑ FULL ❑ 3/4 ❑ 1/2 ❑ 1/4 ❑ Other |
| Experienced running out of fuel | ❑ Yes ❑ No |
| f) Intentional connecting or disconnecting of vehicle harness connectors | ❑ Yes ❑ No |
| Name of parts or points of disconnection | |
| g) Intentional connecting or disconnecting of vehicle hoses | ❑ Yes ❑ No |
| Name of parts or points of disconnection | |
| h) Installing parts other than genuine parts | ❑ Yes ❑ No |
| Parts | |
| Where | |
| i) Occurrence of noise | ❑ Yes ❑ No |
| From where | |
| What kind | |
| j) Occurrence of smell | ❑ Yes ❑ No |
| From where | |
| What kind | |
| k) Ingress of water into engine compartment | ❑ Yes ❑ No |
| l) Ingress of water into luggage room | ❑ Yes ❑ No |
| m) Ingress of water into passenger compartment | ❑ Yes ❑ No |
| n) Troubles occurred | |

# Check List for Interview

❑Engine speed drops ❑Engine speed does not drop ❑Rough idling ❑Slow acceleration
❑Back fire ❑After fire ❑Shifting is wrong (specifically: ) ❑ Excessive shift shock
❑Shock or judder during driving ❑Engine speed increases abruptly during driving ❑Shock or judder during standing start
❑Unable to switch to EV traveling ❑READY ON does not occur
❑Batteries (12 volt auxiliary battery and high voltage battery) are not charged
❑Auto Start Stop does not operate ❑Engine does not restart after Auto Start Stop/EV traveling
❑ Buzzer sounds (intermittently or continuously) during Auto Start Stop
❑When restarting, the audio/navigation system is reset (initialized).
❑When restarting, the combination meter and MFD blink.
❑ Electrical equipment such as automatic air conditioner, audio, navigation system, or combination meter does not operate.
❑ Others:

# 3. General Description

## A: CAUTION

### 1. AIRBAG SYSTEM

Refer to “CAUTION” in “General Description” in AIRBAG SYSTEM. <Ref. to AB-10, CAUTION, General Description.>

### 2. HYBRID SYSTEM

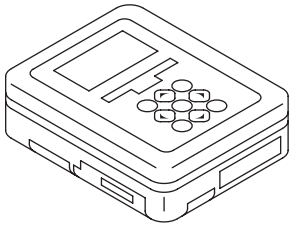
Refer to “CAUTION (HYBRID SYSTEM)”. <Ref. to PC-7, CAUTION (HYBRID SYSTEM), Precaution.>

## B: INSPECTION

Before performing diagnostics, check the following item which might affect hybrid system problems.
1) Check 12 volt auxiliary battery and 12 volt engine restart battery. <Ref. to SC(H4DO(HEV))-39, Battery.>
2) Check the condition of the main and other fuses, and harnesses and connectors. Also check for proper grounding. <Ref. to HEV-12, Relay and Fuse.>

## C: PREPARATION TOOL

### 1. SPECIAL TOOL

| ILLUSTRATION | TOOL NUMBER | DESCRIPTION | REMARKS |
|---|---|---|---|
|  ST1B022XU0 | 1B022XU0 | SUBARU SELECT MONITOR III KIT | Used for setting of each function and trouble-shooting for electrical system.<br>NOTE:<br>For detailed operation procedures of SUBARU SELECT MONITOR III, refer to “PC application help for Subaru Select Monitor”. |

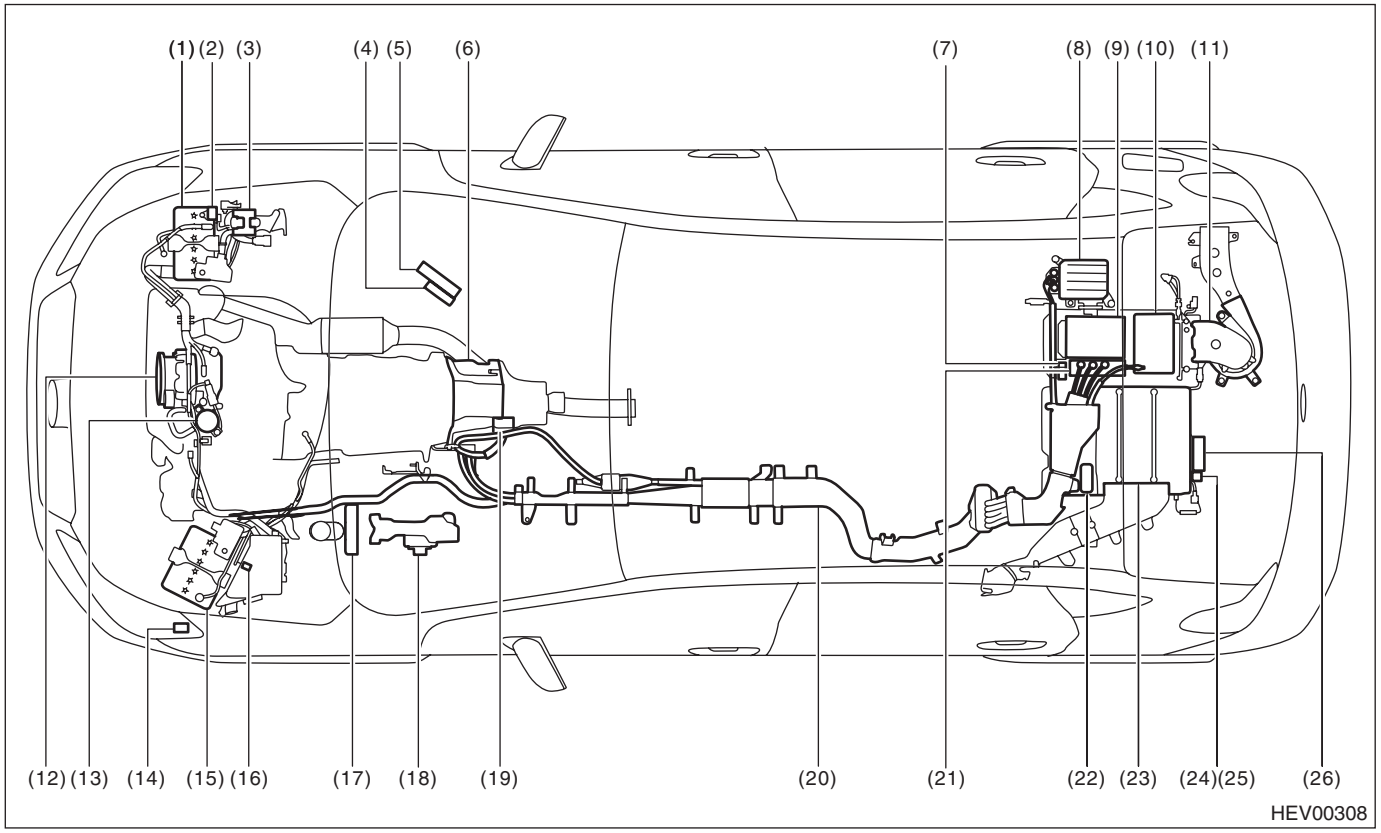
### 2. GENERAL TOOL

| TOOL NAME | REMARKS |
|---|---|
| Circuit tester | Used for measuring resistance, voltage and current. |
| Insulation multimeter | Used for measuring insulation resistance. |
| Milliohm tester | Used for troubleshooting of power cable and drive motor.<br>NOTE:<br>Although troubleshooting can be done without a milliohm tester, it allows technicians to troubleshoot problems with high precision. |

# 4. Electrical Component Location

## A: LOCATION

### 1. HYBRID SYSTEM

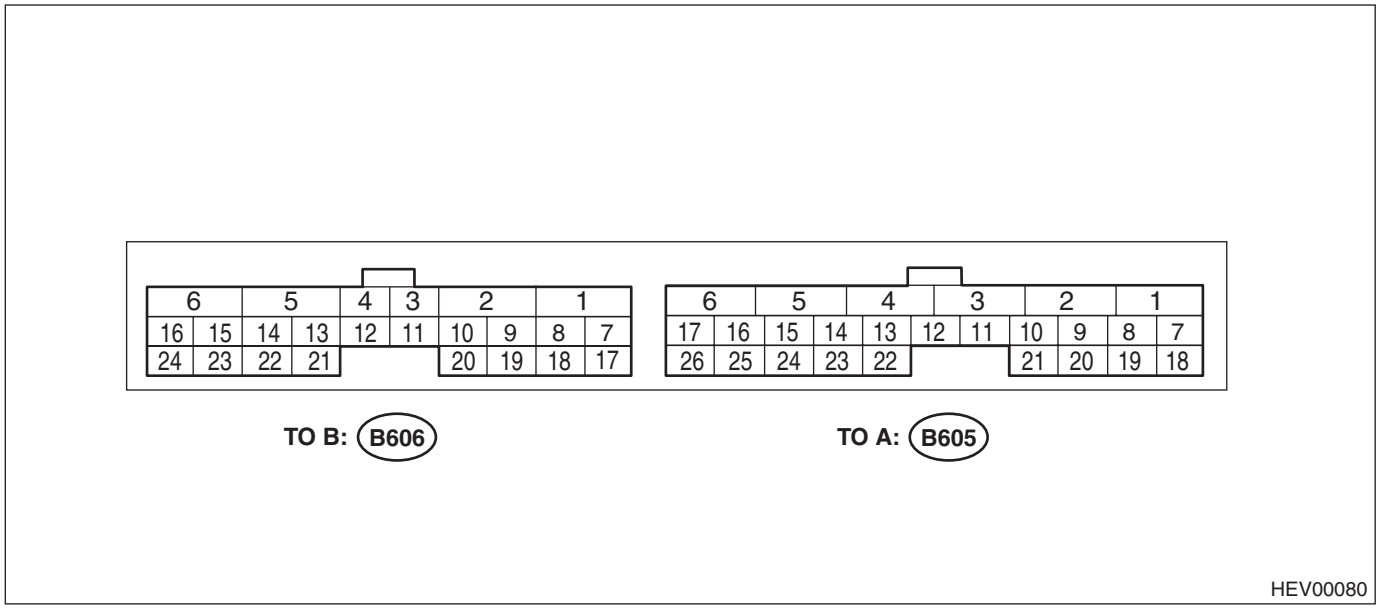



| | | | | | |
|---|---|---|---|---|---|
| (1) | 12 volt engine restart battery | (10) | DC/DC converter | (19) | Electric oil pump |
| (2) | 12V engine restart battery sensor | (11) | High voltage battery cooling fan | (20) | Power cable |
| (3) | 12V battery relay | (12) | Integrated starter generator (ISG) | (21) | Drive motor inverter amperage sensor |
| (4) | Hybrid powertrain control module (HPCM) | (13) | Brake vacuum pump | (22) | Service disconnect plug |
| (5) | Engine control module (ECM) | (14) | Battery temperature sensor | (23) | High voltage battery (including battery energy control module (BECM)) |
| (6) | Drive motor ASSY | (15) | 12 volt auxiliary battery | (24) | DMCM power relay |
| (7) | Electric noise filter | (16) | Brake vacuum pump relay | (25) | High voltage battery cooling fan/ drive motor inverter power supply relay |
| (8) | Electric oil pump inverter | (17) | Brake booster (including brake booster pressure sensor) | (26) | Drive motor control module (DMCM) |
| (9) | Drive motor inverter | (18) | Brake pedal ASSY (including brake stroke sensor) | | |

# 5. Control Module I/O Signal

## A: ELECTRICAL SPECIFICATION

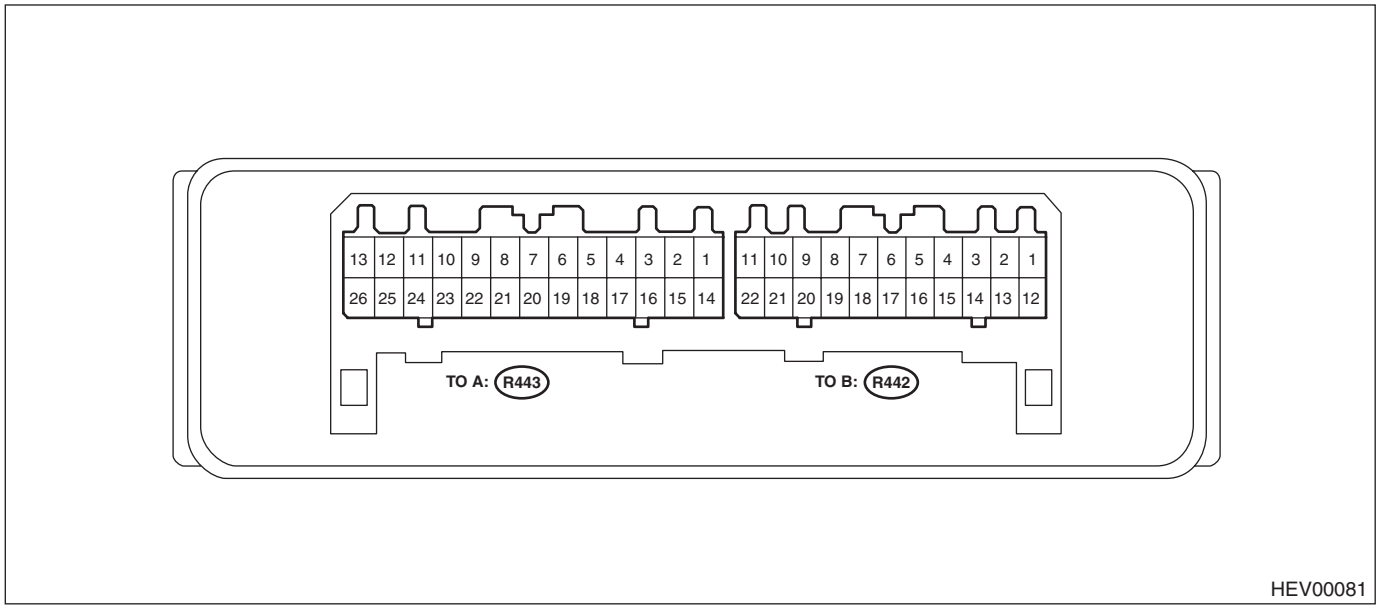
### 1. HYBRID POWERTRAIN CONTROL MODULE (HPCM)




| Terminal No. (terminal symbol) | Item | Measuring condition | Measurement value | Note |
|---|---|---|---|---|
| (B605) No. 1 | Linear solenoid output | — | Cannot be measured | — |
| (B605) No. 2 | Main power supply 1 | Always | 11 — 15 V | — |
| (B605) No. 3 | Main power supply 2 | Always | 11 — 15 V | — |
| (B605) No. 4 | LIN communication | — | Cannot be measured | LIN communication line |
| (B605) No. 5 | GND1 | Always | 0 V | — |
| (B605) No. 6 | GND2 | Always | 0 V | — |
| (B605) No. 7 | (Not used) | — | — | — |
| (B605) No. 8 | (Not used) | — | — | — |
| (B605) No. 9 | (Not used) | — | — | — |
| (B605) No. 10 | HEV CAN H | — | Cannot be measured | CAN communication line |
| (B605) No. 11 | HEV CAN L | — | Cannot be measured | CAN communication line |
| (B605) No. 12 | MAIN CAN H | — | Cannot be measured | CAN communication line |
| (B605) No. 13 | MAIN CAN L | — | Cannot be measured | CAN communication line |
| (B605) No. 14 | PU CAN H | — | Cannot be measured | CAN communication line |
| (B605) No. 15 | PU CAN L | — | Cannot be measured | CAN communication line |
| (B605) No. 16 | (Not used) | — | — | — |
| (B605) No. 17 | (Not used) | — | — | — |
| (B605) No. 18 | Oil pressure SW input | Engine running | 11 — 15 V | — |
| | | When ignition switch is ON | 0 V | — |
| (B605) No. 19 | (Not used) | — | — | — |
| (B605) No. 20 | (Not used) | — | — | — |
| (B605) No. 21 | IG SW input | Ignition switch ON | 11 — 15 V | — |
| (B605) No. 22 | Starter drive request signal | Model without push button start at cranking | 8 — 14 V | — |
| | | Model with push button start at cranking | Waveform | — |
| (B605) No. 23 | P range SW input | P range | Less than 1 V | — |
| | | Except for P range | 8 V or more | — |

| Terminal No. (terminal symbol) | Item | Measuring condition | Measurement value | Note |
|---|---|---|---|---|
| (B605) No. 24 | R range SW input | R range | Less than 1 V | — |
| | | Except for R range | 8 V or more | — |
| (B605) No. 25 | N range SW input | N range | Less than 1 V | — |
| | | Except for N range | 8 V or more | — |
| (B605) No. 26 | D range SW input | D range | Less than 1 V | — |
| | | Except for D range | 8 V or more | — |
| (B606) No. 1 | GND1 for sensors | Always | 0 V | — |
| (B606) No. 2 | GND2 for sensors | Always | 0 V | — |
| (B606) No. 3 | Brake booster pressure sensor input 1 | Always | 0.5 — 4.5 V | — |
| (B606) No. 4 | Brake booster pressure sensor input 2 | Always | 0.5 — 4.5 V | — |
| (B606) No. 5 | (Not used) | — | — | — |
| (B606) No. 6 | (Not used) | — | — | |
| (B606) No. 7 | Sensor power supply output 1 | When ignition switch is ON | 4.5 V or more | — |
| (B606) No. 8 | (Not used) | — | — | — |
| (B606) No. 9 | Sensor power supply output 3 | When ignition switch is ON | 4.5 V or more | — |
| (B606) No. 10 | (Not used) | — | — | — |
| (B606) No. 11 | Brake stroke sensor input 1 | When brake pedal is depressed | Approx. 1 V or more | — |
| | | When brake is not depressed | Approx. 1 V | — |
| (B606) No. 12 | (Not used) | — | — | — |
| (B606) No. 13 | (Not used) | — | — | — |
| (B606) No. 14 | ISG CRK output | When ignition switch is ON | Less than 1 V | — |
| (B606) No. 15 | ISG INH output | When ignition switch is ON | Less than 2 V | — |
| (B606) No. 16 | Brake vacuum pump relay output | When brake vacuum pump operates | 9 V or more | — |
| | | When brake vacuum pump not activated | 0 V | — |
| (B606) No. 17 | Sensor power supply output 2 | When ignition switch is ON | 4.5 V or more | — |
| (B606) No. 18 | Battery voltage 2 monitor input | Always | 11 — 15 V | — |
| (B606) No. 19 | Vacuum pump relay monitor input | When brake vacuum pump operates | 9 V or more | — |
| | | When brake vacuum pump not activated | 0 V | — |
| (B606) No. 20 | Brake stroke sensor input 2 | When brake pedal is depressed | Approx. 4 V or less | — |
| | | When brake is not depressed | Approx. 4 V | — |
| (B606) No. 21 | (Not used) | — | — | — |
| (B606) No. 22 | Battery relay CLOSE output | — | — | — |
| (B606) No. 23 | Battery relay OPEN output | — | — | — |
| (B606) No. 24 | GND3 for sensors | Always | 0 V | — |

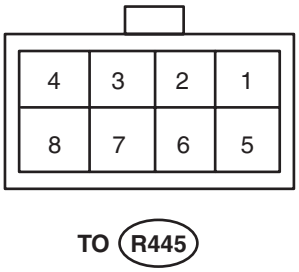
## 2. DRIVE MOTOR CONTROL MODULE (DMCM)




| Terminal No. (terminal symbol) | Item | Measuring condition | Measurement value | Note |
|---|---|---|---|---|
| (R443) No. 1 | (Not used) | — | — | — |
| (R443) No. 2 | HEVCAN H | — | Cannot be measured | CAN communication line |
| (R443) No. 3 | CT W | When ignition switch is ON | 2.45 — 2.55 V | — |
| (R443) No. 4 | (Not used) | — | — | — |
| (R443) No. 5 | CT V | When ignition switch is ON | 2.45 — 2.55 V | — |
| (R443) No. 6 | SVCC2 | When ignition switch is ON | 4.9 — 5.1 V | — |
| (R443) No. 7 | CT U | When ignition switch is ON | 2.45 — 2.55 V | — |
| (R443) No. 8 | SVCC1 | When ignition switch is ON | 4.9 — 5.1 V | — |
| (R443) No. 9 | (Not used) | — | — | — |
| (R443) No. 10 | IG | When ignition switch is ON | 11 — 15 V | — |
| (R443) No. 11 | SS RY | When ignition switch is ON | 0 V | — |
| (R443) No. 12 | GND1 | Always | 0 V | — |
| (R443) No. 13 | IG SS1 | When ignition switch is ON | 11 — 15 V | — |
| (R443) No. 14 | (Not used) | — | — | — |
| (R443) No. 15 | HEVCAN L | — | Cannot be measured | CAN communication line |
| (R443) No. 16 | (Not used) | — | — | — |
| (R443) No. 17 | SGND2 | When ignition switch is ON | 0 V | — |
| (R443) No. 18 | SGND1 | When ignition switch is ON | 0 V | — |
| (R443) No. 19 | SCIMOCO | — | Cannot be measured | SCI communication line |
| (R443) No. 20 | SCICOMO | — | Cannot be measured | SCI communication line |
| (R443) No. 21 | FANPIN | When ignition switch is ON | 11 — 15 V | — |
| (R443) No. 22 | FANPOUT | When ignition switch is ON | 11 — 15 V | — |
| (R443) No. 23 | (Not used) | — | — | — |
| (R443) No. 24 | IPUPWR RY | When ignition switch is ON | 0 V | — |
| (R443) No. 25 | GND2 | Always | 0 V | — |
| (R443) No. 26 | IG SS2 | When ignition switch is ON | 11 — 15 V | — |
| (R442) No. 1 | UN | — | Cannot be measured | — |
| (R442) No. 2 | UP | — | Cannot be measured | — |
| (R442) No. 3 | TMP B | When ignition switch is ON | 0.23 V — 4.6 V | — |
| (R442) No. 4 | TMP A | When ignition switch is ON | 0.23 V — 4.6 V | — |

| Terminal No. (terminal symbol) | Item | Measuring condition | Measurement value | Note |
|---|---|---|---|---|
| (R442) No. 5 | AGND1 | Always | 0 V | — |
| (R442) No. 6 | R1 | — | Cannot be measured | — |
| (R442) No. 7 | S4 | — | Cannot be measured | — |
| (R442) No. 8 | S3 | — | Cannot be measured | — |
| (R442) No. 9 | S2 | — | Cannot be measured | — |
| (R442) No. 10 | S1 | — | Cannot be measured | — |
| (R442) No. 11 | (Not used) | — | — | — |
| (R442) No. 12 | WN | — | Cannot be measured | — |
| (R442) No. 13 | WP | — | Cannot be measured | — |
| (R442) No. 14 | VN | — | Cannot be measured | — |
| (R442) No. 15 | VP | — | Cannot be measured | — |
| (R442) No. 16 | (Not used) | — | — | — |
| (R442) No. 17 | R2 | — | Cannot be measured | — |
| (R442) No. 18 | (Not used) | — | — | — |
| (R442) No. 19 | (Not used) | — | — | — |
| (R442) No. 20 | (Not used) | — | — | — |
| (R442) No. 21 | (Not used) | — | — | — |
| (R442) No. 22 | SCIIPU | — | Cannot be measured | SCI communication line |

## 3. HIGH VOLTAGE BATTERY




HEV00082

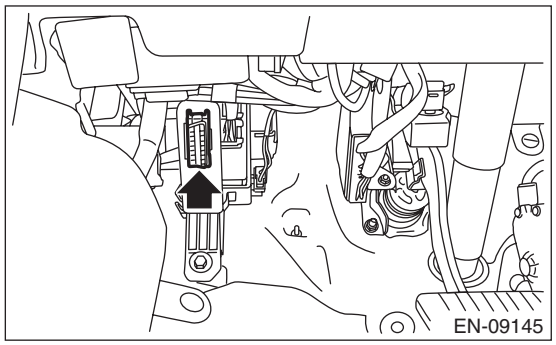
| Terminal No. (terminal symbol) | Item | Measuring condition | Measurement value | Note |
|---|---|---|---|---|
| (R445) No. 1 | Main power supply 1 | Always | 11 — 15 V | — |
| (R445) No. 2 | HEVCAN H | — | Cannot be measured | CAN communication line |
| (R445) No. 3 | HEVCAN L | — | Cannot be measured | CAN communication line |
| (R445) No. 4 | GND | Always | 0 V | — |
| (R445) No. 5 | Main power supply 2 | Always | 11 — 15 V | — |
| (R445) No. 6 | IG power supply | When ignition switch is ON | 11 — 15 V | — |
| (R445) No. 7 | (Not used) | — | — | — |
| (R445) No. 8 | GND | Always | 0 V | — |

# 6. General Scan Tool

## A: OPERATION

### 1. HOW TO USE GENERAL SCAN TOOL

1) Prepare a scan tool (general scan tool) required by SAE J1978.
2) Connect the general scan tool to data link connector located in the lower portion of the instrument panel (on the driver's side).




3) Using the general scan tool, call up each data. General scan tool functions consist of:
   (1) MODE $01: Current diagnostic data
   (2) MODE $02: Freeze frame data
   (3) MODE $03: Emission-related DTC
   (4) MODE $04: Clear/Reset emission-related diagnostic information
   (5) MODE $07: Request on-board monitoring test results for continuously monitored systems
   (6) MODE $09: Request vehicle information
   (7) MODE $0A: Emission-related DTC (with Permanent Status)
4) Read out the data according to repair procedures. (For detailed operation procedures, refer to the general scan tool operation manual.)

NOTE:
For details concerning DTC, refer to "List of Diagnostic Trouble Code (DTC)". <Ref. to HEV(diag)-74, List of Diagnostic Trouble Code (DTC).>

## 2. MODE $01: (CURRENT DIAGNOSTIC DATA)

Refer to data denoting the current operating condition of analog input/output, digital input/output or the powertrain system.
A list of the support data and PID (Parameter Identification) codes are shown in the following table.

- Hybrid powertrain control system

| PID | Data | Unit of measure |
|---|---|---|
| $01 | Number of emission-related DTC, and malfunction indicator light status and diagnosis support information | — |
| $51 | Fuel used at present | — |

- Drive motor control system

| PID | Data | Unit of measure |
|---|---|---|
| $01 | Number of emission-related DTC, and malfunction indicator light status and diagnosis support information | — |

- Battery energy control system

| PID | Data | Unit of measure |
|---|---|---|
| $01 | Number of emission-related DTC, and malfunction indicator light status and diagnosis support information | — |
| $5B | Hybrid/EV battery pack level | % |

NOTE:
Refer to general scan tool manufacturer's operation manual to access current diagnostic data (MODE $01).

## 3. MODE $02 (FREEZE FRAME DATA)

Refer to data denoting the operating condition when trouble is detected by on-board diagnosis system.
A list of the support data and PID (Parameter Identification) codes are shown in the following table.

- Hybrid powertrain control system

| PID | Data | Unit of measure |
|---|---|---|
| $02 | DTC that caused freeze frame data to be stored | — |
| $51 | Fuel used at present | — |

- Battery energy control system

| PID | Data | Unit of measure |
|---|---|---|
| $02 | DTC that caused freeze frame data to be stored | — |
| $5B | Hybrid/EV battery pack level | % |

NOTE:
Refer to general scan tool manufacturer's instruction manual to access current freeze frame data (MODE $02).

### 4. MODE $03 (EMISSION-RELATED DTC)

Refer to “List of Diagnostic Trouble Code (DTC)” for information about data denoting emission-related DTC. <Ref. to HEV(diag)-74, List of Diagnostic Trouble Code (DTC).>

### 5. MODE $04 (CLEAR/RESET EMISSION-RELATED DIAGNOSTIC INFORMATION)

Refer to the mode used to clear or reset emission-related diagnostic information.

NOTE:
Refer to general scan tool manufacturer’s instruction manual to clear the emission-related diagnostic information (MODE $04).

### 6. MODE $07 (REQUEST ON-BOARD MONITORING TEST RESULTS FOR CONTINUOUSLY MONITORED SYSTEMS)

Refer to the data of DTC (pending code) for troubleshooting result about emission in the first time.

### 7. MODE $09 (REQUEST VEHICLE INFORMATION)

Refer to the data of the vehicle specification.

### 8. MODE $0A (EMISSION-RELATED DTC (WITH PERMANENT STATUS))

Refer to “List of Diagnostic Trouble Code (DTC)” for information about data denoting emission-related DTC. <Ref. to HEV(diag)-74, List of Diagnostic Trouble Code (DTC).>

# 7. Subaru Select Monitor

## A: OPERATION

- For detailed operation procedures, refer to “PC application help for Subaru Select Monitor”.
- When communication with Subaru Select Monitor is not established, perform “COMMUNICATION FOR INITIALIZING IMPOSSIBLE”. <Ref. to HEV(diag)-18, COMMUNICATION FOR INITIALIZING IMPOSSIBLE, Subaru Select Monitor.>

## B: COMMUNICATION FOR INITIALIZING IMPOSSIBLE

Subaru Select Monitor communication line is open or shorted.

### 1. HYBRID POWERTRAIN CONTROL SYSTEM

**DIAGNOSIS:**

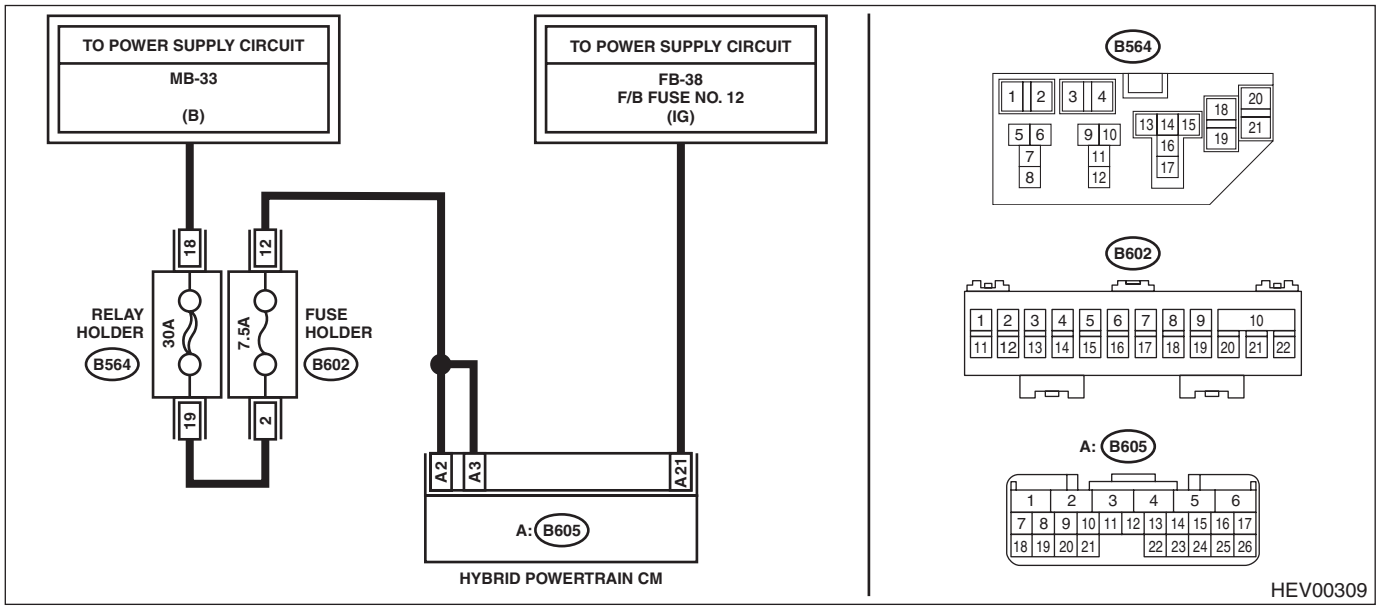
- Defective harness
- Power supply circuit malfunction
- Defective HPCM
- Defective CAN communication circuit
- Defective Subaru Select Monitor

**TROUBLE SYMPTOM:**

Not communicable with Subaru Select Monitor.

**WIRING DIAGRAM:**

Hybrid system <Ref. to WI(HEV)-140, WIRING DIAGRAM, Hybrid Electric Vehicle System.>




| Step | | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK FUSE.**<br>Check HPCM fuse. <Ref. to HEV-12, Relay and Fuse.> | Is the condition normal? | Go to step **2**. | Replace the fuse. When the replaced fuse is blown immediately, repair ground short circuit of harness between 12 volt auxiliary battery and HPCM. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 2 | **CHECK HARNESS.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the HPCM connector.<br>3) Turn the ignition switch to ON.<br>4) Using a tester, measure the voltage between the HPCM connector and chassis ground.<br>***Connector & terminal***<br>***(B605) No. 2 (+) — Chassis ground (–):***<br>***(B605) No. 3 (+) — Chassis ground (–):***<br>***(B605) No. 21 (+) — Chassis ground (–):*** | Is the voltage 10 — 13 V? | Go to step **3**. | Repair the open circuit of the harness between the HPCM connector and the fuse. |
| 3 | **CHECK OTHER COMMUNICATION.**<br>Communicate with the system other than the hybrid powertrain control module using the Subaru Select Monitor. | Is the communication to other control module possible? | Go to step **4**. | Perform the "Communication for Initializing Impossible" of LAN system. <Ref. to LAN(HEV)(diag)-10, COMMUNICATION FOR INITIALIZING IMPOSSIBLE, Subaru Select Monitor.> |
| 4 | **CHECK LAN SYSTEM.**<br>Inspect LAN system. <Ref. to LAN(HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.> | Is there any fault? | Perform the inspection according to the diagnosis for LAN system. | Go to step **5**. |
| 5 | **CHECK HPCM.**<br>1) Turn the ignition switch to OFF.<br>2) Connect the HPCM connector.<br>3) Communicate with the hybrid powertrain control system using the Subaru Select Monitor. | Is communication possible? | It is possible that temporary poor communication occurs. | Replace the HPCM. <Ref. to HEV-37, Hybrid Powertrain Control Module.> |

## 2. DRIVE MOTOR CONTROL SYSTEM

**DIAGNOSIS:**

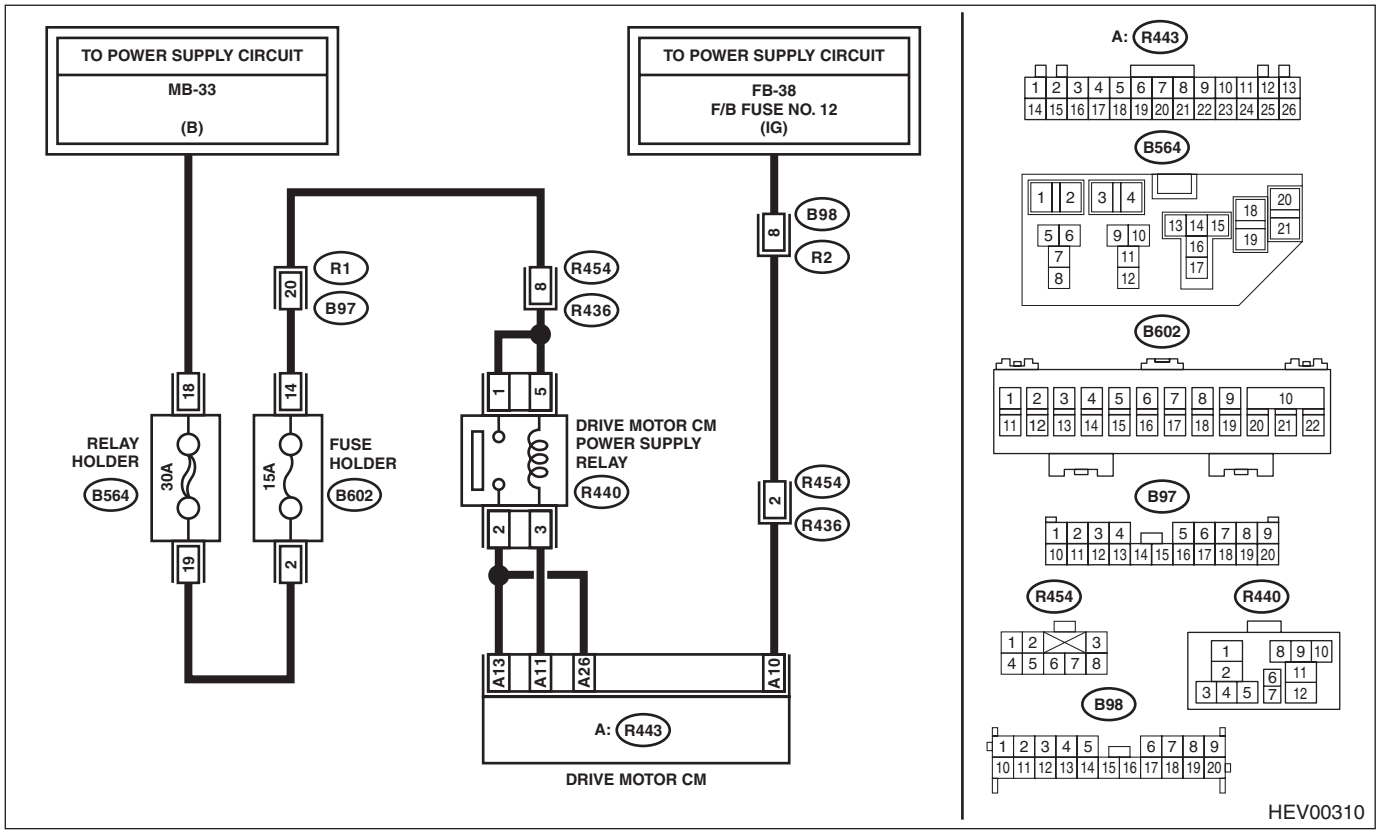
- Defective harness
- Power supply circuit malfunction
- Defective DMCM
- Defective CAN communication circuit
- Defective Subaru Select Monitor

**TROUBLE SYMPTOM:**

Not communicable with Subaru Select Monitor.

**WIRING DIAGRAM:**

Hybrid system <Ref. to WI(HEV)-140, WIRING DIAGRAM, Hybrid Electric Vehicle System.>




| Step | | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK FUSE.**<br>Check DMCM fuse. <Ref. to HEV-12, Relay and Fuse.> | Is the condition normal? | Go to step **2**. | Replace the fuse. When the replaced fuse is blown immediately, repair ground short circuit of harness between 12 volt auxiliary battery and HPCM. |
| 2 | **CHECK HARNESS.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the DMCM connector.<br>3) Turn the ignition switch to ON.<br>4) Using a tester, measure the voltage between the DMCM connector and chassis ground.<br>***Connector & terminal***<br>***(B443) No. 11 (+) — Chassis ground (–):***<br>***(B443) No. 10 (+) — Chassis ground (–):*** | Is the voltage 10 — 13 V? | Go to step **3**. | Repair the open circuit of the harness between the DMCM connector and the fuse. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 3 | **CHECK OTHER COMMUNICATION.**<br>Communicate with the system other than the drive motor control system using the Subaru Select Monitor. | Is the communication to other control module possible? | Go to step **4**. | Perform the "Communication for Initializing Impossible" of LAN system. <Ref. to LAN(HEV)(diag)-10, COMMUNICATION FOR INITIALIZING IMPOSSIBLE, Subaru Select Monitor.> |
| 4 | **CHECK LAN SYSTEM.**<br>Inspect LAN system. <Ref. to LAN(HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.> | Is there any fault? | Perform the inspection according to the diagnosis for LAN system. | Go to step **5**. |
| 5 | **CHECK DMCM.**<br>1) Turn the ignition switch to OFF.<br>2) Connect the DMCM connector.<br>3) Communicate with the drive motor control system using the Subaru Select Monitor. | Is communication possible? | It is possible that temporary poor communication occurs. | Replace DMCM. <Ref. to CVT(TH58A)-157, Drive Motor Control Module.> |

## 3. BATTERY ENERGY CONTROL SYSTEM

**DIAGNOSIS:**

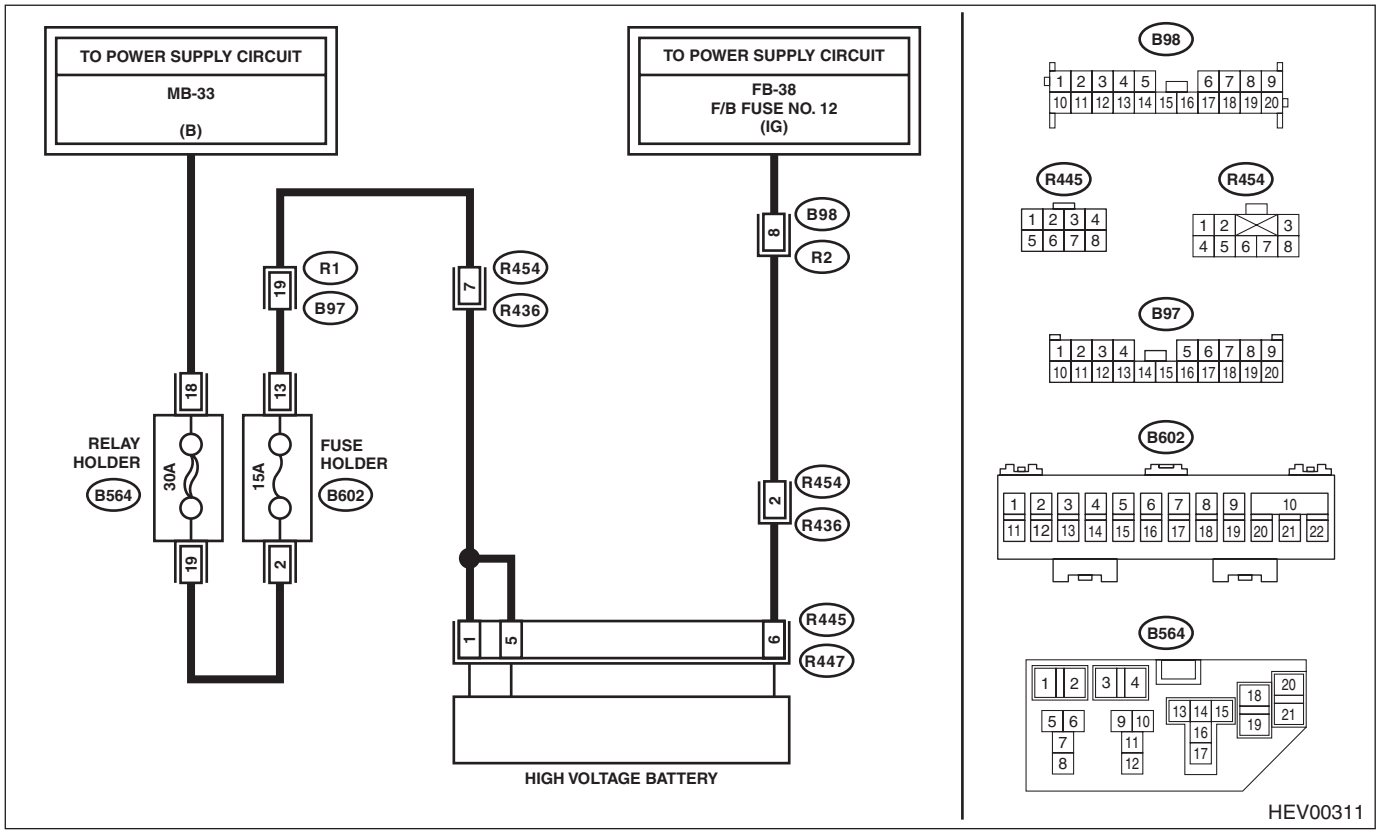
- Defective harness
- Power supply circuit malfunction
- Defective high voltage battery
- Defective CAN communication circuit
- Defective Subaru Select Monitor

**TROUBLE SYMPTOM:**

Not communicable with Subaru Select Monitor.

**WIRING DIAGRAM:**

Hybrid system <Ref. to WI(HEV)-140, WIRING DIAGRAM, Hybrid Electric Vehicle System.>




| Step | | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK FUSE.**<br>Check High voltage battery fuse. <Ref. to HEV-12, Relay and Fuse.> | Is the condition normal? | Go to step **2**. | Replace the fuse. When the replaced fuse is blown immediately, repair ground short circuit of harness between 12 volt auxiliary battery and the high voltage battery. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 2 | **CHECK HARNESS.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the high voltage battery connector.<br>3) Turn the ignition switch to ON.<br>4) Using a tester, measure the voltage between the BECM connector and chassis ground.<br>***Connector & terminal***<br>***(B445) No. 6 (+) — Chassis ground (–):***<br>***(B445) No. 1 (+) — Chassis ground (–):***<br>***(B445) No. 5 (+) — Chassis ground (–):*** | Is the voltage 10 — 13 V? | Go to step **3**. | Repair the open circuit of the harness between the high voltage battery connector and the fuse. |
| 3 | **CHECK OTHER COMMUNICATION.**<br>Communicate with the system other than the battery energy control system using the Subaru Select Monitor. | Is the communication to other control module possible? | Go to step **4**. | Perform the “Communication for Initializing Impossible” of LAN system. |
| 4 | **CHECK LAN SYSTEM.**<br>Inspect LAN system. <Ref. to LAN(HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.> | Is there any fault? | Perform the inspection according to the diagnosis for LAN system. | Go to step **5**. |
| 5 | **CHECK HIGH VOLTAGE BATTERY.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the high voltage battery connector.<br>3) Connect the disconnected connectors.<br>4) Communicate with the battery energy control system using the Subaru Select Monitor. | Is communication possible? | It is possible that temporary poor communication occurs. | Replace the high voltage battery. <Ref. to HEV-17, High Voltage Battery.> |

# 8. Read Diagnostic Trouble Code (DTC)

## A: OPERATION

- For detailed operation procedures, refer to “PC application help for Subaru Select Monitor”.
- For details concerning DTC, refer to “List of Diagnostic Trouble Code (DTC)”. <Ref. to HEV(diag)-74, List of Diagnostic Trouble Code (DTC).>

### 1. HYBRID POWERTRAIN CONTROL SYSTEM

1) On «Main Menu» display, select {Each System Check}.
2) On «Each System Check» display, select {HEV System}.
3) On «HEV System» display, select {Hybrid Powertrain Control System}.
4) Select the {Diagnostic Code(s) Display} in «Hybrid Powertrain Control System» display.

### 2. DRIVE MOTOR CONTROL SYSTEM

1) On «Main Menu» display, select {Each System Check}.
2) On «Each System Check» display, select {HEV System}.
3) On «HEV System» display, select {Drive Motor Control System}.
4) Select the {Diagnostic Code(s) Display} in «Drive Motor Control System» display.

### 3. BATTERY ENERGY CONTROL SYSTEM

1) On «Main Menu» display, select {Each System Check}.
2) On «Each System Check» display, select {HEV System}.
3) On «HEV System» display, select {Battery Energy Control System}.
4) Select the {Diagnostic Code(s) Display} in «Battery Energy Control System» display.

# 9. Clear Memory Mode

## A: OPERATION

For detailed operation procedures, refer to “PC application help for Subaru Select Monitor”.

### 1. HYBRID POWERTRAIN CONTROL SYSTEM

NOTE:
After memory is cleared, turn the ignition switch to OFF, and wait for 30 seconds or more before turning the ignition switch to ON.
1) On «Main Menu» display, select {Each System Check}.
2) On «Each System Check» display, select {HEV System}.
3) On «HEV System» display, select {Hybrid Powertrain Control System}.
4) On «Hybrid Powertrain Control System» display, select {Clear Memory}.

### 2. DRIVE MOTOR CONTROL SYSTEM

1) On «Main Menu» display, select {Each System Check}.
2) On «Each System Check» display, select {HEV System}.
3) On «HEV System» display, select {Drive Motor Control System}.
4) On «Drive Motor Control System» display, select {Clear Memory}.

### 3. BATTERY ENERGY CONTROL SYSTEM

1) On «Main Menu» display, select {Each System Check}.
2) On «Each System Check» display, select {HEV System}.
3) On «HEV System» display, select {Battery Energy Control System}.
4) On «Battery Energy Control System» display, select {Clear Memory}.

# 10.All Readiness Diagnostic Code(s)

## A: OPERATION

NOTE:
• “Readiness code” denotes a self-diagnosis state in relation to DTC in each control module.
The DTCs displayed here are either not yet self-diagnosed or self-diagnosed but not completed. They will disappear once are diagnosed as normal or abnormal.
• When a diagnostic trouble code is set and the problem is addressed, the readiness code is used to check whether the repair has been properly completed.
When Clear Memory Mode is run after the repair, either Inspection Mode <Ref. to HEV(diag)-27, Inspection Mode.> or the drive cycle <Ref. to HEV(diag)-32, Drive Cycle.> is run against the concerned diagnostic trouble code (DTC), then the readiness code is checked. If the DTC is not displayed, the self-diagnosis for the DTC is considered complete.
Following this, the DTC is read. If the concerned DTC is not set as a current malfunction, the repair is considered complete.
• For detailed operation procedures, refer to “PC application help for Subaru Select Monitor”.
• Sometimes after the self-diagnosis is complete and the readiness code disappears, cycling the ignition switch OFF then ON may cause the readiness code reappear. This happens because the self-diagnosis for each DTC is run every time the ignition switch is turned ON.

### 1. HYBRID POWERTRAIN CONTROL SYSTEM

1) On «Main Menu» display, select {Each System Check}.
2) On «Each System Check» display, select {HEV System}.
3) On «HEV System» display, select {Hybrid Powertrain Control System}.
4) Select the {Diagnostic Code(s) Display} in «Hybrid Powertrain Control System» display.
5) Select the {Readiness code} in «Diagnostic Code(s) Display» display.

### 2. DRIVE MOTOR CONTROL SYSTEM

1) On «Main Menu» display, select {Each System Check}.
2) On «Each System Check» display, select {HEV System}.
3) On «HEV System» display, select {Drive Motor Control System}.
4) Select the {Diagnostic Code(s) Display} in «Drive Motor Control System» display.
5) Select the {Readiness code} in «Diagnostic Code(s) Display» display.

### 3. BATTERY ENERGY CONTROL SYSTEM

1) On «Main Menu» display, select {Each System Check}.
2) On «Each System Check» display, select {HEV System}.
3) On «HEV System» display, select {Battery Energy Control System}.
4) Select the {Diagnostic Code(s) Display} in «Battery Energy Control System» display.
5) Select the {Readiness code} in «Diagnostic Code(s) Display» display.

# 11.Inspection Mode

## A: PROCEDURE

Perform the diagnosis shown in the following DTC table.
When performing the diagnosis not listed in “List of Diagnostic Trouble Code (DTC)”, refer to the item on the drive cycle. <Ref. to HEV(diag)-32, Drive Cycle.>

- Hybrid powertrain control system

| DTC | Item | Condition |
|---|---|---|
| P0516 | Battery Temperature Sensor Circuit Low | — |
| P0517 | Battery Temperature Sensor Circuit High | — |
| P0556 | Brake Booster Pressure Sensor Circuit Range/Performance | After idling the engine, depress ←→ release the brake pedal. |
| P0572 | Brake Switch "A" [Stop Lamp Switch] Circuit Low | After idling the engine, depress ←→ release the brake pedal. |
| P0573 | Brake Switch "A" [Stop Lamp Switch] Circuit High | After idling the engine, depress ←→ release the brake pedal. |
| P057B | Brake Pedal Position Sensor Circuit Range/Performance | After idling the engine, depress ←→ release the brake pedal. |
| P057C | Brake Pedal Position Sensor Circuit Low | — |
| P057D | Brake Pedal Position Sensor Circuit High | — |
| P058D | Battery Monitor Module Voltage Monitoring Performance | — |
| P05DD | Brake Pedal Position Sensor "B" Circuit Low | — |
| P05DE | Brake Pedal Position Sensor "B" Circuit High | — |
| P0604 | Internal Control Module Random Access Memory (RAM) Error | — |
| P0605 | Internal Control Module Read Only Memory (ROM) Error | — |
| P0719 | Brake Switch "B" Circuit Low | After idling the engine, depress ←→ release the brake pedal. |
| P0724 | Brake Switch "B" Circuit High | After idling the engine, depress ←→ release the brake pedal. |
| P0A1D | Hybrid Powertrain Control Module | — |
| P1C00 | Battery "2" Monitor Module Performance | — |
| P1C04 | Output Clutch Linear Solenoid Control Circuit Low | After idling the engine, turn off the ignition switch and read the readiness code. (This is because the diagnosis is performed when the ignition switch is off.) |
| P1C05 | Output Clutch Linear Solenoid Control Circuit High | After idling the engine, turn off the ignition switch and read the readiness code. (This is because the diagnosis is performed when the ignition switch is off.) |
| P1C11 | Vacuum Pump Supply Voltage Low | — |
| P1C12 | Vacuum Pump Supply Voltage High | — |
| P1C14 | Generator Performance | — |
| P1C1E | Autodisconnect Experience | Inspection is not possible. (Inspection using drive cycle is not possible either.) |
| U0073 | Control Module Communication Bus Off | — |
| U0075 | Control Module Communication Bus "PU-CAN" Off | — |
| U0076 | Control Module Communication Bus "HEV-CAN" Off | — |
| U0100 | Lost Communication With ECM/PCM “A” | — |
| U0101 | Lost Communication With TCM | — |
| U0110 | Lost Communication With Drive Motor Control Module "A" | — |
| U0111 | Lost Communication With Battery Energy Control Module | — |
| U0122 | Lost Communication With Vehicle Dynamics Control Module | — |
| U0131 | Lost Communication With Power Steering Control Module | — |

| DTC | Item | Condition |
|---|---|---|
| U0140 | Lost Communication With Body Control Module | — |
| U0151 | Lost Communication With Restraints Control Module | — |
| U0155 | Lost Communication With Instrument Panel Cluster (IPC) Control Module | — |
| U0164 | Lost Communication With HVAC Control Module | — |
| U0287 | Lost Communication With Transmission Fluid Pump Module | — |
| U0401 | Invalid Data Received From ECM/PCM “A” | — |
| U0402 | Invalid Data Received From TCM | — |
| U0411 | Invalid Data Received From Drive Motor Control Module "A" | — |
| U0412 | Invalid Data Received From Battery Energy Control Module | — |
| U0416 | Invalid Data Received From Vehicle Dynamics Control Module | — |
| U0420 | Invalid Data Received From Power Steering Control Module | — |
| U0422 | Invalid Data Received From Body Control Module | — |
| U0423 | Invalid Data Received From Instrument Panel Cluster Control Module | — |
| U0424 | Invalid Data Received From HVAC Control Module | — |
| U0452 | Invalid Data Received From Restraints Control Module | — |
| U0588 | Invalid Data Received From Transmission Fluid Pump Module | — |
| U1100 | Lost Communication With ECM/PCM PU-CAN | — |
| U1101 | Lost Communication With TCM PU-CAN | — |
| U1401 | Invalid Data Received From ECM/PCM PU-CAN | — |
| U1402 | Invalid Data Received From TCM PU-CAN | — |
| U1676 | LIN Communication Bus Error Hybrid Powertrain Control Module | — |
| U1711 | Lost Communication With Battery "2" Monitor Module | — |
| U1720 | Lost Communication With Integrated Starter Generator | — |

- Drive motor control system

| DTC | Item | Condition |
|---|---|---|
| P0604 | Internal Control Module Random Access Memory (RAM) Error | — |
| P0605 | Internal Control Module Read Only Memory (ROM) Error | — |
| P06B1 | Sensor Power Supply "A" Circuit Low | — |
| P06B2 | Sensor Power Supply "A" Circuit High | — |
| P0A1B | Drive Motor "A" Control Module | — |
| P0A2C | Drive Motor "A" Temperature Sensor Circuit Low | — |
| P0A2D | Drive Motor "A" Temperature Sensor Circuit High | — |
| P0A3C | Drive Motor "A" Inverter Over Temperature | — |
| P0A40 | Drive Motor "A" Position Sensor Circuit Range/Performance | — |
| P0A43 | Drive Motor "A" Position Sensor Circuit Intermittent | — |
| P0A44 | Drive Motor "A" Position Sensor Circuit Overspeed | — |
| P0A94 | DC/DC Converter Performance | — |
| P0AED | Drive Motor Inverter Temperature Sensor "A" Circuit | — |
| P0AF2 | Drive Motor Inverter Temperature Sensor "B" Circuit | — |
| P0BD1 | Drive Motor Inverter Temperature Sensor "C" Circuit | — |
| P0BE6 | Drive Motor "A" Phase U Current Sensor Circuit Range/Performance | — |
| P0BE7 | Drive Motor "A" Phase U Current Sensor Circuit Low | — |
| P0BE8 | Drive Motor "A" Phase U Current Sensor Circuit High | — |
| P0BEA | Drive Motor "A" Phase V Current Sensor Circuit Range/Performance | — |
| P0BEB | Drive Motor "A" Phase V Current Sensor Circuit Low | — |
| P0BEC | Drive Motor "A" Phase V Current Sensor Circuit High | — |
| P0BEE | Drive Motor "A" Phase W Current Sensor Circuit Range/Performance | — |
| P0BEF | Drive Motor "A" Phase W Current Sensor Circuit Low | — |
| P0BF0 | Drive Motor "A" Phase W Current Sensor Circuit High | — |
| P0BFD | Drive Motor "A" Phase U-V-W Current Sensor Correlation | — |
| P0C0C | Drive Motor "A" Inverter Power Supply Circuit Low | — |
| P0C0D | Drive Motor "A" Inverter Power Supply Circuit High | — |
| P0C52 | Drive Motor "A" Position Sensor Circuit "A" Low | — |
| P0C5C | Drive Motor "A" Position Sensor Circuit "B" Low | — |
| P0C79 | Drive Motor "A" Inverter Voltage Too High | — |
| P0CDC | Drive Motor "A" Position Sensor Circuit "C" Low | — |
| P0CDD | Drive Motor "A" Position Sensor Circuit "C" High | — |
| P0DA8 | Hybrid/Ev Battery Voltage/Drive Motor "A" Inverter Voltage Correlation | — |
| P1C20 | Drive Motor "A" Inverter Voltage Too Low | — |
| P1C22 | 12V Auxiliary Battery Voltage Too Low | — |
| P1C25 | Drive Motor "B" Temperature Sensor Circuit Low | — |
| P1C26 | Drive Motor "B" Temperature Sensor Circuit High | — |
| P1C30 | Lost Communication With Drive Motor Inverter | — |
| P1C31 | Invalid Data Received From Drive Motor Inverter | — |
| P1C34 | Lost Communication With DC/DC Converter | — |
| P1C35 | Invalid Data Received From DC/DC Converter | — |
| U0076 | Control Module Communication Bus "HEV-CAN" Off | — |
| U0111 | Lost Communication With Battery Energy Control Module | — |
| U0412 | Invalid Data Received From Battery Energy Control Module | — |
| U1290 | Lost Communication With Hybrid Powertrain Control Module HEV-CAN | — |
| U1591 | Invalid Data Received From Hybrid Powertrain Control Module HEV-CAN | — |

- Battery energy control system

| DTC | Item | Condition |
|---|---|---|
| P0604 | Internal Control Module Random Access Memory (RAM) Error | — |
| P0605 | Internal Control Module Read Only Memory (ROM) Error | — |
| P062F | Internal Control Module EEPROM Error | — |
| P0A1F | Battery Energy Control Module | — |
| P0A7D | Hybrid Battery Pack State of Charge Low | — |
| P0A7E | Hybrid Battery Pack Over Temperature | — |
| P0A95 | High Voltage Fuse | — |
| P0A9C | Hybrid Battery Temperature Sensor "A" Circuit Range/Performance | — |
| P0A9D | Hybrid Battery Temperature Sensor "A" Circuit Low | — |
| P0A9E | Hybrid Battery Temperature Sensor "A" Circuit High | — |
| P0AA4 | Hybrid Battery Negative Contactor Circuit Stuck Closed | — |
| P0AA7 | Hybrid Battery Voltage System Isolation Sensor Circuit | — |
| P0AAE | Hybrid Battery Pack Air Temperature Sensor "A" Circuit Low | — |
| P0AAF | Hybrid Battery Pack Air Temperature Sensor "A" Circuit High | — |
| P0AC0 | Hybrid Battery Pack Current Sensor "A" Circuit Range/Performance | — |
| P0AC1 | Hybrid Battery Pack Current Sensor "A" Circuit Low | — |
| P0AC2 | Hybrid Battery Pack Current Sensor "A" Circuit High | — |
| P0AC3 | Hybrid Battery Pack Current Sensor "A" Circuit Intermittent/Erratic | — |
| P0AC6 | Hybrid Battery Temperature Sensor "B" Circuit Range/Performance | — |
| P0AC7 | Hybrid Battery Temperature Sensor "B" Circuit Low | — |
| P0AC8 | Hybrid Battery Temperature Sensor "B" Circuit High | — |
| P0ACB | Hybrid Battery Temperature Sensor "C" Circuit Range/Performance | — |
| P0ACC | Hybrid Battery Temperature Sensor "C" Circuit Low | — |
| P0ACD | Hybrid Battery Temperature Sensor "C" Circuit High | — |
| P0AD9 | Hybrid Battery Positive Contactor Control Circuit/Open | — |
| P0ADB | Hybrid Battery Positive Contactor Control Circuit Low | — |
| P0ADD | Hybrid Battery Negative Contactor Control Circuit/Open | — |
| P0ADF | Hybrid Battery Negative Contactor Control Circuit Low | — |
| P0AE4 | Hybrid Battery Precharge Contactor Control Circuit | — |
| P0AE6 | Hybrid Battery Precharge Contactor Control Circuit Low | — |
| P0B25 | Hybrid Battery "A" Voltage Low | — |
| P0B26 | Hybrid Battery "A" Voltage High | — |
| P0B37 | High Voltage Service Disconnect Open | — |
| P0B3C | Hybrid Battery Voltage Sense "A" Circuit Range/Performance | — |
| P0B3D | Hybrid Battery Voltage Sense "A" Circuit Low | — |
| P0B3E | Hybrid Battery Voltage Sense "A" Circuit High | — |
| P0B41 | Hybrid Battery Voltage Sense "B" Circuit Range/Performance | — |
| P0B42 | Hybrid Battery Voltage Sense "B" Circuit Low | — |
| P0B43 | Hybrid Battery Voltage Sense "B" Circuit High | — |
| P0B46 | Hybrid Battery Voltage Sense "C" Circuit Range/Performance | — |
| P0B47 | Hybrid Battery Voltage Sense "C" Circuit Low | — |
| P0B48 | Hybrid Battery Voltage Sense "C" Circuit High | — |
| P0B4A | Hybrid Battery Voltage Sense "D" Circuit | — |
| P0B4B | Hybrid Battery Voltage Sense "D" Circuit Range/Performance | — |
| P0B4C | Hybrid Battery Voltage Sense "D" Circuit Low | — |
| P0B4D | Hybrid Battery Voltage Sense "D" Circuit High | — |
| P0B50 | Hybrid Battery Voltage Sense "E" Circuit Range/Performance | — |
| P0B51 | Hybrid Battery Voltage Sense "E" Circuit Low | — |
| P0B52 | Hybrid Battery Voltage Sense "E" Circuit High | — |

| DTC | Item | Condition |
|---|---|---|
| P0B55 | Hybrid Battery Voltage Sense "F" Circuit Range/Performance | — |
| P0B56 | Hybrid Battery Voltage Sense "F" Circuit Low | — |
| P0B57 | Hybrid Battery Voltage Sense "F" Circuit High | — |
| P0B5A | Hybrid Battery Voltage Sense "G" Circuit Range/Performance | — |
| P0B5B | Hybrid Battery Voltage Sense "G" Circuit Low | — |
| P0B5C | Hybrid Battery Voltage Sense "G" Circuit High | — |
| P0BB8 | Hybrid Battery Voltage Sense "Z" Circuit | — |
| P0C78 | Hybrid Battery System Precharge Time Too Long | — |
| P0CA6 | Hybrid Battery Charging Current High | — |
| P0CA7 | Hybrid Battery Discharging Current High | — |
| P1C40 | Hybrid Battery Positive Contactor or Pre-Charge Contactor Circuit Stuck Closed | After idling the engine, turn off the ignition switch and read the readiness code. (This is because the diagnosis is performed when the ignition switch is off.) |
| P1C41 | High Voltage Circuit Short | — |
| P1C42 | High Voltage Circuit Open | — |
| P1C43 | Hybrid Battery Contactor Power Supply Circuit | — |
| P1C44 | Sub CPU in BECM | — |
| P1C45 | Hybrid Battery Block 1 Balancing Performance | — |
| P1C46 | Hybrid Battery Block 2 Balancing Performance | — |
| P1C47 | Hybrid Battery Block 3 Balancing Performance | — |
| P1C48 | Hybrid Battery Block 4 Balancing Performance | — |
| P1C49 | Hybrid Battery Block 5 Balancing Performance | — |
| P1C4A | Hybrid Battery Block 6 Balancing Performance | — |
| P1C5E | Hybrid Battery Block Voltage Too Low | — |
| U0076 | Control Module Communication Bus "HEV-CAN" Off | — |
| U0110 | Lost Communication With Drive Motor Control Module "A" | — |
| U0411 | Invalid Data Received From Drive Motor Control Module "A" | — |
| U1290 | Lost Communication With Hybrid Powertrain Control Module HEV-CAN | — |
| U1591 | Invalid Data Received From Hybrid Powertrain Control Module HEV-CAN | — |

PROCEDURE
1) Check that the 12 volt auxiliary battery voltage is 12 V or more and fuel remains approx. half [20 — 40 L (5.3 — 10.6 US gal, 4.4 — 8.8 Imp gal)].
2) Perform the Clear Memory Mode. <Ref. to HEV(diag)-25, Clear Memory Mode.>
3) Read the DTC and check that the DTC is not displayed. <Ref. to HEV(diag)-24, Read Diagnostic Trouble Code (DTC).>

NOTE:
If the DTC is displayed on the screen, the trouble is still present. Perform the diagnosis according to DTC. <Ref. to HEV(diag)-74, List of Diagnostic Trouble Code (DTC).> After solving the DTC, repeat from step 2).
4) Start the engine, and run the engine at idle for 10 seconds or more.
5) Read the readiness code and check that the concerned DTC is not displayed. <Ref. to HEV(diag)-26, All Readiness Diagnostic Code(s).>

NOTE:
If the concerned DTC is displayed, the self-diagnosis of the DTC is not complete. Repeat from step 4).
6) Read the DTC and check that the DTC is not displayed. <Ref. to HEV(diag)-24, Read Diagnostic Trouble Code (DTC).>

NOTE:
If the DTC is displayed on the screen, the trouble is still present. Perform the diagnosis according to DTC. <Ref. to HEV(diag)-74, List of Diagnostic Trouble Code (DTC).> After solving the DTC, repeat from step 2).

# 12.Drive Cycle

## A: PROCEDURE

It is necessary to perform the drive cycle listed below if DTC is not found in the Inspection Mode. It is possible to complete diagnosis of the DTC by performing the indicated drive cycle. After the repair for the DTC, perform a necessary drive cycle and make sure the function recovers and the DTC is recorded.

### 1. PREPARATION FOR DRIVE CYCLE

1) Check that the 12 volt auxiliary battery voltage is 12 V or more and fuel remains approx. half [20 — 40 L (5.3 — 10.6 US gal, 4.4 — 8.8 Imp gal)].
2) Perform the Clear Memory Mode. <Ref. to HEV(diag)-25, Clear Memory Mode.>
3) Read the DTC and check that the DTC is not displayed. <Ref. to HEV(diag)-24, Read Diagnostic Trouble Code (DTC).>

NOTE:
• If the DTC is displayed on the screen, the trouble is still present. Perform the diagnosis according to DTC. <Ref. to HEV(diag)-74, List of Diagnostic Trouble Code (DTC).> After solving the DTC, repeat from step 2).
• Perform the drive cycle after warming up the engine except when any conditions such as oil temperature at starting are specified.

### 2. DRIVE CYCLE A

• Hybrid powertrain control system

| DTC | Item | Condition |
|---|---|---|
| P1C10 | Vacuum Pump Performance | In EV traveling, operate vacuum pump by performing drive cycle A. If the vacuum pressure is sufficient but the vacuum pump still does not operate, turn the ignition switch to ON, then run «Brake Vacuum Pump System Check» from the “System Operation Check Mode” of the hybrid powertrain control system. <Ref. to HEV(diag)-71, HYBRID POWERTRAIN CONTROL SYSTEM, OPERATION, System Operation Check Mode.> |
| P2158 | Vehicle Speed Sensor "B" | — |

- Drive motor control system

| DTC | Item | Condition |
|---|---|---|
| P0A2A | Drive Motor "A" Temperature Sensor Circuit | Setting the ignition switch to ON, confirm that current data of drive motor control system, the values of «Drive Motor Inverter Temperature A» «Drive Motor Inverter Temperature B» «Drive Motor Inverter Temperature C», and «High Voltage Battery Temperature (MIN)» are at 30°C (86°F) or more, run the engine at idling speed for 1 minute, then begin drive cycle A. <Ref. to HEV(diag)-52, DRIVE MOTOR CONTROL SYSTEM, OPERATION, Read Current Data.> |
| P0A3F | Drive Motor "A" Position Sensor Circuit | — |
| P0A5D | Drive Motor "A" Phase U Current | — |
| P0A60 | Drive Motor "A" Phase V Current | — |
| P0A63 | Drive Motor "A" Phase W Current | — |
| P0A78 | Drive Motor "A" Inverter Performance | — |
| P0C05 | Drive Motor "A" Phase U-V-W Circuit/Open | — |
| P1C24 | Drive Motor "B" Temperature Sensor Circuit | Setting the ignition switch to ON, confirm that current data of drive motor control system, the values of «Drive Motor Inverter Temperature A» «Drive Motor Inverter Temperature B» «Drive Motor Inverter Temperature C», and «High Voltage Battery Temperature (MIN)» are at 30°C (86°F) or more, run the engine at idling speed for 1 minute, then begin drive cycle A. <Ref. to HEV(diag)-52, DRIVE MOTOR CONTROL SYSTEM, OPERATION, Read Current Data.> |
| P1C2A | Drive Motor Inverter Circuit | — |

- Battery energy control system

| DTC | Item | Condition |
|---|---|---|
| U1591 | Invalid Data Received From Hybrid Powertrain Control Module HEV-CAN | — |

Diagnostic procedure:
1) Prepare for drive cycle. <Ref. to HEV(diag)-32, PREPARATION FOR DRIVE CYCLE, PROCEDURE, Drive Cycle.>
2) Drive at 10 km/h (6.2 MPH) or more.
3) Read the readiness code and check that the concerned DTC is not displayed. <Ref. to HEV(diag)-26, All Readiness Diagnostic Code(s).>

NOTE:
If the concerned DTC is displayed, the self-diagnosis of the DTC is not complete. Repeat from step 1).
4) Read the DTC and check that the DTC is not displayed. <Ref. to HEV(diag)-24, Read Diagnostic Trouble Code (DTC).>

NOTE:
If the DTC is displayed on the screen, the trouble is still present. Perform the diagnosis according to DTC. <Ref. to HEV(diag)-74, List of Diagnostic Trouble Code (DTC).> After repairing the cause of setting DTC, repeat from preparation for drive cycle. <Ref. to HEV(diag)-32, PREPARATION FOR DRIVE CYCLE, PROCEDURE, Drive Cycle.>

### 3. DRIVE CYCLE B

- Drive motor control system

| DTC | Item | Condition |
|---|---|---|
| P0A90 | Drive Motor "A" Performance | — |
| P0AEE | Drive Motor Inverter Temperature Sensor "A" Circuit Range/Performance | Setting the ignition switch to ON, confirm that current data of drive motor control system, the values of «Drive Motor Inverter Temperature A» «Drive Motor Inverter Temperature B» «Drive Motor Inverter Temperature C» are within 30 — 50°C (86 — 122°F) range, run the engine at idling speed for 5 minutes, then begin drive cycle B. <Ref. to HEV(diag)-52, DRIVE MOTOR CONTROL SYSTEM, OPERATION, Read Current Data.> |
| P0AF3 | Drive Motor Inverter Temperature Sensor "B" Circuit Range/Performance | Setting the ignition switch to ON, confirm that current data of drive motor control system, the values of «Drive Motor Inverter Temperature A» «Drive Motor Inverter Temperature B» «Drive Motor Inverter Temperature C» are within 30 — 50°C (86 — 122°F) range, run the engine at idling speed for 5 minutes, then begin drive cycle B. <Ref. to HEV(diag)-52, DRIVE MOTOR CONTROL SYSTEM, OPERATION, Read Current Data.> |
| P0BD2 | Drive Motor Inverter Temperature Sensor "C" Circuit Range/Performance | Setting the ignition switch to ON, confirm that current data of drive motor control system, the values of «Drive Motor Inverter Temperature A» «Drive Motor Inverter Temperature B» «Drive Motor Inverter Temperature C» are within 30 — 50°C (86 — 122°F) range, run the engine at idling speed for 5 minutes, then begin drive cycle B. <Ref. to HEV(diag)-52, DRIVE MOTOR CONTROL SYSTEM, OPERATION, Read Current Data.> |
| P1C27 | Drive Motor "A" and "B" Temperature Sensor Correlation | Setting the ignition switch to ON, confirm that current data of drive motor control system, the values of «Drive Motor Temperature A» «Drive Motor Temperature B» are within 30 — 50°C (86 — 122°F) range, run the engine at idling speed for 5 minutes, then begin drive cycle B. <Ref. to HEV(diag)-52, DRIVE MOTOR CONTROL SYSTEM, OPERATION, Read Current Data.> |

- Battery energy control system

| DTC | Item | Condition |
|---|---|---|
| P0A7F | Hybrid Battery Pack Deterioration | Confirm that current data of the battery energy control system, the value of «High Voltage Battery Temperature 1» «High Voltage Battery Temperature 2» «High Voltage Battery Temperature 3» are at 25°C (77°F) or more before running the drive cycle. <Ref. to HEV(diag)-58, BATTERY ENERGY CONTROL SYSTEM, OPERATION, Read Current Data.> |
| P0AA6 | Hybrid Battery Voltage System Isolation Fault | — |
| P0ABF | Hybrid Battery Pack Current Sensor "A" Circuit | Confirm that current data of the battery energy control system, the value of «High Voltage Battery Temperature 1» «High Voltage Battery Temperature 2» «High Voltage Battery Temperature 3» are at 25°C (77°F) or more before running the drive cycle. <Ref. to HEV(diag)-58, BATTERY ENERGY CONTROL SYSTEM, OPERATION, Read Current Data.> |

Diagnostic procedure:
1) Prepare for drive cycle. <Ref. to HEV(diag)-32, PREPARATION FOR DRIVE CYCLE, PROCEDURE, Drive Cycle.>
2) Drive for 10 minutes or more at a speed of 30 km/h (18.6 MPH) or more.
3) Read the readiness code and check that the concerned DTC is not displayed. <Ref. to HEV(diag)-26, All Readiness Diagnostic Code(s).>

NOTE:
If the concerned DTC is displayed, the self-diagnosis of the DTC is not complete. Repeat from step 1).
4) Read the DTC and check that the DTC is not displayed. <Ref. to HEV(diag)-24, Read Diagnostic Trouble Code (DTC).>

NOTE:
If the DTC is displayed on the screen, the trouble is still present. Perform the diagnosis according to DTC. <Ref. to HEV(diag)-74, List of Diagnostic Trouble Code (DTC).> After repairing the cause of setting DTC, repeat from preparation for drive cycle. <Ref. to HEV(diag)-32, PREPARATION FOR DRIVE CYCLE, PROCEDURE, Drive Cycle.>

## 4. DRIVE CYCLE C

- Hybrid powertrain control system

| DTC | Item | Condition |
|---|---|---|
| P065A | Generator System Performance | — |
| P1C18 | Generator System "B" Performance | — |

Diagnostic procedure:
1) Prepare for drive cycle. <Ref. to HEV(diag)-32, PREPARATION FOR DRIVE CYCLE, PROCEDURE, Drive Cycle.>
2) Set the shift lever to “P” range.
3) Check that «Open» is displayed for the current data «12V Battery Relay Mode Target» of the hybrid powertrain control system. <Ref. to HEV(diag)-40, HYBRID POWERTRAIN CONTROL SYSTEM, OPERATION, Read Current Data.>
4) Race the engine at 2000 rpm for 3 minutes.
5) Read the readiness code and check that the concerned DTC is not displayed. <Ref. to HEV(diag)-26, All Readiness Diagnostic Code(s).>

NOTE:
If the concerned DTC is displayed, the self-diagnosis of the DTC is not complete. Repeat from step 1).
6) Read the DTC and check that the DTC is not displayed. <Ref. to HEV(diag)-24, Read Diagnostic Trouble Code (DTC).>

NOTE:
If the DTC is displayed on the screen, the trouble is still present. Perform the diagnosis according to DTC. <Ref. to HEV(diag)-74, List of Diagnostic Trouble Code (DTC).> After repairing the cause of setting DTC, repeat from preparation for drive cycle. <Ref. to HEV(diag)-32, PREPARATION FOR DRIVE CYCLE, PROCEDURE, Drive Cycle.>

## 5. DRIVE CYCLE D

- Hybrid powertrain control system

| DTC | Item | Condition |
|---|---|---|
| P0620 | Generator Control Circuit | — |
| P06EF | Engine Restart Performance | — |

Diagnostic procedure:
1) Prepare for drive cycle. <Ref. to HEV(diag)-32, PREPARATION FOR DRIVE CYCLE, PROCEDURE, Drive Cycle.>
2) Set the shift lever to “D” range.
3) At standing still (vehicle speed is at 0 km/h (0 MPH)), depress the brake pedal several times ON ←→ OFF from Auto Start Stop, then start the engine.
4) Read the readiness code and check that the concerned DTC is not displayed. <Ref. to HEV(diag)-26, All Readiness Diagnostic Code(s).>

NOTE:
If the concerned DTC is displayed, the self-diagnosis of the DTC is not complete. Repeat from step 1).
5) Read the DTC and check that the DTC is not displayed. <Ref. to HEV(diag)-24, Read Diagnostic Trouble Code (DTC).>

NOTE:
If the DTC is displayed on the screen, the trouble is still present. Perform the diagnosis according to DTC. <Ref. to HEV(diag)-74, List of Diagnostic Trouble Code (DTC).> After repairing the cause of setting DTC, repeat from preparation for drive cycle. <Ref. to HEV(diag)-32, PREPARATION FOR DRIVE CYCLE, PROCEDURE, Drive Cycle.>

## 6. DRIVE CYCLE E

- Hybrid powertrain control system

| DTC | Item | Condition |
|---|---|---|
| P1C06 | 12V Battery Relay Close Circuit Performance | — |
| P1C07 | 12V Battery Relay Open Circuit Performance | — |
| P1C08 | 12V Battery Relay Performance or Stuck Off | — |
| P1C09 | 12V Battery Relay Performance or Stuck On | — |

Diagnostic procedure:
1) Prepare for drive cycle. <Ref. to HEV(diag)-32, PREPARATION FOR DRIVE CYCLE, PROCEDURE, Drive Cycle.>
2) Set the shift lever to “P” range.
3) Increase electrical load of auxiliary devices, wait until the value of current data «High Voltage Battery SOC» of the hybrid powertrain control system drops below 37% and the display for «12V Battery Relay Mode Target» turns to «Close». <Ref. to HEV(diag)-40, HYBRID POWERTRAIN CONTROL SYSTEM, OPERATION, Read Current Data.>
4) Drive for 10 minutes or more at a speed of 30 km/h (18.6 MPH) or more.
5) Check that the value of current data «High Voltage Battery SOC» of the hybrid powertrain control system increases to 42% or more and the display for «12V Battery Relay Mode Target» turns to «Open». <Ref. to HEV(diag)-40, HYBRID POWERTRAIN CONTROL SYSTEM, OPERATION, Read Current Data.>
6) Read the readiness code and check that the concerned DTC is not displayed. <Ref. to HEV(diag)-26, All Readiness Diagnostic Code(s).>

NOTE:
If the concerned DTC is displayed, the self-diagnosis of the DTC is not complete. Repeat from step 1).
7) Read the DTC and check that the DTC is not displayed. <Ref. to HEV(diag)-24, Read Diagnostic Trouble Code (DTC).>

NOTE:
If the DTC is displayed on the screen, the trouble is still present. Perform the diagnosis according to DTC. <Ref. to HEV(diag)-74, List of Diagnostic Trouble Code (DTC).> After repairing the cause of setting DTC, repeat from preparation for drive cycle. <Ref. to HEV(diag)-32, PREPARATION FOR DRIVE CYCLE, PROCEDURE, Drive Cycle.>

## 7. DRIVE CYCLE F

- Battery energy control system

| DTC | Item | Condition |
|---|---|---|
| P0C30 | Hybrid Battery Pack State of Charge High | — |

Diagnostic procedure:
1) Prepare for drive cycle. <Ref. to HEV(diag)-32, PREPARATION FOR DRIVE CYCLE, PROCEDURE, Drive Cycle.>
2) Start the engine, and run the engine at idle for 60 seconds or more.
3) Read the readiness code and check that the concerned DTC is not displayed. <Ref. to HEV(diag)-26, All Readiness Diagnostic Code(s).>

NOTE:
If the concerned DTC is displayed, the self-diagnosis of the DTC is not complete. Repeat from step 1).
4) Read the DTC and check that the DTC is not displayed. <Ref. to HEV(diag)-24, Read Diagnostic Trouble Code (DTC).>

NOTE:
If the DTC is displayed on the screen, the trouble is still present. Perform the diagnosis according to DTC. <Ref. to HEV(diag)-74, List of Diagnostic Trouble Code (DTC).> After repairing the cause of setting DTC, repeat from preparation for drive cycle. <Ref. to HEV(diag)-32, PREPARATION FOR DRIVE CYCLE, PROCEDURE, Drive Cycle.>

## 8. DRIVE CYCLE G

- Battery energy control system

| DTC | Item | Condition |
|---|---|---|
| P0AAD | Hybrid Battery Pack Air Temperature Sensor "A" Circuit Range/Performance | — |

Diagnostic procedure:
1) Prepare for drive cycle. <Ref. to HEV(diag)-32, PREPARATION FOR DRIVE CYCLE, PROCEDURE, Drive Cycle.>
2) After leaving the vehicle unattended for 6 hours or longer, start the engine and run at idling speed for 20 seconds.
3) Read the readiness code and check that the concerned DTC is not displayed. <Ref. to HEV(diag)-26, All Readiness Diagnostic Code(s).>

NOTE:
If the concerned DTC is displayed, the self-diagnosis of the DTC is not complete. Repeat from step 1).
4) Read the DTC and check that the DTC is not displayed. <Ref. to HEV(diag)-24, Read Diagnostic Trouble Code (DTC).>

NOTE:
If the DTC is displayed on the screen, the trouble is still present. Perform the diagnosis according to DTC. <Ref. to HEV(diag)-74, List of Diagnostic Trouble Code (DTC).> After repairing the cause of setting DTC, repeat from preparation for drive cycle. <Ref. to HEV(diag)-32, PREPARATION FOR DRIVE CYCLE, PROCEDURE, Drive Cycle.>

## 9. DRIVE CYCLE H

- Drive motor control system

| DTC | Item | Condition |
|---|---|---|
| P0A82 | Hybrid/Ev Battery Pack Cooling Fan 1 Performance/Stuck Off | — |
| P0A83 | Hybrid/Ev Battery Pack Cooling Fan 1 Stuck On | — |

Diagnostic procedure:
1) Prepare for drive cycle. <Ref. to HEV(diag)-32, PREPARATION FOR DRIVE CYCLE, PROCEDURE, Drive Cycle.>
2) Select the System Operation Check Mode «High Voltage Battery Cooling Fan» of the drive motor control system. <Ref. to HEV(diag)-73, DRIVE MOTOR CONTROL SYSTEM, OPERATION, System Operation Check Mode.>
3) On «High Voltage Battery Cooling Fan» display, select {Step1}.
4) On «High Voltage Battery Cooling Fan» display, select {Stop}.
5) Read the readiness code and check that the concerned DTC is not displayed. <Ref. to HEV(diag)-26, All Readiness Diagnostic Code(s).>

NOTE:
If the concerned DTC is displayed, the self-diagnosis of the DTC is not complete. Repeat from step 1).
6) Read the DTC and check that the DTC is not displayed. <Ref. to HEV(diag)-24, Read Diagnostic Trouble Code (DTC).>

NOTE:
If the DTC is displayed on the screen, the trouble is still present. Perform the diagnosis according to DTC. <Ref. to HEV(diag)-74, List of Diagnostic Trouble Code (DTC).> After repairing the cause of setting DTC, repeat from preparation for drive cycle. <Ref. to HEV(diag)-32, PREPARATION FOR DRIVE CYCLE, PROCEDURE, Drive Cycle.>

## 10.DRIVE CYCLE I

- Hybrid powertrain control system

| DTC | Item | Condition |
|---|---|---|
| P0506 | Idle Air Control System RPM Lower Than Expected | — |
| P0507 | Idle Air Control System RPM Higher Than Expected | — |
| P1C16 | Idle Control System RPM Lower Than Expected (HPCM) | — |
| P1C17 | Idle Control System RPM Higher Than Expected (HPCM) | — |

Diagnostic procedure:
1) Prepare for drive cycle. <Ref. to HEV(diag)-32, PREPARATION FOR DRIVE CYCLE, PROCEDURE, Drive Cycle.>
2) Drive at 10 km/h (6.2 MPH) or more.
3) Increase electrical load of auxiliary devices, wait until the value of current data «High Voltage Battery SOC» of the hybrid powertrain control system falls between 37% and below 40%.
4) Depress the brake pedal, set the shift lever to “D” range, and wait for 30 seconds. (Perform the power generation at stand still.)
5) Read the readiness code and check that the concerned DTC is not displayed. <Ref. to HEV(diag)-26, All Readiness Diagnostic Code(s).>

NOTE:
If the concerned DTC is displayed, the self-diagnosis of the DTC is not complete. Repeat from step 1).
6) Read the DTC and check that the DTC is not displayed. <Ref. to HEV(diag)-24, Read Diagnostic Trouble Code (DTC).>

NOTE:
If the DTC is displayed on the screen, the trouble is still present. Perform the diagnosis according to DTC. <Ref. to HEV(diag)-74, List of Diagnostic Trouble Code (DTC).> After repairing the cause of setting DTC, repeat from preparation for drive cycle. <Ref. to HEV(diag)-32, PREPARATION FOR DRIVE CYCLE, PROCEDURE, Drive Cycle.>

# 13.Read Current Data

## A: OPERATION

NOTE:
For detailed operation procedures, refer to “PC application help for Subaru Select Monitor”.

### 1. HYBRID POWERTRAIN CONTROL SYSTEM

1) On «Main Menu» display, select {Each System Check}.
2) On «Each System Check» display, select {HEV System}.
3) On «HEV System» display, select {Hybrid Powertrain Control System}.
4) On «Hybrid Powertrain Control System» display, select {Current Data Display & Save}.

| Display | Content | Note (when normal) | Unit of measure |
|---|---|---|---|
| Vehicle speed | Vehicle speed calculated by VDC CM (CAN communication data) | 0 — 210 | km/h |
| Vehicle Speed (Control) | Vehicle speed for control | 0 — 255 | km/h |
| Ambient Temperature | Ambient temperature calculated by combination meter (CAN communication data) | –40 — 80 | °C |
| Power Target | Target drive power | –2100 — 9650 | N |
| Target Acceleration (Cruise Control) | Target acceleration during the cruise control | –5.5 — 5.5 | $m/s^2$ |
| Acceleration by Driver Request | Target acceleration calculated from an accelerator opening angle and a vehicle speed for control | –5.5 — 5.5 | $m/s^2$ |
| Engine Torque | Engine axle torque calculated by ECM (CAN communication data) | –1000 — 2276.7 | Nm |
| Engine Torque Target | Target engine axle torque | –70 — 191 | Nm |
| Engine Torque Upper (ECM) | Upper limit of target engine torque calculated by ECM (CAN communication data) | 0 — 408 | Nm |
| Engine Speed | Engine speed calculated by ECM (CAN communication data) | 0 — 6400 | rpm |
| Coolant Temperature | Engine coolant temperature calculated by ECM (CAN communication data) | –40 — 214 | °C |
| Conventional Starter ON Permit Signal | Status of permission from HPCM for starting engine by starter | OFF<br>ON | — |
| CVT Input Torque Upper (TCM) | Upper limit of input torque to transmission calculated by TCM (CAN communication data) | 0 — 510 | Nm |
| Gear Ratio Target | Target gear ratio | 0 — 3.99 | — |
| Gear Ratio | Gear ratio calculated by TCM (CAN communication data) | 0 — 3.99 | — |
| Input Clutch Target | Target status of input clutch | No Request<br>Req.Engaged<br>Req.Disengage | — |
| Input Clutch Actual | Input clutch status judged by TCM (CAN communication data) | Engaging2<br>Engaged<br>Disengaged<br>Engaging1<br>Disengaging | — |
| Output Clutch Target | Target status of output clutch | No Request<br>Req.Engaged<br>Req.Disengage | — |
| Output Clutch Actual | Output clutch status judged by TCM (CAN communication data) | Engaging<br>Engaged<br>Disengaged<br>Disengaging | — |

| Display | Content | Note (when normal) | Unit of measure |
|---|---|---|---|
| Transmission Turbine Speed | Transmission turbine speed calculated by TCM (CAN communication data) | 0 — 6600 | rpm |
| Output Shaft Speed | Transmission output axle speed calculated by TCM (CAN communication data) | 0 — 12300 | rpm |
| ATF Temp. | ATF temperature calculated by TCM (CAN communication data) | –50 — 205 | °C |
| Trip Count | Number of IG ON judged by the body integrated unit (CAN communication data) | — | times |
| Count | Number of IG ON, synchronous/asynchronous identification information of the elapsed time after IG ON | Common Originally | — |
| Time Count | Detailed time elapsed after IG ON calculated by body integrated unit (CAN communication data) | — | ms |
| Ignition switch | Ignition switch status | OFF<br>ON | — |
| Starter SW | Starter switch status | OFF<br>ON | — |
| P Range | Parking range status judged by TCM (CAN communication data) | OFF<br>ON | — |
| R Range | Reverse range status judged by TCM (CAN communication data) | OFF<br>ON | — |
| N Range | Neutral range status judged by TCM (CAN communication data) | OFF<br>ON | — |
| D Range | Drive range status judged by TCM (CAN communication data) | OFF<br>ON | — |
| Accel opening angle | Accelerator opening angle ratio calculated by ECM (CAN communication data) | 0 — 100 | % |
| Master Cylinder Pressure | Brake fluid pressure calculated by VDC CM (CAN communication data) | 0 — 29.3 | MPa |
| ECU ACC | Voltage supplied to HPCM | 10 — 15 | V |
| Main Brake Pedal Stroke | Brake stroke calculated from main brake stroke sensor voltage | 0 — 100 | % |
| Main Brake Pedal Position Sensor Voltage | Voltage detected by main brake stroke sensor | 0 — 5.16 | V |
| Sub Brake Pedal Stroke | Brake stroke calculated from sub brake stroke sensor voltage | 0 — 100 | % |
| Sub Brake Pedal Position Sensor Voltage | Voltage detected by sub brake stroke sensor | 0 — 5.16 | V |
| Brake Booster Pressure 1 | Vacuum pressure calculated from brake vacuum sensor voltage 1 | 13.3 — 106.7 | kPa |
| Brake Booster Pressure Sensor Voltage 1 | Voltage detected by brake vacuum sensor 1 | 0 — 5.16 | V |
| Brake Booster Pressure 2 | Vacuum pressure calculated from brake vacuum sensor voltage 2 | 13.3 — 106.7 | kPa |
| Brake Booster Pressure Sensor Voltage 2 | Voltage detected by brake vacuum sensor 2 | 0 — 5.16 | V |
| Atmospheric pressure | Atmospheric pressure calculated by ECM (CAN communication data) | 13 — 115 | kPa |
| 12V Battery Relay Target Mode | 12V battery relay commanded status | Close<br>Open | — |

| Display | Content | Note (when normal) | Unit of measure |
|---|---|---|---|
| 12V Battery Relay Close Signal | 12V battery relay close operation request status | OFF<br>ON<br>(regularly ON for 100 ms every 10 seconds while Close) | — |
| 12V Battery Relay Open Signal | 12V battery relay open operation request status | OFF<br>ON<br>(regularly ON for 100 ms every 10 seconds while Open) | — |
| Vacuum Pump Relay ON Signal | Brake vacuum pump relay operation request status | OFF<br>ON | — |
| Vacuum Pump Relay Actual | Voltage applied to brake vacuum pump relay | 0 — 20 | V |
| Clutch Solenoid Control Signal | Output clutch solenoid operation request status | OFF<br>ON | — |
| Power Sensor Voltage 1 | Voltage supplied to main brake stroke sensor | 5 | V |
| Power Sensor Voltage 2 | Voltage supplied to sub brake stroke sensor | 5 | V |
| Power Sensor Voltage 3 | Voltage supplied to brake vacuum sensors 1 and 2 | 5 | V |
| HPCM Target Control Mode | Target control mode of HPCM | 00<br>01<br>02<br>03<br>04<br>06<br>09 | — |
| HPCM Current Control Mode | Current control mode of HPCM | 00<br>01<br>02<br>03<br>04<br>06<br>09 | — |
| Auto Start Stop Function Permit Signal | Permission status of Auto Start Stop | OFF<br>ON | — |
| Auto Start Stop or EV Status | Auto Start Stop/EV traveling status | OFF<br>ON | — |
| Ready Status | HEV-READY status | OFF<br>Ready Status | — |
| Drive Motor Inverter Operation Signal | Drive motor inverter operation request status | OFF<br>ON | — |
| Drive Motor Inverter Input Voltage | Drive motor inverter input voltage calculated by DMCM (CAN communication data) | 9 — 155 | V |
| Drive Motor Inverter Temperature (MAX) | The highest temperature among values of drive motor inverter temperature detected through multiple sensors by DMCM (CAN communication data) | –50 — 150 | °C |
| Drive Motor Output Torque Actual | Drive motor output torque calculated by DMCM (CAN communication data) | –65 — 65 | Nm |
| Drive Motor Torque Target | Target torque of drive motor | –65 — 65 | Nm |
| Drive Motor Torque Upper Limit (DMCM) | Upper limit of drive motor torque calculated by DMCM (CAN communication data) | 0 — 65 | Nm |
| Drive Motor Torque Lower Limit (DMCM) | Lower limit of drive motor torque calculated by DMCM (CAN communication data) | –65 — 0 | Nm |

| Display | Content | Note (when normal) | Unit of measure |
|---|---|---|---|
| Drive Motor Speed | Drive motor speed calculated by DMCM (CAN communication data) | –7000 — 7000 | rpm |
| Drive Motor Speed Target | Target speed of drive motor | — | rpm |
| Drive Motor Inverter Control Mode Target | Target control mode of drive motor inverter | — | — |
| Drive Motor Temperature A | Drive motor temperature A calculated by DMCM (CAN communication data) | –55 — 140 | °C |
| Drive Motor Temperature B | Drive motor temperature B calculated by DMCM (CAN communication data) | –55 — 140 | °C |
| ISG cranking demand | Integrated starter generator cranking request status | OFF<br>ON | — |
| ISG prohibit drive demand | Integrated starter generator drive prohibition request status | OFF<br>ON | — |
| ISG Terminal Voltage | Terminal voltage calculated by integrated starter generator (LIN communication data) | 10.6 — 16.975 | V |
| ISG Cranking Status | Cranking demand acceptance status judged by integrated starter generator (LIN communication data) | W/O Request<br>Request | — |
| ISG Control Mode Actual | Current control mode judged by integrated starter generator (LIN communication data) | Neutral<br>GeneratePower<br>Restart<br>First Start<br>Stop assistance | — |
| ISG Control Mode Target | Target control mode of integrated starter generator | Neutral<br>GeneratePower<br>Start<br>Start Ant.<br>Preliminary excitation<br>Stop assistance | — |
| ISG Cranking Permit Signal | Cranking permission status judged by integrated starter generator (LIN communication data) | OFF<br>ON | — |
| ISG Excitation Current Actual | Excitation current calculated by integrated starter generator (LIN communication data) | 0 — 25.5 | A |
| ISG Excitation Current Upper Target | Excitation current upper limit of integrated starter generator | 0 — 16 | A |
| ISG Rotor Speed | Rotor speed calculated by integrated starter generator (LIN communication data) | 0 — 19125 | rpm |
| ISG Temperature | Temperature calculated by integrated starter generator (LIN communication data) | –42 — 210 | °C |
| ISG Voltage Target | Target generated voltage of integrated starter generator | 10.6 — 16 | V |
| DCDC Converter Status | Operating condition of DC/DC converter judged by DMCM (CAN communication data) | Inactive<br>ON | — |
| DCDC Converter Output Permit Signal | Output permission status of DC/DC converter | OFF<br>ON | — |
| DCDC Converter Output Voltage Actual | DC/DC converter output voltage calculated by DMCM (CAN communication data) | 10 — 15.5 | V |
| DCDC Converter Output Voltage Target | DC/DC converter target output indicate voltage | 0 — 25.5 | V |
| DCDC Converter Output Amperage | DC/DC converter output current calculated by DMCM (CAN communication data) | 0 — 130 | A |
| DCDC Converter Temperature | DC/DC converter temperature calculated by DMCM (CAN communication data) | –50 — 160 | °C |

| Display | Content | Note (when normal) | Unit of measure |
|---|---|---|---|
| Electric Oil Pump Output Current | Output current calculated by electric oil pump (CAN communication data) | 0 — 15.9375 | A |
| Electric Oil Pump Motor Speed | Motor speed calculated by electric oil pump (CAN communication data) | 0 — 4095 | rpm |
| Service Plug Status | Service disconnect plug lock status judged by BECM (CAN communication data) | OFF<br>ON | — |
| High Voltage Battery SOC | High voltage battery residual quantity calculated by BECM (CAN communication data) | 5 — 95 | % |
| High Voltage Battery SOH | Battery status auxiliary parameter of high voltage battery calculated by BECM (CAN communication data) | 25 — 100 | % |
| High Voltage Battery Total Voltage | High voltage battery voltage calculated by BECM (CAN communication data) | 70 — 140 | V |
| High Voltage Battery Amperage | High voltage battery current calculated by BECM (CAN communication data) | –110 — 180 | A |
| High Voltage Battery Discharge Power Limit 1 | High voltage battery discharge power limit calculated by BECM (CAN communication data) | 0 — 14.0 | kW |
| High Voltage Battery Charge Power Limit 1 | High voltage battery charge power limit calculated by BECM (CAN communication data) | 0 — 14.0 | kW |
| High Voltage Battery SOC Subservience Parameter (MIN) | SOC auxiliary parameter of high voltage battery calculated by BECM (CAN communication data) | 0 — 100 | % |
| High Voltage Battery Temperature (MAX) | The highest temperature among values of high voltage battery temperature detected through multiple sensors by BECM (CAN communication data) | –40 — 63 | °C |
| High Voltage Battery Temperature (MIN) | The lowest temperature among values of high voltage battery temperature detected through multiple sensors by BECM (CAN communication data) | –40 — 63 | °C |
| High Voltage Battery Intake Air Temperature | High voltage battery intake air temperature calculated by BECM (CAN communication data) | –40 — 86.5 | °C |
| High Voltage Battery Cooling Fan Speed | High voltage battery cooling fan speed calculated by DMCM (CAN communication data) | 0 — 6000 | rpm |
| High Voltage Battery Cooling Fan Duty Target | High voltage battery cooling fan target duty request | 0 — 100<br>(20 — 70%: normal, 100%: failure, 0 — 20%: dead zone) | % |
| Blower Fan Level | Blower fan level judged by auto A/C CM (CAN communication data) | OFF<br>LO<br>M1<br>M2<br>M3<br>M4<br>M5<br>Hi | — |
| BECM Control Status | BECM control mode judged by BECM (CAN communication data) | Init.<br>Normal<br>Output Limit<br>Open Request<br>Forced Open<br>NG OFF Signal | — |
| Contactor Close Status | Contactor close status judged by BECM (CAN communication data) | Non<br>Close | — |
| Contactor Open Status | Contactor open status judged by BECM (CAN communication data) | Non<br>Open | — |

| Display | Content | Note (when normal) | Unit of measure |
|---|---|---|---|
| Contactor Signal | Contactor operation request status | OFF<br>ON<br>Abnormal OFF | — |
| 12V Engine Restart Battery Voltage | 12 volt engine restart battery voltage calculated by 12 volt engine restart battery sensor (LIN communication data) | 0 — 50 | V |
| 12V Engine Restart Battery Amperage | 12 volt engine restart battery current calculated by 12 volt engine restart battery sensor (LIN communication data) | –200 — 200 | A |
| 12V Engine Restart Battery SOC | 12 volt engine restart battery capacity calculated by 12 volt engine restart battery sensor (LIN communication data) | 0 — 100 | % |
| 12V Engine Restart Battery SOC Control | 12 volt engine restart battery control capacity | 0 — 100 | % |
| 12V Engine Restart Battery SOC Validity | Validity of 12 volt engine restart battery capacity judged by 12 volt engine restart battery sensor (LIN communication data) | Invalid<br>Valid | — |
| 12V Engine Restart Battery Temperature | 12 volt engine restart battery temperature calculated by 12 volt engine restart battery sensor (LIN communication data) | –40 — 125 | °C |
| 12V Auxiliary Battery Voltage | 12 volt auxiliary battery voltage | 0 — 25.5 | V |
| 12V Auxiliary Battery Temperature | 12 volt auxiliary battery temperature | –40 — 100 | °C |
| 12V Auxiliary Battery Temperature Sensor Voltage | Voltage detected by 12 volt auxiliary battery temperature sensor, calculated by ECM (CAN communication data) | 0 — 5 | V |
| OBD Test Status | Diagnosis status of emission-related diagnosis | Test Not Comp<br>Normal<br>Abnormal | — |
| ECM Fail Safe Request Status | On/off status of fail safe request from ECM | Req.Now<br>Req.Cur.Dri.<br>Req.LastDri.<br>Req.Past<br>No Request | — |
| ECM Fail Safe Request Check | Fail safe request detailed information from ECM | 00 — FF | — |
| TCM Fail Safe Request Status | On/off status of fail safe request from TCM | Req.Now<br>Req.Cur.Dri.<br>Req.LastDri.<br>Req.Past<br>No Request | — |
| TCM Fail Safe Request Check | Fail safe request detailed information from TCM | 00 — FF | — |
| DMCM Fail Safe Request Status | On/off status of fail safe request from DMCM | Req.Now<br>Req.Cur.Dri.<br>Req.LastDri.<br>Req.Past<br>No Request | — |
| DMCM Fail Safe Request Check | Fail safe request detailed information from DMCM | 00 — FF | — |
| BECM Fail Safe Request Status | On/off status of fail safe request from BECM | Req.Now<br>Req.Cur.Dri.<br>Req.LastDri.<br>Req.Past<br>No Request | — |
| BECM Fail Safe Request Check | Fail safe request detailed information from BECM | 00 — FF | — |

| Display | Content | Note (when normal) | Unit of measure |
|---|---|---|---|
| VDCM Fail Safe Request Status | On/off status of fail safe request from VDC CM | Req.Now<br>Req.Cur.Dri.<br>Req.LastDri.<br>Req.Past<br>No Request | — |
| Hybrid Fail Lamp Signal | Illumination request status of hybrid fail lamp | OFF<br>ON<br>Blink | — |
| Hybrid Fail Lamp Signal (DMCM) | Hybrid fail lamp illumination request from DMCM (CAN communication data) | OFF<br>ON | — |
| Hybrid Fail Lamp Signal (BECM) | Hybrid fail lamp illumination request from BECM (CAN communication data) | OFF<br>ON | — |
| CHARGE Lamp Signal | Illumination request status of charge warning light | OFF<br>ON | — |
| Vacuum Pump Fail Lamp Signal | Illumination request status of brake vacuum pump warning light | OFF<br>ON | — |
| A/C Request for Cooperation Mode | Requested engine speed change operation mode judged by auto A/C CM (CAN communication data) | W/O Request<br>Cooling H<br>Heating H<br>Cooling L<br>Heating L<br>Heating M<br>Heating LL | — |
| SI Drive Mode | SI-DRIVE mode judged by ECM (CAN communication data) | I<br>S<br>ECO-C | — |
| AUTO/MANUAL Mode Switch | Manual mode switch status judged by TCM (CAN communication data) | OFF<br>ON | — |
| Up Switch | Manual mode up switch status judged by TCM (CAN communication data) | OFF<br>ON | — |
| Down Switch | Manual mode down switch status judged by TCM (CAN communication data) | OFF<br>ON | — |
| Oil Pressure Switch | Oil pressure switch status | OFF<br>ON | — |
| Oil pressure Lamp | Illumination request status of oil pressure waning light | OFF<br>ON | — |
| EV Mode Lamp | Illumination request status of EV mode lamp | OFF<br>ON | — |
| High Voltage Battery SOC (MFD Display) | High voltage battery capacity indicated in multi-function display | 0 — 100 | % |
| Energy Flow (MFD Display) | Energy flow request status indicated in multi-function display | Idling<br>Auto Start Stop<br>Motor Assist<br>EV Powering<br>EV Regenerate<br>Engine Drive<br>MotorGenerate<br>EngBrakeRegen<br>DGenerate<br>Engine Stop | — |

| Display | Content | Note (when normal) | Unit of measure |
|---|---|---|---|
| Interrupt Information (MFD Display) | Interrupt information request status indicated in multi-function display | No Display<br>Alarm General<br>AlarmSpec.1<br>AlarmSpec.2<br>Protect Mode<br>EV Door Open<br>AutoOffCrash<br>AutoOffPast<br>Maintenance | — |
| Fuel Saving Amount (MFD Display) | Fuel saving amount indicated by multi-function display | 0 — 2.55 | cc/sec |
| Fuel Saving Amount Sign (MFD Display) | Fuel saving amount sign indicated by multi-function display | +<br>– | — |
| Auto Start Stop Buzzer Signal | Buzzer beeping request status of Auto Start Stop | No Buzzer<br>Continue | — |
| Manual Mode Gear Position (MFD Display) | Gear shift position indication request status of the select indicator/shift position indicator light (in manual mode) | OFF<br>1<br>2<br>3<br>4<br>5<br>6 | — |
| Up (MFD Display) | Upshifting possible indicator light illumination request status (in manual mode) | OFF<br>ON | — |
| Down (MFD Display) | Downshifting possible indicator light illumination request status (in manual mode) | OFF<br>ON | — |
| Buzzer Signal | Buzzer beeping request status (in manual mode) | No Buzzer<br>Pattern 2 | — |
| Memorized Cruise Speed | Set vehicle speed during the cruise control | 40 — 145 | km/h |
| Main switch | Cruise switch status judged by ECM (CAN communication data) | OFF<br>ON | — |
| SET/COAST SW | SET/– switch status judged by ECM (CAN communication data) | OFF<br>ON | — |
| RESUME/ACCEL SW | RES/+ switch status judged by ECM (CAN communication data) | OFF<br>ON | — |
| Distance Change Switch Signal | Distance setting switch status judged by ECM (CAN communication data) | OFF<br>ON | — |
| Cruise Control Cancel Switch Signal | CANCEL switch status judged by ECM (CAN communication data) | OFF<br>ON | — |
| Neutral switch | Neutral switch status judged by cruise control | Other than Neutral<br>Neutral | — |
| Brake SW | Brake switch status judged by ECM (CAN communication data) | OFF<br>ON | — |
| Judgment of Main Brake Pedal Position Sensor | Judgment of brake by main brake stroke sensor | OFF<br>ON | — |
| Judgment of Sub Brake Pedal Position Sensor | Judgment of brake by sub brake stroke sensor | OFF<br>ON | — |
| Stop light SW | Stop light status judged by body integrated unit (CAN communication data) | OFF<br>ON | — |
| Brake Pedal Position Learning Status | Brake stroke sensor learning status | Incomplete<br>Complete | — |

| Display | Content | Note (when normal) | Unit of measure |
|---|---|---|---|
| Main Brake Pedal Position Sensor Learning Value | Main brake stroke sensor learning value | –12.8 — 10.4 | deg |
| Sub Brake Pedal Position Sensor Learning Value | Sub brake stroke sensor learning value | –12.8 — 10.4 | deg |
| HPCM Check 1 | Detailed information of control | — | — |
| HPCM Check 2 | Detailed information of control | — | — |
| HPCM Check 3 | Detailed information of control | — | — |
| HPCM Check 4 | Detailed information of control | — | — |
| HPCM Check 5 | Total number of 12V battery relay operation | — | times |
| HPCM Check 6 | Total number of brake vacuum pump operation | — | times |
| HPCM Check 7 | Total hours of brake vacuum pump operation | — | Sec |
| HPCM Check 9 | Detailed information of control | — | — |
| HPCM Check 10 | Detailed information of control | — | — |
| HPCM Check 11 | Detailed information of control | — | — |
| HPCM Check 20 | Detailed information of control | — | — |
| HPCM Check 21 | Detailed information of control | — | — |
| HPCM Check 22 | Detailed information of control | — | — |
| HPCM Check 23 | Detailed information of control | — | — |
| HPCM Check 24 | Detailed information of control | — | — |
| HPCM Check 25 | Detailed information of control | — | — |
| HPCM Check 40 | Detailed information of control | — | mΩ |
| HPCM Check 41 | Detailed information of control | — | mΩ |
| HPCM Check 75 | Detailed information of control | — | % |
| HPCM Check 76 | Detailed information of control | — | % |
| HPCM Check 77 | Detailed information of control | — | — |
| HPCM Check 80 | Detailed information of control | — | — |
| HPCM Check 81 | Detailed information of control | — | — |
| HPCM Check 82 | Detailed information of control | — | — |
| HPCM Check 85 | Detailed information of control | — | — |
| HPCM Check 86 | Detailed information of control | — | — |
| HPCM Check 87 | Detailed information of control | — | — |
| HPCM Check 90 | Detailed information of control | — | — |
| HPCM Check 92 | Detailed information of control | — | — |
| HPCM Check 100 | Detailed information of control | — | — |
| HPCM Check 103 | Detailed information of control | — | — |
| HPCM Check 104 | Detailed information of control | — | — |
| HPCM Check 114 | Detailed information of control | — | — |
| HPCM Check 117 | Detailed information of control | — | — |
| HPCM Check 125 | Detailed information of control | — | — |
| HPCM Check 126 | Detailed information of control | — | — |
| HPCM Check 131 | Detailed information of control | — | — |
| HPCM Check 132 | Detailed information of control | — | — |
| HPCM Check 137 | Detailed information of control | — | — |
| HPCM Check 138 | Detailed information of control | — | — |
| HPCM Check 139 | Detailed information of control | — | — |
| HPCM Check 140 | Detailed information of control | — | — |
| HPCM Check 141 | Detailed information of control | — | — |
| HPCM Check 142 | Detailed information of control | — | — |
| HPCM Check 143 | Detailed information of control | — | — |

| Display | Content | Note (when normal) | Unit of measure |
|---|---|---|---|
| HPCM Check 144 | Detailed information of control | — | — |
| HPCM Check 145 | Detailed information of control | — | — |
| HPCM Check 146 | Detailed information of control | — | — |
| HPCM Check 147 | Detailed information of control | — | — |
| HPCM Check 148 | Detailed information of control | — | — |
| HPCM Check 149 | Detailed information of control | — | — |
| HPCM Check 151 | Detailed information of control | — | — |
| HPCM Check 153 | Detailed information of control | — | — |
| HPCM Check 154 | Detailed information of control | — | — |
| HPCM Check 155 | Detailed information of control | — | — |
| HPCM Check 156 | Detailed information of control | — | — |
| HPCM Check 157 | Detailed information of control | — | — |
| HPCM Check 158 | Detailed information of control | — | — |
| HPCM Check 159 | Detailed information of control | — | — |
| HPCM Check 160 | Detailed information of control | — | — |
| HPCM Check 161 | Detailed information of control | — | — |
| HPCM Check 162 | Detailed information of control | — | — |
| HPCM Check 163 | Detailed information of control | — | — |
| HPCM Check 164 | Detailed information of control | — | — |
| HPCM Check 165 | Detailed information of control | — | — |
| HPCM Check 166 | Detailed information of control | — | — |
| HPCM Check 167 | Detailed information of control | — | — |
| HPCM Check 168 | Detailed information of control | — | — |

## 2. HYBRID POWERTRAIN CONTROL SYSTEM (Auto Start Stop AND EV TRAVELING CONDITIONS)

NOTE:
For Auto Start Stop and EV traveling conditions of hybrid powertrain control system, refer to the table below.

| Display | Auto Start Stop | | EV traveling | | Note |
|---|---|---|---|---|---|
| | Condition for permission | Condition for cancel | Condition for permission | Condition for cancel | |
| Brake Booster Pressure 1 | < 63.83 kPa | > 69.83 kPa | < 63.83 kPa | > 69.83 kPa | Those values change depending on vehicle speed or atmospheric pressure.<br>As a reference, values shown in upper row expects that atmospheric pressure is 1 bar and vehicle speed is 0 km/h (0 MPH). Values shown in lower row expects that atmospheric pressure is 1 bar and vehicle speed is 50 km/h (31.1 MPH). |
| Brake Booster Pressure 2 | < 51.33 kPa | > 55.33 kPa | < 51.33 kPa | > 55.33 kPa | |
| 12V Engine Restart Battery SOC Control | ≥ 70.0% | < 60.0% | ≥ 70.0% | < 60.0% | When the level decreases below 60%, the operation is not permitted until the level increases to at 70%. Also, when the level is recovered to 70%, the operation is permitted until the level decreases to 60%. |
| 12V Engine Restart Battery Voltage | ≥ 12.6 V | ≤ 11.4 V | ≥ 12.6 V | ≤ 11.4 V | — |
| 12V Engine Restart Battery Temperature | ≥ –10°C (14°F) and ≤ 78°C (172.4°F) | < –12°C (10.4°F) or ≥ 80°C (176°F) | ≥ –10°C (14°F) and ≤ 78°C (172.4°F) | < –12°C (10.4°F) or ≥ 80°C (176°F) | — |
| HPCM Check 40 | < 10 mΩ | ≥ 15 mΩ | < 10 mΩ | ≥ 15 mΩ | — |
| HPCM Check 41 | < 10 mΩ | ≥ 15 mΩ | < 10 mΩ | ≥ 15 mΩ | — |
| Coolant Temperature | ≥ 60°C (140.0°F) | ≤ 57°C (134.6°F) | ≥ 60°C (140.0°F) | ≤ 57°C (134.6°F) | — |
| D Range | ON | OFF | ON | OFF | • Although the initial shift range for Auto Start Stop is “D range” only, the control operation continues even if the shifter moves to one of the following ranges.<br>Shifting positions: P range, R range, N range<br>• Although the initial shift range for EV traveling is “D range” only, operation continues in R range as well. Also, EV traveling may continue when shifter is transitionally moving through N range or P range. |
| High Voltage Battery SOC | ≥ 40.0% | ≤ 38.5% | ≥ 43.0% and < 73.0% | ≤ 40.0% or > 76.0% | — |

| Display | Auto Start Stop | | EV traveling | | Note |
|---|---|---|---|---|---|
| | Condition for permission | Condition for cancel | Condition for permission | Condition for cancel | |
| ISG Temperature | < 100°C (212°F) | ≥ 140°C (284°F) | < 100°C (212°F) | ≥ 140°C (284°F) | Canceled when the temperature increases above 140°C (284°F), and the operation is not permitted until the temperature decreases to 100°C (212°F). Also, when the temperature decreases to 100°C (212°F), the operation is permitted until the temperature increases to 140°C (284°F). |
| Vehicle Speed (Control) | ≤ 0.1 km/h (0.1 MPH) | > 8 km/h (5 MPH) | — | — | Vehicle speed range suitable for EV traveling is 20 — 60 km/h (12 — 37 MPH). |
| HPCM Check 76 | ≤ \| 0 — ±8 \| % | > \| ±8 \| % | < 5 — 20% | ≥ 15 — 100% | — |
| Accel opening angle | ≤ 0.5% | ≥ 0.7% | — | > 19.9% | — |
| Main Brake Pedal Stroke | ≥ 10.6% | ≤ 9.0% | < 11.8 — 23.5% | ≥ 11.8 — 23.5% | Brake stroke for permitting/canceling the EV traveling depends on vehicle speed. However, threshold values for both permission and prohibition are the same. |
| DCDC Converter Status | ON | Inactive | ON | Inactive | — |

## 3. DRIVE MOTOR CONTROL SYSTEM

1) On «Main Menu» display, select {Each System Check}.
2) On «Each System Check» display, select {HEV System}.
3) On «HEV System» display, select {Drive Motor Control System}.
4) On «Drive Motor Control System» display, select {Current Data Display & Save}.

| Display | Content | Note (when normal) | Unit of measure |
|---|---|---|---|
| ECU ACC | Voltage supplied to DMCM | 10 — 15 | V |
| Ignition switch | Ignition switch status | OFF<br>ON | — |
| Ignition Switch Signal (CAN receive) | Ignition switch status detected by HPCM (CAN communication data) | OFF<br>ON | — |
| Accel opening angle | Accelerator opening angle ratio detected by ECM (CAN communication data) | 0 — 100 | % |
| Judgment of Idling | Idle switch status detected by ECM (CAN communication data) | OFF<br>ON | — |
| Main Brake Pedal Stroke | Main brake stroke sensor status calculated by HPCM (CAN communication data) | 0 — 100 | % |
| Engine Speed | Engine speed detected by ECM (CAN communication data) | 0 — 6400 | rpm |
| Vehicle speed | Vehicle speed calculated by VDC CM (CAN communication data) | 0 — 210 | km/h |
| Coolant Temperature | Engine coolant temperature calculated by ECM (CAN communication data) | –40 — 214 | °C |
| ATF Temp. | ATF temperature calculated by TCM (CAN communication data) | –50 — 205 | °C |
| D Range | Drive range status judged by TCM (CAN communication data) | OFF<br>ON | — |
| N Range | Neutral range status judged by TCM (CAN communication data) | OFF<br>ON | — |
| R Range | Reverse range status judged by TCM (CAN communication data) | OFF<br>ON | — |
| P Range | Parking range status judged by TCM (CAN communication data) | OFF<br>ON | — |
| Trip Count | Number of IG ON judged by the body integrated unit (CAN communication data) | — | times |
| Time Count | Detailed time elapsed after IG ON calculated by body integrated unit (CAN communication data) | — | ms |
| Detailed Time Counter | Calculated detailed time elapsed after IG ON | 0 — 100 | ms |
| Count | Number of IG ON, synchronous/asynchronous identification information of the elapsed time after IG ON | Common<br>Originally | — |
| Drive Motor Torque Target (HPCM) | Drive motor target torque calculated by HPCM (CAN communication data) | –65 — 65 | Nm |
| Drive Motor Output Torque Actual | Drive motor torque | –65 — 65 | Nm |
| Drive Motor Torque Upper Limit | Upper limit of drive motor torque | 0 — 65 | Nm |
| Drive Motor Torque Lower Limit | Lower limit of drive motor torque | –65 — 0 | Nm |
| Drive Motor Speed Target (HPCM) | Target drive motor speed calculated by HPCM (CAN communication data) | — | rpm |
| Drive Motor Speed | Drive motor speed | –7000 — 7000 | rpm |
| Drive Motor Inverter Input High Voltage Sensor (Serial) | Drive motor inverter input high voltage (serial reception value) | 9 — 155 | V |
| High Voltage Battery Total Voltage | High voltage battery voltage calculated by BECM (CAN communication data) | 70 — 140 | V |

| Display | Content | Note (when normal) | Unit of measure |
|---|---|---|---|
| High Voltage Battery Amperage | High voltage battery current calculated by BECM (CAN communication data) | –110 — 180 | A |
| Phase U Voltage Target | DMCM output value | 0 — 100 | % |
| Phase V Voltage Target | DMCM output value | 0 — 100 | % |
| Phase W Voltage Target | DMCM output value | 0 — 100 | % |
| Phase U Amperage | Drive motor current | –350 — 350 | A |
| Phase U Amperage Sensor Voltage | Current sensor voltage | 0.5 — 4.5 | V |
| Phase V Amperage | Drive motor current | –350 — 350 | A |
| Phase V Amperage Sensor Voltage | Current sensor voltage | 0.5 — 4.5 | V |
| Phase W Amperage | Drive motor current | –350 — 350 | A |
| Phase W Amperage Sensor Voltage | Current sensor voltage | 0.5 — 4.5 | V |
| Drive Motor Amperage Sensor Power Supply Voltage | Current sensor power supply voltage | 4.9 — 5.1 | V |
| Drive Motor Output Power Actual | Drive motor output | — | W |
| High Voltage Battery Temperature (MIN) | The lowest temperature among values of high voltage battery temperature detected through multiple sensors by BECM (CAN communication data) | –40 — 63 | °C |
| Drive Motor Inverter Temperature A | Drive motor inverter temperature (serial reception value) | –50 — 150 | °C |
| Drive Motor Inverter Temperature B | Drive motor inverter temperature (serial reception value) | –50 — 150 | °C |
| Drive Motor Inverter Temperature C | Drive motor inverter temperature (serial reception value) | –50 — 150 | °C |
| Drive Motor Temperature A | Drive motor temperature | –55 — 140 | °C |
| Drive Motor Temperature A Sensor Voltage | Drive motor temperature sensor voltage | 0.23 — 4.5 | V |
| Drive Motor Temperature B | Drive motor temperature | –55 — 140 | °C |
| Drive Motor Temperature B Sensor Voltage | Drive motor temperature sensor voltage | 0.23 — 4.5 | V |
| Drive Motor Inverter Operation Signal(HPCM) | Drive motor inverter operation request of HPCM (CAN communication data) | OFF<br>ON | — |
| Drive Motor Inverter Operation Status | Drive motor inverter drive status | OFF<br>ON | — |
| Drive Motor Inverter Operation Update Signal Count (Serial) | Drive motor inverter operation counter | 0 — 255 | Count |
| Drive Motor Inverter Power Supply Relay Output Signal | Drive motor inverter power supply relay operation signal | OFF<br>ON | — |
| Drive Motor Inverter Power Supply Relay Output Actual | Monitor signal for drive motor inverter power supply relay operation signal | OFF<br>ON | — |
| Contactor Signal(HPCM) | Contactor operation request status of HPCM (CAN communication data) | OFF<br>ON<br>Abnormal OFF | — |
| Contactor Weld Diagnosis Status | Contactor adhesion status judged by BECM (CAN communication data) | OFF<br>Processing | — |
| Contactor Close Status | Contactor close status judged by BECM (CAN communication data) | Non<br>Close | — |
| Contactor Close Sequence Status | Contactor status judged by BECM (CAN communication data) | OFF<br>Processing | — |
| Contactor Open Status | Contactor status judged by BECM (CAN communication data) | Non<br>Open | — |

| Display | Content | Note (when normal) | Unit of measure |
|---|---|---|---|
| High Voltage Battery Cooling Fan Duty Target (HPCM) | High voltage battery cooling fan duty request calculated by HPCM (CAN communication data) | 0 — 100 (20 — 70%: normal, 100%: failure, 0 — 20%: dead zone) | % |
| High Voltage Battery Cooling Fan Duty Output | High voltage battery cooling fan duty | 0 — 90 | % |
| High Voltage Battery Cooling Fan Speed | High voltage battery cooling fan speed | 0 — 6000 | rpm |
| DCDC Converter Output Permit Signal (HPCM) | DC/DC converter output permission status calculated by HPCM (CAN communication data) | OFF<br>ON | — |
| DCDC Converter Output Voltage Target (HPCM) | DC/DC converter output indicate voltage calculated by HPCM (CAN communication data) | — | V |
| DCDC Converter Output Voltage Actual | Voltage output at DC/DC converter | 10 — 15.5 | V |
| DCDC Converter Output Amperage | Current output at DC/DC converter | 0 — 130 | A |
| DCDC Converter Output Limit Amperage | DC/DC converter set value | 130 | A |
| DCDC Converter Input Voltage | Input high voltage detected at DC/DC converter | 30 — 160 | V |
| DCDC Converter Temperature | Temperature calculated at DC/DC converter | –50 — 160 | °C |
| DCDC Converter Status Check | DC/DC converter control value | 0/8/24 | — |
| DCDC Converter Check 1 | DC/DC converter control value | 0 | — |
| DCDC Converter Check 2 | DC/DC converter control value | 0 | — |
| DCDC Converter Operation Update Signal Count (Serial) | DC/DC converter operation counter | 0 — 255 | Count |
| DCDC Converter Output Permit Signal (Serial) | DC/DC converter output permission<br>Serial transmission data (DMCM) | OFF<br>ON | — |
| DCDC Converter Output Voltage Target (Serial) | DC/DC converter output indicate voltage<br>Serial transmission data (DMCM) | — | V |
| DCDC Converter Output Voltage (Serial) | DC/DC converter output voltage<br>Serial reception data (DC/DC) | 10 — 15.5 | V |
| DCDC Converter Output Amperage (Serial) | DC/DC converter output current<br>Serial reception data (DC/DC) | 0 — 130 | A |
| DCDC Converter Output Limit Amperage (Serial) | DC/DC converter output limit<br>Serial reception data (DC/DC) | 130 | A |
| DCDC Converter Input Voltage (Serial) | DC/DC converter input voltage<br>Serial reception data (DC/DC) | 30 — 160 | V |
| DCDC Converter Temperature (Serial) | DC/DC converter temperature<br>Serial reception data (DC/DC) | –50 — 160 | °C |
| DCDC Converter Status Check (Serial) | DC/DC converter status information<br>Serial reception data (DC/DC) | 0/8/24 | — |
| DCDC Converter Check 1 (Serial) | DC/DC converter protection information<br>Serial reception data (DC/DC) | 0 | — |
| DCDC Converter Check 2 (Serial) | DC/DC converter trouble information<br>Serial reception data (DC/DC) | 0 | — |
| DCDC Converter Initialize Completion | DC/DC converter initialize completion status | Incomplete<br>Complete | — |
| DCDC Converter Serial Check | DC/DC converter serial communication failure | 0 | — |
| Hybrid Fail Lamp Signal | Hybrid fail lamp illumination request | OFF<br>ON | — |
| OBD Test Status | OBD related diagnosis result | Test Not Comp<br>Normal<br>Abnormal | — |
| Drive Motor Inverter Control Mode Target(HPCM) | Target control mode of drive motor inverter calculated by HPCM | — | — |

| Display | Content | Note (when normal) | Unit of measure |
|---|---|---|---|
| Sequence Status Check | DMCM set value | — | — |
| Drive Motor Inverter Check | DMCM input value | 0 | — |
| Drive Motor Torque Limit Check | DMCM output value | 0 | — |
| Drive Motor Torque Limit Status | DMCM output value | Normal<br>Limitation | — |
| Drive Motor Mechanical Angle Pulse | Drive motor mechanical angle | 0 — 4095 | Pulse |
| Drive Motor Electrical Angle | Calculated drive motor electrical angle | 0 — 2π | rad |
| d-axis Current Value | DMCM control value | — | A |
| q-axis Current Value | DMCM control value | — | A |
| Carrier Period | DMCM set value | — | us |
| Drive Motor Inverter Temperature Estimated | Drive motor inverter temperature | — | °C |
| Allow Drive Motor Position Sensor Diagnosis | DMCM control value | OFF<br>ON | — |
| Allow 14V Condition Diagnosis | DMCM control value | OFF<br>ON | — |
| Delivery Mode Connector | Delivery mode terminal information detected by ECM | — | — |
| Drive Motor Inverter Serial Check | Drive motor inverter serial communication failure | — | — |
| P0A3F-Detail Code 0300 | P0A3F - detail code 0300 | — | — |
| P0A3F-Detail Code 0301 | P0A3F - detail code 0301 | — | — |
| P0A3F-Detail Code 0302 | P0A3F - detail code 0302 | — | — |
| P0A3F-Detail Code 0303 | P0A3F - detail code 0303 | — | — |
| P0A3F-Detail Code 0304 | P0A3F - detail code 0304 | — | — |
| P0A3F-Detail Code 0305 | P0A3F - detail code 0305 | — | — |
| P0A3F-Detail Code 0306 | P0A3F - detail code 0306 | — | — |
| P0A3F-Detail Code 0307 | P0A3F - detail code 0307 | — | — |
| P0A3F-Detail Code 030A | P0A3F - detail code 030A | — | — |
| P0A78-Detail Code 0500 | P0A78 - detail code 0500 | — | — |
| P0A78-Detail Code 0501 | P0A78 - detail code 0501 | — | — |
| P0A78-Detail Code 0502 | P0A78 - detail code 0502 | — | — |
| P0A78-Detail Code 0503 | P0A78 - detail code 0503 | — | — |
| P0A78-Detail Code 0504 | P0A78 - detail code 0504 | — | — |
| P0A78-Detail Code 0505 | P0A78 - detail code 0505 | — | — |
| P0A78-Detail Code 0506 | P0A78 - detail code 0506 | — | — |
| P0A78-Detail Code 0507 | P0A78 - detail code 0507 | — | — |
| P0A78-Detail Code 0508 | P0A78 - detail code 0508 | — | — |
| P0A94-Detail Code 0800 | P0A94 - detail code 0800 | — | — |
| P0A94-Detail Code 0801 | P0A94 - detail code 0801 | — | — |
| P0A94-Detail Code 0802 | P0A94 - detail code 0802 | — | — |
| P0A94-Detail Code 0803 | P0A94 - detail code 0803 | — | — |
| P0A94-Detail Code 0804 | P0A94 - detail code 0804 | — | — |
| P0A94-Detail Code 0805 | P0A94 - detail code 0805 | — | — |
| P0A94-Detail Code 0806 | P0A94 - detail code 0806 | — | — |
| DMCU Check A | DMCM detailed information A | — | — |
| DMCU Check B | DMCM detailed information B | — | — |
| DMCU Check C | DMCM detailed information C | — | — |
| DMCU Check D | DMCM detailed information D | — | — |
| CAN Received Check 1 | CAN received counter 1 | — | Count |

| Display | Content | Note (when normal) | Unit of measure |
|---|---|---|---|
| CAN Received Check 2 | CAN received counter 2 | — | Count |
| CAN Received Check 3 | CAN received counter 3 | — | Count |
| CAN Received Check 4 | CAN received counter 4 | — | Count |
| CAN Received Check 5 | CAN received counter 5 | — | Count |
| DMCM Detail Check A-0 | DMCM detailed information A-0 | — | — |
| DMCM Detail Check A-1 | DMCM detailed information A-1 | — | — |
| DMCM Detail Check A-2 | DMCM detailed information A-2 | — | — |
| DMCM Detail Check A-3 | DMCM detailed information A-3 | — | — |
| DMCM Detail Check A-4 | DMCM detailed information A-4 | — | — |
| DMCM Detail Check A-5 | DMCM detailed information A-5 | — | — |
| DMCM Detail Check A-6 | DMCM detailed information A-6 | — | — |
| DMCM Detail Check A-7 | DMCM detailed information A-7 | — | — |
| DMCM Detail Check A-8 | DMCM detailed information A-8 | — | — |
| DMCM Detail Check A-9 | DMCM detailed information A-9 | — | — |
| DMCM Detail Check A-10 | DMCM detailed information A-10 | — | — |
| DMCM Detail Check A-11 | DMCM detailed information A-11 | — | — |
| DMCM Detail Check A-12 | DMCM detailed information A-12 | — | — |
| DMCM Detail Check A-13 | DMCM detailed information A-13 | — | — |
| DMCM Detail Check A-14 | DMCM detailed information A-14 | — | — |
| DMCM Detail Check A-15 | DMCM detailed information A-15 | — | — |
| DMCM Detail Check A-16 | DMCM detailed information A-16 | — | — |
| DMCM Detail Check A-17 | DMCM detailed information A-17 | — | — |
| DMCM Detail Check B-0 | DMCM detailed information B-0 | — | — |
| DMCM Detail Check B-1 | DMCM detailed information B-1 | — | — |
| DMCM Detail Check B-2 | DMCM detailed information B-2 | — | — |
| DMCM Detail Check B-3 | DMCM detailed information B-3 | — | — |
| DMCM Detail Check C-8 | DMCM detailed information C-8 | — | — |
| DMCM Detail Check C-9 | DMCM detailed information C-9 | — | — |
| DMCM Detail Check D-0 | DMCM detailed information D-0 | — | — |
| DMCM Detail Check D-1 | DMCM detailed information D-1 | — | — |
| DMCM Detail Check D-2 | DMCM detailed information D-2 | — | — |
| DMCM Detail Check D-3 | DMCM detailed information D-3 | — | — |
| DMCM Detail Check D-4 | DMCM detailed information D-4 | — | — |
| DMCM Detail Check D-5 | DMCM detailed information D-5 | — | — |
| DMCM Detail Check D-6 | DMCM detailed information D-6 | — | — |
| DMCM Detail Check E-9 | DMCM detailed information E-9 | — | — |
| DMCM Detail Check E-10 | DMCM detailed information E-10 | — | — |
| DMCM Detail Check E-11 | DMCM detailed information E-11 | — | — |
| DMCM Detail Check E-12 | DMCM detailed information E-12 | — | — |
| DMCM Detail Check E-13 | DMCM detailed information E-13 | — | — |
| DMCM Detail Check F-0 | DMCM detailed information F-0 | — | — |
| DMCM Detail Check F-1 | DMCM detailed information F-1 | — | — |
| DMCM Detail Check G-0 | DMCM detailed information G-0 | — | — |
| DMCM Detail Check G-1 | DMCM detailed information G-1 | — | — |
| DMCM Detail Check I-0 | DMCM detailed information I-0 | — | — |
| DMCM Detail Check I-1 | DMCM detailed information I-1 | — | — |
| DMCM Detail Check I-2 | DMCM detailed information I-2 | — | — |
| DMCM Detail Check I-3 | DMCM detailed information I-3 | — | — |
| DMCM Detail Check I-4 | DMCM detailed information I-4 | — | — |

| Display | Content | Note (when normal) | Unit of measure |
|---|---|---|---|
| DMCM Detail Check I-5 | DMCM detailed information I-5 | — | — |
| DMCM Detail Check I-6 | DMCM detailed information I-6 | — | — |
| DMCM Detail Check I-7 | DMCM detailed information I-7 | — | — |
| DMCM Detail Check I-8 | DMCM detailed information I-8 | — | — |
| DMCM Detail Check I-9 | DMCM detailed information I-9 | — | — |
| DMCM Detail Check I-10 | DMCM detailed information I-10 | — | — |
| DMCM Detail Check I-11 | DMCM detailed information I-11 | — | — |
| DMCM Detail Check I-12 | DMCM detailed information I-12 | — | — |
| DMCM Detail Check I-13 | DMCM detailed information I-13 | — | — |
| DMCM Detail Check I-14 | DMCM detailed information I-14 | — | — |
| DMCM Detail Check I-15 | DMCM detailed information I-15 | — | — |
| DMCM Detail Check J-0 | DMCM detailed information J-0 | — | — |
| DMCM Detail Check J-1 | DMCM detailed information J-1 | — | — |
| DMCM Detail Check J-2 | DMCM detailed information J-2 | — | — |
| DMCM Detail Check J-3 | DMCM detailed information J-3 | — | — |
| DMCM Detail Check J-4 | DMCM detailed information J-4 | — | — |
| DMCM Detail Check J-5 | DMCM detailed information J-5 | — | — |
| DMCM Detail Check J-6 | DMCM detailed information J-6 | — | — |
| DMCM Detail Check J-7 | DMCM detailed information J-7 | — | — |
| DMCM Detail Check J-8 | DMCM detailed information J-8 | — | — |
| DMCM Detail Check J-9 | DMCM detailed information J-9 | — | — |
| DMCM Detail Check -10 | DMCM detailed information J-10 | — | — |
| DMCM Detail Check -11 | DMCM detailed information J-11 | — | — |
| DMCM Detail Check J-12 | DMCM detailed information J-12 | — | — |
| DMCM Detail Check J-13 | DMCM detailed information J-13 | — | — |
| DMCM Detail Check J-14 | DMCM detailed information J-14 | — | — |
| DMCM Detail Check J-15 | DMCM detailed information J-15 | — | — |
| DMCM Detail Check J-16 | DMCM detailed information J-16 | — | — |
| DMCM Detail Check K-0 | DMCM detailed information K-0 | — | — |
| DMCM Detail Check K-1 | DMCM detailed information K-1 | — | — |
| DMCM Detail Check K-2 | DMCM detailed information K-2 | — | — |
| DMCM Detail Check K-3 | DMCM detailed information K-3 | — | — |
| DMCM Detail Check K-4 | DMCM detailed information K-4 | — | — |
| DMCM Detail Check K-5 | DMCM detailed information K-5 | — | — |
| DMCM Detail Check K-6 | DMCM detailed information K-6 | — | — |
| DMCM Detail Check L-0 | DMCM detailed information L-0 | — | — |
| System Check 1 | Detailed information 1 | — | — |
| System Check 2 | Detailed information 2 | — | — |
| System Check 8 | Detailed information 8 | — | — |
| System Check 9 | Detailed information 9 | — | — |
| System Check 11 | Detailed information 11 | — | — |
| System Check 12 | Detailed information 12 | — | — |
| Drive Motor Control Mode Check 1 | DMCM control information 1 | — | — |
| Drive Motor Control Mode Check 4 | DMCM control information 4 | — | — |
| Drive Motor Control Mode Check 5 | DMCM control information 5 | — | — |
| Drive Motor Control Mode Check 6 | DMCM control information 6 | — | — |

## 4. BATTERY ENERGY CONTROL SYSTEM

1) On «Main Menu» display, select {Each System Check}.
2) On «Each System Check» display, select {HEV System}.
3) On «HEV System» display, select {Battery Energy Control System}.
4) On «Battery Energy Control System» display, select {Current Data Display & Save}.

| Display | Content | Note (when normal) | Unit of measure |
|---|---|---|---|
| High Voltage Battery Control Status | BECM control mode | 01 — 06 | — |
| High Voltage Battery SOC | High voltage battery residual quantity | 5 — 95 | % |
| High Voltage Battery SOH | Battery status auxiliary parameter of high voltage battery | 25 — 100 | % |
| High Voltage Battery Total Voltage | High voltage battery voltage | 70 — 140 | V |
| High Voltage Battery Amperage | High voltage battery current | –110 — 180 | A |
| High Voltage Battery Charge Power Limit 1 | High voltage battery charge control power value | 0 — 14.0 | kw |
| High Voltage Battery Discharge Power Limit 1 | High voltage battery discharge control power value | 0 — 14.0 | kw |
| High Voltage Battery Temperature 1 | High voltage battery temperature 1 | –40 — 63 | Deg.c |
| High Voltage Battery Temperature 2 | High voltage battery temperature 2 | –40 — 63 | Deg.c |
| High Voltage Battery Temperature 3 | High voltage battery temperature 3 | –40 — 63 | Deg.c |
| High Voltage Battery Intake Air Temperature | High voltage battery intake temperature | –40 — 86.5 | Deg.c |
| High Voltage Battery Internal Resistance | High voltage battery internal resistance | 0 — 4.0 | ohm |
| HEV System Leakage Resistance (+) | Entire hybrid system leakage resistance on + side | 1000 | kohm |
| High Voltage Battery Pack Leakage Resistance (+) | High voltage battery internal leakage resistance on + side | 1000 | kohm |
| HEV System Leakage Resistance (–) | Entire hybrid system leakage resistance on – side | 1000 | kohm |
| High Voltage Battery Pack Leakage Resistance (–) | High voltage battery internal leakage resistance on – side | 1000 | kohm |
| OBD Test Status | Diagnosis status of emission-related diagnosis | Test Not Comp<br>Normal<br>Abnormal | — |
| Hybrid Fail Lamp Signal | Hybrid fail lamp illumination request by BECM | OFF<br>ON | — |
| Trip Count | Number of IG ON judged by the body integrated unit (CAN communication data) | — | times |
| Time Count | Detailed time elapsed after IG ON calculated by body integrated unit (CAN communication data) | — | ms |
| Count | Number of IG ON, synchronous/asynchronous identification information of the elapsed time after IG ON | Common<br>Originally | — |
| Ignition switch | Ignition switch condition | OFF<br>ON | — |
| Service Plug Status | Service disconnect plug lock status | OFF<br>ON | — |
| High Voltage Battery Fuse Condition | High voltage battery fuse status | Normal<br>Blowout | — |
| Positive Contactor Status | + side contactor open/close status | Open<br>Close | — |

| Display | Content | Note (when normal) | Unit of measure |
|---|---|---|---|
| Negative Contactor Status | – side contactor open/close status | Open<br>Close | — |
| Pre-Charge Contactor Status | Precharge contactor open/close status | Open<br>Close | — |
| BECM Control Check 22 | Detailed information of control | — | — |
| BECM Control Check 23 | Detailed information of control | — | — |
| High Voltage Battery Block 1 SOC | High voltage battery block SOC | 5 — 95 | % |
| High Voltage Battery Block 2 SOC | High voltage battery block SOC | 5 — 95 | % |
| High Voltage Battery Block 3 SOC | High voltage battery block SOC | 5 — 95 | % |
| High Voltage Battery Block 4 SOC | High voltage battery block SOC | 5 — 95 | % |
| High Voltage Battery Block 5 SOC | High voltage battery block SOC | 5 — 95 | % |
| High Voltage Battery Block 6 SOC | High voltage battery block SOC | 5 — 95 | % |
| High Voltage Battery Block 7 SOC | High voltage battery block SOC | 5 — 95 | % |
| High Voltage Battery Block 8 SOC | High voltage battery block SOC | 5 — 95 | % |
| High Voltage Battery Block 9 SOC | High voltage battery block SOC | 5 — 95 | % |
| High Voltage Battery Block 10 SOC | High voltage battery block SOC | 5 — 95 | % |
| High Voltage Battery Block 11 SOC | High voltage battery block SOC | 5 — 95 | % |
| High Voltage Battery Block Voltage 1 | High voltage battery block voltage | 8 — 14 | V |
| High Voltage Battery Block Voltage 2 | High voltage battery block voltage | 8 — 14 | V |
| High Voltage Battery Block Voltage 3 | High voltage battery block voltage | 8 — 14 | V |
| High Voltage Battery Block Voltage 4 | High voltage battery block voltage | 8 — 14 | V |
| High Voltage Battery Block Voltage 5 | High voltage battery block voltage | 8 — 14 | V |
| High Voltage Battery Block Voltage 6 | High voltage battery block voltage | 8 — 14 | V |
| High Voltage Battery Block Voltage 7 | High voltage battery block voltage | 8 — 14 | V |
| High Voltage Battery Block Voltage 8 | High voltage battery block voltage | 8 — 14 | V |
| High Voltage Battery Block Voltage 9 | High voltage battery block voltage | 8 — 14 | V |
| High Voltage Battery Block Voltage 10 | High voltage battery block voltage | 8 — 14 | V |
| High Voltage Battery Block Voltage 11 | High voltage battery block voltage | 8 — 14 | V |
| High Voltage Battery Voltage 0 | High voltage battery block voltage (voltage sensor value) | 9.6 — 96 | V |
| High Voltage Battery Voltage 1 | High voltage battery block voltage (voltage sensor value) | 6.4 — 64 | V |
| High Voltage Battery Voltage 2 | High voltage battery block voltage (voltage sensor value) | 3.2 — 32 | V |

| Display | Content | Note (when normal) | Unit of measure |
|---|---|---|---|
| High Voltage Battery Voltage 3 | High voltage battery block voltage (voltage sensor value) | –2.1 — 2.1 | V |
| High Voltage Battery Voltage 4 | High voltage battery block voltage (voltage sensor value) | –16 — –1.6 | V |
| High Voltage Battery Voltage 5 | High voltage battery block voltage (voltage sensor value) | –48 — –4.8 | V |
| High Voltage Battery Voltage 6 | High voltage battery block voltage (voltage sensor value) | –72 — –7.2 | V |
| BECM Control Check 24 | Detailed information of control | — | — |
| BECM Control Check 25 | Detailed information of control | — | — |
| High Voltage Battery Amperage Sensor Output | High voltage battery current sensor value | –110 — 180 | A |
| High Voltage Battery Amperage Offset Value | High voltage battery current sensor offset value | 0 — 1 | A |
| ECU ACC | Voltage supplied to BECM | 10 — 15 | V |
| Drive Motor Inverter Input Voltage | Drive motor inverter input voltage calculated by DMCM (CAN communication data) | 9 — 155 | V |
| Contactor Signal (HPCM) | Contactor operation request status judged by HPCM (CAN communication data) | OFF<br>ON<br>Abnormal OFF | — |
| Engine Speed | Engine speed calculated by ECM (CAN communication data) | 0 — 6400 | rpm |
| P Range | Parking range status judged by TCM (CAN communication data) | OFF<br>ON | — |
| Vehicle speed | Vehicle speed calculated by VDC (CAN communication data) | 0 — 210 | km/h |
| Drive Motor Inverter Operation Status | Drive motor inverter operation status calculated by DMCM (CAN communication data) | OFF<br>ON | — |
| Drive Motor Torque Target (HPCM) | Target drive motor torque calculated by HPCM (CAN communication data) | –65 — 65 | Nm |
| Drive Motor Output Torque Actual | Drive motor output torque calculated by DMCM (CAN communication data) | –65 — 65 | Nm |
| Drive Motor Speed Target (HPCM) | Target drive motor speed calculated by HPCM (CAN communication data) | — | rpm |
| Drive Motor Speed | Drive motor speed calculated by DMCM (CAN communication data) | –7000 — 7000 | rpm |
| High Voltage Battery Cooling Fan Duty Target (HPCM) | High voltage battery cooling fan duty request calculated by HPCM (CAN communication data) | 0 — 100 (20 — 70%: normal, 100%: failure, 0 — 20%: dead zone) | % |
| High Voltage Battery Cooling Fan Speed | High voltage battery cooling fan speed calculated by DMCM (CAN communication data) | 0 — 6000 | rpm |
| High Voltage Battery Charge Power Limit 2 | High voltage battery charge control power value (assist) | — | — |
| High Voltage Battery Discharge Power Limit 2 | High voltage battery discharge control power value (assist) | — | — |
| BECM Control Check 26 | Detailed information of control | — | — |
| BECM Control Check 27 | Detailed information of control | — | — |
| BECM Control Check 28 | Detailed information of control | — | — |
| BECM Control Check 29 | Detailed information of control | — | — |
| BECM Control Check 15 | Detailed information of control | — | — |
| BECM Control Check 16 | Detailed information of control | — | — |
| BECM Control Check 30 | Detailed information of control | — | — |
| BECM Control Check 32 | Detailed information of control | — | — |
| High Voltage Battery SOC Subservience Parameter 1 | Detailed information of control | — | — |
| High Voltage Battery SOC Subservience Parameter 2 | Detailed information of control | — | — |

| Display | Content | Note (when normal) | Unit of measure |
|---|---|---|---|
| High Voltage Battery SOC Subservience Parameter 3 | Detailed information of control | — | — |
| High Voltage Battery SOC Subservience Parameter 4 | Detailed information of control | — | — |
| High Voltage Battery SOC Subservience Parameter 5 | Detailed information of control | — | — |
| High Voltage Battery SOC Subservience Parameter 6 | Detailed information of control | — | — |
| High Voltage Battery SOC Subservience Parameter 7 | Detailed information of control | — | — |
| High Voltage Battery SOC Subservience Parameter 8 | Detailed information of control | — | — |
| High Voltage Battery SOC Subservience Parameter 9 | Detailed information of control | — | — |
| High Voltage Battery SOC Subservience Parameter 10 | Detailed information of control | — | — |
| High Voltage Battery SOC Subservience Parameter 11 | Detailed information of control | — | — |
| BECM Check 1 | Detailed information of control | — | — |
| BECM Check 2 | Detailed information of control | — | — |
| BECM Check 3 | Detailed information of control | — | — |
| BECM Check 4 | Detailed information of control | — | — |
| BECM Control Check 1 | Detailed information of control | — | — |
| BECM Control Check 2 | Detailed information of control | — | — |
| BECM Control Check 3 | Detailed information of control | — | — |
| BECM Control Check 4 | Detailed information of control | — | — |
| BECM Control Check 5 | Detailed information of control | — | — |
| BECM Control Check 6 | Detailed information of control | — | — |
| BECM Control Check 7 | Detailed information of control | — | — |
| BECM Control Check 8 | Detailed information of control | — | — |
| BECM Control Check 9 | Detailed information of control | — | — |
| BECM Control Check 10 | Detailed information of control | — | — |
| BECM Control Check 11 | Detailed information of control | — | — |
| BECM Control Check 12 | Detailed information of control | — | — |
| BECM Control Check 13 | Detailed information of control | — | — |
| BECM Control Check 14 | Detailed information of control | — | — |
| BECM Control Check 17 | Detailed information of control | — | — |
| BECM Control Check 18 | Detailed information of control | — | — |
| BECM Control Check 19 | Detailed information of control | — | — |
| BECM Control Check 20 | Detailed information of control | — | — |
| BECM Control Check 21 | Detailed information of control | — | — |
| High Voltage Battery Temp. Info 1(IGON) | Detailed information of control | — | — |
| High Voltage Battery Temp. Info 2(IGON) | Detailed information of control | — | — |
| High Voltage Battery Temp. Info 3(IGON) | Detailed information of control | — | — |
| High Voltage Battery Temp. Info 4(IGON) | Detailed information of control | — | — |
| High Voltage Battery Temp. Info 5(IGON) | Detailed information of control | — | — |

| Display | Content | Note (when normal) | Unit of measure |
|---|---|---|---|
| High Voltage Battery Temp. Info 6(IGON) | Detailed information of control | — | — |
| High Voltage Battery Temp. Info 7(IGON) | Detailed information of control | — | — |
| High Voltage Battery Temp. Info 8(IGON) | Detailed information of control | — | — |
| High Voltage Battery Temp. Info 9(IGON) | Detailed information of control | — | — |
| High Voltage Battery Temp. Info 10(IGON) | Detailed information of control | — | — |
| High Voltage Battery Temp. Info 11(IGON) | Detailed information of control | — | — |
| High Voltage Battery Temp. Info 12(IGON) | Detailed information of control | — | — |
| High Voltage Battery Temp. Info 13(IGON) | Detailed information of control | — | — |
| High Voltage Battery Temp. Info 1(IGOFF) | Detailed information of control | — | — |
| High Voltage Battery Temp. Info 2(IGOFF) | Detailed information of control | — | — |
| High Voltage Battery Temp. Info 3(IGOFF) | Detailed information of control | — | — |
| High Voltage Battery Temp. Info 4(IGOFF) | Detailed information of control | — | — |
| High Voltage Battery Temp. Info 5(IGOFF) | Detailed information of control | — | — |
| High Voltage Battery Temp. Info 6(IGOFF) | Detailed information of control | — | — |
| High Voltage Battery Temp. Info 7(IGOFF) | Detailed information of control | — | — |
| High Voltage Battery Temp. Info 8(IGOFF) | Detailed information of control | — | — |
| High Voltage Battery Temp. Info 9(IGOFF) | Detailed information of control | — | — |
| High Voltage Battery Temp. Info 10(IGOFF) | Detailed information of control | — | — |
| High Voltage Battery Temp. Info 11(IGOFF) | Detailed information of control | — | — |
| High Voltage Battery Temp. Info 12(IGOFF) | Detailed information of control | — | — |
| High Voltage Battery Temp. Info 13(IGOFF) | Detailed information of control | — | — |

# 14.Freeze Frame Data Display

## A: OPERATION

NOTE:
For detailed operation procedures, refer to “PC application help for Subaru Select Monitor”.

### 1. HYBRID POWERTRAIN CONTROL SYSTEM

1) On «Main Menu» display, select {Each System Check}.
2) On «Each System Check» display, select {HEV System}.
3) On «HEV System» display, select {Hybrid Powertrain Control System}.
4) On «Hybrid Powertrain Control System» display, select {Freeze Frame Data Display}.

| Display | Contents | Unit of measure |
|---|---|---|
| Vehicle speed | Vehicle speed calculated by VDC CM (CAN communication data) | km/h |
| Ambient Temperature | Ambient temperature calculated by combination meter (CAN communication data) | °C |
| Engine Speed | Engine speed calculated by ECM (CAN communication data) | rpm |
| Coolant Temperature | Engine coolant temperature calculated by ECM (CAN communication data) | °C |
| Gear Ratio Actual | Gear ratio calculated by TCM (CAN communication data) | — |
| A/T Oil Temperature | ATF temperature calculated by TCM (CAN communication data) | °C |
| Trip Count | Number of times the ignition is ON judged by body integrated unit (CAN communication data) | times |
| Count | Identification information of synchronization/asynchronization of Trip Count, Time Count | — |
| Time Count | Detailed time elapsed after the ignition is ON calculated by body integrated unit (CAN communication data) | ms |
| Ignition switch | Ignition switch status | — |
| Starter SW | Starter switch status | — |
| P Range | Parking range status judged by TCM (CAN communication data) | — |
| R Range | Reverse range status judged by TCM (CAN communication data) | — |
| N Range | Neutral range status judged by TCM (CAN communication data) | — |
| D Range | Drive range status judged by TCM (CAN communication data) | — |
| Accel opening angle | Accelerator opening angle ratio calculated by ECM (CAN communication data) | % |
| Main Brake Pedal Stroke | Brake stroke calculated by main brake stroke sensor voltage | % |
| Sub Brake Pedal Stroke | Brake stroke calculated by sub brake stroke sensor voltage | % |
| Brake Booster Pressure 1 | Vacuum pressure calculated by brake vacuum sensor voltage 1 | kPa |
| Brake Booster Pressure 2 | Vacuum pressure calculated by brake vacuum sensor voltage 2 | kPa |
| Atmospheric pressure | Atmospheric pressure calculated by ECM (CAN communication data) | kPa |
| 12V Battery Relay Target Mode | 12V battery relay commanded status | — |
| Vacuum Pump Relay Actual | Voltage applied to brake vacuum pump relay | V |
| HPCM Target Control Mode | Target control mode of HPCM | — |
| HPCM Current Control Mode | Current control mode of HPCM | — |
| Drive Motor Inverter Input Voltage | Drive motor inverter input voltage calculated by DMCM (CAN communication data) | V |
| Drive Motor Output Torque Actual | Drive motor output torque calculated by DMCM (CAN communication data) | Nm |
| Drive Motor Speed | Drive motor speed calculated by DMCM (CAN communication data) | rpm |
| ISG Terminal Voltage | Terminal voltage calculated by integrated starter generator (ISG) (LIN communication data) | V |
| ISG Cranking Status | Cranking demand acceptance status judged by integrated starter generator (ISG) (LIN communication data) | — |
| ISG Control Mode Actual | Current control mode judged by integrated starter generator (ISG) (LIN communication data) | — |

| Display | Contents | Unit of measure |
|---|---|---|
| DCDC Converter Output Voltage Actual | DC/DC converter output voltage calculated by DMCM (CAN communication data) | V |
| Electric Oil Pump Motor Speed | Motor speed calculated by electric oil pump (CAN communication data) | rpm |
| High Voltage Battery SOC | High voltage battery residual quantity calculated by BECM (CAN communication data) | % |
| High Voltage Battery Total Voltage | High voltage battery voltage calculated by BECM (CAN communication data) | V |
| High Voltage Battery Discharge Power Limit 1 | High voltage battery discharge power limit calculated by BECM (CAN communication data) | kW |
| High Voltage Battery Charge Power Limit 1 | High voltage battery charge power limit calculated by BECM (CAN communication data) | kW |
| High Voltage Battery Cooling Fan Speed | High voltage battery cooling fan speed calculated by DMCM (CAN communication data) | rpm |
| BECM Control Status | BECM control mode judged by BECM (CAN communication data) | — |
| Contactor Close Status | Contactor close status judged by BECM (CAN communication data) | — |
| 12V Engine Restart Battery Voltage | 12 volt engine restart battery voltage calculated by 12 volt engine restart battery sensor (LIN communication data) | V |
| 12V Engine Restart Battery SOC | 12 volt engine restart battery capacity calculated by 12 volt engine restart battery sensor (LIN communication data) | % |
| 12V Auxiliary Battery Voltage | 12 volt auxiliary battery voltage | V |
| OBD Test Status | Diagnosis status of emission-related diagnosis | — |
| ECM Fail Safe Request Check | Fail safe request detailed information from ECM | — |
| TCM Fail Safe Request Check | Fail safe request detailed information from TCM | — |
| DMCM Fail Safe Request Check | Fail safe request detailed information from DMCM | — |
| BECM Fail Safe Request Check | Fail safe request detailed information from BECM | — |
| AUTO/MANUAL Mode Switch | Manual mode switch status judged by TCM (CAN communication data) | — |
| Brake Pedal Position Learning Status | Brake stroke sensor learning status | — |
| HPCM Check 20 | Detailed information of control | — |
| HPCM Check 21 | Detailed information of control | — |
| HPCM Check 22 | Detailed information of control | — |
| HPCM Check 23 | Detailed information of control | — |
| HPCM Check 24 | Detailed information of control | — |
| HPCM Check 25 | Detailed information of control | — |
| HPCM Check 40 | Detailed information of control | mΩ |
| HPCM Check 78 | Detailed information of control | — |
| HPCM Check 82 | Detailed information of control | — |
| HPCM Check 125 | Detailed information of control | — |
| HPCM Check 126 | Detailed information of control | — |
| HPCM Check 127 | Detailed information of control | — |
| HPCM Check 128 | Detailed information of control | — |
| HPCM Check 129 | Detailed information of control | — |
| HPCM Check 130 | Detailed information of control | — |
| HPCM Check 133 | Detailed information of control | — |
| HPCM Check 134 | Detailed information of control | — |
| HPCM Check 135 | Detailed information of control | — |
| HPCM Check 136 | Detailed information of control | — |
| HPCM Check 159 | Detailed information of control | — |
| HPCM Check 171 | Detailed information of control | — |

## 2. DRIVE MOTOR CONTROL SYSTEM

1) On «Main Menu» display, select {Each System Check}.
2) On «Each System Check» display, select {HEV System}.
3) On «HEV System» display, select {Drive Motor Control System}.
4) On «Drive Motor Control System» display, select {Freeze Frame Data Display}.

| Display | Contents | Unit of measure |
|---|---|---|
| ECU ACC | Voltage supplied to DMCM | V |
| Ignition switch | Ignition switch status | — |
| Ignition Switch Signal (CAN receive) | Ignition switch status detected by HPCM (CAN communication data) | — |
| Accel opening angle | Accelerator opening angle ratio detected by ECM (CAN communication data) | % |
| Judgment of Idling | Idle switch status detected by ECM (CAN communication data) | — |
| Main Brake Pedal Stroke | Main brake stroke sensor status calculated by HPCM (CAN communication data) | % |
| Engine Speed | Engine speed detected by ECM (CAN communication data) | rpm |
| Vehicle speed | Vehicle speed calculated by VDC CM (CAN communication data) | km/h |
| Coolant Temperature | Engine coolant temperature calculated by ECM (CAN communication data) | °C |
| A/T Oil Temperature | ATF temperature calculated by TCM (CAN communication data) | °C |
| D Range | Drive range status judged by TCM (CAN communication data) | — |
| N Range | Neutral range status judged by TCM (CAN communication data) | — |
| R Range | Reverse range status judged by TCM (CAN communication data) | — |
| P Range | Parking range status judged by TCM (CAN communication data) | — |
| Trip Count | Number of times the ignition is ON judged by body integrated unit (CAN communication data) | times |
| Time Count | Detailed time elapsed after the ignition is ON calculated by body integrated unit (CAN communication data) | ms |
| Detailed Time Counter | Calculated detailed time elapsed after the ignition is ON | ms |
| DMCM Check Detailed Code | — | — |
| Count | Identification information of synchronization/asynchronization of Trip Count, Time Count | — |
| Drive Motor Torque Target (HPCM) | Drive motor target torque calculated by HPCM (CAN communication data) | Nm |
| Drive Motor Output Torque Actual | Target drive motor torque | Nm |
| Drive Motor Torque Upper Limit | DMCM set value | Nm |
| Drive Motor Torque Lower Limit | DMCM set value | Nm |
| Drive Motor Speed Target (HPCM) | Target drive motor speed calculated by HPCM (CAN communication data) | rpm |
| Drive Motor Speed | Drive motor speed | rpm |
| Drive Motor Inverter Input High Voltage Sensor (Serial) | Drive motor inverter input high voltage (serial) | V |
| High Voltage Battery Total Voltage | High voltage battery voltage calculated by BECM (CAN communication data) | V |
| High Voltage Battery Amperage | High voltage battery current calculated by BECM (CAN communication data) | A |
| Phase U Voltage Target | DMCM output value | % |
| Phase V Voltage Target | DMCM output value | % |
| Phase W Voltage Target | DMCM output value | % |
| Phase U Amperage | Drive motor current | A |
| Phase U Amperage Sensor Voltage | Current sensor voltage | V |
| Phase V Amperage | Drive motor current | A |
| Phase V Amperage Sensor Voltage | Current sensor voltage | V |

| Display | Contents | Unit of measure |
|---|---|---|
| Phase W Amperage | Drive motor current | A |
| Phase W Amperage Sensor Voltage | Current sensor voltage | V |
| Drive Motor Amperage Sensor Power Supply Voltage | Current sensor power supply voltage | V |
| Drive Motor Output Power Actual | Drive motor output | W |
| High Voltage Battery Temperature (MIN) | The lowest temperature among high voltage battery temperature values detected through multiple sensors by BECM (CAN communication data) | °C |
| Drive Motor Inverter Temperature A | Drive motor inverter temperature (serial) | °C |
| Drive Motor Inverter Temperature B | Drive motor inverter temperature (serial) | °C |
| Drive Motor Inverter Temperature C | Drive motor inverter temperature (serial) | °C |
| Drive Motor Temperature A | Drive motor temperature | °C |
| Drive Motor Temperature A Sensor Voltage | Drive motor temperature sensor voltage | V |
| Drive Motor Temperature B | Drive motor temperature | °C |
| Drive Motor Temperature B Sensor Voltage | Drive motor temperature sensor voltage | V |
| Drive Motor Inverter Operation Signal(HPCM) | Drive motor inverter operation request (HPCM) (CAN communication data) | — |
| Drive Motor Inverter Operation Status | Drive motor inverter operation status | — |
| Drive Motor Inverter Power Supply Relay Output Signal | Drive motor inverter power supply relay operation signal | — |
| Drive Motor Inverter Power Supply Relay Output Actual | Monitor signal for drive motor inverter power supply relay operation signal | — |
| Contactor Signal(HPCM) | Contactor operation request status (HPCM) (CAN communication data) | — |
| Contactor Weld Diagnosis Status | Contactor stuck closed status judged by BECM (CAN communication data) | — |
| Contactor Close Status | Contactor close status judged by BECM (CAN communication data) | — |
| Contactor Close Sequence Status | Contactor status judged by BECM (CAN communication data) | — |
| Contactor Open Status | Contactor status judged by BECM (CAN communication data) | — |
| High Voltage Battery Cooling Fan Duty Target (HPCM) | High voltage battery cooling fan duty target calculated by HPCM (CAN communication data) | % |
| High Voltage Battery Cooling Fan Duty Output | High voltage battery cooling fan duty | % |
| High Voltage Battery Cooling Fan Speed | High voltage battery cooling fan speed | rpm |
| DCDC Converter Output Permit Signal (HPCM) | DC/DC converter output permission status calculated by HPCM (CAN communication data) | — |
| DCDC Converter Output Voltage Target (HPCM) | DC/DC converter output indicate voltage calculated by HPCM (CAN communication data) | V |
| DCDC Converter Output Voltage Actual | Voltage output at DC/DC converter | V |
| DCDC Converter Output Amperage | Current output at DC/DC converter | A |
| DCDC Converter Output Limit Amperage | DC/DC converter set value | A |
| DCDC Converter Input Voltage | Input high voltage detected at DC/DC converter | V |
| DCDC Converter Temperature | Temperature calculated at DC/DC converter | °C |
| DCDC Converter Status Check | DC/DC converter control value | — |

| Display | Contents | Unit of measure |
|---|---|---|
| DCDC Converter Check 1 | DC/DC converter control value | — |
| DCDC Converter Check 2 | DC/DC converter control value | — |
| DCDC Converter Operation Update Signal Count (Serial) | DC/DC converter operation counter | Count |
| DCDC Converter Output Permit Signal (Serial) | DC/DC converter output permission<br>Serial transmission data (DMCM) | — |
| DCDC Converter Output Voltage Target (Serial) | DC/DC converter output indicate voltage<br>Serial transmission data (DMCM) | V |
| DCDC Converter Initialize Completion | DC/DC converter initialize completion status | — |
| DCDC Converter Serial Check | DC/DC converter serial communication failure | — |
| Drive Motor Inverter Control Mode Target(HPCM) | Target control mode of drive motor inverter calculated by HPCM | — |
| Sequence Status Check | DMCM set value | — |
| Drive Motor Inverter Check | DMCM input value | — |
| Drive Motor Torque Limit Check | DMCM output value | — |
| Drive Motor Torque Limit Status | DMCM output value | — |
| Drive Motor Mechanical Angle Pulse | Drive motor mechanical angle | Pulse |
| DMCU Check A | DMCM detailed information A | — |
| DMCU Check B | DMCM detailed information B | — |
| DMCU Check C | DMCM detailed information C | — |
| DMCU Check D | DMCM detailed information D | — |
| System Check 1 | Detailed information 1 | — |
| System Check 2 | Detailed information 2 | — |
| Drive Motor Control Mode Check 1 | DMCM control information 1 | — |

## 3. BATTERY ENERGY CONTROL SYSTEM

1) On «Main Menu» display, select {Each System Check}.
2) On «Each System Check» display, select {HEV System}.
3) On «HEV System» display, select {Battery Energy Control System}.
4) On «Battery Energy Control System» display, select {Freeze Frame Data Display}.

| Display | Contents | Unit of measure |
|---|---|---|
| High Voltage Battery Control Status | BECM control mode | — |
| High Voltage Battery SOC | High voltage battery residual quantity | % |
| High Voltage Battery SOH | Battery status subservience parameter of high voltage battery | % |
| High Voltage Battery Total Voltage | High voltage battery voltage | V |
| High Voltage Battery Amperage | High voltage battery current | A |
| High Voltage Battery Charge Power Limit 1 | High voltage battery charge control power value | kw |
| High Voltage Battery Discharge Power Limit 1 | High voltage battery discharge control power value | kw |
| High Voltage Battery Temperature 1 | High voltage battery temperature 1 | Deg.c |
| High Voltage Battery Temperature 2 | High voltage battery temperature 2 | Deg.c |
| High Voltage Battery Temperature 3 | High voltage battery temperature 3 | Deg.c |
| High Voltage Battery Intake Air Temperature | High voltage battery intake temperature | Deg.c |
| High Voltage Battery Internal Resistance | High voltage battery internal resistance | ohm |
| HEV System Leakage Resistance (+) | Entire HEV system leakage resistance (+) | kohm |
| High Voltage Battery Pack Leakage Resistance (+) | High voltage battery internal leakage resistance (+) | kohm |
| HEV System Leakage Resistance (-) | Entire HEV system leakage resistance (–) | kohm |
| High Voltage Battery Pack Leakage Resistance (-) | High voltage battery internal leakage resistance (–) | kohm |
| Trip Count | Number of times the ignition is ON judged by body integrated unit (CAN communication data) | times |
| Time Count | Detailed time elapsed after the ignition is ON calculated by body integrated unit (CAN communication data) | ms |
| Count | Identification information of synchronization/asynchronization of Trip Count, Time Count | — |
| Ignition switch | Ignition switch condition | — |
| Positive Contactor Status | + side contactor open/close status | — |
| Negative Contactor Status | – side contactor open/close status | — |
| Pre-Charge Contactor Status | Pre-charge contactor open/close status | — |
| High Voltage Battery Block 1 SOC | High voltage battery block SOC | % |
| High Voltage Battery Block 2 SOC | High voltage battery block SOC | % |
| High Voltage Battery Block 3 SOC | High voltage battery block SOC | % |
| High Voltage Battery Block 4 SOC | High voltage battery block SOC | % |

| Display | Contents | Unit of measure |
|---|---|---|
| High Voltage Battery Block 5 SOC | High voltage battery block SOC | % |
| High Voltage Battery Block 6 SOC | High voltage battery block SOC | % |
| High Voltage Battery Block 7 SOC | High voltage battery block SOC | % |
| High Voltage Battery Block 8 SOC | High voltage battery block SOC | % |
| High Voltage Battery Block 9 SOC | High voltage battery block SOC | % |
| High Voltage Battery Block 10 SOC | High voltage battery block SOC | % |
| High Voltage Battery Block 11 SOC | High voltage battery block SOC | % |
| High Voltage Battery Block Voltage 1 | High voltage battery block voltage | V |
| High Voltage Battery Block Voltage 2 | High voltage battery block voltage | V |
| High Voltage Battery Block Voltage 3 | High voltage battery block voltage | V |
| High Voltage Battery Block Voltage 4 | High voltage battery block voltage | V |
| High Voltage Battery Block Voltage 5 | High voltage battery block voltage | V |
| High Voltage Battery Block Voltage 6 | High voltage battery block voltage | V |
| High Voltage Battery Block Voltage 7 | High voltage battery block voltage | V |
| High Voltage Battery Block Voltage 8 | High voltage battery block voltage | V |
| High Voltage Battery Block Voltage 9 | High voltage battery block voltage | V |
| High Voltage Battery Block Voltage 10 | High voltage battery block voltage | V |
| High Voltage Battery Block Voltage 11 | High voltage battery block voltage | V |
| High Voltage Battery Voltage 0 | High voltage battery block voltage (voltage sensor value) | V |
| High Voltage Battery Voltage 1 | High voltage battery block voltage (voltage sensor value) | V |
| High Voltage Battery Voltage 2 | High voltage battery block voltage (voltage sensor value) | V |
| High Voltage Battery Voltage 3 | High voltage battery block voltage (voltage sensor value) | V |
| High Voltage Battery Voltage 4 | High voltage battery block voltage (voltage sensor value) | V |
| High Voltage Battery Voltage 5 | High voltage battery block voltage (voltage sensor value) | V |
| High Voltage Battery Voltage 6 | High voltage battery block voltage (voltage sensor value) | V |
| BECM Control Check 24 | Detailed information of control | V |
| BECM Control Check 25 | Detailed information of control | V |
| High Voltage Battery Amperage Sensor Output | High voltage battery current sensor value | A |
| ECU ACC | Voltage supplied to BECM | V |
| Drive Motor Inverter Input Voltage | Drive motor inverter input voltage calculated by DMCM (CAN communication data) | V |
| Contactor Signal (HPCM) | Contactor operation request status judged by HPCM (CAN communication data) | — |
| Engine Speed | Engine speed calculated by ECM (CAN communication data) | rpm |
| P Range | Parking range status judged by TCM (CAN communication data) | — |

| Display | Contents | Unit of measure |
|---|---|---|
| Vehicle speed | Vehicle speed calculated by VDC (CAN communication data) | km/h |
| Drive Motor Inverter Operation Status | Drive motor inverter operation status calculated by DMCM (CAN communication data) | — |
| Drive Motor Torque Target (HPCM) | Target drive motor torque calculated by HPCM (CAN communication data) | Nm |
| Drive Motor Output Torque Actual | Drive motor output torque calculated by DMCM (CAN communication data) | Nm |
| Drive Motor Speed Target (HPCM) | Target drive motor speed calculated by HPCM (CAN communication data) | rpm |
| Drive Motor Speed | Drive motor speed calculated by DMCM (CAN communication data) | rpm |
| High Voltage Battery Cooling Fan Duty Target (HPCM) | High voltage battery cooling fan duty target calculated by HPCM (CAN communication data) | % |
| High Voltage Battery Cooling Fan Speed | High voltage battery cooling fan speed calculated by DMCM (CAN communication data) | rpm |
| High Voltage Battery Charge Power Limit 2 | High voltage battery charge control power value (assist) | — |
| High Voltage Battery Discharge Power Limit 2 | High voltage battery discharge control power value (assist) | — |
| High Voltage Battery SOC Subservience Parameter 1 | Detailed information of control | — |
| High Voltage Battery SOC Subservience Parameter 2 | Detailed information of control | — |
| High Voltage Battery SOC Subservience Parameter 3 | Detailed information of control | — |
| High Voltage Battery SOC Subservience Parameter 4 | Detailed information of control | — |
| High Voltage Battery SOC Subservience Parameter 5 | Detailed information of control | — |
| High Voltage Battery SOC Subservience Parameter 6 | Detailed information of control | — |
| High Voltage Battery SOC Subservience Parameter 7 | Detailed information of control | — |
| High Voltage Battery SOC Subservience Parameter 8 | Detailed information of control | — |
| High Voltage Battery SOC Subservience Parameter 9 | Detailed information of control | — |
| High Voltage Battery SOC Subservience Parameter 10 | Detailed information of control | — |
| High Voltage Battery SOC Subservience Parameter 11 | Detailed information of control | — |
| System Check 1 | Detailed information of control | — |
| System Check 2 | Detailed information of control | — |
| System Check 3 | Detailed information of control | — |
| System Check 4 | Detailed information of control | — |
| BECM Control Check 1 | Detailed information of control | — |

# 15.System Operation Check Mode

## A: OPERATION

**CAUTION:**
**After System Operation Check Mode is run, perform the Clear Memory Mode.**

NOTE:
For detailed operation procedures, refer to “PC application help for Subaru Select Monitor”.

### 1. HYBRID POWERTRAIN CONTROL SYSTEM

1) On «Main Menu» display, select {Each System Check}.
2) On «Each System Check» display, select {HEV System}.
3) On «HEV System» display, select {Hybrid Powertrain Control System}.
4) On «Hybrid Powertrain Control System» display, select {Work Support}.
5) On «Work Support» display, select {System Operation Check Mode}.

NOTE:
A communication error will be displayed if any other modes are run while performing {System Operation Check Mode}.

| Items under system operation check mode | Display | Note |
|---|---|---|
| ISG Cranking Operation | — | Perform engine cranking with integrated starter generator (ISG).<br>Example of use:<br>Used to check engine start with integrated starter generator (ISG). |
| ISG Voltage Control | Mid<br>High<br>ExtraHigh | Perform generated voltage control with the integrated starter generator (ISG).<br>Example of use:<br>Used to check electrical charge with integrated starter generator (ISG). |
| Brake Vacuum Pump System Check | — | Brake vacuum pump operates.<br>Example of use:<br>Used to check brake vacuum pump as a single unit. |
| 12V Battery Relay Operation | — | Switch the 12V battery relay on/off.<br>Example of use:<br>Used to check operation of the 12V battery relay. |
| DCDC Converter Output Voltage Control | Mid<br>High | Perform DC/DC converter output voltage control.<br>Example of use:<br>Used to check DC/DC converter as a single unit. |
| Engine only Drive Mode* | — | Drive vehicle without motor operation.<br>Example of use:<br>Used to check influence by motor for diagnosing noise or vibration problem. |
| Auto Start Stop Cancel Drive Mode (Engine only or Engine + Motor)* | — | Drive vehicle without operating Auto Start Stop or motor. (Transition of mode is possible in the operation described in Notes in the margin.)<br>Example of use:<br>Used to check influence by engine and motor for diagnosing noise or vibration problem.<br>It is also used to drive vehicle or perform inspection with Auto Start Stop deactivated. |

*: During this mode, the hybrid fail lamp blinks and the message “Hybrid system service mode is active” is displayed in MFD. The maintenance mode will end after 30 seconds or more have passed since the ignition switch is OFF.

NOTE:
In «Auto Start Stop Cancel Drive Mode (Engine only or Engine + Motor)», transition of mode is enabled by performing the following operation.

1. Turn the ignition switch to ON and perform the following procedures while depressing the brake pedal before starting the engine.
2. Set the shift lever to “N” and depress the accelerator pedal twice. (Fully closed → Fully open → Fully closed → Fully open)
3. Set the shift lever to “P” and depress the accelerator pedal twice. (Fully closed → Fully open → Fully closed → Fully open)
4. Set the shift lever to “N” and depress the accelerator pedal twice. (Fully closed → Fully open → Fully closed → Fully open)
5. Shift into P range.

(The hybrid fail lamp in the combination meter blinks, indicating that the service mode is active in MFD.)

6. Start the engine.
7. The maintenance mode will end after 30 seconds or more have passed since the ignition switch is OFF.

*: This operation must be performed within 60 seconds after the ignition is turned ON.
*: If the accelerator pedal is operated too fast, the operation may not be accepted.
*: If any procedures are performed improperly, they are not accepted until the ignition switch is turned OFF.
*: If any abnormal conditions are detected, cancel the procedure.

## 2. DRIVE MOTOR CONTROL SYSTEM

1) On «Main Menu» display, select {Each System Check}.
2) On «Each System Check» display, select {HEV System}.
3) On «HEV System» display, select {Drive Motor Control System}.
4) On «Drive Motor Control System» display, select {Work Support}.
5) On «Work Support» display, select {System Operation Check Mode}.

| Items under system operation check mode | Display | | Note |
|---|---|---|---|
| High Voltage Battery Cooling Fan | Target Output Mode | Stop<br>Step1<br>Step2<br>Step3 | Perform high voltage battery cooling fan compulsory drive.<br>Example of use:<br>Used to check high voltage battery cooling fan circuits. |
| | High Voltage Battery Cooling Fan Speed | 0 — 6000 rpm | |
| Drive Motor Inverter power supply relay | Target Output Mode | OFF<br>ON | Perform high voltage battery cooling fan/drive motor inverter power supply relay compulsory drive.<br>Example of use:<br>Used to check operation of high voltage battery cooling fan/drive motor inverter power supply relay. |
| | Drive Motor Inverter Operation Update Signal Count (Serial) | 0 — 255<br>Count | |

NOTE:
The conditions listed below must be met to perform the mode.

| Display of current data | Value |
|---|---|
| Ignition switch | ON |
| ECU ACC | 11.0 V or more |
| Drive Motor Inverter Operation Signal(HPCM) | OFF |
| Contactor Open Status | Open |
| High Voltage Battery Cooling Fan Duty Target (HPCM) | 0% |

# 16.List of Diagnostic Trouble Code (DTC)

## A: LIST

### 1. HYBRID POWERTRAIN CONTROL SYSTEM

| DTC | Item | Note |
|---|---|---|
| P0506 | Idle Air Control System RPM Lower Than Expected | <Ref. to HEV(diag)-94, DTC P0506 IDLE AIR CONTROL SYSTEM RPM LOWER THAN EXPECTED, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P0507 | Idle Air Control System RPM Higher Than Expected | <Ref. to HEV(diag)-95, DTC P0507 IDLE AIR CONTROL SYSTEM RPM HIGHER THAN EXPECTED, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P0516 | Battery Temperature Sensor Circuit Low | <Ref. to HEV(diag)-96, DTC P0516 BATTERY TEMPERATURE SENSOR CIRCUIT LOW, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P0517 | Battery Temperature Sensor Circuit High | <Ref. to HEV(diag)-98, DTC P0517 BATTERY TEMPERATURE SENSOR CIRCUIT HIGH, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P0556 | Brake Booster Pressure Sensor Circuit Range/Performance | <Ref. to HEV(diag)-100, DTC P0556 BRAKE BOOSTER PRESSURE SENSOR CIRCUIT RANGE/PERFORMANCE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P0572 | Brake Switch "A" [Stop Lamp Switch] Circuit Low | <Ref. to HEV(diag)-103, DTC P0572 BRAKE SWITCH "A" [STOP LAMP SWITCH] CIRCUIT LOW, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P0573 | Brake Switch "A" [Stop Lamp Switch] Circuit High | <Ref. to HEV(diag)-104, DTC P0573 BRAKE SWITCH "A" [STOP LAMP SWITCH] CIRCUIT HIGH, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P057B | Brake Pedal Position Sensor Circuit Range/Performance | <Ref. to HEV(diag)-105, DTC P057B BRAKE PEDAL POSITION SENSOR CIRCUIT RANGE/PERFORMANCE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P057C | Brake Pedal Position Sensor Circuit Low | <Ref. to HEV(diag)-107, DTC P057C BRAKE PEDAL POSITION SENSOR CIRCUIT LOW, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P057D | Brake Pedal Position Sensor Circuit High | <Ref. to HEV(diag)-109, DTC P057D BRAKE PEDAL POSITION SENSOR CIRCUIT HIGH, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P058D | Battery Monitor Module Voltage Monitoring Performance | <Ref. to HEV(diag)-111, DTC P058D BATTERY MONITOR MODULE VOLTAGE MONITORING PERFORMANCE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P05DD | Brake Pedal Position Sensor "B" Circuit Low | <Ref. to HEV(diag)-113, DTC P05DD BRAKE PEDAL POSITION SENSOR "B" CIRCUIT LOW, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P05DE | Brake Pedal Position Sensor "B" Circuit High | <Ref. to HEV(diag)-115, DTC P05DE BRAKE PEDAL POSITION SENSOR "B" CIRCUIT HIGH , Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P0604 | Internal Control Module Random Access Memory (RAM) Error | <Ref. to HEV(diag)-117, HYBRID POWERTRAIN CONTROL SYSTEM, DTC P0604 INTERNAL CONTROL MODULE RANDOM ACCESS MEMORY (RAM) ERROR, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P0605 | Internal Control Module Read Only Memory (ROM) Error | <Ref. to HEV(diag)-120, HYBRID POWERTRAIN CONTROL SYSTEM, DTC P0605 INTERNAL CONTROL MODULE READ ONLY MEMORY (ROM) ERROR, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P0620 | Generator Control Circuit | <Ref. to HEV(diag)-123, DTC P0620 GENERATOR CONTROL CIRCUIT, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P065A | Generator System Performance | <Ref. to HEV(diag)-125, DTC P065A GENERATOR SYSTEM PERFORMANCE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |

| DTC | Item | Note |
|---|---|---|
| P06EF | Engine Restart Performance | <Ref. to HEV(diag)-128, DTC P06EF ENGINE RESTART PERFORMANCE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P0719 | Brake Switch "B" Circuit Low | <Ref. to HEV(diag)-130, DTC P0719 BRAKE SWITCH "B" CIRCUIT LOW, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P0724 | Brake Switch "B" Circuit High | <Ref. to HEV(diag)-131, DTC P0724 BRAKE SWITCH "B" CIRCUIT HIGH, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P0A1D | Hybrid Powertrain Control Module | <Ref. to HEV(diag)-132, DTC P0A1D HYBRID POWERTRAIN CONTROL MODULE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P1C00 | Battery "2" Monitor Module Performance | <Ref. to HEV(diag)-133, DTC P1C00 BATTERY "2" MONITOR MODULE PERFORMANCE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P1C04 | Output Clutch Linear Solenoid Control Circuit Low | <Ref. to HEV(diag)-134, DTC P1C04 OUTPUT CLUTCH LINEAR SOLENOID CONTROL CIRCUIT LOW, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P1C05 | Output Clutch Linear Solenoid Control Circuit High | <Ref. to HEV(diag)-136, DTC P1C05 OUTPUT CLUTCH LINEAR SOLENOID CONTROL CIRCUIT HIGH, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P1C06 | 12V Battery Relay Close Circuit Performance | <Ref. to HEV(diag)-138, DTC P1C06 12V BATTERY RELAY CLOSE CIRCUIT PERFORMANCE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P1C07 | 12V Battery Relay Open Circuit Performance | <Ref. to HEV(diag)-140, DTC P1C07 12V BATTERY RELAY OPEN CIRCUIT PERFORMANCE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P1C08 | 12V Battery Relay Performance or Stuck Off | <Ref. to HEV(diag)-142, DTC P1C08 12V BATTERY RELAY PERFORMANCE OR STUCK OFF, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P1C09 | 12V Battery Relay Performance or Stuck On | <Ref. to HEV(diag)-144, DTC P1C09 12V BATTERY RELAY PERFORMANCE OR STUCK ON, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P1C10 | Vacuum Pump Performance | <Ref. to HEV(diag)-145, DTC P1C10 VACUUM PUMP PERFORMANCE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P1C11 | Vacuum Pump Supply Voltage Low | <Ref. to HEV(diag)-146, DTC P1C11 VACUUM PUMP SUPPLY VOLTAGE LOW, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P1C12 | Vacuum Pump Supply Voltage High | <Ref. to HEV(diag)-148, DTC P1C12 VACUUM PUMP SUPPLY VOLTAGE HIGH, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P1C14 | Generator Performance | <Ref. to HEV(diag)-150, DTC P1C14 GENERATOR PERFORMANCE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P1C16 | Idle Control System RPM Lower Than Expected(HPCM) | <Ref. to HEV(diag)-151, DTC P1C16 IDLE CONTROL SYSTEM RPM LOWER THAN EXPECTED(HPCM), Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P1C17 | Idle Control System RPM Higher Than Expected(HPCM) | <Ref. to HEV(diag)-151, DTC P1C17 IDLE CONTROL SYSTEM RPM HIGHER THAN EXPECTED(HPCM), Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P1C18 | Generator System "B" Performance | <Ref. to HEV(diag)-152, DTC P1C18 GENERATOR SYSTEM "B" PERFORMANCE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P1C1E | Autodisconnect Experience | <Ref. to HEV(diag)-154, DTC P1C1E AUTODISCONNECT EXPERIENCE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P2158 | Vehicle Speed Sensor "B" | <Ref. to HEV(diag)-154, DTC P2158 VEHICLE SPEED SENSOR "B", Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| U0073 | Control Module Communication Bus Off | <Ref. to HEV(diag)-327, DTC U0073 CONTROL MODULE COMMUNICATION BUS OFF, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |

| DTC | Item | Note |
|---|---|---|
| U0075 | Control Module Communication Bus "PU-CAN" Off | <Ref. to HEV(diag)-328, DTC U0075 CONTROL MODULE COMMUNICATION BUS "PU-CAN" OFF, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| U0076 | Control Module Communication Bus "HEV-CAN" Off | <Ref. to HEV(diag)-328, DTC U0076 CONTROL MODULE COMMUNICATION BUS "HEV-CAN" OFF, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| U0100 | Lost Communication With ECM/PCM “A” | <Ref. to HEV(diag)-328, DTC U0100 LOST COMMUNICATION WITH ECM/PCM “A”, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| U0101 | Lost Communication With TCM | <Ref. to HEV(diag)-328, DTC U0101 LOST COMMUNICATION WITH TCM, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| U0110 | Lost Communication With Drive Motor Control Module "A" | <Ref. to HEV(diag)-329, DTC U0110 LOST COMMUNICATION WITH DRIVE MOTOR CONTROL MODULE "A", Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| U0111 | Lost Communication With Battery Energy Control Module | <Ref. to LAN(HEV)(diag)-137, DTC U0111 LOST COMMUNICATION WITH BATTERY ENERGY CONTROL MODULE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| U0122 | Lost Communication With Vehicle Dynamics Control Module | <Ref. to HEV(diag)-329, DTC U0122 LOST COMMUNICATION WITH VEHICLE DYNAMICS CONTROL MODULE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| U0131 | Lost Communication With Power Steering Control Module | <Ref. to HEV(diag)-329, DTC U0131 LOST COMMUNICATION WITH POWER STEERING CONTROL MODULE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| U0140 | Lost Communication With Body Control Module | <Ref. to HEV(diag)-330, DTC U0140 LOST COMMUNICATION WITH BODY CONTROL MODULE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| U0151 | Lost Communication With Restraints Control Module | <Ref. to HEV(diag)-330, DTC U0151 LOST COMMUNICATION WITH RESTRAINTS CONTROL MODULE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| U0155 | Lost Communication With Instrument Panel Cluster (IPC) Control Module | <Ref. to HEV(diag)-330, DTC U0155 LOST COMMUNICATION WITH INSTRUMENT PANEL CLUSTER (IPC) CONTROL MODULE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| U0164 | Lost Communication With HVAC Control Module | <Ref. to HEV(diag)-330, DTC U0164 LOST COMMUNICATION WITH HVAC CONTROL MODULE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| U0287 | Lost Communication With Transmission Fluid Pump Module | <Ref. to HEV(diag)-330, DTC U0287 LOST COMMUNICATION WITH TRANSMISSION FLUID PUMP MODULE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| U0401 | Invalid Data Received From ECM/PCM “A” | <Ref. to HEV(diag)-331, DTC U0401 INVALID DATA RECEIVED FROM ECM/PCM “A”, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| U0402 | Invalid Data Received From TCM | <Ref. to HEV(diag)-331, DTC U0402 INVALID DATA RECEIVED FROM TCM, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| U0411 | Invalid Data Received From Drive Motor Control Module "A" | <Ref. to HEV(diag)-331, DTC U0411 INVALID DATA RECEIVED FROM DRIVE MOTOR CONTROL MODULE "A", Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| U0412 | Invalid Data Received From Battery Energy Control Module | <Ref. to HEV(diag)-331, DTC U0412 INVALID DATA RECEIVED FROM BATTERY ENERGY CONTROL MODULE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| U0416 | Invalid Data Received From Vehicle Dynamics Control Module | <Ref. to HEV(diag)-332, DTC U0416 INVALID DATA RECEIVED FROM VEHICLE DYNAMICS CONTROL MODULE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| U0420 | Invalid Data Received From Power Steering Control Module | <Ref. to HEV(diag)-332, DTC U0420 INVALID DATA RECEIVED FROM POWER STEERING CONTROL MODULE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |

| DTC | Item | Note |
|---|---|---|
| U0422 | Invalid Data Received From Body Control Module | <Ref. to HEV(diag)-332, DTC U0422 INVALID DATA RECEIVED FROM BODY CONTROL MODULE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| U0423 | Invalid Data Received From Instrument Panel Cluster Control Module | <Ref. to HEV(diag)-332, DTC U0423 INVALID DATA RECEIVED FROM INSTRUMENT PANEL CLUSTER CONTROL MODULE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| U0424 | Invalid Data Received From HVAC Control Module | <Ref. to HEV(diag)-332, DTC U0424 INVALID DATA RECEIVED FROM HVAC CONTROL MODULE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| U0452 | Invalid Data Received From Restraints Control Module | <Ref. to HEV(diag)-333, DTC U0452 INVALID DATA RECEIVED FROM RESTRAINTS CONTROL MODULE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| U0588 | Invalid Data Received From Transmission Fluid Pump Module | <Ref. to HEV(diag)-333, DTC U0588 INVALID DATA RECEIVED FROM TRANSMISSION FLUID PUMP MODULE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| U1100 | Lost Communication With ECM/PCM PU-CAN | <Ref. to HEV(diag)-333, DTC U1100 LOST COMMUNICATION WITH ECM/PCM PU-CAN, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| U1101 | Lost Communication With TCM PU-CAN | <Ref. to HEV(diag)-333, DTC U1101 LOST COMMUNICATION WITH TCM PU-CAN, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| U1401 | Invalid Data Received From ECM/PCM PU-CAN | <Ref. to HEV(diag)-334, DTC U1401 INVALID DATA RECEIVED FROM ECM/PCM PU-CAN, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| U1402 | Invalid Data Received From TCM PU-CAN | <Ref. to HEV(diag)-334, DTC U1402 INVALID DATA RECEIVED FROM TCM PU-CAN, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| U1676 | LIN Communication Bus Error Hybrid Powertrain Control Module | <Ref. to HEV(diag)-335, DTC U1676 LIN COMMUNICATION BUS ERROR HYBRID POWERTRAIN CONTROL MODULE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| U1711 | Lost Communication With Battery "2" Monitor Module | <Ref. to HEV(diag)-337, DTC U1711 LOST COMMUNICATION WITH BATTERY "2" MONITOR MODULE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| U1720 | Lost Communication With Integrated Starter Generator | <Ref. to HEV(diag)-339, DTC U1720 LOST COMMUNICATION WITH INTEGRATED STARTER GENERATOR, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |

## 2. DRIVE MOTOR CONTROL SYSTEM

| DTC | Item | Note |
|---|---|---|
| P0A2A | Drive Motor "A" Temperature Sensor Circuit | <Ref. to HEV(diag)-155, DTC P0A2A DRIVE MOTOR "A" TEMPERATURE SENSOR CIRCUIT, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P0A2C | Drive Motor "A" Temperature Sensor Circuit Low | <Ref. to HEV(diag)-159, DTC P0A2C DRIVE MOTOR "A" TEMPERATURE SENSOR CIRCUIT LOW, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P0A2D | Drive Motor "A" Temperature Sensor Circuit High | <Ref. to HEV(diag)-163, DTC P0A2D DRIVE MOTOR "A" TEMPERATURE SENSOR CIRCUIT HIGH, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P0A3C | Drive Motor "A" Inverter Over Temperature | <Ref. to HEV(diag)-165, DTC P0A3C DRIVE MOTOR "A" INVERTER OVER TEMPERATURE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P0A3F | Drive Motor "A" Position Sensor Circuit | <Ref. to HEV(diag)-166, DTC P0A3F DRIVE MOTOR "A" POSITION SENSOR CIRCUIT, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P0A40 | Drive Motor "A" Position Sensor Circuit Range/Performance | <Ref. to HEV(diag)-169, DTC P0A40 DRIVE MOTOR "A" POSITION SENSOR CIRCUIT RANGE/PERFORMANCE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P0A43 | Drive Motor "A" Position Sensor Circuit Intermittent | <Ref. to HEV(diag)-170, DTC P0A43 DRIVE MOTOR "A" POSITION SENSOR CIRCUIT INTERMITTENT, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P0A44 | Drive Motor "A" Position Sensor Circuit Overspeed | <Ref. to HEV(diag)-174, DTC P0A44 DRIVE MOTOR "A" POSITION SENSOR CIRCUIT OVERSPEED, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P0C52 | Drive Motor "A" Position Sensor Circuit "A" Low | <Ref. to HEV(diag)-177, DTC P0C52 DRIVE MOTOR "A" POSITION SENSOR CIRCUIT "A" LOW, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P0C5C | Drive Motor "A" Position Sensor Circuit "B" Low | <Ref. to HEV(diag)-177, DTC P0C5C DRIVE MOTOR "A" POSITION SENSOR CIRCUIT "B" LOW, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P0CDC | Drive Motor "A" Position Sensor Circuit "C" Low | <Ref. to HEV(diag)-177, DTC P0CDC DRIVE MOTOR "A" POSITION SENSOR CIRCUIT "C" LOW, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P0CDD | Drive Motor "A" Position Sensor Circuit "C" High | <Ref. to HEV(diag)-177, DTC P0CDD DRIVE MOTOR "A" POSITION SENSOR CIRCUIT "C" HIGH, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P0A5D | Drive Motor "A" Phase U Current | <Ref. to HEV(diag)-178, DTC P0A5D DRIVE MOTOR "A" PHASE U CURRENT, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P0A60 | Drive Motor "A" Phase V Current | <Ref. to HEV(diag)-188, DTC P0A60 DRIVE MOTOR "A" PHASE V CURRENT, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P0A63 | Drive Motor "A" Phase W Current | <Ref. to HEV(diag)-198, DTC P0A63 DRIVE MOTOR "A" PHASE W CURRENT, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P0A78 | Drive Motor "A" Inverter Performance | <Ref. to HEV(diag)-208, DTC P0A78 DRIVE MOTOR "A" INVERTER PERFORMANCE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P0A82 | Hybrid/Ev Battery Pack Cooling Fan 1 Performance/Stuck Off | <Ref. to HEV(diag)-219, DTC P0A82 HYBRID/EV BATTERY PACK COOLING FAN 1 PERFORMANCE/STUCK OFF, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P0A83 | Hybrid/Ev Battery Pack Cooling Fan 1 Stuck On | <Ref. to HEV(diag)-221, DTC P0A83 HYBRID/EV BATTERY PACK COOLING FAN 1 STUCK ON, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |

| DTC | Item | Note |
|---|---|---|
| P0A90 | Drive Motor "A" Performance | <Ref. to HEV(diag)-223, DTC P0A90 DRIVE MOTOR "A" PERFORMANCE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P0A94 | DC/DC Converter Performance | <Ref. to HEV(diag)-229, DTC P0A94 DC/DC CONVERTER PERFORMANCE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P0AED | Drive Motor Inverter Temperature Sensor "A" Circuit | <Ref. to HEV(diag)-231, DTC P0AED DRIVE MOTOR INVERTER TEMPERATURE SENSOR "A" CIRCUIT, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P0AEE | Drive Motor Inverter Temperature Sensor "A" Circuit Range/Performance | <Ref. to HEV(diag)-232, DTC P0AEE DRIVE MOTOR INVERTER TEMPERATURE SENSOR "A" CIRCUIT RANGE/PERFORMANCE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P0AF2 | Drive Motor Inverter Temperature Sensor "B" Circuit | <Ref. to HEV(diag)-233, DTC P0AF2 DRIVE MOTOR INVERTER TEMPERATURE SENSOR "B" CIRCUIT, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P0AF3 | Drive Motor Inverter Temperature Sensor "B" Circuit Range/Performance | <Ref. to HEV(diag)-233, DTC P0AF3 DRIVE MOTOR INVERTER TEMPERATURE SENSOR "B" CIRCUIT RANGE/PERFORMANCE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P0BD1 | Drive Motor Inverter Temperature Sensor "C" Circuit | <Ref. to HEV(diag)-234, DTC P0BD1 DRIVE MOTOR INVERTER TEMPERATURE SENSOR "C" CIRCUIT, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P0BD2 | Drive Motor Inverter Temperature Sensor "C" Circuit Range/Performance | <Ref. to HEV(diag)-234, DTC P0BD2 DRIVE MOTOR INVERTER TEMPERATURE SENSOR "C" CIRCUIT RANGE/PERFORMANCE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P0BE6 | Drive Motor "A" Phase U Current Sensor Circuit Range/Performance | <Ref. to HEV(diag)-235, DTC P0BE6 DRIVE MOTOR "A" PHASE U CURRENT SENSOR CIRCUIT RANGE/PERFORMANCE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P0BE7 | Drive Motor "A" Phase U Current Sensor Circuit Low | <Ref. to HEV(diag)-238, DTC P0BE7 DRIVE MOTOR "A" PHASE U CURRENT SENSOR CIRCUIT LOW, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P0BE8 | Drive Motor "A" Phase U Current Sensor Circuit High | <Ref. to HEV(diag)-241, DTC P0BE8 DRIVE MOTOR "A" PHASE U CURRENT SENSOR CIRCUIT HIGH, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P0BEA | Drive Motor "A" Phase V Current Sensor Circuit Range/Performance | <Ref. to HEV(diag)-243, DTC P0BEA DRIVE MOTOR "A" PHASE V CURRENT SENSOR CIRCUIT RANGE/PERFORMANCE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P0BEB | Drive Motor "A" Phase V Current Sensor Circuit Low | <Ref. to HEV(diag)-243, DTC P0BEB DRIVE MOTOR "A" PHASE V CURRENT SENSOR CIRCUIT LOW, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P0BEC | Drive Motor "A" Phase V Current Sensor Circuit High | <Ref. to HEV(diag)-243, DTC P0BEC DRIVE MOTOR "A" PHASE V CURRENT SENSOR CIRCUIT HIGH, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P0BEE | Drive Motor "A" Phase W Current Sensor Circuit Range/Performance | <Ref. to HEV(diag)-244, DTC P0BEE DRIVE MOTOR "A" PHASE W CURRENT SENSOR CIRCUIT RANGE/PERFORMANCE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P0BEF | Drive Motor "A" Phase W Current Sensor Circuit Low | <Ref. to HEV(diag)-244, DTC P0BEF DRIVE MOTOR "A" PHASE W CURRENT SENSOR CIRCUIT LOW, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P0BF0 | Drive Motor "A" Phase W Current Sensor Circuit High | <Ref. to HEV(diag)-244, DTC P0BF0 DRIVE MOTOR "A" PHASE W CURRENT SENSOR CIRCUIT HIGH, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P0BFD | Drive Motor "A" Phase U-V-W Current Sensor Correlation | <Ref. to HEV(diag)-245, DTC P0BFD DRIVE MOTOR "A" PHASE U-V-W CURRENT SENSOR CORRELATION, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P0C05 | Drive Motor "A" Phase U-V-W Circuit/ Open | <Ref. to HEV(diag)-248, DTC P0C05 DRIVE MOTOR "A" PHASE U-V-W CIRCUIT/OPEN, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |

| DTC | Item | Note |
|---|---|---|
| P0C0C | Drive Motor "A" Inverter Power Supply Circuit Low | <Ref. to HEV(diag)-251, DTC P0C0C DRIVE MOTOR "A" INVERTER POWER SUPPLY CIRCUIT LOW, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P0C0D | Drive Motor "A" Inverter Power Supply Circuit High | <Ref. to HEV(diag)-253, DTC P0C0D DRIVE MOTOR "A" INVERTER POWER SUPPLY CIRCUIT HIGH, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P0C79 | Drive Motor "A" Inverter Voltage Too High | <Ref. to HEV(diag)-255, DTC P0C79 DRIVE MOTOR "A" INVERTER VOLTAGE TOO HIGH, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P0DA8 | Hybrid/Ev Battery Voltage/Drive Motor "A" Inverter Voltage Correlation | <Ref. to HEV(diag)-256, DTC P0DA8 HYBRID/EV BATTERY VOLTAGE/DRIVE MOTOR "A" INVERTER VOLTAGE CORRELATION, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P1C20 | Drive Motor "A" Inverter Voltage Too Low | <Ref. to HEV(diag)-258, DTC P1C20 DRIVE MOTOR "A" INVERTER VOLTAGE TOO LOW, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P1C22 | 12V Auxiliary Battery Voltage Too Low | <Ref. to HEV(diag)-261, DTC P1C22 12V AUXILIARY BATTERY VOLTAGE TOO LOW, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P1C24 | Drive Motor "B" Temperature Sensor Circuit | <Ref. to HEV(diag)-263, DTC P1C24 DRIVE MOTOR "B" TEMPERATURE SENSOR CIRCUIT, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P1C25 | Drive Motor "B" Temperature Sensor Circuit Low | <Ref. to HEV(diag)-263, DTC P1C25 DRIVE MOTOR "B" TEMPERATURE SENSOR CIRCUIT LOW, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P1C26 | Drive Motor "B" Temperature Sensor Circuit High | <Ref. to HEV(diag)-263, DTC P1C26 DRIVE MOTOR "B" TEMPERATURE SENSOR CIRCUIT HIGH, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P1C27 | Drive Motor "A" and "B" Temperature Sensor Correlation | <Ref. to HEV(diag)-264, DTC P1C27 DRIVE MOTOR "A" AND "B" TEMPERATURE SENSOR CORRELATION, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P1C2A | Drive Motor Inverter Circuit | <Ref. to HEV(diag)-266, DTC P1C2A DRIVE MOTOR INVERTER CIRCUIT, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P1C30 | Lost Communication With Drive Motor Inverter | <Ref. to HEV(diag)-267, DTC P1C30 LOST COMMUNICATION WITH DRIVE MOTOR INVERTER, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P1C31 | Invalid Data Received From Drive Motor Inverter | <Ref. to HEV(diag)-270, DTC P1C31 INVALID DATA RECEIVED FROM DRIVE MOTOR INVERTER, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P1C34 | Lost Communication With DC/DC Converter | <Ref. to HEV(diag)-272, DTC P1C34 LOST COMMUNICATION WITH DC/DC CONVERTER, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P1C35 | Invalid Data Received From DC/DC Converter | <Ref. to HEV(diag)-274, DTC P1C35 INVALID DATA RECEIVED FROM DC/DC CONVERTER, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P0604 | Internal Control Module Random Access Memory (RAM) Error | <Ref. to HEV(diag)-118, DRIVE MOTOR CONTROL SYSTEM, DTC P0604 INTERNAL CONTROL MODULE RANDOM ACCESS MEMORY (RAM) ERROR, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P0605 | Internal Control Module Read Only Memory (ROM) Error | <Ref. to HEV(diag)-121, DRIVE MOTOR CONTROL SYSTEM, DTC P0605 INTERNAL CONTROL MODULE READ ONLY MEMORY (ROM) ERROR, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P0A1B | Drive Motor "A" Control Module | <Ref. to HEV(diag)-276, DTC P0A1B DRIVE MOTOR "A" CONTROL MODULE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |

| DTC | Item | Note |
|---|---|---|
| P06B1 | Sensor Power Supply "A" Circuit Low | <Ref. to HEV(diag)-277, DTC P06B1 SENSOR POWER SUPPLY "A" CIRCUIT LOW, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P06B2 | Sensor Power Supply "A" Circuit High | <Ref. to HEV(diag)-279, DTC P06B2 SENSOR POWER SUPPLY "A" CIRCUIT HIGH, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| U0076 | Control Module Communication Bus "HEV-CAN" Off | <Ref. to HEV(diag)-328, DTC U0076 CONTROL MODULE COMMUNICATION BUS "HEV-CAN" OFF, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| U0111 | Lost Communication With Battery Energy Control Module | <Ref. to HEV(diag)-329, DTC U0111 LOST COMMUNICATION WITH BATTERY ENERGY CONTROL MODULE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| U0412 | Invalid Data Received From Battery Energy Control Module | <Ref. to HEV(diag)-331, DTC U0412 INVALID DATA RECEIVED FROM BATTERY ENERGY CONTROL MODULE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| U1290 | Lost Communication With Hybrid Powertrain Control Module HEV-CAN | <Ref. to HEV(diag)-334, DTC U1290 LOST COMMUNICATION WITH HYBRID POWERTRAIN CONTROL MODULE HEV-CAN, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| U1591 | Invalid Data Received From Hybrid Powertrain Control Module HEV-CAN | <Ref. to HEV(diag)-334, DTC U1591 INVALID DATA RECEIVED FROM HYBRID POWERTRAIN CONTROL MODULE HEV-CAN, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |

## 3. BATTERY ENERGY CONTROL SYSTEM

| DTC | Item | Note |
|---|---|---|
| P0604 | Internal Control Module Random Access Memory (RAM) Error | <Ref. to HEV(diag)-119, BATTERY ENERGY CONTROL SYSTEM, DTC P0604 INTERNAL CONTROL MODULE RANDOM ACCESS MEMORY (RAM) ERROR, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P0605 | Internal Control Module Read Only Memory (ROM) Error | <Ref. to HEV(diag)-122, BATTERY ENERGY CONTROL SYSTEM, DTC P0605 INTERNAL CONTROL MODULE READ ONLY MEMORY (ROM) ERROR, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P062F | Internal Control Module EEPROM Error | <Ref. to HEV(diag)-281, DTC P062F INTERNAL CONTROL MODULE EEPROM ERROR, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P0A1F | Battery Energy Control Module | <Ref. to HEV(diag)-282, DTC P0A1F BATTERY ENERGY CONTROL MODULE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P0A7D | Hybrid Battery Pack State of Charge Low | <Ref. to HEV(diag)-283, DTC P0A7D HYBRID BATTERY PACK STATE OF CHARGE LOW, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P0A7E | Hybrid Battery Pack Over Temperature | <Ref. to HEV(diag)-284, DTC P0A7E HYBRID BATTERY PACK OVER TEMPERATURE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P0A7F | Hybrid Battery Pack Deterioration | <Ref. to HEV(diag)-286, DTC P0A7F HYBRID BATTERY PACK DETERIORATION, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P0A95 | High Voltage Fuse | <Ref. to HEV(diag)-286, DTC P0A95 HIGH VOLTAGE FUSE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P0A9C | Hybrid Battery Temperature Sensor "A" Circuit Range/Performance | <Ref. to HEV(diag)-287, DTC P0A9C HYBRID BATTERY TEMPERATURE SENSOR "A" CIRCUIT RANGE/PERFORMANCE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P0A9D | Hybrid Battery Temperature Sensor "A" Circuit Low | <Ref. to HEV(diag)-287, DTC P0A9D HYBRID BATTERY TEMPERATURE SENSOR "A" CIRCUIT LOW, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P0A9E | Hybrid Battery Temperature Sensor "A" Circuit High | <Ref. to HEV(diag)-287, DTC P0A9E HYBRID BATTERY TEMPERATURE SENSOR "A" CIRCUIT HIGH, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P0AA4 | Hybrid Battery Negative Contactor Circuit Stuck Closed | <Ref. to HEV(diag)-288, DTC P0AA4 HYBRID BATTERY NEGATIVE CONTACTOR CIRCUIT STUCK CLOSED, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P0AA6 | Hybrid Battery Voltage System Isolation Fault | <Ref. to HEV(diag)-289, DTC P0AA6 HYBRID BATTERY VOLTAGE SYSTEM ISOLATION FAULT, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P0AA7 | Hybrid Battery Voltage System Isolation Sensor Circuit | <Ref. to HEV(diag)-293, DTC P0AA7 HYBRID BATTERY VOLTAGE SYSTEM ISOLATION SENSOR CIRCUIT, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P0AAD | Hybrid Battery Pack Air Temperature Sensor "A" Circuit Range/Performance | <Ref. to HEV(diag)-293, DTC P0AAD HYBRID BATTERY PACK AIR TEMPERATURE SENSOR "A" CIRCUIT RANGE/PERFORMANCE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P0AAE | Hybrid Battery Pack Air Temperature Sensor "A" Circuit Low | <Ref. to HEV(diag)-293, DTC P0AAE HYBRID BATTERY PACK AIR TEMPERATURE SENSOR "A" CIRCUIT LOW, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P0AAF | Hybrid Battery Pack Air Temperature Sensor "A" Circuit High | <Ref. to HEV(diag)-293, DTC P0AAF HYBRID BATTERY PACK AIR TEMPERATURE SENSOR "A" CIRCUIT HIGH, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P0ABF | Hybrid Battery Pack Current Sensor "A" Circuit | <Ref. to HEV(diag)-294, DTC P0ABF HYBRID BATTERY PACK CURRENT SENSOR "A" CIRCUIT, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |

| DTC | Item | Note |
|---|---|---|
| P0AC0 | Hybrid Battery Pack Current Sensor "A" Circuit Range/Performance | <Ref. to HEV(diag)-294, DTC P0AC0 HYBRID BATTERY PACK CURRENT SENSOR "A" CIRCUIT RANGE/PERFORMANCE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P0AC1 | Hybrid Battery Pack Current Sensor "A" Circuit Low | <Ref. to HEV(diag)-294, DTC P0AC1 HYBRID BATTERY PACK CURRENT SENSOR "A" CIRCUIT LOW, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P0AC2 | Hybrid Battery Pack Current Sensor "A" Circuit High | <Ref. to HEV(diag)-294, DTC P0AC2 HYBRID BATTERY PACK CURRENT SENSOR "A" CIRCUIT HIGH, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P0AC3 | Hybrid Battery Pack Current Sensor "A" Circuit Intermittent/Erratic | <Ref. to HEV(diag)-295, DTC P0AC3 HYBRID BATTERY PACK CURRENT SENSOR "A" CIRCUIT INTERMITTENT/ERRATIC, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P0AC6 | Hybrid Battery Temperature Sensor "B" Circuit Range/Performance | <Ref. to HEV(diag)-295, DTC P0AC6 HYBRID BATTERY TEMPERATURE SENSOR "B" CIRCUIT RANGE/PERFORMANCE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P0AC7 | Hybrid Battery Temperature Sensor "B" Circuit Low | <Ref. to HEV(diag)-296, DTC P0AC7 HYBRID BATTERY TEMPERATURE SENSOR "B" CIRCUIT LOW, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P0AC8 | Hybrid Battery Temperature Sensor "B" Circuit High | <Ref. to HEV(diag)-296, DTC P0AC8 HYBRID BATTERY TEMPERATURE SENSOR "B" CIRCUIT HIGH, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P0ACB | Hybrid Battery Temperature Sensor "C" Circuit Range/Performance | <Ref. to HEV(diag)-296, DTC P0ACB HYBRID BATTERY TEMPERATURE SENSOR "C" CIRCUIT RANGE/PERFORMANCE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P0ACC | Hybrid Battery Temperature Sensor "C" Circuit Low | <Ref. to HEV(diag)-296, DTC P0ACC HYBRID BATTERY TEMPERATURE SENSOR "C" CIRCUIT LOW, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P0ACD | Hybrid Battery Temperature Sensor "C" Circuit High | <Ref. to HEV(diag)-297, DTC P0ACD HYBRID BATTERY TEMPERATURE SENSOR "C" CIRCUIT HIGH, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P0AD9 | Hybrid Battery Positive Contactor Control Circuit/Open | <Ref. to HEV(diag)-297, DTC P0AD9 HYBRID BATTERY POSITIVE CONTACTOR CONTROL CIRCUIT/OPEN, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P0ADB | Hybrid Battery Positive Contactor Control Circuit Low | <Ref. to HEV(diag)-297, DTC P0ADB HYBRID BATTERY POSITIVE CONTACTOR CONTROL CIRCUIT LOW, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P0ADD | Hybrid Battery Negative Contactor Control Circuit/Open | <Ref. to HEV(diag)-297, DTC P0ADD HYBRID BATTERY NEGATIVE CONTACTOR CONTROL CIRCUIT/OPEN, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P0ADF | Hybrid Battery Negative Contactor Control Circuit Low | <Ref. to HEV(diag)-298, DTC P0ADF HYBRID BATTERY NEGATIVE CONTACTOR CONTROL CIRCUIT LOW, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P0AE4 | Hybrid Battery Precharge Contactor Control Circuit | <Ref. to HEV(diag)-298, DTC P0AE4 HYBRID BATTERY PRECHARGE CONTACTOR CONTROL CIRCUIT, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P0AE6 | Hybrid Battery Precharge Contactor Control Circuit Low | <Ref. to HEV(diag)-298, DTC P0AE6 HYBRID BATTERY PRECHARGE CONTACTOR CONTROL CIRCUIT LOW, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P0B25 | Hybrid Battery "A" Voltage Low | <Ref. to HEV(diag)-299, DTC P0B25 HYBRID BATTERY "A" VOLTAGE LOW, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P0B26 | Hybrid Battery "A" Voltage High | <Ref. to HEV(diag)-301, DTC P0B26 HYBRID BATTERY "A" VOLTAGE HIGH, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P0B37 | High Voltage Service Disconnect Open | <Ref. to HEV(diag)-303, DTC P0B37 HIGH VOLTAGE SERVICE DISCONNECT OPEN, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |

| DTC | Item | Note |
|---|---|---|
| P0B3C | Hybrid Battery Voltage Sense "A" Circuit Range/Performance | <Ref. to HEV(diag)-304, DTC P0B3C HYBRID BATTERY VOLTAGE SENSE "A" CIRCUIT RANGE/PERFORMANCE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P0B3D | Hybrid Battery Voltage Sense "A" Circuit Low | <Ref. to HEV(diag)-304, DTC P0B3D HYBRID BATTERY VOLTAGE SENSE "A" CIRCUIT LOW, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P0B3E | Hybrid Battery Voltage Sense "A" Circuit High | <Ref. to HEV(diag)-304, DTC P0B3E HYBRID BATTERY VOLTAGE SENSE "A" CIRCUIT HIGH, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P0B41 | Hybrid Battery Voltage Sense "B" Circuit Range/Performance | <Ref. to HEV(diag)-305, DTC P0B41 HYBRID BATTERY VOLTAGE SENSE "B" CIRCUIT RANGE/PERFORMANCE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P0B42 | Hybrid Battery Voltage Sense "B" Circuit Low | <Ref. to HEV(diag)-305, DTC P0B42 HYBRID BATTERY VOLTAGE SENSE "B" CIRCUIT LOW, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P0B43 | Hybrid Battery Voltage Sense "B" Circuit High | <Ref. to HEV(diag)-305, DTC P0B43 HYBRID BATTERY VOLTAGE SENSE "B" CIRCUIT HIGH, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P0B46 | Hybrid Battery Voltage Sense "C" Circuit Range/Performance | <Ref. to HEV(diag)-305, DTC P0B46 HYBRID BATTERY VOLTAGE SENSE "C" CIRCUIT RANGE/PERFORMANCE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P0B47 | Hybrid Battery Voltage Sense "C" Circuit Low | <Ref. to HEV(diag)-306, DTC P0B47 HYBRID BATTERY VOLTAGE SENSE "C" CIRCUIT LOW, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P0B48 | Hybrid Battery Voltage Sense "C" Circuit High | <Ref. to HEV(diag)-306, DTC P0B48 HYBRID BATTERY VOLTAGE SENSE "C" CIRCUIT HIGH, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P0B4A | Hybrid Battery Voltage Sense "D" Circuit | <Ref. to HEV(diag)-306, DTC P0B4A HYBRID BATTERY VOLTAGE SENSE "D" CIRCUIT, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P0B4B | Hybrid Battery Voltage Sense "D" Circuit Range/Performance | <Ref. to HEV(diag)-306, DTC P0B4B HYBRID BATTERY VOLTAGE SENSE "D" CIRCUIT RANGE/PERFORMANCE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P0B4C | Hybrid Battery Voltage Sense "D" Circuit Low | <Ref. to HEV(diag)-307, DTC P0B4C HYBRID BATTERY VOLTAGE SENSE "D" CIRCUIT LOW, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P0B4D | Hybrid Battery Voltage Sense "D" Circuit High | <Ref. to HEV(diag)-307, DTC P0B4D HYBRID BATTERY VOLTAGE SENSE "D" CIRCUIT HIGH, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P0B50 | Hybrid Battery Voltage Sense "E" Circuit Range/Performance | <Ref. to HEV(diag)-307, DTC P0B50 HYBRID BATTERY VOLTAGE SENSE "E" CIRCUIT RANGE/PERFORMANCE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P0B51 | Hybrid Battery Voltage Sense "E" Circuit Low | <Ref. to HEV(diag)-307, DTC P0B51 HYBRID BATTERY VOLTAGE SENSE "E" CIRCUIT LOW, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P0B52 | Hybrid Battery Voltage Sense "E" Circuit High | <Ref. to HEV(diag)-308, DTC P0B52 HYBRID BATTERY VOLTAGE SENSE "E" CIRCUIT HIGH, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P0B55 | Hybrid Battery Voltage Sense "F" Circuit Range/Performance | <Ref. to HEV(diag)-308, DTC P0B55 HYBRID BATTERY VOLTAGE SENSE "F" CIRCUIT RANGE/PERFORMANCE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P0B56 | Hybrid Battery Voltage Sense "F" Circuit Low | <Ref. to HEV(diag)-308, DTC P0B56 HYBRID BATTERY VOLTAGE SENSE "F" CIRCUIT LOW, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P0B57 | Hybrid Battery Voltage Sense "F" Circuit High | <Ref. to HEV(diag)-308, DTC P0B57 HYBRID BATTERY VOLTAGE SENSE "F" CIRCUIT HIGH, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |

| DTC | Item | Note |
|---|---|---|
| P0B5A | Hybrid Battery Voltage Sense "G" Circuit Range/Performance | <Ref. to HEV(diag)-309, DTC P0B5A HYBRID BATTERY VOLTAGE SENSE "G" CIRCUIT RANGE/PERFORMANCE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P0B5B | Hybrid Battery Voltage Sense "G" Circuit Low | <Ref. to HEV(diag)-309, DTC P0B5B HYBRID BATTERY VOLTAGE SENSE "G" CIRCUIT LOW, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P0B5C | Hybrid Battery Voltage Sense "G" Circuit High | <Ref. to HEV(diag)-309, DTC P0B5C HYBRID BATTERY VOLTAGE SENSE "G" CIRCUIT HIGH, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P0BB8 | Hybrid Battery Voltage Sense "Z" Circuit | <Ref. to HEV(diag)-309, DTC P0BB8 HYBRID BATTERY VOLTAGE SENSE "Z" CIRCUIT, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P0C30 | Hybrid Battery Pack State of Charge High | <Ref. to HEV(diag)-310, DTC P0C30 HYBRID BATTERY PACK STATE OF CHARGE HIGH, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P0C78 | Hybrid Battery System Precharge Time Too Long | <Ref. to HEV(diag)-311, DTC P0C78 HYBRID BATTERY SYSTEM PRECHARGE TIME TOO LONG, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P0CA6 | Hybrid Battery Charging Current High | <Ref. to HEV(diag)-314, DTC P0CA6 HYBRID BATTERY CHARGING CURRENT HIGH, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P0CA7 | Hybrid Battery Discharging Current High | <Ref. to HEV(diag)-316, DTC P0CA7 HYBRID BATTERY DISCHARGING CURRENT HIGH, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P1C40 | Hybrid Battery Positive Contactor or Pre-Charge Contactor Circuit Stuck Closed | <Ref. to HEV(diag)-318, DTC P1C40 HYBRID BATTERY POSITIVE CONTACTOR OR PRE-CHARGE CONTACTOR CIRCUIT STUCK CLOSED, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P1C41 | High Voltage Circuit Short | <Ref. to HEV(diag)-320, DTC P1C41 HIGH VOLTAGE CIRCUIT SHORT, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P1C42 | High Voltage Circuit Open | <Ref. to HEV(diag)-323, DTC P1C42 HIGH VOLTAGE CIRCUIT OPEN, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P1C43 | Hybrid Battery Contactor Power Supply Circuit | <Ref. to HEV(diag)-325, DTC P1C43 HYBRID BATTERY CONTACTOR POWER SUPPLY CIRCUIT, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P1C44 | Sub CPU in BECM | <Ref. to HEV(diag)-325, DTC P1C44 SUB CPU IN BECM, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P1C45 | Hybrid Battery Block 1 Balancing Performance | <Ref. to HEV(diag)-326, DTC P1C45 HYBRID BATTERY BLOCK 1 BALANCING PERFORMANCE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P1C46 | Hybrid Battery Block 2 Balancing Performance | <Ref. to HEV(diag)-326, DTC P1C46 HYBRID BATTERY BLOCK 2 BALANCING PERFORMANCE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P1C47 | Hybrid Battery Block 3 Balancing Performance | <Ref. to HEV(diag)-326, DTC P1C47 HYBRID BATTERY BLOCK 3 BALANCING PERFORMANCE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P1C48 | Hybrid Battery Block 4 Balancing Performance | <Ref. to HEV(diag)-326, DTC P1C48 HYBRID BATTERY BLOCK 4 BALANCING PERFORMANCE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P1C49 | Hybrid Battery Block 5 Balancing Performance | <Ref. to HEV(diag)-327, DTC P1C49 HYBRID BATTERY BLOCK 5 BALANCING PERFORMANCE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P1C4A | Hybrid Battery Block 6 Balancing Performance | <Ref. to HEV(diag)-327, DTC P1C4A HYBRID BATTERY BLOCK 6 BALANCING PERFORMANCE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |

| DTC | Item | Note |
|---|---|---|
| P1C5E | Hybrid Battery Block Voltage Too Low | <Ref. to HEV(diag)-327, DTC P1C5E HYBRID BATTERY BLOCK VOLTAGE TOO LOW, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| U0076 | Control Module Communication Bus "HEV-CAN" Off | <Ref. to HEV(diag)-328, DTC U0076 CONTROL MODULE COMMUNICATION BUS "HEV-CAN" OFF, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| U0110 | Lost Communication With Drive Motor Control Module "A" | <Ref. to HEV(diag)-329, DTC U0110 LOST COMMUNICATION WITH DRIVE MOTOR CONTROL MODULE "A", Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| U0411 | Invalid Data Received From Drive Motor Control Module "A" | <Ref. to HEV(diag)-331, DTC U0411 INVALID DATA RECEIVED FROM DRIVE MOTOR CONTROL MODULE "A", Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| U1290 | Lost Communication With Hybrid Powertrain Control Module HEV-CAN | <Ref. to HEV(diag)-334, DTC U1290 LOST COMMUNICATION WITH HYBRID POWERTRAIN CONTROL MODULE HEV-CAN, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| U1591 | Invalid Data Received From Hybrid Powertrain Control Module HEV-CAN | <Ref. to HEV(diag)-334, DTC U1591 INVALID DATA RECEIVED FROM HYBRID POWERTRAIN CONTROL MODULE HEV-CAN, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |

# 17.Fail-Safe Chart

## A: LIST

### 1. HYBRID POWERTRAIN CONTROL SYSTEM

If any of the following DTCs are stored in the hybrid powertrain control system, the vehicle enter the appropriate fail safe pattern.

| DTC | Fail safe pattern | Prohibited concurrent controls | Availability of system operation check mode |
|---|---|---|---|
| P0506 | Fail safe pattern 1:<br>Illuminates the hybrid fail lamp. | — | *2 |
| P0507 | | — | *2 |
| P0516 | | — | *2 |
| P0517 | | — | *2 |
| P0572 | | — | *2 |
| P0573 | | — | *2 |
| P058D | | — | *4 |
| P0719 | | — | *2 |
| P0724 | | — | *2 |
| P1C04 | | — | *2 |
| P1C05 | | — | *2 |
| P1C16 | | — | *2 |
| P1C17 | | — | *2 |
| U0131 | | — | *1 |
| U0140 | | — | *1 |
| U0151 | | — | *1 |
| U0155 | | — | *1 |
| U0287 | | — | *1 |
| U0420 | | — | *1 |
| U0422 | | — | *1 |
| U0423 | | — | *1 |
| U0452 | | — | *1 |
| U0588 | | — | *1 |

# Fail-Safe Chart

| DTC | Fail safe pattern | Prohibited concurrent controls | Availability of system operation check mode |
|---|---|---|---|
| P0556 | Fail safe pattern 2:<br>Prohibits EV traveling and Auto Start Stop. If EV traveling or Auto Start Stop is in process, the engine is restarted.<br>Illuminates the hybrid fail lamp. | — | *2 |
| P057B | | Prohibits regeneration control by brake system. | *2 |
| P057C | | Prohibits regeneration control by brake system. | *2 |
| P057D | | Prohibits regeneration control by brake system. | *2 |
| P05DD | | Prohibits regeneration control by brake system. | *2 |
| P05DE | | Prohibits regeneration control by brake system. | *2 |
| P065A | | — | *2 |
| P1C00 | | — | *4 |
| P1C08 | | — | *2 |
| P1C10 | | — | *2 |
| P1C11 | | — | *2 |
| P1C12 | | — | *2 |
| P2158 | | Prohibits regeneration control by brake system. | *2 |
| U0164 | | — | *1 |
| U0122 | | — | *1 |
| U0416 | | — | *1 |
| U0424 | | — | *1 |
| U1711 | | — | *1 |
| P0620 | Fail safe pattern 3:<br>Prohibits EV traveling and Auto Start Stop. If EV traveling or Auto Start Stop is in process, the engine is not restarted.<br>Illuminates the hybrid fail lamp. | — | *2 |
| P6EF | | — | *2 |
| P1C06 | | — | *2 |
| P1C07 | | — | *2 |
| P1C09 | | — | *2 |
| P1C14 | | — | *3 |
| P1C18 | | — | *2 |
| U1676 | | — | *1 |
| U1720 | | — | *1 |
| U0111 | Fail safe pattern 4:<br>Deactivates the hybrid system.<br>Illuminates the hybrid fail lamp. | — | *1 |
| U0412 | | — | *1 |
| P1C1E | | Prohibits reconnection of the High voltage battery until the condition is restored. | *2 |

# Fail-Safe Chart

| DTC | Fail safe pattern | Prohibited concurrent controls | Availability of system operation check mode |
|---|---|---|---|
| P0604 | Fail safe pattern 5:<br>Deactivates the hybrid system. Also, driving power and shifting commands by the hybrid powertrain CM are stopped, and instead they are controlled by ECM and TCM respectively.<br>Illuminates the hybrid fail lamp. | — | *2 |
| P0605 | | — | *2 |
| P0A1D | | — | *2 |
| U0073 | | — | *1 |
| U0075 | | — | *1 |
| U0076 | | — | *1 |
| U0100 | | — | *1 |
| U0101 | | — | *1 |
| U0110 | | — | *1 |
| U0401 | | — | *1 |
| U0402 | | — | *1 |
| U0411 | | — | *1 |
| U1100 | | — | *1 |
| U1101 | | — | *1 |
| U1401 | | — | *1 |
| U1402 | | — | *1 |

*1: Prohibits all «System Operation Check Modes».
*2: Prohibits «Engine only Drive Mode» and «Auto Start Stop Cancel Drive Mode (Engine only or Engine + Motor)».
*3: Prohibits «Engine only Drive Mode», «Auto Start Stop Cancel Drive Mode (Engine only or Engine + Motor)», and «ISG Voltage Control».
*4: Prohibits «Engine only Drive Mode», «Auto Start Stop Cancel Drive Mode (Engine only or Engine + Motor)», and «12V Battery Relay Operation».

## 2. DRIVE MOTOR CONTROL SYSTEM

If any of the following DTCs are stored in the drive motor control system, the vehicle enter the appropriate fail safe pattern.

| DTC | Fail safe pattern | Prohibited concurrent controls | Availability of system operation check mode |
|---|---|---|---|
| P0A90 | Fail safe pattern 1:<br>Illuminates the hybrid fail lamp. | — | — |
| P0C0D | | — | — |
| P0A94 | Fail safe pattern 2:<br>Prohibits EV traveling and Auto Start Stop. If EV traveling or Auto Start Stop is in process, the engine is restarted.<br>Illuminates the hybrid fail lamp. | — | — |
| P1C34 | | — | — |
| P1C35 | | — | — |
| P0604 | Fail safe pattern 3:<br>Deactivates the hybrid system.<br>Illuminates the hybrid fail lamp. | — | — |
| P0605 | | — | — |
| P06B1 | | — | — |
| P06B2 | | — | — |
| P0A1B | | — | *1 |
| P0A2A | | — | — |
| P0A2C | | — | — |
| P0A2D | | — | — |
| P0A3C | | — | — |
| P0A44 | | — | — |
| P0A5D | | — | — |
| P0A60 | | — | — |
| P0A63 | | — | — |
| P0A78 | | — | — |
| P0AED | | — | — |
| P0AEE | | — | — |
| P0AF2 | | — | — |
| P0AF3 | | — | — |
| P0BD1 | | — | — |
| P0BD2 | | — | — |
| P0BE6 | | — | — |
| P0BE7 | | — | — |
| P0BE8 | | — | — |
| P0BEA | | — | — |
| P0BEB | | — | — |
| P0BEC | | — | — |
| P0BEE | | — | — |
| P0BEF | | — | — |
| P0BF0 | | — | — |
| P0BFD | | — | — |
| P0C05 | | — | — |
| P0C0C | | — | — |
| P0C79 | | — | — |
| P0DA8 | | — | — |
| P1C20 | | — | — |
| P1C22 | | — | *1 |
| P1C24 | | — | — |
| P1C25 | | — | — |
| P1C26 | | — | — |

# Fail-Safe Chart

| DTC | Fail safe pattern | Prohibited concurrent controls | Availability of system operation check mode |
|---|---|---|---|
| P1C27 | Fail safe pattern 3:<br>Deactivates the hybrid system.<br>Illuminates the hybrid fail lamp. | — | — |
| P1C2A | | — | — |
| P1C30 | | — | — |
| P1C31 | | — | — |
| U0076 | | — | *1 |
| U0111 | | — | *1 |
| U0412 | | — | *1 |
| U1290 | | — | *1 |
| U1591 | | — | *1 |
| P0A82 | | — | — |
| P0A83 | | — | — |
| P0A3F | Fail safe pattern 4:<br>Deactivates the hybrid system. Also, driving power and shifting commands by the hybrid powertrain CM are stopped, and instead they are controlled by ECM and TCM respectively.<br>Illuminates the hybrid fail lamp. | — | — |
| P0A43 | | — | — |
| P0A40 | | — | — |
| P0C52 | | — | — |
| P0C5C | | — | — |
| P0CDC | | — | — |
| P0CDD | | — | — |

*1: Prohibits all «System Operation Check Modes».

## 3. BATTERY ENERGY CONTROL SYSTEM

If any of the following DTCs are stored in the battery energy control system, the vehicle enter the appropriate fail safe pattern.

| DTC | Fail safe pattern |
|---|---|
| P0AA4 | Fail safe pattern 1:<br>Illuminates the hybrid fail lamp. |
| P0A7F | |
| P0AA6 | |
| P0AA7 | |
| P0AAD | |
| P0AAE | |
| P0AAF | |
| P0ADF | |
| P0AE6 | |
| P0B4A | |
| U0110 | |
| U0411 | |
| P0A9C | Fail safe pattern 2:<br>Prohibits EV traveling and Auto Start Stop. If EV traveling or Auto Start Stop is in process, the engine is not restarted.<br>Illuminates the hybrid fail lamp. |
| P0A9D | |
| P0A9E | |
| P0ABF | |
| P0AC0 | |
| P0AC1 | |
| P0AC2 | |
| P0AC3 | |
| P0AC6 | |
| P0AC7 | |
| P0AC8 | |
| P0ACB | |
| P0ACC | |
| P0ACD | |
| P0B3C | |
| P0B3D | |
| P0B3E | |
| P0B41 | |
| P0B42 | |
| P0B43 | |
| P0B46 | |
| P0B47 | |
| P0B48 | |
| P0B4B | |
| P0B4C | |
| P0B4D | |
| P0B50 | |
| P0B51 | |
| P0B52 | |
| P0B55 | |
| P0B56 | |
| P0B57 | |
| P0B5A | |
| P0B5B | |
| P0B5C | |

# Fail-Safe Chart

| DTC | Fail safe pattern |
|---|---|
| P0604 | Fail safe pattern 3:<br>Deactivates the hybrid system.<br>Illuminates the hybrid fail lamp. |
| P0605 | |
| P062F | |
| P0A1F | |
| P0A7D | |
| P0A7E | |
| P0A95 | |
| P0AD9 | |
| P0ADB | |
| P0ADD | |
| P0AE4 | |
| P0B25 | |
| P0B26 | |
| P0B37 | |
| P0BB8 | |
| P0C30 | |
| P0C78 | |
| P0CA6 | |
| P0CA7 | |
| P1C40 | |
| P1C41 | |
| P1C42 | |
| P1C43 | |
| P1C44 | |
| P1C45 | |
| P1C46 | |
| P1C47 | |
| P1C48 | |
| P1C49 | |
| P1C4A | |
| P1C5E | |
| U0076 | |
| U1290 | |
| U1591 | |

# 18.Diagnostic Procedure with Diagnostic Trouble Code (DTC)

## A: DTC P0506 IDLE AIR CONTROL SYSTEM RPM LOWER THAN EXPECTED

**DIAGNOSIS:**

• Detected when two consecutive driving cycles with fault occur. (Single engine startup is counted as one drive cycle.)

• GENERAL DESCRIPTION <Ref. to GD(HEV)-11, DTC P0506 IDLE AIR CONTROL SYSTEM RPM LOWER THAN EXPECTED, Diagnostic Trouble Code (DTC) Detecting Criteria.>

**TROUBLE SYMPTOM:**

Normal control

**CAUTION:**

**Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.>**

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK DTC.**<br>Read DTCs of the following system.<br>• Engine<br>• Hybrid powertrain control system <Ref. to HEV(diag)-24, HYBRID POWERTRAIN CONTROL SYSTEM, OPERATION, Read Diagnostic Trouble Code (DTC).> | Are any other DTCs detected? (current malfunction) | First perform the diagnosis according to other DTCs. | Go to step **2**. |
| 2 | **CHECK AIR CLEANER ELEMENT.**<br>1) Turn the ignition switch to OFF.<br>2) Check the air cleaner element. | Is there excessive clogging on air cleaner element? | Replace the air cleaner element. <Ref. to IN(H4DO(w/o HEV))-4, Air Cleaner Element.> | Go to step **3**. |
| 3 | **CHECK ELECTRONIC THROTTLE CONTROL.**<br>1) Remove the electronic throttle control. <Ref. to FU(H4DO(w/o HEV))-14, REMOVAL, Throttle Body.><br>2) Check the electronic throttle control. | Are foreign matter found inside electronic throttle control? | Remove foreign matter from electronic throttle control. | Perform the diagnosis of DTC P2101 of engine. <Ref. to EN(H4DO HEV)(diag)-335, DTC P2101 THROTTLE ACTUATOR CONTROL MOTOR CIRCUIT RANGE/PERFORMANCE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |

## B: DTC P0507 IDLE AIR CONTROL SYSTEM RPM HIGHER THAN EXPECTED

**DIAGNOSIS:**

• Detected when two consecutive driving cycles with fault occur. (Single engine startup is counted as one drive cycle.)

• GENERAL DESCRIPTION <Ref. to GD(HEV)-12, DTC P0507 IDLE AIR CONTROL SYSTEM RPM HIGHER THAN EXPECTED, Diagnostic Trouble Code (DTC) Detecting Criteria.>

**TROUBLE SYMPTOM:**

Normal control

**CAUTION:**

**Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.>**

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK DTC.**<br>Read DTCs of the following system.<br>• Engine<br>• Hybrid powertrain control system <Ref. to HEV(diag)-24, HYBRID POWERTRAIN CONTROL SYSTEM, OPERATION, Read Diagnostic Trouble Code (DTC).> | Are any other DTCs detected? (current malfunction) | First perform the diagnosis according to other DTCs. | Go to step **2**. |
| 2 | **CHECK AIR INTAKE SYSTEM.**<br>1) Start and idle the engine.<br>2) Check the following items.<br>• Loose installation of intake manifold and throttle body<br>• Cracks of intake manifold gasket and throttle body gasket<br>• Disconnection of vacuum hoses | Is there any fault in air intake system? | Repair air suction and leaks. | Go to step **3**. |
| 3 | **CHECK ELECTRONIC THROTTLE CONTROL.**<br>1) Turn the ignition switch to OFF.<br>2) Remove the electronic throttle control. <Ref. to FU(H4DO(w/o HEV))-14, REMOVAL, Throttle Body.><br>3) Check the electronic throttle control. | Are foreign matter found inside electronic throttle control? | Remove foreign matter from electronic throttle control. | Perform the diagnosis of DTC P2101 of engine. <Ref. to EN(H4DO HEV)(diag)-335, DTC P2101 THROTTLE ACTUATOR CONTROL MOTOR CIRCUIT RANGE/PERFORMANCE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |

## C: DTC P0516 BATTERY TEMPERATURE SENSOR CIRCUIT LOW

**DIAGNOSIS:**

- Detects short circuit to ground of 12 volt auxiliary battery temperature sensor harness.
- Judge as NG when the detection result is out of specification.
- Immediately at fault recognition

**TROUBLE SYMPTOM:**

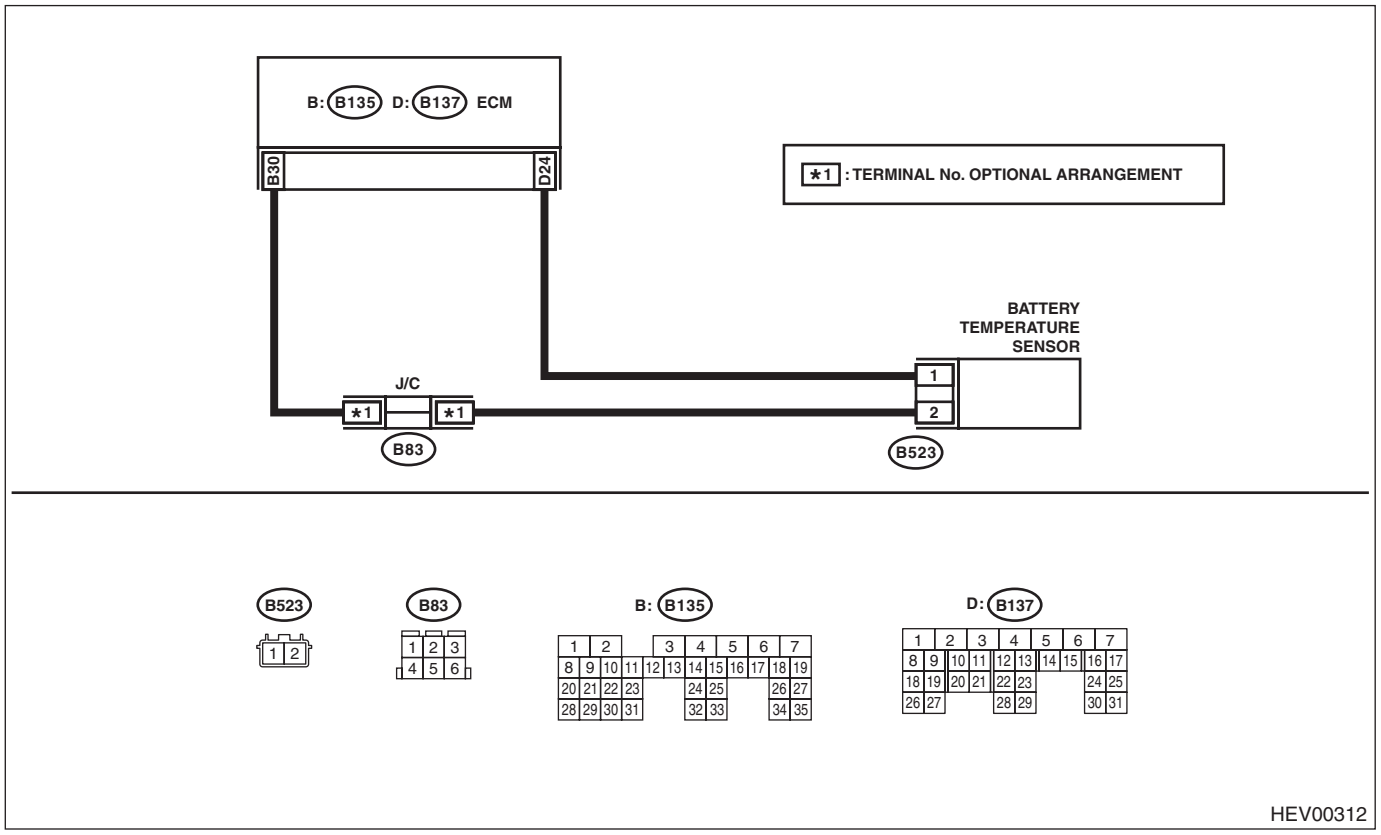
Normal control

**CAUTION:**

**Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.>**

**WIRING DIAGRAM:**

Engine electrical system <Ref. to WI(HEV)-100, WIRING DIAGRAM, Engine Electrical System.>




| Step | | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK CURRENT DATA.**<br>1) Start the engine.<br>2) Using the Subaru Select Monitor, confirm the current data of hybrid powertrain control system, the value of «12V Auxiliary Battery Temperature». <Ref. to HEV(diag)-40, HYBRID POWERTRAIN CONTROL SYSTEM, OPERATION, Read Current Data.> | Is the value 100°C (212°F) or more? | Go to step **2**. | Even if DTC is detected, the circuit has returned to a normal condition at this time. Reproduce the failure, and then perform the diagnosis again.<br>NOTE:<br>In this case, temporary poor contact of connector, temporary open or short circuit of harness may be the cause. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 2 | **CHECK HARNESS (SHORT TO GROUND).**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the ECM connector and battery temperature sensor connector.<br>3) Using a tester, measure the resistance between the ECM connector and chassis ground.<br>***Connector & terminal***<br>***(B137) No. 24 — Chassis ground:*** | Is the resistance 1 MΩ or more? | Replace the battery temperature sensor. <Ref. to SC(H4DO(HEV))-62, Battery Temperature Sensor.> | Repair the short circuit to ground in the harness between the ECM connector and battery temperature sensor connector. |

## D: DTC P0517 BATTERY TEMPERATURE SENSOR CIRCUIT HIGH

**DIAGNOSIS:**

- Detects open circuit and short circuit of 12 volt auxiliary battery temperature sensor harness.
- Judge as NG when the detection result is out of specification.
- Immediately at fault recognition

**TROUBLE SYMPTOM:**

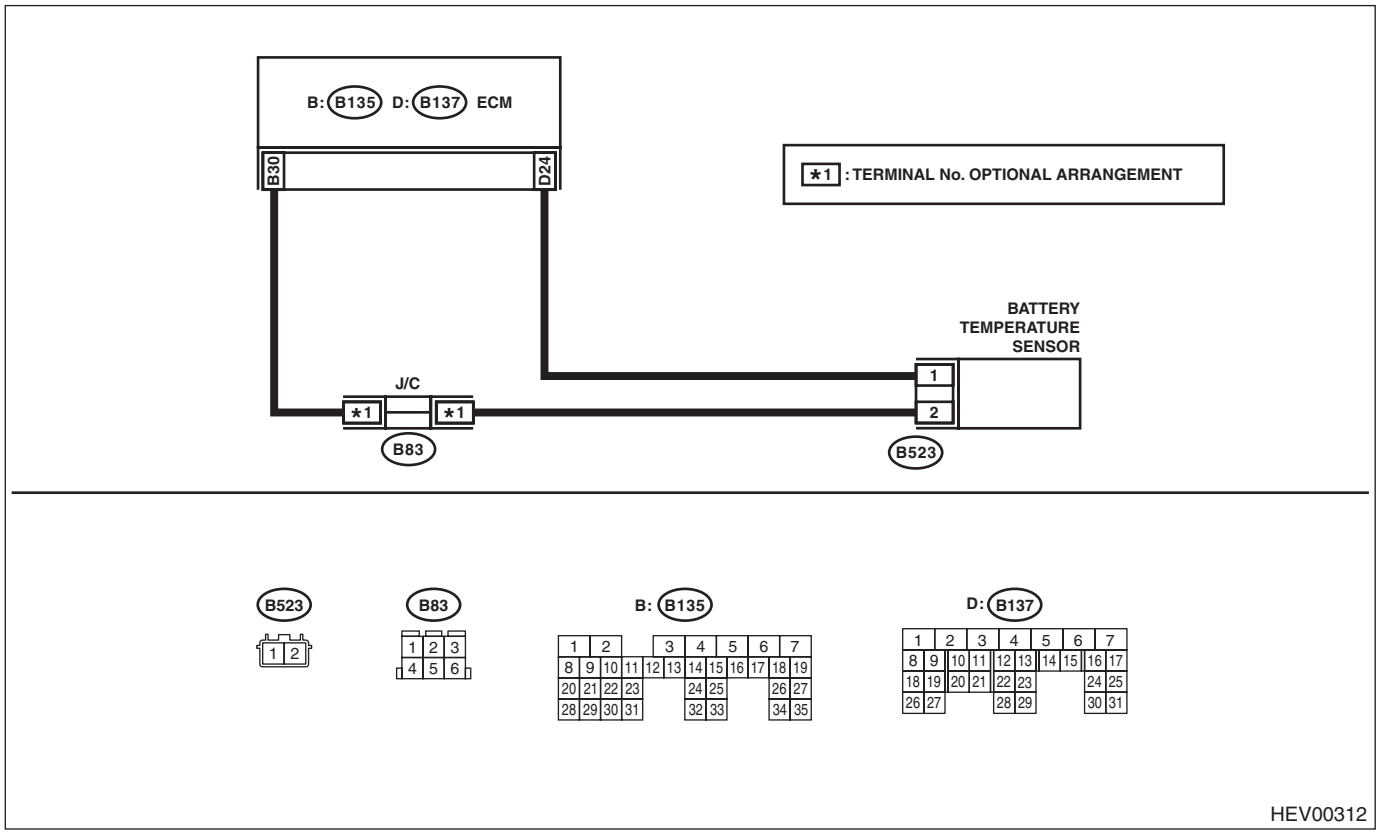
Normal control

**CAUTION:**

**Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.>**

**WIRING DIAGRAM:**

Engine electrical system <Ref. to WI(HEV)-100, WIRING DIAGRAM, Engine Electrical System.>




| Step | | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK CURRENT DATA.**<br>1) Start the engine.<br>2) Using the Subaru Select Monitor, confirm the current data of hybrid powertrain control system, the value of «12V Auxiliary Battery Temperature». <Ref. to HEV(diag)-40, HYBRID POWERTRAIN CONTROL SYSTEM, OPERATION, Read Current Data.> | Is the value –40°C (–40°F) or less? | Go to step **2**. | Even if DTC is detected, the circuit has returned to a normal condition at this time. Reproduce the failure, and then perform the diagnosis again.<br>NOTE:<br>In this case, temporary poor contact of connector, temporary open or short circuit of harness may be the cause. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 2 | **CHECK HARNESS (OPEN CIRCUIT).**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the connectors from the ECM and battery temperature sensor.<br>3) Using a tester, measure the resistance of harness between ECM connector and battery temperature sensor connector.<br>***Connector & terminal***<br>***(B137) No. 24 — (B523) No. 1:***<br>***(B135) No. 30 — (B523) No. 2:*** | Is the resistance less than 1 Ω? | Go to step **3**. | Repair the open circuit in the harness between the ECM connector and battery temperature sensor connector. |
| 3 | **CHECK HARNESS (SHORT TO POWER).**<br>1) Connect all connectors.<br>2) Turn the ignition switch to ON.<br>3) Measure the voltage between ECM connector and chassis ground.<br>***Connector & terminal***<br>***(B137) No. 24 (+) — Chassis ground (–):*** | Is the voltage 5 V or more? | Repair the short circuit to power in harness between ECM connector and battery temperature sensor connector. | Replace the battery temperature sensor. <Ref. to SC(H4DO(HEV))-62, Battery Temperature Sensor.> |

## E: DTC P0556 BRAKE BOOSTER PRESSURE SENSOR CIRCUIT RANGE/PERFORMANCE

**DIAGNOSIS:**

- Detects abnormal conditions of brake booster pressure sensor range/performance.
- Judge as NG when the detection result is out of specification.
- Immediately at fault recognition

**TROUBLE SYMPTOM:**

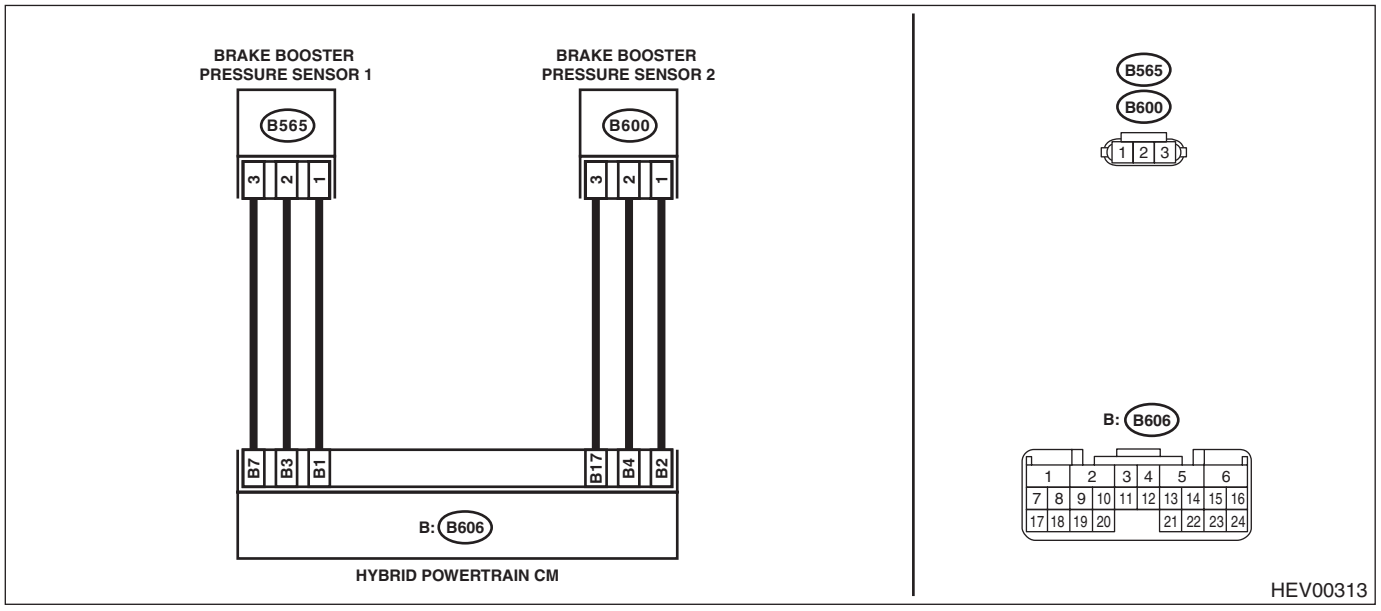
- EV traveling/Auto Start Stop does not operate.
- Vacuum pump fail lamp illuminates.

**CAUTION:**

**Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.>**

**WIRING DIAGRAM:**

Hybrid system <Ref. to WI(HEV)-140, WIRING DIAGRAM, Hybrid Electric Vehicle System.>




| Step | | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK DTC.**<br>Read the DTC. <Ref. to HEV(diag)-24, HYBRID POWERTRAIN CONTROL SYSTEM, OPERATION, Read Diagnostic Trouble Code (DTC).> | Are any other DTCs (brake booster pressure sensor related) detected? (current malfunction) | First diagnose other DTCs. | Go to step **2**. |
| 2 | **CHECK CURRENT DATA.**<br>Using the Subaru Select Monitor, confirm the current data of hybrid powertrain control system, the value of «Power Sensor Voltage 1» «Power Sensor Voltage 2». <Ref. to HEV(diag)-40, HYBRID POWERTRAIN CONTROL SYSTEM, OPERATION, Read Current Data.> | Is the value approx. 5 V? | Go to step **3**. | Go to step **9**. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 3 | **CHECK CURRENT DATA.**<br>1) Turn the ignition switch to ON.<br>2) Depress the brake pedal 10 times.<br>3) Using the Subaru Select Monitor, confirm the current data of hybrid powertrain control system, the value of «Brake Booster Pressure 1» «Brake Booster Pressure 2» «Atmosphere Pressure». <Ref. to HEV(diag)-40, HYBRID POWERTRAIN CONTROL SYSTEM, OPERATION, Read Current Data.> | Do «Brake Booster Pressure 1» «Brake Booster Pressure 2» «Atmosphere Pressure» match? | Even if DTC is detected, the circuit has returned to a normal condition at this time. Reproduce the failure, and then perform the diagnosis again.<br>NOTE:<br>In this case, temporary poor contact of connector, temporary open or short circuit of harness may be the cause. | Go to step **4**. |
| 4 | **CHECK SENSORS.**<br>1) Interchange brake booster pressure sensor 1 and brake booster pressure sensor 2.<br>2) Turn the ignition switch to ON.<br>3) Depress the brake pedal 10 times.<br>4) Using the Subaru Select Monitor, confirm the current data of hybrid powertrain control system, the value of «Brake Booster Pressure 1» «Brake Booster Pressure 2». <Ref. to HEV(diag)-40, HYBRID POWERTRAIN CONTROL SYSTEM, OPERATION, Read Current Data.> | Did those two values interchange each other? | Replace the brake booster. <Ref. to BR-50, Brake Booster.> | Go to step **5**. |
| 5 | **CHECK CURRENT DATA.**<br>Using the Subaru Select Monitor, confirm the current data of hybrid powertrain control system, the value of «Brake Booster Pressure Sensor Voltage 1» «Brake Booster Pressure Sensor Voltage 2». <Ref. to HEV(diag)-40, HYBRID POWERTRAIN CONTROL SYSTEM, OPERATION, Read Current Data.> | Is the value between 0.3 — 4.7 V? | Even if DTC is detected, the circuit has returned to a normal condition at this time. Reproduce the failure, and then perform the diagnosis again.<br>NOTE:<br>In this case, temporary poor contact of connector, temporary open or short circuit of harness may be the cause. | If 0.3 V or less Go to step **6**.<br>If 4.7 V or more Go to step **7**. |
| 6 | **CHECK HARNESS (SHORT TO GROUND).**<br>1) Disconnect the connectors of brake booster pressure sensor 1 and brake booster pressure sensor 2 and the HPCM connector.<br>2) Using a tester, measure the resistance between brake booster pressure sensor 1 and brake booster pressure sensor 2 connectors and chassis ground.<br>***Connector & terminal***<br>***(B565) No. 2 — Chassis ground:***<br>***(B600) No. 2 — Chassis ground:*** | Is the resistance 1 MΩ or more? | Replace the HPCM. <Ref. to HEV-37, Hybrid Powertrain Control Module.> | Repair the ground short circuit of harness between HPCM connector and brake booster pressure sensor connector. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 7 | **CHECK HARNESS (OPEN CIRCUIT).**<br>1) Disconnect the connectors of brake booster pressure sensor 1 and brake booster pressure sensor 2.<br>2) Using a tester, measure the resistance between brake booster pressure sensor 1 and brake booster pressure sensor 2 connectors and the HPCM connector.<br>***Connector & terminal***<br>***(B565) No. 2 — (B606) No. 3:***<br>***(B600) No. 2 — (B606) No. 4:*** | Is the resistance 1 Ω or less? | Go to step **8**. | Repair the open circuit of harness between HPCM connector and brake booster pressure sensor connector. |
| 8 | **CHECK HARNESS (SHORT TO POWER).**<br>1) Turn the ignition switch to ON.<br>2) Using a tester, measure the voltage between brake booster pressure sensor 1 and brake booster pressure sensor 2 connectors and chassis ground.<br>***Connector & terminal***<br>***(B565) No. 2 (+) — Chassis ground (–):***<br>***(B600) No. 2 (+) — Chassis ground (–):*** | Is the voltage 5 V or less? | Replace the HPCM. <Ref. to HEV-37, Hybrid Powertrain Control Module.> | Repair short circuit to power in harness between HPCM connector and brake booster pressure sensor connector. |
| 9 | **CHECK CURRENT DATA.**<br>1) Disconnect the HPCM connector (B606).<br>2) Turn the ignition switch to ON.<br>3) Using the Subaru Select Monitor, confirm the current data of hybrid powertrain control system, the value of «Power Sensor Voltage 1» «Power Sensor Voltage 2». | Is the value approx. 5 V? | Go to step **10**. | Replace the HPCM. <Ref. to HEV-37, Hybrid Powertrain Control Module.> |
| 10 | **CHECK HARNESS (OPEN CIRCUIT).**<br>1) Disconnect the connectors of brake booster pressure sensor 1 and brake booster pressure sensor 2.<br>2) Using a tester, measure the resistance between brake booster pressure sensor 1 and brake booster pressure sensor 2 connectors and the HPCM connector.<br>***Connector & terminal***<br>***(B565) No. 3 — (B606) No. 7:***<br>***(B600) No. 3 — (B606) No. 17:*** | Is the resistance 1 Ω or less? | Go to step **11**. | Repair the open circuit of harness between HPCM connector and brake booster pressure sensor connector. |
| 11 | **CHECK HARNESS (SHORT TO GROUND).**<br>1) Disconnect the connectors of brake booster pressure sensor 1 and brake booster pressure sensor 2.<br>2) Using a tester, measure the resistance between brake booster pressure sensor 1 and brake booster pressure sensor 2 connectors and chassis ground.<br>***Connector & terminal***<br>***(B565) No. 3 — Chassis ground:***<br>***(B600) No. 3 — Chassis ground:*** | Is the resistance 1 MΩ or more? | Replace the HPCM. <Ref. to HEV-37, Hybrid Powertrain Control Module.> | Repair the ground short circuit of harness between HPCM connector and brake booster pressure sensor connector. |

# F: DTC P0572 BRAKE SWITCH "A" [STOP LAMP SWITCH] CIRCUIT LOW

**DIAGNOSIS:**

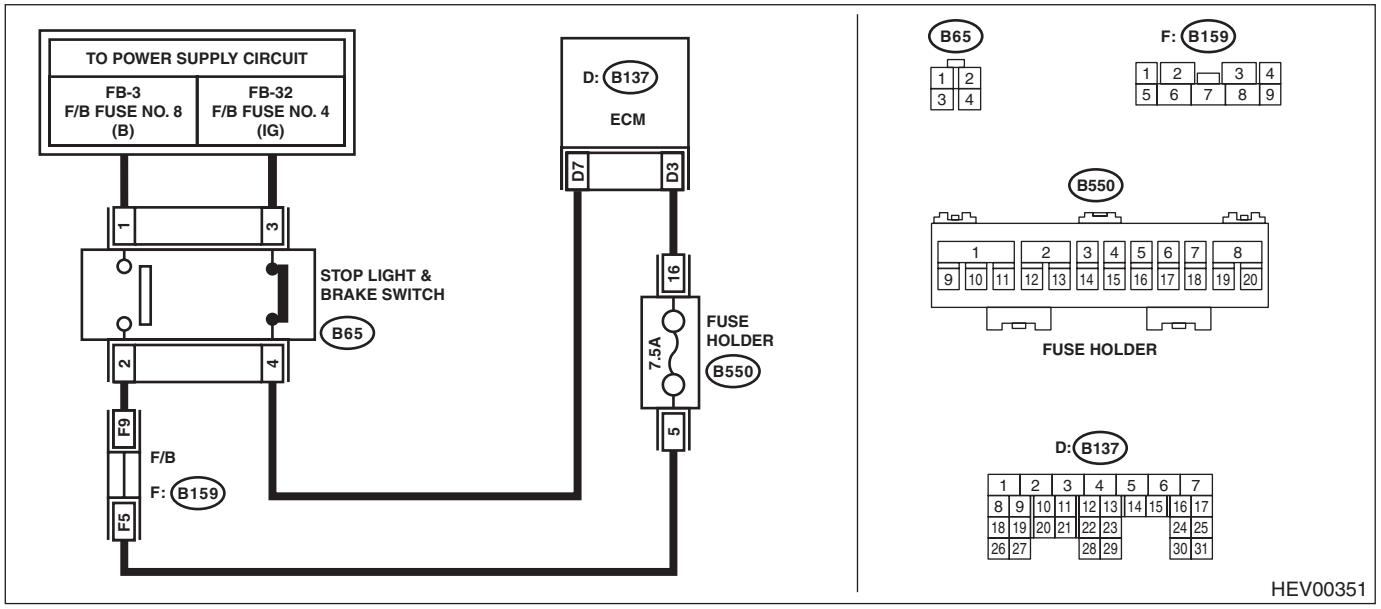
GENERAL DESCRIPTION <Ref. to GD(HEV)-13, DTC P0572 BRAKE SWITCH "A" [STOP LAMP SWITCH] CIRCUIT LOW, Diagnostic Trouble Code (DTC) Detecting Criteria.>

**CAUTION:**

**Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.>**

**WIRING DIAGRAM:**

Stop light system <Ref. to WI(HEV)-210, WIRING DIAGRAM, Stop Light System.>




| Step | | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK STOP LIGHT & BRAKE SWITCH.**<br>Check the stop light & brake switch. <Ref. to CC-9, Stop Light & Brake Switch.> | Is the stop light & brake switch and installation position OK? | Go to step **2**. | Replace the stop light & brake switch. Or adjust the installation position. |
| 2 | **CHECK STOP LIGHT & BRAKE SWITCH CIRCUIT.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the stop light & brake switch connector.<br>3) Turn the ignition switch to ON.<br>4) Measure the voltage between the stop light & brake switch connector and chassis ground.<br>***Connector & terminal***<br>***(B65) No. 3 (+) — Chassis ground (–):*** | Is the voltage 10 V or more? | Go to step **3**. | • Check fuse No. 8 (in fuse & relay box).<br>• Check for open or short in the harness between stop light & brake switch and fuse & relay box. |
| 3 | **CHECK STOP LIGHT & BRAKE SWITCH CIRCUIT.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the ECM connector.<br>3) Measure the resistance between the ECM connector and stop light & brake switch connector.<br>***Connector & terminal***<br>***(B137) No. 7 — (B65) No. 4:*** | Is the resistance less than 10 Ω? | Replace the ECM. <Ref. to FU(H4DO(HEV))-85, Engine Control Module (ECM).> | Repair the open circuit of harness between ECM connector and stop light & brake switch connector. |

## G: DTC P0573 BRAKE SWITCH "A" [STOP LAMP SWITCH] CIRCUIT HIGH

**DIAGNOSIS:**

GENERAL DESCRIPTION <Ref. to GD(HEV)-14, DTC P0573 BRAKE SWITCH "A" [STOP LAMP SWITCH] CIRCUIT HIGH, Diagnostic Trouble Code (DTC) Detecting Criteria.>

NOTE:

For the diagnostic procedure, refer to “DTC P0572 BRAKE SWITCH "A" [STOP LAMP SWITCH] CIRCUIT LOW”. <Ref. to HEV(diag)-103, DTC P0572 BRAKE SWITCH "A" [STOP LAMP SWITCH] CIRCUIT LOW, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

## H: DTC P057B BRAKE PEDAL POSITION SENSOR CIRCUIT RANGE/PERFORMANCE

**DIAGNOSIS:**

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-16, DTC P057B BRAKE PEDAL POSITION SENSOR CIRCUIT RANGE/PERFORMANCE, Diagnostic Trouble Code (DTC) Detecting Criteria.>

**TROUBLE SYMPTOM:**

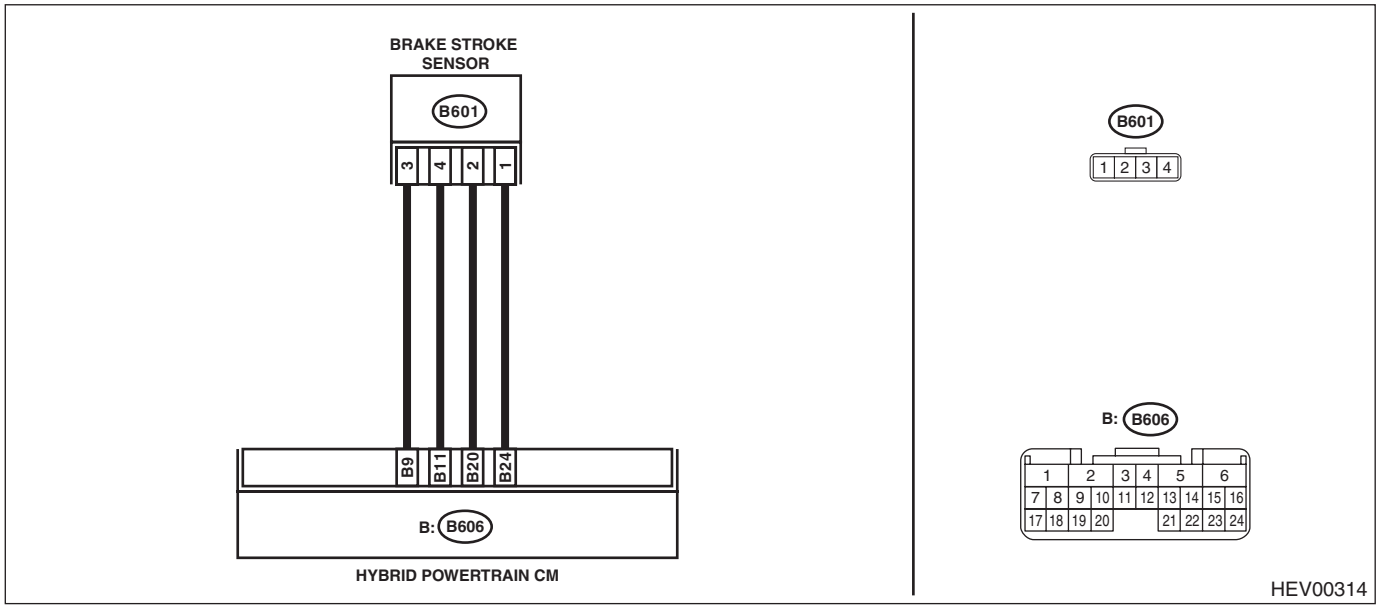
EV traveling/Auto Start Stop does not operate.

**CAUTION:**

**Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.>**

**WIRING DIAGRAM:**

Hybrid system <Ref. to WI(HEV)-140, WIRING DIAGRAM, Hybrid Electric Vehicle System.>




| Step | | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK CURRENT DATA.**<br>Using the Subaru Select Monitor, confirm the current data of hybrid powertrain control system, the value of «Main Brake Pedal Position Sensor Voltage» «Sub Brake Pedal Position Sensor Voltage». <Ref. to HEV(diag)-40, HYBRID POWERTRAIN CONTROL SYSTEM, OPERATION, Read Current Data.> | Is the value of «Main Brake Pedal Position Sensor Voltage» approximately 1 V, and the value of «Sub Brake Pedal Position Sensor Voltage» approximately 4 V when the pedal is not depressed? Also, do values of «Main Brake Pedal Position Sensor Voltage» and «Sub Brake Pedal Position Sensor Voltage» change when the pedal is depressed? | Even if DTC is detected, the circuit has returned to a normal condition at this time. Reproduce the failure, and then perform the diagnosis again.<br>NOTE:<br>In this case, temporary poor contact of connector, temporary open or short circuit of harness may be the cause. | Go to step **2**. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 2 | **CHECK CURRENT DATA.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the HPCM connector (B606).<br>3) Turn the ignition switch to ON.<br>4) Using the Subaru Select Monitor, confirm the current data of hybrid powertrain control system, the value of «Power Sensor Voltage 3». <Ref. to HEV(diag)-40, HYBRID POWER-TRAIN CONTROL SYSTEM, OPERATION, Read Current Data.> | Is the value approx. 5 V? | Go to step **3**. | Replace the HPCM. <Ref. to HEV-37, Hybrid Powertrain Control Module.> |
| 3 | **CHECK HARNESS (OPEN CIRCUIT).**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the brake stroke sensor connector.<br>3) Using a tester, measure the resistance between the HPCM connector and brake stroke sensor connector.<br>***Connector & terminal***<br>***(B601) No. 2 — (B606) No. 20:***<br>***(B601) No. 4 — (B606) No. 11:***<br>***(B601) No. 1 — (B606) No. 24:*** | Is the resistance less than 1 Ω? | Go to step **4**. | Repair the open circuit of the harness between the HPCM connector and the brake stroke sensor connector. |
| 4 | **CHECK HARNESS (SHORT TO GROUND).**<br>Using a tester, measure the resistance between brake stroke sensor connector and chassis ground.<br>***Connector & terminal***<br>***(B601) No. 2 — Chassis ground:***<br>***(B601) No. 4 — Chassis ground:***<br>***(B601) No. 1 — Chassis ground:*** | Is the resistance 1 MΩ or more? | Go to step **5**. | Repair ground short circuit of harness between the HPCM connector and the brake stroke sensor connector. |
| 5 | **CHECK HARNESS (SHORT TO POWER).**<br>1) Disconnect the brake stroke sensor connector.<br>2) Turn the ignition switch to ON.<br>3) Using a tester, measure the voltage between brake stroke sensor connector and chassis ground.<br>***Connector & terminal***<br>***(B601) No. 2 (+) — Chassis ground (–):***<br>***(B601) No. 4 (+) — Chassis ground (–):***<br>***(B601) No. 1 (+) — Chassis ground (–):*** | Is the voltage less than 1 V? | Replace the brake pedal assembly. <Ref. to BR-70, Brake Pedal.> | Repair the short circuit to power in harness between the HPCM connector and the brake stroke sensor connector. |

# I: DTC P057C BRAKE PEDAL POSITION SENSOR CIRCUIT LOW

**DIAGNOSIS:**

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-18, DTC P057C BRAKE PEDAL POSITION SENSOR CIRCUIT LOW, Diagnostic Trouble Code (DTC) Detecting Criteria.>

**TROUBLE SYMPTOM:**

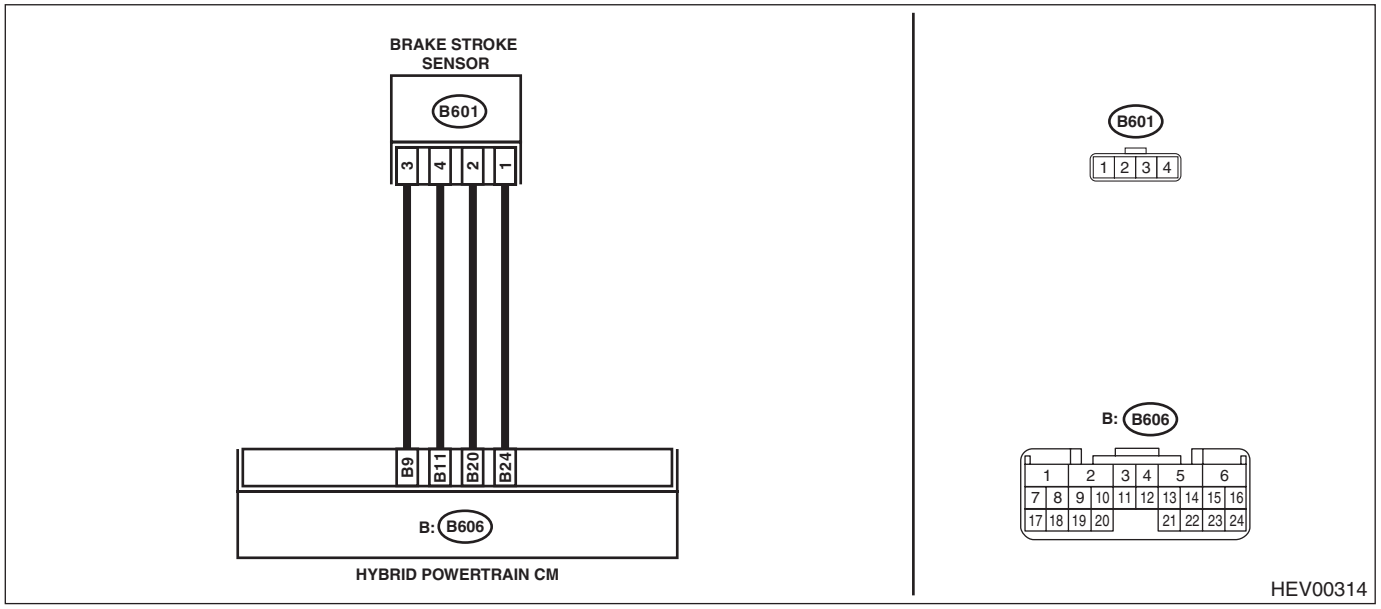
EV traveling/Auto Start Stop does not operate.

**CAUTION:**

**Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.>**

**WIRING DIAGRAM:**

Hybrid system <Ref. to WI(HEV)-140, WIRING DIAGRAM, Hybrid Electric Vehicle System.>




| Step | | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK DTC.**<br>Read the DTC. <Ref. to HEV(diag)-24, HYBRID POWERTRAIN CONTROL SYSTEM, OPERATION, Read Diagnostic Trouble Code (DTC).> | Is DTC P05DD detected? (current malfunction) | Go to step **6**. | Go to step **2**. |
| 2 | **CHECK CURRENT DATA.**<br>Using the Subaru Select Monitor, confirm the current data of hybrid powertrain control system, the value of «Main Brake Pedal Position Sensor Voltage» «Sub Brake Pedal Position Sensor Voltage». <Ref. to HEV(diag)-40, HYBRID POWERTRAIN CONTROL SYSTEM, OPERATION, Read Current Data.> | Is the value of «Main Brake Pedal Position Sensor Voltage» approximately 1 V, and the value of «Sub Brake Pedal Position Sensor Voltage» approximately 4 V when the pedal is not depressed? Also, do values of «Main Brake Pedal Position Sensor Voltage» and «Sub Brake Pedal Position Sensor Voltage» change when the pedal is depressed? | Even if DTC is detected, the circuit has returned to a normal condition at this time. Reproduce the failure, and then perform the diagnosis again.<br>NOTE:<br>In this case, temporary poor contact of connector, temporary open or short circuit of harness may be the cause. | Go to step **3**. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 3 | **CHECK CURRENT DATA.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the HPCM connector (B606).<br>3) Using the Subaru Select Monitor, confirm the current data of hybrid powertrain control system, the value of «Power Sensor Voltage 3». <Ref. to HEV(diag)-40, HYBRID POWER-TRAIN CONTROL SYSTEM, OPERATION, Read Current Data.> | Is the value approx. 5 V? | Go to step **4**. | Replace the HPCM. <Ref. to HEV-37, Hybrid Powertrain Control Module.> |
| 4 | **CHECK HARNESS (OPEN CIRCUIT).**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the brake stroke sensor connector.<br>3) Using a tester, measure the resistance between the brake stroke sensor connector and the HPCM connector.<br>***Connector & terminal***<br>***(B601) No. 2 — (B606) No. 20:***<br>***(B601) No. 1 — (B606) No. 24:*** | Is the resistance less than 1 Ω? | Go to step **5**. | Repair the open circuit of the harness between the HPCM connector and the brake stroke sensor connector. |
| 5 | **CHECK HARNESS (SHORT TO GROUND).**<br>Using a tester, measure the resistance between brake stroke sensor connector and chassis ground.<br>***Connector & terminal***<br>***(B601) No. 2 — Chassis ground:***<br>***(B601) No. 1 — Chassis ground:*** | Is the resistance 1 MΩ or more? | Replace the brake pedal assembly. <Ref. to BR-70, Brake Pedal.> | Repair ground short circuit of harness between the HPCM connector and the brake stroke sensor connector. |
| 6 | **CHECK HARNESS (OPEN CIRCUIT).**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the brake stroke sensor connector and the HPCM connector.<br>3) Using a tester, measure the resistance between the brake stroke sensor connector and the HPCM connector.<br>***Connector & terminal***<br>***(B601) No. 3 — (B606) No. 9:*** | Is the resistance less than 1 Ω? | Go to step **7**. | Repair the open circuit of the harness between the HPCM connector and the brake stroke sensor connector. |
| 7 | **CHECK HARNESS (SHORT TO GROUND).**<br>Using a tester, measure the resistance between brake stroke sensor connector and chassis ground.<br>***Connector & terminal***<br>***(B601) No. 3 — Chassis ground:*** | Is the resistance 1 MΩ or more? | Replace the brake pedal assembly. <Ref. to BR-70, Brake Pedal.> | Repair ground short circuit of harness between the HPCM connector and the brake stroke sensor connector. |

## J: DTC P057D BRAKE PEDAL POSITION SENSOR CIRCUIT HIGH

**DIAGNOSIS:**

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-19, DTC P057D BRAKE PEDAL POSITION SENSOR CIRCUIT HIGH, Diagnostic Trouble Code (DTC) Detecting Criteria.>

**TROUBLE SYMPTOM:**

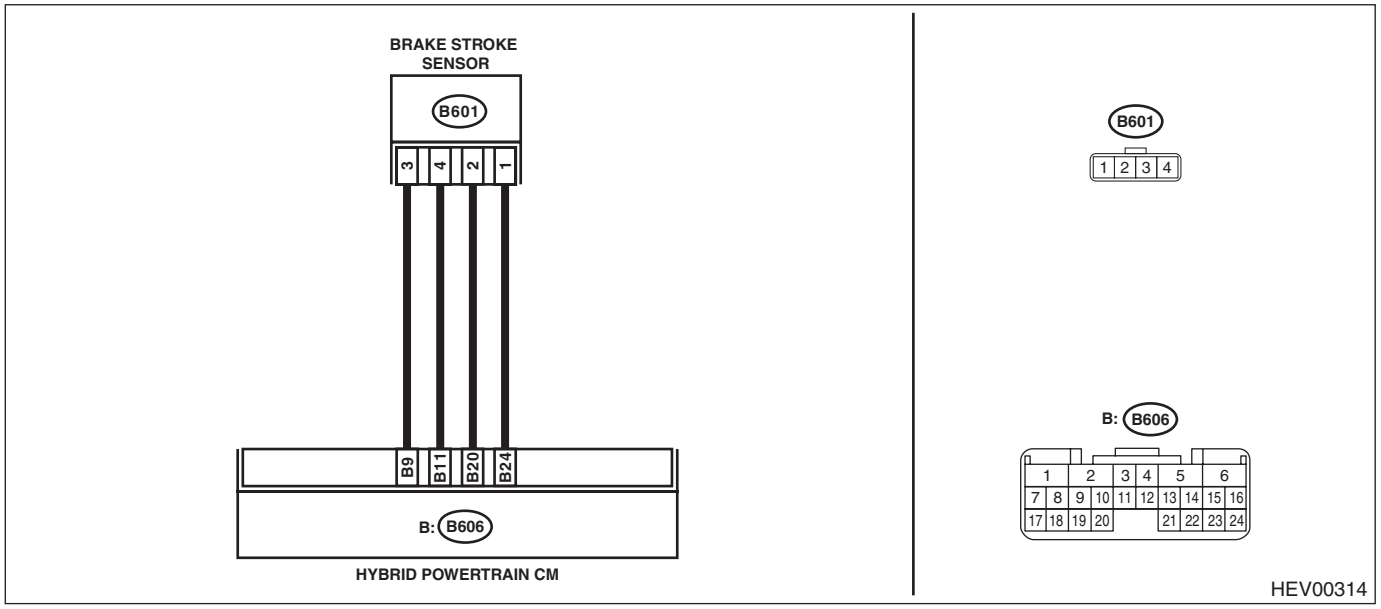
EV traveling/Auto Start Stop does not operate.

**CAUTION:**

**Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.>**

**WIRING DIAGRAM:**

Hybrid system <Ref. to WI(HEV)-140, WIRING DIAGRAM, Hybrid Electric Vehicle System.>




| Step | | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK CURRENT DATA.**<br>Using the Subaru Select Monitor, confirm the current data of hybrid powertrain control system, the value of «Main Brake Pedal Position Sensor Voltage» «Sub Brake Pedal Position Sensor Voltage». <Ref. to HEV(diag)-40, HYBRID POWERTRAIN CONTROL SYSTEM, OPERATION, Read Current Data.> | Is the value of «Main Brake Pedal Position Sensor Voltage» approximately 1 V, and the value of «Sub Brake Pedal Position Sensor Voltage» approximately 4 V when the pedal is not depressed? Also, do values of «Main Brake Pedal Position Sensor Voltage» and «Sub Brake Pedal Position Sensor Voltage» change when the pedal is depressed? | Even if DTC is detected, the circuit has returned to a normal condition at this time. Reproduce the failure, and then perform the diagnosis again.<br>NOTE:<br>In this case, temporary poor contact of connector, temporary open or short circuit of harness may be the cause. | Go to step **2**. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 2 | **CHECK CURRENT DATA.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the HPCM connector (B606).<br>3) Turn the ignition switch to ON.<br>4) Using the Subaru Select Monitor, confirm the current data of hybrid powertrain control system, the value of «Power Sensor Voltage 3». <Ref. to HEV(diag)-40, HYBRID POWER-TRAIN CONTROL SYSTEM, OPERATION, Read Current Data.> | Is the value approx. 5 V? | Go to step **3**. | Replace the HPCM. <Ref. to HEV-37, Hybrid Powertrain Control Module.> |
| 3 | **CHECK HARNESS (SHORT TO POWER).**<br>1) Turn the ignition switch to ON.<br>2) Using a tester, measure the voltage between brake stroke sensor connector and chassis ground.<br>***Connector & terminal***<br>***(B601) No. 2 (+) — Chassis ground (–):***<br>***(B601) No. 1 (+) — Chassis ground (–):*** | Is the voltage less than 1 V? | Replace the brake pedal assembly. <Ref. to BR-70, Brake Pedal.> | Repair the short circuit to power in harness between the HPCM connector and the brake stroke sensor connector. |

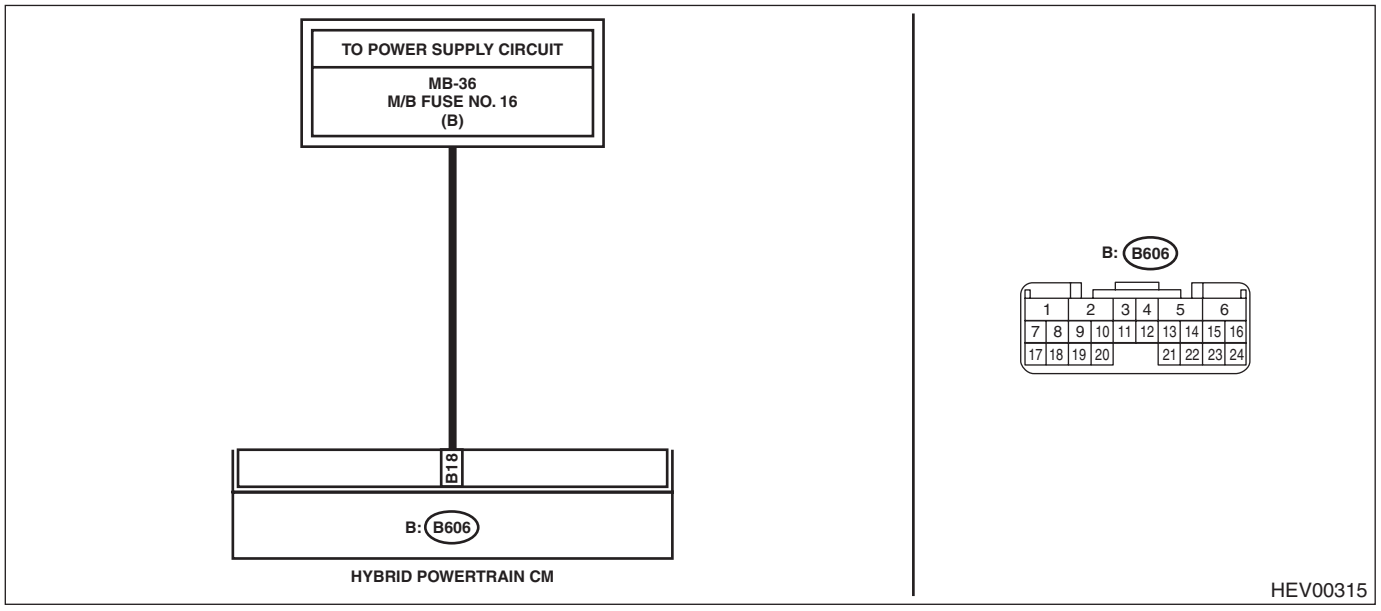
## K: DTC P058D BATTERY MONITOR MODULE VOLTAGE MONITORING PERFORMANCE

**DIAGNOSIS:**
- Detects open circuit and short circuit to ground of 12 volt auxiliary battery sensor.
- Judge as NG when the detection result is out of specification.
- Immediately at fault recognition

**TROUBLE SYMPTOM:**
- Normal control
- System operation check mode is prohibited. <Ref. to HEV(diag)-87, Fail-Safe Chart.>

**CAUTION:**
**Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.>**

**WIRING DIAGRAM:**
Hybrid system <Ref. to WI(HEV)-140, WIRING DIAGRAM, Hybrid Electric Vehicle System.>




| Step | | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK FUSE.**<br>Check the fuse. <Ref. to HEV-12, Relay and Fuse.> | Is the condition normal? | Go to step **2**. | Replace the fuse. When the replaced fuse is blown immediately, repair ground short circuit of harness between HPCM connector and the battery. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 2 | **CHECK CURRENT DATA.**<br>Using the Subaru Select Monitor, confirm the current data of hybrid powertrain control system, the value of «12V Auxiliary Battery Voltage». <Ref. to HEV(diag)-40, HYBRID POWERTRAIN CONTROL SYSTEM, OPERATION, Read Current Data.> | Is the value 6 V or more? | Even if DTC is detected, the circuit has returned to a normal condition at this time. Reproduce the failure, and then perform the diagnosis again.<br>NOTE:<br>In this case, temporary poor contact of connector, temporary open or short circuit of harness may be the cause. | Go to step **3**. |
| 3 | **CHECK HARNESS (OPEN CIRCUIT).**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the HPCM connector.<br>3) Disconnect the ground cable of the 12 volt auxiliary battery, and as for the 12 volt engine restart battery, disconnect the ground cable from the 12V engine restart battery sensor. <Ref. to NT-5, BATTERY, NOTE, Note.><br>4) Disconnect the positive cable from the 12 volt auxiliary battery.<br>5) Using a tester, measure the resistance between the positive terminal of the 12 volt auxiliary battery and HPCM connector.<br>***Connector & terminal***<br>***M/B fuse No. 16 — (B606) No. 18:*** | Is the resistance 1 Ω or less? | Go to step **4**. | Repair the open circuit of the harness between the HPCM connector and the positive terminal of the 12 volt auxiliary battery. |
| 4 | **CHECK HARNESS (SHORT TO GROUND).**<br>Using a tester, measure the resistance between the positive terminal of the 12 volt auxiliary battery and chassis ground.<br>***Connector & terminal***<br>***M/B fuse No. 16 — chassis ground:*** | Is the resistance 1 MΩ or more? | Even if DTC is detected, the circuit has returned to a normal condition at this time. Reproduce the failure, and then perform the diagnosis again.<br>NOTE:<br>In this case, temporary poor contact of connector, temporary open or short circuit of harness may be the cause. | Repair short circuit to ground in harness between the HPCM connector and the positive terminal of the 12 volt auxiliary battery. |

## L: DTC P05DD BRAKE PEDAL POSITION SENSOR "B" CIRCUIT LOW

**DIAGNOSIS:**

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-20, DTC P05DD BRAKE PEDAL POSITION SENSOR "B" CIRCUIT LOW, Diagnostic Trouble Code (DTC) Detecting Criteria.>

**TROUBLE SYMPTOM:**

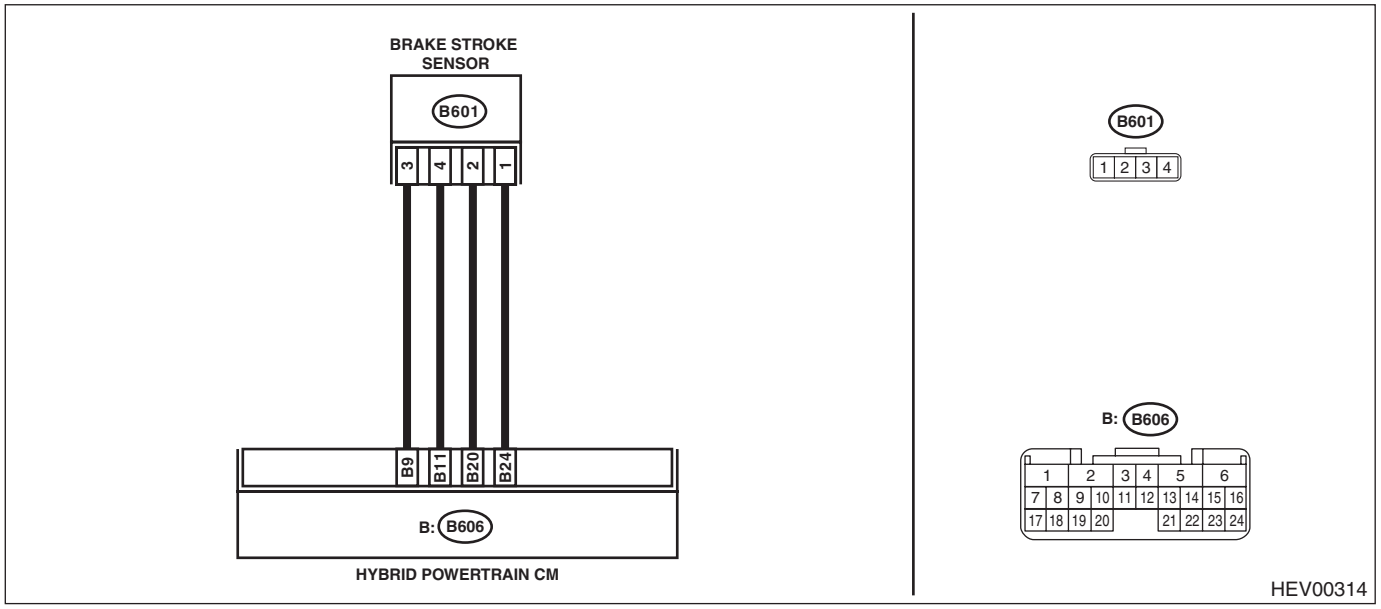
EV traveling/Auto Start Stop does not operate.

**CAUTION:**

**Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.>**

**WIRING DIAGRAM:**

Hybrid system <Ref. to WI(HEV)-140, WIRING DIAGRAM, Hybrid Electric Vehicle System.>




| Step | | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK DTC.**<br>Read the DTC. <Ref. to HEV(diag)-24, HYBRID POWERTRAIN CONTROL SYSTEM, OPERATION, Read Diagnostic Trouble Code (DTC).> | Is DTC P057C detected? (current malfunction) | Go to step **6**. | Go to step **2**. |
| 2 | **CHECK CURRENT DATA.**<br>Using the Subaru Select Monitor, confirm the current data of hybrid powertrain control system, the value of «Main Brake Pedal Position Sensor Voltage» «Sub Brake Pedal Position Sensor Voltage». <Ref. to HEV(diag)-40, HYBRID POWERTRAIN CONTROL SYSTEM, OPERATION, Read Current Data.> | Is the value of «Main Brake Pedal Position Sensor Voltage» approximately 1 V, and the value of «Sub Brake Pedal Position Sensor Voltage» approximately 4 V when the pedal is not depressed?<br>Also, do values of «Main Brake Pedal Position Sensor Voltage» and «Sub Brake Pedal Position Sensor Voltage» change when the pedal is depressed? | Even if DTC is detected, the circuit has returned to a normal condition at this time. Reproduce the failure, and then perform the diagnosis again.<br>NOTE:<br>In this case, temporary poor contact of connector, temporary open or short circuit of harness may be the cause. | Go to step **3**. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 3 | **CHECK CURRENT DATA.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the HPCM connector (B606).<br>3) Turn the ignition switch to ON.<br>4) Using the Subaru Select Monitor, confirm the current data of hybrid powertrain control system, the value of «Power Sensor Voltage 3». <Ref. to HEV(diag)-40, HYBRID POWER-TRAIN CONTROL SYSTEM, OPERATION, Read Current Data.> | Is the value approx. 5 V? | Go to step **4**. | Replace the HPCM. <Ref. to HEV-37, Hybrid Powertrain Control Module.> |
| 4 | **CHECK HARNESS (OPEN CIRCUIT).**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the brake stroke sensor connector.<br>3) Using a tester, measure the resistance between the brake stroke sensor connector and the HPCM connector.<br>***Connector & terminal***<br>***(B601) No. 4 — (B606) No. 11:***<br>***(B601) No. 1 — (B606) No. 24:*** | Is the resistance less than 1 Ω? | Go to step **5**. | Repair the open circuit of the harness between the HPCM connector and the brake stroke sensor connector. |
| 5 | **CHECK HARNESS (SHORT TO GROUND).**<br>Using a tester, measure the resistance between brake stroke sensor connector and chassis ground.<br>***Connector & terminal***<br>***(B601) No. 4 — Chassis ground:***<br>***(B601) No. 1 — Chassis ground:*** | Is the resistance 1 MΩ or more? | Replace the brake pedal assembly. <Ref. to BR-70, Brake Pedal.> | Repair ground short circuit of harness between the HPCM connector and the brake stroke sensor connector. |
| 6 | **CHECK HARNESS (OPEN CIRCUIT).**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the brake stroke sensor connector.<br>3) Using a tester, measure the resistance between the brake stroke sensor connector and the HPCM connector.<br>***Connector & terminal***<br>***(B601) No. 3 — (B606) No. 9:*** | Is the resistance less than 1 Ω? | Go to step **7**. | Repair the open circuit of the harness between the HPCM connector and the brake stroke sensor connector. |
| 7 | **CHECK HARNESS (SHORT TO GROUND).**<br>Using a tester, measure the resistance between brake stroke sensor connector and chassis ground.<br>***Connector & terminal***<br>***(B601) No. 3 — Chassis ground:*** | Is the resistance 1 MΩ or more? | Replace the brake pedal assembly. <Ref. to BR-70, Brake Pedal.> | Repair ground short circuit of harness between the HPCM connector and the brake stroke sensor connector. |

## M: DTC P05DE BRAKE PEDAL POSITION SENSOR "B" CIRCUIT HIGH

**DIAGNOSIS:**

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-21, DTC P05DE BRAKE PEDAL POSITION SENSOR "B" CIRCUIT HIGH , Diagnostic Trouble Code (DTC) Detecting Criteria.>

**TROUBLE SYMPTOM:**

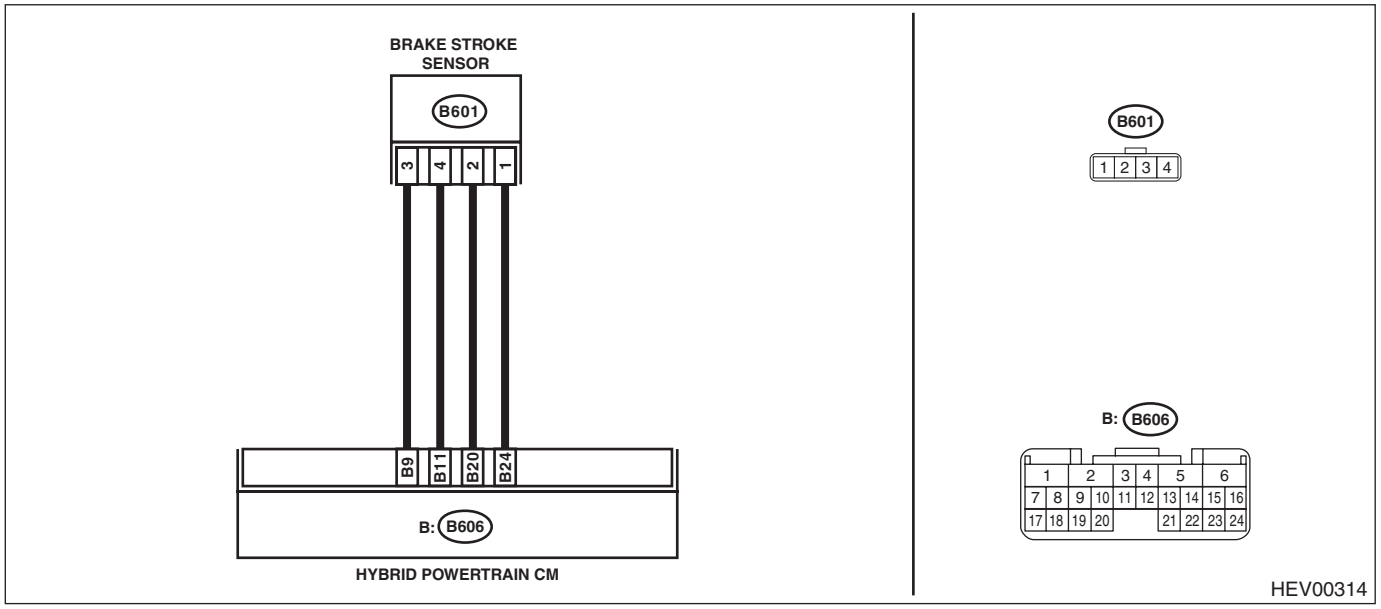
EV traveling/Auto Start Stop does not operate.

**CAUTION:**

**Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.>**

**WIRING DIAGRAM:**

Hybrid system <Ref. to WI(HEV)-140, WIRING DIAGRAM, Hybrid Electric Vehicle System.>




| Step | | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK CURRENT DATA.**<br>Using the Subaru Select Monitor, confirm the current data of hybrid powertrain control system, the value of «Main Brake Pedal Position Sensor Voltage» «Sub Brake Pedal Position Sensor Voltage». <Ref. to HEV(diag)-40, HYBRID POWERTRAIN CONTROL SYSTEM, OPERATION, Read Current Data.> | Is the value of «Main Brake Pedal Position Sensor Voltage» approximately 1 V, and the value of «Sub Brake Pedal Position Sensor Voltage» approximately 4 V when the pedal is not depressed?<br>Also, do values of «Main Brake Pedal Position Sensor Voltage» and «Sub Brake Pedal Position Sensor Voltage» change when the pedal is depressed? | Even if DTC is detected, the circuit has returned to a normal condition at this time. Reproduce the failure, and then perform the diagnosis again.<br>NOTE:<br>In this case, temporary poor contact of connector, temporary open or short circuit of harness may be the cause. | Go to step **2**. |

| Step | | Check | Yes | No |
|---|---|---|---|---|
| 2 | **CHECK CURRENT DATA.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the HPCM connector (B606).<br>3) Turn the ignition switch to ON.<br>4) Using the Subaru Select Monitor, confirm the current data of hybrid powertrain control system, the value of «Power Sensor Voltage 3». <Ref. to HEV(diag)-40, HYBRID POWER-TRAIN CONTROL SYSTEM, OPERATION, Read Current Data.> | Is the value approx. 5 V? | Go to step **3**. | Replace the HPCM. <Ref. to HEV-37, Hybrid Powertrain Control Module.> |
| 3 | **CHECK HARNESS (SHORT TO POWER).**<br>1) Turn the ignition switch to ON.<br>2) Using a tester, measure the voltage between brake stroke sensor connector and chassis ground.<br>***Connector & terminal***<br>***(B601) No. 4 — Chassis ground:***<br>***(B601) No. 1 — Chassis ground:*** | Is the voltage less than 1 V? | Replace the brake pedal assembly. <Ref. to BR-70, Brake Pedal.> | Repair the short circuit to power in harness between the HPCM connector and the brake stroke sensor connector. |

# N: DTC P0604 INTERNAL CONTROL MODULE RANDOM ACCESS MEMORY (RAM) ERROR

## 1. HYBRID POWERTRAIN CONTROL SYSTEM

**DIAGNOSIS:**

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-22, DTC P0604 INTERNAL CONTROL MODULE RANDOM ACCESS MEMORY (RAM) ERROR, Diagnostic Trouble Code (DTC) Detecting Criteria.>

**TROUBLE SYMPTOM:**

- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.
- Sometimes driving power and shifting behavior are different from the normal states.

**CAUTION:**

**Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.>**

| Step | | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK HPCM.**<br>1) Perform the Clear Memory Mode. <Ref. to HEV(diag)-25, HYBRID POWERTRAIN CONTROL SYSTEM, OPERATION, Clear Memory Mode.><br>2) Turn the ignition switch to OFF → ON.<br>3) Read the DTC again. <Ref. to HEV(diag)-24, HYBRID POWERTRAIN CONTROL SYSTEM, OPERATION, Read Diagnostic Trouble Code (DTC).> | Is DTC P0604 detected? (current malfunction) | Replace the HPCM. <Ref. to HEV-37, Hybrid Powertrain Control Module.> | Even if DTC is detected, the circuit has returned to a normal condition at this time. Reproduce the failure, and then perform the diagnosis again.<br>NOTE:<br>In this case, temporary poor contact of connector, temporary open or short circuit of harness may be the cause. |

## 2. DRIVE MOTOR CONTROL SYSTEM

**DIAGNOSIS:**

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-22, DTC P0604 INTERNAL CONTROL MODULE RANDOM ACCESS MEMORY (RAM) ERROR, Diagnostic Trouble Code (DTC) Detecting Criteria.>

**TROUBLE SYMPTOM:**

- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.

**CAUTION:**

**Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.>**

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK DMCM.**<br>1) Perform the Clear Memory Mode. <Ref. to HEV(diag)-25, DRIVE MOTOR CONTROL SYSTEM, OPERATION, Clear Memory Mode.><br>2) Read the DTC again. <Ref. to HEV(diag)-24, DRIVE MOTOR CONTROL SYSTEM, OPERATION, Read Diagnostic Trouble Code (DTC).> | Is DTC P0604 detected? (current malfunction) | Replace DMCM. <Ref. to CVT(TH58A)-157, Drive Motor Control Module.> | Even if DTC is detected, the circuit has returned to a normal condition at this time. Reproduce the failure, and then perform the diagnosis again.<br>NOTE:<br>In this case, temporary poor contact of connector, temporary open or short circuit of harness may be the cause. |

## 3. BATTERY ENERGY CONTROL SYSTEM

**DIAGNOSIS:**

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-22, DTC P0604 INTERNAL CONTROL MODULE RANDOM ACCESS MEMORY (RAM) ERROR, Diagnostic Trouble Code (DTC) Detecting Criteria.>

**TROUBLE SYMPTOM:**

- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.

**CAUTION:**

**Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.>**

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK BECM.**<br>1) Perform the Clear Memory Mode. <Ref. to HEV(diag)-25, BATTERY ENERGY CONTROL SYSTEM, OPERATION, Clear Memory Mode.><br>2) Turn the ignition switch to OFF → ON.<br>3) Read the DTC again. <Ref. to HEV(diag)-24, BATTERY ENERGY CONTROL SYSTEM, OPERATION, Read Diagnostic Trouble Code (DTC).> | Is the same DTC detected? (current malfunction) | Replace the high voltage battery. <Ref. to HEV-17, High Voltage Battery.> | Even if DTC is detected, the circuit has returned to a normal condition at this time. Reproduce the failure, and then perform the diagnosis again.<br>NOTE:<br>In this case, temporary poor contact of connector, temporary open or short circuit of harness may be the cause. |

# O: DTC P0605 INTERNAL CONTROL MODULE READ ONLY MEMORY (ROM) ERROR

## 1. HYBRID POWERTRAIN CONTROL SYSTEM

**DIAGNOSIS:**

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-24, DTC P0605 INTERNAL CONTROL MODULE READ ONLY MEMORY (ROM) ERROR, Diagnostic Trouble Code (DTC) Detecting Criteria.>

**TROUBLE SYMPTOM:**

- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.
- Sometimes driving power and shifting behavior are different from the normal states.

**CAUTION:**

**Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.>**

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK HPCM.**<br>1) Perform the Clear Memory Mode. <Ref. to HEV(diag)-25, HYBRID POWERTRAIN CONTROL SYSTEM, OPERATION, Clear Memory Mode.><br>2) Turn the ignition switch to OFF → ON.<br>3) Read the DTC again. <Ref. to HEV(diag)-24, HYBRID POWERTRAIN CONTROL SYSTEM, OPERATION, Read Diagnostic Trouble Code (DTC).> | Is DTC P0605 detected? (current malfunction) | Replace the HPCM. <Ref. to HEV-37, Hybrid Powertrain Control Module.> | Even if DTC is detected, the circuit has returned to a normal condition at this time. Reproduce the failure, and then perform the diagnosis again.<br>NOTE:<br>In this case, temporary poor contact of connector, temporary open or short circuit of harness may be the cause. |

## 2. DRIVE MOTOR CONTROL SYSTEM

**DIAGNOSIS:**

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-24, DTC P0605 INTERNAL CONTROL MODULE READ ONLY MEMORY (ROM) ERROR, Diagnostic Trouble Code (DTC) Detecting Criteria.>

**TROUBLE SYMPTOM:**

- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.

**CAUTION:**

**Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.>**

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK DMCM.**<br>1) Perform the Clear Memory Mode. <Ref. to HEV(diag)-25, DRIVE MOTOR CONTROL SYSTEM, OPERATION, Clear Memory Mode.><br>2) Read the DTC again. <Ref. to HEV(diag)-24, DRIVE MOTOR CONTROL SYSTEM, OPERATION, Read Diagnostic Trouble Code (DTC).> | Is DTC P0605 detected? (current malfunction) | Replace DMCM. <Ref. to CVT(TH58A)-157, Drive Motor Control Module.> | Even if DTC is detected, the circuit has returned to a normal condition at this time. Reproduce the failure, and then perform the diagnosis again.<br>NOTE:<br>In this case, temporary poor contact of connector, temporary open or short circuit of harness may be the cause. |

## 3. BATTERY ENERGY CONTROL SYSTEM

**DIAGNOSIS:**

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-24, DTC P0605 INTERNAL CONTROL MODULE READ ONLY MEMORY (ROM) ERROR, Diagnostic Trouble Code (DTC) Detecting Criteria.>

**TROUBLE SYMPTOM:**

- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.

**CAUTION:**

**Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.>**

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK BECM.**<br>1) Perform the Clear Memory Mode. <Ref. to HEV(diag)-25, BATTERY ENERGY CONTROL SYSTEM, OPERATION, Clear Memory Mode.><br>2) Turn the ignition switch to OFF.<br>3) Wait for 30 seconds.<br>4) Turn the ignition switch to ON.<br>5) Read the DTC again. <Ref. to HEV(diag)-24, BATTERY ENERGY CONTROL SYSTEM, OPERATION, Read Diagnostic Trouble Code (DTC).> | Is the same DTC detected? (current malfunction) | Replace the high voltage battery. <Ref. to HEV-17, High Voltage Battery.> | Even if DTC is detected, the circuit has returned to a normal condition at this time. Reproduce the failure, and then perform the diagnosis again.<br>NOTE:<br>In this case, temporary poor contact of connector, temporary open or short circuit of harness may be the cause. |

# P: DTC P0620 GENERATOR CONTROL CIRCUIT

**DIAGNOSIS:**

- Detects open circuit, short circuit to ground, and short circuit to power in ISG INHCRK line.
- Immediately at fault recognition

**TROUBLE SYMPTOM:**

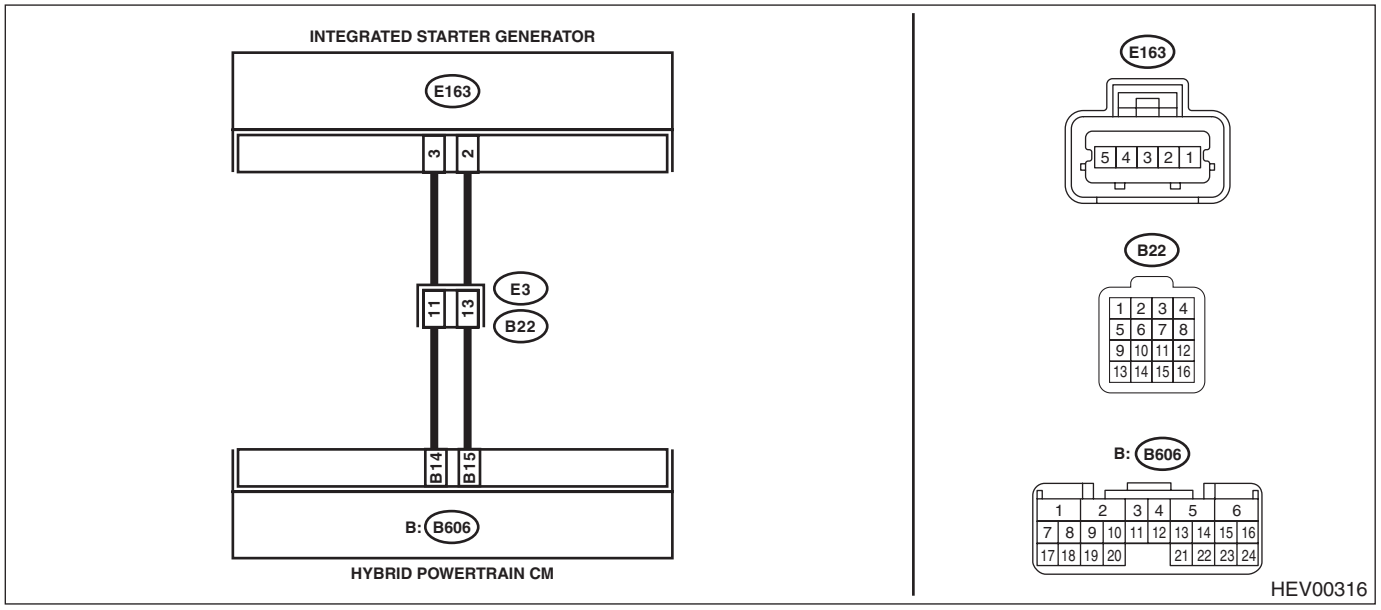
EV traveling/Auto Start Stop does not operate.
(Engine does not restart under EV traveling/Auto Start Stop condition.)

**CAUTION:**

**Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.>**

**WIRING DIAGRAM:**

Hybrid system <Ref. to WI(HEV)-140, WIRING DIAGRAM, Hybrid Electric Vehicle System.>




| Step | | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK HARNESS (OPEN CIRCUIT).**<br>1) Disconnect the HPCM connector.<br>2) Disconnect the integrated starter generator connector.<br>3) Disconnect the 12V engine restart battery sensor connector.<br>4) Using a tester, measure the resistance between the HPCM connector and integrated starter generator connector.<br>***Connector & terminal***<br>***(B606) No. 14 — (E163) No. 3:***<br>***(B606) No. 15 — (E163) No. 2:*** | Is the resistance less than 1 Ω? | Go to step **2**. | Repair the open circuit of the harness between the HPCM connector and integrated starter generator connector, or repair the intermediate connector. |
| 2 | **CHECK HARNESS (SHORT TO GROUND).**<br>Using a tester, measure the resistance between HPCM connector and chassis ground.<br>***Connector & terminal***<br>***(B606) No. 14 — Chassis ground:***<br>***(B606) No. 15 — Chassis ground:*** | Is the resistance 1 MΩ or more? | Go to step **3**. | Repair the short circuit to ground in the harness between the HPCM connector and integrated starter generator connector, or repair the intermediate connector. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 3 | **CHECK HARNESS (SHORT TO GROUND).**<br>1) Turn the ignition switch to ON.<br>2) Using a tester, measure the voltage between the HPCM connector and chassis ground.<br>***Connector & terminal***<br>***(B606) No. 14 (+) — Chassis ground (–):***<br>***(B606) No. 15 (+) — Chassis ground (–):*** | Is the voltage less than 1 V? | Replace the integrated starter generator. <Ref. to SC(H4DO(HEV))-32, Integrated Starter Generator (ISG).> | Repair the short circuit to power in the harness between the HPCM connector and integrated starter generator connector, or repair the intermediate connector. |

## Q: DTC P065A GENERATOR SYSTEM PERFORMANCE

**DIAGNOSIS:**

- Detects abnormal conditions in battery charging functions.
- Immediately at fault recognition

**TROUBLE SYMPTOM:**

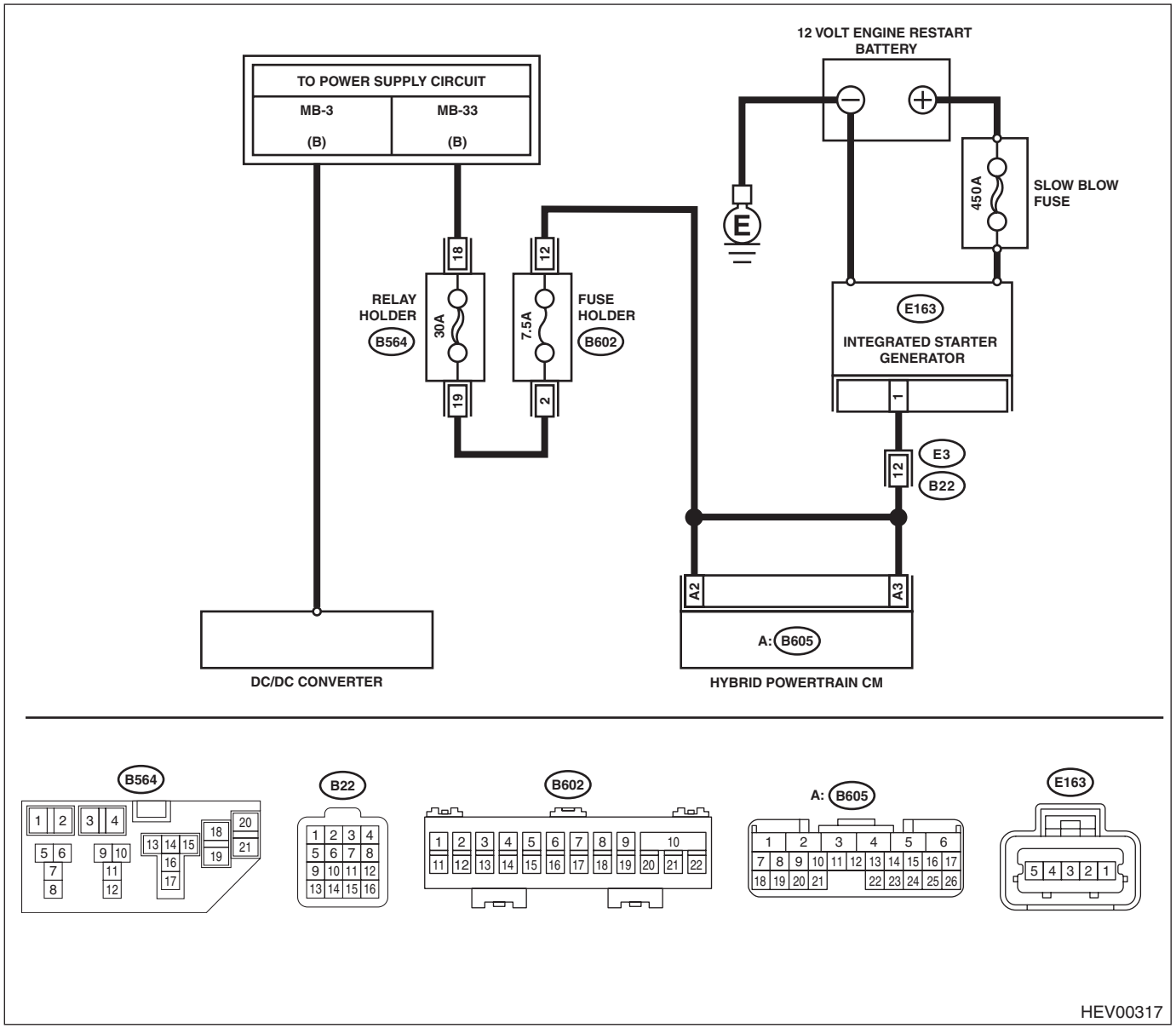
- EV traveling/Auto Start Stop does not operate.
- Charge warning light illuminates.

**CAUTION:**

**Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.>**

**WIRING DIAGRAM:**

Hybrid system <Ref. to WI(HEV)-140, WIRING DIAGRAM, Hybrid Electric Vehicle System.>
Power Supply Circuit <Ref. to WI(HEV)-21, WIRING DIAGRAM, Power Supply Circuit.>



| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK FUSE.**<br>Check the slow blow fuse of the 12 volt auxiliary battery. | Is the condition normal? | Go to step **2**. | Replace the fuse. When the replaced fuse blows out easily, repair short circuit to ground in harness between DC/DC converter and the battery. |
| 2 | **CHECK DC/DC CONVERTER FASTENING AREA.**<br>1) Disconnect the ground cable of the 12 volt auxiliary battery, and as for the 12 volt engine restart battery, disconnect the ground cable from the 12V engine restart battery sensor. <Ref. to NT-5, BATTERY, NOTE, Note.><br>2) Disconnect the positive cable from the 12 volt auxiliary battery.<br>3) Remove the service disconnect plug. <Ref. to HEV-15, Service Plug.><br>4) Wait for 10 minutes.<br>5) Check the fastening areas of the DC/DC converter 12 volt cable. | Is the condition normal? (Check for loose bolts, insecure connection, foreign matter caught, trace of arc (burnt terminals) etc.) | Go to step **3**. | Retighten the bolts. |
| 3 | **CHECK HARNESS (OPEN CIRCUIT).**<br>1) Disconnect the 12 volt cable of the DC/DC converter.<br>2) Using a tester, measure the resistance between the positive terminal of the 12 volt auxiliary battery and the fastening area of the DC/DC converter power cable.<br>***Connector & terminal***<br>***12 volt auxiliary battery — DC/DC converter:*** | Is the resistance less than 1 Ω? | Go to step **4**. | Repair the open circuit of the power cable between the DC/DC converter and the positive terminal of the 12 volt auxiliary battery. |
| 4 | **CHECK BATTERY.**<br>Check the 12 volt auxiliary battery. <Ref. to SC(H4DO(HEV))-39, Battery.><br>NOTE:<br>Check for conditions such as loose terminals. | Is the condition normal? | Go to step **5**. | Charge or replace the battery. |
| 5 | **CHECK DCDC.**<br>Using the Subaru Select Monitor, perform «DCDC Converter Output Voltage Control» of System Operation Check Mode for the hybrid powertrain control system. <Ref. to HEV(diag)-71, HYBRID POWERTRAIN CONTROL SYSTEM, OPERATION, System Operation Check Mode.> | Is the condition normal? | Go to step **6**. | Perform the diagnosis of DTC P0A94. <Ref. to HEV(diag)-229, DTC P0A94 DC/DC CONVERTER PERFORMANCE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| 6 | **CHECK FUSE.**<br>Check the fuse. <Ref. to HEV-12, Relay and Fuse.> | Is the condition normal? | Go to step **7**. | Replace the fuse. If the fuse blows out easily, repair the short circuit of harness. |
| 7 | **CHECK BELTS.**<br>Check the belt. <Ref. to ME(H4DO(w/o HEV))-122, V-belt.> | Is the condition normal? | Go to step **8**. | Adjust or replace the belt. |

| Step | | Check | Yes | No |
|---|---|---|---|---|
| 8 | **CHECK CURRENT DATA.**<br>Using the Subaru Select Monitor, confirm the current data of hybrid powertrain control system, the value of «ISG Control Mode Actual» «12V Engine Restart Battery Voltage» «ISG Terminal Voltage». <Ref. to HEV(diag)-40, HYBRID POWERTRAIN CONTROL SYSTEM, OPERATION, Read Current Data.> | Is «12V Engine Restart Battery Voltage» «ISG Terminal Voltage» 12 — 15 V when the engine speed is at 2000 rpm or more and «ISG Control Mode Actual» is generating power? | Even if DTC is detected, the circuit has returned to a normal condition at this time. Reproduce the failure, and then perform the diagnosis again.<br>NOTE:<br>In this case, temporary poor contact of connector, temporary open or short circuit of harness may be the cause. | Go to step **9**. |
| 9 | **CHECK CURRENT DATA.**<br>Using the Subaru Select Monitor, confirm the current data of hybrid powertrain control system, the value of «HPCM Check 40». <Ref. to HEV(diag)-40, HYBRID POWERTRAIN CONTROL SYSTEM, OPERATION, Read Current Data.> | Is the value 30 m Ω or more? | Check for poor contact of 12 volt engine restart battery terminals. <Ref. to NT-5, BATTERY, NOTE, Note.> | Go to step **10**. |
| 10 | **CHECK HARNESS (OPEN CIRCUIT).**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the HPCM connector.<br>3) Disconnect the integrated starter generator connector.<br>4) Using a tester, measure the resistance between the HPCM connector and integrated starter generator connector.<br>***Connector & terminal***<br>***(B605) No. 2 — (E163) No. 1:***<br>***(B605) No. 3 — (E163) No. 1:*** | Is the resistance less than 1 Ω? | Go to step **11**. | Repair the open circuit of the harness between the HPCM connector and the integrated starter generator terminal. |
| 11 | **CHECK BATTERY.**<br>Check the 12 volt engine restart battery. <Ref. to SC(H4DO(HEV))-39, Battery.> | Is the condition normal? | Replace the integrated starter generator. <Ref. to SC(H4DO(HEV))-32, Integrated Starter Generator (ISG).> | Charge or replace the 12 volt engine restart battery. |

## R: DTC P06EF ENGINE RESTART PERFORMANCE

**DIAGNOSIS:**

- Detects communication error, open harness, engine restart system error due to trouble in starting devices.
- Immediately at fault recognition

**TROUBLE SYMPTOM:**

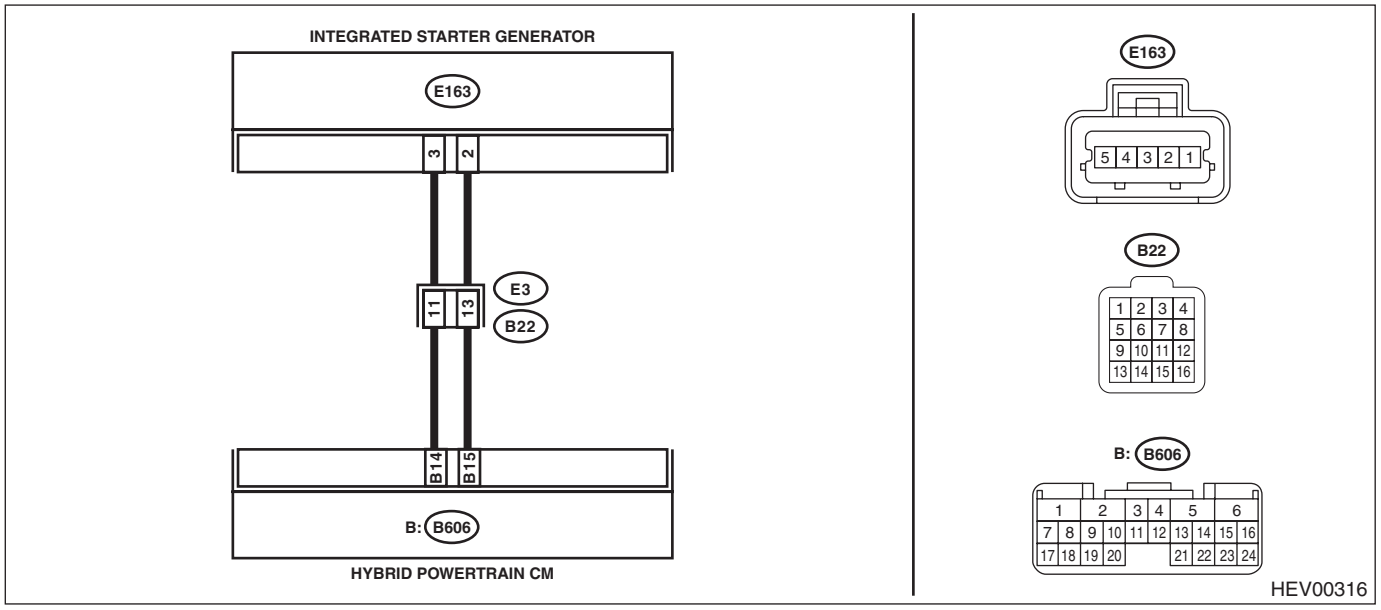
EV traveling/Auto Start Stop does not operate.
(Engine does not restart under EV traveling/Auto Start Stop condition.)

**CAUTION:**

**Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.>**

**WIRING DIAGRAM:**

Hybrid system <Ref. to WI(HEV)-140, WIRING DIAGRAM, Hybrid Electric Vehicle System.>



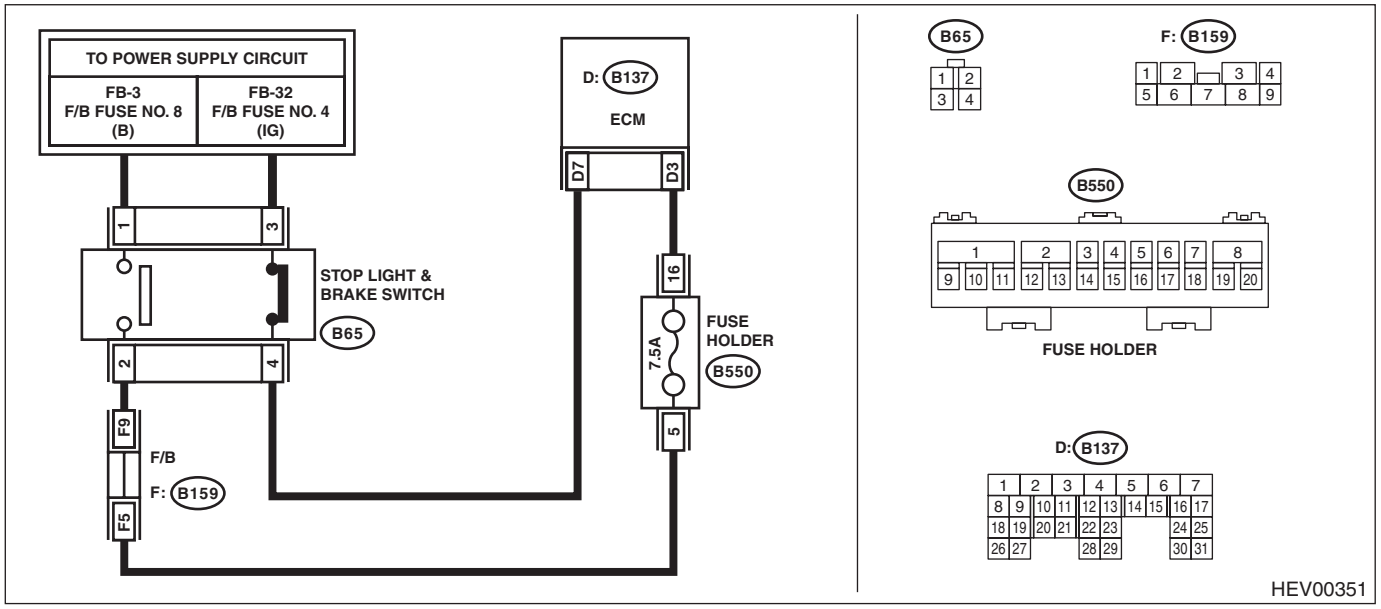

| Step | | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK DTC.**<br>Read the DTC. <Ref. to HEV(diag)-24, HYBRID POWERTRAIN CONTROL SYSTEM, OPERATION, Read Diagnostic Trouble Code (DTC).> | Are any other DTCs detected? (current malfunction) | Perform the diagnosis according to DTC. <Ref. to HEV(diag)-74, HYBRID POWERTRAIN CONTROL SYSTEM, LIST, List of Diagnostic Trouble Code (DTC).> | Go to step **2**. |
| 2 | **CHECK INTEGRATED STARTER GENERATOR (SHORT TO GROUND).**<br>1) Disconnect the ground cable of the 12 volt auxiliary battery, and as for the 12 volt engine restart battery, disconnect the ground cable from the 12V engine restart battery sensor. <Ref. to NT-5, BATTERY, NOTE, Note.><br>2) Check the installation condition of integrated starter generator. <Ref. to SC(H4DO(HEV))-32, Integrated Starter Generator (ISG).> | Is the condition normal? | Go to step **3**. | Attach the integrated starter generator securely. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 3 | **CHECK HARNESS (OPEN CIRCUIT).**<br>1) Disconnect the HPCM connector.<br>2) Disconnect the integrated starter generator connector.<br>3) Disconnect the 12V engine restart battery sensor connector.<br>4) Using a tester, measure the resistance between the HPCM connector and integrated starter generator connector.<br>***Connector & terminal***<br>***(B606) No. 15 — (E162) No. 2:*** | Is the resistance less than 1 Ω? | Go to step **4**. | Repair the open circuit of the harness between the HPCM connector and the integrated starter generator connector. |
| 4 | **CHECK HARNESS (SHORT TO GROUND).**<br>Using a tester, measure the resistance between HPCM connector and chassis ground.<br>***Connector & terminal***<br>***(B606) No. 15 — Chassis ground:*** | Is the resistance 1 MΩ or more? | Go to step **5**. | Repair ground short circuit of harness between the HPCM connector and the integrated starter generator connector. |
| 5 | **CHECK HARNESS (SHORT TO POWER).**<br>1) Connect the disconnected battery.<br>2) Turn the ignition switch to ON.<br>3) Using a tester, measure the voltage between the HPCM connector and chassis ground.<br>***Connector & terminal***<br>***(B606) No. 15 (+) — Chassis ground (–):*** | Is the voltage less than 1 V? | Go to step **6**. | Repair the short circuit to power in harness between the HPCM connector and the integrated starter generator connector. |
| 6 | **INSPECTION OF INTEGRATED STARTER GENERATOR UNIT.**<br>Check the integrated starter generator as a single part. <Ref. to SC(H4DO(HEV))-32, Integrated Starter Generator (ISG).> | Is the condition normal? | Go to step **7**. | Replace the integrated starter generator. |
| 7 | **CHECK BATTERY.**<br>Check the 12 volt engine restart battery. <Ref. to SC(H4DO(HEV))-39, Battery.> | Is the condition normal? | Replace the HPCM. <Ref. to HEV-37, Hybrid Powertrain Control Module.> | Charge or replace the battery. |

# S: DTC P0719 BRAKE SWITCH "B" CIRCUIT LOW

**DIAGNOSIS:**
GENERAL DESCRIPTION <Ref. to GD(HEV)-26, DTC P0719 BRAKE SWITCH "B" CIRCUIT LOW, Diagnostic Trouble Code (DTC) Detecting Criteria.>

**CAUTION:**
**Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.>**
**WIRING DIAGRAM:**
Stop light system <Ref. to WI(HEV)-210, WIRING DIAGRAM, Stop Light System.>




| Step | | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK STOP LIGHT & BRAKE SWITCH.**<br>Check the stop light & brake switch. <Ref. to CC-9, Stop Light & Brake Switch.> | Is the stop light & brake switch and installation position OK? | Go to step **2**. | Replace the stop light & brake switch. Or adjust the installation position. |
| 2 | **CHECK STOP LIGHT & BRAKE SWITCH CIRCUIT.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the stop light & brake switch connector.<br>3) Turn the ignition switch to ON.<br>4) Measure the voltage between the stop light & brake switch connector and chassis ground.<br>***Connector & terminal***<br>***(B65) No. 1 (+) — Chassis ground (–):*** | Is the voltage 10 V or more? | Go to step **3**. | • Check fuse No. 8 (in fuse & relay box).<br>• Check for open or short in the harness between stop light & brake switch and fuse & relay box. |
| 3 | **CHECK STOP LIGHT & BRAKE SWITCH CIRCUIT.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the ECM connector.<br>3) Measure the resistance between the ECM connector and stop light & brake switch connector.<br>***Connector & terminal***<br>***(B137) No. 3 — (B65) No. 2:*** | Is the resistance less than 10 Ω? | Replace the ECM. <Ref. to FU(H4DO(HEV))-85, Engine Control Module (ECM).> | Repair the open circuit of harness between ECM connector and stop light & brake switch connector. |

## T: DTC P0724 BRAKE SWITCH "B" CIRCUIT HIGH

**DIAGNOSIS:**

GENERAL DESCRIPTION <Ref. to GD(HEV)-28, DTC P0724 BRAKE SWITCH "B" CIRCUIT HIGH, Diagnostic Trouble Code (DTC) Detecting Criteria.>

NOTE:

For the diagnostic procedure, refer to “DTC P0719 BRAKE SWITCH "B" CIRCUIT LOW”. <Ref. to HEV(diag)-130, DTC P0719 BRAKE SWITCH "B" CIRCUIT LOW, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

## U: DTC P0A1D HYBRID POWERTRAIN CONTROL MODULE

**DIAGNOSIS:**

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-29, DTC P0A1D HYBRID POWERTRAIN CONTROL MODULE, Diagnostic Trouble Code (DTC) Detecting Criteria.>

**TROUBLE SYMPTOM:**

- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.
- Sometimes driving power and shifting behavior are different from the normal states.

**CAUTION:**
**Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.>**

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK HPCM.**<br>1) Turn the ignition switch to OFF.<br>2) Wait for 30 seconds.<br>3) Turn the ignition switch to ON.<br>4) Perform the Clear Memory Mode. <Ref. to HEV(diag)-25, HYBRID POWERTRAIN CONTROL SYSTEM, OPERATION, Clear Memory Mode.><br>5) Read the DTC again. <Ref. to HEV(diag)-24, HYBRID POWERTRAIN CONTROL SYSTEM, OPERATION, Read Diagnostic Trouble Code (DTC).> | Is DTC P0A1D detected? (current malfunction) | Replace the HPCM. <Ref. to HEV-37, Hybrid Powertrain Control Module.> | Even if DTC is detected, the circuit has returned to a normal condition at this time. Reproduce the failure, and then perform the diagnosis again.<br>NOTE:<br>In this case, temporary poor contact of connector, temporary open or short circuit of harness may be the cause. |

## V: DTC P1C00 BATTERY "2" MONITOR MODULE PERFORMANCE

**DIAGNOSIS:**

- Detects functional errors of the 12 volt engine restart battery sensor.
- Immediately at fault recognition

**TROUBLE SYMPTOM:**

- EV traveling/Auto Start Stop does not operate.
- System operation check mode is prohibited. <Ref. to HEV(diag)-87, Fail-Safe Chart.>
- Charge warning light illuminates.

**CAUTION:**

**Before performing diagnosis, refer to “CAUTION” in “General Description”. <Ref. to HEV(diag)-8, CAUTION, General Description.>**

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK DTC.**<br>Read the DTC. <Ref. to HEV(diag)-24, HYBRID POWERTRAIN CONTROL SYSTEM, OPERATION, Read Diagnostic Trouble Code (DTC).> | Is DTC P1C00 detected? (current malfunction) | Replace the 12V engine restart battery sensor. <Ref. to SC(H4DO(HEV))-60, Battery Sensor.> | Even if DTC is detected, the circuit has returned to a normal condition at this time. Reproduce the failure, and then perform the diagnosis again.<br>NOTE:<br>In this case, temporary poor contact of connector, temporary open or short circuit of harness may be the cause. |

## W: DTC P1C04 OUTPUT CLUTCH LINEAR SOLENOID CONTROL CIRCUIT LOW

**DIAGNOSIS:**

- Detects short circuit to ground of output clutch linear solenoid HPCM side circuit (LOW).
- Judge as NG when the detection result is out of specification.
- Immediately at fault recognition

**TROUBLE SYMPTOM:**

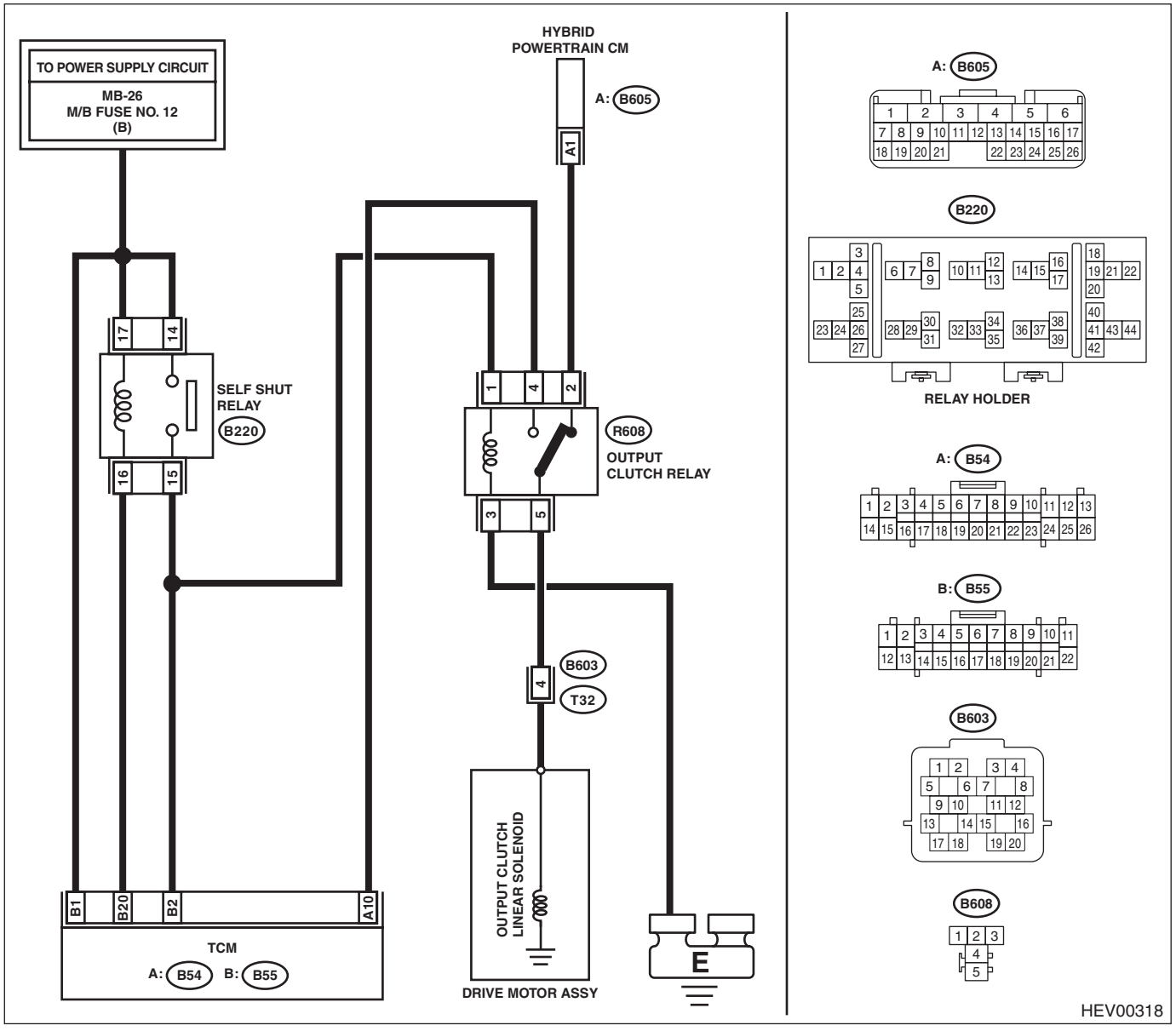
Normal control

**CAUTION:**

**Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.>**

**WIRING DIAGRAM:**

CVT control system <Ref. to WI(HEV)-86, WIRING DIAGRAM, CVT Control System.>



| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK DTC.**<br>Read DTCs of the following system.<br>• Transmission <Ref. to CVT(HEV)(diag)-19, Read Diagnostic Trouble Code (DTC).> | Is either DTC P2719, P2720, or P2721 detected? (current malfunction) | Perform the diagnosis according to DTC. <Ref. to CVT(HEV)(diag)-34, List of Diagnostic Trouble Code (DTC).> | Go to step **2**. |
| 2 | **CHECK HARNESS (OPEN CIRCUIT).**<br>1) Disconnect the HPCM connector.<br>2) Remove the output clutch relay.<br>3) Using a tester, measure the resistance between the HPCM connector and output clutch relay connector.<br>***Connector & terminal***<br>***(B605) No. 1 — (B608) No. 2:*** | Is the resistance less than 1 Ω? | Go to step **3**. | Repair the open circuit of the harness between the HPCM connector and the output clutch relay connector. |
| 3 | **CHECK RELAY.**<br>Check the output clutch relay. <Ref. to CVT(TH58A)-160, Relay and Fuse.> | Is the output clutch relay OK? | Replace the HPCM. <Ref. to HEV-37, Hybrid Powertrain Control Module.> | Replace the output clutch relay. |

# X: DTC P1C05 OUTPUT CLUTCH LINEAR SOLENOID CONTROL CIRCUIT HIGH

**DIAGNOSIS:**

- Detects open circuit and short circuit to power in output clutch linear solenoid HPCM side circuit (LOW).
- Judge as NG when the detection result is out of specification.
- Immediately at fault recognition

**TROUBLE SYMPTOM:**

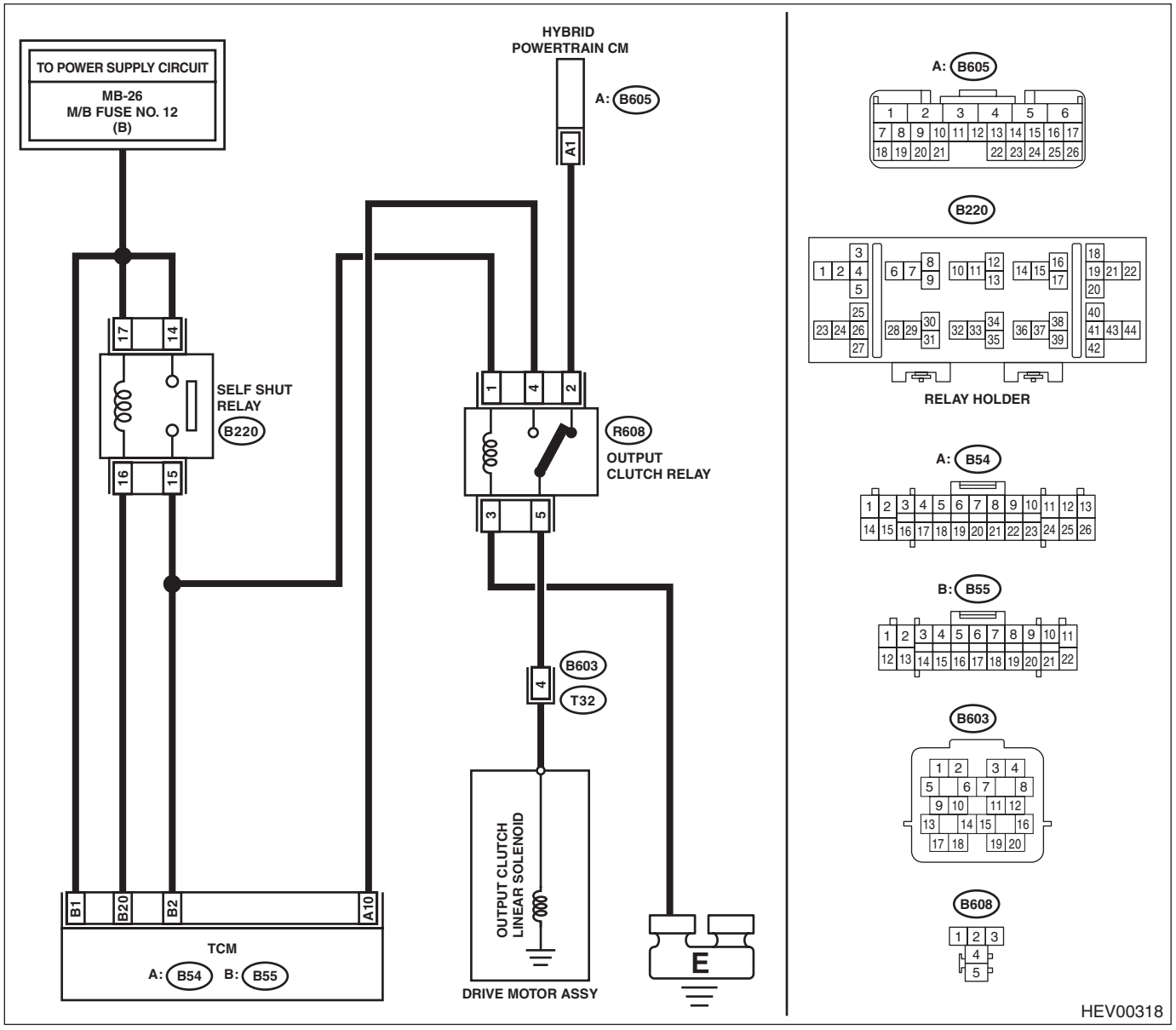
Normal control

**CAUTION:**

**Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.>**

**WIRING DIAGRAM:**

CVT control system <Ref. to WI(HEV)-86, WIRING DIAGRAM, CVT Control System.>



| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK DTC.**<br>Read DTCs of the following system.<br>• Transmission <Ref. to CVT(HEV)(diag)-19, Read Diagnostic Trouble Code (DTC).> | Is either DTC P2719, P2720, or P2721 detected? (current malfunction) | Perform the diagnosis according to DTC. <Ref. to CVT(HEV)(diag)-34, List of Diagnostic Trouble Code (DTC).> | Go to step **2**. |
| 2 | **CHECK HARNESS (SHORT TO GROUND).**<br>1) Disconnect the HPCM connector.<br>2) Remove the output clutch relay.<br>3) Using a tester, measure the resistance between the output clutch connector and chassis ground.<br>***Connector & terminal***<br>***(B608) No. 2 — Chassis ground:*** | Is the resistance 1 MΩ or more? | Go to step **3**. | Repair the short circuit to ground in harness between output clutch relay connector and chassis ground. |
| 3 | **CHECK RELAY.**<br>Check the output clutch relay. <Ref. to CVT(TH58A)-160, Relay and Fuse.> | Is the output clutch relay OK? | Replace the HPCM. <Ref. to HEV-37, Hybrid Powertrain Control Module.> | Replace the output clutch relay. |

# Y: DTC P1C06 12V BATTERY RELAY CLOSE CIRCUIT PERFORMANCE

**DIAGNOSIS:**

- Detects open circuit, short circuit to ground, and short circuit to power in the harness of 12V battery relay close circuit.
- Judge as NG when the detection result is out of specification.
- Immediately at fault recognition

**TROUBLE SYMPTOM:**

- EV traveling/Auto Start Stop does not operate.

(Engine does not restart under EV traveling/Auto Start Stop condition.)

- Charge warning light illuminates.

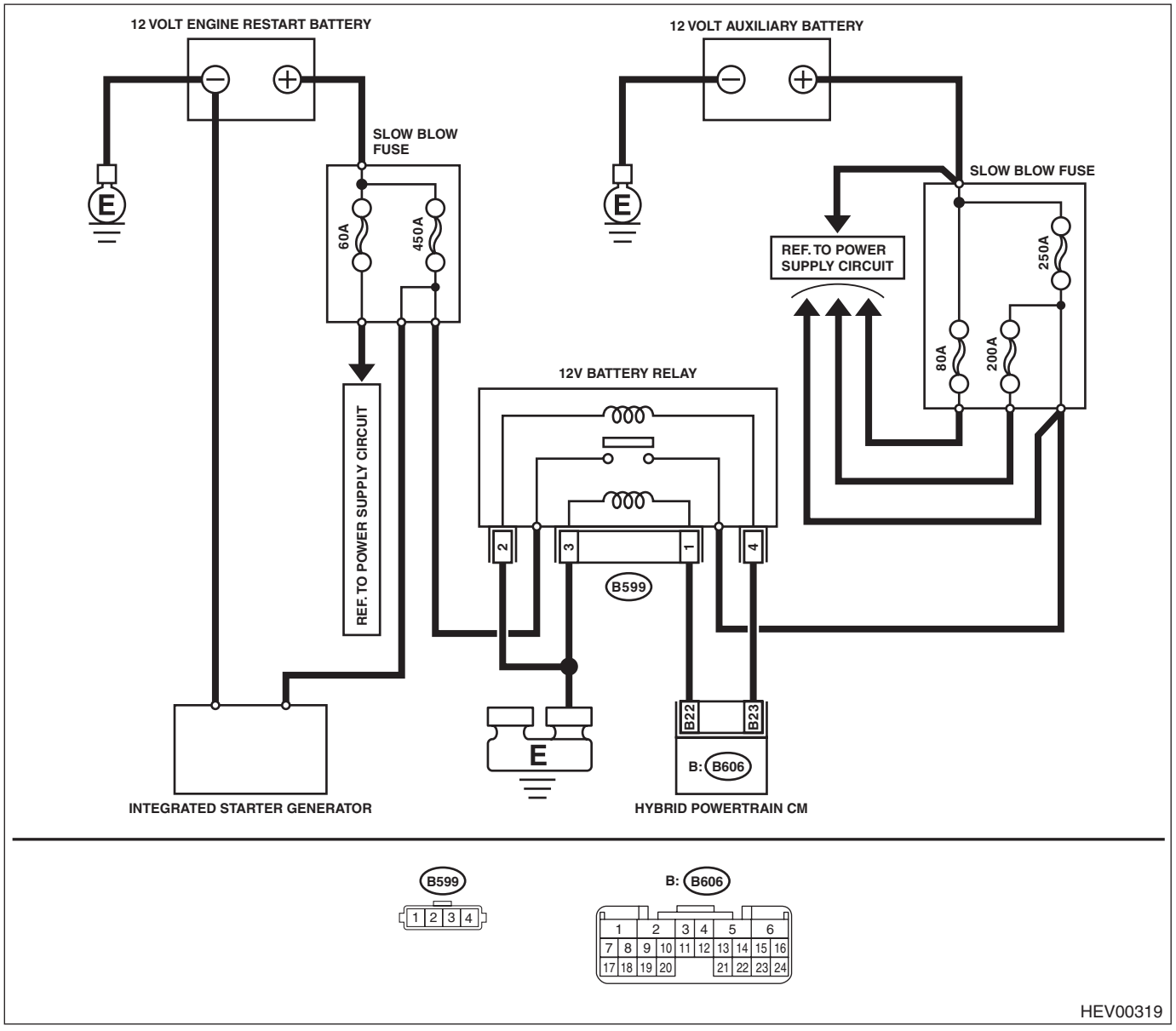
**CAUTION:**

**Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.>**

NOTE:
If those trouble occurs, the 12 volt auxiliary battery may run out.

**WIRING DIAGRAM:**

Power Supply Circuit <Ref. to WI(HEV)-21, WIRING DIAGRAM, Power Supply Circuit.>



| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK HARNESS (OPEN CIRCUIT).**<br>1) Disconnect the battery relay connector.<br>2) Disconnect the HPCM connector.<br>3) Using a tester, measure the resistance between the 12V battery relay connector and the HPCM connector and the resistance between 12V battery relay connector and chassis ground.<br>***Connector & terminal***<br>***(B599) No. 1 — (B606) No. 22:***<br>***(B606) No. 3 — Chassis ground:*** | Is the resistance less than 1 Ω? | Go to step **2**. | Repair open circuit in harness between the 12V battery relay connector and the HPCM connector and the harness between 12V battery relay connector and chassis ground. |
| 2 | **CHECK HARNESS (SHORT TO GROUND).**<br>Using a tester, measure the resistance between 12V battery relay connector and chassis ground.<br>***Connector & terminal***<br>***(B606) No. 22 — Chassis ground:*** | Is the resistance 1 MΩ or more? | Go to step **3**. | Repair the short circuit to ground in the harness between the 12V battery relay connector and the HPCM connector. |
| 3 | **CHECK HARNESS (SHORT TO POWER).**<br>1) Turn the ignition switch to ON.<br>2) Using a tester, measure the voltage between 12V battery relay connector and chassis ground.<br>***Connector & terminal***<br>***(B599) No. 1 — Chassis ground:***<br>***(B606) No. 22 — Chassis ground:*** | Is the voltage less than 1 V? | Replace the HPCM. <Ref. to HEV-37, Hybrid Powertrain Control Module.> | Repair the short circuit to power in the harness between the 12V battery relay connector and the HPCM connector. |

## Z: DTC P1C07 12V BATTERY RELAY OPEN CIRCUIT PERFORMANCE

**DIAGNOSIS:**

- Detects open circuit, short circuit to ground, and short circuit to power in the harness of 12V battery relay open circuit.
- Judge as NG when the detection result is out of specification.
- Immediately at fault recognition

**TROUBLE SYMPTOM:**

- EV traveling/Auto Start Stop does not operate.

(Engine does not restart under EV traveling/Auto Start Stop condition.)

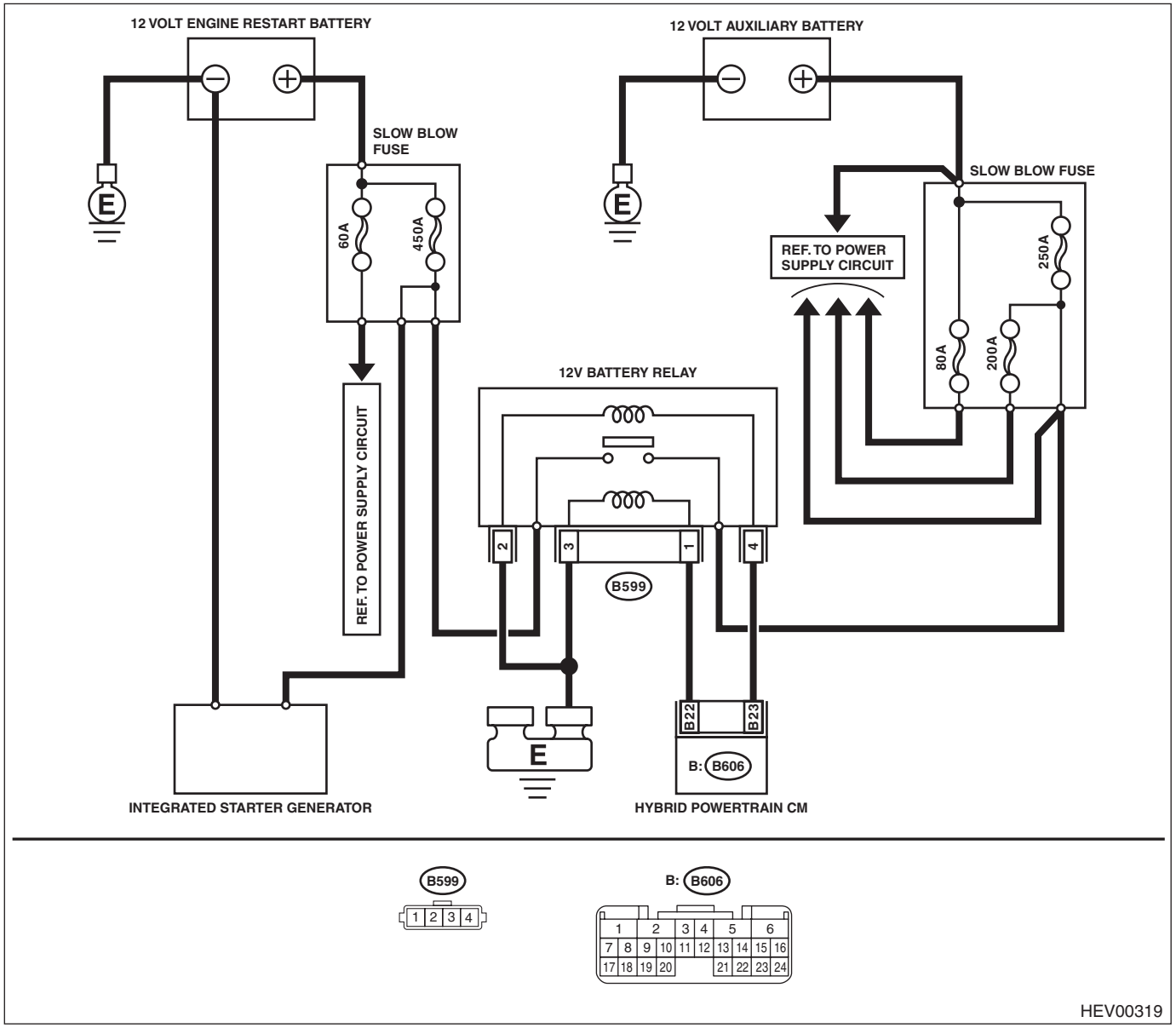
- Charge warning light illuminates.

**CAUTION:**

**Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.>**

**WIRING DIAGRAM:**

Power Supply Circuit <Ref. to WI(HEV)-21, WIRING DIAGRAM, Power Supply Circuit.>



| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK HARNESS (OPEN CIRCUIT).**<br>1) Disconnect the 12V battery relay connector.<br>2) Disconnect the HPCM connector.<br>3) Using a tester, measure the resistance between the 12V battery relay connector and the HPCM connector and the resistance between 12V battery relay connector and chassis ground.<br>***Connector & terminal***<br>***(B599) No. 4 — (B606) No. 23:***<br>***(B599) No. 3 — Chassis ground:*** | Is the resistance less than 1 Ω? | Go to step **2**. | Repair open circuit in harness between the 12V battery relay connector and the HPCM connector and the harness between 12V battery relay connector and chassis ground. |
| 2 | **CHECK HARNESS (SHORT TO GROUND).**<br>Using a tester, measure the resistance between 12V battery relay connector and chassis ground.<br>***Connector & terminal***<br>***(B599) No. 4 — Chassis ground:*** | Is the resistance 1 MΩ or more? | Go to step **3**. | Repair the short circuit to ground in the harness between the 12V battery relay connector and the HPCM connector. |
| 3 | **CHECK HARNESS (SHORT TO POWER).**<br>1) Turn the ignition switch to ON.<br>2) Using a tester, measure the voltage between 12V battery relay connector and chassis ground.<br>***Connector & terminal***<br>***(B599) No. 4 — Chassis ground:***<br>***(B599) No. 3 — Chassis ground:*** | Is the voltage less than 1 V? | Replace the HPCM. <Ref. to HEV-37, Hybrid Powertrain Control Module.> | Repair the short circuit to power in the harness between the 12V battery relay connector and the HPCM connector. |

## AA:DTC P1C08 12V BATTERY RELAY PERFORMANCE OR STUCK OFF

**DIAGNOSIS:**

- Detects a stuck condition in 12V battery relay open circuit.
- Judge as NG when the detection result is out of specification.
- Immediately at fault recognition

**TROUBLE SYMPTOM:**

- EV traveling/Auto Start Stop does not operate.
- Charge warning light illuminates.

**CAUTION:**

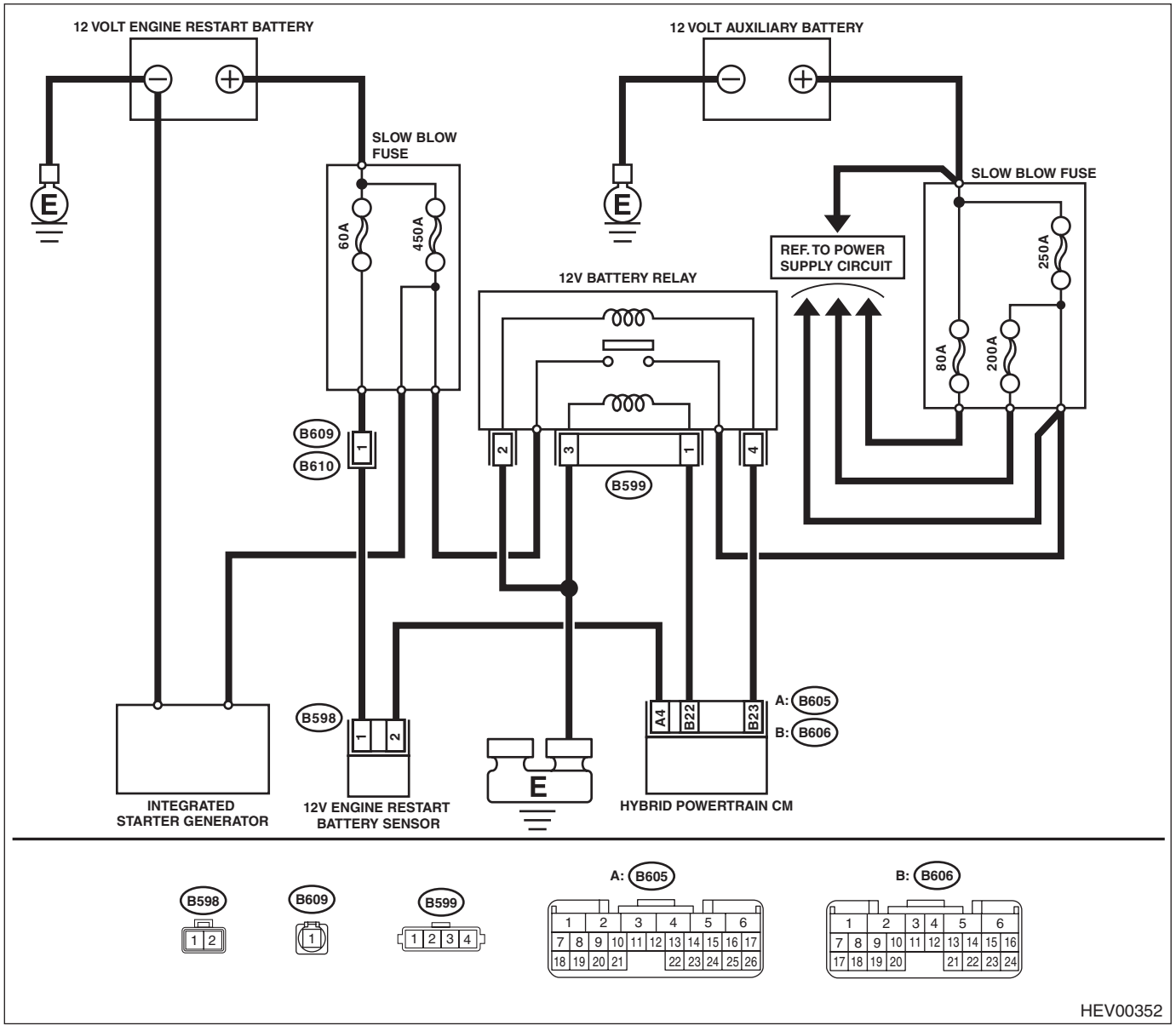
**Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.>**

NOTE:

If those trouble occurs, the 12 volt auxiliary battery may run out.

**WIRING DIAGRAM:**

Power Supply Circuit <Ref. to WI(HEV)-21, WIRING DIAGRAM, Power Supply Circuit.>



| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK CONNECTOR.**<br>Check the connector (B598) of 12V engine restart battery sensor. | Is there looseness or poor contact of connector? | Repair the connector. | Go to step **2**. |
| 2 | **CHECK FUSE.**<br>Check the slow blow fuse of the 12 volt auxiliary battery and 12 volt engine restart battery. | Is the condition normal? | Go to step **3**. | Replace the fuse. When the replaced fuse is blown immediately, repair ground short circuit of harness between 12 volt engine restart battery and the 12 volt battery relay and the harness between 12 volt auxiliary battery and the 12V battery relay. |
| 3 | **CHECK RELAY.**<br>Using the Subaru Select Monitor, perform «12V Battery Relay Operation» of System Operation Check Mode for the hybrid powertrain control system. <Ref. to HEV(diag)-71, HYBRID POWERTRAIN CONTROL SYSTEM, OPERATION, System Operation Check Mode.> | Does the relay operate? | Even if DTC is detected, the circuit has returned to a normal condition at this time. Reproduce the failure, and then perform the diagnosis again.<br>NOTE:<br>In this case, temporary poor contact of connector, temporary open or short circuit of harness may be the cause. | Go to step **4**. |
| 4 | **CHECK RELAY.**<br>Check the 12V battery relay. <Ref. to SC(H4DO(HEV))-64, 12V Battery Relay.> | Is the condition normal? | Go to step **5**. | Replace the 12V battery relay. |
| 5 | **CHECK TERMINALS.**<br>Check the 12V battery relay for loose bolts or corrosion. | Is the condition normal? | Go to step **6**. | Repair the terminals. |
| 6 | **CHECK HARNESS (SHORT TO GROUND).**<br>Using a tester, measure the resistance between 12V battery relay connector and each battery.<br>***Connector & terminal***<br>***Positive terminal of 12 volt engine restart battery — 12V battery relay terminal (12 volt engine restart battery side):***<br>***Positive terminal of 12 volt auxiliary battery — 12V battery relay terminal (12 volt auxiliary battery side):*** | Is the resistance 1 Ω or less? | Replace the HPCM. <Ref. to HEV-37, Hybrid Powertrain Control Module.> | Repair the open circuit in harness between the 12V battery relay connector and each battery. |

## AB:DTC P1C09 12V BATTERY RELAY PERFORMANCE OR STUCK ON

**DIAGNOSIS:**

- Detects a stuck condition in 12V battery relay close circuit.
- Judge as NG when the detection result is out of specification.
- Immediately at fault recognition

**TROUBLE SYMPTOM:**

EV traveling/Auto Start Stop does not operate.
(Engine does not restart under EV traveling/Auto Start Stop condition.)

NOTE:
For the diagnostic procedure, refer to “DTC P1C08 12V BATTERY RELAY PERFORMANCE OR STUCK OFF”. <Ref. to HEV(diag)-142, DTC P1C08 12V BATTERY RELAY PERFORMANCE OR STUCK OFF, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

## AC:DTC P1C10 VACUUM PUMP PERFORMANCE

**DIAGNOSIS:**

- Detects abnormal conditions in vacuum pump system functions.
- Judge as NG when the detection result is out of specification.
- The DTC is set when the condition occurs three times in total.

**TROUBLE SYMPTOM:**

- EV traveling/Auto Start Stop does not operate.
- Vacuum pump fail lamp illuminates.

**CAUTION:**

**Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.>**

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK VACUUM PRESSURE.**<br>1) Turn the ignition switch to ON.<br>2) Using the Subaru Select Monitor, perform «Brake Vacuum Pump System Check» of System Operation Check Mode for the hybrid powertrain control system. <Ref. to HEV(diag)-71, HYBRID POWERTRAIN CONTROL SYSTEM, OPERATION, System Operation Check Mode.> | Is the result of operation check mode OK? | Even if DTC is detected, the circuit has returned to a normal condition at this time. Reproduce the failure, and then perform the diagnosis again.<br>NOTE:<br>In this case, temporary poor contact of connector, temporary open or short circuit of harness may be the cause. | Go to step **2**. |
| 2 | **CHECK BRAKE VACUUM HOSE.**<br>Check the brake vacuum hose.<br>(Check the hose for any external damage and also check that air only flows in one direction, when air is blown into or sucked from the hose.) | Is the condition normal? | Replace the brake vacuum pump. <Ref. to BR-80, Brake Vacuum Pump.> | Replace the brake vacuum hose. <Ref. to BR-80, Brake Vacuum Pump.> |

# AD:DTC P1C11 VACUUM PUMP SUPPLY VOLTAGE LOW

**DIAGNOSIS:**

- Detects a stuck condition in the vacuum pump supply voltage circuit (LOW).
- Judge as NG when the detection result is out of specification.
- Immediately at fault recognition

**TROUBLE SYMPTOM:**

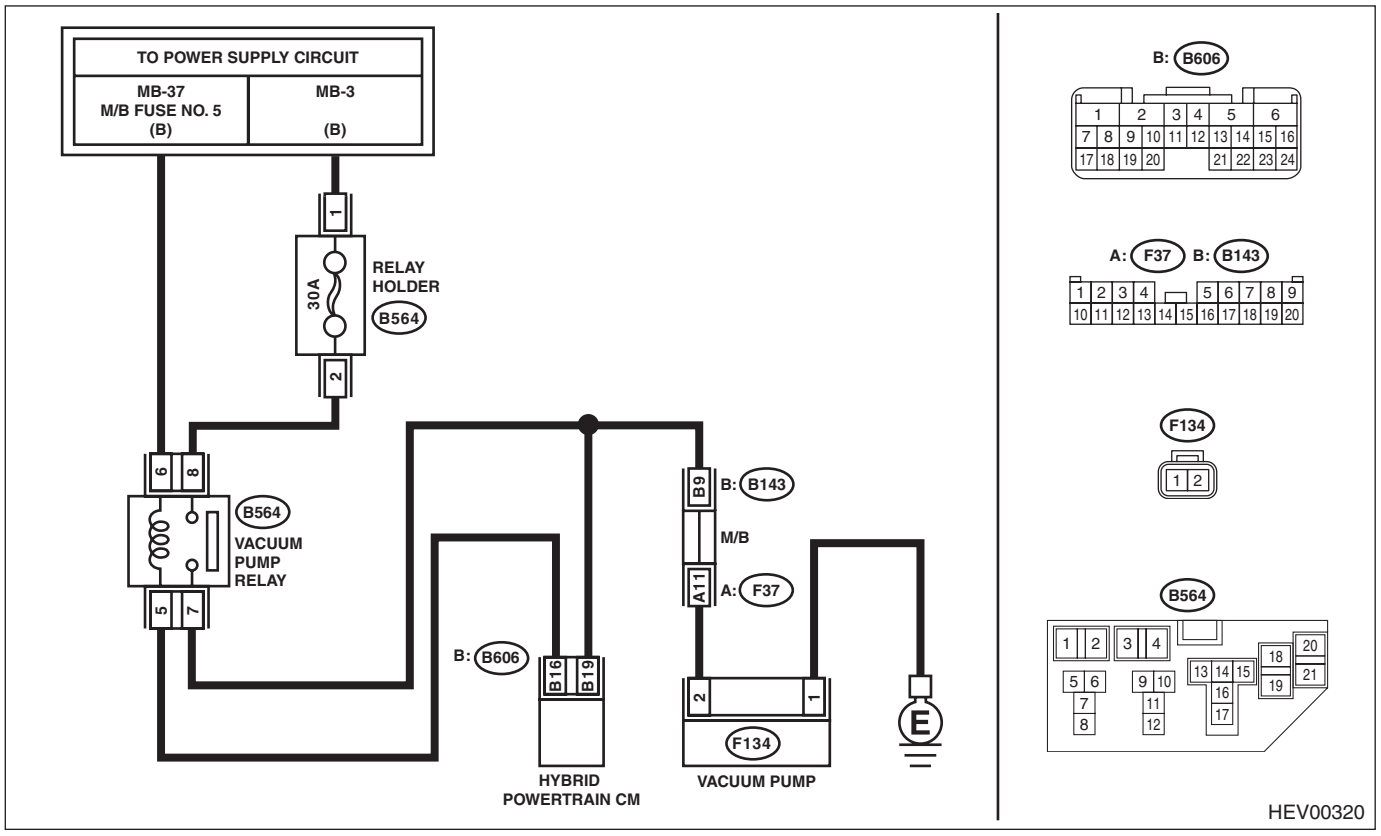
- EV traveling/Auto Start Stop does not operate.
- Vacuum pump fail lamp illuminates.

**CAUTION:**

**Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.>**

**WIRING DIAGRAM:**

Hybrid system <Ref. to WI(HEV)-140, WIRING DIAGRAM, Hybrid Electric Vehicle System.>




| Step | | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK FUSE.**<br>Check the fuse. <Ref. to BR-15, Relay and Fuse.> | Is the condition normal? | Go to step **2**. | Replace the fuse. When the replaced fuse blows out easily, repair short circuit to power in harness between 12 volt auxiliary battery and the brake vacuum pump relay. |
| 2 | **CHECK BRAKE VACUUM PUMP RELAY.**<br>Check the relay. <Ref. to BR-15, Relay and Fuse.> | Is the condition normal? | Go to step **3**. | Replace the relay. <Ref. to BR-15, Relay and Fuse.> |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 3 | **CHECK HARNESS (OPEN CIRCUIT).**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the HPCM connector.<br>3) Remove the brake vacuum pump relay.<br>4) Using a tester, measure the resistance between HPCM connector and the brake vacuum pump relay connector.<br>***Connector & terminal (open)***<br>***(B564) No. 5 — (B606) No. 16:***<br>***(B564) No. 7 — (F134) No. 2:***<br>***(F134) No. 1 — Chassis ground:*** | Is the resistance less than 1 Ω? | Go to step **4**. | Repair the open circuit of the harness between the HPCM connector and the brake vacuum pump relay connector. |
| 4 | **CHECK HARNESS (SHORT TO POWER).**<br>1) Turn the ignition switch to ON.<br>2) Using a tester, measure the voltage between the brake vacuum pump relay connector and chassis ground.<br>***Connector & terminal (open)***<br>***(B564) No. 5 (+) — Chassis ground (–):*** | Is the voltage less than 1 V? | Replace the HPCM. <Ref. to HEV-37, Hybrid Powertrain Control Module.> | Repair the short circuit to power in harness between the HP connector and the brake vacuum pump relay connector. |

# AE:DTC P1C12 VACUUM PUMP SUPPLY VOLTAGE HIGH

**DIAGNOSIS:**

- Detects a stuck condition in the vacuum pump supply voltage circuit (HIGH).
- Judge as NG when the detection result is out of specification.
- Immediately at fault recognition

**TROUBLE SYMPTOM:**

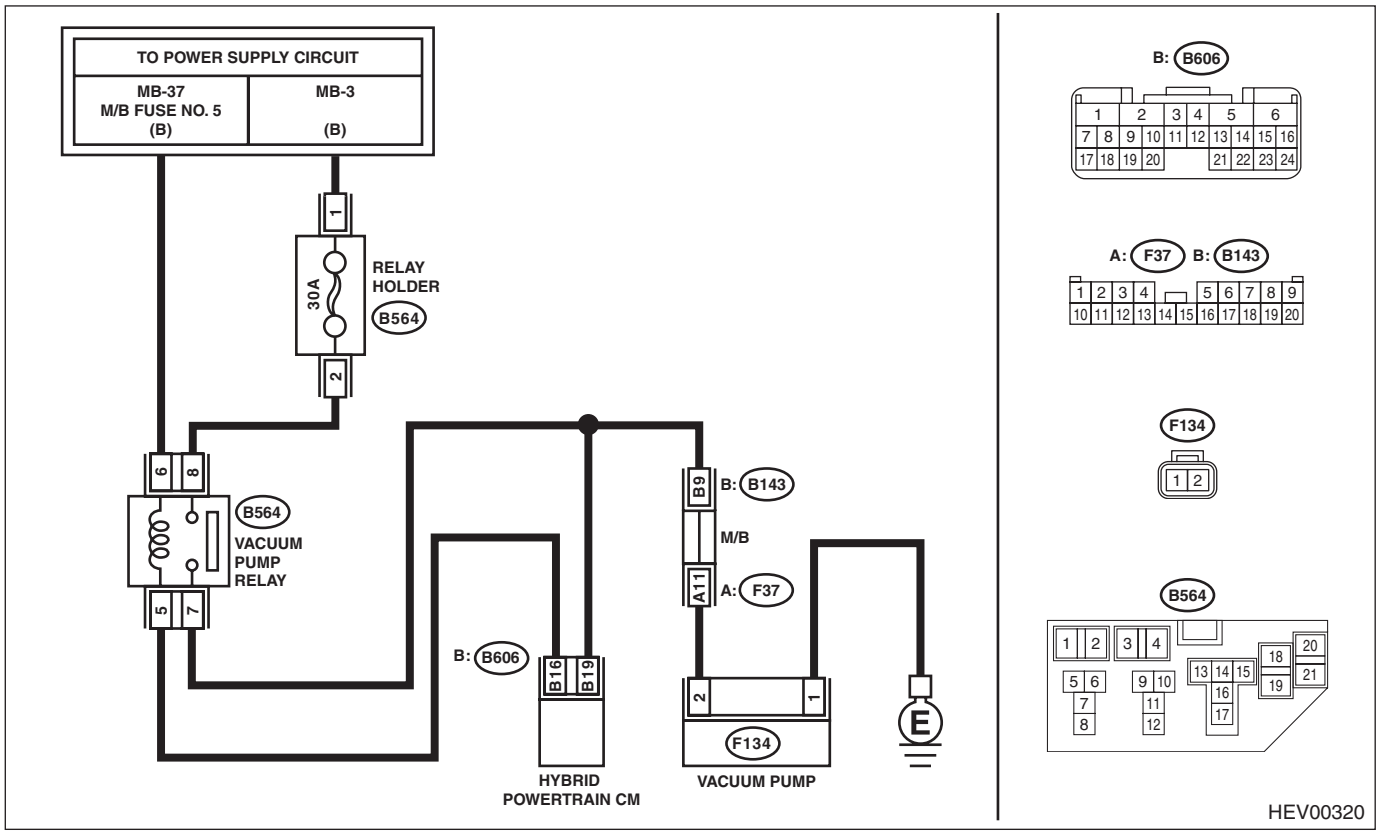
- EV traveling/Auto Start Stop does not operate.
- Vacuum pump fail lamp illuminates.

**CAUTION:**

**Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.>**

**WIRING DIAGRAM:**

Hybrid system <Ref. to WI(HEV)-140, WIRING DIAGRAM, Hybrid Electric Vehicle System.>




| Step | | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK BRAKE VACUUM PUMP RELAY.**<br>Check the relay. <Ref. to BR-15, Relay and Fuse.> | Is the condition normal? | Go to step **2**. | Replace the relay. |
| 2 | **CHECK HARNESS (SHORT TO GROUND).**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the HPCM connector.<br>3) Remove the brake vacuum pump relay.<br>4) Using a tester, measure the resistance between HPCM connector and chassis ground.<br>***Connector & terminal***<br>***(B606) No. 16 — Chassis ground:*** | Is the resistance 1 MΩ or more? | Go to step **3**. | Repair short circuit to ground in harness between the HPCM connector and the brake vacuum pump relay connector. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 3 | **CHECK HARNESS (SHORT TO POWER).**<br>1) Turn the ignition switch to ON.<br>2) Using a tester, measure the voltage between the brake vacuum pump relay connector and chassis ground.<br>***Connector & terminal***<br>***(B564) No. 7 (+) — Chassis ground (–):*** | Is the voltage less than 1 V? | Replace the HPCM. <Ref. to HEV-37, Hybrid Powertrain Control Module.> | Repair the short circuit to power in harness between the HP connector and the brake vacuum pump relay connector. |

## AF:DTC P1C14 GENERATOR PERFORMANCE

**DIAGNOSIS:**

- Detects functional errors of the integrated starter generator.
- Immediately at fault recognition

**TROUBLE SYMPTOM:**

- EV traveling/Auto Start Stop does not operate.

(Engine does not restart under EV traveling/Auto Start Stop condition.)

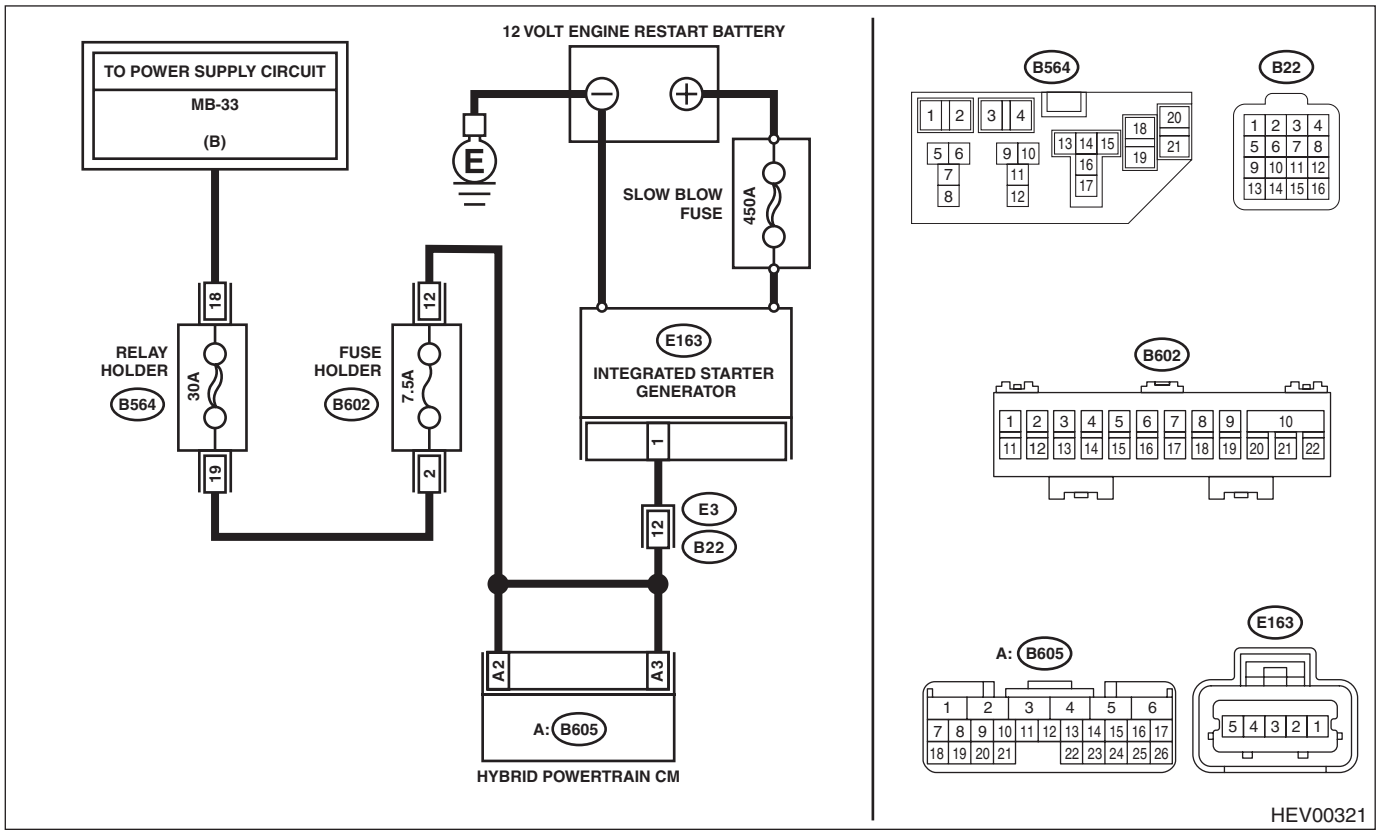
- Charge warning light illuminates.

**CAUTION:**

**Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.>**

**WIRING DIAGRAM:**

Hybrid system <Ref. to WI(HEV)-140, WIRING DIAGRAM, Hybrid Electric Vehicle System.>




| Step | | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK DTC.**<br>Read the DTC. <Ref. to HEV(diag)-24, HYBRID POWERTRAIN CONTROL SYSTEM, OPERATION, Read Diagnostic Trouble Code (DTC).> | Are any other DTCs (relating to ISG) detected? (current malfunction) | First diagnose other DTCs. | Go to step **2**. |
| 2 | **CHECK FUSE.**<br>Check the fuse. <Ref. to HEV-12, Relay and Fuse.> | Is there any fault? | Replace the fuse. If the fuse blows out easily, repair the short circuit of harness. | Go to step **3**. |
| 3 | **CHECK BATTERY CABLE ASSEMBLY.**<br>Check the battery cable assembly. <Ref. to SC(H4DO(HEV))-50, Battery Cable Assembly.> | Is there any fault? | Repair the battery cable assembly. | Go to step **4**. |
| 4 | **CHECK BATTERY.**<br>Check the 12 volt engine restart battery. <Ref. to SC(H4DO(HEV))-39, Battery.> | Is there any fault? | Charge or replace the 12 volt engine restart battery. | Go to step **5**. |

| Step | | Check | Yes | No |
|---|---|---|---|---|
| 5 | **CHECK DTC.**<br>Read the DTC. <Ref. to HEV(diag)-24, HYBRID POWERTRAIN CONTROL SYSTEM, OPERATION, Read Diagnostic Trouble Code (DTC).> | Is DTC P1C14 detected? (current malfunction) | Replace the integrated starter generator. <Ref. to SC(H4DO(HEV))-32, Integrated Starter Generator (ISG).> | Even if DTC is detected, the circuit has returned to a normal condition at this time. Reproduce the failure, and then perform the diagnosis again.<br>NOTE:<br>In this case, temporary poor contact of connector, temporary open or short circuit of harness may be the cause. |

## AG:DTC P1C16 IDLE CONTROL SYSTEM RPM LOWER THAN EXPECTED(HPCM)

**DIAGNOSIS:**

• Detected when two consecutive driving cycles with fault occur. (Single engine startup is counted as one drive cycle.)

• GENERAL DESCRIPTION <Ref. to GD(HEV)-29, DTC P1C16 IDLE CONTROL SYSTEM RPM LOWER THAN EXPECTED(HPCM), Diagnostic Trouble Code (DTC) Detecting Criteria.>

**TROUBLE SYMPTOM:**

Normal control.

NOTE:

For the diagnostic procedure, refer to DTC P0506 IDLE AIR CONTROL SYSTEM RPM LOWER THAN EXPECTED. <Ref. to HEV(diag)-94, DTC P0506 IDLE AIR CONTROL SYSTEM RPM LOWER THAN EXPECTED, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

## AH:DTC P1C17 IDLE CONTROL SYSTEM RPM HIGHER THAN EXPECTED(HPCM)

**DIAGNOSIS:**

• Detected when two consecutive driving cycles with fault occur. (Single engine startup is counted as one drive cycle.)

• GENERAL DESCRIPTION <Ref. to GD(HEV)-29, DTC P1C17 IDLE CONTROL SYSTEM RPM HIGHER THAN EXPECTED(HPCM), Diagnostic Trouble Code (DTC) Detecting Criteria.>

**TROUBLE SYMPTOM:**

Normal control.

NOTE:

For the diagnostic procedure, refer to DTC P0507 IDLE AIR CONTROL SYSTEM RPM HIGHER THAN EXPECTED. <Ref. to HEV(diag)-95, DTC P0507 IDLE AIR CONTROL SYSTEM RPM HIGHER THAN EXPECTED, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

# AI: DTC P1C18 GENERATOR SYSTEM "B" PERFORMANCE

**DIAGNOSIS:**

- Detects malfunctions due to open harness or trouble in the charging device.
- Detects abnormal conditions in the charging system for the 12 volt engine restart battery due to the integrated starter generator.
- Immediately at fault recognition

**TROUBLE SYMPTOM:**

- EV traveling/Auto Start Stop does not operate.

(Engine does not restart under EV traveling/Auto Start Stop condition.)

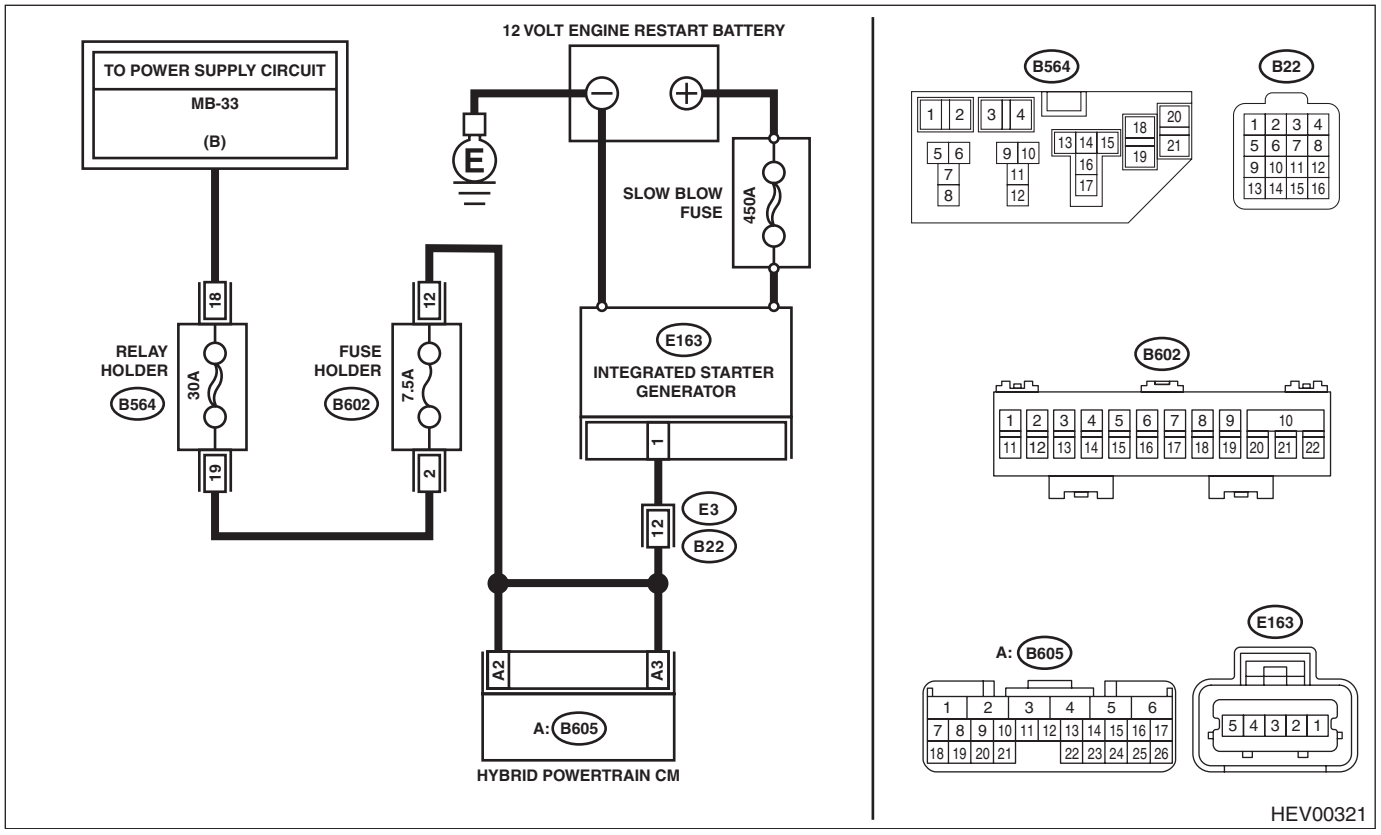
- Charge warning light illuminates.

**CAUTION:**

**Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.>**

**WIRING DIAGRAM:**

Hybrid system <Ref. to WI(HEV)-140, WIRING DIAGRAM, Hybrid Electric Vehicle System.>




| Step | | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK FUSE.**<br>Check the fuse. <Ref. to HEV-12, Relay and Fuse.> | Is the condition normal? | Go to step **2**. | Replace the fuse. If the fuse blows out easily, repair the short circuit of harness. |
| 2 | **CHECK BELTS.**<br>Check the belt. <Ref. to ME(H4DO(w/o HEV))-122, V-belt.> | Is the condition normal? | Go to step **3**. | Adjust or replace the belt. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 3 | **CHECK CURRENT DATA.**<br>Using the Subaru Select Monitor, confirm the current data of hybrid powertrain control system, the value of «ISG Control Mode Actual» «12V Engine Restart Battery Voltage» «ISG Terminal Voltage». <Ref. to HEV(diag)-40, HYBRID POWERTRAIN CONTROL SYSTEM, OPERATION, Read Current Data.> | Is «12V Engine Restart Battery Voltage» «ISG Terminal Voltage» 12 — 15 V when the engine speed is at 2000 rpm or more and «ISG Control Mode Actual» is generating power? | Even if DTC is detected, the circuit has returned to a normal condition at this time. Reproduce the failure, and then perform the diagnosis again.<br>NOTE:<br>In this case, temporary poor contact of connector, temporary open or short circuit of harness may be the cause. | Go to step **4**. |
| 4 | **CHECK CURRENT DATA.**<br>Using the Subaru Select Monitor, confirm the current data of hybrid powertrain control system, the value of «HPCM Check 40». <Ref. to HEV(diag)-40, HYBRID POWERTRAIN CONTROL SYSTEM, OPERATION, Read Current Data.> | Is the value 30 m Ω or more? | Check for poor contact of 12 volt engine restart battery terminals. <Ref. to NT-5, BATTERY, NOTE, Note.> | Go to step **5**. |
| 5 | **CHECK HARNESS (OPEN CIRCUIT).**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the HPCM connector.<br>3) Disconnect the integrated starter generator connector.<br>4) Using a tester, measure the resistance between the HPCM connector and integrated starter generator connector.<br>***Connector & terminal***<br>***(B605) No. 2 — (E163) No. 1:***<br>***(B605) No. 3 — (E163) No. 1:*** | Is the resistance less than 1 Ω? | Go to step **6**. | Repair the open circuit of the harness between the HPCM connector and the integrated starter generator terminal. |
| 6 | **CHECK BATTERY.**<br>Check the 12 volt engine restart battery. <Ref. to SC(H4DO(HEV))-39, Battery.> | Is the condition normal? | Replace the integrated starter generator. <Ref. to SC(H4DO(HEV))-32, Integrated Starter Generator (ISG).> | Charge or replace the 12 volt engine restart battery. |

## AJ:DTC P1C1E AUTODISCONNECT EXPERIENCE

**DIAGNOSIS:**
Detects collision history of the vehicle.
**TROUBLE SYMPTOM:**
- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.
- Vehicle speed is limited to 20 km/h (12.4 MPH) or below.

**CAUTION:**
**Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.>**

NOTE:
- At normal condition, this cannot be deleted from the readiness code.
- The high voltage battery must not be reconnected until the repair is complete.

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK VEHICLE.**<br>Check the vehicle conditions. | Are the vehicle conditions normal? (Check for evidence of collision, etc.) | Go to step **2**. | Repair the problem. |
| 2 | **CHECK HPCM.**<br>1) Perform the Clear Memory Mode. <Ref. to HEV(diag)-25, HYBRID POWERTRAIN CONTROL SYSTEM, OPERATION, Clear Memory Mode.><br>2) Turn the ignition switch to OFF.<br>3) Wait for 30 seconds.<br>4) Turn the ignition switch to ON.<br>5) Read the DTC again. <Ref. to HEV(diag)-24, HYBRID POWERTRAIN CONTROL SYSTEM, OPERATION, Read Diagnostic Trouble Code (DTC).> | Is DTC P1C1E detected? (current malfunction) | Replace the HPCM. <Ref. to HEV-37, Hybrid Powertrain Control Module.> | Even if DTC is detected, the circuit has returned to a normal condition at this time. Reproduce the failure, and then perform the diagnosis again.<br>NOTE:<br>In this case, temporary poor contact of connector, temporary open or short circuit of harness may be the cause. |

## AK:DTC P2158 VEHICLE SPEED SENSOR "B"

**DIAGNOSIS FOR DTC:**
- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-30, DTC P2158 VEHICLE SPEED SENSOR "B", Diagnostic Trouble Code (DTC) Detecting Criteria.>

**TROUBLE SYMPTOM:**
EV traveling/Auto Start Stop does not operate.

NOTE:
For the diagnostic procedure, refer to the Vehicle Dynamics Control System (VDC) (DIAGNOSTICS). <Ref. to VDC(diag)-2, PROCEDURE, Basic Diagnostic Procedure.>

# AL:DTC P0A2A DRIVE MOTOR "A" TEMPERATURE SENSOR CIRCUIT

**DIAGNOSIS:**

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-31, DTC P0A2A DRIVE MOTOR "A" TEMPERATURE SENSOR CIRCUIT, Diagnostic Trouble Code (DTC) Detecting Criteria.>

**TROUBLE SYMPTOM:**

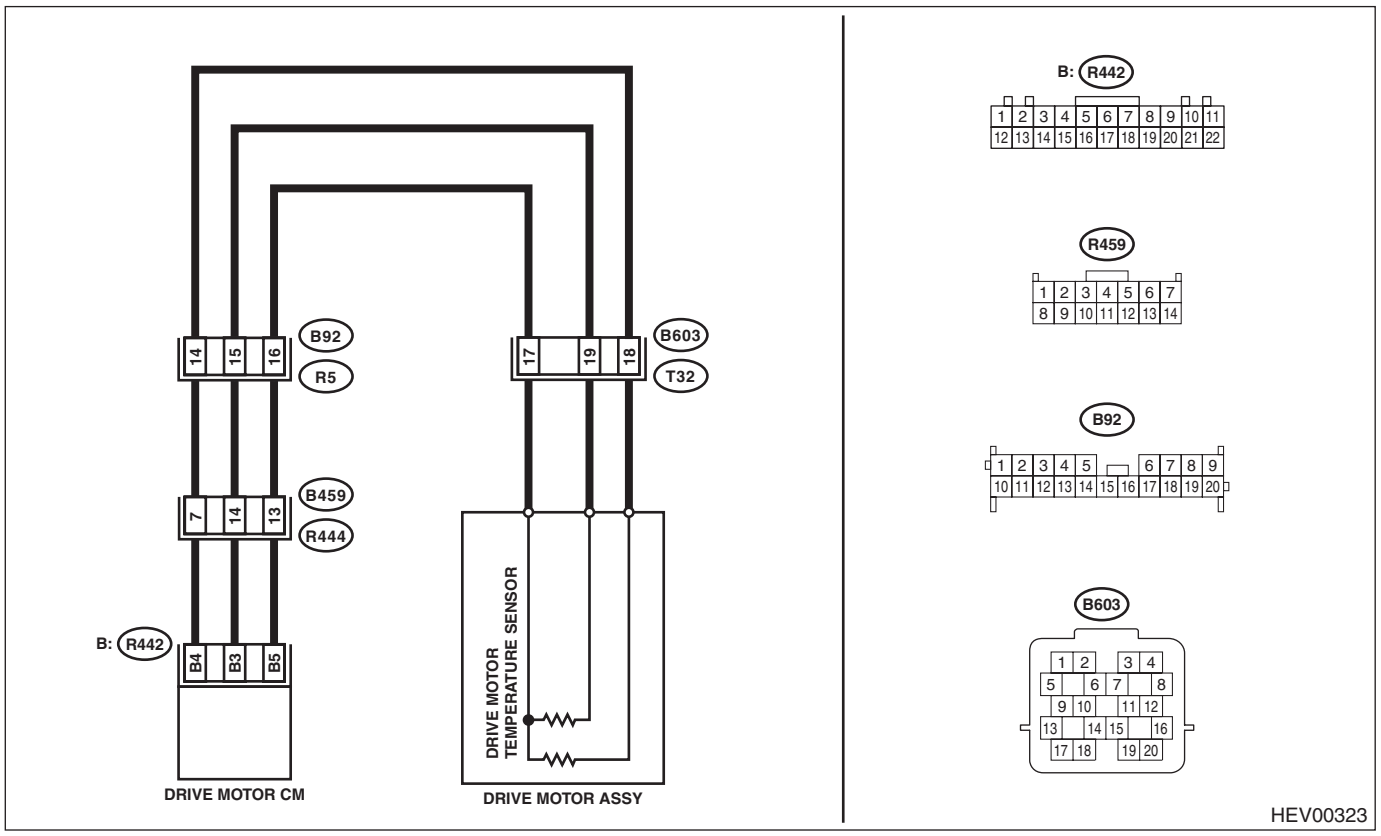
- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.

**CAUTION:**

**Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.>**

**WIRING DIAGRAM:**

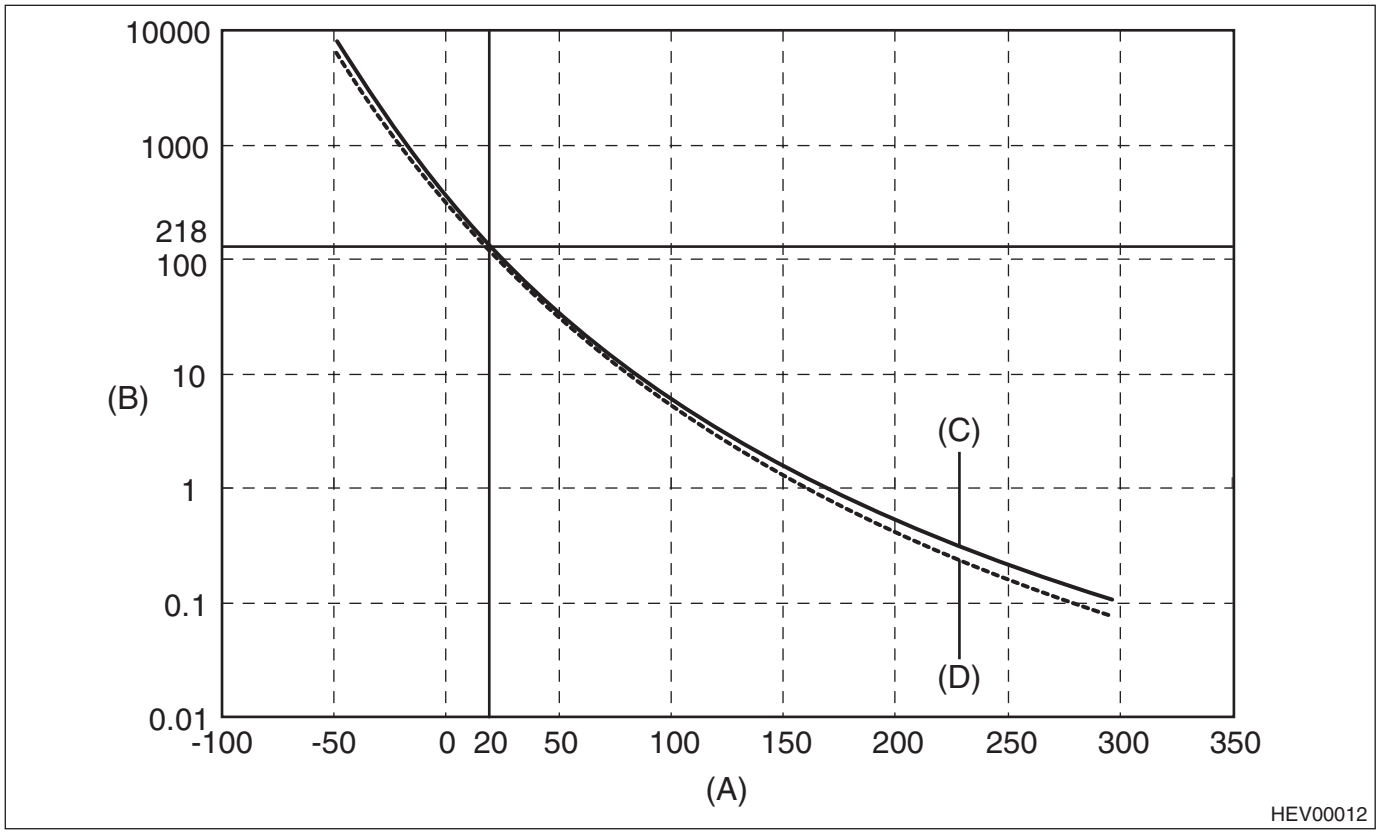
CVT control system <Ref. to WI(HEV)-86, WIRING DIAGRAM, CVT Control System.>




| Step | | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK CURRENT DATA.**<br>1) Warm up the engine.<br>2) Using the Subaru Select Monitor, confirm the current data of drive motor control system, the values of «A/T Oil Temperature» «Drive Motor Temperature A Sensor Voltage». <Ref. to HEV(diag)-52, DRIVE MOTOR CONTROL SYSTEM, OPERATION, Read Current Data.> | Is the value of «Drive Motor Temperature A Sensor Voltage» 4.5 V or more when «A/T Oil Temperature» is 40°C (104°F) or more? | Go to step **2**. | Even if DTC is detected, the circuit has returned to a normal condition at this time. Reproduce the failure, and then perform the diagnosis again.<br>NOTE:<br>In this case, temporary poor contact of connector, temporary open or short circuit of harness may be the cause. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 2 | **CHECK HARNESS AND DRIVE MOTOR.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the DMCM connector (R442).<br>3) Using a tester, measure the resistance between terminals in the DMCM connector.<br>***Connector & terminal***<br>***(R442) No. 4 — (R442) No. 5:***<br>***(R442) No. 3 — (R442) No. 5:*** | Does the resistance between either two points show 218 kΩ or more? | Go to step **3**. | Replace DMCM. <Ref. to CVT(TH58A)-157, Drive Motor Control Module.> |
| 3 | **CHECK DRIVE MOTOR.**<br>1) Disconnect the drive motor assembly connector (R603).<br>2) Using a tester, measure the resistance between terminals in the drive motor assembly connector.<br>***Connector & terminal***<br>***(T32) No. 18 — (T32) No. 17:***<br>***(T32) No. 19 — (T32) No. 17:*** | Does the resistance between either two points show 218 kΩ or more? | Replace the drive motor assembly. <Ref. to CVT(TH58A)-217, Drive Motor Assembly.> | Repair the open circuit of harness between DMCM connector and drive motor assembly connector, or repair the intermediate connector. |

NOTE:
Characteristic curve of temperature sensor




(A) Temperature
(B) Resistance
(C) Standard at Max.
(D) Standard at Min.

| Temp. (°C) | Temp. (°F) | Standard at Max. (kΩ) | Standard at Min. (kΩ) |
|---|---|---|---|
| –50 | –58 | 9,847 | 7,755 |
| –45 | –49 | 6,735 | 5,383 |
| –40 | –40 | 4,682 | 3,796 |
| –35 | –31 | 3,282 | 2,698 |
| –30 | –22 | 2,334 | 1,945 |
| –25 | –13 | 1,676 | 1,414 |
| –20 | –4 | 1,219 | 1,041 |
| –15 | 5 | 893.2 | 772.8 |
| –10 | 14 | 662.4 | 579.8 |
| –5 | 23 | 494.8 | 438.2 |
| 0 | 32 | 373.7 | 334.5 |
| 5 | 41 | 284.1 | 257 |
| 10 | 50 | 218.1 | 199.4 |
| 15 | 59 | 168.5 | 155.6 |
| 20 | 68 | 131.3 | 122.4 |
| 25 | 77 | 103 | 97 |
| 30 | 86 | 82.12 | 76.62 |
| 35 | 95 | 65.86 | 60.9 |
| 40 | 104 | 53.2 | 48.76 |
| 45 | 113 | 43.17 | 39.23 |
| 50 | 122 | 35.26 | 31.78 |
| 55 | 131 | 28.94 | 25.87 |
| 60 | 140 | 23.89 | 21.19 |
| 65 | 149 | 19.81 | 17.43 |
| 70 | 158 | 16.51 | 14.43 |
| 75 | 167 | 13.82 | 11.99 |
| 80 | 176 | 11.63 | 10.01 |
| 85 | 185 | 9.822 | 8.403 |
| 90 | 194 | 8.333 | 7.082 |
| 95 | 203 | 7.093 | 5.988 |
| 100 | 212 | 6.063 | 5.086 |
| 105 | 221 | 5.203 | 4.337 |
| 110 | 230 | 4.482 | 3.714 |
| 115 | 239 | 3.874 | 3.191 |
| 120 | 248 | 3.361 | 2.752 |
| 125 | 257 | 2.924 | 2.381 |
| 130 | 266 | 2.553 | 2.067 |
| 135 | 275 | 2.235 | 1.8 |
| 140 | 284 | 1.963 | 1.572 |
| 145 | 293 | 1.729 | 1.377 |
| 150 | 302 | 1.527 | 1.21 |
| 155 | 311 | 1.352 | 1.066 |
| 160 | 320 | 1.2 | 0.9427 |
| 165 | 329 | 1.068 | 0.835 |
| 170 | 338 | 0.9535 | 0.7417 |
| 175 | 347 | 0.8526 | 0.6602 |
| 180 | 356 | 0.7643 | 0.5892 |
| 185 | 365 | 0.6866 | 0.527 |
| 190 | 374 | 0.6183 | 0.4725 |
| 195 | 383 | 0.5578 | 0.4245 |

| Temp. (°C) | Temp. (°F) | Standard at Max. (kΩ) | Standard at Min. (kΩ) |
|---|---|---|---|
| 200 | 392 | 0.5043 | 0.3822 |
| 205 | 401 | 0.4568 | 0.3448 |
| 210 | 410 | 0.4147 | 0.3117 |
| 215 | 419 | 0.3771 | 0.2824 |
| 220 | 428 | 0.3435 | 0.2563 |
| 225 | 437 | 0.3135 | 0.233 |
| 230 | 446 | 0.2866 | 0.2122 |
| 235 | 455 | 0.2624 | 0.1936 |
| 240 | 464 | 0.2407 | 0.177 |
| 245 | 473 | 0.2212 | 0.162 |
| 250 | 482 | 0.2035 | 0.1486 |
| 255 | 491 | 0.1876 | 0.1365 |
| 260 | 500 | 0.1731 | 0.1256 |
| 265 | 509 | 0.16 | 0.1157 |
| 270 | 518 | 0.1481 | 0.1067 |
| 275 | 527 | 0.1373 | 0.09867 |
| 280 | 536 | 0.1274 | 0.0913 |
| 285 | 545 | 0.1184 | 0.0846 |
| 290 | 554 | 0.1102 | 0.07849 |
| 295 | 563 | 0.1027 | 0.07292 |
| 300 | 572 | 0.09578 | 0.06784 |

# AM:DTC P0A2C DRIVE MOTOR "A" TEMPERATURE SENSOR CIRCUIT LOW

**DIAGNOSIS:**

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-32, DTC P0A2C DRIVE MOTOR "A" TEMPERATURE SENSOR CIRCUIT LOW, Diagnostic Trouble Code (DTC) Detecting Criteria.>

**TROUBLE SYMPTOM:**

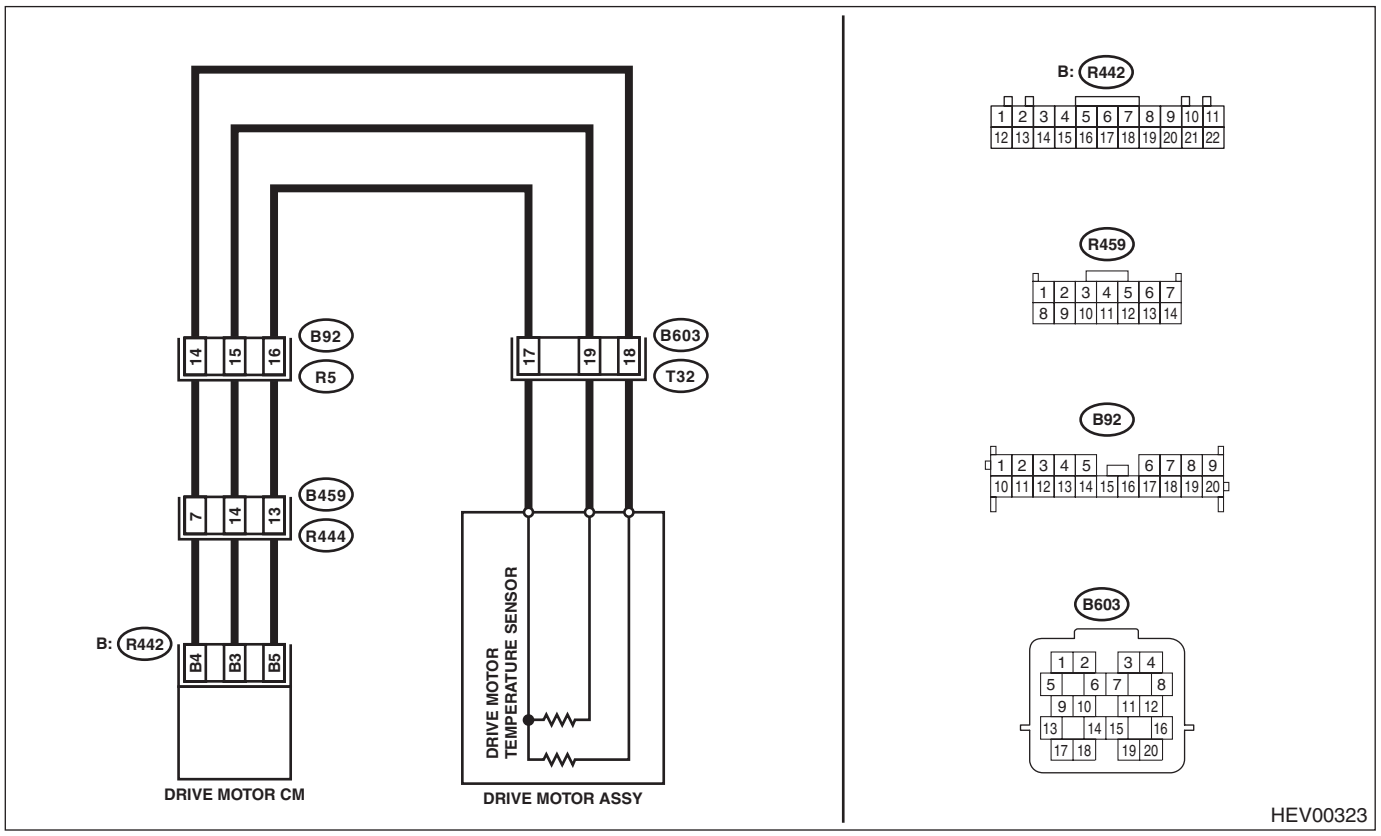
- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.

**CAUTION:**

**Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.>**

**WIRING DIAGRAM:**

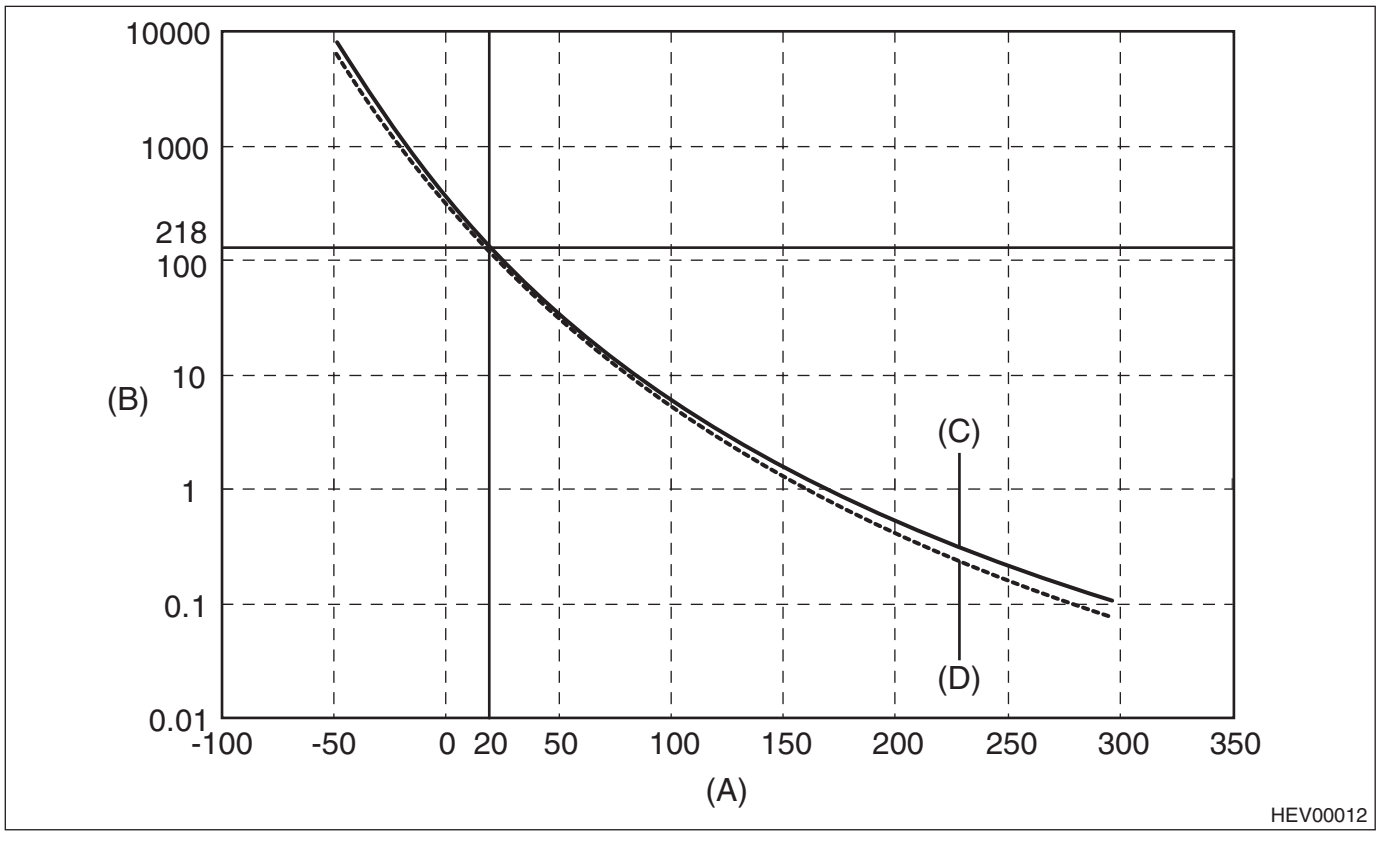
CVT control system <Ref. to WI(HEV)-86, WIRING DIAGRAM, CVT Control System.>




| Step | | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK CURRENT DATA.**<br>Using the Subaru Select Monitor, confirm the current data of drive motor control system, the value of «Drive Motor Temperature A Sensor Voltage». <Ref. to HEV(diag)-52, DRIVE MOTOR CONTROL SYSTEM, OPERATION, Read Current Data.> | Is the value less than 0.23 V? | Go to step **2**. | Even if DTC is detected, the circuit has returned to a normal condition at this time. Reproduce the failure, and then perform the diagnosis again.<br>NOTE:<br>In this case, temporary poor contact of connector, temporary open or short circuit of harness may be the cause. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 2 | **CHECK HARNESS AND DRIVE MOTOR.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the DMCM connector (R442).<br>3) Using a tester, measure the resistance between DMCM connector and the ground bolt of inverter frame body.<br>***Connector & terminal***<br>***(R442) No. 4 — Ground bolt of inverter frame body:***<br>***(R442) No. 3 — Ground bolt of inverter frame body:*** | Does the resistance between either two points show 256.4 Ω or less? | Go to step **3**. | Replace DMCM. <Ref. to CVT(TH58A)-157, Drive Motor Control Module.> |
| 3 | **CHECK DRIVE MOTOR.**<br>1) Disconnect the drive motor assembly connector (B603).<br>2) Using a tester, measure the resistance between the drive motor assembly connector and chassis ground.<br>***Connector & terminal***<br>***(T32) No. 18 — Chassis ground:***<br>***(T32) No. 19 — Chassis ground:*** | Does the resistance between either two points show 256.4 Ω or less? | Replace the drive motor assembly. <Ref. to CVT(TH58A)-217, Drive Motor Assembly.> | Repair the short circuit to ground in harness between DMCM connector and drive motor assembly connector. |

NOTE:
Characteristic curve of temperature sensor




(A) Temperature
(B) Resistance
(C) Standard at Max.
(D) Standard at Min.

| Temp. (°C) | Temp. (°F) | Standard at Max. (kΩ) | Standard at Min. (kΩ) |
|---|---|---|---|
| –50 | –58 | 9,847 | 7,755 |
| –45 | –49 | 6,735 | 5,383 |
| –40 | –40 | 4,682 | 3,796 |
| –35 | –31 | 3,282 | 2,698 |
| –30 | –22 | 2,334 | 1,945 |
| –25 | –13 | 1,676 | 1,414 |
| –20 | –4 | 1,219 | 1,041 |
| –15 | 5 | 893.2 | 772.8 |
| –10 | 14 | 662.4 | 579.8 |
| –5 | 23 | 494.8 | 438.2 |
| 0 | 32 | 373.7 | 334.5 |
| 5 | 41 | 284.1 | 257 |
| 10 | 50 | 218.1 | 199.4 |
| 15 | 59 | 168.5 | 155.6 |
| 20 | 68 | 131.3 | 122.4 |
| 25 | 77 | 103 | 97 |
| 30 | 86 | 82.12 | 76.62 |
| 35 | 95 | 65.86 | 60.9 |
| 40 | 104 | 53.2 | 48.76 |
| 45 | 113 | 43.17 | 39.23 |
| 50 | 122 | 35.26 | 31.78 |
| 55 | 131 | 28.94 | 25.87 |
| 60 | 140 | 23.89 | 21.19 |
| 65 | 149 | 19.81 | 17.43 |
| 70 | 158 | 16.51 | 14.43 |
| 75 | 167 | 13.82 | 11.99 |
| 80 | 176 | 11.63 | 10.01 |
| 85 | 185 | 9.822 | 8.403 |
| 90 | 194 | 8.333 | 7.082 |
| 95 | 203 | 7.093 | 5.988 |
| 100 | 212 | 6.063 | 5.086 |
| 105 | 221 | 5.203 | 4.337 |
| 110 | 230 | 4.482 | 3.714 |
| 115 | 239 | 3.874 | 3.191 |
| 120 | 248 | 3.361 | 2.752 |
| 125 | 257 | 2.924 | 2.381 |
| 130 | 266 | 2.553 | 2.067 |
| 135 | 275 | 2.235 | 1.8 |
| 140 | 284 | 1.963 | 1.572 |
| 145 | 293 | 1.729 | 1.377 |
| 150 | 302 | 1.527 | 1.21 |
| 155 | 311 | 1.352 | 1.066 |
| 160 | 320 | 1.2 | 0.9427 |
| 165 | 329 | 1.068 | 0.835 |
| 170 | 338 | 0.9535 | 0.7417 |
| 175 | 347 | 0.8526 | 0.6602 |
| 180 | 356 | 0.7643 | 0.5892 |
| 185 | 365 | 0.6866 | 0.527 |
| 190 | 374 | 0.6183 | 0.4725 |
| 195 | 383 | 0.5578 | 0.4245 |

| Temp. (°C) | Temp. (°F) | Standard at Max. (kΩ) | Standard at Min. (kΩ) |
|---|---|---|---|
| 200 | 392 | 0.5043 | 0.3822 |
| 205 | 401 | 0.4568 | 0.3448 |
| 210 | 410 | 0.4147 | 0.3117 |
| 215 | 419 | 0.3771 | 0.2824 |
| 220 | 428 | 0.3435 | 0.2563 |
| 225 | 437 | 0.3135 | 0.233 |
| 230 | 446 | 0.2866 | 0.2122 |
| 235 | 455 | 0.2624 | 0.1936 |
| 240 | 464 | 0.2407 | 0.177 |
| 245 | 473 | 0.2212 | 0.162 |
| 250 | 482 | 0.2035 | 0.1486 |
| 255 | 491 | 0.1876 | 0.1365 |
| 260 | 500 | 0.1731 | 0.1256 |
| 265 | 509 | 0.16 | 0.1157 |
| 270 | 518 | 0.1481 | 0.1067 |
| 275 | 527 | 0.1373 | 0.09867 |
| 280 | 536 | 0.1274 | 0.0913 |
| 285 | 545 | 0.1184 | 0.0846 |
| 290 | 554 | 0.1102 | 0.07849 |
| 295 | 563 | 0.1027 | 0.07292 |
| 300 | 572 | 0.09578 | 0.06784 |

# AN:DTC P0A2D DRIVE MOTOR "A" TEMPERATURE SENSOR CIRCUIT HIGH

**DIAGNOSIS:**

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-33, DTC P0A2D DRIVE MOTOR "A" TEMPERATURE SENSOR CIRCUIT HIGH, Diagnostic Trouble Code (DTC) Detecting Criteria.>

**TROUBLE SYMPTOM:**

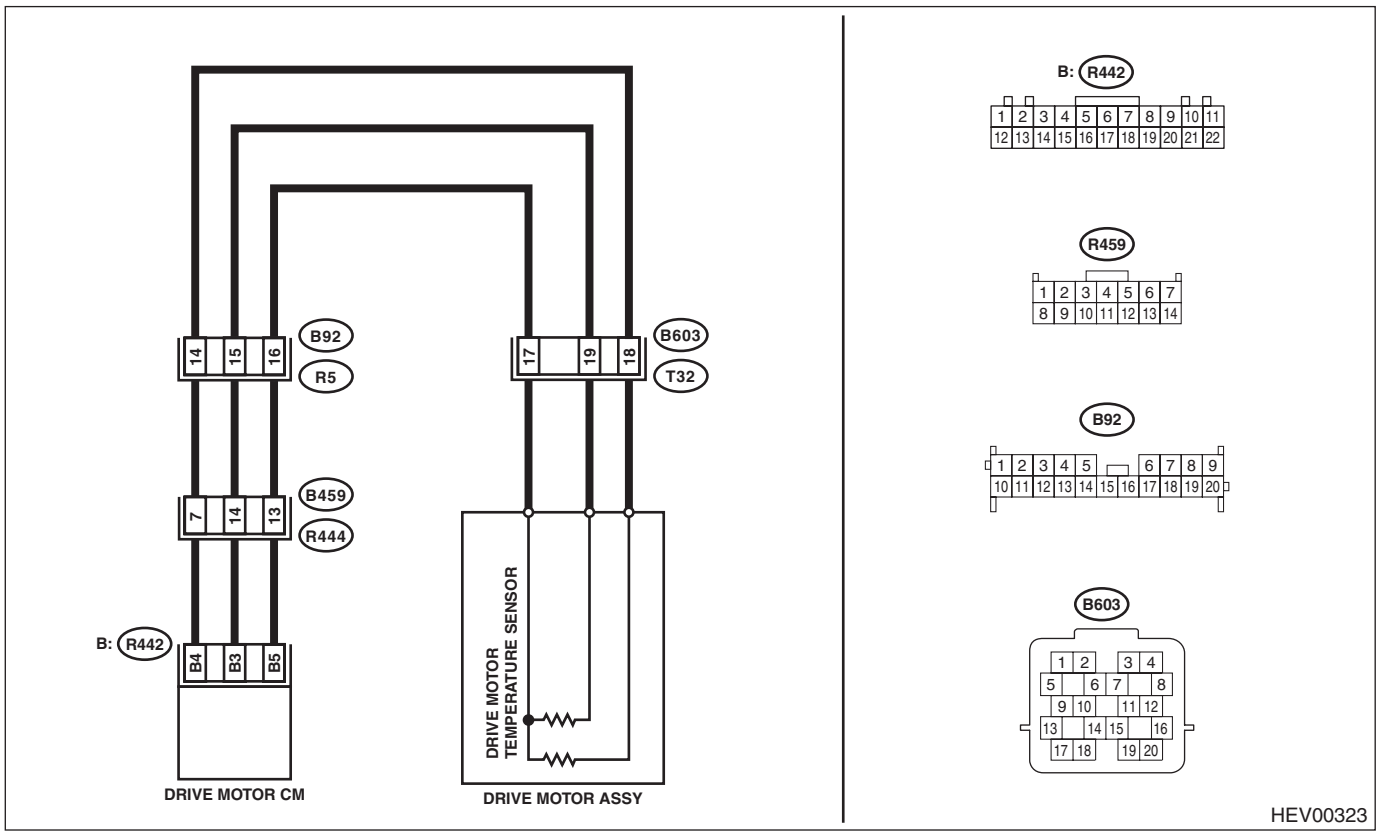
- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.

**CAUTION:**

**Before performing diagnosis, refer to “CAUTION” in “General Description”. <Ref. to HEV(diag)-8, CAUTION, General Description.>**

**WIRING DIAGRAM:**

CVT control system <Ref. to WI(HEV)-86, WIRING DIAGRAM, CVT Control System.>



| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK CURRENT DATA.**<br>Using the Subaru Select Monitor, confirm the current data of drive motor control system, the value of «Drive Motor Temperature A Sensor Voltage». <Ref. to HEV(diag)-52, DRIVE MOTOR CONTROL SYSTEM, OPERATION, Read Current Data.> | Is the value 4.6 V or more? | Go to step **2**. | Even if DTC is detected, the circuit has returned to a normal condition at this time. Reproduce the failure, and then perform the diagnosis again.<br>NOTE:<br>In this case, temporary poor contact of connector, temporary open or short circuit of harness may be the cause. |
| 2 | **CHECK HARNESS (SHORT).**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the DMCM connector (R442, R443).<br>3) Disconnect the drive motor assembly connector (B603).<br>4) Using a tester, measure the resistance between terminals in the DMCM connector and between the terminals in the drive motor assembly connector.<br>***Connector & terminal***<br>***DMCM side***<br>***(R442) No. 3 — (R442) No. 1 — 22 (except No. 5):***<br>***(R442) No. 3 — (R443) No. 1 — 26:***<br>***(R442) No. 4 — (R442) No. 1 — 22 (except No. 5):***<br>***(R442) No. 4 — (R443) No. 1 — 26:***<br>***Drive motor side***<br>***(B603) No. 18 — (B603) No. 1 — 19 (except No. 17):***<br>***(B603) No. 19 — (B603) No. 1 — 19 (except No. 17):*** | Does the resistance between either two points show 1 MΩ or more? | Go to step **3**. | Repair the short circuit to power in harness between DMCM connector and drive motor assembly connector, or repair the intermediate connector. |
| 3 | **CHECK DRIVE MOTOR.**<br>Using a tester, measure the resistance between terminals in the drive motor assembly connector.<br>***Connector & terminal***<br>***(T32) No. 18 — (T32) No. 1 — 19 (except No. 17):***<br>***(T32) No. 19 — (T32) No. 1 — 19 (except No. 17):*** | Does the resistance between either two points show 1 MΩ or more? | Replace DMCM. <Ref. to CVT(TH58A)-157, Drive Motor Control Module.> | Replace the drive motor assembly. <Ref. to CVT(TH58A)-217, Drive Motor Assembly.> |

## AO:DTC P0A3C DRIVE MOTOR "A" INVERTER OVER TEMPERATURE

**DIAGNOSIS:**

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-34, DTC P0A3C DRIVE MOTOR "A" INVERTER OVER TEMPERATURE, Diagnostic Trouble Code (DTC) Detecting Criteria.>

**TROUBLE SYMPTOM:**

- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.

**CAUTION:**

**Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.>**

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK DTC.**<br>Read the DTC. <Ref. to HEV(diag)-24, DRIVE MOTOR CONTROL SYSTEM, OPERATION, Read Diagnostic Trouble Code (DTC).> | Are DTC P0A5D, P0A60, and P0A63 detected? (current malfunction) | Perform a check according to the DTC. <Ref. to HEV(diag)-78, DRIVE MOTOR CONTROL SYSTEM, LIST, List of Diagnostic Trouble Code (DTC).> | Go to step **2**. |
| 2 | **CHECK HIGH VOLTAGE BATTERY COOLING FAN.**<br>Using the Subaru Select Monitor, perform «High Voltage Battery Cooling Fan» of System Operation Check Mode for the drive motor control system. <Ref. to HEV(diag)-73, DRIVE MOTOR CONTROL SYSTEM, OPERATION, System Operation Check Mode.> | Does the high voltage battery cooling fan operate? | Go to step **3**. | Check the high voltage battery cooling fan as a single part. <Ref. to HEV-60, High Voltage Battery Cooling System.> |
| 3 | **CHECK DUCT.**<br>Check the high voltage battery cooling fan ducts. <Ref. to HEV-60, High Voltage Battery Cooling System.> | Are the conditions of ducts normal? (Check for clogging, dislodging of connections, etc.) | Go to step **4**. | Repair the ducts. |
| 4 | **CHECK DTC.**<br>1) Replace the drive motor inverter. <Ref. to HEV-42, Inverter.><br>2) Perform the Clear Memory Mode. <Ref. to HEV(diag)-25, DRIVE MOTOR CONTROL SYSTEM, OPERATION, Clear Memory Mode.><br>3) Check the freeze frame data and drive the vehicle to reproduce the same conditions. <Ref. to HEV(diag)-65, DRIVE MOTOR CONTROL SYSTEM, OPERATION, Freeze Frame Data Display.><br>4) Read the DTC again. <Ref. to HEV(diag)-24, DRIVE MOTOR CONTROL SYSTEM, OPERATION, Read Diagnostic Trouble Code (DTC).> | Is the same DTC detected? (current malfunction) | Replace DMCM. <Ref. to CVT(TH58A)-157, Drive Motor Control Module.> | Problem is present in drive motor inverter. |

# AP:DTC P0A3F DRIVE MOTOR "A" POSITION SENSOR CIRCUIT

**DIAGNOSIS:**

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-35, DTC P0A3F DRIVE MOTOR "A" POSITION SENSOR CIRCUIT, Diagnostic Trouble Code (DTC) Detecting Criteria.>

**TROUBLE SYMPTOM:**

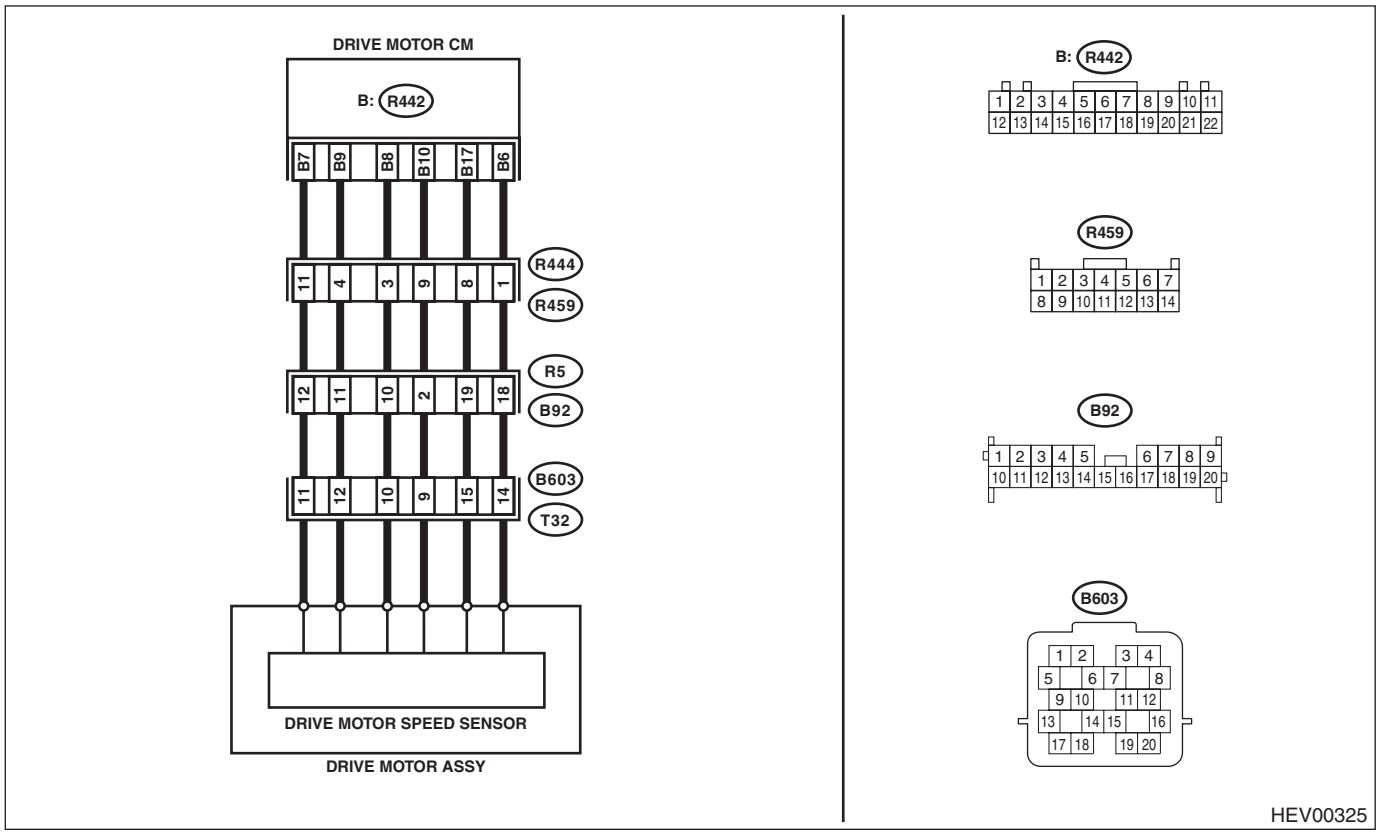
- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.
- Sometimes driving power and shifting behavior are different from the normal states.

**CAUTION:**

**Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.>**

**WIRING DIAGRAM:**

CVT control system <Ref. to WI(HEV)-86, WIRING DIAGRAM, CVT Control System.>




| Step | | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK HARNESS AND DRIVE MOTOR.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the DMCM connector (R442).<br>3) Using a tester, measure the resistance between terminals in DMCM connector.<br>***Connector & terminal***<br>***R1-R2***<br>***(R442) No. 6 — (R442) No. 17:***<br>***S1-S3***<br>***(R442) No. 10 — (R442) No. 8:***<br>***S2-S4***<br>***(R442) No. 9 — (R442) No. 7:*** | Is each resistance value as shown in below?<br>R1-R2: Is the value out of 7 — 23 Ω range?<br>or<br>S1-S3: Is the value out of 10 — 39 Ω range?<br>or<br>S2-S4: Is the value out of 11 — 40 Ω range? | Go to step **2**. | Go to step **3**. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 2 | **CHECK DRIVE MOTOR.**<br>1) Disconnect the drive motor assembly connector.<br>2) Using a tester, measure the resistance between terminals in the drive motor assembly connector.<br>***Connector & terminal***<br>***R1-R2***<br>***(T32) No. 14 — (T32) No. 15:***<br>***S1-S3***<br>***(T32) No. 9 — (T32) No. 10:***<br>***S2-S4***<br>***(T32) No. 12 — (T32) No. 11:*** | Is each resistance value as shown in below?<br>R1-R2: Is the value out of 7 — 23 Ω range?<br>or<br>S1-S3: Is the value out of 10 — 39 Ω range?<br>or<br>S2-S4: Is the value out of 11 — 40 Ω range? | Replace the drive motor assembly. <Ref. to CVT(TH58A)-217, Drive Motor Assembly.> | Repair the open circuit and short circuit to ground in harness between DMCM connector and drive motor assembly connector. |
| 3 | **CHECK HARNESS AND DRIVE MOTOR.**<br>Using a tester, check the resistance between DMCM connector terminals and the ground bolt of inverter frame body.<br>***Connector & terminal***<br>***(R442) No. 6 — Ground bolt of inverter frame body:***<br>***(R442) No. 10 — Ground bolt of inverter frame body:***<br>***(R442) No. 9 — Ground bolt of inverter frame body:*** | Does the resistance between either two points show 1 MΩ or less? | Go to step **4**. | Go to step **5**. |
| 4 | **CHECK DRIVE MOTOR.**<br>1) Disconnect the drive motor assembly connector.<br>2) Using a tester, measure the resistance between the drive motor assembly connector and chassis ground.<br>***Connector & terminal***<br>***(T32) No. 14 — Chassis ground:***<br>***(T32) No. 9 — Chassis ground:***<br>***(T32) No. 12 — Chassis ground:*** | Does the resistance between either two points show 1 MΩ or less? | Replace the drive motor assembly. <Ref. to CVT(TH58A)-217, Drive Motor Assembly.> | Repair the short circuit to ground in harness between DMCM connector and drive motor assembly connector. |

| Step | | Check | Yes | No |
|---|---|---|---|---|
| 5 | **CHECK HARNESS.**<br>1) Disconnect the DMCM connector (R443).<br>2) Disconnect the intermediate connector (R436).<br>3) Using a tester, measure the resistance between terminals in the DMCM connector and between the terminals in the intermediate connector (R436).<br>***Connector & terminal***<br>***(R442) No. 10 — (R442) No. 1 — 22 (except No. 8):***<br>***(R442) No. 10 — (R443) No. 1 — 26:***<br>***(R442) No. 10 — (R436) No. 1 — 8:***<br>***(R442) No. 8 — (R442) No. 1 — 22 (except No. 10):***<br>***(R442) No. 8 — (R443) No. 1 — 26:***<br>***(R442) No. 8 — (R436) No. 1 — 8:***<br>***(R442) No. 9 — (R442) No. 1 — 22 (except No. 7):***<br>***(R442) No. 9 — (R443) No. 1 — 26:***<br>***(R442) No. 9 — (R436) No. 1 — 8:***<br>***(R442) No. 7 — (R442) No. 1 — 22 (except No. 9):***<br>***(R442) No. 7 — (R443) No. 1 — 26:***<br>***(R442) No. 7 — (R436) No. 1 — 8:***<br>***(R442) No. 6 — (R442) No. 1 — 22 (except No. 17):***<br>***(R442) No. 6 — (R443) No. 1 — 26:***<br>***(R442) No. 6 — (R436) No. 1 — 8:***<br>***(R442) No. 17 — (R442) No. 1 — 22 (except No. 6):***<br>***(R442) No. 17 — (R443) No. 1 — 26:***<br>***(R442) No. 17 — (R436) No. 1 — 8:*** | Does the resistance between either two points show 1 MΩ or more? | Go to step **6**. | Repair the short circuit of harness between DMCM connector and drive motor assembly connector, or repair the intermediate connector. |
| 6 | **CHECK HARNESS.**<br>1) Disconnect the drive motor assembly connector.<br>2) Using a tester, measure the resistance between terminals in the drive motor assembly connector.<br>***Connector & terminal***<br>***(B603) No. 9 — (B603) No. 1 — 20 (except No. 10):***<br>***(B603) No. 10 — (B603) No. 1 — 20 (except No. 9):***<br>***(B603) No. 12 — (B603) No. 1 — 20 (except No. 11):***<br>***(B603) No. 11 — (B603) No. 1 — 20 (except No. 12):***<br>***(B603) No. 14 — (B603) No. 1 — 20 (except No. 15):***<br>***(B603) No. 15 — (B603) No. 1 — 20 (except No. 14):*** | Does the resistance between either two points show 1 MΩ or more? | Go to step **7**. | Repair the short circuit of harness between DMCM connector and drive motor assembly connector, or repair the intermediate connector. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 7 | **CHECK DRIVE MOTOR.**<br>Using a tester, measure the resistance between terminals in the drive motor assembly connector.<br>***Connector & terminal***<br>***(T32) No. 9 — (T32) No. 1 — 20 (except No. 10):***<br>***(T32) No. 10 — (T32) No. 1 — 20 (except No. 9):***<br>***(T32) No. 12 — (T32) No. 1 — 20 (except No. 11):***<br>***(T32) No. 11 — (T32) No. 1 — 20 (except No. 12):***<br>***(T32) No. 14 — (T32) No. 1 — 20 (except No. 15):***<br>***(T32) No. 15 — (T32) No. 1 — 20 (except No. 14):*** | Does the resistance between either two points show 1 MΩ or more? | Replace DMCM. <Ref. to CVT(TH58A)-157, Drive Motor Control Module.> | Replace the drive motor assembly. <Ref. to CVT(TH58A)-217, Drive Motor Assembly.> |

## AQ:DTC P0A40 DRIVE MOTOR "A" POSITION SENSOR CIRCUIT RANGE/PERFORMANCE

**DIAGNOSIS:**

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-36, DTC P0A40 DRIVE MOTOR "A" POSITION SENSOR CIRCUIT RANGE/PERFORMANCE, Diagnostic Trouble Code (DTC) Detecting Criteria.>

NOTE:
For the diagnostic procedure, refer to “DTC P0A3F DRIVE MOTOR "A" POSITION SENSOR CIRCUIT”. <Ref. to HEV(diag)-166, DTC P0A3F DRIVE MOTOR "A" POSITION SENSOR CIRCUIT, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

# AR:DTC P0A43 DRIVE MOTOR "A" POSITION SENSOR CIRCUIT INTERMITTENT

**DIAGNOSIS:**

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-37, DTC P0A43 DRIVE MOTOR "A" POSITION SENSOR CIRCUIT INTERMITTENT, Diagnostic Trouble Code (DTC) Detecting Criteria.>

**TROUBLE SYMPTOM:**

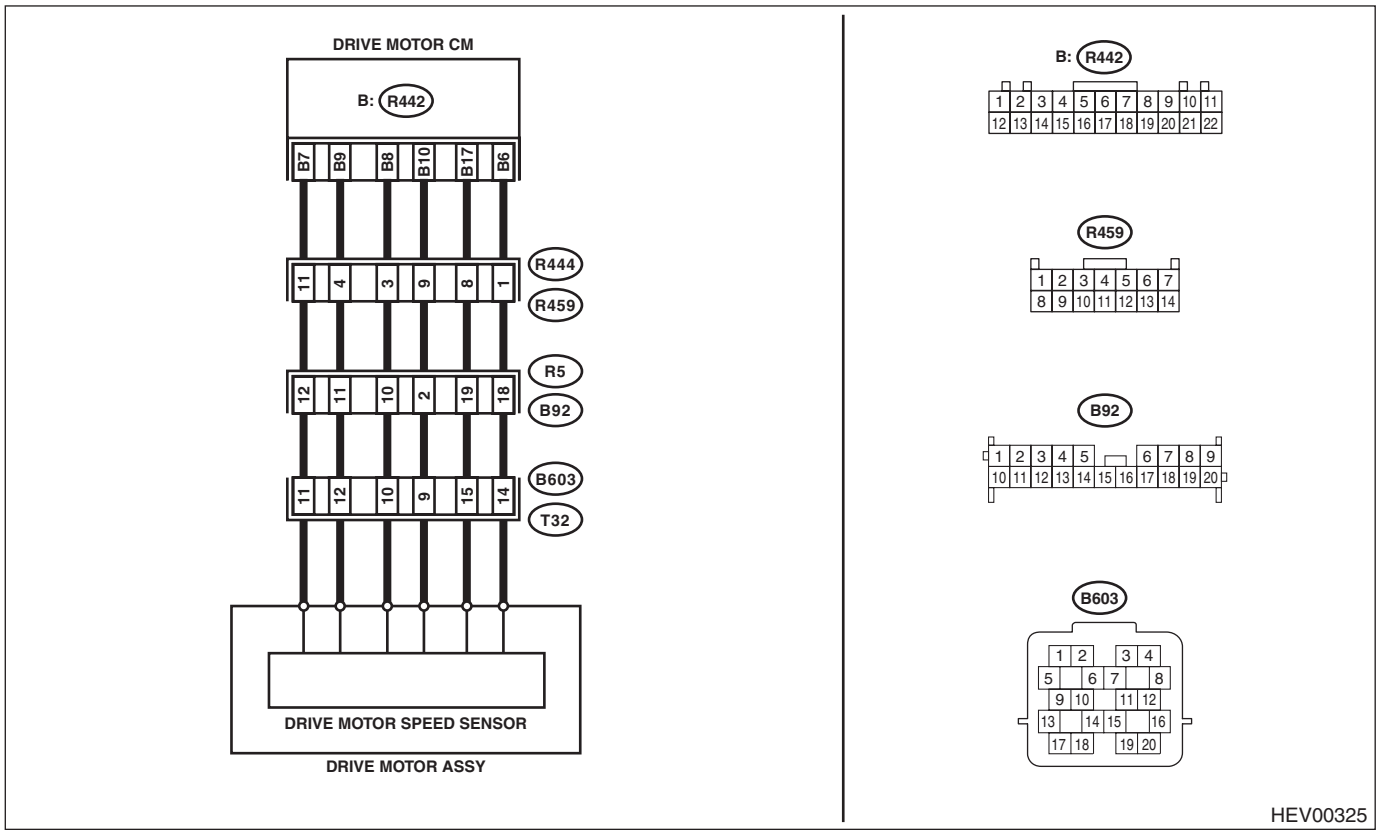
- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.
- Sometimes driving power and shifting behavior are different from the normal states.

**CAUTION:**

**Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.>**

**WIRING DIAGRAM:**

CVT control system <Ref. to WI(HEV)-86, WIRING DIAGRAM, CVT Control System.>




| Step | | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK DTC.**<br>Read the DTC. <Ref. to HEV(diag)-24, DRIVE MOTOR CONTROL SYSTEM, OPERATION, Read Diagnostic Trouble Code (DTC).> | Is DTC P0A3F detected? (current malfunction) | Perform the diagnosis according to DTC. <Ref. to HEV(diag)-78, DRIVE MOTOR CONTROL SYSTEM, LIST, List of Diagnostic Trouble Code (DTC).> | Go to step **2**. |

| Step | | Check | Yes | No |
|---|---|---|---|---|
| 2 | **CHECK HARNESS AND DRIVE MOTOR.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the DMCM connector (R442).<br>3) Using a tester, measure the resistance between terminals in DMCM connector.<br>***Connector & terminal***<br>***R1-R2***<br>***(R442) No. 6 — (R442) No. 17:***<br>***S1-S3***<br>***(R442) No. 10 — (R442) No. 8:***<br>***S2-S4***<br>***(R442) No. 9 — (R442) No. 7:*** | Is each resistance value as shown in below?<br>R1-R2: Is the value out of 7 — 23 Ω range?<br>or<br>S1-S3: Is the value out of 10 — 39 Ω range?<br>or<br>S2-S4: Is the value out of 11 — 40 Ω range? | Go to step **3**. | Go to step **4**. |
| 3 | **CHECK DRIVE MOTOR.**<br>1) Disconnect the drive motor assembly connector.<br>2) Using a tester, measure the resistance between terminals in the drive motor assembly connector.<br>***Connector & terminal***<br>***R1-R2***<br>***(T32) No. 14 — (T32) No. 15:***<br>***S1-S3***<br>***(T32) No. 9 — (T32) No. 10:***<br>***S2-S4***<br>***(T32) No. 12 — (T32) No. 11:*** | Is each resistance value as shown in below?<br>R1-R2: Is the value out of 7 — 23 Ω range?<br>or<br>S1-S3: Is the value out of 10 — 39 Ω range?<br>or<br>S2-S4: Is the value out of 11 — 40 Ω range? | Replace the drive motor assembly. <Ref. to CVT(TH58A)-217, Drive Motor Assembly.> | Repair the open circuit and short circuit to ground in harness between DMCM connector and drive motor assembly connector. |
| 4 | **CHECK HARNESS AND DRIVE MOTOR.**<br>Using a tester, measure the resistance between DMCM connector terminals and the ground bolt of inverter frame body.<br>***Connector & terminal***<br>***(R442) No. 6 — Ground bolt of inverter frame body:***<br>***(R442) No. 10 — Ground bolt of inverter frame body:***<br>***(R442) No. 9 — Ground bolt of inverter frame body:*** | Does the resistance between either two points show 1 MΩ or less? | Go to step **5**. | Go to step **6**. |
| 5 | **CHECK DRIVE MOTOR.**<br>1) Disconnect the drive motor assembly connector.<br>2) Using a tester, measure the resistance between the drive motor assembly connector and chassis ground.<br>***Connector & terminal***<br>***(T32) No. 14 — Chassis ground:***<br>***(T32) No. 9 — Chassis ground:***<br>***(T32) No. 12 — Chassis ground:*** | Does the resistance between either two points show 1 MΩ or less? | Replace the drive motor assembly. <Ref. to CVT(TH58A)-217, Drive Motor Assembly.> | Repair the short circuit to ground in harness between DMCM connector and drive motor assembly connector. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 6 | **CHECK HARNESS.**<br>1) Disconnect the drive motor assembly connector.<br>2) Using a tester, measure the resistance between terminals in the DMCM connector (R442, R443), between the terminals in the intermediate connector (R436), and between terminals in the drive motor assembly connector.<br>***Connector & terminal***<br>***(R442) No. 10 — (R442) No. 1 — 22 (except No. 8):***<br>***(R442) No. 10 — (R443) No. 1 — 26:***<br>***(R442) No. 10 — (R436) No. 1 — 8:***<br>***(R442) No. 8 — (R442) No. 1 — 22 (except No. 10):***<br>***(R442) No. 8 — (R443) No. 1 — 26:***<br>***(R442) No. 8 — (R436) No. 1 — 8:***<br>***(R442) No. 9 — (R442) No. 1 — 22 (except No. 7):***<br>***(R442) No. 9 — (R443) No. 1 — 26:***<br>***(R442) No. 9 — (R436) No. 1 — 8:***<br>***(R442) No. 7 — (R442) No. 1 — 22 (except No. 9):***<br>***(R442) No. 7 — (R443) No. 1 — 26:***<br>***(R442) No. 7 — (R436) No. 1 — 8:***<br>***(R442) No. 6 — (R442) No. 1 — 22 (except No. 17):***<br>***(R442) No. 6 — (R443) No. 1 — 26:***<br>***(R442) No. 6 — (R436) No. 1 — 8:***<br>***(R442) No. 17 — (R442) No. 1 — 22 (except No. 6):***<br>***(R442) No. 17 — (R443) No. 1 — 26:***<br>***(R442) No. 17 — (R436) No. 1 — 8:*** | Does the resistance between either two points show 1 MΩ or more? | Go to step **7**. | Repair the short circuit of harness between DMCM connector and drive motor assembly connector, or repair the intermediate connector. |
| 7 | **CHECK HARNESS.**<br>1) Disconnect the drive motor assembly connector.<br>2) Using a tester, measure the resistance between terminals in the drive motor assembly connector.<br>***Connector & terminal***<br>***(B603) No. 9 — (B603) No. 1 — 20 (except No. 10):***<br>***(B603) No. 10 — (B603) No. 1 — 20 (except No. 9):***<br>***(B603) No. 12 — (B603) No. 1 — 20 (except No. 11):***<br>***(B603) No. 11 — (B603) No. 1 — 20 (except No. 12):***<br>***(B603) No. 14 — (B603) No. 1 — 20 (except No. 15):***<br>***(B603) No. 15 — (B603) No. 1 — 20 (except No. 14):*** | Does the resistance between either two points show 1 MΩ or more? | Go to step **8**. | Repair the short circuit of harness between DMCM connector and drive motor assembly connector, or repair the intermediate connector. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 8 | **CHECK DRIVE MOTOR.**<br>Using a tester, measure the resistance between terminals in the drive motor assembly connector.<br>***Connector & terminal***<br>***(T32) No. 9 — (T32) No. 1 — 20 (except No. 10):***<br>***(T32) No. 12 — (T32) No. 1 — 20 (except No. 11):***<br>***(T32) No. 14 — (T32) No. 1 — 20 (except No. 15):*** | Does the resistance between either two points show 1 MΩ or more? | Replace DMCM. <Ref. to CVT(TH58A)-157, Drive Motor Control Module.> | Replace the drive motor assembly. <Ref. to CVT(TH58A)-217, Drive Motor Assembly.> |

# AS:DTC P0A44 DRIVE MOTOR "A" POSITION SENSOR CIRCUIT OVERSPEED

**DIAGNOSIS:**

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-38, DTC P0A44 DRIVE MOTOR "A" POSITION SENSOR CIRCUIT OVERSPEED, Diagnostic Trouble Code (DTC) Detecting Criteria.>

**TROUBLE SYMPTOM:**

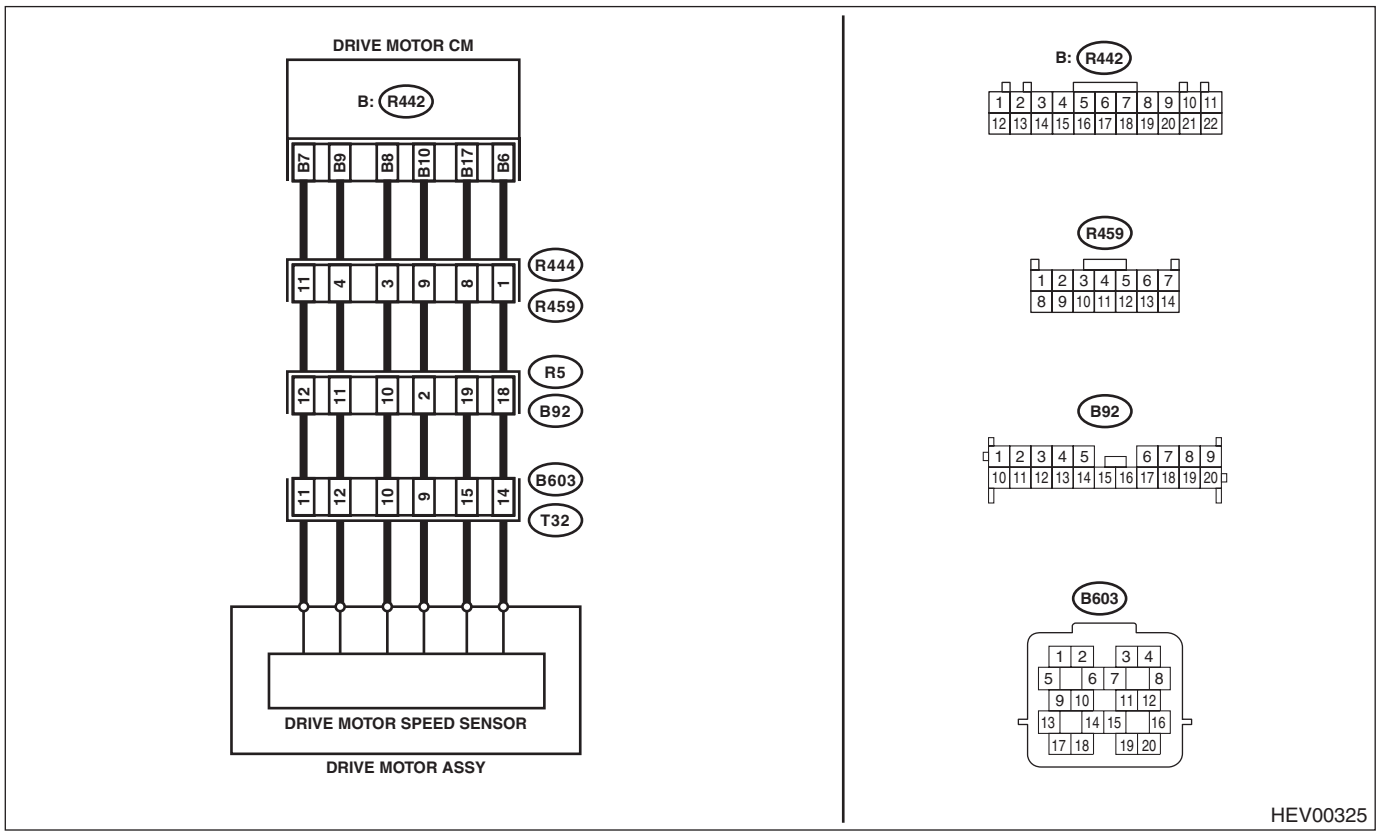
- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.

**CAUTION:**

**Before performing diagnosis, refer to “CAUTION” in “General Description”. <Ref. to HEV(diag)-8, CAUTION, General Description.>**

**WIRING DIAGRAM:**

CVT control system <Ref. to WI(HEV)-86, WIRING DIAGRAM, CVT Control System.>




| Step | | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK DTC.**<br>Read DTCs of the following system.<br>• Transmission <Ref. to CVT(HEV)(diag)-19, Read Diagnostic Trouble Code (DTC).> | Is DTC detected? (current malfunction) | Perform the diagnosis according to DTC. <Ref. to CVT(HEV)(diag)-34, List of Diagnostic Trouble Code (DTC).> | Go to step **2**. |
| 2 | **CHECK DTC.**<br>Read the DTC. <Ref. to HEV(diag)-24, DRIVE MOTOR CONTROL SYSTEM, OPERATION, Read Diagnostic Trouble Code (DTC).> | Is either DTC P0A3F or P0A43 detected? (current malfunction) | Perform the diagnosis according to DTC. <Ref. to HEV(diag)-78, DRIVE MOTOR CONTROL SYSTEM, LIST, List of Diagnostic Trouble Code (DTC).> | Go to step **3**. |

| Step | | Check | Yes | No |
|---|---|---|---|---|
| 3 | **CHECK HARNESS AND DRIVE MOTOR.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the DMCM connector (R442).<br>3) Using a tester, measure the resistance between terminals in DMCM connector.<br>***Connector & terminal***<br>***R1-R2***<br>***(R442) No. 6 — (R442) No. 17:***<br>***S1-S3***<br>***(R442) No. 10 — (R442) No. 8:***<br>***S2-S4***<br>***(R442) No. 9 — (R442) No. 7:*** | Is each resistance value as shown in below?<br>R1-R2: Is the value out of 7 — 23 Ω range?<br>or<br>S1-S3: Is the value out of 10 — 39 Ω range?<br>or<br>S2-S4: Is the value out of 11 — 40 Ω range? | Go to step **4**. | Go to step **5**. |
| 4 | **CHECK DRIVE MOTOR.**<br>1) Disconnect the drive motor assembly connector.<br>2) Using a tester, measure the resistance between terminals in the drive motor assembly connector.<br>***Connector & terminal***<br>***R1-R2***<br>***(T32) No. 14 — (T32) No. 15:***<br>***S1-S3***<br>***(T32) No. 9 — (T32) No. 10:***<br>***S2-S4***<br>***(T32) No. 12 — (T32) No. 11:*** | Is each resistance value as shown in below?<br>R1-R2: Is the value out of 7 — 23 Ω range?<br>or<br>S1-S3: Is the value out of 10 — 39 Ω range?<br>or<br>S2-S4: Is the value out of 11 — 40 Ω range? | Replace the drive motor assembly. <Ref. to CVT(TH58A)-217, Drive Motor Assembly.> | Repair the open circuit and short circuit to ground in harness between DMCM connector and drive motor assembly connector. |
| 5 | **CHECK HARNESS AND DRIVE MOTOR.**<br>Using a tester, measure the resistance between DMCM connector terminals and the ground bolt of inverter frame body.<br>***Connector & terminal***<br>***(R442) No. 6 — Ground bolt of inverter frame body:***<br>***(R442) No. 10 — Ground bolt of inverter frame body:***<br>***(R442) No. 9 — Ground bolt of inverter frame body:*** | Does the resistance between either two points show 1 MΩ or less? | Go to step **6**. | Go to step **7**. |
| 6 | **CHECK DRIVE MOTOR.**<br>1) Disconnect the drive motor assembly connector.<br>2) Using a tester, measure the resistance between the drive motor assembly connector and chassis ground.<br>***Connector & terminal***<br>***(T32) No. 14 — Chassis ground:***<br>***(T32) No. 9 — Chassis ground:***<br>***(T32) No. 12 — Chassis ground:*** | Does the resistance between either two points show 1 MΩ or less? | Replace the drive motor assembly. <Ref. to CVT(TH58A)-217, Drive Motor Assembly.> | Repair the short circuit to ground in harness between DMCM connector and drive motor assembly connector. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 7 | **CHECK HARNESS.**<br>1) Disconnect the drive motor assembly connector.<br>2) Using a tester, measure the resistance between terminals in the DMCM connector (R442, R443), between the terminals in the intermediate connector (R436), and between terminals in the drive motor assembly connector.<br>***Connector & terminal***<br>***(R442) No. 10 — (R442) No. 1 — 22 (except No. 8):***<br>***(R442) No. 10 — (R443) No. 1 — 26:***<br>***(R442) No. 10 — (R436) No. 1 — 8:***<br>***(R442) No. 8 — (R442) No. 1 — 22 (except No. 10):***<br>***(R442) No. 8 — (R443) No. 1 — 26:***<br>***(R442) No. 8 — (R436) No. 1 — 8:***<br>***(R442) No. 9 — (R442) No. 1 — 22 (except No. 7):***<br>***(R442) No. 9 — (R443) No. 1 — 26:***<br>***(R442) No. 9 — (R436) No. 1 — 8:***<br>***(R442) No. 7 — (R442) No. 1 — 22 (except No. 9):***<br>***(R442) No. 7 — (R443) No. 1 — 26:***<br>***(R442) No. 7 — (R436) No. 1 — 8:***<br>***(R442) No. 6 — (R442) No. 1 — 22 (except No. 17):***<br>***(R442) No. 6 — (R443) No. 1 — 26:***<br>***(R442) No. 6 — (R436) No. 1 — 8:***<br>***(R442) No. 17 — (R442) No. 1 — 22 (except No. 6):***<br>***(R442) No. 17 — (R443) No. 1 — 26:***<br>***(R442) No. 17 — (R436) No. 1 — 8:*** | Does the resistance between either two points show 1 MΩ or more? | Go to step **8**. | Repair the short circuit of harness between DMCM connector and drive motor assembly connector, or repair the intermediate connector. |
| 8 | **CHECK HARNESS.**<br>1) Disconnect the drive motor assembly connector.<br>2) Using a tester, measure the resistance between terminals in the drive motor assembly connector.<br>***Connector & terminal***<br>***(B603) No. 9 — (B603) No. 1 — 20 (except No. 10):***<br>***(B603) No. 10 — (B603) No. 1 — 20 (except No. 9):***<br>***(B603) No. 12 — (B603) No. 1 — 20 (except No. 11):***<br>***(B603) No. 11 — (B603) No. 1 — 20 (except No. 12):***<br>***(B603) No. 14 — (B603) No. 1 — 20 (except No. 15):***<br>***(B603) No. 15 — (B603) No. 1 — 20 (except No. 14):*** | Does the resistance between either two points show 1 MΩ or more? | Go to step **9**. | Repair the short circuit of harness between DMCM connector and drive motor assembly connector, or repair the intermediate connector. |

| Step | | Check | Yes | No |
|---|---|---|---|---|
| 9 | **CHECK DRIVE MOTOR.**<br>Using a tester, measure the resistance between terminals in the drive motor assembly connector.<br>***Connector & terminal***<br>***(T32) No. 9 — (T32) No. 1 — 20 (except No. 10):***<br>***(T32) No. 12 — (T32) No. 1 — 20 (except No. 11):***<br>***(T32) No. 14 — (T32) No. 1 — 20 (except No. 15):*** | Does the resistance between either two points show 1 MΩ or more? | Replace DMCM. <Ref. to CVT(TH58A)-157, Drive Motor Control Module.> | Replace the drive motor assembly. <Ref. to CVT(TH58A)-217, Drive Motor Assembly.> |

## AT:DTC P0C52 DRIVE MOTOR "A" POSITION SENSOR CIRCUIT "A" LOW

**DIAGNOSIS:**

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-68, DTC P0C52 DRIVE MOTOR "A" POSITION SENSOR CIRCUIT "A" LOW, Diagnostic Trouble Code (DTC) Detecting Criteria.>

NOTE:
For the diagnostic procedure, refer to “DTC P0A3F DRIVE MOTOR "A" POSITION SENSOR CIRCUIT”. <Ref. to HEV(diag)-166, DTC P0A3F DRIVE MOTOR "A" POSITION SENSOR CIRCUIT, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

## AU:DTC P0C5C DRIVE MOTOR "A" POSITION SENSOR CIRCUIT "B" LOW

**DIAGNOSIS:**

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-69, DTC P0C5C DRIVE MOTOR "A" POSITION SENSOR CIRCUIT "B" LOW, Diagnostic Trouble Code (DTC) Detecting Criteria.>

NOTE:
For the diagnostic procedure, refer to “DTC P0A3F DRIVE MOTOR "A" POSITION SENSOR CIRCUIT”. <Ref. to HEV(diag)-166, DTC P0A3F DRIVE MOTOR "A" POSITION SENSOR CIRCUIT, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

## AV:DTC P0CDC DRIVE MOTOR "A" POSITION SENSOR CIRCUIT "C" LOW

**DIAGNOSIS:**

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-71, DTC P0CDC DRIVE MOTOR "A" POSITION SENSOR CIRCUIT "C" LOW, Diagnostic Trouble Code (DTC) Detecting Criteria.>

NOTE:
For the diagnostic procedure, refer to “DTC P0A3F DRIVE MOTOR "A" POSITION SENSOR CIRCUIT”. <Ref. to HEV(diag)-166, DTC P0A3F DRIVE MOTOR "A" POSITION SENSOR CIRCUIT, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

## AW:DTC P0CDD DRIVE MOTOR "A" POSITION SENSOR CIRCUIT "C" HIGH

**DIAGNOSIS:**

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-72, DTC P0CDD DRIVE MOTOR "A" POSITION SENSOR CIRCUIT "C" HIGH, Diagnostic Trouble Code (DTC) Detecting Criteria.>

NOTE:
For the diagnostic procedure, refer to “DTC P0A3F DRIVE MOTOR "A" POSITION SENSOR CIRCUIT”. <Ref. to HEV(diag)-166, DTC P0A3F DRIVE MOTOR "A" POSITION SENSOR CIRCUIT, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

# AX:DTC P0A5D DRIVE MOTOR "A" PHASE U CURRENT

**DIAGNOSIS:**

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-39, DTC P0A5D DRIVE MOTOR "A" PHASE U CURRENT, Diagnostic Trouble Code (DTC) Detecting Criteria.>

**TROUBLE SYMPTOM:**

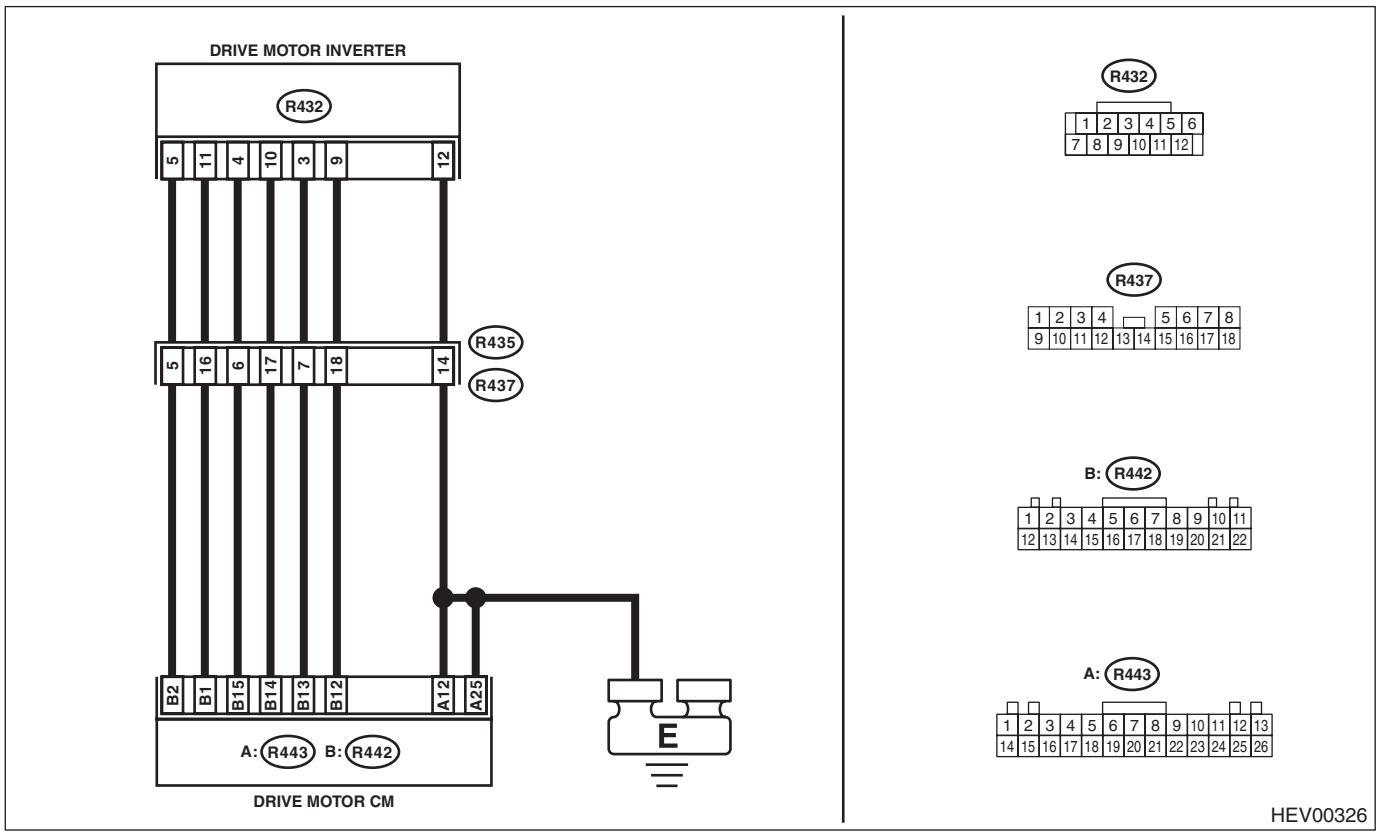
- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.

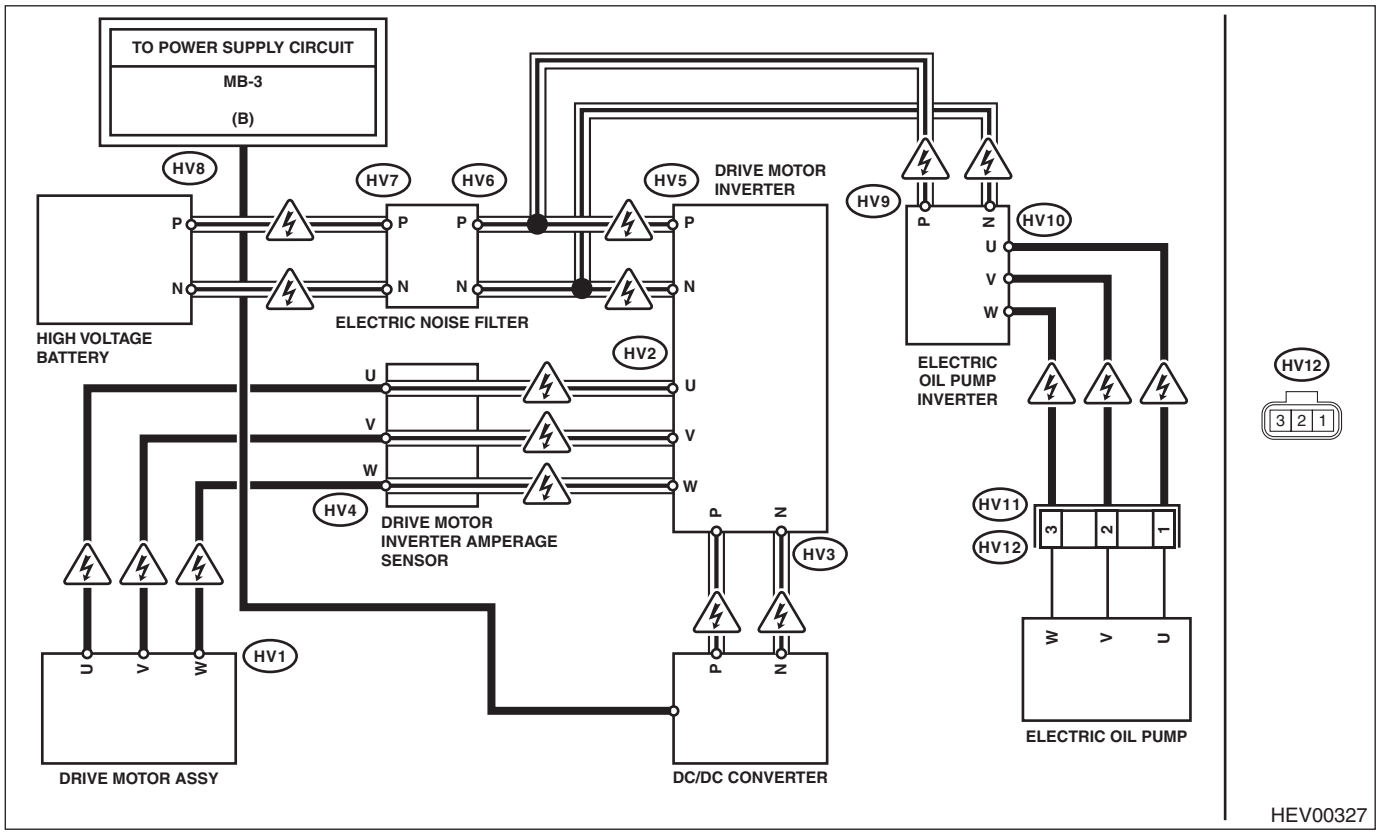
**CAUTION:**

**Before performing diagnosis, refer to “CAUTION” in “General Description”. <Ref. to HEV(diag)-8, CAUTION, General Description.>**

**WIRING DIAGRAM:**

Hybrid system <Ref. to WI(HEV)-140, WIRING DIAGRAM, Hybrid Electric Vehicle System.>






| Step | | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK DTC.**<br>Read the DTC. <Ref. to HEV(diag)-24, DRIVE MOTOR CONTROL SYSTEM, OPERATION, Read Diagnostic Trouble Code (DTC).> | Are any other DTCs detected? (current malfunction) | Perform the diagnosis according to DTC. <Ref. to HEV(diag)-78, DRIVE MOTOR CONTROL SYSTEM, LIST, List of Diagnostic Trouble Code (DTC).> | Go to step **2**. |
| 2 | **CHECK CURRENT DATA.**<br>Using the Subaru Select Monitor, confirm the current data of drive motor control system, the value of «Phase U Amperage Sensor Voltage». <Ref. to HEV(diag)-52, DRIVE MOTOR CONTROL SYSTEM, OPERATION, Read Current Data.> | Is the value 2.5 V ±0.1 V with IG ON? | Go to step **3**. | Perform the diagnosis according to DTC P0BE6 and P06B1. <Ref. to HEV(diag)-78, DRIVE MOTOR CONTROL SYSTEM, LIST, List of Diagnostic Trouble Code (DTC).> |

| Step | | Check | Yes | No |
|---|---|---|---|---|
| 3 | **CHECK HARNESS (GATE SIGNAL SHORT TO POWER AND SHORT IN OTHER SIGNAL LINES).**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the ground cable of the 12 volt auxiliary battery, and as for the 12 volt engine restart battery, disconnect the ground cable from the 12V engine restart battery sensor. <Ref. to NT-5, BATTERY, NOTE, Note.><br>3) Remove the service disconnect plug. <Ref. to HEV-15, Service Plug.><br>4) Wait for 10 minutes.<br>5) Disconnect the DMCM connector (R442, R443).<br>6) Disconnect the intermediate connector (R436).<br>7) Disconnect the drive motor inverter connector.<br>8) Using a tester, measure the resistance between terminals in DMCM connectors (R442, R443) and between each terminal in inverter connector.<br>***Connector & terminal***<br>***(R442) No. 2 — (R442) No. 1 — 22:***<br>***(R442) No. 2 — (R443) No. 1 — 26:***<br>***(R442) No. 2 — (R436) No. 1 — 8:***<br>***(R442) No. 2 — (R432) No. 7:***<br>***(R442) No. 1 — (R442) No. 1 — 22:***<br>***(R442) No. 1 — (R443) No. 1 — 26:***<br>***(R442) No. 1 — (R436) No. 1 — 8:***<br>***(R442) No. 1 — (R432) No. 7:***<br>***(R442) No. 15 — (R442) No. 1 — 22:***<br>***(R442) No. 15 — (R443) No. 1 — 26:***<br>***(R442) No. 15 — (R436) No. 1 — 8:***<br>***(R442) No. 15 — (R432) No. 7:***<br>***(R442) No. 14 — (R442) No. 1 — 22:***<br>***(R442) No. 14 — (R443) No. 1 — 26:***<br>***(R442) No. 14 — (R436) No. 1 — 8:***<br>***(R442) No. 14 — (R432) No. 7:***<br>***(R442) No. 13 — (R442) No. 1 — 22:***<br>***(R442) No. 13 — (R443) No. 1 — 26:***<br>***(R442) No. 13 — (R436) No. 1 — 8:***<br>***(R442) No. 13 — (R432) No. 7:***<br>***(R442) No. 12 — (R442) No. 1 — 22:***<br>***(R442) No. 12 — (R443) No. 1 — 26:***<br>***(R442) No. 12 — (R436) No. 1 — 8:***<br>***(R442) No. 12 — (R432) No. 7:*** | Is the resistance 1 MΩ or more? | Go to step **4**. | Repair short circuit in harness between DMCM connector and drive motor inverter, or repair the intermediate connector. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 4 | **CHECK DRIVE MOTOR INVERTER (INTERNAL SHORT).**<br>1) Disconnects power cable terminals (HV2, HV3) of the drive motor inverter and bus bar (HV5).<br>NOTE:<br>Be sure to use insulating tape.<br>2) Using a tester, check for continuity between drive motor inverter terminals.<br>NOTE:<br>When checking continuity, always follow the combinations as follows with correct polarities. If polarities are reversed when checking, the trouble may not be accurately diagnosed.<br>***Connector & terminal***<br>***(HV5) P (+) — (HV2) U (–):***<br>***(HV2) U (+) — (HV5) N (–):***<br>***(HV5) P (+) — (HV2) V (–):***<br>***(HV2) V (+) — (HV5) N (–):***<br>***(HV5) P (+) — (HV2) W (–):***<br>***(HV2) W (+) — (HV5) N (–):***<br>***(HV5) P (+) — (HV5) N (–):***<br>***(HV2) U (+) — (HV2) V (–):***<br>***(HV2) U (+) — (HV2) W (–):***<br>***(HV2) V (+) — (HV2) W (–):***<br>***(HV5) P (+) — Chassis ground (–):***<br>***(HV5) N (+) — Chassis ground (–):***<br>***(HV2) U (+) — Chassis ground (–):***<br>***(HV2) V (+) — Chassis ground (–):***<br>***(HV2) W (+) — Chassis ground (–):*** | Is there continuity? | Replace the drive motor inverter. <Ref. to HEV-42, Inverter.><br>Go to step **13**. | Go to step **5**. |
| 5 | **CHECK DRIVE MOTOR INVERTER (RELEASED).**<br>Using diode voltage measuring mode on an insulation multimeter, measure the voltage between the terminals of the drive motor inverter.<br>NOTE:<br>When checking voltage values, always follow the combinations as follows with correct polarities. If polarities are reversed when checking, the trouble may not be accurately diagnosed.<br>***Connector & terminal***<br>***(HV2) U (+) — (HV5) P (–):***<br>***(HV5) N (+) — (HV2) U (–):***<br>***(HV2) V (+) — (HV5) P (–):***<br>***(HV5) N (+) — (HV2) V (–):***<br>***(HV2) W (+) — (HV5) P (–):***<br>***(HV5) N (+) — (HV2) W (–):*** | Is “O.L” indicated? | Replace the drive motor inverter. <Ref. to HEV-42, Inverter.><br>Go to step **13**. | Go to step **6**. |

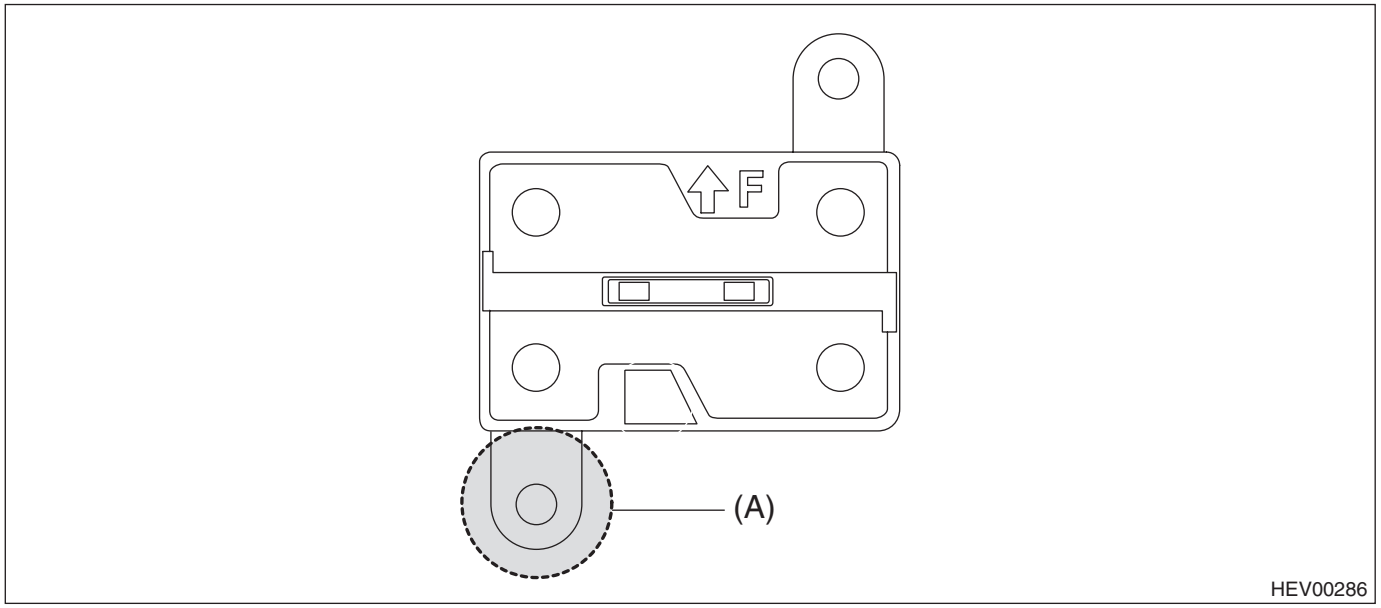
| Step | | Check | Yes | No |
|---|---|---|---|---|
| 6 | **CHECK HIGH VOLTAGE UNIT (SHORT).**<br>1) Remove electric noise filter, DC/DC converter, and electric oil pump inverter.<br>2) Check continuity between each terminal of the unit.<br>NOTE:<br>• When checking voltage values, always follow the combinations as follows with correct polarities. If polarities are reversed when checking, the trouble may not be accurately diagnosed.<br>• For ground measuring points of electric noise filter, DC/DC converter, and electric oil pump inverter, refer to Notes in the margin.<br>***Connector & terminal***<br>***(HV6) P (+) — (HV7) N (–):***<br>***(HV6) P (+) — Electric noise filter ground (–):***<br>***(HV6) N (+) — Electric noise filter ground (–):***<br>***(HV3) P (+) — (HV3) N (–):***<br>***(HV3) P (+) — DC/DC converter ground (–) :***<br>***(HV3) N (+) — DC/DC converter ground (–):***<br>***(HV9) P (+) — (HV9) N (–):***<br>***(HV9) P (+) — (HV10) U (–):***<br>***(HV9) P (+) — (HV10) V (–):***<br>***(HV9) P (+) — (HV10) W (–):***<br>***(HV10) U (+) — (HV9) N (–):***<br>***(HV10) V (+) — (HV9) N (–):***<br>***(HV10) W (+) — (HV9) N (–):***<br>***(HV10) U (+) — (HV10) V (–):***<br>***(HV10) U (+) — (HV10) W (–):***<br>***(HV10) V (+) — (HV10) W (–):***<br>***(HV9) P (+) — Electric oil pump inverter ground (–):***<br>***(HV9) N (+) — Electric oil pump inverter ground (–):***<br>***(HV10) U (+) — Electric oil pump inverter ground (–):***<br>***(HV10) V (+) — Electric oil pump inverter ground (–) :***<br>***(HV10) W (+) — Electric oil pump inverter ground (–):***<br>***(HV8) P (+) — (HV8) N (–):***<br>***(HV8) P (+) — Chassis ground (–):***<br>***(HV8) N (+) — Chassis ground (–):*** | Is there continuity? | Replace the unit that has continuity. Go to step **13**. | Go to step **7**. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 7 | **CHECK POWER CABLE AND DRIVE MOTOR (SHORT TO GROUND).**<br>Using an insulation multimeter (250 V range), measure the resistance between power cable terminal (HV2) of the drive motor inverter and the ground bolt of inverter frame body.<br>***Connector & terminal***<br>***(HV2) U — Ground bolt of inverter frame body:***<br>***(HV2) V — Ground bolt of inverter frame body:***<br>***(HV2) W — Ground bolt of inverter frame body:*** | Is the resistance 2 MΩ or more? | If you have a milliohm tester at hand, Go to step **8**. If a milliohm tester is not at hand, Go to step **11**. | Go to step **9**. |
| 8 | **CHECK POWER CABLE AND DRIVE MOTOR (SHORT).**<br>Using a milliohm tester, measure the resistance between terminals of drive motor inverter power cable.<br>***Connector & terminal***<br>***(HV2) U — (HV2) V:***<br>***(HV2) U — (HV2) W:***<br>***(HV2) V — (HV2) W:*** | Is resistance between either lines less than 25 mΩ? | Go to step **10**. | Replace DMCM. <Ref. to CVT(TH58A)-157, Drive Motor Control Module.> |
| 9 | **CHECK DRIVE MOTOR (SHORT TO GROUND).**<br>1) Leave the vehicle under temperature of 40°C (104°F) or less for 10 minutes.<br>2) Disconnect the drive motor power cable (HV1).<br>NOTE:<br>The gasket is not reusable.<br>3) Using an insulation multimeter (250 V range), measure the resistance between each terminal and chassis ground.<br>***Connector & terminal***<br>***(HV1) U — Chassis ground:***<br>***(HV1) V — Chassis ground:***<br>***(HV1) W — Chassis ground:*** | Does the resistance between any points show less than 2 MΩ? | Replace the drive motor assembly. <Ref. to CVT(TH58A)-217, Drive Motor Assembly.> | Repair or replace the short circuit of the power cable. Go to step **13**. |
| 10 | **CHECK DRIVE MOTOR (SHORT).**<br>1) Leave the vehicle under temperature of 40°C (104°F) or less for 10 minutes.<br>2) Disconnect the drive motor power cable (HV1).<br>NOTE:<br>The gasket is not reusable.<br>3) Using a milliohm tester, measure the resistance between power cable terminals.<br>***Connector & terminal***<br>***(HV1) U — (HV1) V:***<br>***(HV1) U — (HV1) W:***<br>***(HV1) V — (HV1) W:*** | Is resistance between either lines less than 20 mΩ? | Replace the drive motor assembly. <Ref. to CVT(TH58A)-217, Drive Motor Assembly.> | Repair or replace the short circuit of the power cable. Go to step **13**. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 11 | **CHECK DRIVE MOTOR (SHORT).**<br>1) Replace the removed/disconnected parts back to the vehicle.<br>2) With the 12 V battery connected, remove the service disconnect plug. <Ref. to HEV-15, Service Plug.><br>**CAUTION:**<br>**Watch for an electrical short at each harness because the 12 V battery is connected.**<br>3) Lift up the vehicle.<br>4) Start the engine, and set the shift lever to "D" range.<br>5) Using the Subaru Select Monitor, confirm the current data of drive motor control system, the values of «A/T Oil Temperature» «Drive Motor Speed» «Drive Motor Inverter Input High Voltage Sensor (Serial)». <Ref. to HEV(diag)-52, DRIVE MOTOR CONTROL SYSTEM, OPERATION, Read Current Data.> | Are any of the following statements relevant?<br>•«Drive Motor Inverter Input High Voltage Sensor (Serial)» is out of the standard specified in Note when «ATF Temperature» is 20 — 60°C (68 — 140°F) and «Drive Motor Speed» is 600 — 1400 rpm.<br>•Abnormal noise and changes in rotation speed occur near 600 rpm. | Go to step **12**. | Replace DMCM. <Ref. to CVT(TH58A)-157, Drive Motor Control Module.> |
| 12 | **CHECK POWER CABLE (SHORT).**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the ground cable of the 12 volt auxiliary battery, and as for the 12 volt engine restart battery, disconnect the ground cable from the 12V engine restart battery sensor. <Ref. to NT-5, BATTERY, NOTE, Note.><br>3) Remove the service disconnect plug. <Ref. to HEV-15, Service Plug.><br>4) Wait for 10 minutes.<br>5) Disconnect the drive motor power cable (HV1).<br>NOTE:<br>The gasket is not reusable.<br>6) Disconnect the power cable (HV2) of drive motor inverter.<br>7) Using an insulation multimeter (250 V range), measure the resistance between power cable terminals.<br>***Connector & terminal***<br>***(HV2) U — (HV2) V:***<br>***(HV2) U — (HV2) W:***<br>***(HV2) V — (HV2) W:*** | Does the resistance between any points show 2 MΩ or more? | Replace the drive motor assembly. <Ref. to CVT(TH58A)-217, Drive Motor Assembly.> | Repair or replace the short circuit of the power cable. Go to step **13**. |

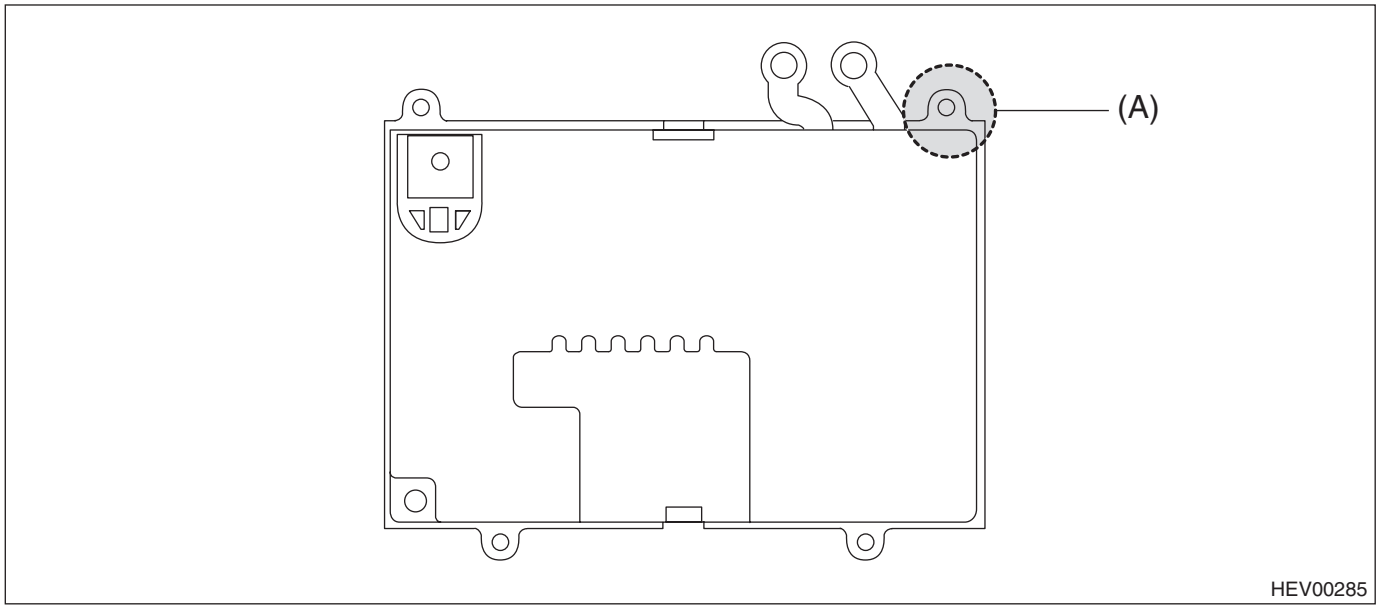
| | Step | Check | Yes | No |
|---|---|---|---|---|
| 13 | **CHECK OF DRIVE MOTOR (DEMAGNETIZATION).**<br>1) Replace the removed/disconnected parts back to the vehicle.<br>2) With the 12 V battery connected, remove the service disconnect plug. <Ref. to HEV-15, Service Plug.><br>**CAUTION:**<br>**Watch for an electrical short at each harness because the 12 V battery is connected.**<br>3) Lift up the vehicle.<br>4) Start the engine, and set the shift lever to "D" range.<br>5) Using the Subaru Select Monitor, confirm the current data of drive motor control system, the values of «A/T Oil Temperature» «Drive Motor Speed» «Drive Motor Inverter Input High Voltage Sensor (Serial)». <Ref. to HEV(diag)-52, DRIVE MOTOR CONTROL SYSTEM, OPERATION, Read Current Data.> | «Drive Motor Inverter Input High Voltage Sensor (Serial)» is within the standard specified in Note when «ATF Temperature» is 20 — 60°C (68 — 140°F) and «Drive Motor Speed» is 600 — 1400 rpm. | Even if DTC is detected, the circuit has returned to a normal condition at this time. Reproduce the failure, and then perform the diagnosis again.<br>NOTE:<br>In this case, temporary poor contact of connector, temporary open or short circuit of harness may be the cause. | Replace the drive motor assembly. <Ref. to CVT(TH58A)-217, Drive Motor Assembly.> |

NOTE:
Ground measuring points
- Electric noise filter



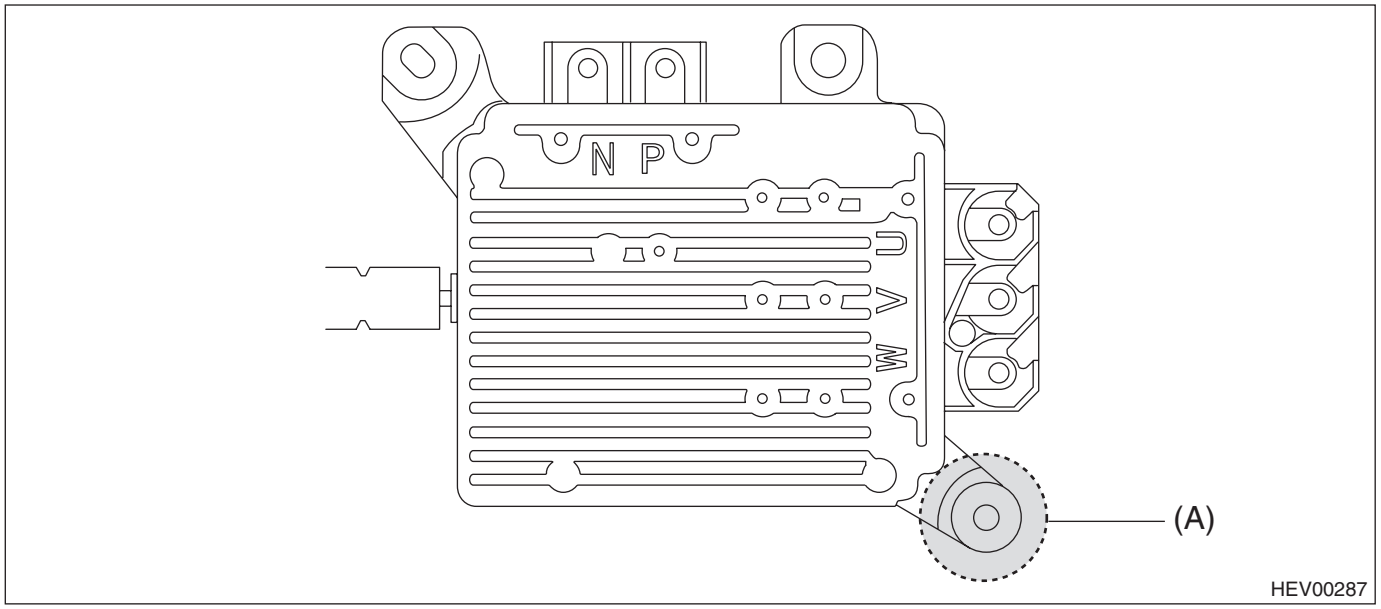

(A) Ground measuring points

- DC/DC converter




(A) Ground measuring points

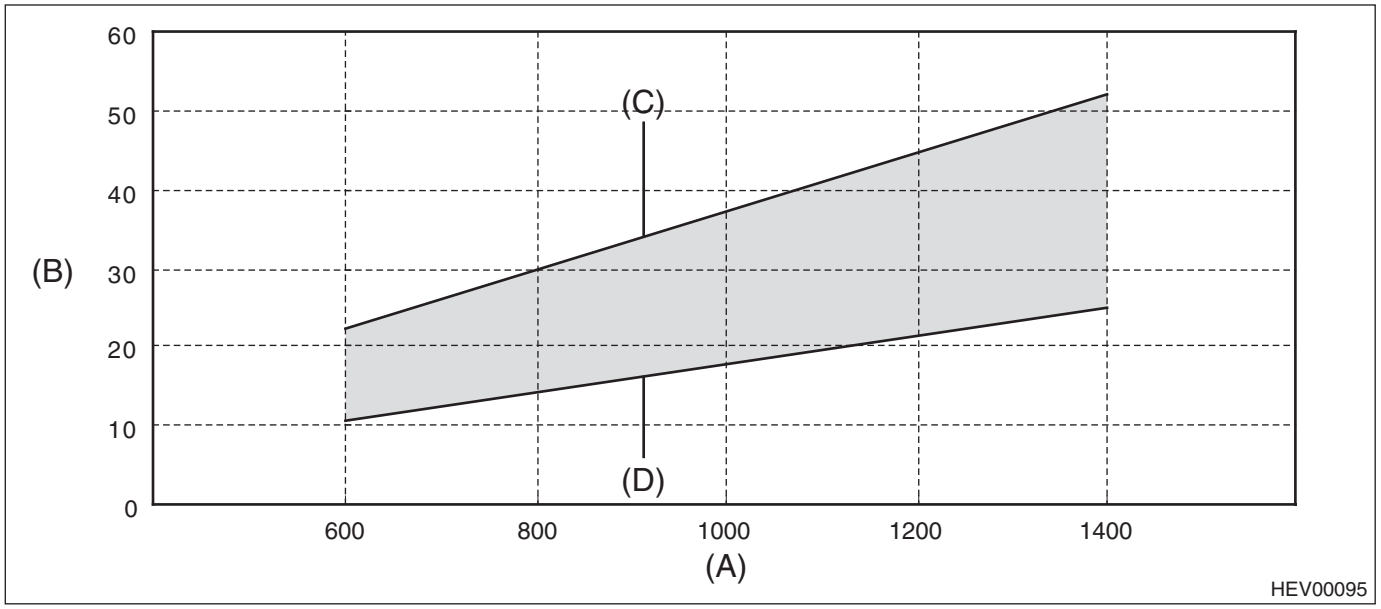
- Electric oil pump inverter




(A) Ground measuring points

NOTE:
Value of «Drive Motor Inverter Input High Voltage Sensor (Serial)» is proportional to «Drive Motor Speed».
- 1000 rpm: 18 V — 37 V

- 1400 rpm: 25 V — 52 V




(A) Drive motor speed
(B) Drive Motor Inverter Input High Voltage Sensor (Serial)
(C) Standard at Max.
(D) Standard at Min.

# AY:DTC P0A60 DRIVE MOTOR "A" PHASE V CURRENT

**DIAGNOSIS:**

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-40, DTC P0A60 DRIVE MOTOR "A" PHASE V CURRENT, Diagnostic Trouble Code (DTC) Detecting Criteria.>

**TROUBLE SYMPTOM:**

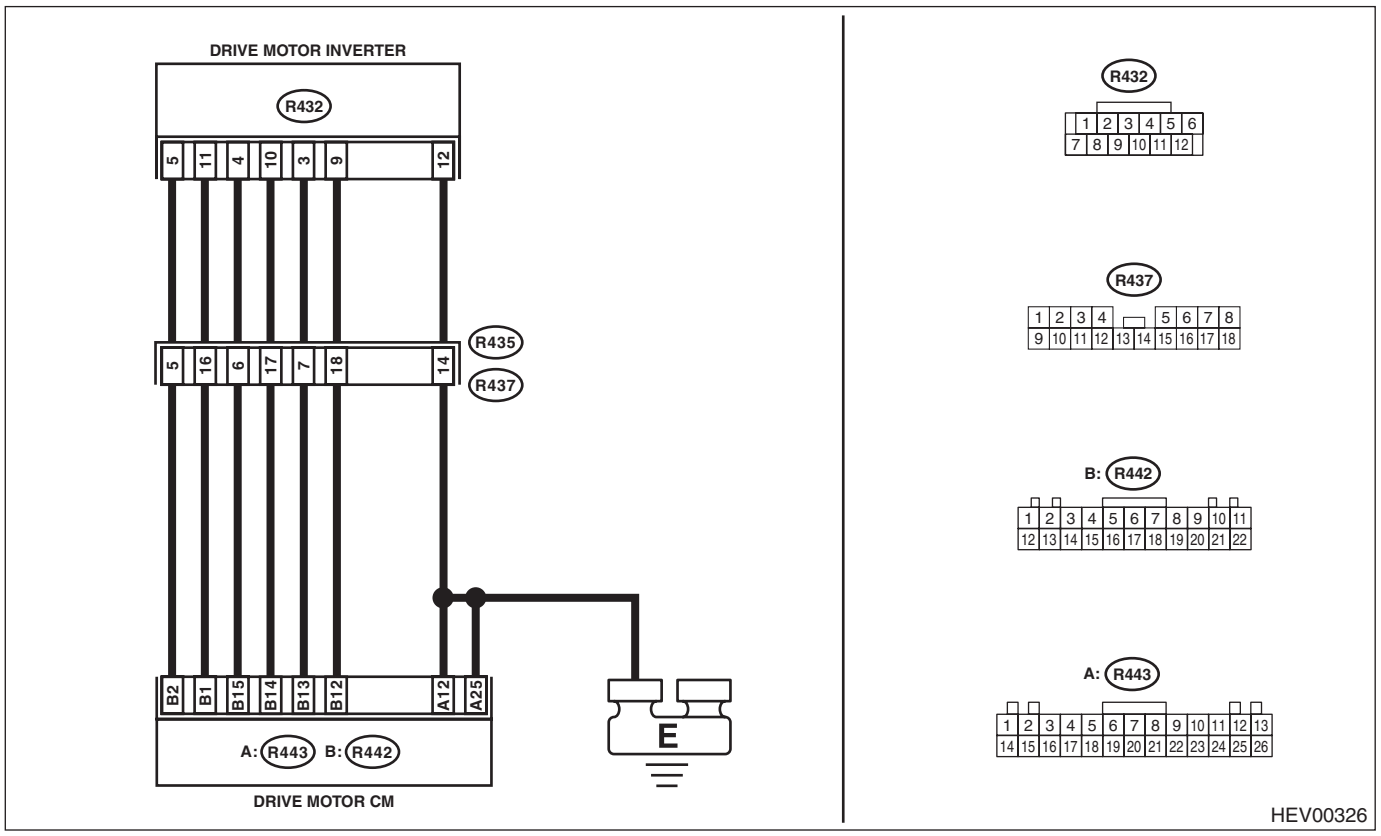
- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.

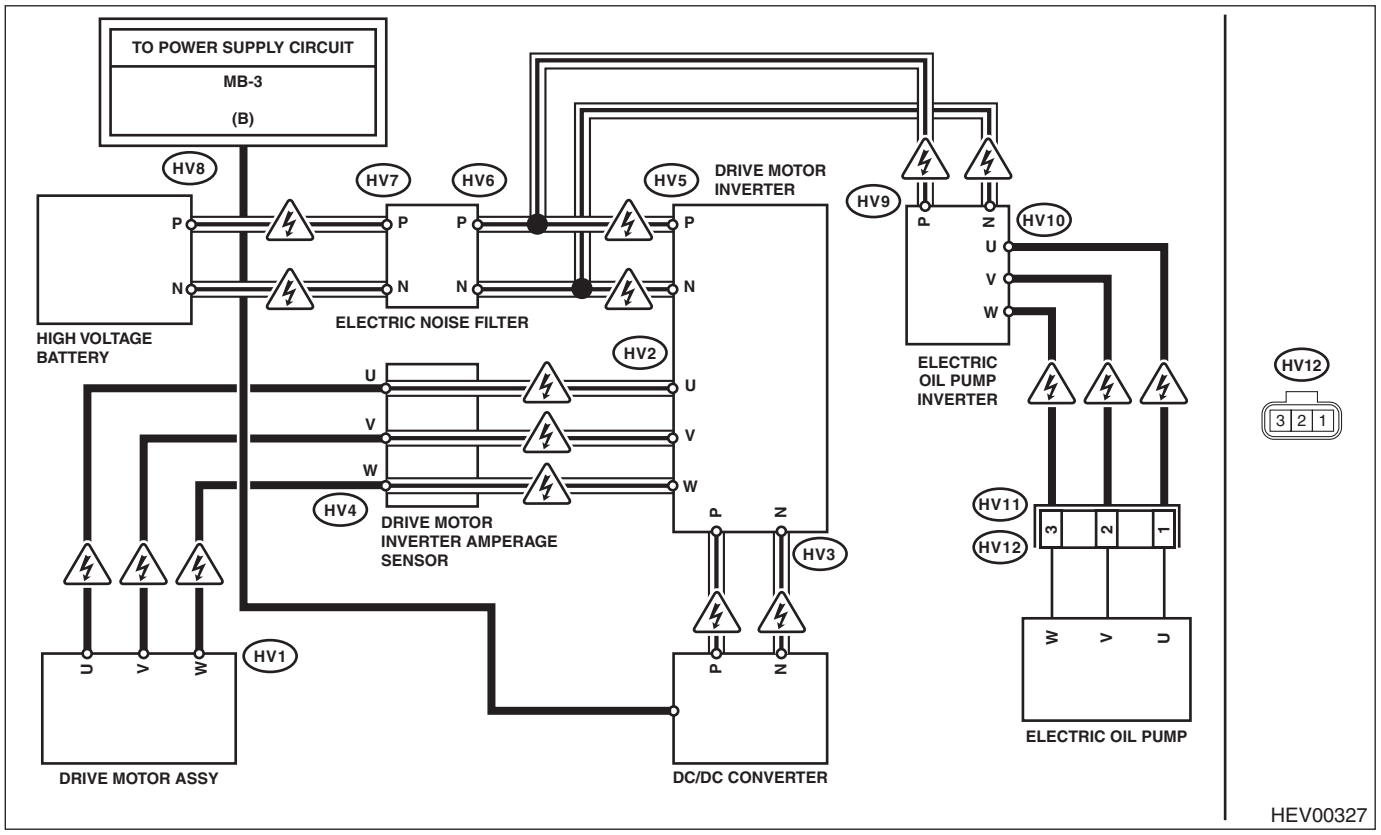
**CAUTION:**

**Before performing diagnosis, refer to “CAUTION” in “General Description”. <Ref. to HEV(diag)-8, CAUTION, General Description.>**

**WIRING DIAGRAM:**

Hybrid system <Ref. to WI(HEV)-140, WIRING DIAGRAM, Hybrid Electric Vehicle System.>






| Step | | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK DTC.**<br>Read the DTC. <Ref. to HEV(diag)-24, DRIVE MOTOR CONTROL SYSTEM, OPERATION, Read Diagnostic Trouble Code (DTC).> | Is DTC P0A78 detected? (current malfunction) | Perform the diagnosis according to DTC. <Ref. to HEV(diag)-78, DRIVE MOTOR CONTROL SYSTEM, LIST, List of Diagnostic Trouble Code (DTC).> | Go to step **2**. |
| 2 | **CHECK CURRENT DATA.**<br>Using the Subaru Select Monitor, confirm the current data of drive motor control system, the value of «Phase V Amperage Sensor Voltage». <Ref. to HEV(diag)-52, DRIVE MOTOR CONTROL SYSTEM, OPERATION, Read Current Data.> | Is the value 2.5 V ±0.1 V with IG ON? | Go to step **3**. | Perform the diagnosis according to DTC P0BE6 and P06B1. <Ref. to HEV(diag)-78, DRIVE MOTOR CONTROL SYSTEM, LIST, List of Diagnostic Trouble Code (DTC).> |

| Step | | Check | Yes | No |
|---|---|---|---|---|
| 3 | **CHECK HARNESS (GATE SIGNAL SHORT TO POWER AND SHORT IN OTHER SIGNAL LINES).**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the ground cable of the 12 volt auxiliary battery, and as for the 12 volt engine restart battery, disconnect the ground cable from the 12V engine restart battery sensor. <Ref. to NT-5, BATTERY, NOTE, Note.><br>3) Remove the service disconnect plug. <Ref. to HEV-15, Service Plug.><br>4) Wait for 10 minutes.<br>5) Disconnect the DMCM connector (R442, R443).<br>6) Disconnect the intermediate connector (R436).<br>7) Disconnect the drive motor inverter connector.<br>8) Using a tester, measure the resistance between terminals in DMCM connectors (R442, R443) and between each terminal in inverter connector.<br>***Connector & terminal***<br>***(R442) No. 2 — (R442) No. 1 — 22:***<br>***(R442) No. 2 — (R443) No. 1 — 26:***<br>***(R442) No. 2 — (R436) No. 1 — 8:***<br>***(R442) No. 2 — (R432) No. 7:***<br>***(R442) No. 1 — (R442) No. 1 — 22:***<br>***(R442) No. 1 — (R443) No. 1 — 26:***<br>***(R442) No. 1 — (R436) No. 1 — 8:***<br>***(R442) No. 1 — (R432) No. 7:***<br>***(R442) No. 15 — (R442) No. 1 — 22:***<br>***(R442) No. 15 — (R443) No. 1 — 26:***<br>***(R442) No. 15 — (R436) No. 1 — 8:***<br>***(R442) No. 15 — (R432) No. 7:***<br>***(R442) No. 14 — (R442) No. 1 — 22:***<br>***(R442) No. 14 — (R443) No. 1 — 26:***<br>***(R442) No. 14 — (R436) No. 1 — 8:***<br>***(R442) No. 14 — (R432) No. 7:***<br>***(R442) No. 13 — (R442) No. 1 — 22:***<br>***(R442) No. 13 — (R443) No. 1 — 26:***<br>***(R442) No. 13 — (R436) No. 1 — 8:***<br>***(R442) No. 13 — (R432) No. 7:***<br>***(R442) No. 12 — (R442) No. 1 — 22:***<br>***(R442) No. 12 — (R443) No. 1 — 26:***<br>***(R442) No. 12 — (R436) No. 1 — 8:***<br>***(R442) No. 12 — (R432) No. 7:*** | Does the resistance between either two points show 1 MΩ or more? | Go to step **4**. | Repair short circuit in harness between DMCM connector and drive motor inverter, or repair the intermediate connector. |

| Step | | Check | Yes | No |
|---|---|---|---|---|
| 4 | **CHECK DRIVE MOTOR INVERTER (INTERNAL SHORT).**<br>1) Disconnects power cable terminals (HV2, HV3) of the drive motor inverter and bus bar (HV5).<br>NOTE:<br>Be sure to use insulating tape.<br>2) Using a tester, check for continuity between drive motor inverter terminals.<br>NOTE:<br>When checking continuity, always follow the combinations as follows with correct polarities. If polarities are reversed when checking, the trouble may not be accurately diagnosed.<br>***Connector & terminal***<br>***(HV5) P (+) — (HV2) U (–):***<br>***(HV2) U (+) — (HV5) N (–):***<br>***(HV5) P (+) — (HV2) V (–):***<br>***(HV2) V (+) — (HV5) N (–):***<br>***(HV5) P (+) — (HV2) W (–):***<br>***(HV2) W (+) — (HV5) N (–):***<br>***(HV5) P (+) — (HV5) N (–):***<br>***(HV2) U (+) — (HV2) V (–):***<br>***(HV2) U (+) — (HV2) W (–):***<br>***(HV2) V (+) — (HV2) W (–):***<br>***(HV5) P (+) — Chassis ground (–):***<br>***(HV5) N (+) — Chassis ground (–):***<br>***(HV2) U (+) — Chassis ground (–):***<br>***(HV2) V (+) — Chassis ground (–):***<br>***(HV2) W (+) — Chassis ground (–):*** | Is there continuity? | Replace the drive motor inverter. <Ref. to HEV-42, Inverter.><br>Go to step **13**. | Go to step **5**. |
| 5 | **CHECK DRIVE MOTOR INVERTER (RELEASED).**<br>Using diode voltage measuring mode on an insulation multimeter, measure the voltage between the terminals of the drive motor inverter.<br>NOTE:<br>When checking voltage values, always follow the combinations as follows with correct polarities. If polarities are reversed when checking, the trouble may not be accurately diagnosed.<br>***Connector & terminal***<br>***(HV2) U (+) — (HV5) P (–):***<br>***(HV5) N (+) — (HV2) U (–):***<br>***(HV2) V (+) — (HV5) P (–):***<br>***(HV5) N (+) — (HV2) V (–):***<br>***(HV2) W (+) — (HV5) P (–):***<br>***(HV5) N (+) — (HV2) W (–):*** | Is “O.L” indicated? | Replace the drive motor inverter. <Ref. to HEV-42, Inverter.><br>Go to step **13**. | Go to step **6**. |

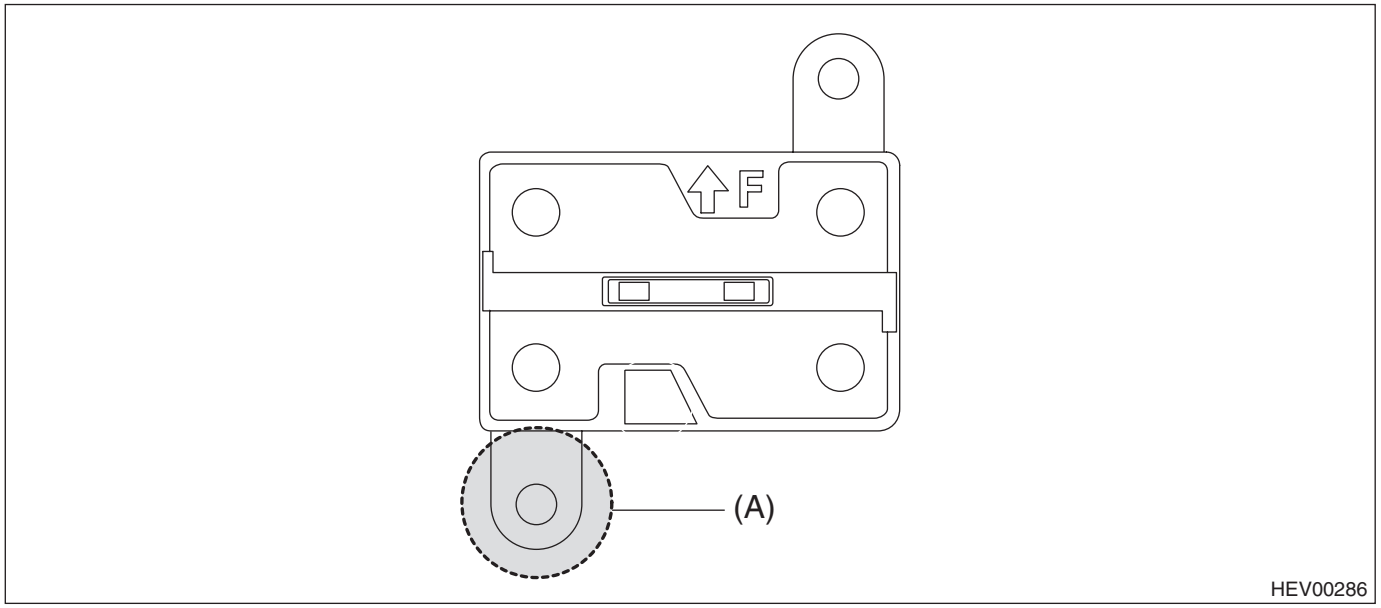
| Step | | Check | Yes | No |
|---|---|---|---|---|
| 6 | **CHECK HIGH VOLTAGE UNIT (SHORT).**<br>1) Remove electric noise filter, DC/DC converter, and electric oil pump inverter.<br>2) Check continuity between each terminal of the unit.<br>NOTE:<br>• When checking voltage values, always follow the combinations as follows with correct polarities. If polarities are reversed when checking, the trouble may not be accurately diagnosed.<br>• For ground measuring points of electric noise filter, DC/DC converter, and electric oil pump inverter, refer to Notes in the margin.<br>***Connector & terminal***<br>***(HV6) P (+) — (HV7) N (–):***<br>***(HV6) P (+) — Electric noise filter ground (–):***<br>***(HV6) N (+) — Electric noise filter ground (–):***<br>***(HV3) P (+) — (HV3) N (–):***<br>***(HV3) P (+) — DC/DC converter ground (–) :***<br>***(HV3) N (+) — DC/DC converter ground (–):***<br>***(HV9) P (+) — (HV9) N (–):***<br>***(HV9) P (+) — (HV10) U (–):***<br>***(HV9) P (+) — (HV10) V (–):***<br>***(HV9) P (+) — (HV10) W (–):***<br>***(HV10) U (+) — (HV9) N (–):***<br>***(HV10) V (+) — (HV9) N (–):***<br>***(HV10) W (+) — (HV9) N (–):***<br>***(HV10) U (+) — (HV10) V (–):***<br>***(HV10) U (+) — (HV10) W (–):***<br>***(HV10) V (+) — (HV10) W (–):***<br>***(HV9) P (+) — Electric oil pump inverter ground (–):***<br>***(HV9) N (+) — Electric oil pump inverter ground (–):***<br>***(HV10) U (+) — Electric oil pump inverter ground (–):***<br>***(HV10) V (+) — Electric oil pump inverter ground (–) :***<br>***(HV10) W (+) — Electric oil pump inverter ground (–):***<br>***(HV8) P (+) — (HV8) N (–):***<br>***(HV8) P (+) — Chassis ground (–):***<br>***(HV8) N (+) — Chassis ground (–):*** | Is there continuity? | Replace the unit that has continuity. Go to step **13**. | Go to step **7**. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 7 | **CHECK POWER CABLE AND DRIVE MOTOR (SHORT TO GROUND).**<br>Using an insulation multimeter (250 V range), measure the resistance between power cable terminal (HV2) of the drive motor inverter and the ground bolt of inverter frame body.<br>***Connector & terminal***<br>***(HV2) U — Ground bolt of inverter frame body:***<br>***(HV2) V — Ground bolt of inverter frame body:***<br>***(HV2) W — Ground bolt of inverter frame body:*** | Is the resistance 2 MΩ or more? | If you have a milliohm tester at hand, Go to step **8**. If a milliohm tester is not at hand, Go to step **11**. | Go to step **9**. |
| 8 | **CHECK POWER CABLE AND DRIVE MOTOR (SHORT).**<br>Using a milliohm tester, measure the resistance between terminals of drive motor inverter power cable.<br>***Connector & terminal***<br>***(HV2) U — (HV2) V:***<br>***(HV2) U — (HV2) W:***<br>***(HV2) V — (HV2) W:*** | Is resistance between either lines less than 25 mΩ? | Go to step **10**. | Replace DMCM. <Ref. to CVT(TH58A)-157, Drive Motor Control Module.> |
| 9 | **CHECK DRIVE MOTOR (SHORT TO GROUND).**<br>1) Leave the vehicle under temperature of 40°C (104°F) or less for 10 minutes.<br>2) Disconnect the drive motor power cable (HV1).<br>NOTE:<br>The gasket is not reusable.<br>3) Using an insulation multimeter (250 V range), measure the resistance between each terminal and chassis ground.<br>***Connector & terminal***<br>***(HV1) U — Chassis ground:***<br>***(HV1) V — Chassis ground:***<br>***(HV1) W — Chassis ground:*** | Does the resistance between any points show less than 2 MΩ? | Replace the drive motor assembly. <Ref. to CVT(TH58A)-217, Drive Motor Assembly.> | Repair or replace the short circuit of the power cable. Go to step **13**. |
| 10 | **CHECK DRIVE MOTOR (SHORT).**<br>1) Leave the vehicle under temperature of 40°C (104°F) or less for 10 minutes.<br>2) Disconnect the drive motor power cable (HV1).<br>NOTE:<br>The gasket is not reusable.<br>3) Using a milliohm tester, measure the resistance between power cable terminals.<br>***Connector & terminal***<br>***(HV1) U — (HV1) V:***<br>***(HV1) U — (HV1) W:***<br>***(HV1) V — (HV1) W:*** | Is resistance between either lines less than 20 mΩ? | Replace the drive motor assembly. <Ref. to CVT(TH58A)-217, Drive Motor Assembly.> | Repair or replace the short circuit of the power cable. Go to step **13**. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 11 | **CHECK DRIVE MOTOR (SHORT).**<br>1) Replace the removed/disconnected parts back to the vehicle.<br>2) With the 12 V battery connected, remove the service disconnect plug. <Ref. to HEV-15, Service Plug.><br>**CAUTION:**<br>**Watch for an electrical short at each harness because the 12 V battery is connected.**<br>3) Lift up the vehicle.<br>4) Start the engine, and set the shift lever to "D" range.<br>5) Using the Subaru Select Monitor, confirm the current data of drive motor control system, the values of «A/T Oil Temperature» «Drive Motor Speed» «Drive Motor Inverter Input High Voltage Sensor (Serial)». <Ref. to HEV(diag)-52, DRIVE MOTOR CONTROL SYSTEM, OPERATION, Read Current Data.> | Are any of the following statements relevant?<br>•«Drive Motor Inverter Input High Voltage Sensor (Serial)» is out of the standard specified in Note when «ATF Temperature» is 20 — 60°C (68 — 140°F) and «Drive Motor Speed» is 600 — 1400 rpm.<br>•Abnormal noise and changes in rotation speed occur near 600 rpm. | Go to step **12**. | Replace DMCM. <Ref. to CVT(TH58A)-157, Drive Motor Control Module.> |
| 12 | **CHECK POWER CABLE (SHORT).**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the ground cable of the 12 volt auxiliary battery, and as for the 12 volt engine restart battery, disconnect the ground cable from the 12V engine restart battery sensor. <Ref. to NT-5, BATTERY, NOTE, Note.><br>3) Remove the service disconnect plug. <Ref. to HEV-15, Service Plug.><br>4) Wait for 10 minutes.<br>5) Disconnect the drive motor power cable (HV1).<br>NOTE:<br>The gasket is not reusable.<br>6) Disconnect the power cable (HV2) of drive motor inverter.<br>7) Using an insulation multimeter (250 V range), measure the resistance between power cable terminals.<br>***Connector & terminal***<br>***(HV2) U — (HV2) V:***<br>***(HV2) U — (HV2) W:***<br>***(HV2) V — (HV2) W:*** | Does the resistance between any points show 2 MΩ or more? | Replace the drive motor assembly. <Ref. to CVT(TH58A)-217, Drive Motor Assembly.> | Repair or replace the short circuit of the power cable. Go to step **13**. |

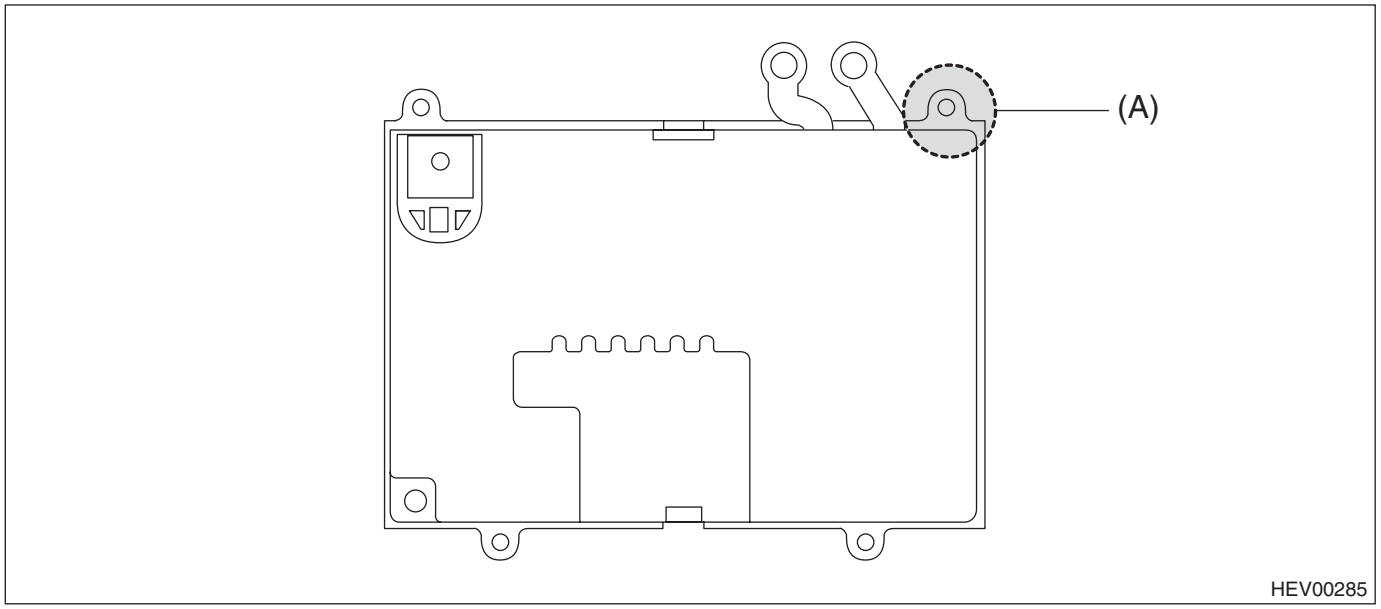
| | Step | Check | Yes | No |
|---|---|---|---|---|
| 13 | **CHECK OF DRIVE MOTOR (DEMAGNETIZATION).**<br>1) Replace the removed/disconnected parts back to the vehicle.<br>2) With the 12 V battery connected, remove the service disconnect plug. <Ref. to HEV-15, Service Plug.><br>**CAUTION:**<br>**Watch for an electrical short at each harness because the 12 V battery is connected.**<br>3) Lift up the vehicle.<br>4) Start the engine, and set the shift lever to "D" range.<br>5) Using the Subaru Select Monitor, confirm the current data of drive motor control system, the values of «A/T Oil Temperature» «Drive Motor Speed» «Drive Motor Inverter Input High Voltage Sensor (Serial)». <Ref. to HEV(diag)-52, DRIVE MOTOR CONTROL SYSTEM, OPERATION, Read Current Data.> | «Drive Motor Inverter Input High Voltage Sensor (Serial)» is within the standard specified in Note when «ATF Temperature» is 20 — 60°C (68 — 140°F) and «Drive Motor Speed» is 600 — 1400 rpm. | Even if DTC is detected, the circuit has returned to a normal condition at this time. Reproduce the failure, and then perform the diagnosis again.<br>NOTE:<br>In this case, temporary poor contact of connector, temporary open or short circuit of harness may be the cause. | Replace the drive motor assembly. <Ref. to CVT(TH58A)-217, Drive Motor Assembly.> |

NOTE:
Ground measuring points
- Electric noise filter



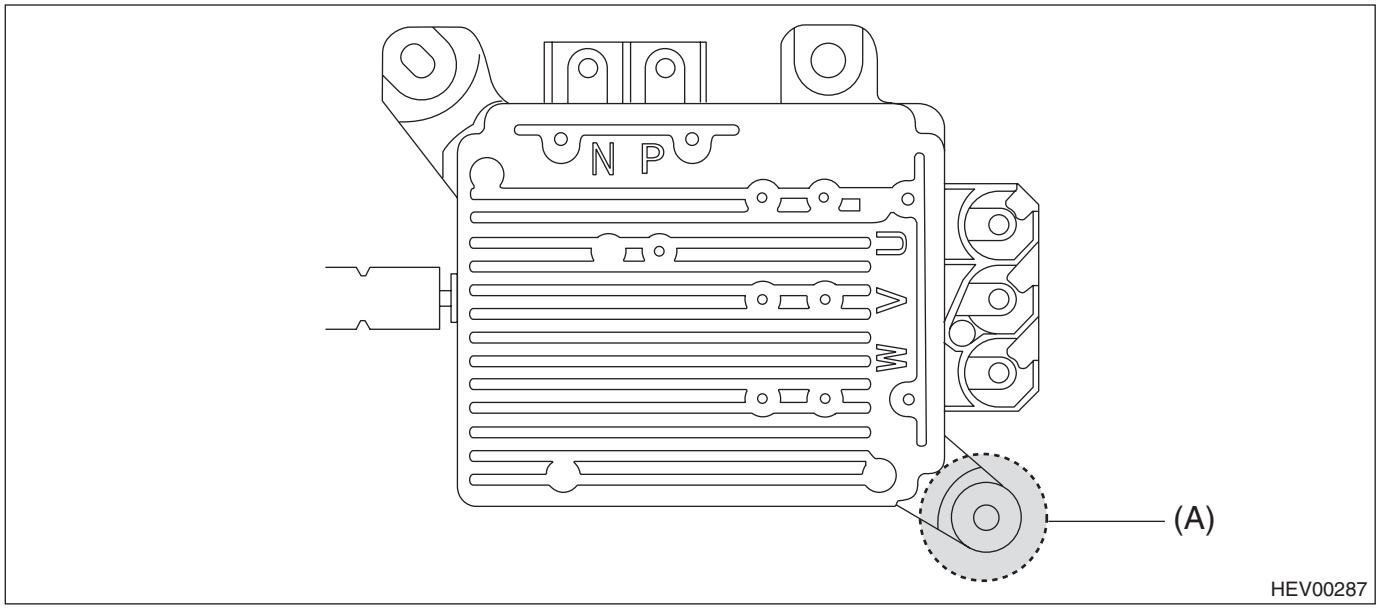

(A) Ground measuring points

- DC/DC converter




(A) Ground measuring points

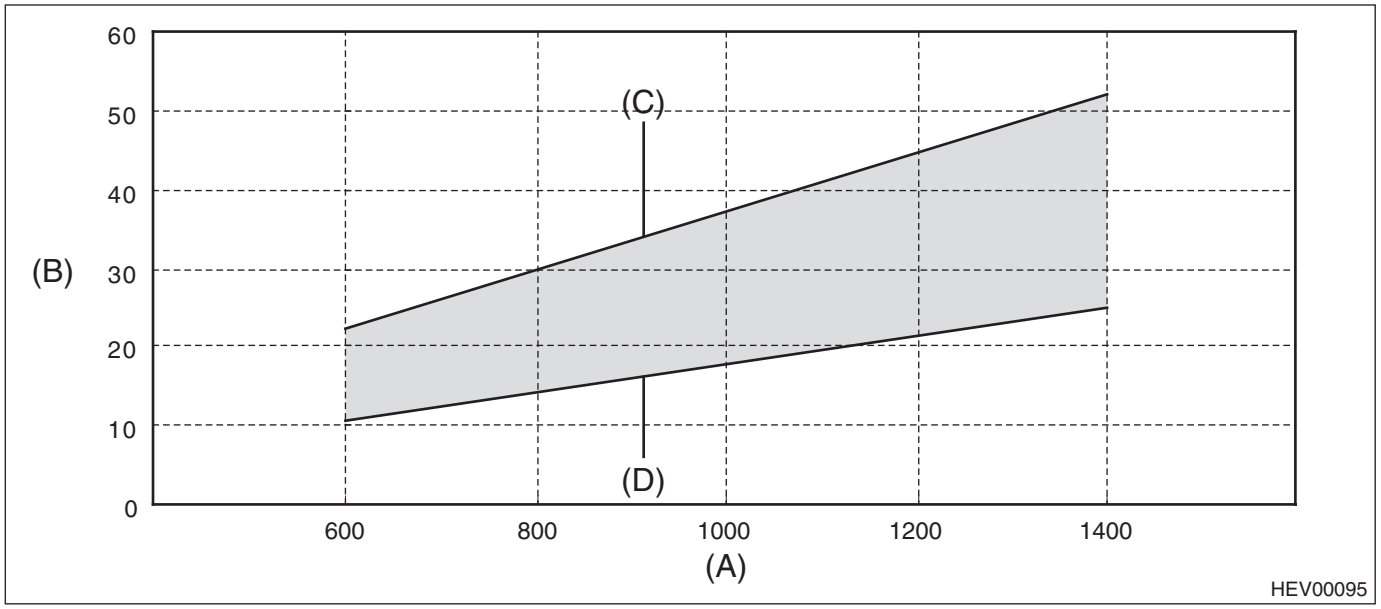
- Electric oil pump inverter




(A) Ground measuring points

NOTE:
Value of «Drive Motor Inverter Input High Voltage Sensor (Serial)» is proportional to «Drive Motor Speed».
- 1000 rpm: 18 V — 37 V

- 1400 rpm: 25 V — 52 V




(A) Drive motor speed
(B) Drive Motor Inverter Input High Voltage Sensor (Serial)
(C) Standard at Max.
(D) Standard at Min.

# AZ:DTC P0A63 DRIVE MOTOR "A" PHASE W CURRENT

**DIAGNOSIS:**

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-41, DTC P0A63 DRIVE MOTOR "A" PHASE W CURRENT, Diagnostic Trouble Code (DTC) Detecting Criteria.>

**TROUBLE SYMPTOM:**

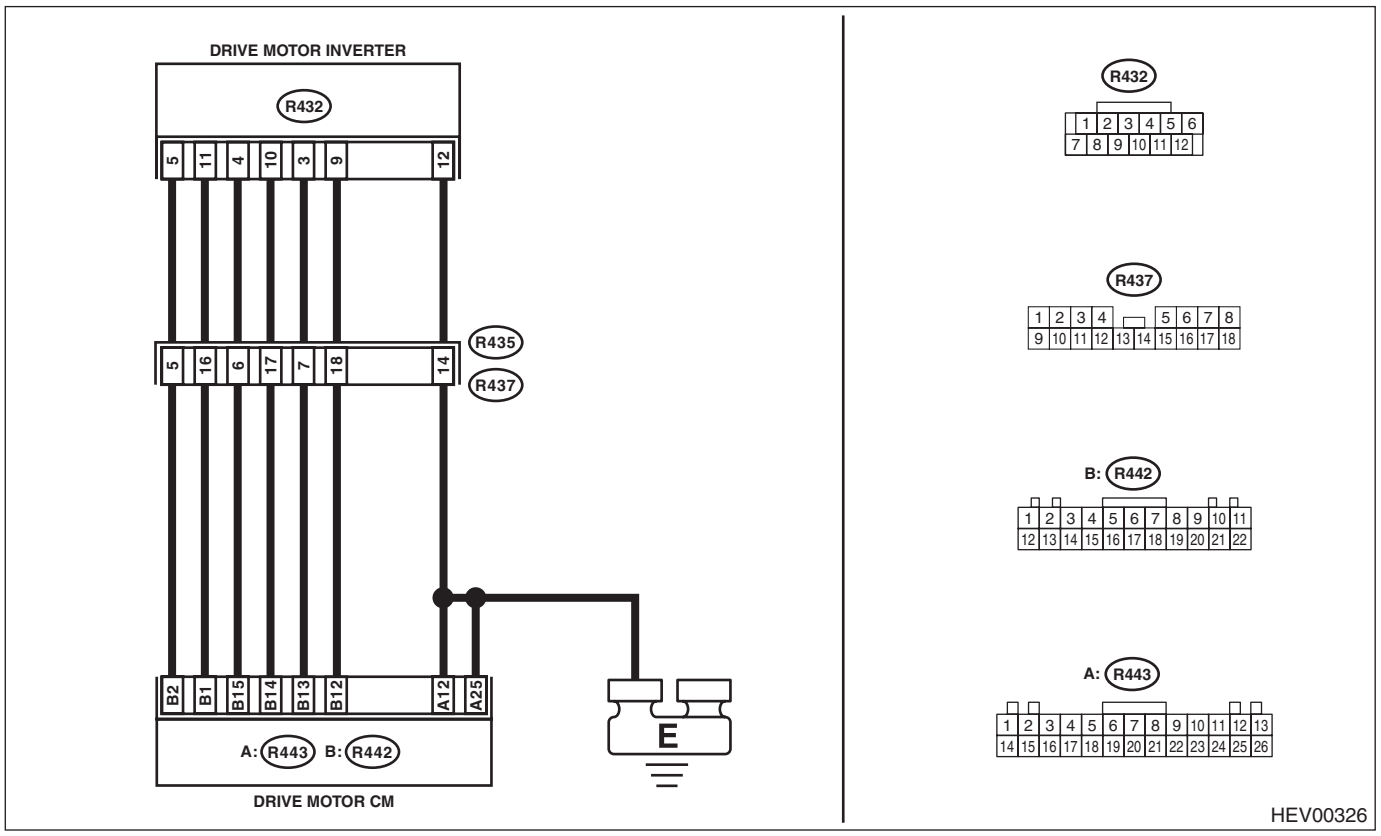
- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.

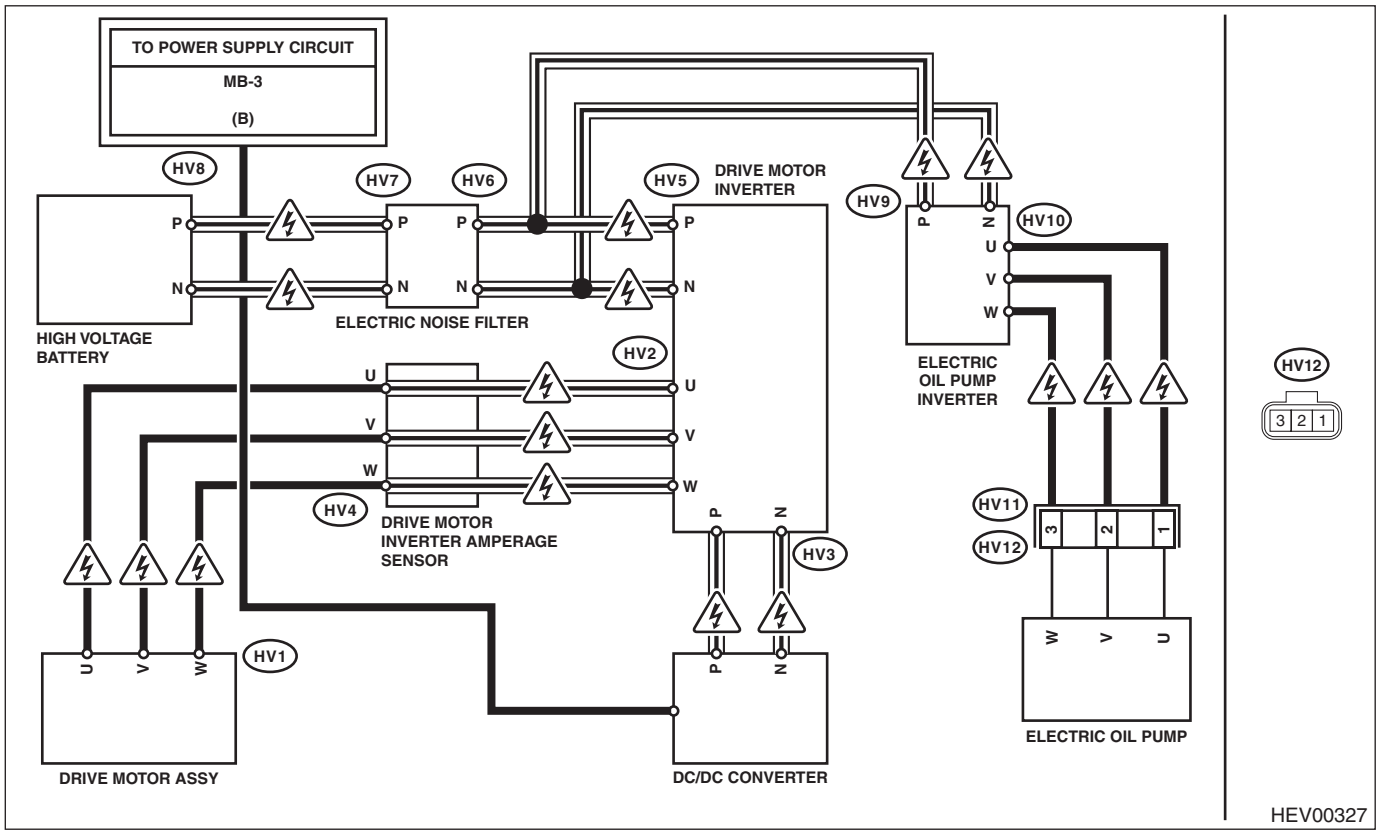
**CAUTION:**

**Before performing diagnosis, refer to “CAUTION” in “General Description”. <Ref. to HEV(diag)-8, CAUTION, General Description.>**

**WIRING DIAGRAM:**

Hybrid system <Ref. to WI(HEV)-140, WIRING DIAGRAM, Hybrid Electric Vehicle System.>






| Step | | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK DTC.**<br>Read the DTC. <Ref. to HEV(diag)-24, DRIVE MOTOR CONTROL SYSTEM, OPERATION, Read Diagnostic Trouble Code (DTC).> | Is DTC P0A78 detected? (current malfunction) | Perform the diagnosis according to DTC. <Ref. to HEV(diag)-78, DRIVE MOTOR CONTROL SYSTEM, LIST, List of Diagnostic Trouble Code (DTC).> | Go to step **2**. |
| 2 | **CHECK CURRENT DATA.**<br>Using the Subaru Select Monitor, confirm the current data of drive motor control system, the value of «Phase W Amperage Sensor Voltage». <Ref. to HEV(diag)-52, DRIVE MOTOR CONTROL SYSTEM, OPERATION, Read Current Data.> | Is the value 2.5 V ±0.1 V with IG ON? | Go to step **3**. | Perform the diagnosis according to DTC P0BE6 and P06B1. <Ref. to HEV(diag)-78, DRIVE MOTOR CONTROL SYSTEM, LIST, List of Diagnostic Trouble Code (DTC).> |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 3 | **CHECK HARNESS (GATE SIGNAL SHORT TO POWER AND SHORT IN OTHER SIGNAL LINES).**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the ground cable of the 12 volt auxiliary battery, and as for the 12 volt engine restart battery, disconnect the ground cable from the 12V engine restart battery sensor. <Ref. to NT-5, BATTERY, NOTE, Note.><br>3) Remove the service disconnect plug. <Ref. to HEV-15, Service Plug.><br>4) Wait for 10 minutes.<br>5) Disconnect the DMCM connector (R442, R443).<br>6) Disconnect the intermediate connector (R436).<br>7) Disconnect the drive motor inverter connector.<br>8) Using a tester, measure the resistance between terminals in DMCM connectors (R442, R443) and between each terminal in inverter connector.<br>***Connector & terminal***<br>***(R442) No. 2 — (R442) No. 1 — 22:***<br>***(R442) No. 2 — (R443) No. 1 — 26:***<br>***(R442) No. 2 — (R436) No. 1 — 8:***<br>***(R442) No. 2 — (R432) No. 7:***<br>***(R442) No. 1 — (R442) No. 1 — 22:***<br>***(R442) No. 1 — (R443) No. 1 — 26:***<br>***(R442) No. 1 — (R436) No. 1 — 8:***<br>***(R442) No. 1 — (R432) No. 7:***<br>***(R442) No. 15 — (R442) No. 1 — 22:***<br>***(R442) No. 15 — (R443) No. 1 — 26:***<br>***(R442) No. 15 — (R436) No. 1 — 8:***<br>***(R442) No. 15 — (R432) No. 7:***<br>***(R442) No. 14 — (R442) No. 1 — 22:***<br>***(R442) No. 14 — (R443) No. 1 — 26:***<br>***(R442) No. 14 — (R436) No. 1 — 8:***<br>***(R442) No. 14 — (R432) No. 7:***<br>***(R442) No. 13 — (R442) No. 1 — 22:***<br>***(R442) No. 13 — (R443) No. 1 — 26:***<br>***(R442) No. 13 — (R436) No. 1 — 8:***<br>***(R442) No. 13 — (R432) No. 7:***<br>***(R442) No. 12 — (R442) No. 1 — 22:***<br>***(R442) No. 12 — (R443) No. 1 — 26:***<br>***(R442) No. 12 — (R436) No. 1 — 8:***<br>***(R442) No. 12 — (R432) No. 7:*** | Does the resistance between either two points show 1 MΩ or more? | Go to step **4**. | Repair short circuit in harness between DMCM connector and drive motor inverter, or repair the intermediate connector. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 4 | **CHECK DRIVE MOTOR INVERTER (INTERNAL SHORT).**<br>1) Disconnects power cable terminals (HV2, HV3) of the drive motor inverter and bus bar (HV5).<br>NOTE:<br>Be sure to use insulating tape.<br>2) Using a tester, check for continuity between drive motor inverter terminals.<br>NOTE:<br>When checking continuity, always follow the combinations as follows with correct polarities. If polarities are reversed when checking, the trouble may not be accurately diagnosed.<br>***Connector & terminal***<br>***(HV5) P (+) — (HV2) U (–):***<br>***(HV2) U (+) — (HV5) N (–):***<br>***(HV5) P (+) — (HV2) V (–):***<br>***(HV2) V (+) — (HV5) N (–):***<br>***(HV5) P (+) — (HV2) W (–):***<br>***(HV2) W (+) — (HV5) N (–):***<br>***(HV5) P (+) — (HV5) N (–):***<br>***(HV2) U (+) — (HV2) V (–):***<br>***(HV2) U (+) — (HV2) W (–):***<br>***(HV2) V (+) — (HV2) W (–):***<br>***(HV5) P (+) — Chassis ground (–):***<br>***(HV5) N (+) — Chassis ground (–):***<br>***(HV2) U (+) — Chassis ground (–):***<br>***(HV2) V (+) — Chassis ground (–):***<br>***(HV2) W (+) — Chassis ground (–):*** | Is there continuity? | Replace the drive motor inverter. <Ref. to HEV-42, Inverter.><br>Go to step **13**. | Go to step **5**. |
| 5 | **CHECK DRIVE MOTOR INVERTER (RELEASED).**<br>Using diode voltage measuring mode on an insulation multimeter, measure the voltage between the terminals of the drive motor inverter.<br>NOTE:<br>When checking voltage values, always follow the combinations as follows with correct polarities. If polarities are reversed when checking, the trouble may not be accurately diagnosed.<br>***Connector & terminal***<br>***(HV2) U (+) — (HV5) P (–):***<br>***(HV5) N (+) — (HV2) U (–):***<br>***(HV2) V (+) — (HV5) P (–):***<br>***(HV5) N (+) — (HV2) V (–):***<br>***(HV2) W (+) — (HV5) P (–):***<br>***(HV5) N (+) — (HV2) W (–):*** | Is “O.L” indicated? | Replace the drive motor inverter. <Ref. to HEV-42, Inverter.><br>Go to step **13**. | Go to step **6**. |

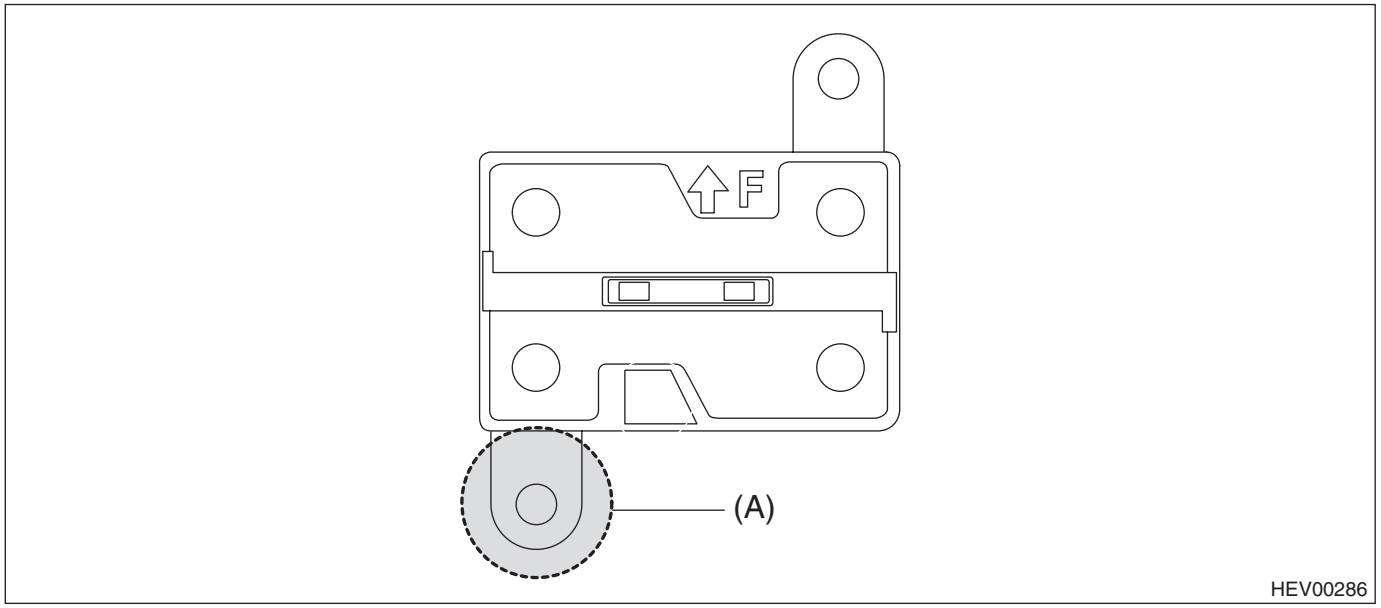
| Step | | Check | Yes | No |
|---|---|---|---|---|
| 6 | **CHECK HIGH VOLTAGE UNIT (SHORT).**<br>1) Remove electric noise filter, DC/DC converter, and electric oil pump inverter.<br>2) Check continuity between each terminal of the unit.<br>NOTE:<br>• When checking voltage values, always follow the combinations as follows with correct polarities. If polarities are reversed when checking, the trouble may not be accurately diagnosed.<br>• For ground measuring points of electric noise filter, DC/DC converter, and electric oil pump inverter, refer to Notes in the margin.<br>***Connector & terminal***<br>***(HV6) P (+) — (HV7) N (–):***<br>***(HV6) P (+) — Electric noise filter ground (–):***<br>***(HV6) N (+) — Electric noise filter ground (–):***<br>***(HV3) P (+) — (HV3) N (–):***<br>***(HV3) P (+) — DC/DC converter ground (–) :***<br>***(HV3) N (+) — DC/DC converter ground (–):***<br>***(HV9) P (+) — (HV9) N (–):***<br>***(HV9) P (+) — (HV10) U (–):***<br>***(HV9) P (+) — (HV10) V (–):***<br>***(HV9) P (+) — (HV10) W (–):***<br>***(HV10) U (+) — (HV9) N (–):***<br>***(HV10) V (+) — (HV9) N (–):***<br>***(HV10) W (+) — (HV9) N (–):***<br>***(HV10) U (+) — (HV10) V (–):***<br>***(HV10) U (+) — (HV10) W (–):***<br>***(HV10) V (+) — (HV10) W (–):***<br>***(HV9) P (+) — Electric oil pump inverter ground (–):***<br>***(HV9) N (+) — Electric oil pump inverter ground (–):***<br>***(HV10) U (+) — Electric oil pump inverter ground (–):***<br>***(HV10) V (+) — Electric oil pump inverter ground (–) :***<br>***(HV10) W (+) — Electric oil pump inverter ground (–):***<br>***(HV8) P (+) — (HV8) N (–):***<br>***(HV8) P (+) — Chassis ground (–):***<br>***(HV8) N (+) — Chassis ground (–):*** | Is there continuity? | Replace the unit that has continuity. Go to step **13**. | Go to step **7**. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 7 | **CHECK POWER CABLE AND DRIVE MOTOR (SHORT TO GROUND).**<br>Using an insulation multimeter (250 V range), measure the resistance between power cable terminal (HV2) of the drive motor inverter and the ground bolt of inverter frame body.<br>***Connector & terminal***<br>***(HV2) U — Ground bolt of inverter frame body:***<br>***(HV2) V — Ground bolt of inverter frame body:***<br>***(HV2) W — Ground bolt of inverter frame body:*** | Is the resistance 2 MΩ or more? | If you have a milliohm tester at hand, Go to step **8**. If a milliohm tester is not at hand, Go to step **11**. | Go to step **9**. |
| 8 | **CHECK POWER CABLE AND DRIVE MOTOR (SHORT).**<br>Using a milliohm tester, measure the resistance between terminals of drive motor inverter power cable.<br>***Connector & terminal***<br>***(HV2) U — (HV2) V:***<br>***(HV2) U — (HV2) W:***<br>***(HV2) V — (HV2) W:*** | Is resistance between either lines less than 25 mΩ? | Go to step **10**. | Replace DMCM. <Ref. to CVT(TH58A)-157, Drive Motor Control Module.> |
| 9 | **CHECK DRIVE MOTOR (SHORT TO GROUND).**<br>1) Leave the vehicle under temperature of 40°C (104°F) or less for 10 minutes.<br>2) Disconnect the drive motor power cable (HV1).<br>NOTE:<br>The gasket is not reusable.<br>3) Using an insulation multimeter (250 V range), measure the resistance between each terminal and chassis ground.<br>***Connector & terminal***<br>***(HV1) U — Chassis ground:***<br>***(HV1) V — Chassis ground:***<br>***(HV1) W — Chassis ground:*** | Does the resistance between any points show less than 2 MΩ? | Replace the drive motor assembly. <Ref. to CVT(TH58A)-217, Drive Motor Assembly.> | Repair or replace the short circuit of the power cable. Go to step **13**. |
| 10 | **CHECK DRIVE MOTOR (SHORT).**<br>1) Leave the vehicle under temperature of 40°C (104°F) or less for 10 minutes.<br>2) Disconnect the drive motor power cable (HV1).<br>NOTE:<br>The gasket is not reusable.<br>3) Using a milliohm tester, measure the resistance between power cable terminals.<br>***Connector & terminal***<br>***(HV1) U — (HV1) V:***<br>***(HV1) U — (HV1) W:***<br>***(HV1) V — (HV1) W:*** | Is resistance between either lines less than 20 mΩ? | Replace the drive motor assembly. <Ref. to CVT(TH58A)-217, Drive Motor Assembly.> | Repair or replace the short circuit of the power cable. Go to step **13**. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 11 | **CHECK DRIVE MOTOR (SHORT).**<br>1) Replace the removed/disconnected parts back to the vehicle.<br>2) With the 12 V battery connected, remove the service disconnect plug. <Ref. to HEV-15, Service Plug.><br>**CAUTION:**<br>**Watch for an electrical short at each harness because the 12 V battery is connected.**<br>3) Lift up the vehicle.<br>4) Start the engine, and set the shift lever to "D" range.<br>5) Using the Subaru Select Monitor, confirm the current data of drive motor control system, the values of «A/T Oil Temperature» «Drive Motor Speed» «Drive Motor Inverter Input High Voltage Sensor (Serial)». <Ref. to HEV(diag)-52, DRIVE MOTOR CONTROL SYSTEM, OPERATION, Read Current Data.> | Are any of the following statements relevant?<br>•«Drive Motor Inverter Input High Voltage Sensor (Serial)» is out of the standard specified in Note when «ATF Temperature» is 20 — 60°C (68 — 140°F) and «Drive Motor Speed» is 600 — 1400 rpm.<br>•Abnormal noise and changes in rotation speed occur near 600 rpm. | Go to step **12**. | Replace DMCM. <Ref. to CVT(TH58A)-157, Drive Motor Control Module.> |
| 12 | **CHECK POWER CABLE (SHORT).**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the ground cable of the 12 volt auxiliary battery, and as for the 12 volt engine restart battery, disconnect the ground cable from the 12V engine restart battery sensor. <Ref. to NT-5, BATTERY, NOTE, Note.><br>3) Remove the service disconnect plug.<br>4) Wait for 10 minutes.<br>5) Disconnect the drive motor power cable (HV1).<br>NOTE:<br>The gasket is not reusable.<br>6) Disconnect the power cable (HV2) of drive motor inverter.<br>7) Using an insulation multimeter (250 V range), measure the resistance between power cable terminals.<br>***Connector & terminal***<br>***(HV2) U — (HV2) V:***<br>***(HV2) U — (HV2) W:***<br>***(HV2) V — (HV2) W:*** | Does the resistance between any points show 2 MΩ or more? | Replace the drive motor assembly. <Ref. to CVT(TH58A)-217, Drive Motor Assembly.> | Repair or replace the short circuit of the power cable. Go to step **13**. |

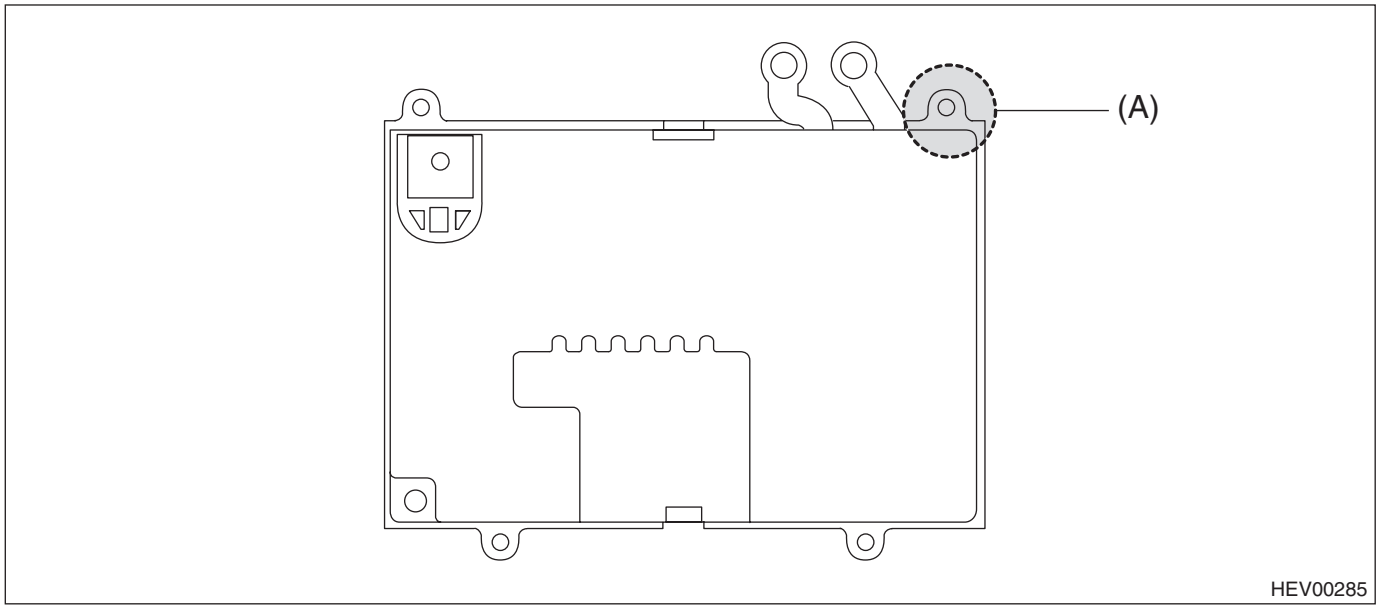
| | Step | Check | Yes | No |
|---|---|---|---|---|
| 13 | **CHECK OF DRIVE MOTOR (DEMAGNETIZATION).**<br>1) Replace the removed/disconnected parts back to the vehicle.<br>2) With the 12 V battery connected, remove the service disconnect plug. <Ref. to HEV-15, Service Plug.><br>**CAUTION:**<br>**Watch for an electrical short at each harness because the 12 V battery is connected.**<br>3) Lift up the vehicle.<br>4) Start the engine, and set the shift lever to "D" range.<br>5) Using the Subaru Select Monitor, confirm the current data of drive motor control system, the values of «A/T Oil Temperature» «Drive Motor Speed» «Drive Motor Inverter Input High Voltage Sensor (Serial)». <Ref. to HEV(diag)-52, DRIVE MOTOR CONTROL SYSTEM, OPERATION, Read Current Data.> | «Drive Motor Inverter Input High Voltage Sensor (Serial)» is within the standard specified in Note when «ATF Temperature» is 20 — 60°C (68 — 140°F) and «Drive Motor Speed» is 600 — 1400 rpm. | Even if DTC is detected, the circuit has returned to a normal condition at this time. Reproduce the failure, and then perform the diagnosis again.<br>NOTE:<br>In this case, temporary poor contact of connector, temporary open or short circuit of harness may be the cause. | Replace the drive motor assembly. <Ref. to CVT(TH58A)-217, Drive Motor Assembly.> |

NOTE:
Ground measuring points
- Electric noise filter



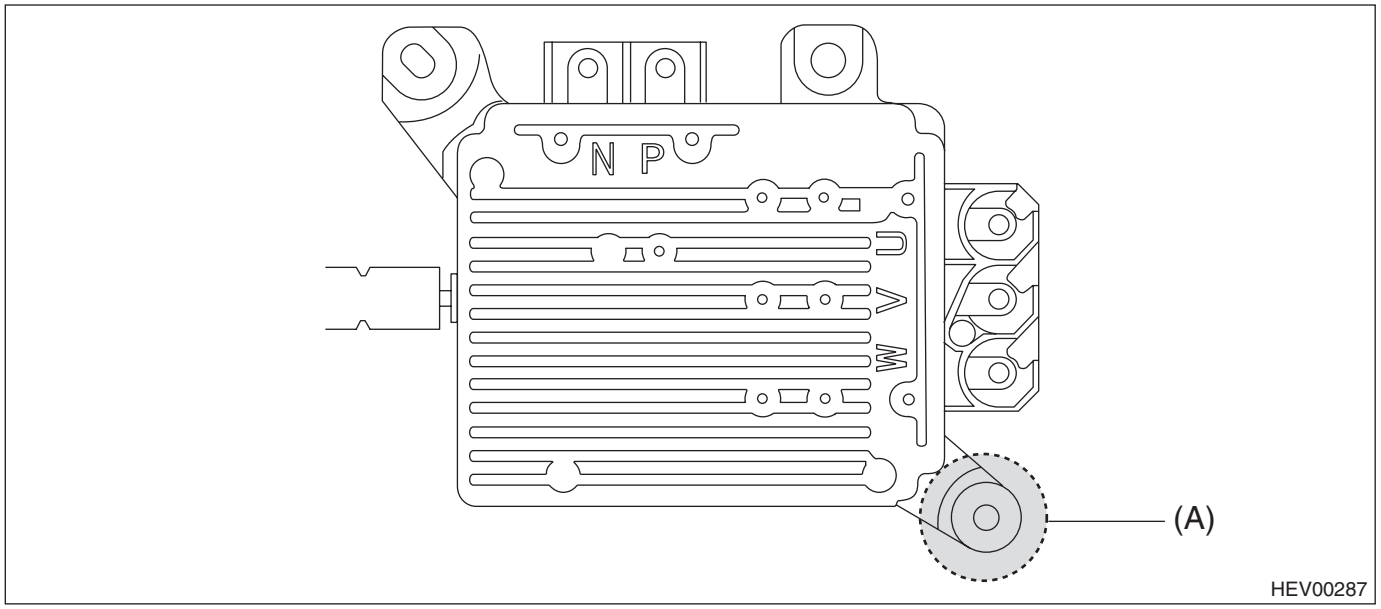

(A) Ground measuring points

- DC/DC converter




(A) Ground measuring points

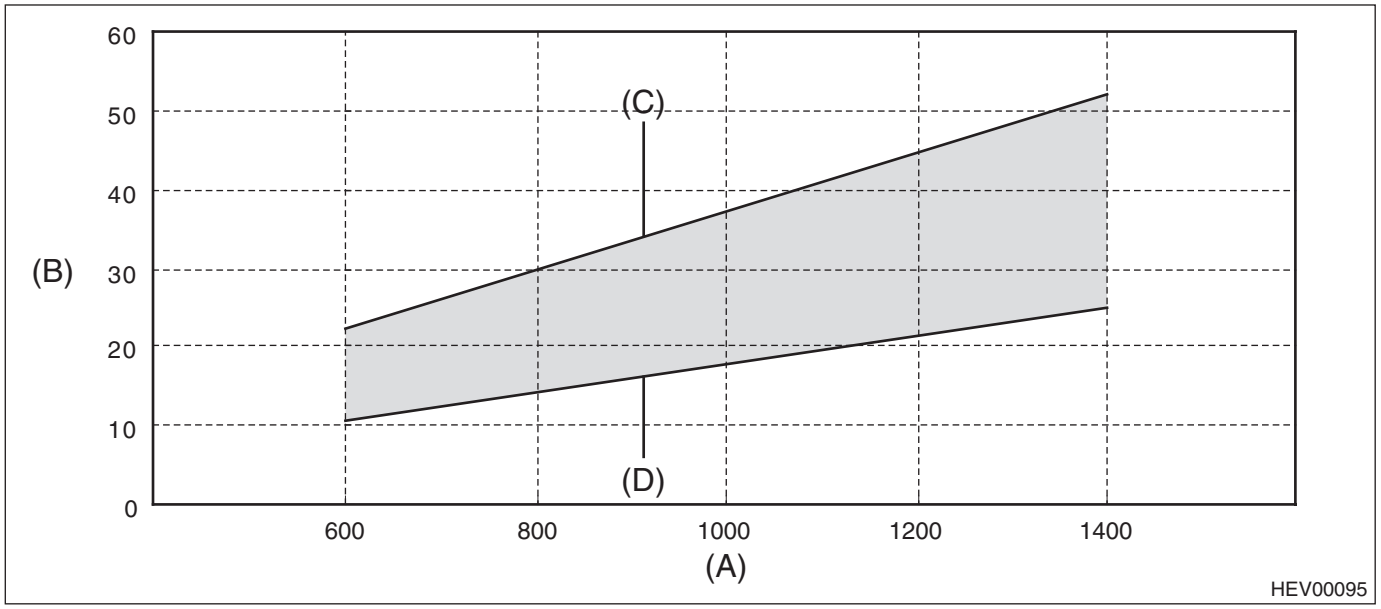
- Electric oil pump inverter




(A) Ground measuring points

NOTE:
Value of «Drive Motor Inverter Input High Voltage Sensor (Serial)» is proportional to «Drive Motor Speed».
- 1000 rpm: 18 V — 37 V

- 1400 rpm: 25 V — 52 V




(A) Drive motor speed
(B) Drive Motor Inverter Input High Voltage Sensor (Serial)
(C) Standard at Max.
(D) Standard at Min.

## BA:DTC P0A78 DRIVE MOTOR "A" INVERTER PERFORMANCE

**DIAGNOSIS:**

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-42, DTC P0A78 DRIVE MOTOR "A" INVERTER PERFORMANCE, Diagnostic Trouble Code (DTC) Detecting Criteria.>

**TROUBLE SYMPTOM:**

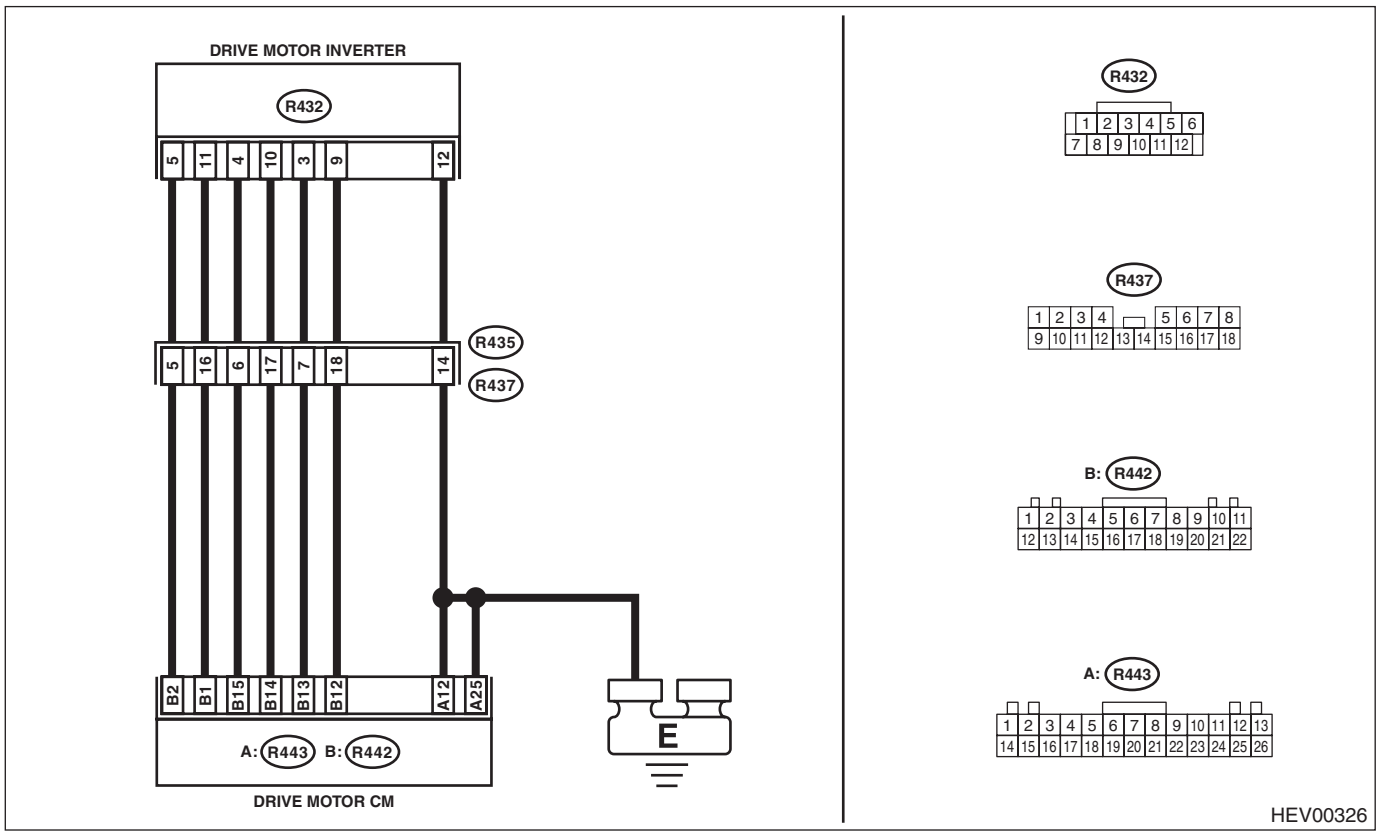
- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.

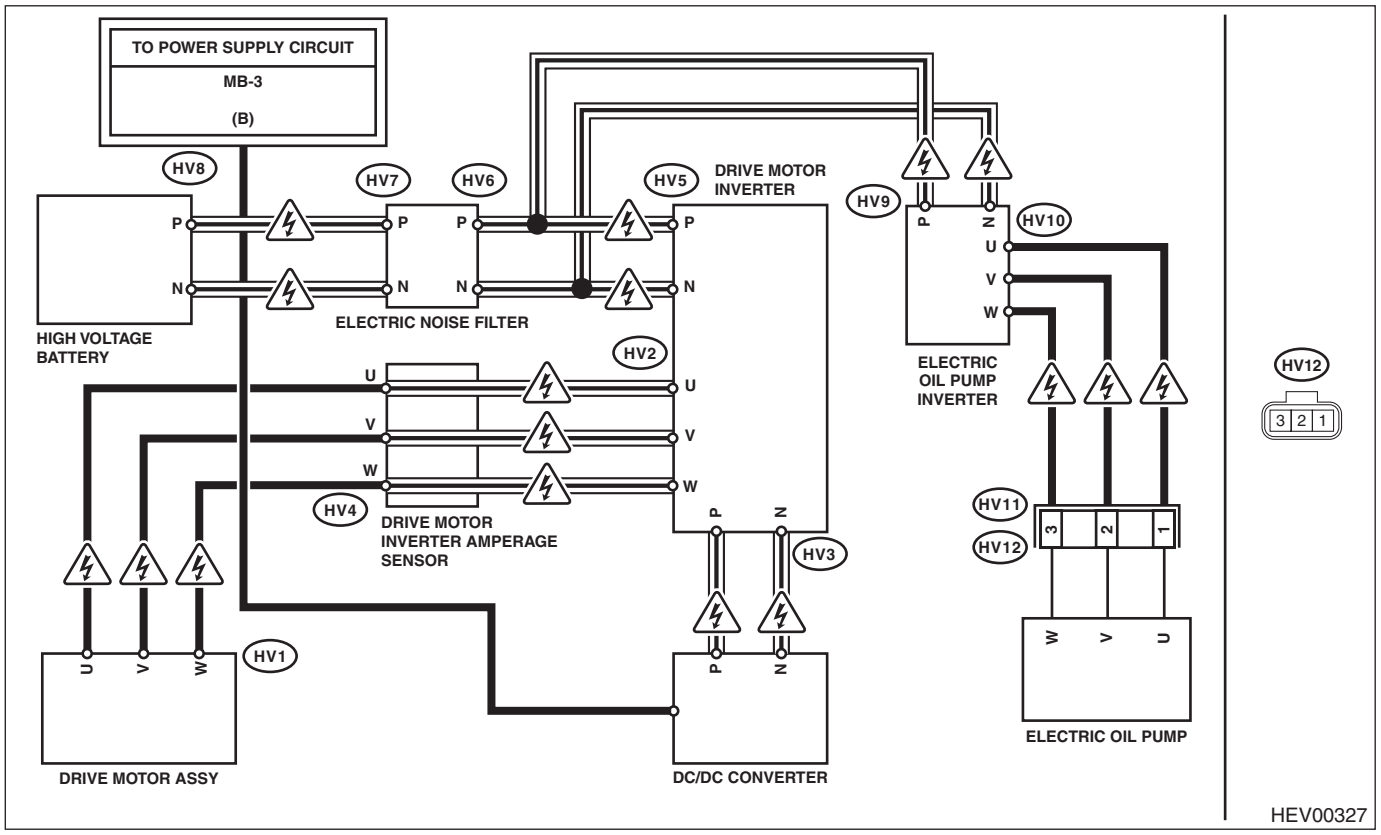
**CAUTION:**

**Before performing diagnosis, refer to “CAUTION” in “General Description”. <Ref. to HEV(diag)-8, CAUTION, General Description.>**

**WIRING DIAGRAM:**

Hybrid system <Ref. to WI(HEV)-140, WIRING DIAGRAM, Hybrid Electric Vehicle System.>






| Step | | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK DETAIL CODE.**<br>Using the Subaru Select Monitor, confirm the current data of drive motor control system, the value of «Detail code». <Ref. to HEV(diag)-52, DRIVE MOTOR CONTROL SYSTEM, OPERATION, Read Current Data.> | Is «Detail code» displayed? | If 500 is displayed, Go to step **2**.<br>If 501, 502 are displayed, Go to step **17**.<br>If 503 — 508 is displayed, Go to step **19**.<br>NOTE:<br>Check all the counting codes. | Replace DMCM. <Ref. to CVT(TH58A)-157, Drive Motor Control Module.> |
| 2 | **CHECK CURRENT DATA.**<br>Using the Subaru Select Monitor, confirm the current data of drive motor control system, the value of «Drive Motor Inverter Serial Check». <Ref. to HEV(diag)-52, DRIVE MOTOR CONTROL SYSTEM, OPERATION, Read Current Data.> | Does the value show «Abnormal»? | Perform the diagnosis according to DTC P1C30. <Ref. to HEV(diag)-267, DTC P1C30 LOST COMMUNICATION WITH DRIVE MOTOR INVERTER, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> | Go to step **3**. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 3 | **CHECK DTC.**<br>Read the DTC. <Ref. to HEV(diag)-24, DRIVE MOTOR CONTROL SYSTEM, OPERATION, Read Diagnostic Trouble Code (DTC).> | Are any other DTCs detected? (current malfunction) | Perform the diagnosis according to DTC. <Ref. to HEV(diag)-78, DRIVE MOTOR CONTROL SYSTEM, LIST, List of Diagnostic Trouble Code (DTC).> | Go to step **4**. |
| 4 | **CHECK CURRENT DATA.**<br>Using the Subaru Select Monitor, confirm the current data of drive motor control system, the values of «Phase U Amperage Sensor Voltage» «Phase V Amperage Sensor Voltage» «Phase W Amperage Sensor Voltage». <Ref. to HEV(diag)-52, DRIVE MOTOR CONTROL SYSTEM, OPERATION, Read Current Data.> | Is the value 2.5 V±0.1 V? | Go to step **5**. | Perform the diagnosis according to DTC P0BE6 and P06B1. <Ref. to HEV(diag)-78, DRIVE MOTOR CONTROL SYSTEM, LIST, List of Diagnostic Trouble Code (DTC).> |
| 5 | **CHECK HARNESS (GATE SIGNAL SHORT TO POWER AND SHORT IN OTHER SIGNAL LINES).**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the DMCM connector.<br>3) Disconnect the drive motor inverter connector.<br>4) Disconnect the intermediate connector (R436).<br>5) Using a tester, measure the resistance between DMCM connector and individual connectors.<br>***Connector & terminal***<br>***(R442) No. 2 — (R442) No. 1 — 22:***<br>***(R442) No. 2 — (R443) No. 1 — 26:***<br>***(R442) No. 2 — (R436) No. 1 — 8:***<br>***(R442) No. 2 — (R432) No. 7:***<br>***(R442) No. 1 — (R442) No. 1 — 22:***<br>***(R442) No. 1 — (R443) No. 1 — 26:***<br>***(R442) No. 1 — (R436) No. 1 — 8:***<br>***(R442) No. 1 — (R432) No. 7:***<br>***(R442) No. 15 — (R442) No. 1 — 22:***<br>***(R442) No. 15 — (R443) No. 1 — 26:***<br>***(R442) No. 15 — (R436) No. 1 — 8:***<br>***(R442) No. 15 — (R432) No. 7:***<br>***(R442) No. 14 — (R442) No. 1 — 22:***<br>***(R442) No. 14 — (R443) No. 1 — 26:***<br>***(R442) No. 14 — (R436) No. 1 — 8:***<br>***(R442) No. 14 — (R432) No. 7:***<br>***(R442) No. 13 — (R442) No. 1 — 22:***<br>***(R442) No. 13 — (R443) No. 1 — 26:***<br>***(R442) No. 13 — (R436) No. 1 — 8:***<br>***(R442) No. 13 — (R432) No. 7:***<br>***(R442) No. 12 — (R442) No. 1 — 22:***<br>***(R442) No. 12 — (R443) No. 1 — 26:***<br>***(R442) No. 12 — (R436) No. 1 — 8:***<br>***(R442) No. 12 — (R432) No. 7:*** | Is the resistance 1 MΩ or more? | Go to step **6**. | Repair short circuit in harness between DMCM connector and drive motor inverter connector, or repair the intermediate connector. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 6 | **CHECK DRIVE MOTOR INVERTER (SHORT).**<br>1) Disconnect the ground cable of the 12 volt auxiliary battery, and as for the 12 volt engine restart battery, disconnect the ground cable from the 12V engine restart battery sensor. <Ref. to NT-5, BATTERY, NOTE, Note.><br>2) Remove the service disconnect plug. <Ref. to HEV-15, Service Plug.><br>3) Wait for 10 minutes.<br>4) Disconnects power cable (HV2, HV3) and bus bar (HV5) from the drive motor inverter.<br>NOTE:<br>Be sure to use insulating tape.<br>5) Using a tester, check continuity between drive motor inverter terminals.<br>NOTE:<br>When checking voltage values, always follow the combinations as follows with correct polarities. If polarities are reversed when checking, the trouble may not be accurately diagnosed.<br>***Connector & terminal***<br>***(HV5) P (+) — (HV2) U (–):***<br>***(HV5) P (+) — (HV2) V (–):***<br>***(HV5) P (+) — (HV2) W (–):***<br>***(HV2) U (+) — (HV5) N (–):***<br>***(HV2) V (+) — (HV2) N (–):***<br>***(HV2) W (+) — (HV2) N (–):***<br>***(HV5) P (+) — (HV5) N (–):***<br>***(HV2) U (+) — (HV2) V (–):***<br>***(HV2) U (+) — (HV2) W (–):***<br>***(HV2) V (+) — (HV2) W (–):***<br>***(HV5) P (+) — Chassis ground (–):***<br>***(HV5) N (+) — Chassis ground (–):***<br>***(HV2) U (+) — Chassis ground (–):***<br>***(HV2) V (+) — Chassis ground (–):***<br>***(HV2) W (+) — Chassis ground (–):*** | Is there continuity? | Replace the drive motor inverter. <Ref. to HEV-42, Inverter.><br>Go to step **15**. | Go to step **7**. |
| 7 | **CHECK DRIVE MOTOR INVERTER (RELEASED).**<br>Using diode voltage measuring mode on an insulation multimeter, measure the voltage between the terminals of the drive motor inverter.<br>NOTE:<br>When checking voltage values, always follow the combinations as follows with correct polarities. If polarities are reversed when checking, the trouble may not be accurately diagnosed.<br>***Connector & terminal***<br>***(HV2) U (+) — (HV5) P (–):***<br>***(HV5) N (+) — (HV2) U (–):***<br>***(HV2) V (+) — (HV5) P (–):***<br>***(HV5) N (+) — (HV2) V (–):***<br>***(HV2) W (+) — (HV5) P (–):***<br>***(HV5) N (+) — (HV2) W (–):*** | Is “O.L” indicated? | Replace the drive motor inverter. <Ref. to HEV-42, Inverter.><br>Go to step **15**. | Go to step **8**. |

| Step | | Check | Yes | No |
|---|---|---|---|---|
| 8 | **CHECK HIGH VOLTAGE UNIT (SHORT).**<br>1) Remove electric noise filter, DC/DC converter, and electric oil pump inverter.<br>2) Using a tester, check for continuity between terminals of each unit.<br>NOTE:<br>• When checking voltage values, always follow the combinations as follows with correct polarities. If polarities are reversed when checking, the trouble may not be accurately diagnosed.<br>• For ground measuring points of electric noise filter, DC/DC converter, and electric oil pump inverter, refer to Notes in the margin.<br>***Connector & terminal***<br>***(HV6) P (+) — (HV7) N (–):***<br>***(HV6) P (+) — Electric noise filter ground (–):***<br>***(HV6) N (+) — Electric noise filter ground (–):***<br>***(HV3) P (+) — (HV3) N (–):***<br>***(HV3) P (+) — DC/DC converter ground (–) :***<br>***(HV3) N (+) — DC/DC converter ground (–):***<br>***(HV9) P (+) — (HV9) N (–):***<br>***(HV9) P (+) — (HV10) U (–):***<br>***(HV9) P (+) — (HV10) V (–):***<br>***(HV9) P (+) — (HV10) W (–):***<br>***(HV10) U (+) — (HV9) N (–):***<br>***(HV10) V (+) — (HV9) N (–):***<br>***(HV10) W (+) — (HV9) N (–):***<br>***(HV10) U (+) — (HV10) V (–):***<br>***(HV10) U (+) — (HV10) W (–):***<br>***(HV10) V (+) — (HV10) W (–):***<br>***(HV9) P (+) — Electric oil pump inverter ground (–):***<br>***(HV9) N (+) — Electric oil pump inverter ground (–):***<br>***(HV10) U (+) — Electric oil pump inverter ground (–):***<br>***(HV10) V (+) — Electric oil pump inverter ground (–) :***<br>***(HV10) W (+) — Electric oil pump inverter ground (–):***<br>***(HV8) P (+) — (HV8) N (–):***<br>***(HV8) P (+) — Chassis ground (–):***<br>***(HV8) N (+) — Chassis ground (–):*** | Is there continuity? | Replace the unit that has continuity. Go to step **14**. | Go to step **9**. |
| 9 | **CHECK POWER CABLE AND DRIVE MOTOR (SHORT TO GROUND).**<br>Using an insulation multimeter (250 V range), measure the resistance between power cable terminals and chassis ground.<br>***Connector & terminal***<br>***(HV2) U — Chassis ground:***<br>***(HV2) V — Chassis ground:***<br>***(HV2) W — Chassis ground:*** | Is the resistance 2 MΩ or more? | If you have a milliohm tester at hand, Go to step **10**.<br>If a milliohm tester is not at hand, Go to step **13**. | Go to step **11**. |
| 10 | **CHECK POWER CABLE AND DRIVE MOTOR (SHORT).**<br>Using a milliohm tester, measure the resistance between power cable terminals.<br>***Connector & terminal***<br>***(HV2) U — (HV2) V:***<br>***(HV2) U — (HV2) W:***<br>***(HV2) V — (HV2) W:*** | Is either resistance value less than 25 mΩ? | Go to step **12**. | Go to step **16**. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 11 | **CHECK POWER CABLE AND DRIVE MOTOR (SHORT TO GROUND).**<br>1) Leave the vehicle under temperature of 40°C (104°F) or less for 10 minutes.<br>2) Disconnect the drive motor power cable (HV1).<br>NOTE:<br>The gasket is not reusable.<br>3) Using an insulation multimeter (250 V range), measure the resistance between power cable terminals and chassis ground.<br>***Connector & terminal***<br>***(HV1) U — Chassis ground:***<br>***(HV1) V — Chassis ground:***<br>***(HV1) W — Chassis ground:*** | Does the resistance between any points show less than 2 MΩ? | Replace the drive motor assembly. <Ref. to CVT(TH58A)-217, Drive Motor Assembly.> | Repair or replace the short circuit of the power cable. Go to step **15**. |
| 12 | **CHECK POWER CABLE AND DRIVE MOTOR (SHORT).**<br>1) Leave the vehicle under temperature of 40°C (104°F) or less for 10 minutes.<br>2) Disconnect the drive motor power cable (HV1).<br>NOTE:<br>The gasket is not reusable.<br>3) Using a milliohm tester, measure the resistance between power cable terminals and chassis ground.<br>***Connector & terminal***<br>***(HV1) U — Chassis ground:***<br>***(HV1) V — Chassis ground:***<br>***(HV1) W — Chassis ground:*** | Is resistance between either lines less than 20 mΩ? | Replace the drive motor assembly. <Ref. to CVT(TH58A)-217, Drive Motor Assembly.> | Repair or replace the short circuit of the power cable. Go to step **15**. |
| 13 | **CHECK DRIVE MOTOR (SHORT).**<br>1) Replace the removed/disconnected parts back to the vehicle.<br>2) With the 12 V battery connected, remove the service disconnect plug. <Ref. to HEV-15, Service Plug.><br>**CAUTION:**<br>**Watch for an electrical short at each harness because the 12 V battery is connected.**<br>3) Lift up the vehicle.<br>4) Start the engine, and set the shift lever to "D" range.<br>5) Using the Subaru Select Monitor, confirm the current data of drive motor control system, the values of «A/T Oil Temperature» «Drive Motor Speed» «Drive Motor Inverter Input High Voltage Sensor (Serial)». <Ref. to HEV(diag)-52, DRIVE MOTOR CONTROL SYSTEM, OPERATION, Read Current Data.> | Are any of the following statements relevant?<br>•«Drive Motor Inverter Input High Voltage Sensor (Serial)» is out of the standard specified in Note when «ATF Temperature» is 20 — 60°C (68 — 140°F) and «Drive Motor Speed» is 600 — 1400 rpm.<br>•Abnormal noise and changes in rotation speed occur near 600 rpm. | Go to step **14**. | Go to step **16**. |

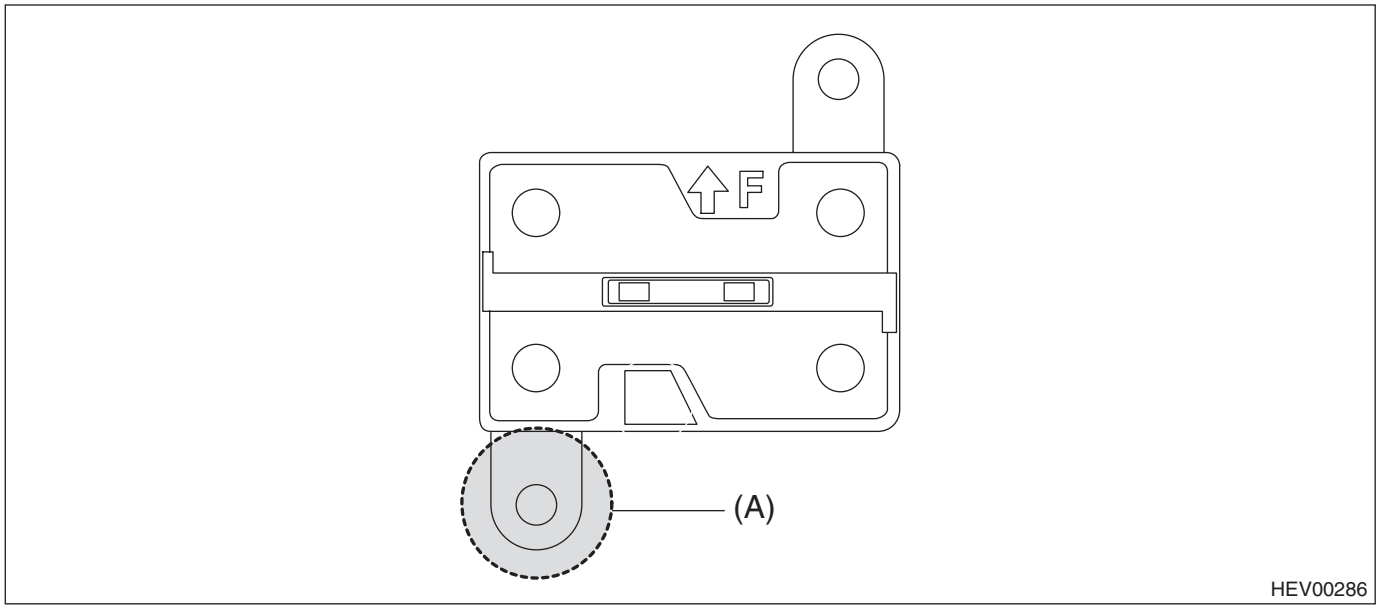
| | Step | Check | Yes | No |
|---|---|---|---|---|
| 14 | **CHECK DRIVE MOTOR AND POWER CABLE.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the ground cable of the 12 volt auxiliary battery, and as for the 12 volt engine restart battery, disconnect the ground cable from the 12V engine restart battery sensor. <Ref. to NT-5, BATTERY, NOTE, Note.><br>3) Disconnect the power cable (HV2) of drive motor inverter.<br>4) Disconnect the drive motor power cable (HV1).<br>NOTE:<br>The gasket is not reusable.<br>5) Using an insulation multimeter (250 V range), measure the resistance between power cable terminals.<br>***Connector & terminal***<br>***(HV2) U — (HV2) V:***<br>***(HV2) U — (HV2) W:***<br>***(HV2) V — (HV2) W:*** | Does the resistance between any points show 2 MΩ or more? | Replace the drive motor assembly. <Ref. to CVT(TH58A)-217, Drive Motor Assembly.> | Repair or replace the short circuit of the power cable. Go to step **15**. |
| 15 | **CHECK OF DRIVE MOTOR (DEMAGNETIZATION).**<br>1) Replace the removed/disconnected parts back to the vehicle.<br>2) With the 12 V battery connected, remove the service disconnect plug. <Ref. to HEV-15, Service Plug.><br>**CAUTION:**<br>**Watch for an electrical short at each harness because the 12 V battery is connected.**<br>3) Lift up the vehicle.<br>4) Start the engine, and set the shift lever to "D" range.<br>5) Using the Subaru Select Monitor, confirm the current data of drive motor control system, the values of «A/T Oil Temperature» «Drive Motor Speed» «Drive Motor Inverter Input High Voltage Sensor (Serial)». <Ref. to HEV(diag)-52, DRIVE MOTOR CONTROL SYSTEM, OPERATION, Read Current Data.> | «Drive Motor Inverter Input High Voltage Sensor (Serial)» is within the standard specified in Note when «ATF Temperature» is 20 — 60°C (68 — 140°F) and «Drive Motor Speed» is 600 — 1400 rpm. | Even if DTC is detected, the circuit has returned to a normal condition at this time. Reproduce the failure, and then perform the diagnosis again.<br>NOTE:<br>In this case, temporary poor contact of connector, temporary open or short circuit of harness may be the cause. | Replace the drive motor assembly. <Ref. to CVT(TH58A)-217, Drive Motor Assembly.> |
| 16 | **CHECK DRIVE MOTOR INVERTER.**<br>1) Replace the drive motor inverter. <Ref. to HEV-42, Inverter.><br>2) Perform drive cycle A. <Ref. to HEV(diag)-32, DRIVE CYCLE A, PROCEDURE, Drive Cycle.> | Is the same DTC detected? (current malfunction) | Replace DMCM. <Ref. to CVT(TH58A)-157, Drive Motor Control Module.> | Problem is present in drive motor inverter. |
| 17 | **CHECK CURRENT DATA.**<br>Using the Subaru Select Monitor, confirm the current data of drive motor control system, the value of «Drive Motor Inverter Serial Check». <Ref. to HEV(diag)-52, DRIVE MOTOR CONTROL SYSTEM, OPERATION, Read Current Data.> | Does the value show «Abnormal»? | Perform the diagnosis according to DTC P1C30. <Ref. to HEV(diag)-267, DTC P1C30 LOST COMMUNICATION WITH DRIVE MOTOR INVERTER, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> | Go to step **18**. |

| Step | | Check | Yes | No |
|---|---|---|---|---|
| 18 | **CHECK DRIVE MOTOR INVERTER.**<br>1) Replace the drive motor inverter. <Ref. to HEV-42, Inverter.><br>2) Perform drive cycle A. <Ref. to HEV(diag)-32, DRIVE CYCLE A, PROCEDURE, Drive Cycle.> | Is the same DTC detected? (current malfunction) | Replace DMCM. <Ref. to CVT(TH58A)-157, Drive Motor Control Module.> | Problem is present in drive motor inverter. |
| 19 | **CHECK DTC.**<br>Read the DTC. <Ref. to HEV(diag)-24, DRIVE MOTOR CONTROL SYSTEM, OPERATION, Read Diagnostic Trouble Code (DTC).> | Are any other DTCs detected? (current malfunction) | Perform the diagnosis according to DTC. <Ref. to HEV(diag)-78, DRIVE MOTOR CONTROL SYSTEM, LIST, List of Diagnostic Trouble Code (DTC).> | Go to step **20**. |
| 20 | **CHECK CURRENT DATA.**<br>Using the Subaru Select Monitor, confirm the current data of drive motor control system, the values of «Phase U Amperage Sensor Voltage» «Phase V Amperage Sensor Voltage» «Phase W Amperage Sensor Voltage». <Ref. to HEV(diag)-52, DRIVE MOTOR CONTROL SYSTEM, OPERATION, Read Current Data.> | Is the value 2.5 V±0.1 V? | Go to step **21**. | Perform the diagnosis according to DTC P0BE6 and P06B1. <Ref. to HEV(diag)-78, DRIVE MOTOR CONTROL SYSTEM, LIST, List of Diagnostic Trouble Code (DTC).> |
| 21 | **CHECK DRIVE MOTOR INVERTER (INTERNAL SHORT).**<br>1) Disconnect the ground cable of the 12 volt auxiliary battery, and as for the 12 volt engine restart battery, disconnect the ground cable from the 12V engine restart battery sensor. <Ref. to NT-5, BATTERY, NOTE, Note.><br>2) Remove the service disconnect plug. <Ref. to HEV-15, Service Plug.><br>3) Wait for 10 minutes.<br>4) Disconnect the DMCM connector.<br>5) Disconnect the drive motor inverter connector.<br>6) Using a tester, measure the resistance between DMCM connector and the ground bolt of inverter frame body.<br>***Connector & terminal***<br>***(R442) No. 2 — Ground bolt of inverter frame body:***<br>***(R442) No. 1 — Ground bolt of inverter frame body:***<br>***(R442) No. 15 — Ground bolt of inverter frame body:***<br>***(R442) No. 14 — Ground bolt of inverter frame body:***<br>***(R442) No. 13 — Ground bolt of inverter frame body:***<br>***(R442) No. 12 — Ground bolt of inverter frame body:*** | Is the resistance 1 MΩ or more? | Go to step **22**. | Repair short to ground circuit in harness between DMCM connector and drive motor inverter connector, or repair the intermediate connector. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 22 | **CHECK HARNESS (OPEN CIRCUIT).**<br>Using a tester, measure the resistance between the drive motor inverter connector and DMCM connector.<br>***Connector & terminal***<br>***(R442) No. 2 — (R432) No. 5:***<br>***(R442) No. 1 — (R432) No. 11:***<br>***(R442) No. 15 — (R432) No. 4:***<br>***(R442) No. 14 — (R432) No. 10:***<br>***(R442) No. 13 — (R432) No. 3:***<br>***(R442) No. 12 — (R432) No. 9:*** | Is the resistance less than 1 Ω? | Go to step **23**. | Repair open circuit in harness between DMCM connector and drive motor inverter connector, or repair the intermediate connector. |
| 23 | **CHECK POWER CABLE AND DRIVE MOTOR (OPEN CIRCUIT).**<br>1) Leave the vehicle for ten minutes under temperature of 40°C (104°F) or less.<br>2) Disconnect the power cable (HV2) from drive motor inverter.<br>3) Using a tester, measure the resistance between power cable terminals.<br>***Connector & terminal***<br>***(HV2) U — (HV2) V:***<br>***(HV2) U — (HV2) W:***<br>***(HV2) V — (HV2) W:*** | Is resistance between either lines 1 Ω or more? | Go to step **24**. | Go to step **25**. |
| 24 | **CHECK DRIVE MOTOR (OPEN CIRCUIT).**<br>1) Leave the vehicle under temperature of 40°C (104°F) or less for 10 minutes.<br>2) Disconnect the drive motor power cable (HV1).<br>NOTE:<br>The gasket is not reusable.<br>3) Using the tester, measure the resistance between drive motor terminals.<br>***Connector & terminal***<br>***(HV1) U — (HV1) V:***<br>***(HV1) U — (HV1) W:***<br>***(HV1) V — (HV1) W:*** | Is resistance between either lines 1 Ω or more? | Replace the drive motor assembly. <Ref. to CVT(TH58A)-217, Drive Motor Assembly.> | Repair or replace the open circuit of the power cable. |
| 25 | **CHECK DRIVE MOTOR INVERTER.**<br>1) Replace the drive motor inverter. <Ref. to HEV-42, Inverter.><br>2) Perform drive cycle A. <Ref. to HEV(diag)-32, DRIVE CYCLE A, PROCEDURE, Drive Cycle.> | Is the same DTC detected? (current malfunction) | Replace DMCM. <Ref. to CVT(TH58A)-157, Drive Motor Control Module.> | Problem is present in drive motor inverter. |

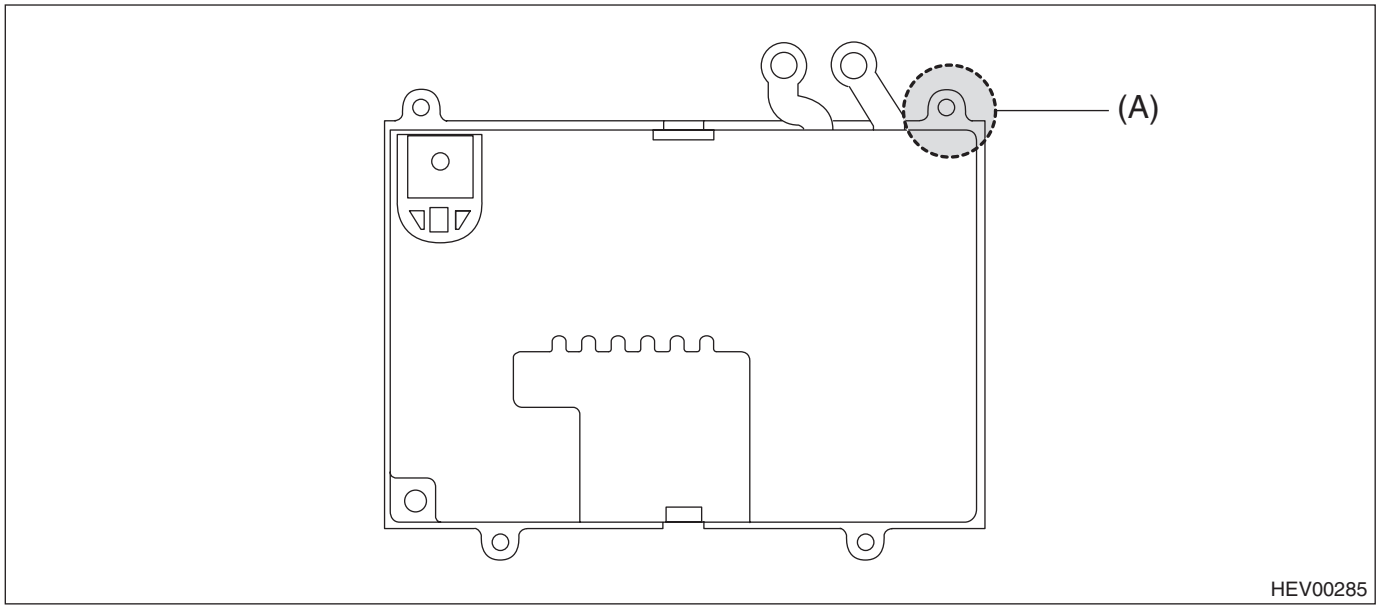
NOTE:
Ground measuring points

- Electric noise filter



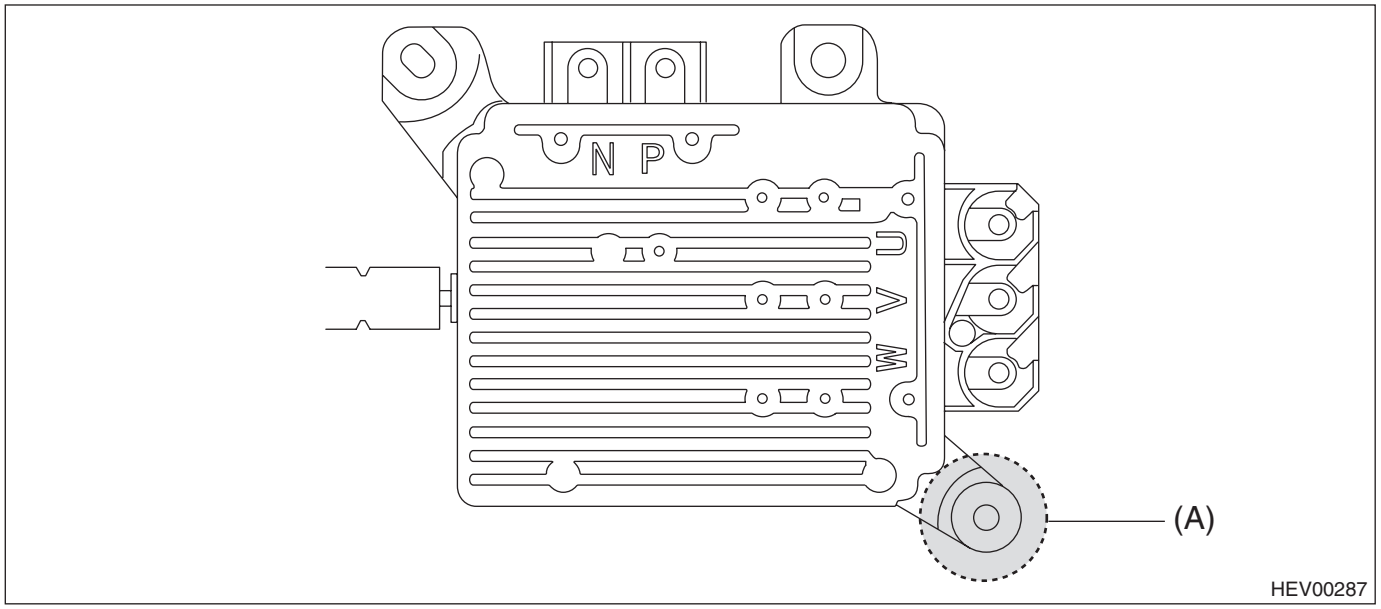

(A) Ground measuring points

- DC/DC converter



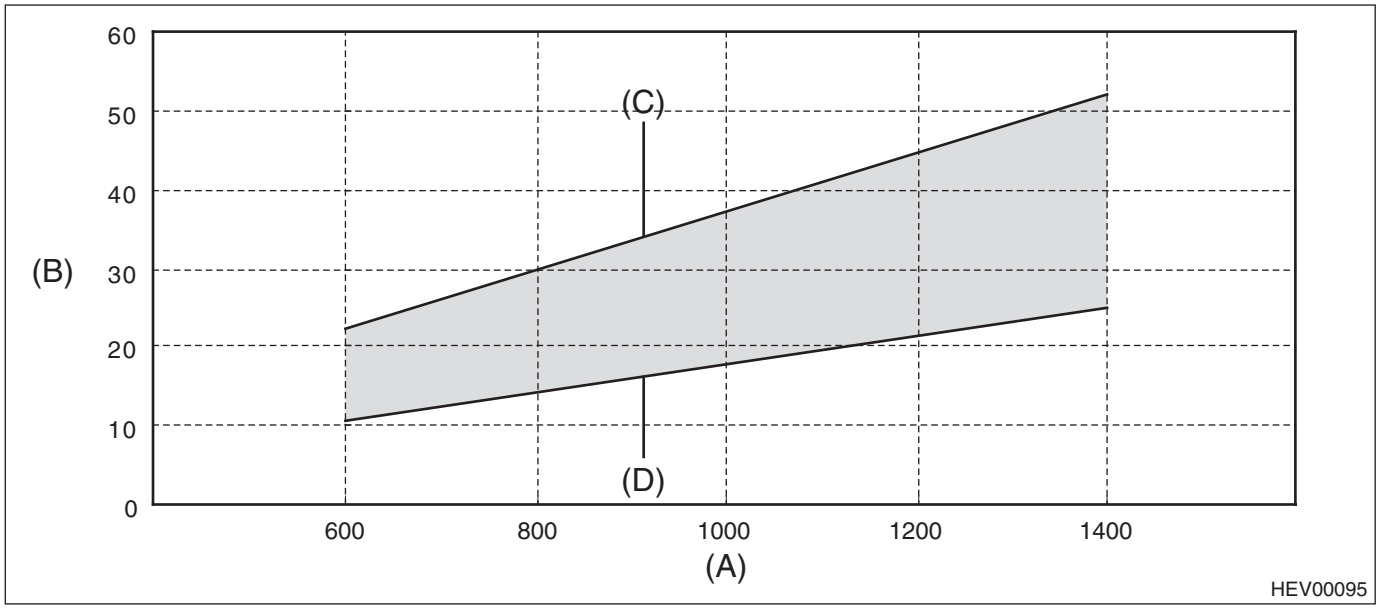

(A) Ground measuring points

- Electric oil pump inverter




(A) Ground measuring points

NOTE:
Value of «Drive Motor Inverter Input High Voltage Sensor (Serial)» is proportional to «Drive Motor Speed».
- 1000 rpm: 18 V — 37 V
- 1400 rpm: 25 V — 52 V




(A) Drive motor speed
(B) Drive Motor Inverter Input High Voltage Sensor (Serial)
(C) Standard at Max.
(D) Standard at Min.

## BB:DTC P0A82 HYBRID/EV BATTERY PACK COOLING FAN 1 PERFORMANCE/ STUCK OFF

**DIAGNOSIS:**

- Detected when two consecutive driving cycles with fault occur. (Single engine startup is counted as one drive cycle.)
- GENERAL DESCRIPTION <Ref. to GD(HEV)-43, DTC P0A82 HYBRID/EV BATTERY PACK COOLING FAN 1 PERFORMANCE/STUCK OFF, Diagnostic Trouble Code (DTC) Detecting Criteria.>

**TROUBLE SYMPTOM:**

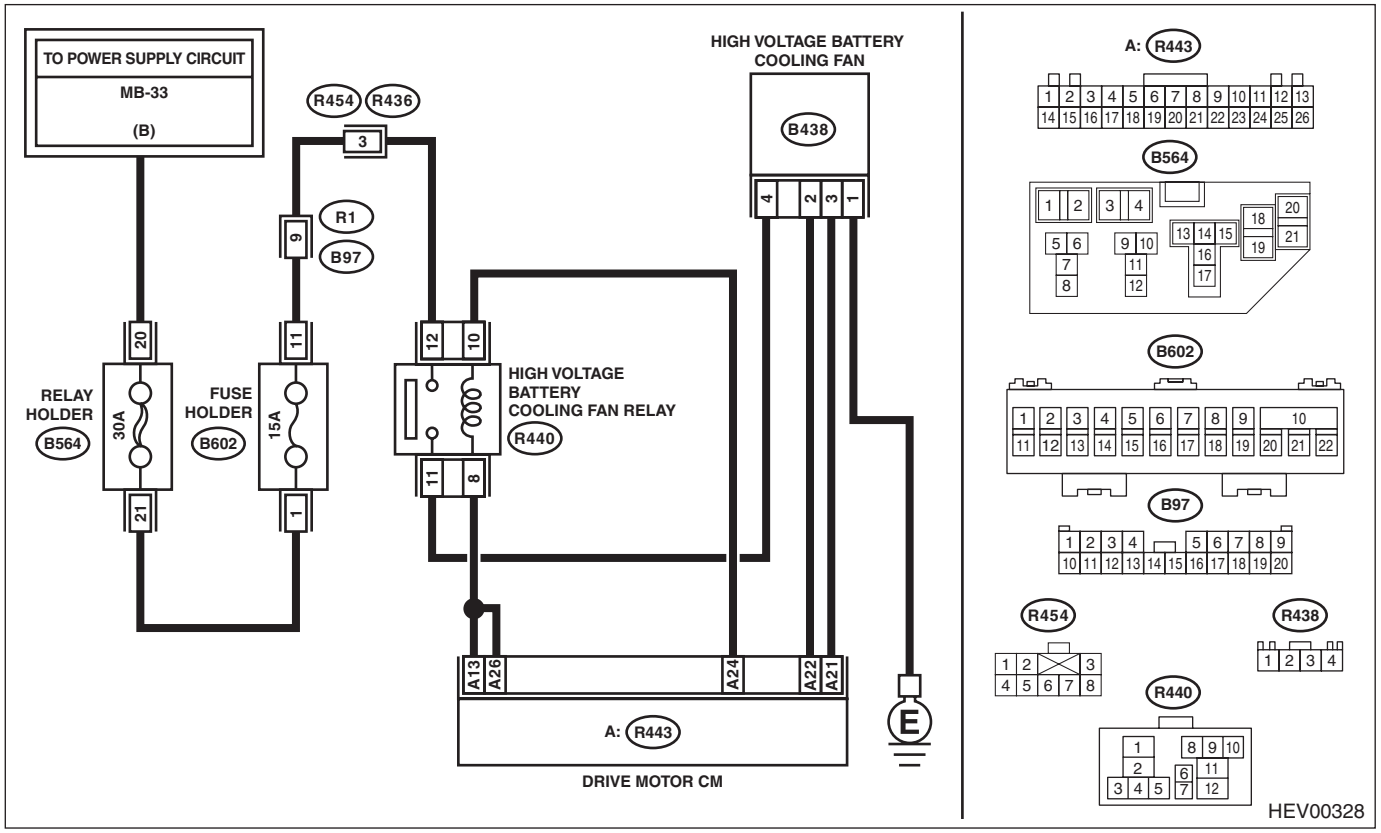
- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.

**CAUTION:**

**Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.>**

**WIRING DIAGRAM:**

Hybrid system <Ref. to WI(HEV)-140, WIRING DIAGRAM, Hybrid Electric Vehicle System.>



| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK HIGH VOLTAGE BATTERY COOLING FAN.**<br>Using the Subaru Select Monitor, perform «High Voltage Battery Cooling Fan» of System Operation Check Mode for the drive motor control system. <Ref. to HEV(diag)-73, DRIVE MOTOR CONTROL SYSTEM, OPERATION, System Operation Check Mode.> | Does the cooling fan speed change when the speed is switched across 4 steps (Stop, Steps 1 — 3)? | Even if DTC is detected, the circuit has returned to a normal condition at this time. Reproduce the failure, and then perform the diagnosis again.<br>NOTE:<br>In this case, temporary poor contact of connector, temporary open or short circuit of harness may be the cause. | Go to step **2**. |
| 2 | **CHECK HARNESS (OPEN CIRCUIT).**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the DMCM connector.<br>3) Disconnect the high voltage battery cooling fan connector.<br>4) Using a tester, measure the resistance between the high voltage battery cooling fan connector and the ground bolt of inverter frame body.<br>***Connector & terminal***<br>***(R443) No. 21 — (R438) No. 3:***<br>***(R443) No. 22 — (R438) No. 2:***<br>***(R438) No. 1 — Ground bolt of inverter frame body:***<br>***(R438) No. 4 — (R440) No. 11:*** | Is the resistance less than 1 Ω? | Go to step **3**. | Repair open circuit in harness between DMCM connector and high voltage battery cooling fan connector, or repair the intermediate connector. |
| 3 | **CHECK HARNESS (SHORT TO POWER).**<br>Using a tester, measure the resistance between the high voltage battery cooling fan connector and other signal lines.<br>***Connector & terminal***<br>***(R443) No. 21 — (R438) No. 4:***<br>***(R443) No. 21 — (R443) No. 1 — 26:***<br>***(R443) No. 21 — (R442) No. 1 — 22:***<br>***(R443) No. 21 — (R436) No. 1 — 8:***<br>***(R443) No. 22 — (R438) No. 4:***<br>***(R443) No. 22 — (R443) No. 1 — 26:***<br>***(R443) No. 22 — (R442) No. 1 — 22:***<br>***(R443) No. 22 — (R436) No. 1 — 8:*** | Is the resistance 1 MΩ or more? | Go to step **4**. | Repair short circuit to power in harness between DMCM connector and high voltage battery cooling fan connector, or repair the intermediate connector. |
| 4 | **CHECK DTC.**<br>1) Replace the high voltage battery cooling fan. <Ref. to HEV-60, High Voltage Battery Cooling System.><br>2) Perform drive cycle H. <Ref. to HEV(diag)-38, DRIVE CYCLE H, PROCEDURE, Drive Cycle.> | Is the same DTC detected? (current malfunction) | Replace DMCM. <Ref. to CVT(TH58A)-157, Drive Motor Control Module.> | There is an abnormal condition in the high voltage battery cooling fan. |

# BC:DTC P0A83 HYBRID/EV BATTERY PACK COOLING FAN 1 STUCK ON

**DIAGNOSIS:**

- Detected when two consecutive driving cycles with fault occur. (Single engine startup is counted as one drive cycle.)
- GENERAL DESCRIPTION <Ref. to GD(HEV)-44, DTC P0A83 HYBRID/EV BATTERY PACK COOLING FAN 1 STUCK ON, Diagnostic Trouble Code (DTC) Detecting Criteria.>

**TROUBLE SYMPTOM:**

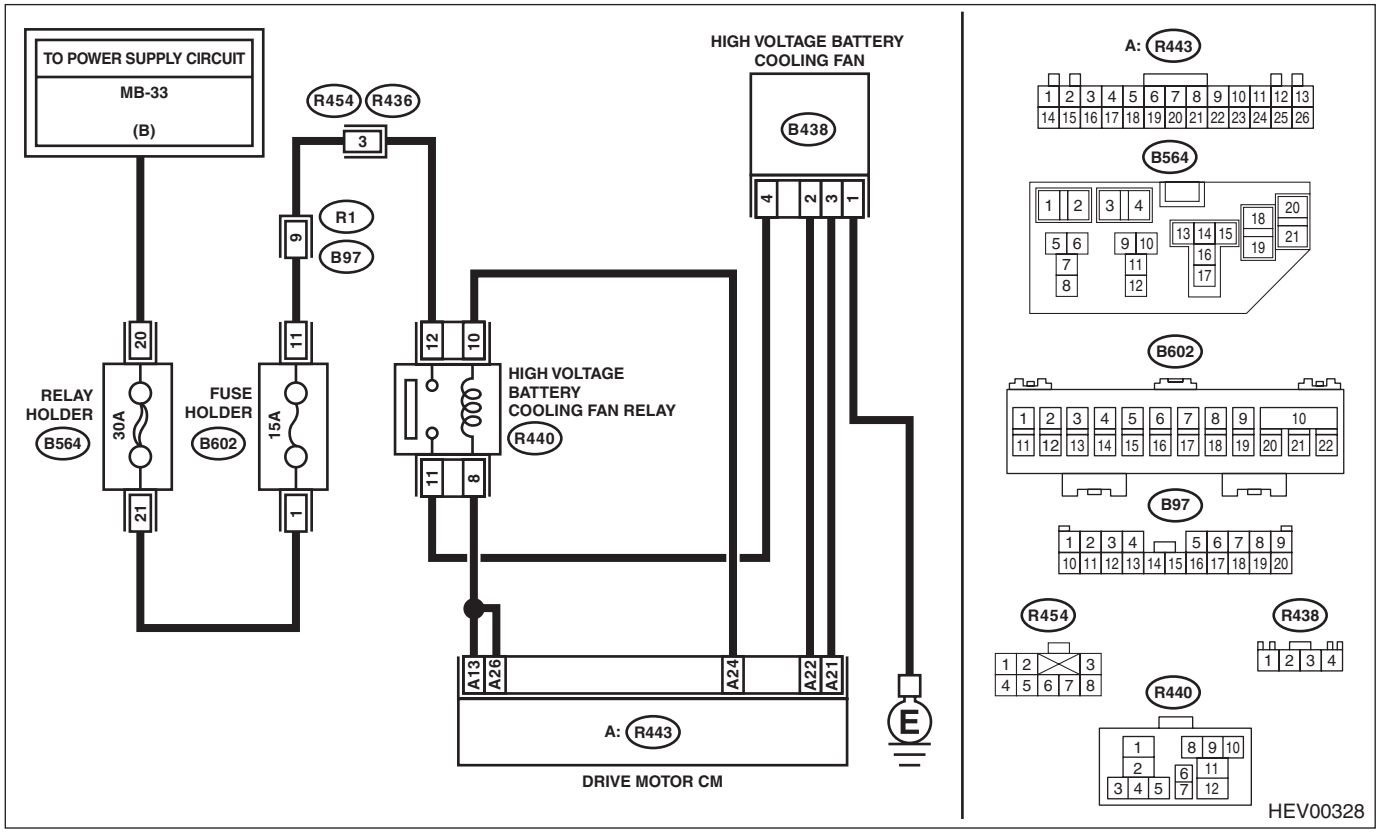
- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.

**CAUTION:**

**Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.>**

**WIRING DIAGRAM:**

Hybrid system <Ref. to WI(HEV)-140, WIRING DIAGRAM, Hybrid Electric Vehicle System.>



| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK HIGH VOLTAGE BATTERY COOLING FAN.**<br>Using the Subaru Select Monitor, perform «High Voltage Battery Cooling Fan» of System Operation Check Mode for the drive motor control system. <Ref. to HEV(diag)-73, DRIVE MOTOR CONTROL SYSTEM, OPERATION, System Operation Check Mode.> | Does the cooling fan speed change when the speed is switched across 4 steps (Stop, Steps 1 — 3)? | Even if DTC is detected, the circuit has returned to a normal condition at this time. Reproduce the failure, and then perform the diagnosis again.<br>NOTE:<br>In this case, temporary poor contact of connector, temporary open or short circuit of harness may be the cause. | Go to step **2**. |
| 2 | **CHECK HARNESS (SHORT TO GROUND).**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the DMCM connector.<br>3) Disconnect the high voltage battery cooling fan connector.<br>4) Using a tester, measure the resistance between the high voltage battery cooling fan connector and the ground bolt of inverter frame body.<br>***Connector & terminal***<br>***(R438) No. 2 — Ground bolt of inverter frame body:*** | Is the resistance 1 MΩ or more? | Go to step **3**. | Repair short to ground circuit in harness between DMCM connector and high voltage battery cooling fan connector, or repair the intermediate connector. |
| 3 | **CHECK DTC.**<br>1) Replace the high voltage battery cooling fan. <Ref. to HEV-60, High Voltage Battery Cooling System.><br>2) Perform drive cycle H. <Ref. to HEV(diag)-38, DRIVE CYCLE H, PROCEDURE, Drive Cycle.> | Is the same DTC detected? (current malfunction) | Replace DMCM. <Ref. to CVT(TH58A)-157, Drive Motor Control Module.> | There is an abnormal condition in the high voltage battery cooling fan. |

## BD:DTC P0A90 DRIVE MOTOR "A" PERFORMANCE

**DIAGNOSIS:**

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-45, DTC P0A90 DRIVE MOTOR "A" PERFORMANCE, Diagnostic Trouble Code (DTC) Detecting Criteria.>

**TROUBLE SYMPTOM:**

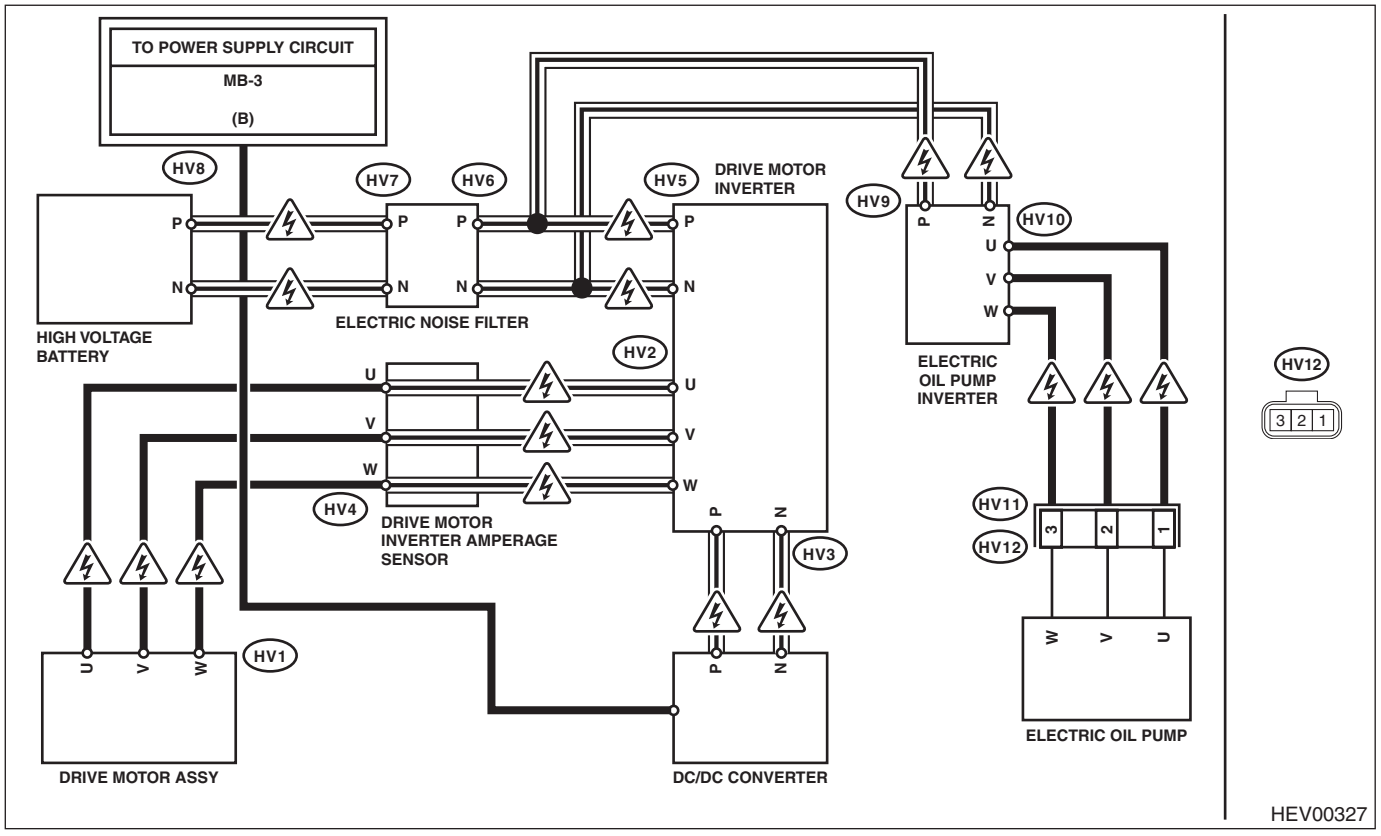
Normal control

**CAUTION:**

**Before performing diagnosis, refer to “CAUTION” in “General Description”. <Ref. to HEV(diag)-8, CAUTION, General Description.>**

**WIRING DIAGRAM:**

Hybrid system <Ref. to WI(HEV)-140, WIRING DIAGRAM, Hybrid Electric Vehicle System.>




| Step | | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK DTC.**<br>Read the DTC. <Ref. to HEV(diag)-24, DRIVE MOTOR CONTROL SYSTEM, OPERATION, Read Diagnostic Trouble Code (DTC).> | Are DTCs (relating to current sensors, speed sensors) detected? (current malfunction) | Perform the diagnosis according to DTC. <Ref. to HEV(diag)-78, DRIVE MOTOR CONTROL SYSTEM, LIST, List of Diagnostic Trouble Code (DTC).> | Go to step **2**. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 2 | **CHECK CURRENT DATA.**<br>Using the Subaru Select Monitor, confirm the current data of drive motor control system, the values of «Phase U Amperage Sensor Voltage» «Phase V Amperage Sensor Voltage» «Phase W Amperage Sensor Voltage». <Ref. to HEV(diag)-52, DRIVE MOTOR CONTROL SYSTEM, OPERATION, Read Current Data.> | Is the value 2.5 V±0.1 V? | Go to step **3**. | Perform the diagnosis according to DTC P0BE6. <Ref. to HEV(diag)-235, DTC P0BE6 DRIVE MOTOR "A" PHASE U CURRENT SENSOR CIRCUIT RANGE/PERFORMANCE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| 3 | **CHECK DRIVE MOTOR AND POWER CABLE (DEMAGNETIZATION, SHORT).**<br>1) With the 12 V battery connected, remove the service disconnect plug. <Ref. to HEV-15, Service Plug.><br>**CAUTION:**<br>**Watch for an electrical short at each harness because the 12 V battery is connected.**<br>2) Lift up the vehicle.<br>3) Start the engine, and set the shift lever to "D" range.<br>4) Using the Subaru Select Monitor, confirm the current data of drive motor control system, the values of «A/T Oil Temperature» «Drive Motor Speed» «Drive Motor Inverter Input High Voltage Sensor (Serial)». <Ref. to HEV(diag)-52, DRIVE MOTOR CONTROL SYSTEM, OPERATION, Read Current Data.> | Are any of the following statements relevant?<br>•«Drive Motor Inverter Input High Voltage Sensor (Serial)» is out of the standard specified in Note when «ATF Temperature» is 20 — 60°C (68 — 140°F) and «Drive Motor Speed» is 600 — 1400 rpm.<br>•Abnormal noise and changes in rotation speed occur near 600 rpm. | If you have a milliohm tester at hand, Go to step **6**.<br>If a milliohm tester is not at hand, Go to step **11**. | If you have a milliohm tester at hand, Go to step **4**.<br>If a milliohm tester is not at hand, Go to step **10**. |
| 4 | **CHECK DRIVE MOTOR AND POWER CABLE (SHORT).**<br>1) Leave the vehicle under temperature of 40°C (104°F) or less for 10 minutes.<br>2) Using the Subaru Select Monitor, confirm the current data of drive motor control system, the values of «Drive Motor Temperature A» «Drive Motor Temperature B» are 40°C (104°F) or less. <Ref. to HEV(diag)-52, DRIVE MOTOR CONTROL SYSTEM, OPERATION, Read Current Data.><br>3) Turn the ignition switch to OFF.<br>4) Disconnect the ground cable of the 12 volt auxiliary battery, and as for the 12 volt engine restart battery, disconnect the ground cable from the 12V engine restart battery sensor. <Ref. to NT-5, BATTERY, NOTE, Note.><br>5) Disconnect the power cable (HV2) of drive motor inverter.<br>6) Using a milliohm tester, measure the resistance between power cable terminals.<br>***Connector & terminal***<br>***(HV2) U — (HV2) V:***<br>***(HV2) U — (HV2) W:***<br>***(HV2) V — (HV2) W:*** | Is either resistance value 25 mΩ or less? | Go to step **5**. | Replace the drive motor assembly. <Ref. to CVT(TH58A)-217, Drive Motor Assembly.> |

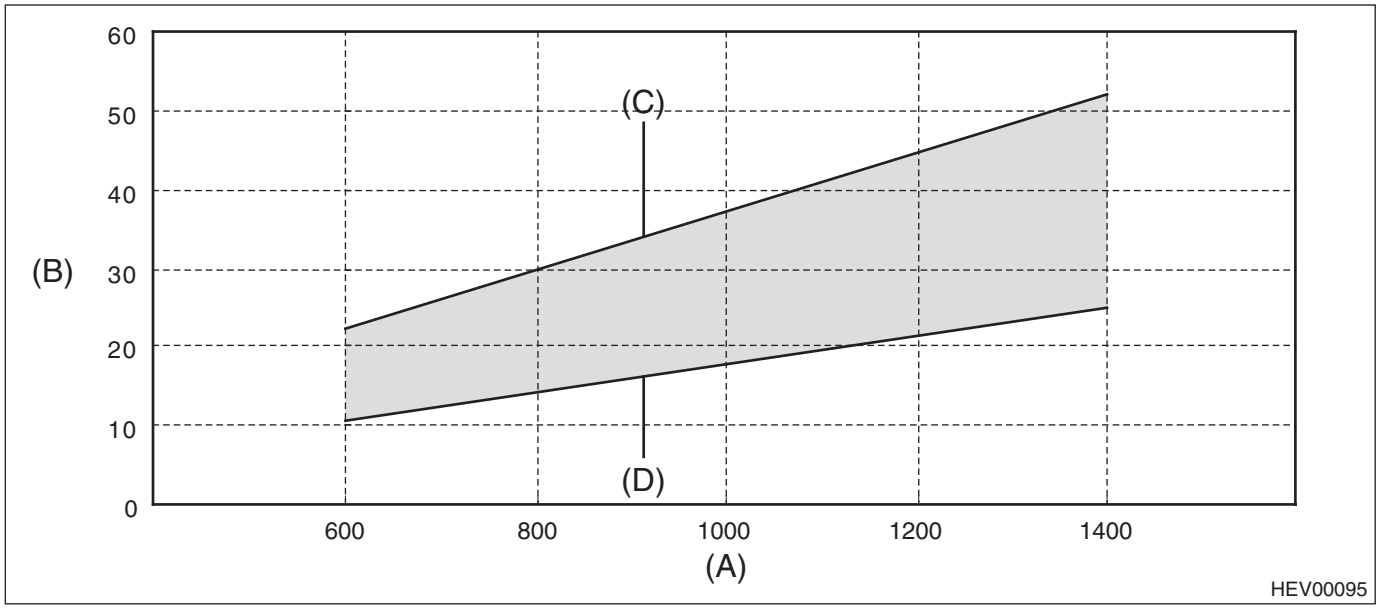
| | Step | Check | Yes | No |
|---|---|---|---|---|
| 5 | **CHECK DRIVE MOTOR (SHORT).**<br>1) Disconnect the drive motor power cable (HV1).<br>NOTE:<br>The gasket is not reusable.<br>2) Using a milliohm tester, measure the resistance between power cable terminals.<br>***Connector & terminal***<br>***(HV1) U — (HV1) V:***<br>***(HV1) U — (HV1) W:***<br>***(HV1) V — (HV1) W:*** | Is either resistance value 20 mΩ or less? | Replace the drive motor assembly. <Ref. to CVT(TH58A)-217, Drive Motor Assembly.> | Replace the power cable. <Ref. to HEV-52, Power Cable.><br>Go to step **16**. |
| 6 | **CHECK BUS BAR.**<br>1) Turn the ignition to OFF.<br>2) Disconnect the ground cable of the 12 volt auxiliary battery, and as for the 12 volt engine restart battery, disconnect the ground cable from the 12V engine restart battery sensor. <Ref. to NT-5, BATTERY, NOTE, Note.><br>3) Remove the service disconnect plug. <Ref. to HEV-15, Service Plug.><br>4) Wait for 10 minutes.<br>5) Check the bus bar. | Is the condition normal? (Check for loose bolts, insecure connection, foreign matter caught, trace of arc (burnt terminals) etc.) | Go to step **7**. | Retighten the bolts. Or replace the bus bar. |
| 7 | **CHECK DRIVE MOTOR AND POWER CABLE.**<br>1) Leave the vehicle under temperature of 40°C (104°F) or less for 10 minutes.<br>2) Using the Subaru Select Monitor, confirm the current data of drive motor control system, the values of «Drive Motor Temperature A» «Drive Motor Temperature B» are 40°C (104°F) or less. <Ref. to HEV(diag)-52, DRIVE MOTOR CONTROL SYSTEM, OPERATION, Read Current Data.><br>3) Turn the ignition switch to OFF.<br>4) Disconnect the ground cable of the 12 volt auxiliary battery, and as for the 12 volt engine restart battery, disconnect the ground cable from the 12V engine restart battery sensor. <Ref. to NT-5, BATTERY, NOTE, Note.><br>5) Disconnect the power cable (HV2) of drive motor inverter.<br>6) Using a milliohm tester, measure the resistance between power cable terminals.<br>***Connector & terminal***<br>***(HV2) U — (HV2) V:***<br>***(HV2) U — (HV2) W:***<br>***(HV2) V — (HV2) W:*** | Is either resistance value out of 25 — 80 mΩ range? | Go to step **8**. | Go to step **9**. |
| 8 | **CHECK DRIVE MOTOR.**<br>1) Disconnect the drive motor power cable (HV1).<br>NOTE:<br>The gasket is not reusable.<br>2) Using a milliohm tester, measure the resistance between power cable terminals.<br>***Connector & terminal***<br>***(HV1) U — (HV1) V:***<br>***(HV1) U — (HV1) W:***<br>***(HV1) V — (HV1) W:*** | Is either resistance value out of 20 — 70 mΩ range? | Replace the drive motor assembly. <Ref. to CVT(TH58A)-217, Drive Motor Assembly.> | Replace the power cable. <Ref. to HEV-52, Power Cable.><br>Go to step **16**. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 9 | **CHECK DRIVE MOTOR INVERTER.**<br>1) Replace the drive motor inverter. <Ref. to HEV-42, Inverter.><br>2) Replace the removed/disconnected parts back to the vehicle.<br>3) Perform drive cycle B. <Ref. to HEV(diag)-34, DRIVE CYCLE B, PROCEDURE, Drive Cycle.> | Is the same DTC detected? (current malfunction) | Replace DMCM. <Ref. to CVT(TH58A)-157, Drive Motor Control Module.> | Problem is present in drive motor inverter. |
| 10 | **CHECK POWER CABLE (SHORT).**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the ground cable of the 12 volt auxiliary battery, and as for the 12 volt engine restart battery, disconnect the ground cable from the 12V engine restart battery sensor. <Ref. to NT-5, BATTERY, NOTE, Note.><br>3) Disconnect the power cable (HV2) of drive motor inverter.<br>4) Using an insulation multimeter (250 V range), measure the resistance between power cable terminals.<br>***Connector & terminal***<br>***(HV2) U — (HV2) V:***<br>***(HV2) U — (HV2) W:***<br>***(HV2) V — (HV2) W:*** | Does the resistance between any points show 2 MΩ or more? | Replace the drive motor assembly. <Ref. to CVT(TH58A)-217, Drive Motor Assembly.> | Replace the power cable. <Ref. to HEV-52, Power Cable.><br>Go to step **16**. |
| 11 | **CHECK BUS BAR.**<br>Check the bus bar. | Is the condition normal? (Check for loose bolts, insecure connection, foreign matter caught, trace of arc (burnt terminals) etc.) | Go to step **12**. | Retighten the bolts. Or replace the bus bar. |
| 12 | **CHECK DRIVE MOTOR AND POWER CABLE.**<br>1) Leave the vehicle under temperature of 40°C (104°F) or less for 10 minutes.<br>2) Using the Subaru Select Monitor, confirm the current data of drive motor control system, the values of «Drive Motor Temperature A» «Drive Motor Temperature B» are 40°C (104°F) or less. <Ref. to HEV(diag)-52, DRIVE MOTOR CONTROL SYSTEM, OPERATION, Read Current Data.><br>3) Turn the ignition switch to OFF.<br>4) Disconnect the ground cable of the 12 volt auxiliary battery, and as for the 12 volt engine restart battery, disconnect the ground cable from the 12V engine restart battery sensor. <Ref. to NT-5, BATTERY, NOTE, Note.><br>5) Disconnect the power cable (HV2) of drive motor inverter.<br>6) Using an insulation multimeter, measure the resistance between power cable terminals.<br>***Connector & terminal***<br>***(HV2) U — (HV2) V:***<br>***(HV2) U — (HV2) W:***<br>***(HV2) V — (HV2) W:*** | Is either resistance value 0.3 Ω or more? | Go to step **13**. | Go to step **14**. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 13 | **CHECK DRIVE MOTOR.**<br>1) Disconnect the drive motor power cable (HV1).<br>NOTE:<br>The gasket is not reusable.<br>2) Using an insulation multimeter, measure the resistance between power cable terminals.<br>***Connector & terminal***<br>***(HV1) U — (HV1) V:***<br>***(HV1) U — (HV1) W:***<br>***(HV1) V — (HV1) W:*** | Is either resistance value 0.3 Ω or more? | Replace the drive motor assembly. <Ref. to CVT(TH58A)-217, Drive Motor Assembly.> | Replace the power cable. <Ref. to HEV-52, Power Cable.> |
| 14 | **CHECK DRIVE MOTOR AND POWER CABLE.**<br>1) Replace the drive motor assembly. <Ref. to CVT(TH58A)-217, Drive Motor Assembly.><br>2) Replace the power cable. <Ref. to HEV-52, Power Cable.><br>3) Replace the removed/disconnected parts back to the vehicle.<br>4) Perform drive cycle B. <Ref. to HEV(diag)-34, DRIVE CYCLE B, PROCEDURE, Drive Cycle.> | Is the same DTC detected? (current malfunction) | Go to step **15**. | Problem is present in drive motor assembly or power cable. |
| 15 | **CHECK DRIVE MOTOR INVERTER.**<br>1) Replace the drive motor inverter. <Ref. to HEV-42, Inverter.><br>2) Perform drive cycle B. <Ref. to HEV(diag)-34, DRIVE CYCLE B, PROCEDURE, Drive Cycle.> | Is the same DTC detected? (current malfunction) | Replace DMCM. <Ref. to CVT(TH58A)-157, Drive Motor Control Module.> | Problem is present in drive motor inverter. |
| 16 | **CHECK OF DRIVE MOTOR (DEMAGNETIZATION).**<br>1) Replace the removed/disconnected parts back to the vehicle.<br>2) With the 12 V battery connected, remove the service disconnect plug. <Ref. to HEV-15, Service Plug.><br>**CAUTION:**<br>**Watch for an electrical short at each harness because the 12 V battery is connected.**<br>3) Lift up the vehicle.<br>4) Start the engine, and set the shift lever to "D" range.<br>5) Using the Subaru Select Monitor, confirm the current data of drive motor control system, the values of «A/T Oil Temperature» «Drive Motor Speed» «Drive Motor Inverter Input High Voltage Sensor (Serial)». <Ref. to HEV(diag)-52, DRIVE MOTOR CONTROL SYSTEM, OPERATION, Read Current Data.> | «Drive Motor Inverter Input High Voltage Sensor (Serial)» is within the standard specified in Note when «ATF Temperature» is 20 — 60°C (68 — 140°F) and «Drive Motor Speed» is 600 — 1400 rpm. | Even if DTC is detected, the circuit has returned to a normal condition at this time. Reproduce the failure, and then perform the diagnosis again.<br>NOTE:<br>In this case, temporary poor contact of connector, temporary open or short circuit of harness may be the cause. | Replace the drive motor assembly. <Ref. to CVT(TH58A)-217, Drive Motor Assembly.> |

NOTE:
Value of «Drive Motor Inverter Input High Voltage Sensor (Serial)» is proportional to «Drive Motor Speed».
- 1000 rpm: 18 V — 37 V

- 1400 rpm: 25 V — 52 V




(A) Drive motor speed
(B) Drive Motor Inverter Input High Voltage Sensor (Serial)
(C) Standard at Max.
(D) Standard at Min.

# BE:DTC P0A94 DC/DC CONVERTER PERFORMANCE

**DIAGNOSIS:**

- Detects abnormal conditions in DC/DC converter.
- If the DC/DC converter detects serial communication errors with the drive motor control module, or internal errors are detected in the DC/DC converter, it is judged as NG.
- Immediately at fault recognition

**TROUBLE SYMPTOM:**

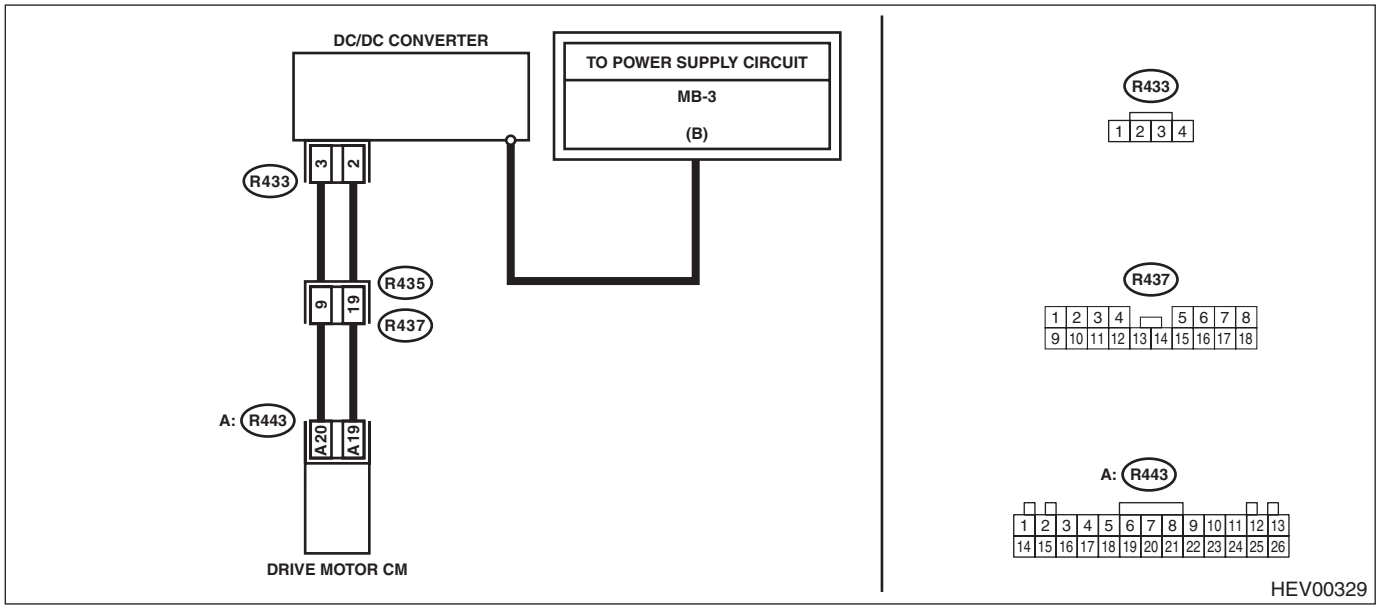
EV traveling/Auto Start Stop does not operate.

**CAUTION:**

**Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.>**

**WIRING DIAGRAM:**

Hybrid system <Ref. to WI(HEV)-140, WIRING DIAGRAM, Hybrid Electric Vehicle System.>




| Step | | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK DTC.**<br>Read the DTC. <Ref. to HEV(diag)-24, DRIVE MOTOR CONTROL SYSTEM, OPERATION, Read Diagnostic Trouble Code (DTC).> | Are any other DTCs detected? (current malfunction) | Perform the diagnosis according to DTC. <Ref. to HEV(diag)-78, DRIVE MOTOR CONTROL SYSTEM, LIST, List of Diagnostic Trouble Code (DTC).> | Go to step **2**. |
| 2 | **CHECK DETAIL CODE.**<br>Using the Subaru Select Monitor, confirm «Detail code» in the freeze frame data of the drive motor control system. <Ref. to HEV(diag)-65, DRIVE MOTOR CONTROL SYSTEM, OPERATION, Freeze Frame Data Display.> | Is «Detail code» displayed? | If 0800 is displayed, Go to step **3**.<br>If 0801 — 0806 is displayed, replace the DC/DC converter. <Ref. to HEV-38, DC/DC Converter.> | Replace DMCM. <Ref. to CVT(TH58A)-157, Drive Motor Control Module.> |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 3 | **CHECK HARNESS (SHORT TO GROUND).**<br>1) Disconnect the DC/DC converter connector.<br>2) Disconnect the DMCM connector.<br>3) Using a tester, measure the resistance between DC/DC converter connector and the ground bolt of inverter frame body.<br>***Connector & terminal***<br>***(R433) No. 2 — Ground bolt of inverter frame body:*** | Is the resistance 1 MΩ or more? | Go to step **4**. | Repair short to ground circuit in harness between DC/DC converter connector and DMCM connector, or repair the intermediate connector. |
| 4 | **CHECK HARNESS (OPEN CIRCUIT).**<br>Using a tester, measure the resistance between DC/DC converter connector and DMCM connector.<br>***Connector & terminal***<br>***(R433) No. 2 — (R443) No. 19:*** | Is the resistance less than 1 Ω? | Go to step **5**. | Repair open circuit in harness between DC/DC converter connector and DMCM connector, or repair the intermediate connector. |
| 5 | **CHECK HARNESS (SHORT TO OTHER SIGNAL).**<br>Using the tester, measure the resistance in the DMCM connector.<br>***Connector & terminal***<br>***(R443) No. 19 — (R442) No. 1 — 22:***<br>***(R443) No. 19 — (R443) No. 1 — 26:***<br>***(R443) No. 19 — (R436) No. 1 — 8:***<br>***(R443) No. 19 — (R432) No. 7:***<br>***(R443) No. 19 — DC/DC converter 12 V output line:*** | Is the resistance 1 MΩ or more? | Go to step **6**. | Repair short circuit in harness between DC/DC converter connector and DMCM connector, or repair the intermediate connector. |
| 6 | **CHECK DTC.**<br>1) Replace the DC/DC converter. <Ref. to HEV-38, DC/DC Converter.><br>2) Perform the Inspection Mode. <Ref. to HEV(diag)-27, Inspection Mode.> | Is the same DTC detected? (current malfunction) | Replace DMCM. <Ref. to CVT(TH58A)-157, Drive Motor Control Module.> | Problem is present in DC/DC converter. |

## BF:DTC P0AED DRIVE MOTOR INVERTER TEMPERATURE SENSOR "A" CIRCUIT

**DIAGNOSIS:**

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-46, DTC P0AED DRIVE MOTOR INVERTER TEMPERATURE SENSOR "A" CIRCUIT, Diagnostic Trouble Code (DTC) Detecting Criteria.>

**TROUBLE SYMPTOM:**

- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.

**CAUTION:**

**Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.>**

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK CURRENT DATA.**<br>Using the Subaru Select Monitor, confirm the current data of drive motor control system, the value of «Drive Motor Inverter Temperature A». <Ref. to HEV(diag)-52, DRIVE MOTOR CONTROL SYSTEM, OPERATION, Read Current Data.> | Is the value 204°C (399°F)? | Replace the drive motor inverter. <Ref. to HEV-42, Inverter.> | Even if DTC is detected, the circuit has returned to a normal condition at this time. Reproduce the failure, and then perform the diagnosis again.<br>NOTE:<br>In this case, temporary poor contact of connector, temporary open or short circuit of harness may be the cause. |

## BG:DTC P0AEE DRIVE MOTOR INVERTER TEMPERATURE SENSOR "A" CIRCUIT RANGE/PERFORMANCE

**DIAGNOSIS:**

- Detected when two consecutive driving cycles with fault occur. (Single engine startup is counted as one drive cycle.)
- GENERAL DESCRIPTION <Ref. to GD(HEV)-47, DTC P0AEE DRIVE MOTOR INVERTER TEMPERATURE SENSOR "A" CIRCUIT RANGE/PERFORMANCE, Diagnostic Trouble Code (DTC) Detecting Criteria.>

**TROUBLE SYMPTOM:**

- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.

**CAUTION:**

**Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.>**

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK CURRENT DATA.**<br>1) Turn the ignition switch to OFF and leave the vehicle 10 minutes unattended.<br>2) Using the Subaru Select Monitor, confirm the current data of drive motor control system, the value of «Drive Motor Inverter Operation Update Counter». <Ref. to HEV(diag)-52, DRIVE MOTOR CONTROL SYSTEM, OPERATION, Read Current Data.> | Has the value changed (when the ignition is turned to ON)? | Go to step **2**. | Perform the diagnosis according to DTC P0C0C and P1C30. <Ref. to HEV(diag)-78, DRIVE MOTOR CONTROL SYSTEM, LIST, List of Diagnostic Trouble Code (DTC).> |
| 2 | **CHECK CURRENT DATA.**<br>Using the Subaru Select Monitor, confirm the current data of drive motor control system, the values of «Drive Motor Inverter Temperature A» «Drive Motor Inverter Temperature B» «Drive Motor Inverter Temperature C». <Ref. to HEV(diag)-52, DRIVE MOTOR CONTROL SYSTEM, OPERATION, Read Current Data.> | Is either value at 204°C (399°F)? | Replace the drive motor inverter. <Ref. to HEV-42, Inverter.> | Go to step **3**. |
| 3 | **CHECK CURRENT DATA.**<br>Using the Subaru Select Monitor, confirm the current data of drive motor control system, the values of «Drive Motor Inverter Temperature A» «Drive Motor Inverter Temperature B» «Drive Motor Inverter Temperature C». <Ref. to HEV(diag)-52, DRIVE MOTOR CONTROL SYSTEM, OPERATION, Read Current Data.> | Is the difference between each temperature 30°C (54°F) or less? | Go to step **4**. | Replace the drive motor inverter. <Ref. to HEV-42, Inverter.> |
| 4 | **CHECK CURRENT DATA.**<br>1) With the Subaru Select Monitor connected, drive the vehicle for 10 minutes or more.<br>2) Using the Subaru Select Monitor, confirm the current data of drive motor control system, the values of «Drive Motor Inverter Temperature A» «Drive Motor Inverter Temperature B» «Drive Motor Inverter Temperature C». <Ref. to HEV(diag)-52, DRIVE MOTOR CONTROL SYSTEM, OPERATION, Read Current Data.> | Have any of those values changed 10°C (18°F) or more from the temperature before driving the vehicle? | Replace DMCM. <Ref. to CVT(TH58A)-157, Drive Motor Control Module.> | Replace the drive motor inverter. <Ref. to HEV-42, Inverter.> |

## BH:DTC P0AF2 DRIVE MOTOR INVERTER TEMPERATURE SENSOR "B" CIRCUIT

**DIAGNOSIS:**

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-49, DTC P0AF2 DRIVE MOTOR INVERTER TEMPERATURE SENSOR "B" CIRCUIT, Diagnostic Trouble Code (DTC) Detecting Criteria.>

**TROUBLE SYMPTOM:**

- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.

**CAUTION:**

**Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.>**

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK CURRENT DATA.**<br>Using the Subaru Select Monitor, confirm the current data of drive motor control system, the value of «Drive Motor Inverter Temperature B». <Ref. to HEV(diag)-52, DRIVE MOTOR CONTROL SYSTEM, OPERATION, Read Current Data.> | Is the value 204°C (399°F)? | Replace the drive motor inverter. <Ref. to HEV-42, Inverter.> | Even if DTC is detected, the circuit has returned to a normal condition at this time. Reproduce the failure, and then perform the diagnosis again.<br>NOTE:<br>In this case, temporary poor contact of connector, temporary open or short circuit of harness may be the cause. |

## BI: DTC P0AF3 DRIVE MOTOR INVERTER TEMPERATURE SENSOR "B" CIRCUIT RANGE/PERFORMANCE

**DIAGNOSIS:**

- Detected when two consecutive driving cycles with fault occur. (Single engine startup is counted as one drive cycle.)
- GENERAL DESCRIPTION <Ref. to GD(HEV)-50, DTC P0AF3 DRIVE MOTOR INVERTER TEMPERATURE SENSOR "B" CIRCUIT RANGE/PERFORMANCE, Diagnostic Trouble Code (DTC) Detecting Criteria.>

NOTE:

For the diagnostic procedure, refer to "DTC P0AEE DRIVE MOTOR INVERTER TEMPERATURE SENSOR "A" CIRCUIT RANGE/PERFORMANCE". <Ref. to HEV(diag)-232, DTC P0AEE DRIVE MOTOR INVERTER TEMPERATURE SENSOR "A" CIRCUIT RANGE/PERFORMANCE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

## BJ:DTC P0BD1 DRIVE MOTOR INVERTER TEMPERATURE SENSOR "C" CIRCUIT

**DIAGNOSIS:**

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-52, DTC P0BD1 DRIVE MOTOR INVERTER TEMPERATURE SENSOR "C" CIRCUIT, Diagnostic Trouble Code (DTC) Detecting Criteria.>

**TROUBLE SYMPTOM:**

- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.

**CAUTION:**

**Before performing diagnosis, refer to “CAUTION” in “General Description”. <Ref. to HEV(diag)-8, CAUTION, General Description.>**

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK CURRENT DATA.**<br>Using the Subaru Select Monitor, confirm the current data of drive motor control system, the value of «Drive Motor Inverter Temperature C». <Ref. to HEV(diag)-52, DRIVE MOTOR CONTROL SYSTEM, OPERATION, Read Current Data.> | Is the value 204°C (399°F)? | Replace the drive motor inverter. <Ref. to HEV-42, Inverter.> | Even if DTC is detected, the circuit has returned to a normal condition at this time. Reproduce the failure, and then perform the diagnosis again.<br>NOTE:<br>In this case, temporary poor contact of connector, temporary open or short circuit of harness may be the cause. |

## BK:DTC P0BD2 DRIVE MOTOR INVERTER TEMPERATURE SENSOR "C" CIRCUIT RANGE/PERFORMANCE

**DIAGNOSIS:**

- Detected when two consecutive driving cycles with fault occur. (Single engine startup is counted as one drive cycle.)
- GENERAL DESCRIPTION <Ref. to GD(HEV)-53, DTC P0BD2 DRIVE MOTOR INVERTER TEMPERATURE SENSOR "C" CIRCUIT RANGE/PERFORMANCE, Diagnostic Trouble Code (DTC) Detecting Criteria.>

NOTE:

For the diagnostic procedure, refer to “DTC P0AEE DRIVE MOTOR INVERTER TEMPERATURE SENSOR "A" CIRCUIT RANGE/PERFORMANCE”. <Ref. to HEV(diag)-232, DTC P0AEE DRIVE MOTOR INVERTER TEMPERATURE SENSOR "A" CIRCUIT RANGE/PERFORMANCE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

# BL:DTC P0BE6 DRIVE MOTOR "A" PHASE U CURRENT SENSOR CIRCUIT RANGE/PERFORMANCE

**DIAGNOSIS:**

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-55, DTC P0BE6 DRIVE MOTOR "A" PHASE U CURRENT SENSOR CIRCUIT RANGE/PERFORMANCE, Diagnostic Trouble Code (DTC) Detecting Criteria.>

**TROUBLE SYMPTOM:**

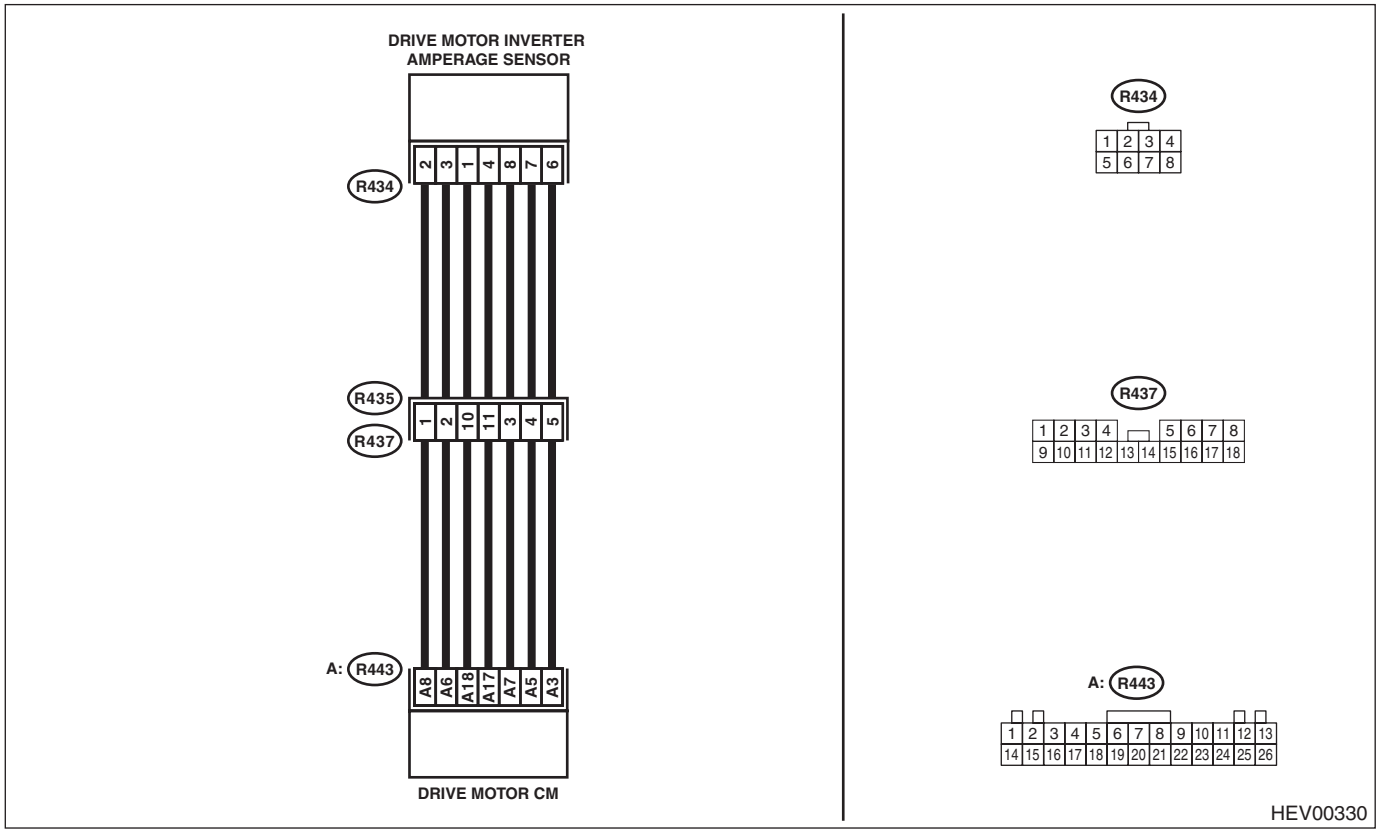
- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.

**CAUTION:**

**Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.>**

**WIRING DIAGRAM**

Hybrid system <Ref. to WI(HEV)-140, WIRING DIAGRAM, Hybrid Electric Vehicle System.>



| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK CURRENT DATA.**<br>Using the Subaru Select Monitor, confirm the current data of drive motor control system, the value of «Phase U Amperage Sensor Voltage». <Ref. to HEV(diag)-52, DRIVE MOTOR CONTROL SYSTEM, OPERATION, Read Current Data.> | Is the value 2.5 V±0.1 V? | Even if DTC is detected, the circuit has returned to a normal condition at this time. Reproduce the failure, and then perform the diagnosis again.<br>NOTE:<br>In this case, temporary poor contact of connector, temporary open or short circuit of harness may be the cause. | Go to step **2**. |
| 2 | **CHECK HARNESS (SHORT TO GROUND).**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the ground cable of the 12 volt auxiliary battery, and as for the 12 volt engine restart battery, disconnect the ground cable from the 12V engine restart battery sensor. <Ref. to NT-5, BATTERY, NOTE, Note.><br>3) Remove the service disconnect plug. <Ref. to HEV-15, Service Plug.><br>4) Wait for 10 minutes.<br>5) Disconnect the DMCM connector.<br>6) Disconnect the drive motor inverter amperage sensor connector.<br>7) Using a tester, measure the resistance between DMCM connector and the ground bolt of inverter frame body.<br>***Connector & terminal***<br>***(R443) No. 7 — Ground bolt of inverter frame body:***<br>***(R443) No. 5 — Ground bolt of inverter frame body:***<br>***(R443) No. 3 — Ground bolt of inverter frame body:*** | Is the resistance 1 MΩ or more? | Go to step **3**. | Repair short to ground circuit in harness between DMCM connector and drive motor inverter amperage sensor connector, or repair the intermediate connector. |
| 3 | **CHECK HARNESS (OPEN CIRCUIT).**<br>Using a tester, measure the resistance between DMCM connector and the drive motor inverter amperage sensor connector.<br>***Connector & terminal:***<br>***(R443) No. 7 — (R434) No. 8:***<br>***(R443) No. 5 — (R434) No. 7:***<br>***(R443) No. 3 — (R434) No. 6:*** | Is the resistance less than 1 Ω? | Go to step **4**. | Repair open circuit in harness between DMCM connector and drive motor inverter amperage sensor connector, or repair the intermediate connector. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 4 | **CHECK HARNESS (SHORT TO POWER AND SHORT TO OTHER SIGNAL LINES).**<br>1) Disconnect the drive motor inverter connector.<br>2) Disconnect the intermediate connector (R436).<br>3) Using a tester, measure the resistance within the DMCM connector and between the DMCM connector and the drive motor inverter connector.<br>***Connector & terminal:***<br>***(R443) No. 7 — (R442) No. 1 — 22:***<br>***(R443) No. 7 — (R443) No. 1 — 26:***<br>***(R443) No. 7 — (R436) No. 1 — 8:***<br>***(R443) No. 7 — (R432) No. 7:***<br>***(R443) No. 5 — (R442) No. 1 — 22:***<br>***(R443) No. 5 — (R443) No. 1 — 26:***<br>***(R443) No. 5 — (R436) No. 1 — 8:***<br>***(R443) No. 5 — (R432) No. 7:***<br>***(R443) No. 3 — (R442) No. 1 — 22:***<br>***(R443) No. 3 — (R443) No. 1 — 26:***<br>***(R443) No. 3 — (R436) No. 1 — 8:***<br>***(R443) No. 3 — (R432) No. 7:*** | Is the resistance 1 MΩ or more? | Go to step **5**. | Repair short circuit to power in harness between DMCM connector and drive motor inverter amperage sensor connector, or repair the intermediate connector. |
| 5 | **CHECK DRIVE MOTOR INVERTER AMPERAGE SENSOR.**<br>1) Replace the drive motor inverter amperage sensor. <Ref. to HEV-27, Drive Motor Inverter Current Sensor.><br>2) Perform the Inspection Mode. <Ref. to HEV(diag)-27, Inspection Mode.> | Is the same DTC detected? (current malfunction) | Replace DMCM. <Ref. to CVT(TH58A)-157, Drive Motor Control Module.> | Problem is present in drive motor inverter amperage sensor. |

# BM:DTC P0BE7 DRIVE MOTOR "A" PHASE U CURRENT SENSOR CIRCUIT LOW

**DIAGNOSIS:**

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-56, DTC P0BE7 DRIVE MOTOR "A" PHASE U CURRENT SENSOR CIRCUIT LOW, Diagnostic Trouble Code (DTC) Detecting Criteria.>

**TROUBLE SYMPTOM:**

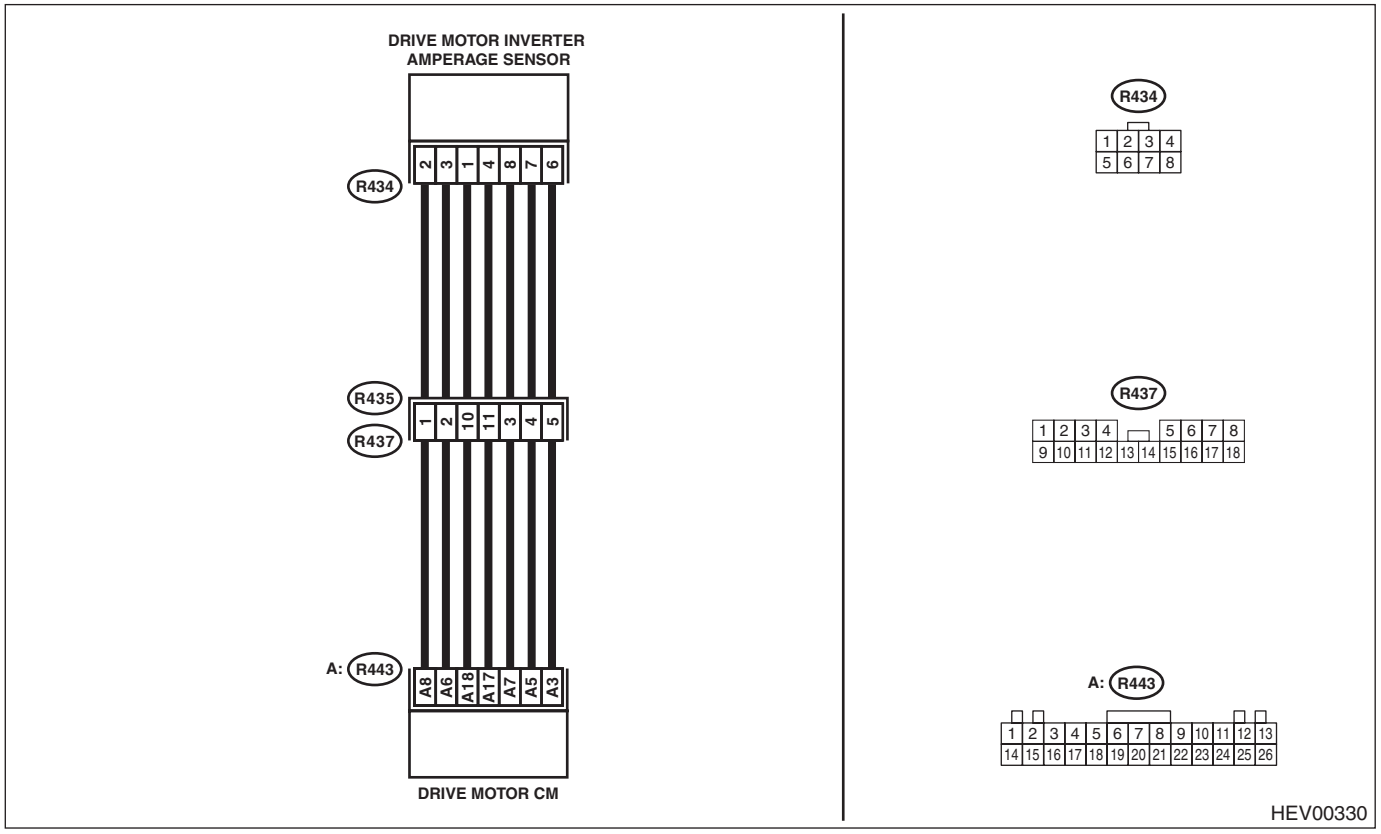
- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.

**CAUTION:**

**Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.>**

**WIRING DIAGRAM**

Hybrid system <Ref. to WI(HEV)-140, WIRING DIAGRAM, Hybrid Electric Vehicle System.>



| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK CURRENT DATA.**<br>Using the Subaru Select Monitor, confirm the current data of drive motor control system, the value of «Phase U Amperage Sensor Voltage». <Ref. to HEV(diag)-52, DRIVE MOTOR CONTROL SYSTEM, OPERATION, Read Current Data.> | Is the value 0.5 V or less? | Go to step **2**. | Even if DTC is detected, the circuit has returned to a normal condition at this time. Reproduce the failure, and then perform the diagnosis again.<br>NOTE:<br>In this case, temporary poor contact of connector, temporary open or short circuit of harness may be the cause. |
| 2 | **CHECK HARNESS (SHORT TO GROUND).**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the ground cable of the 12 volt auxiliary battery, and as for the 12 volt engine restart battery, disconnect the ground cable from the 12V engine restart battery sensor. <Ref. to NT-5, BATTERY, NOTE, Note.><br>3) Remove the service disconnect plug. <Ref. to HEV-15, Service Plug.><br>4) Wait for 10 minutes.<br>5) Disconnect the DMCM connector.<br>6) Disconnect the drive motor inverter amperage sensor connector.<br>7) Using a tester, measure the resistance between DMCM connector and the ground bolt of inverter frame body.<br>***Connector & terminal***<br>***(R443) No. 7 — Ground bolt of inverter frame body:***<br>***(R443) No. 5 — Ground bolt of inverter frame body:***<br>***(R443) No. 3 — Ground bolt of inverter frame body:***<br>***(R443) No. 8 — Ground bolt of inverter frame body:***<br>***(R443) No. 6 — Ground bolt of inverter frame body:*** | Is the resistance 1 MΩ or more? | Go to step **3**. | Repair short to ground circuit in harness between DMCM connector and drive motor inverter amperage sensor connector, or repair the intermediate connector. |
| 3 | **CHECK HARNESS (OPEN CIRCUIT).**<br>Using a tester, measure the resistance between DMCM connector and the drive motor inverter amperage sensor connector.<br>***Connector & terminal:***<br>***(R443) No. 7 — (R434) No. 8:***<br>***(R443) No. 5 — (R434) No. 7:***<br>***(R443) No. 3 — (R434) No. 6:***<br>***(R443) No. 8 — (R434) No. 2:***<br>***(R443) No. 6 — (R434) No. 3:*** | Is the resistance less than 1 Ω? | Go to step **4**. | Repair open circuit in harness between DMCM connector and drive motor inverter amperage sensor connector, or repair the intermediate connector. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 4 | **CHECK HARNESS (SHORT TO POWER AND SHORT TO OTHER SIGNAL LINES).**<br>1) Disconnect the drive motor inverter connector.<br>2) Disconnect the intermediate connector (R436).<br>3) Using a tester, measure the resistance within the DMCM connector and between the DMCM connector and the drive motor inverter connector.<br>***Connector & terminal:***<br>***(R443) No. 7 — (R442) No. 1 — 22:***<br>***(R443) No. 7 — (R443) No. 1 — 26:***<br>***(R443) No. 7 — (R436) No. 1 — 8:***<br>***(R443) No. 7 — (R432) No. 7:***<br>***(R443) No. 5 — (R442) No. 1 — 22:***<br>***(R443) No. 5 — (R443) No. 1 — 26:***<br>***(R443) No. 5 — (R436) No. 1 — 8:***<br>***(R443) No. 5 — (R432) No. 7:***<br>***(R443) No. 3 — (R442) No. 1 — 22:***<br>***(R443) No. 3 — (R443) No. 1 — 26:***<br>***(R443) No. 3 — (R436) No. 1 — 8:***<br>***(R443) No. 3 — (R432) No. 7:*** | Is the resistance 1 MΩ or more? | Go to step **5**. | Repair short circuit to power in harness between DMCM connector and drive motor inverter amperage sensor connector, or repair the intermediate connector. |
| 5 | **CHECK DRIVE MOTOR INVERTER AMPERAGE SENSOR.**<br>1) Replace the drive motor inverter amperage sensor. <Ref. to HEV-27, Drive Motor Inverter Current Sensor.><br>2) Perform the Inspection Mode. <Ref. to HEV(diag)-27, Inspection Mode.> | Is the same DTC detected? (current malfunction) | Replace DMCM. <Ref. to CVT(TH58A)-157, Drive Motor Control Module.> | Problem is present in drive motor inverter amperage sensor. |

## BN:DTC P0BE8 DRIVE MOTOR "A" PHASE U CURRENT SENSOR CIRCUIT HIGH

**DIAGNOSIS:**

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-57, DTC P0BE8 DRIVE MOTOR "A" PHASE U CURRENT SENSOR CIRCUIT HIGH, Diagnostic Trouble Code (DTC) Detecting Criteria.>

**TROUBLE SYMPTOM:**

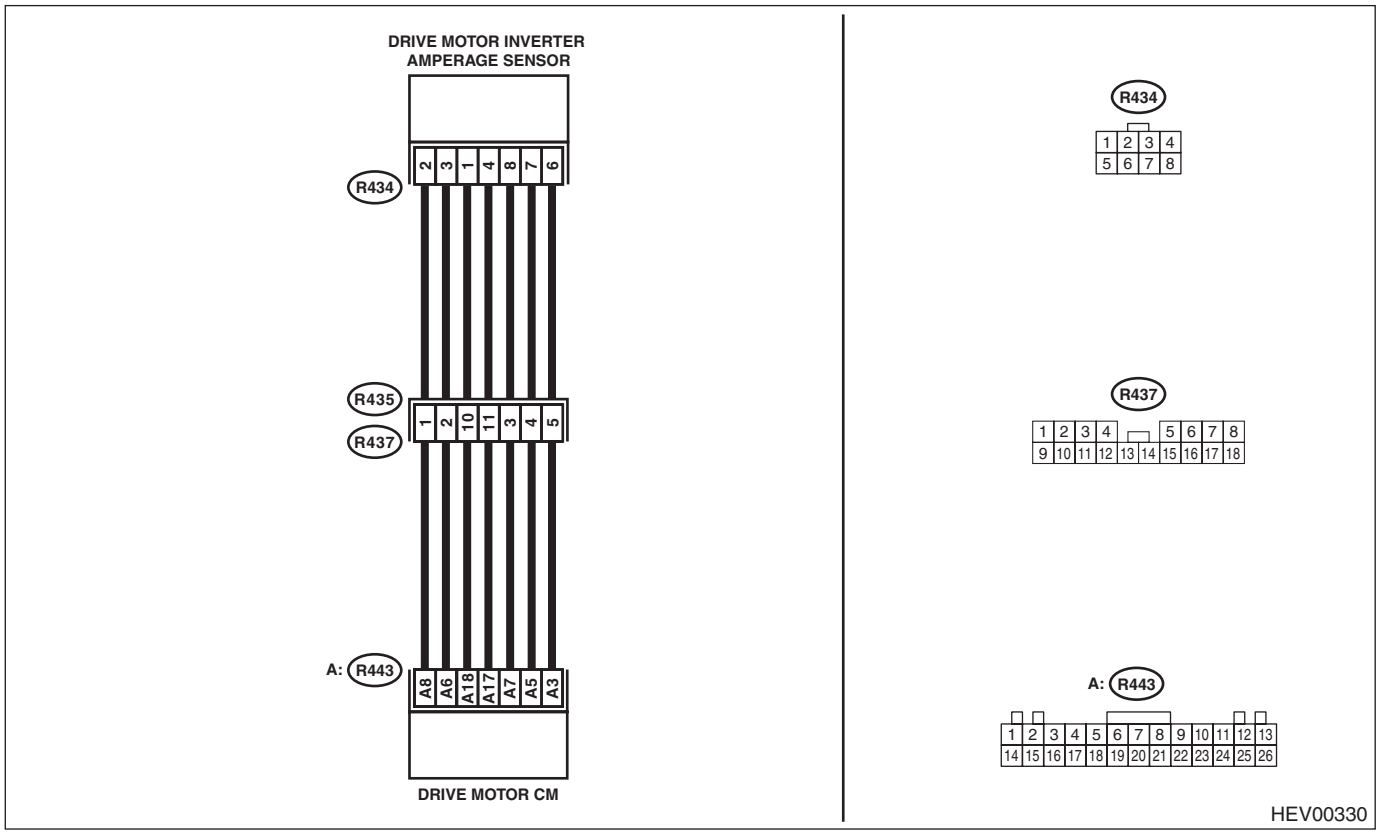
- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.

**CAUTION:**

**Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.>**

**WIRING DIAGRAM**

Hybrid system <Ref. to WI(HEV)-140, WIRING DIAGRAM, Hybrid Electric Vehicle System.>



| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK CURRENT DATA.**<br>Using the Subaru Select Monitor, confirm the current data of drive motor control system, the value of «Phase U Amperage Sensor Voltage». <Ref. to HEV(diag)-52, DRIVE MOTOR CONTROL SYSTEM, OPERATION, Read Current Data.> | Is the value 4.5 V or more? | Go to step **2**. | Even if DTC is detected, the circuit has returned to a normal condition at this time. Reproduce the failure, and then perform the diagnosis again.<br>NOTE:<br>In this case, temporary poor contact of connector, temporary open or short circuit of harness may be the cause. |
| 2 | **CHECK HARNESS (SHORT TO GROUND).**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the ground cable of the 12 volt auxiliary battery, and as for the 12 volt engine restart battery, disconnect the ground cable from the 12V engine restart battery sensor. <Ref. to NT-5, BATTERY, NOTE, Note.><br>3) Remove the service disconnect plug. <Ref. to HEV-15, Service Plug.><br>4) Wait for 10 minutes.<br>5) Disconnect the DMCM connector.<br>6) Disconnect the drive motor inverter amperage sensor connector.<br>7) Using a tester, measure the resistance between DMCM connector and the ground bolt of inverter frame body.<br>***Connector & terminal***<br>***(R443) No. 18 — (R434) No. 1:***<br>***(R443) No. 17 — (R434) No. 4:*** | Is the resistance less than 1 Ω? | Go to step **3**. | Repair short to ground circuit in harness between DMCM connector and drive motor inverter amperage sensor connector, or repair the intermediate connector. |
| 3 | **CHECK HARNESS (SHORT TO POWER AND SHORT TO OTHER SIGNAL LINES).**<br>1) Disconnect the drive motor inverter connector.<br>2) Disconnect the intermediate connector (R436).<br>3) Using a tester, measure the resistance within the DMCM connector and between the DMCM connector and the drive motor inverter connector.<br>***Connector & terminal:***<br>***(R443) No. 7 — (R442) No. 1 — 22:***<br>***(R443) No. 7 — (R443) No. 1 — 26:***<br>***(R443) No. 7 — (R436) No. 1 — 8:***<br>***(R443) No. 7 — (R432) No. 7:***<br>***(R443) No. 5 — (R442) No. 1 — 22:***<br>***(R443) No. 5 — (R443) No. 1 — 26:***<br>***(R443) No. 5 — (R436) No. 1 — 8:***<br>***(R443) No. 5 — (R432) No. 7:***<br>***(R443) No. 3 — (R442) No. 1 — 22:***<br>***(R443) No. 3 — (R443) No. 1 — 26:***<br>***(R443) No. 3 — (R436) No. 1 — 8:***<br>***(R443) No. 3 — (R432) No. 7:*** | Is the resistance 1 MΩ or more? | Go to step **4**. | Repair short circuit to power in harness between DMCM connector and drive motor inverter amperage sensor connector, or repair the intermediate connector. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 4 | **CHECK DRIVE MOTOR INVERTER AMPERAGE SENSOR.**<br>1) Replace the drive motor inverter amperage sensor. <Ref. to HEV-27, Drive Motor Inverter Current Sensor.><br>2) Perform the Inspection Mode. <Ref. to HEV(diag)-27, Inspection Mode.> | Is the same DTC detected? | Replace DMCM. <Ref. to CVT(TH58A)-157, Drive Motor Control Module.> | Problem is present in drive motor inverter amperage sensor. |

## BO:DTC P0BEA DRIVE MOTOR "A" PHASE V CURRENT SENSOR CIRCUIT RANGE/PERFORMANCE

**DIAGNOSIS:**

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-58, DTC P0BEA DRIVE MOTOR "A" PHASE V CURRENT SENSOR CIRCUIT RANGE/PERFORMANCE, Diagnostic Trouble Code (DTC) Detecting Criteria.>

NOTE:
Refer to DTC P0BE6 DRIVE MOTOR "A" PHASE U CURRENT SENSOR CIRCUIT RANGE/PERFORMANCE. <Ref. to HEV(diag)-235, DTC P0BE6 DRIVE MOTOR "A" PHASE U CURRENT SENSOR CIRCUIT RANGE/PERFORMANCE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

## BP:DTC P0BEB DRIVE MOTOR "A" PHASE V CURRENT SENSOR CIRCUIT LOW

**DIAGNOSIS:**

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-59, DTC P0BEB DRIVE MOTOR "A" PHASE V CURRENT SENSOR CIRCUIT LOW, Diagnostic Trouble Code (DTC) Detecting Criteria.>

NOTE:
Refer to DTC P0BE7 DRIVE MOTOR "A" PHASE U CURRENT SENSOR CIRCUIT LOW. <Ref. to HEV(diag)-238, DTC P0BE7 DRIVE MOTOR "A" PHASE U CURRENT SENSOR CIRCUIT LOW, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

## BQ:DTC P0BEC DRIVE MOTOR "A" PHASE V CURRENT SENSOR CIRCUIT HIGH

**DIAGNOSIS:**

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-60, DTC P0BEC DRIVE MOTOR "A" PHASE V CURRENT SENSOR CIRCUIT HIGH, Diagnostic Trouble Code (DTC) Detecting Criteria.>

NOTE:
Refer to DTC P0BE8 DRIVE MOTOR "A" PHASE U CURRENT SENSOR CIRCUIT HIGH. <Ref. to HEV(diag)-241, DTC P0BE8 DRIVE MOTOR "A" PHASE U CURRENT SENSOR CIRCUIT HIGH, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

## BR:DTC P0BEE DRIVE MOTOR "A" PHASE W CURRENT SENSOR CIRCUIT RANGE/PERFORMANCE

**DIAGNOSIS:**

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-61, DTC P0BEE DRIVE MOTOR "A" PHASE W CURRENT SENSOR CIRCUIT RANGE/PERFORMANCE, Diagnostic Trouble Code (DTC) Detecting Criteria.>

NOTE:
Refer to DTC P0BE6 DRIVE MOTOR "A" PHASE U CURRENT SENSOR CIRCUIT RANGE/PERFORMANCE. <Ref. to HEV(diag)-235, DTC P0BE6 DRIVE MOTOR "A" PHASE U CURRENT SENSOR CIRCUIT RANGE/PERFORMANCE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

## BS:DTC P0BEF DRIVE MOTOR "A" PHASE W CURRENT SENSOR CIRCUIT LOW

**DIAGNOSIS:**

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-62, DTC P0BEF DRIVE MOTOR "A" PHASE W CURRENT SENSOR CIRCUIT LOW, Diagnostic Trouble Code (DTC) Detecting Criteria.>

NOTE:
Refer to DTC P0BE7 DRIVE MOTOR "A" PHASE U CURRENT SENSOR CIRCUIT LOW. <Ref. to HEV(diag)-238, DTC P0BE7 DRIVE MOTOR "A" PHASE U CURRENT SENSOR CIRCUIT LOW, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

## BT:DTC P0BF0 DRIVE MOTOR "A" PHASE W CURRENT SENSOR CIRCUIT HIGH

**DIAGNOSIS:**

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-63, DTC P0BF0 DRIVE MOTOR "A" PHASE W CURRENT SENSOR CIRCUIT HIGH, Diagnostic Trouble Code (DTC) Detecting Criteria.>

NOTE:
Refer to DTC P0BE8 DRIVE MOTOR "A" PHASE U CURRENT SENSOR CIRCUIT HIGH. <Ref. to HEV(diag)-241, DTC P0BE8 DRIVE MOTOR "A" PHASE U CURRENT SENSOR CIRCUIT HIGH, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

# BU:DTC P0BFD DRIVE MOTOR "A" PHASE U-V-W CURRENT SENSOR CORRELATION

**DIAGNOSIS:**

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-64, DTC P0BFD DRIVE MOTOR "A" PHASE U-V-W CURRENT SENSOR CORRELATION, Diagnostic Trouble Code (DTC) Detecting Criteria.>

**TROUBLE SYMPTOM:**

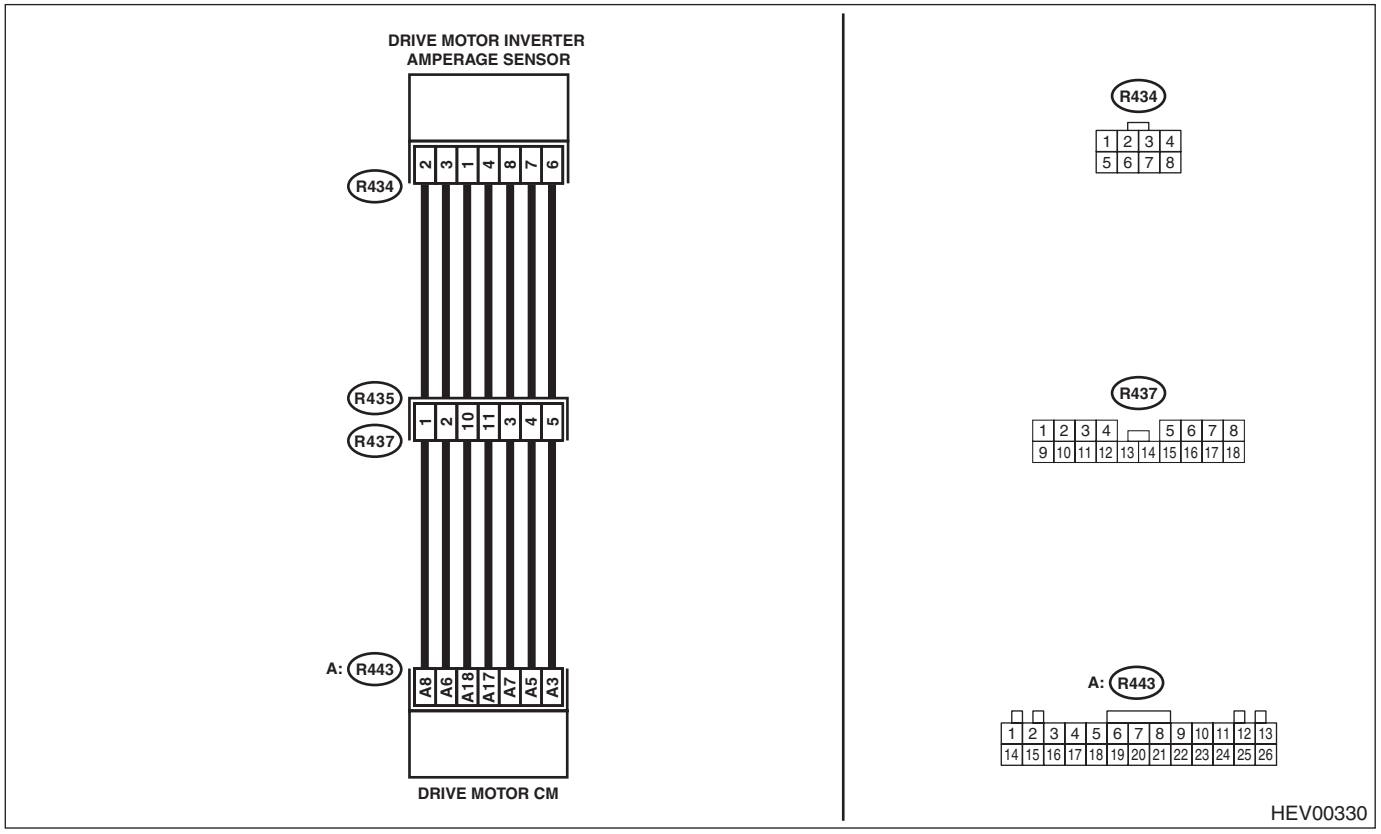
- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.

**CAUTION:**

**Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.>**

**WIRING DIAGRAM**

Hybrid system <Ref. to WI(HEV)-140, WIRING DIAGRAM, Hybrid Electric Vehicle System.>



| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK CURRENT DATA.**<br>Using the Subaru Select Monitor, confirm the current data of drive motor control system, the values of «Phase U Amperage» «Phase V Amperage» «Phase W Amperage». <Ref. to HEV(diag)-52, DRIVE MOTOR CONTROL SYSTEM, OPERATION, Read Current Data.> | Is the sum of those three values 45 A or more? | Go to step **2**. | Even if DTC is detected, the circuit has returned to a normal condition at this time. Reproduce the failure, and then perform the diagnosis again.<br>NOTE:<br>In this case, temporary poor contact of connector, temporary open or short circuit of harness may be the cause. |
| 2 | **CHECK HARNESS (OPEN CIRCUIT).**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the ground cable of the 12 volt auxiliary battery, and as for the 12 volt engine restart battery, disconnect the ground cable from the 12V engine restart battery sensor. <Ref. to NT-5, BATTERY, NOTE, Note.><br>3) Remove the service disconnect plug. <Ref. to HEV-15, Service Plug.><br>4) Wait for 10 minutes.<br>5) Disconnect the DMCM connector.<br>6) Disconnect the drive motor inverter amperage sensor connector.<br>7) Using a tester, measure the resistance between DMCM connector and the current sensor connector. Connector & terminal<br>***Connector & terminal:***<br>***(R443) No. 7 — (R434) No. 8:***<br>***(R443) No. 5 — (R434) No. 7:***<br>***(R443) No. 3 — (R434) No. 6:*** | Is the resistance less than 1 Ω? | Go to step **3**. | Repair open circuit in harness between DMCM connector and drive motor inverter amperage sensor connector, or repair the intermediate connector. |
| 3 | **CHECK HARNESS (SHORT TO GROUND).**<br>Using a tester, measure the resistance between DMCM connector and the ground bolt of inverter frame body.<br>***Connector & terminal:***<br>***(R443) No. 7 — Ground bolt of inverter frame body:***<br>***(R443) No. 5 — Ground bolt of inverter frame body:***<br>***(R443) No. 3 — Ground bolt of inverter frame body:*** | Is the resistance 1 MΩ or more? | Go to step **4**. | Repair short to ground circuit in harness between DMCM connector and drive motor inverter amperage sensor connector, or repair the intermediate connector. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 4 | **CHECK HARNESS (BATTERY SHORT AND SHORT IN OTHER SIGNAL LINES).**<br>1) Disconnect the drive motor inverter connector.<br>2) Disconnect the intermediate connector (R436).<br>3) Using a tester, measure the resistance between the DMCM connector, each signal pin of DMCM, and the inverter connector.<br>***Connector & terminal:***<br>***(R443) No. 7 — (R442) No. 1 — 22:***<br>***(R443) No. 7 — (R443) No. 1 — 26:***<br>***(R443) No. 7 — (R436) No. 1 — 8:***<br>***(R443) No. 7 — (R432) No. 7:***<br>***(R443) No. 5 — (R442) No. 1 — 22:***<br>***(R443) No. 5 — (R443) No. 1 — 26:***<br>***(R443) No. 5 — (R436) No. 1 — 8:***<br>***(R443) No. 5 — (R432) No. 7:***<br>***(R443) No. 3 — (R442) No. 1 — 22:***<br>***(R443) No. 3 — (R443) No. 1 — 26:***<br>***(R443) No. 3 — (R436) No. 1 — 8:***<br>***(R443) No. 3 — (R432) No. 7:*** | Is the resistance 1 MΩ or more? | Go to step **5**. | Repair short circuit to power in harness between DMCM connector and drive motor inverter amperage sensor connector, or repair the intermediate connector. |
| 5 | **CHECK DRIVE MOTOR INVERTER AMPERAGE SENSOR.**<br>1) Replace the drive motor inverter amperage sensor. <Ref. to HEV-27, Drive Motor Inverter Current Sensor.><br>2) Perform the Inspection Mode. <Ref. to HEV(diag)-27, Inspection Mode.> | Is the same DTC detected? (current malfunction) | Replace DMCM. <Ref. to CVT(TH58A)-157, Drive Motor Control Module.> | Problem is present in drive motor inverter amperage sensor. |

## BV:DTC P0C05 DRIVE MOTOR "A" PHASE U-V-W CIRCUIT/OPEN

**DIAGNOSIS:**

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-65, DTC P0C05 DRIVE MOTOR "A" PHASE U-V-W CIRCUIT/OPEN, Diagnostic Trouble Code (DTC) Detecting Criteria.>

**TROUBLE SYMPTOM:**

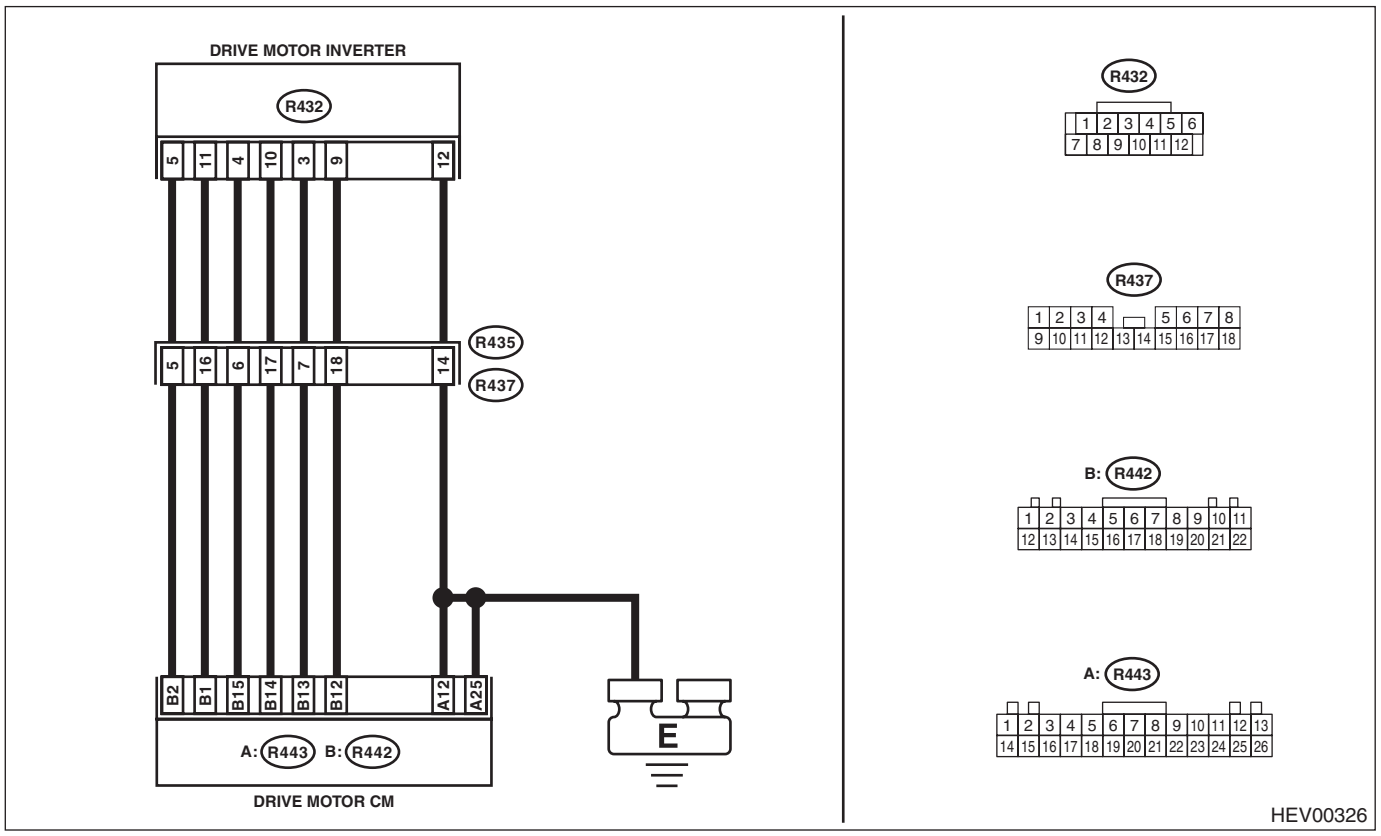
- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.

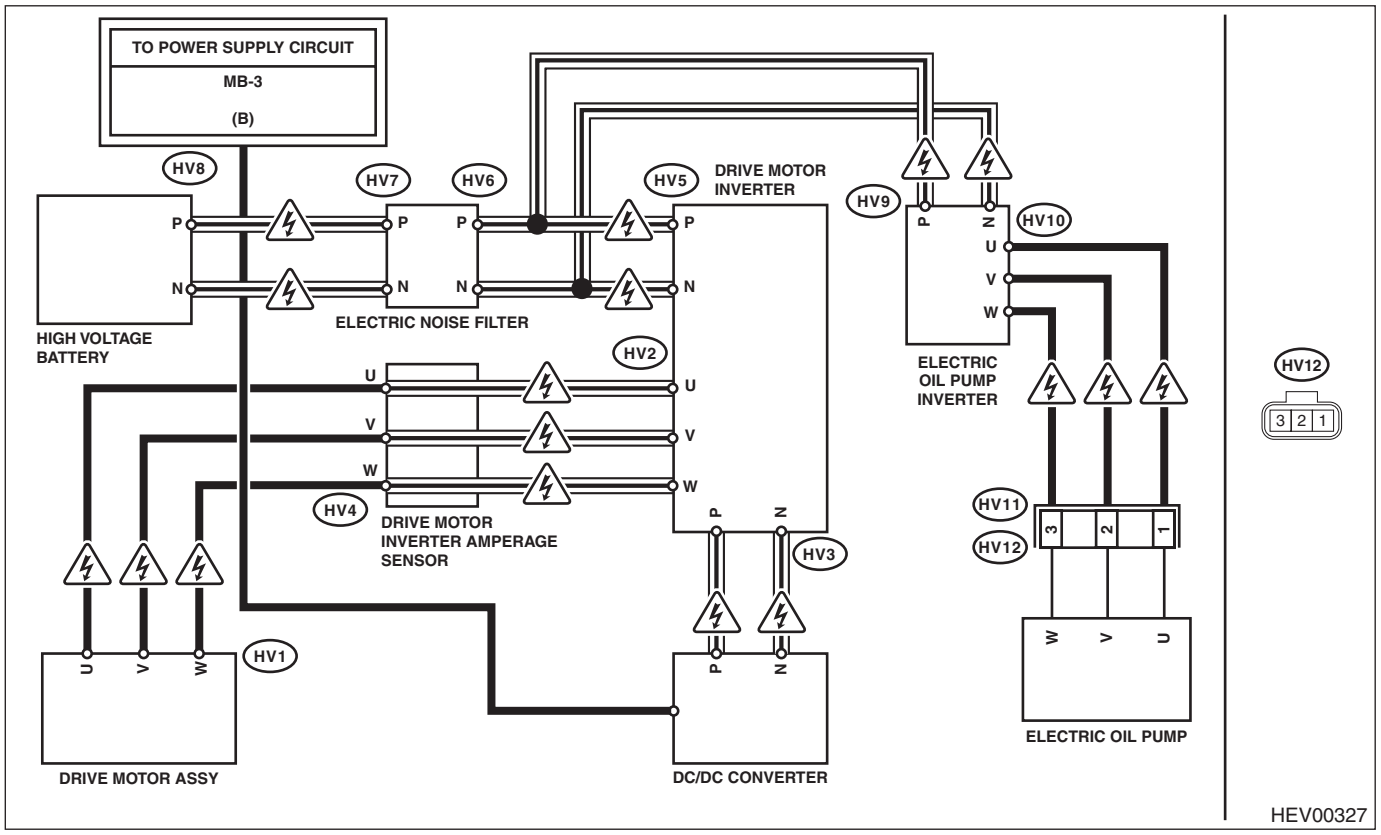
**CAUTION:**

**Before performing diagnosis, refer to “CAUTION” in “General Description”. <Ref. to HEV(diag)-8, CAUTION, General Description.>**

**WIRING DIAGRAM**

Hybrid system <Ref. to WI(HEV)-140, WIRING DIAGRAM, Hybrid Electric Vehicle System.>






| Step | | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK DTC.**<br>Read the DTC. <Ref. to HEV(diag)-24, DRIVE MOTOR CONTROL SYSTEM, OPERATION, Read Diagnostic Trouble Code (DTC).> | Are any other DTCs detected? (current malfunction) | Perform the diagnosis according to DTC. <Ref. to HEV(diag)-78, DRIVE MOTOR CONTROL SYSTEM, LIST, List of Diagnostic Trouble Code (DTC).> | Go to step **2**. |
| 2 | **CHECK HARNESS (OPEN CIRCUIT IN INVERTER CONTROL GND).**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the ground cable of the 12 volt auxiliary battery, and as for the 12 volt engine restart battery, disconnect the ground cable from the 12V engine restart battery sensor. <Ref. to NT-5, BATTERY, NOTE, Note.><br>3) Remove the service disconnect plug. <Ref. to HEV-15, Service Plug.><br>4) Wait for 10 minutes.<br>5) Disconnect the DMCM connector.<br>6) Disconnect the drive motor inverter connector.<br>7) Using a tester, measure the resistance between the drive motor inverter connector and the ground bolt of inverter frame body.<br>***Connector & terminal:***<br>***(R432) No. 12 — Ground bolt of inverter frame body:*** | Is the resistance less than 1 Ω? | Go to step **3**. | Repair open circuit in harness between drive motor inverter connector and chassis ground, or repair the intermediate connector. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 3 | **CHECK HARNESS (OPEN CIRCUIT).**<br>Using a tester, measure the resistance between the drive motor inverter connector and DMCM connector.<br>***Connector & terminal:***<br>***(R442) No. 2 — (R432) No. 5:***<br>***(R442) No. 1 — (R432) No. 11:***<br>***(R442) No. 15 — (R432) No. 4:***<br>***(R442) No. 14 — (R432) No. 10:***<br>***(R442) No. 13 — (R432) No. 3:***<br>***(R442) No. 12 — (R432) No. 9:*** | Is the resistance less than 1 Ω? | Go to step **4**. | Repair open circuit in harness between drive motor inverter connector and DMCM connector, or repair the intermediate connector. |
| 4 | **CHECK HARNESS (SHORT TO GROUND).**<br>Measure the resistance between drive motor inverter connector and chassis ground.<br>***Connector & terminal:***<br>***(R432) No. 5 — Ground bolt of inverter frame body:***<br>***(R432) No. 11 — Ground bolt of inverter frame body:***<br>***(R432) No. 4 — Ground bolt of inverter frame body:***<br>***(R432) No. 10 — Ground bolt of inverter frame body:***<br>***(R432) No. 3 — Ground bolt of inverter frame body:***<br>***(R432) No. 9 — Ground bolt of inverter frame body:*** | Is the resistance 1 MΩ or more? | Go to step **5**. | Repair or replace the circuit in harness and the intermediate connector. |
| 5 | **CHECK DRIVE MOTOR AND POWER CABLE (OPEN CIRCUIT).**<br>1) Leave the vehicle under temperature of 40°C (104°F) or less for 10 minutes.<br>2) Disconnect the power cable (HV2) of drive motor inverter.<br>3) Measure the resistance between each terminal of the power cable.<br>***(HV2) U — (HV2) V:***<br>***(HV2) W — (HV2) U:***<br>***(HV2) V — (HV2) W:*** | Is resistance between either lines 1 Ω or more? | Go to step **6**. | Go to step **7**. |
| 6 | **CHECK DRIVE MOTOR (OPEN CIRCUIT).**<br>1) Disconnect the drive motor power cable (HV1).<br>NOTE:<br>Supply the gasket because it must be replaced.<br>2) Measure the resistance between each terminal of the power cable.<br>***Connector & terminal:***<br>***(HV1) U — (HV1) V:***<br>***(HV1) W — (HV1) U:***<br>***(HV1) V — (HV1) W:*** | Is resistance between either lines 1 Ω or more? | Replace the drive motor assembly. <Ref. to CVT(TH58A)-217, Drive Motor Assembly.> | Replace the power cable. <Ref. to HEV-52, Power Cable.> |
| 7 | **CHECK DRIVE MOTOR INVERTER.**<br>1) Replace the drive motor inverter. <Ref. to HEV-42, Inverter.><br>2) Perform drive cycle A. <Ref. to HEV(diag)-32, DRIVE CYCLE A, PROCEDURE, Drive Cycle.> | Is the same DTC detected? (current malfunction) | Replace DMCM. <Ref. to CVT(TH58A)-157, Drive Motor Control Module.> | Problem is present in drive motor inverter. |

# BW:DTC P0C0C DRIVE MOTOR "A" INVERTER POWER SUPPLY CIRCUIT LOW

**DIAGNOSIS:**

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-66, DTC P0C0C DRIVE MOTOR "A" INVERTER POWER SUPPLY CIRCUIT LOW, Diagnostic Trouble Code (DTC) Detecting Criteria.>

**TROUBLE SYMPTOM:**

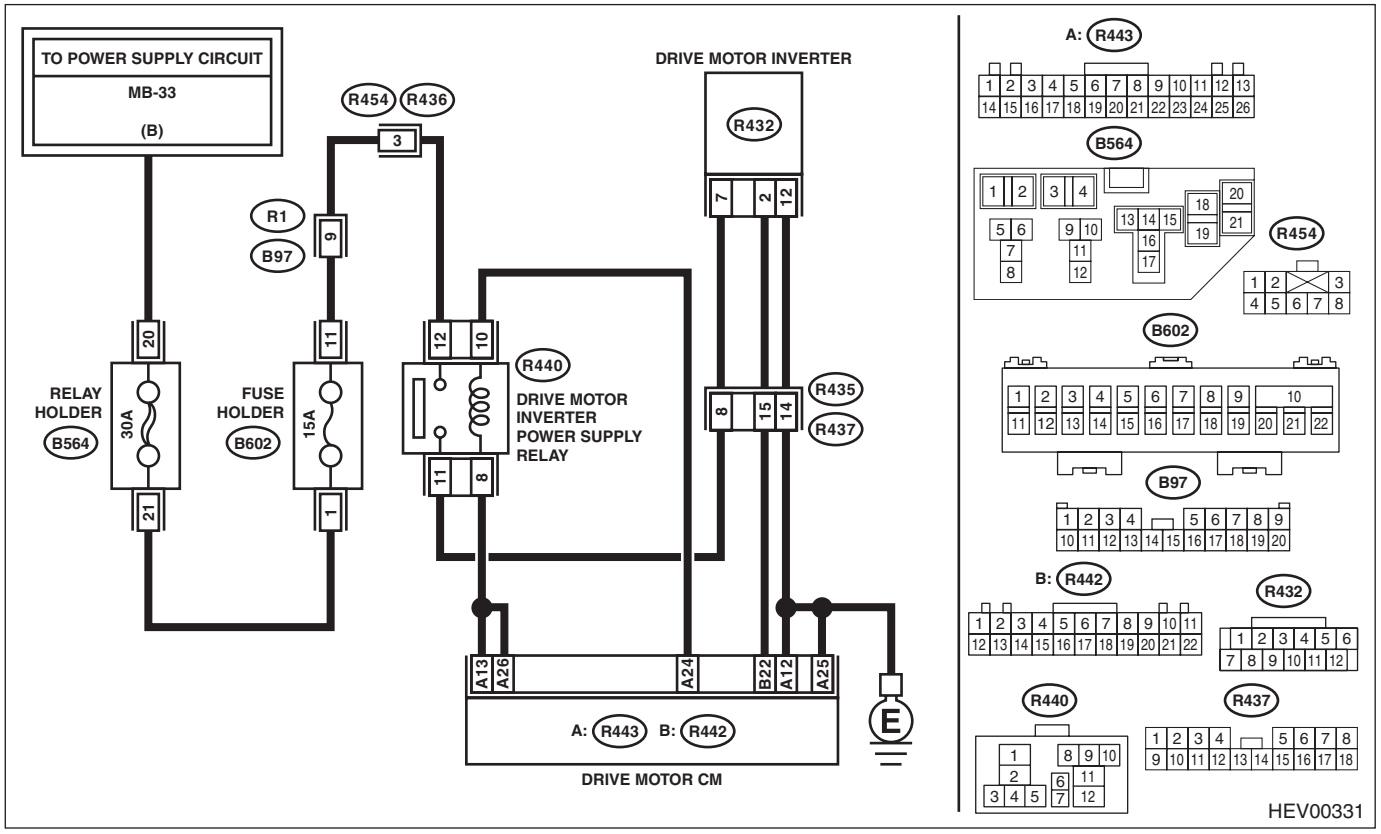
- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.

**CAUTION:**

**Before performing diagnosis, refer to “CAUTION” in “General Description”. <Ref. to HEV(diag)-8, CAUTION, General Description.>**

**WIRING DIAGRAM**

Hybrid system <Ref. to WI(HEV)-140, WIRING DIAGRAM, Hybrid Electric Vehicle System.>




| Step | | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK RELAY.**<br>Using the Subaru Select Monitor, perform «Drive Motor Inverter power supply relay» of System Operation Check Mode for the drive motor control system. <Ref. to HEV(diag)-73, DRIVE MOTOR CONTROL SYSTEM, OPERATION, System Operation Check Mode.> | Does the relay operate? | Go to step **2**. | Go to step **3**. |

| Step | | Check | Yes | No |
|---|---|---|---|---|
| 2 | **CHECK CURRENT DATA.**<br>Using the Subaru Select Monitor, confirm the current data of drive motor control system, the value of «Drive Motor Inverter Operation Update Counter». <Ref. to HEV(diag)-52, DRIVE MOTOR CONTROL SYSTEM, OPERATION, Read Current Data.> | Does the value change? | Even if DTC is detected, the circuit has returned to a normal condition at this time. Reproduce the failure, and then perform the diagnosis again.<br>NOTE:<br>In this case, temporary poor contact of connector, temporary open or short circuit of harness may be the cause. | Perform the diagnosis according to DTC P1C30. <Ref. to HEV(diag)-267, DTC P1C30 LOST COMMUNICATION WITH DRIVE MOTOR INVERTER, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| 3 | **CHECK RELAY.**<br>Check the inverter power supply relay as a single unit. <Ref. to HEV-12, Relay and Fuse.> | Is the condition normal? (Check for continuity between terminals, damage, etc.) | Go to step **4**. | Replace the relay. |
| 4 | **CHECK HARNESS (OPEN CIRCUIT).**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the ground cable of the 12 volt auxiliary battery, and as for the 12 volt engine restart battery, disconnect the ground cable from the 12V engine restart battery sensor. <Ref. to NT-5, BATTERY, NOTE, Note.><br>3) Remove the service disconnect plug. <Ref. to HEV-15, Service Plug.><br>4) Wait for 10 minutes.<br>5) Disconnect the DMCM connector.<br>6) Remove the inverter power supply relay.<br>7) Using a tester, measure the resistance between the inverter power supply relay and DMCM connector.<br>***Connector & terminal***<br>***(R440) No. 10 — (R443) No. 24:***<br>***(R440) No. 8 — (R443) No. 13:***<br>***(R440) No. 8 — (R443) No. 26:*** | Is the resistance less than 1 Ω? | Go to step **5**. | Repair open circuit in harness between DMCM connector and inverter power supply relay connector, or repair the intermediate connector. |
| 5 | **CHECK HARNESS (SHORT TO GROUND).**<br>1) Using a tester, measure the resistance between the inverter power supply relay and the ground bolt of inverter frame body.<br>***Connector & terminal***<br>***(R440) No. 10 — Ground bolt of inverter frame body:***<br>***(R440) No. 8 — Ground bolt of inverter frame body:*** | Is the resistance 1 MΩ or more? | Replace DMCM. <Ref. to CVT(TH58A)-157, Drive Motor Control Module.> | Repair short circuit to ground in harness between DMCM connector and inverter power supply relay connector or between inverter power supply relay and inverter connector, or repair the intermediate connector. |

# BX:DTC P0C0D DRIVE MOTOR "A" INVERTER POWER SUPPLY CIRCUIT HIGH

**DIAGNOSIS:**

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-67, DTC P0C0D DRIVE MOTOR "A" INVERTER POWER SUPPLY CIRCUIT HIGH, Diagnostic Trouble Code (DTC) Detecting Criteria.>

**TROUBLE SYMPTOM:**

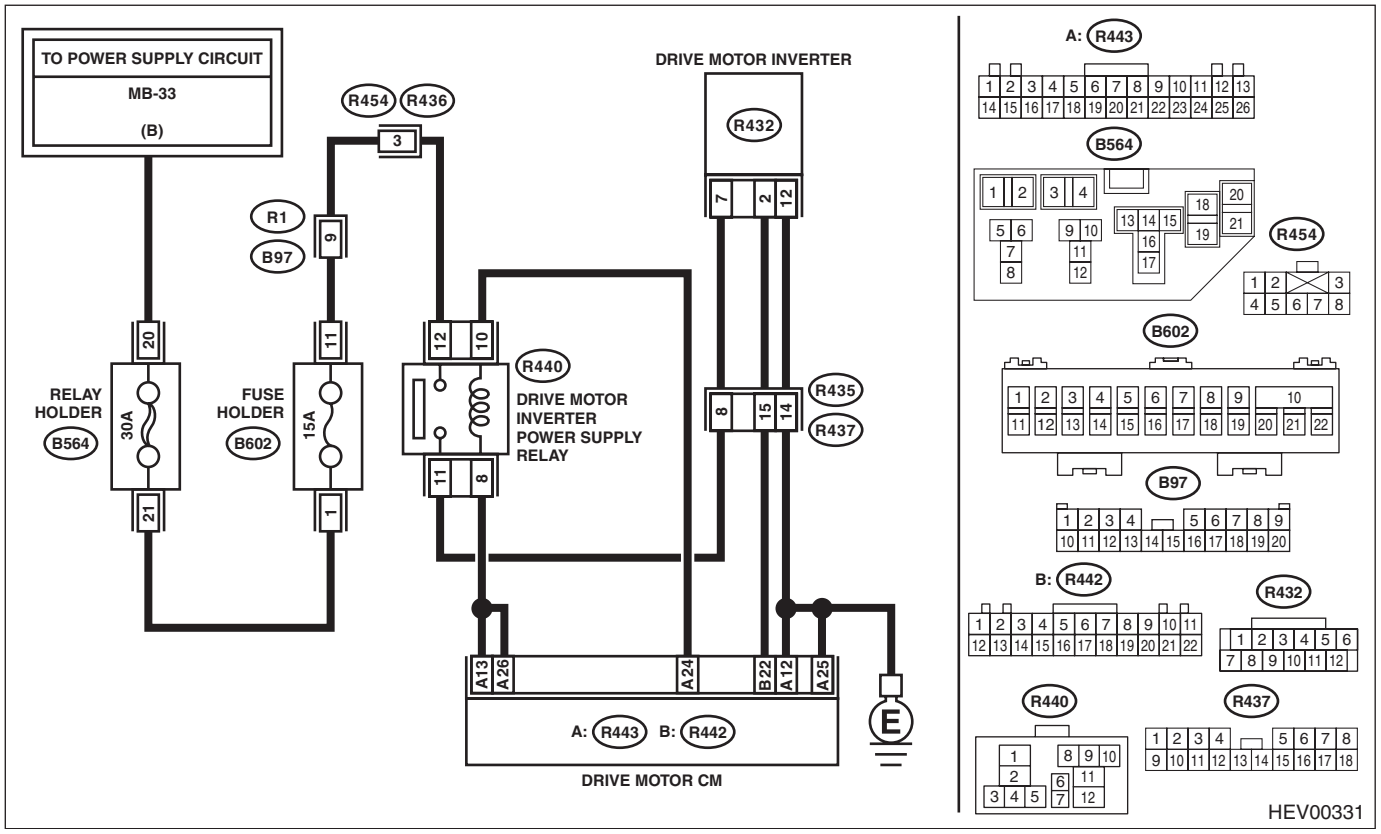
Normal control

**CAUTION:**

**Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.>**

**WIRING DIAGRAM**

Hybrid system <Ref. to WI(HEV)-140, WIRING DIAGRAM, Hybrid Electric Vehicle System.>




| Step | | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK CURRENT DATA.**<br>1) Using the Subaru Select Monitor, perform «Drive Motor Inverter power supply relay» of System Operation Check Mode for the drive motor control system. <Ref. to HEV(diag)-73, DRIVE MOTOR CONTROL SYSTEM, OPERATION, System Operation Check Mode.><br>2) Confirm the current data of in System Operation Check Mode, the value of «Drive Motor Inverter Operation Update Counter». | Does «Drive Motor Inverter Operation Update Counter» stop when «Drive Motor Inverter power supply relay» is OFF? | Even if DTC is detected, the circuit has returned to a normal condition at this time. Reproduce the failure, and then perform the diagnosis again.<br>NOTE:<br>In this case, temporary poor contact of connector, temporary open or short circuit of harness may be the cause. | Go to step **2**. |

| Step | | Check | Yes | No |
|---|---|---|---|---|
| 2 | **CHECK RELAY.**<br>Check the inverter power supply relay as a single unit. <Ref. to HEV-12, Relay and Fuse.> | Is the condition normal? (Check for continuity between terminals, damage, etc.) | Go to step **3**. | Replace the relay. |
| 3 | **CHECK HARNESS (SHORT TO GROUND).**<br>1) Disconnect the DMCM connector.<br>2) Using a tester, measure the resistance between DMCM connector and the ground bolt of inverter frame body.<br>***Connector & terminal***<br>***(R443) No. 24 — Ground bolt of inverter frame body:*** | Is the resistance 1 MΩ or more? | Go to step **4**. | Repair short circuit to ground in harness between DMCM connector and inverter power supply relay connector, or repair the intermediate connector. |
| 4 | **CHECK HARNESS (SHORT TO POWER AND SHORT TO OTHER SIGNAL LINES).**<br>1) Turn the ignition to OFF.<br>2) Disconnect the ground cable of the 12 volt auxiliary battery, and as for the 12 volt engine restart battery, disconnect the ground cable from the 12V engine restart battery sensor. <Ref. to NT-5, BATTERY, NOTE, Note.><br>3) Remove the service disconnect plug. <Ref. to HEV-15, Service Plug.><br>4) Wait for 10 minutes.<br>5) Disconnect the drive motor inverter connector.<br>6) Disconnect the intermediate connector (R436).<br>7) Remove the inverter power supply relay.<br>8) Using a tester, measure the resistance between inverter power supply relay connector and all DMCM signal pins.<br>***Connector & terminal***<br>***(R440) No. 12 — (R442) No. 1 — 22:***<br>***(R440) No. 12 — (R443) No. 1 — 26:***<br>***(R440) No. 12 — (R436) No. 1 — 8 (except No. 3):***<br>***(R440) No. 10 — (R442) No. 1 — 22:***<br>***(R440) No. 10 — (R443) No. 1 — 26 (except No. 24):***<br>***(R440) No. 10 — (R436) No. 1 — 8:***<br>***(R440) No. 10 — (R432) No. 7:*** | Is the resistance 1 MΩ or more? | Replace DMCM. <Ref. to CVT(TH58A)-157, Drive Motor Control Module.> | Repair short circuit in harness between the inverter power supply relay and DMCM, harness between inverter power supply relay and drive motor inverter, or repair the intermediate connector. |

## BY:DTC P0C79 DRIVE MOTOR "A" INVERTER VOLTAGE TOO HIGH

**DIAGNOSIS:**

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-70, DTC P0C79 DRIVE MOTOR "A" INVERTER VOLTAGE TOO HIGH, Diagnostic Trouble Code (DTC) Detecting Criteria.>

**TROUBLE SYMPTOM:**

- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.

**CAUTION:**

**Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.>**

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK FREEZE FRAME DATA.**<br>Using the Subaru Select Monitor, confirm the value of «Contactor Signal(HPCM)» in the freeze frame data of the drive motor control system. <Ref. to HEV(diag)-65, DRIVE MOTOR CONTROL SYSTEM, OPERATION, Freeze Frame Data Display.> | Is either «OFF» or «Abnormal OFF» displayed? | Go to step **2**. | Go to step **3**. |
| 2 | **CHECK DTC.**<br>Read DTCs of the following system.<br>• Hybrid powertrain control system <Ref. to HEV(diag)-24, HYBRID POWERTRAIN CONTROL SYSTEM, OPERATION, Read Diagnostic Trouble Code (DTC).><br>• Battery energy control system <Ref. to HEV(diag)-24, BATTERY ENERGY CONTROL SYSTEM, OPERATION, Read Diagnostic Trouble Code (DTC).><br>• Drive motor control system <Ref. to HEV(diag)-24, DRIVE MOTOR CONTROL SYSTEM, OPERATION, Read Diagnostic Trouble Code (DTC).><br>• Engine <Ref. to EN(H4DO HEV)(diag)-51, Read Diagnostic Trouble Code (DTC).><br>• Transmission <Ref. to CVT(HEV)(diag)-19, Read Diagnostic Trouble Code (DTC).> | Are any other DTCs detected? (current malfunction) | Perform the diagnosis according to DTC. <Ref. to HEV(diag)-74, LIST, List of Diagnostic Trouble Code (DTC).> | Go to step **3**. |
| 3 | **CHECK BUS BAR.**<br>1) Turn the ignition to OFF.<br>2) Disconnect the ground cable of the 12 volt auxiliary battery, and as for the 12 volt engine restart battery, disconnect the ground cable from the 12V engine restart battery sensor. <Ref. to NT-5, BATTERY, NOTE, Note.><br>3) Remove the service disconnect plug. <Ref. to HEV-15, Service Plug.><br>4) Wait for 10 minutes.<br>5) Check the bus bar. | Is the condition normal? (Check for loose bolts, insecure connection, foreign matter caught, trace of arc (burnt terminals) etc.) | Go to step **4**. | Retighten the bolts. Or replace the bus bar. |
| 4 | **CHECK DRIVE MOTOR INVERTER.**<br>1) Replace the drive motor inverter. <Ref. to HEV-42, Inverter.><br>2) Perform the Inspection Mode. <Ref. to HEV(diag)-27, Inspection Mode.> | Is the same DTC detected? (current malfunction) | Replace DMCM. <Ref. to CVT(TH58A)-157, Drive Motor Control Module.> | Problem is present in drive motor inverter. |

# BZ:DTC P0DA8 HYBRID/EV BATTERY VOLTAGE/DRIVE MOTOR "A" INVERTER VOLTAGE CORRELATION

**DIAGNOSIS:**

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-73, DTC P0DA8 HYBRID/EV BATTERY VOLTAGE/DRIVE MOTOR "A" INVERTER VOLTAGE CORRELATION, Diagnostic Trouble Code (DTC) Detecting Criteria.>

**TROUBLE SYMPTOM:**

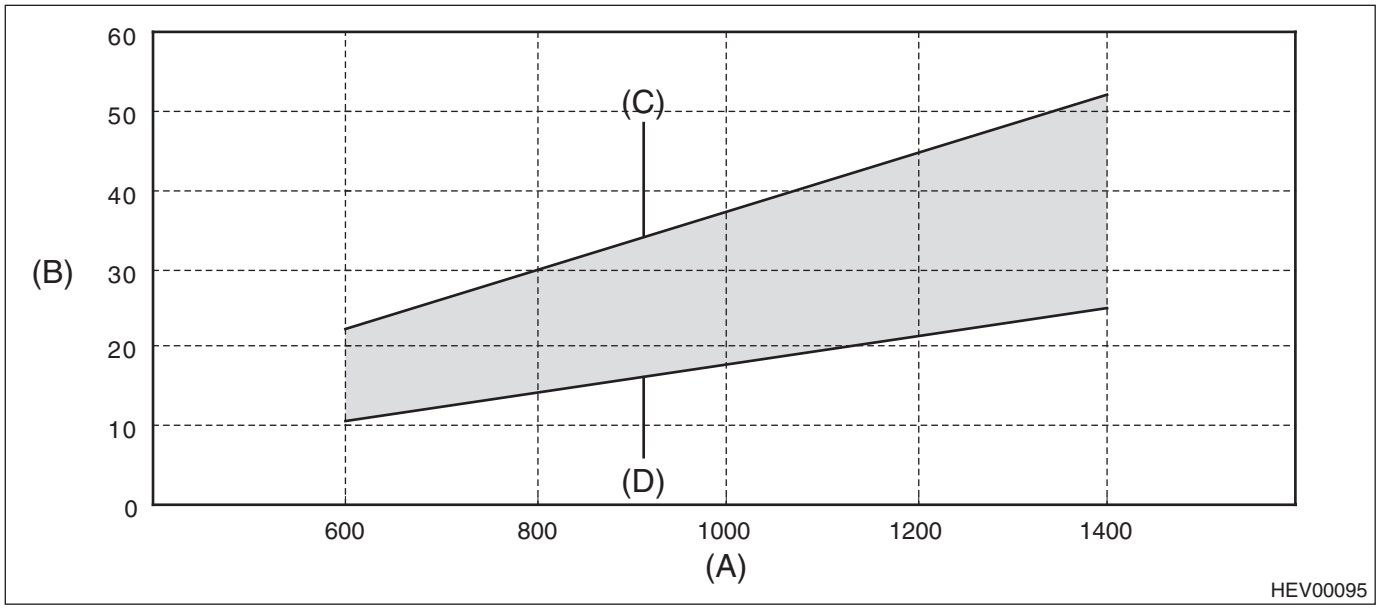
- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.

**CAUTION:**
**Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.>**

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK DTC.**<br>Read the DTC. <Ref. to HEV(diag)-24, DRIVE MOTOR CONTROL SYSTEM, OPERATION, Read Diagnostic Trouble Code (DTC).> | Are any other DTCs detected? (current malfunction) | Perform the diagnosis according to DTC. <Ref. to HEV(diag)-78, DRIVE MOTOR CONTROL SYSTEM, LIST, List of Diagnostic Trouble Code (DTC).> | Go to step **2**. |
| 2 | **CHECK DRIVE MOTOR INVERTER.**<br>1) With the 12 V battery connected, remove the service disconnect plug. <Ref. to HEV-15, Service Plug.><br>**CAUTION:**<br>**Watch for an electrical short at each harness because the 12 V battery is connected.**<br>2) Lift up the vehicle.<br>3) Start the engine, and set the shift lever to "D" range.<br>4) Using the Subaru Select Monitor, confirm the current data of drive motor control system, the values of «A/T Oil Temperature» «Drive Motor Speed» «Drive Motor Inverter Input High Voltage Sensor (Serial)». <Ref. to HEV(diag)-52, DRIVE MOTOR CONTROL SYSTEM, OPERATION, Read Current Data.> | «Drive Motor Inverter Input High Voltage Sensor (Serial)» is within the standard specified in Note when «ATF Temperature» is 20 — 60°C (68 — 140°F) and «Drive Motor Speed» is 600 — 1400 rpm. | Go to step **3**. | Replace the drive motor inverter. <Ref. to HEV-42, Inverter.> |
| 3 | **CHECK BUS BAR.**<br>1) Turn the ignition to OFF.<br>2) Disconnect the ground cable of the 12 volt auxiliary battery, and as for the 12 volt engine restart battery, disconnect the ground cable from the 12V engine restart battery sensor. <Ref. to NT-5, BATTERY, NOTE, Note.><br>3) Remove the service disconnect plug. <Ref. to HEV-15, Service Plug.><br>4) Wait for 10 minutes.<br>5) Check the bus bar. | Is the condition normal? (Check for loose bolts, insecure connection, foreign matter caught, trace of arc (burnt terminals) etc.) | Go to step **4**. | Retighten the bolts. Or replace the bus bar. |
| 4 | **CHECK DMCM.**<br>1) Replace DMCM. <Ref. to CVT(TH58A)-157, Drive Motor Control Module.><br>2) Perform the Inspection Mode. <Ref. to HEV(diag)-27, Inspection Mode.> | Is the same DTC detected? (current malfunction) | Replace the high voltage battery. <Ref. to HEV-17, High Voltage Battery.> | Problem is present in DMCM. |

NOTE:
Value of «Drive Motor Inverter Input High Voltage Sensor (Serial)» is proportional to «Drive Motor Speed».

- 1000 rpm: 18 V — 37 V
- 1400 rpm: 25 V — 52 V




(A) Drive motor speed
(B) Drive Motor Inverter Input High Voltage Sensor (Serial)
(C) Standard at Max.
(D) Standard at Min.

## CA:DTC P1C20 DRIVE MOTOR "A" INVERTER VOLTAGE TOO LOW

**DIAGNOSIS:**

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-74, DTC P1C20 DRIVE MOTOR "A" INVERTER VOLTAGE TOO LOW, Diagnostic Trouble Code (DTC) Detecting Criteria.>

**TROUBLE SYMPTOM:**

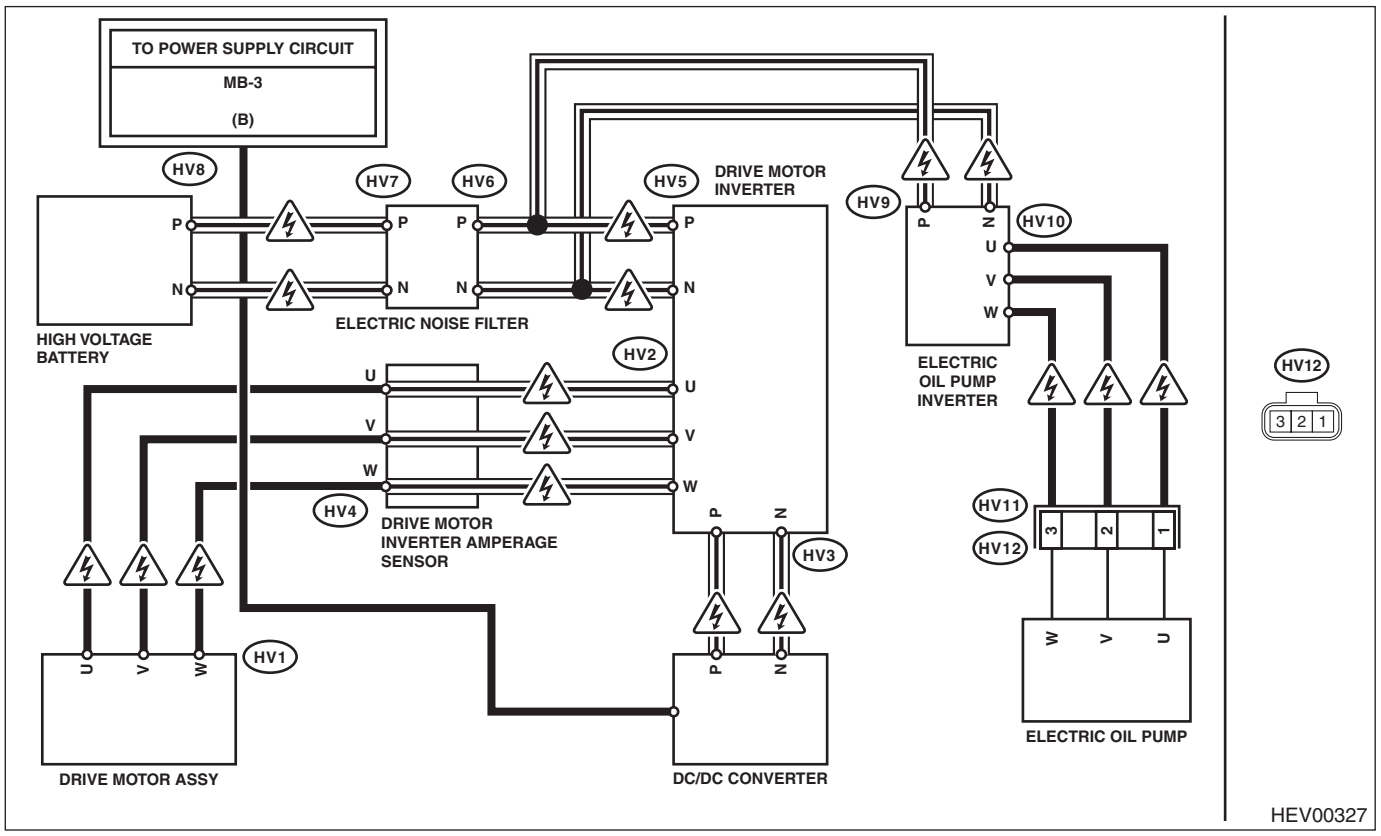
- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.

**CAUTION:**

**Before performing diagnosis, refer to “CAUTION” in “General Description”. <Ref. to HEV(diag)-8, CAUTION, General Description.>**

**WIRING DIAGRAM**

Hybrid system <Ref. to WI(HEV)-140, WIRING DIAGRAM, Hybrid Electric Vehicle System.>




| Step | | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK DTC.**<br>Read DTCs of the following system.<br>• Battery energy control system <Ref. to HEV(diag)-24, BATTERY ENERGY CONTROL SYSTEM, OPERATION, Read Diagnostic Trouble Code (DTC).> | Is DTC detected? (current malfunction) | Perform the diagnosis according to DTC. <Ref. to HEV(diag)-82, BATTERY ENERGY CONTROL SYSTEM, LIST, List of Diagnostic Trouble Code (DTC).> | Go to step **2**. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 2 | **CHECK READY.**<br>Start the engine. | Does READY come on? | Even if DTC is detected, the circuit has returned to a normal condition at this time. Reproduce the failure, and then perform the diagnosis again.<br>NOTE:<br>In this case, temporary poor contact of connector, temporary open or short circuit of harness may be the cause. | Go to step **3**. |
| 3 | **CHECK DTC.**<br>With engine running, read DTCs of the following system.<br>• Hybrid powertrain control system <Ref. to HEV(diag)-24, HYBRID POWERTRAIN CONTROL SYSTEM, OPERATION, Read Diagnostic Trouble Code (DTC).><br>• Battery energy control system <Ref. to HEV(diag)-24, BATTERY ENERGY CONTROL SYSTEM, OPERATION, Read Diagnostic Trouble Code (DTC).><br>• Drive motor control system <Ref. to HEV(diag)-24, DRIVE MOTOR CONTROL SYSTEM, OPERATION, Read Diagnostic Trouble Code (DTC).><br>• Engine <Ref. to EN(H4DO HEV)(diag)-51, Read Diagnostic Trouble Code (DTC).><br>• Transmission <Ref. to CVT(HEV)(diag)-19, Read Diagnostic Trouble Code (DTC).> | Are any DTCs other than DTC P1C20 detected? (current malfunction) | Perform the diagnosis according to DTC. <Ref. to HEV(diag)-74, LIST, List of Diagnostic Trouble Code (DTC).> | Go to step **4**. |
| 4 | **CHECK BUS BAR.**<br>1) Turn the ignition to OFF.<br>2) Disconnect the ground cable of the 12 volt auxiliary battery, and as for the 12 volt engine restart battery, disconnect the ground cable from the 12V engine restart battery sensor. <Ref. to NT-5, BATTERY, NOTE, Note.><br>3) Remove the service disconnect plug. <Ref. to HEV-15, Service Plug.><br>4) Wait for 10 minutes.<br>5) Check the bus bar. | Is the condition normal? (Check for loose bolts, insecure connection, foreign matter caught, trace of arc (burnt terminals) etc.) | Go to step **5**. | Retighten the bolts. Or replace the bus bar. |
| 5 | **CHECK ELECTRIC NOISE FILTER (INTERNAL SHORT).**<br>1) Remove the electric noise filter.<br>2) Measure the resistance between each terminal of electric noise filter.<br>***Connector & terminal***<br>***(HV6) P — (HV6) N:***<br>***(HV6) P — Electric noise filter ground:***<br>***(HV6) N — Electric noise filter ground:*** | Is the resistance 1 MΩ or more? | Go to step **6**. | Replace the electric noise filter. <Ref. to HEV-31, Noise Filter.> |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 6 | **CHECK DRIVE MOTOR INVERTER.**<br>1) Replace the drive motor inverter. <Ref. to HEV-42, Inverter.><br>2) Perform the Inspection Mode. <Ref. to HEV(diag)-27, Inspection Mode.> | Is the same DTC detected? (current malfunction) | Replace DMCM. <Ref. to CVT(TH58A)-157, Drive Motor Control Module.> | Problem is present in drive motor inverter. |

# CB:DTC P1C22 12V AUXILIARY BATTERY VOLTAGE TOO LOW

**DIAGNOSIS:**

- Detects drive motor control module voltage malfunction.
- If the drive motor control module detects that power supply voltage is out of the standard, it is judged as NG.
- Detected when two consecutive driving cycles with fault occur. (Single engine startup is counted as one drive cycle.)

**TROUBLE SYMPTOM:**

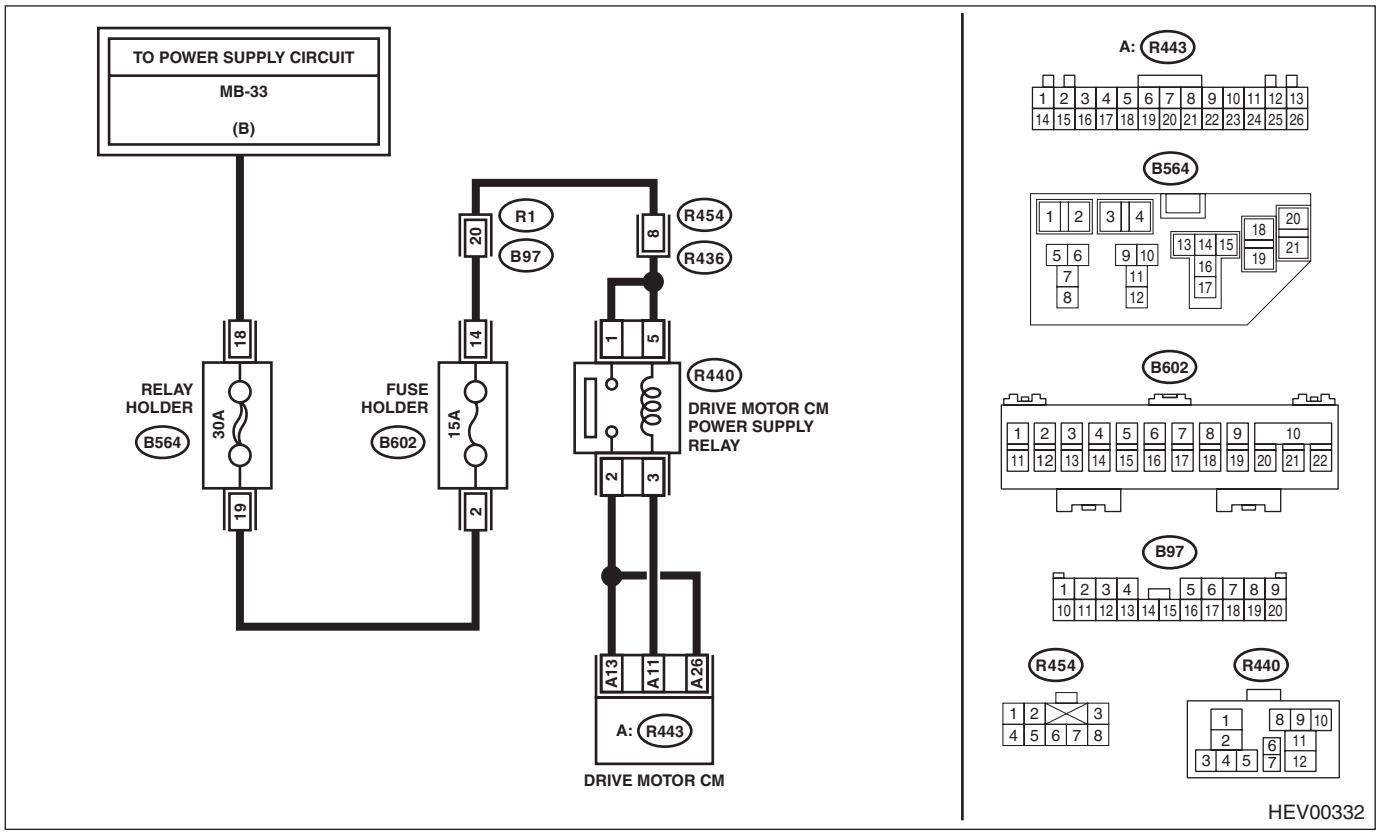
- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.

**CAUTION:**

**Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.>**

**WIRING DIAGRAM**

Hybrid system <Ref. to WI(HEV)-140, WIRING DIAGRAM, Hybrid Electric Vehicle System.>



| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK CURRENT DATA.**<br>Using the Subaru Select Monitor, confirm the current data of drive motor control system, the value of «Control Module Voltage». <Ref. to HEV(diag)-52, DRIVE MOTOR CONTROL SYSTEM, OPERATION, Read Current Data.> | Is the value 9 V or less? | Go to step **2**. | Even if DTC is detected, the circuit has returned to a normal condition at this time. Reproduce the failure, and then perform the diagnosis again.<br>NOTE:<br>In this case, temporary poor contact of connector, temporary open or short circuit of harness may be the cause. |
| 2 | **CHECK BATTERY.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect battery terminals.<br>3) Check the 12 volt auxiliary battery as a single part. <Ref. to SC(H4DO(HEV))-39, Battery.> | Is the condition normal? | Go to step **3**. | Charge or replace the battery. |
| 3 | **CHECK HARNESS (OPEN CIRCUIT).**<br>1) Connect the 12 volt auxiliary battery.<br>2) Using a tester, measure the voltage between the DMCM power relay and the ground bolt of inverter frame body.<br>***Connector & terminal***<br>***(R440) No. 2 (+) — Ground bolt of inverter frame body (–):*** | Is the voltage 9 V or less? | Repair open circuit in harness between DMCM power supply relay connector and 12 volt auxiliary battery, or repair the intermediate connector. | Go to step **4**. |
| 4 | **CHECK HARNESS (SHORT TO GROUND).**<br>1) Disconnect the DMCM connector.<br>2) Remove the DMCU power relay. <Ref. to CVT(TH58A)-160, Relay and Fuse.><br>3) Using a tester, measure the resistance between DMCM connector terminals and the ground bolt of inverter frame body.<br>***Connector & terminal***<br>***(R443) No. 13 — Ground bolt of inverter frame body:***<br>***(R443) No. 26 — Ground bolt of inverter frame body:*** | Is the resistance 1 MΩ or more? | Replace DMCM. <Ref. to CVT(TH58A)-157, Drive Motor Control Module.> | Repair short to ground circuit in harness between DMCM power supply relay connector and 12 volt auxiliary battery, or repair the intermediate connector. |

## CC:DTC P1C24 DRIVE MOTOR "B" TEMPERATURE SENSOR CIRCUIT

**DIAGNOSIS:**

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-75, DTC P1C24 DRIVE MOTOR "B" TEMPERATURE SENSOR CIRCUIT, Diagnostic Trouble Code (DTC) Detecting Criteria.>

NOTE:
For the diagnostic procedure, refer to “DTC P0A2A DRIVE MOTOR "A" TEMPERATURE SENSOR CIRCUIT”. <Ref. to HEV(diag)-155, DTC P0A2A DRIVE MOTOR "A" TEMPERATURE SENSOR CIRCUIT, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

## CD:DTC P1C25 DRIVE MOTOR "B" TEMPERATURE SENSOR CIRCUIT LOW

**DIAGNOSIS:**

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-76, DTC P1C25 DRIVE MOTOR "B" TEMPERATURE SENSOR CIRCUIT LOW, Diagnostic Trouble Code (DTC) Detecting Criteria.>

NOTE:
For the diagnostic procedure, refer to “DTC P0A2C DRIVE MOTOR "A" TEMPERATURE SENSOR CIRCUIT LOW”. <Ref. to HEV(diag)-159, DTC P0A2C DRIVE MOTOR "A" TEMPERATURE SENSOR CIRCUIT LOW, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

## CE:DTC P1C26 DRIVE MOTOR "B" TEMPERATURE SENSOR CIRCUIT HIGH

**DIAGNOSIS:**

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-77, DTC P1C26 DRIVE MOTOR "B" TEMPERATURE SENSOR CIRCUIT HIGH, Diagnostic Trouble Code (DTC) Detecting Criteria.>

NOTE:
For the diagnostic procedure, refer to “DTC P0A2D DRIVE MOTOR "A" TEMPERATURE SENSOR CIRCUIT HIGH”. <Ref. to HEV(diag)-163, DTC P0A2D DRIVE MOTOR "A" TEMPERATURE SENSOR CIRCUIT HIGH, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

# CF:DTC P1C27 DRIVE MOTOR "A" AND "B" TEMPERATURE SENSOR CORRELATION

**DIAGNOSIS:**

- Detected when two consecutive driving cycles with fault occur. (Single engine startup is counted as one drive cycle.)
- GENERAL DESCRIPTION <Ref. to GD(HEV)-78, DTC P1C27 DRIVE MOTOR "A" AND "B" TEMPERATURE SENSOR CORRELATION, Diagnostic Trouble Code (DTC) Detecting Criteria.>

**TROUBLE SYMPTOM:**

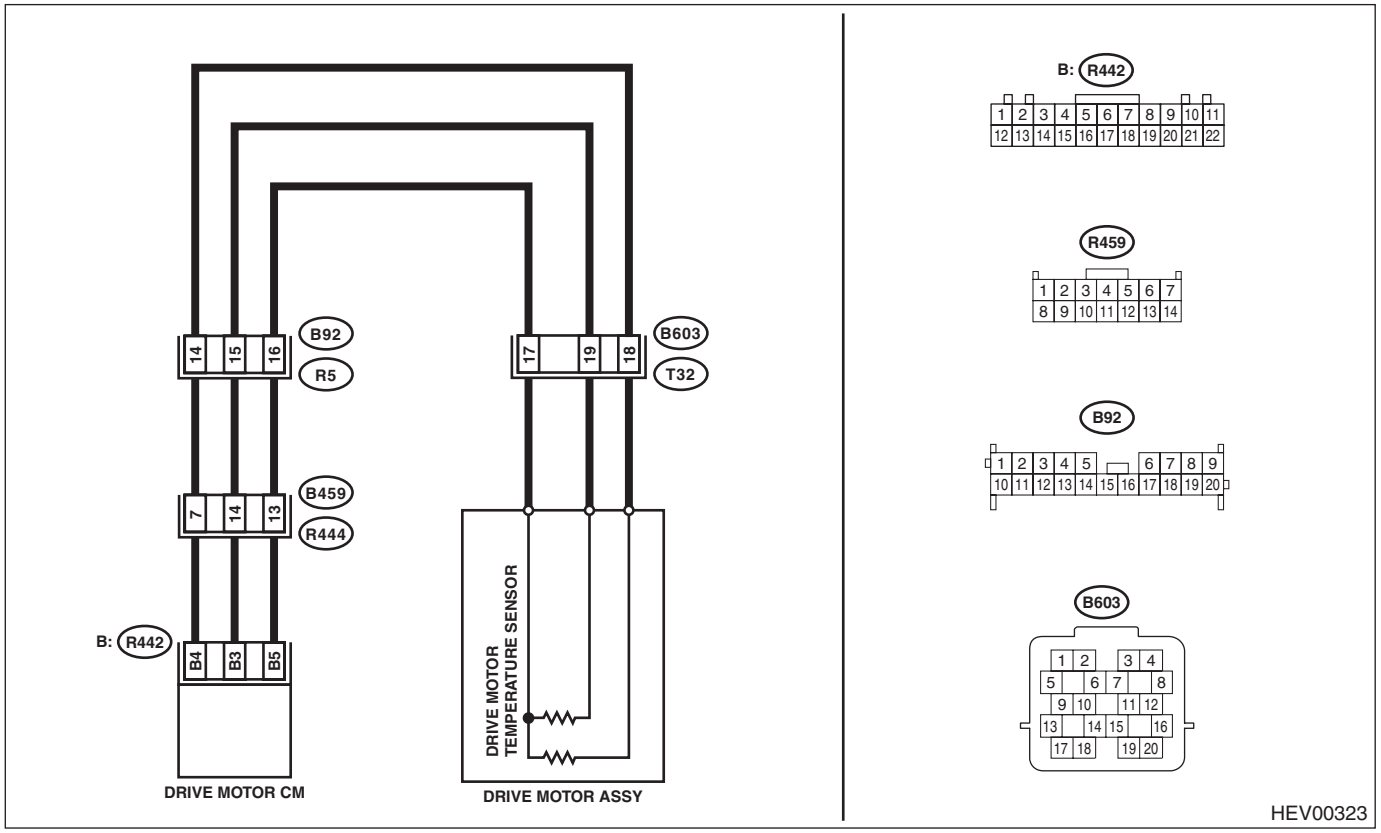
- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.

**CAUTION:**

**Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.>**

**WIRING DIAGRAM**

CVT control system <Ref. to WI(HEV)-86, WIRING DIAGRAM, CVT Control System.>




| Step | | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK DTC.**<br>Read the DTC. <Ref. to HEV(diag)-24, DRIVE MOTOR CONTROL SYSTEM, OPERATION, Read Diagnostic Trouble Code (DTC).> | Are any other DTCs (related to temperature sensor) detected? | Perform the diagnosis according to DTC. <Ref. to HEV(diag)-78, DRIVE MOTOR CONTROL SYSTEM, LIST, List of Diagnostic Trouble Code (DTC).> | Go to step **2**. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 2 | **CHECK CURRENT DATA.**<br>1) Warm up the engine.<br>2) Using the Subaru Select Monitor, confirm the current data of drive motor control system, the values of «Drive Motor Temperature A» «Drive Motor Temperature B». <Ref. to HEV(diag)-52, DRIVE MOTOR CONTROL SYSTEM, OPERATION, Read Current Data.> | Is the difference in temperature between «Drive Motor Temperature A» «Drive Motor Temperature B» 20°C (36°F) or more when the temperature of «Drive Motor Temperature A» or «Drive Motor Temperature B» is in 30 — 140°C (86 — 284°F) range? | Go to step **3**. | Even if DTC is detected, the circuit has returned to a normal condition at this time. Reproduce the failure, and then perform the diagnosis again.<br>NOTE:<br>In this case, temporary poor contact of connector, temporary open or short circuit of harness may be the cause. |
| 3 | **CHECK HARNESS AND DMCM.**<br>1) Disconnect the DMCM connector (R442).<br>2) Using a tester, measure the resistance between terminals in the DMCM connector.<br>***Connector & terminal***<br>***TMPA***<br>***(R442) No. 4 — (R442) No. 5:***<br>***TMPB***<br>***(R442) No. 3 — (R442) No. 5:*** | Is the difference in resistance between TMPA and TMPB 136 kΩ or more? | Go to step **4**. | Replace DMCM. <Ref. to CVT(TH58A)-157, Drive Motor Control Module.> |
| 4 | **CHECK DRIVE MOTOR.**<br>1) Disconnect the drive motor assembly connector (B603).<br>2) Using a tester, measure the resistance between terminals in the drive motor assembly connector.<br>***Connector & terminal***<br>***TMPA***<br>***(T32) No. 18 — (T32) No. 17:***<br>***TMPB***<br>***(T32) No. 10 — (T32) No. 17:*** | Is the difference in resistance between TMPA and TMPB 136 kΩ or more? | Replace the drive motor assembly. <Ref. to CVT(TH58A)-217, Drive Motor Assembly.> | Repair the harness between DMCM connector and drive motor assembly connector. |

## CG:DTC P1C2A DRIVE MOTOR INVERTER CIRCUIT

**DIAGNOSIS:**

- Detect the malfunction of drive motor inverter.
- If malfunction is detected in the internal circuit of drive motor inverter, it is judged as NG.
- Immediately at fault recognition

**TROUBLE SYMPTOM:**

- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.

**CAUTION:**

**Before performing diagnosis, refer to “CAUTION” in “General Description”. <Ref. to HEV(diag)-8, CAUTION, General Description.>**

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK DTC.**<br>Read the DTC. <Ref. to HEV(diag)-24, DRIVE MOTOR CONTROL SYSTEM, OPERATION, Read Diagnostic Trouble Code (DTC).> | Is DTC P0A78 detected? (current malfunction) | Perform the diagnosis according to DTC. <Ref. to HEV(diag)-208, DTC P0A78 DRIVE MOTOR "A" INVERTER PERFORMANCE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).><br>Replace the power cable after completing the diagnosis. <Ref. to HEV-52, Power Cable.> | Replace DMCM. <Ref. to CVT(TH58A)-157, Drive Motor Control Module.> |

# CH:DTC P1C30 LOST COMMUNICATION WITH DRIVE MOTOR INVERTER

**DIAGNOSIS:**

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-80, DTC P1C30 LOST COMMUNICATION WITH DRIVE MOTOR INVERTER, Diagnostic Trouble Code (DTC) Detecting Criteria.>

**TROUBLE SYMPTOM:**

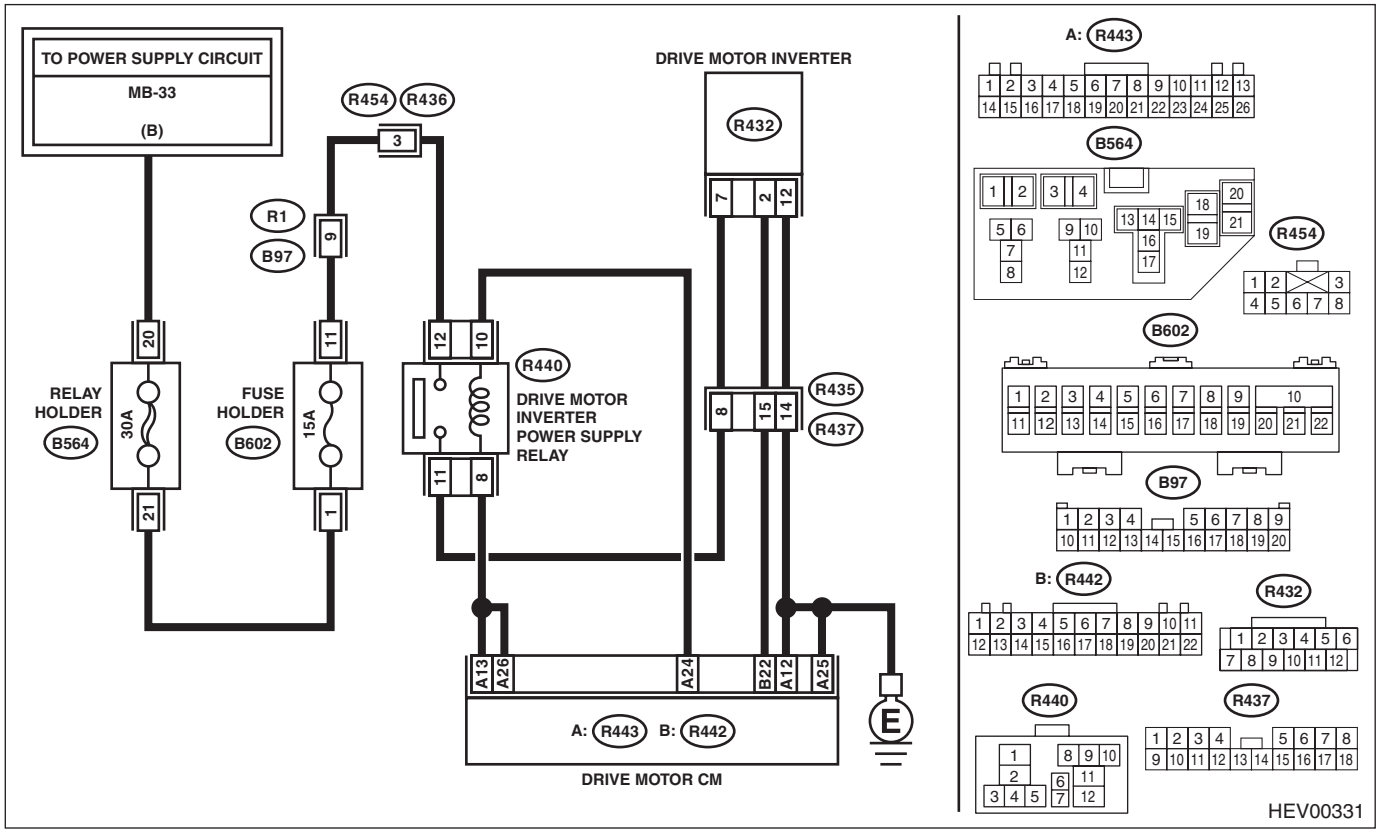
- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.

**CAUTION:**

**Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.>**

**WIRING DIAGRAM**

Hybrid system <Ref. to WI(HEV)-140, WIRING DIAGRAM, Hybrid Electric Vehicle System.>



| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK CURRENT DATA.**<br>1) Using the Subaru Select Monitor, perform «Drive Motor Inverter power supply relay» of System Operation Check Mode for the drive motor control system. <Ref. to HEV(diag)-73, DRIVE MOTOR CONTROL SYSTEM, OPERATION, System Operation Check Mode.><br>2) Confirm the current data of in System Operation Check Mode, the value of «Drive Motor Inverter Operation Update Counter». | Does «Drive Motor Inverter Operation Update Counter» stop when «Drive Motor Inverter power supply relay» is OFF? | Even if DTC is detected, the circuit has returned to a normal condition at this time. Reproduce the failure, and then perform the diagnosis again.<br>NOTE:<br>In this case, temporary poor contact of connector, temporary open or short circuit of harness may be the cause. | Go to step **2**. |
| 2 | **CHECK RELAY.**<br>Check the inverter power supply relay as a single unit. <Ref. to HEV-12, Relay and Fuse.> | Is the condition normal? (Check for continuity between terminals, damage, etc.) | Go to step **3**. | Replace the relay. |
| 3 | **CHECK HARNESS (SHORT TO GROUND).**<br>1) Turn the ignition to OFF.<br>2) Disconnect the ground cable of the 12 volt auxiliary battery, and as for the 12 volt engine restart battery, disconnect the ground cable from the 12V engine restart battery sensor. <Ref. to NT-5, BATTERY, NOTE, Note.><br>3) Remove the service disconnect plug. <Ref. to HEV-15, Service Plug.><br>4) Wait for 10 minutes.<br>5) Disconnect the drive motor inverter connector.<br>6) Disconnect the DMCM connector.<br>7) Using a tester, measure the resistance between the drive motor inverter connector and the ground bolt of inverter frame body.<br>***Connector & terminal***<br>***(R432) No. 2 — Ground bolt of inverter frame body:***<br>***(R432) No. 7 — Ground bolt of inverter frame body:*** | Is the resistance 1 MΩ or more? | Go to step **4**. | Repair short circuit to ground in harness between drive motor inverter connector and DMCM connector, or repair the intermediate connector. |
| 4 | **CHECK HARNESS (OPEN CIRCUIT).**<br>Using a tester, measure the resistance between drive motor inverter connector and DMCM connector and between the ground bolt of inverter frame body and inverter power supply relay.<br>***Connector & terminal:***<br>***(R442) No. 22 — (R432) No. 2:***<br>***(R440) No. 11 — (R432) No. 7:***<br>***(R432) No. 12 — Ground bolt of inverter frame body:*** | Is the resistance less than 1 Ω? | Go to step **5**. | Repair open circuit in harness between drive motor inverter connector and DMCM connector or between drive motor inverter connector and inverter power supply relay, or repair the intermediate connector. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 5 | **CHECK HARNESS (SHORT TO POWER AND SHORT TO OTHER SIGNAL LINES).**<br>1) Disconnect the intermediate connector (R436).<br>2) Using a tester, measure the resistance within DMCM connector, between DMCM connector and intermediate connector (R436), and within drive motor inverter connector.<br>***Connector & terminal:***<br>***(R442) No. 22 — (R442) No. 1 — 22:***<br>***(R442) No. 22 — (R443) No. 1 — 26:***<br>***(R442) No. 22 — (R436) No. 1 — 8:***<br>***(R442) No. 22 — (R432) No. 7:*** | Is the resistance 1 MΩ or more? | Go to step **6**. | Repair short circuit in harness between drive motor inverter connector and DMCM connector or repair the intermediate connector. |
| 6 | **CHECK DRIVE MOTOR INVERTER.**<br>1) Replace the drive motor inverter. <Ref. to HEV-42, Inverter.><br>2) Perform the Inspection Mode. <Ref. to HEV(diag)-27, Inspection Mode.> | Is the same DTC detected? (current malfunction) | Replace DMCM. <Ref. to CVT(TH58A)-157, Drive Motor Control Module.> | Problem is present in drive motor inverter or relay. |

## CI: DTC P1C31 INVALID DATA RECEIVED FROM DRIVE MOTOR INVERTER

**DIAGNOSIS:**

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-81, DTC P1C31 INVALID DATA RECEIVED FROM DRIVE MOTOR INVERTER, Diagnostic Trouble Code (DTC) Detecting Criteria.>

**TROUBLE SYMPTOM:**

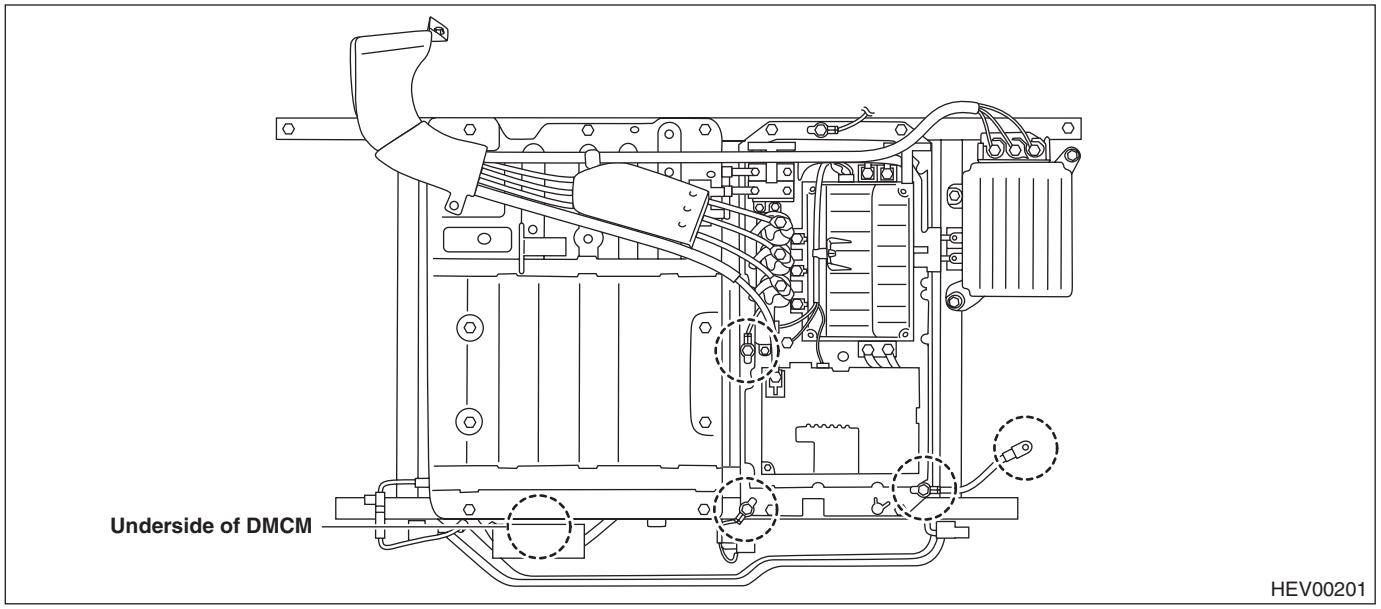
- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.

**CAUTION:**

**Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.>**

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK DTC.**<br>Read the DTC. <Ref. to HEV(diag)-24, DRIVE MOTOR CONTROL SYSTEM, OPERATION, Read Diagnostic Trouble Code (DTC).> | Is DTC P1C31 detected? (current malfunction) | Go to step **2**. | Even if DTC is detected, the circuit has returned to a normal condition at this time. Reproduce the failure, and then perform the diagnosis again.<br>NOTE:<br>In this case, temporary poor contact of connector, temporary open or short circuit of harness may be the cause. |
| 2 | **CHECK GROUND WIRE.**<br>1) Turn the ignition to OFF.<br>2) Disconnect the ground cable of the 12 volt auxiliary battery, and as for the 12 volt engine restart battery, disconnect the ground cable from the 12V engine restart battery sensor. <Ref. to NT-5, BATTERY, NOTE, Note.><br>3) Remove the service disconnect plug. <Ref. to HEV-15, Service Plug.><br>4) Wait for 10 minutes.<br>5) Check the fastening area shown in the margin. | Is the condition normal? (Check for loose bolts, insecure connection, foreign matter caught, etc.) | Go to step **3**. | Retighten the bolts. Or replace the harness. |
| 3 | **CHECK DRIVE MOTOR INVERTER.**<br>1) Replace the drive motor inverter. <Ref. to HEV-42, Inverter.><br>2) Perform the Inspection Mode. <Ref. to HEV(diag)-27, Inspection Mode.> | Is the same DTC detected? (current malfunction) | Replace DMCM. <Ref. to CVT(TH58A)-157, Drive Motor Control Module.> | Problem is present in drive motor inverter. |

NOTE:



## CJ:DTC P1C34 LOST COMMUNICATION WITH DC/DC CONVERTER

**DIAGNOSIS:**

- Detects serial communication error with DC/DC converter.
- If serial data from the DC/DC converter is not received, it is judged as NG.
- Immediately at fault recognition

**TROUBLE SYMPTOM:**

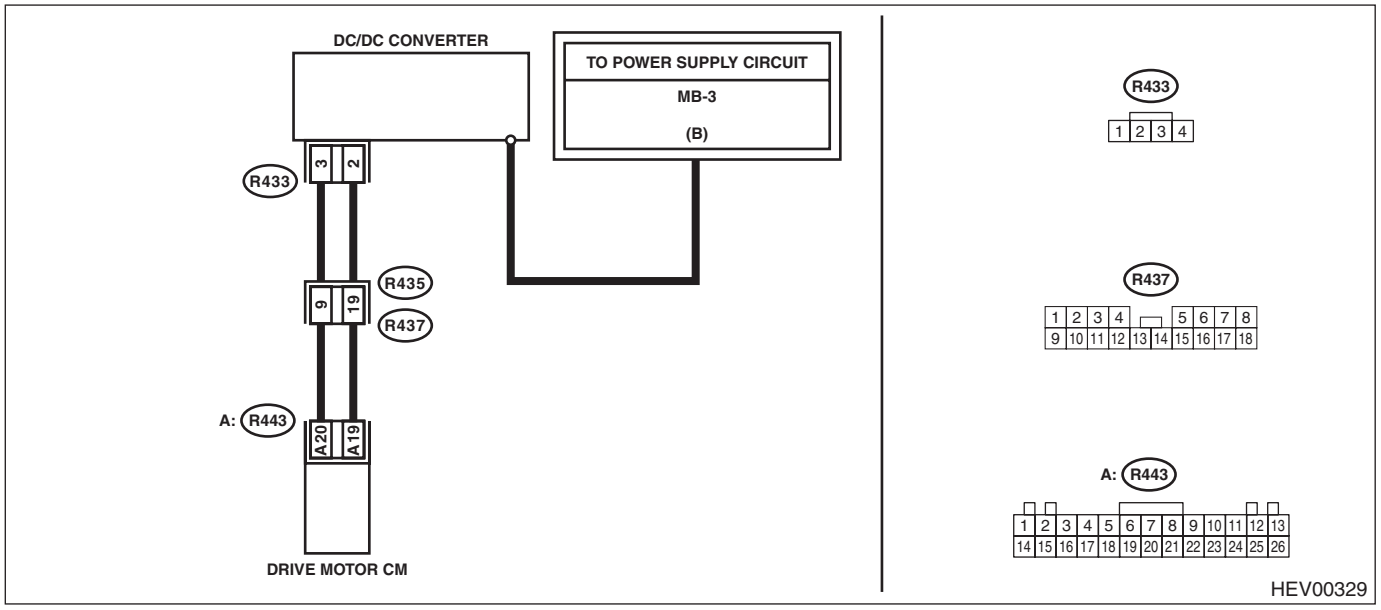
EV traveling/Auto Start Stop does not operate.

**CAUTION:**

**Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.>**

**WIRING DIAGRAM**

Hybrid system <Ref. to WI(HEV)-140, WIRING DIAGRAM, Hybrid Electric Vehicle System.>




| Step | | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK DTC.**<br>1) Start the engine.<br>2) Read the DTC. <Ref. to HEV(diag)-24, DRIVE MOTOR CONTROL SYSTEM, OPERATION, Read Diagnostic Trouble Code (DTC).> | Is DTC P1C34 detected? (current malfunction) | Go to step **2**. | Even if DTC is detected, the circuit has returned to a normal condition at this time. Reproduce the failure, and then perform the diagnosis again.<br>NOTE:<br>In this case, temporary poor contact of connector, temporary open or short circuit of harness may be the cause. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 2 | **CHECK CONNECTOR.**<br>1) Turn the ignition to OFF.<br>2) Disconnect the ground cable of the 12 volt auxiliary battery, and as for the 12 volt engine restart battery, disconnect the ground cable from the 12V engine restart battery sensor. <Ref. to NT-5, BATTERY, NOTE, Note.><br>3) Remove the service disconnect plug. <Ref. to HEV-15, Service Plug.><br>4) Wait for 10 minutes.<br>5) Visually check each connector and fastening areas of the DC/DC converter. | Is the condition normal? (Check for loose bolts, insecure connection, foreign matter caught, etc.) | Go to step **3**. | Repair or replace faulty parts. |
| 3 | **CHECK HARNESS.**<br>1) Disconnect the DC/DC converter connector.<br>2) Disconnect the DMCM connector.<br>3) Using a tester, measure the resistance between DMCM connector and the ground bolt of inverter frame body.<br>***Connector & terminal***<br>***(R443) No. 20 — Ground bolt of inverter frame body:*** | Is the resistance 1 MΩ or more? | Go to step **4**. | Repair short to ground circuit in harness between DMCM connector and DC/DC converter connector, or repair the intermediate connector. |
| 4 | **CHECK HARNESS.**<br>Using a tester, measure the resistance between DC/DC converter connector and DMCM connector.<br>***Connector & terminal***<br>***(R443) No. 20 — (R433) No. 3:*** | Is the resistance less than 1 Ω? | Go to step **5**. | Repair open circuit in harness between DMCM connector and DC/DC converter connector, or repair the intermediate connector. |
| 5 | **CHECK HARNESS (SHORT TO OTHER SIGNAL).**<br>1) Disconnect the drive motor inverter connector.<br>2) Disconnect the intermediate connector (R436).<br>3) Using a tester, measure the resistance between DMCM connector and individual connectors of drive motor inverter.<br>***Connector & terminal:***<br>***(R443) No. 20 — (R442) No. 1 — 22:***<br>***(R443) No. 20 — (R443) No. 1 — 26:***<br>***(R443) No. 20 — (R436) No. 1 — 8:***<br>***(R443) No. 20 — (R432) No. 7:*** | Is the resistance 1 MΩ or more? | Go to step **6**. | Repair short circuit in harness between DMCM connector and DC/DC converter connector, or repair the intermediate connector. |
| 6 | **CHECK HARNESS (SHORT TO POWER).**<br>Using a tester, measure the resistance between DC/DC converter connector and DC/DC converter 12 V output line.<br>***Connector & terminal***<br>***(R433) No. 3 — DC/DC converter 12 V output line:*** | Is the resistance 1 MΩ or more? | Go to step **7**. | Repair short circuit in harness between DMCM connector and DC/DC converter 12 V output line or repair the intermediate connector. |
| 7 | **CHECK DC/DC CONVERTER.**<br>1) Replace the DC/DC converter. <Ref. to HEV-38, DC/DC Converter.><br>2) Perform the Inspection Mode. <Ref. to HEV(diag)-27, Inspection Mode.> | Is the same DTC detected? (current malfunction) | Replace DMCM. <Ref. to CVT(TH58A)-157, Drive Motor Control Module.> | Problem is present in DC/DC converter. |

## CK:DTC P1C35 INVALID DATA RECEIVED FROM DC/DC CONVERTER

**DIAGNOSIS:**

- Detects serial communication error with DC/DC converter.
- If an incorrect serial data is received from DC/DC converter, it is judged as NG.
- Immediately at fault recognition

**TROUBLE SYMPTOM:**

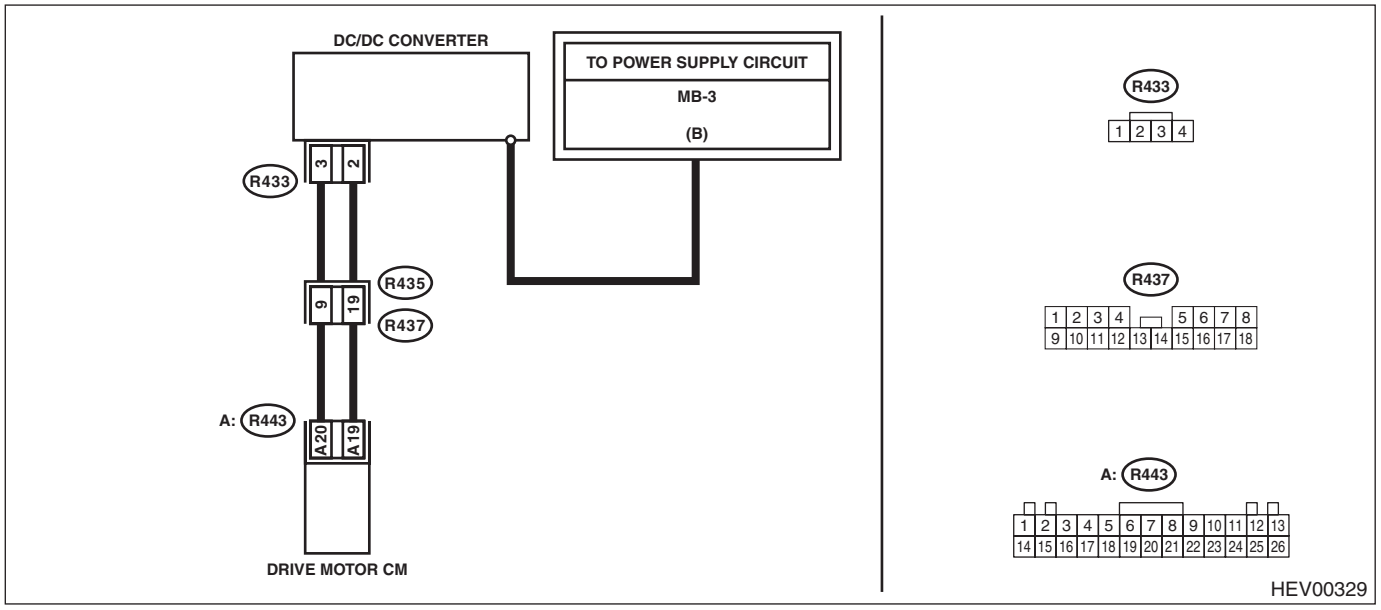
EV traveling/Auto Start Stop does not operate.

**CAUTION:**

**Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.>**

**WIRING DIAGRAM**

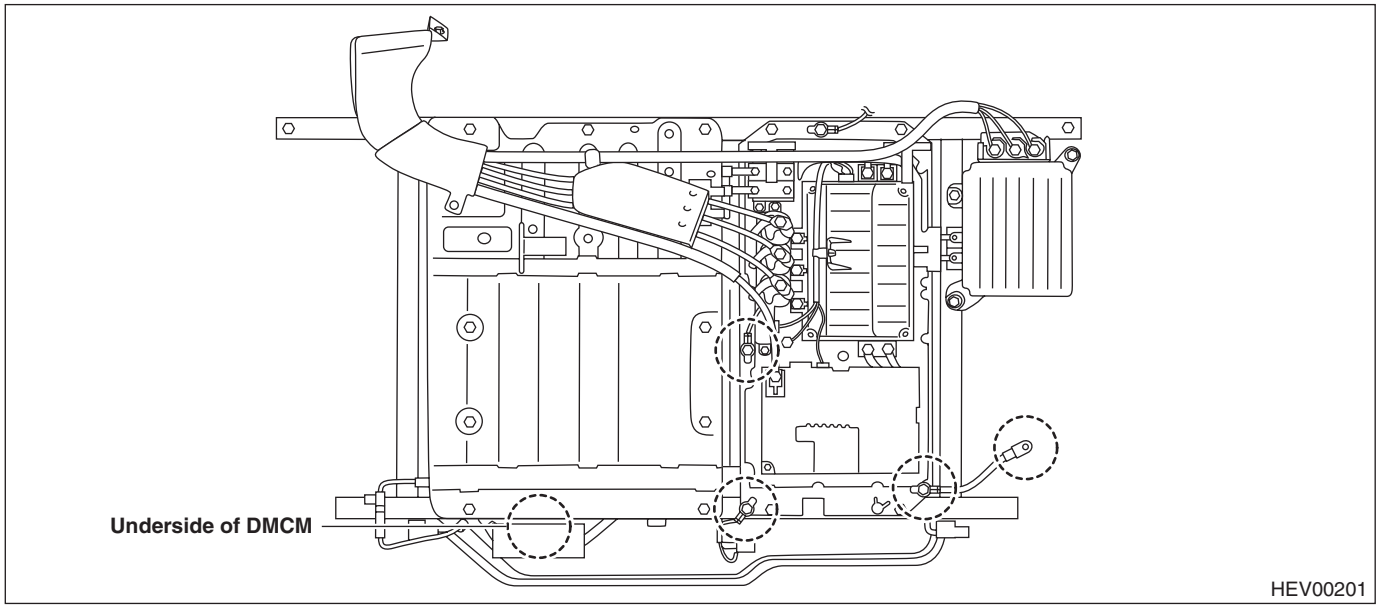
Hybrid system <Ref. to WI(HEV)-140, WIRING DIAGRAM, Hybrid Electric Vehicle System.>




| Step | | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK DTC.**<br>1) Start the engine.<br>2) Read the DTC. <Ref. to HEV(diag)-24, DRIVE MOTOR CONTROL SYSTEM, OPERATION, Read Diagnostic Trouble Code (DTC).> | Is DTC P1C35 detected? (current malfunction) | Go to step **2**. | Even if DTC is detected, the circuit has returned to a normal condition at this time. Reproduce the failure, and then perform the diagnosis again.<br>NOTE:<br>In this case, temporary poor contact of connector, temporary open or short circuit of harness may be the cause. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 2 | **CHECK GROUND WIRE.**<br>1) Turn the ignition to OFF.<br>2) Disconnect the ground cable of the 12 volt auxiliary battery, and as for the 12 volt engine restart battery, disconnect the ground cable from the 12V engine restart battery sensor. <Ref. to NT-5, BATTERY, NOTE, Note.><br>3) Remove the service disconnect plug. <Ref. to HEV-15, Service Plug.><br>4) Wait for 10 minutes.<br>5) Check the fastening area shown in the margin. | Is the condition normal? (Check for loose bolts, insecure connection, foreign matter caught, etc.) | Go to step **3**. | Retighten the bolts. Or replace the harness. |
| 3 | **CHECK HARNESS (SHORT TO OTHER SIGNAL).**<br>1) Disconnect the drive motor inverter connector.<br>2) Disconnect the intermediate connector (R436).<br>3) Using a tester, measure the resistance between DMCM connector and individual connectors of drive motor inverter.<br>***Connector & terminal:***<br>***(R443) No. 20 — (R442) No. 1 — 22:***<br>***(R443) No. 20 — (R443) No. 1 — 26:***<br>***(R443) No. 20 — (R436) No. 1 — 8:***<br>***(R443) No. 20 — (R432) No. 7:*** | Is the resistance 1 MΩ or more? | Go to step **4**. | Repair short circuit in harness between DMCM connector and DC/DC converter connector, or repair the intermediate connector. |
| 4 | **CHECK DC/DC CONVERTER.**<br>1) Replace the DC/DC converter. <Ref. to HEV-38, DC/DC Converter.><br>2) Perform the Inspection Mode. <Ref. to HEV(diag)-27, Inspection Mode.> | Is the same DTC detected? (current malfunction) | Replace DMCM. <Ref. to CVT(TH58A)-157, Drive Motor Control Module.> | Problem is present in DC/DC converter. |

NOTE:



## CL:DTC P0A1B DRIVE MOTOR "A" CONTROL MODULE

**DIAGNOSIS:**

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-82, DTC P0A1B DRIVE MOTOR "A" CONTROL MODULE, Diagnostic Trouble Code (DTC) Detecting Criteria.>

NOTE:
For the diagnostic procedure, refer to “DTC P0604 INTERNAL CONTROL MODULE RANDOM ACCESS MEMORY (RAM) ERROR”. <Ref. to HEV(diag)-118, DRIVE MOTOR CONTROL SYSTEM, DTC P0604 INTERNAL CONTROL MODULE RANDOM ACCESS MEMORY (RAM) ERROR, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

## CM:DTC P06B1 SENSOR POWER SUPPLY "A" CIRCUIT LOW

**DIAGNOSIS:**

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-83, DTC P06B1 SENSOR POWER SUPPLY "A" CIRCUIT LOW, Diagnostic Trouble Code (DTC) Detecting Criteria.>

**TROUBLE SYMPTOM:**

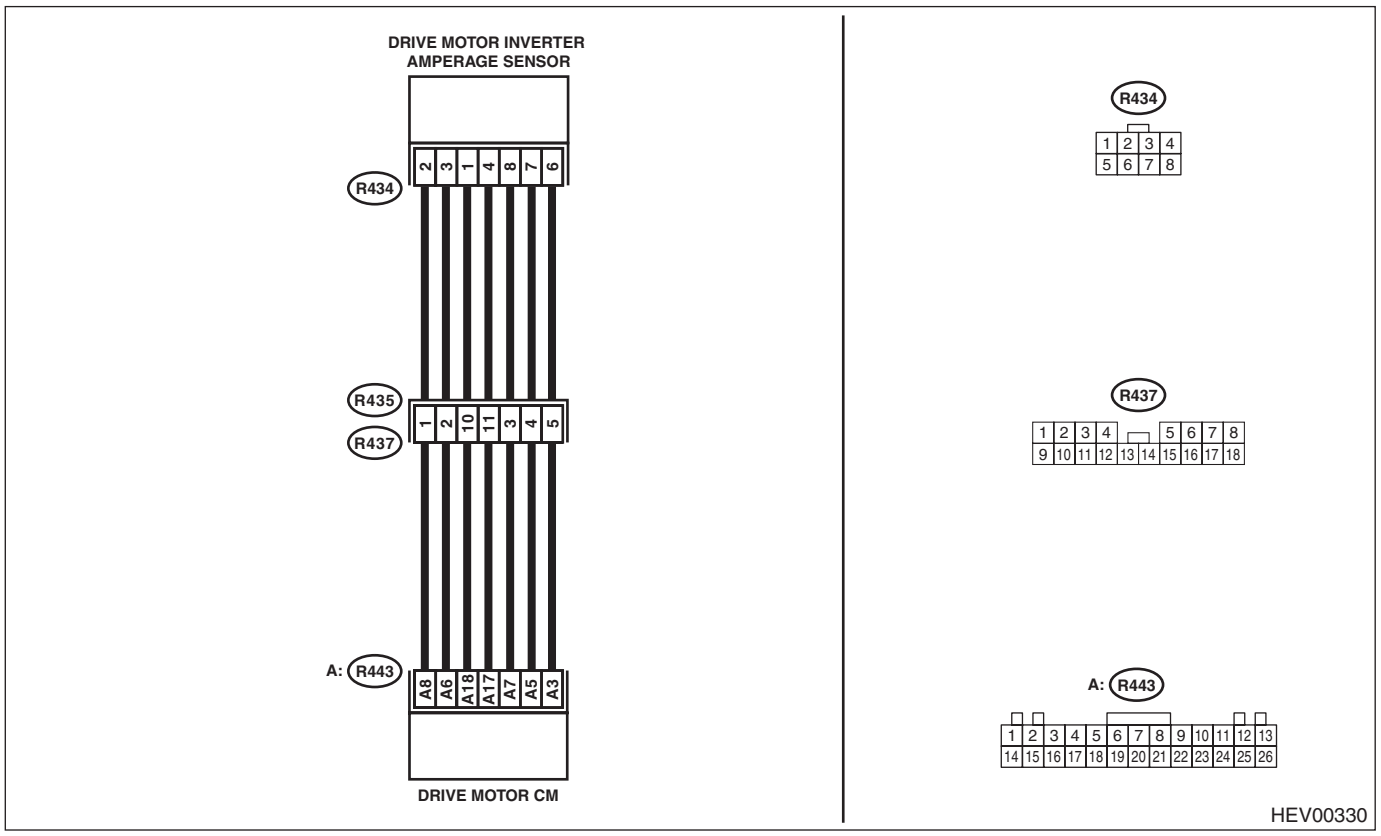
- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.

**CAUTION:**

**Before performing diagnosis, refer to “CAUTION” in “General Description”. <Ref. to HEV(diag)-8, CAUTION, General Description.>**

**WIRING DIAGRAM**

Hybrid system <Ref. to WI(HEV)-140, WIRING DIAGRAM, Hybrid Electric Vehicle System.>



| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK CURRENT DATA.**<br>Using the Subaru Select Monitor, confirm the current data of drive motor control system, the value of «Drive Motor Amperage Sensor Power Supply Voltage». <Ref. to HEV(diag)-52, DRIVE MOTOR CONTROL SYSTEM, OPERATION, Read Current Data.> | Is the value less than 4.536 V? | Go to step **2**. | Even if DTC is detected, the circuit has returned to a normal condition at this time. Reproduce the failure, and then perform the diagnosis again.<br>NOTE:<br>In this case, temporary poor contact of connector, temporary open or short circuit of harness may be the cause. |
| 2 | **CHECK HARNESS (SHORT TO GROUND).**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the ground cable of the 12 volt auxiliary battery, and as for the 12 volt engine restart battery, disconnect the ground cable from the 12V engine restart battery sensor. <Ref. to NT-5, BATTERY, NOTE, Note.><br>3) Remove the service disconnect plug. <Ref. to HEV-15, Service Plug.><br>4) Wait for 10 minutes.<br>5) Disconnect the DMCM connector.<br>6) Disconnect the drive motor inverter amperage sensor connector.<br>7) Using a tester, measure the resistance between DMCM connector and the ground bolt of inverter frame body.<br>***Connector & terminal***<br>***(R443) No. 8 — Ground bolt of inverter frame body:***<br>***(R443) No. 6 — Ground bolt of inverter frame body:*** | Is the resistance 1 MΩ or more? | Go to step **3**. | Repair short circuit in harness between drive motor inverter amperage sensor connector and DMCM connector or repair the intermediate connector. |
| 3 | **CHECK DRIVE MOTOR INVERTER AMPERAGE SENSOR.**<br>1) Replace the drive motor inverter amperage sensor. <Ref. to HEV-27, Drive Motor Inverter Current Sensor.><br>2) Perform the Inspection Mode. <Ref. to HEV(diag)-27, Inspection Mode.> | Is the same DTC detected? (current malfunction) | Replace DMCM. <Ref. to CVT(TH58A)-157, Drive Motor Control Module.> | Problem is present in drive motor inverter amperage sensor. |

# CN:DTC P06B2 SENSOR POWER SUPPLY "A" CIRCUIT HIGH

**DIAGNOSIS:**

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-84, DTC P06B2 SENSOR POWER SUPPLY "A" CIRCUIT HIGH, Diagnostic Trouble Code (DTC) Detecting Criteria.>

**TROUBLE SYMPTOM:**

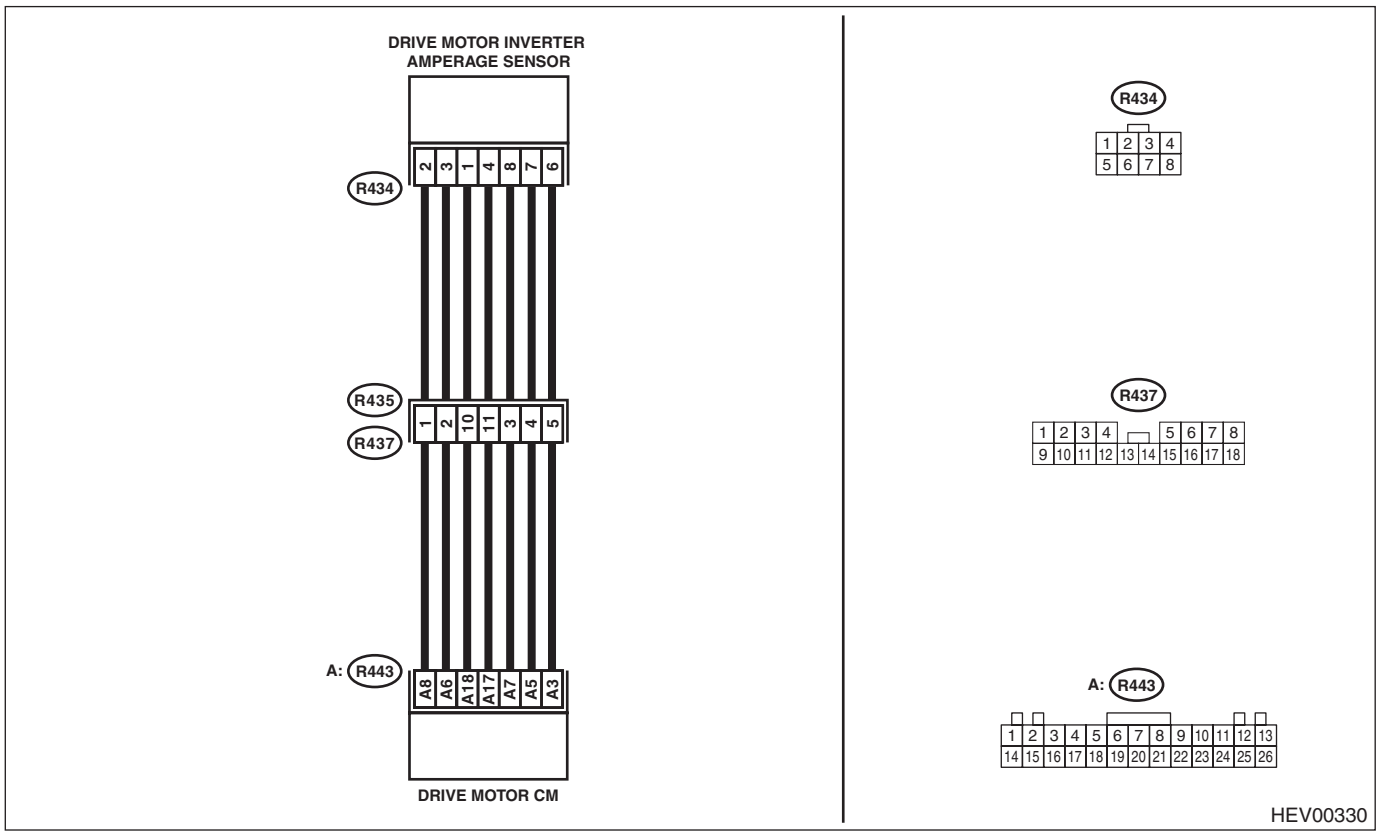
- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.

**CAUTION:**

**Before performing diagnosis, refer to “CAUTION” in “General Description”. <Ref. to HEV(diag)-8, CAUTION, General Description.>**

**WIRING DIAGRAM**

Hybrid system <Ref. to WI(HEV)-140, WIRING DIAGRAM, Hybrid Electric Vehicle System.>



| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK CURRENT DATA.**<br>Using the Subaru Select Monitor, confirm the current data of drive motor control system, the value of «Drive Motor Amperage Sensor Power Supply Voltage». <Ref. to HEV(diag)-52, DRIVE MOTOR CONTROL SYSTEM, OPERATION, Read Current Data.> | Is the value more than 5.418 V? | Go to step **2**. | Even if DTC is detected, the circuit has returned to a normal condition at this time. Reproduce the failure, and then perform the diagnosis again.<br>NOTE:<br>In this case, temporary poor contact of connector, temporary open or short circuit of harness may be the cause. |
| 2 | **CHECK HARNESS (SHORT TO POWER AND SHORT TO OTHER SIGNAL LINES).**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the ground cable of the 12 volt auxiliary battery, and as for the 12 volt engine restart battery, disconnect the ground cable from the 12V engine restart battery sensor. <Ref. to NT-5, BATTERY, NOTE, Note.><br>3) Remove the service disconnect plug. <Ref. to HEV-15, Service Plug.><br>4) Wait for 10 minutes.<br>5) Disconnect the drive motor inverter amperage sensor connector.<br>6) Disconnect the DMCM connector.<br>7) Disconnect the drive motor inverter connector.<br>8) Disconnect the intermediate connector (R436).<br>9) Using a tester, measure the resistance between DMCM connector and other signal lines and within inverter connector.<br>***Connector & terminal***<br>***(R443) No. 8 — (R442) No. 1 — 22 (except No. 6):***<br>***(R443) No. 8 — (R443) No. 1 — 26:***<br>***(R443) No. 8 — (R436) No. 1 — 8:***<br>***(R443) No. 8 — (R432) No. 7:***<br>***(R443) No. 6 — (R442) No. 1 — 22 (except No. 8):***<br>***(R443) No. 6 — (R443) No. 1 — 26:***<br>***(R443) No. 6 — (R436) No. 1 — 8:***<br>***(R443) No. 6 — (R432) No. 7:*** | Is the resistance 1 MΩ or more? | Go to step **3**. | Repair short circuit in harness between drive motor inverter amperage sensor connector and DMCM connector or repair the intermediate connector. |
| 3 | **CHECK DRIVE MOTOR INVERTER AMPERAGE SENSOR.**<br>1) Replace the drive motor inverter amperage sensor. <Ref. to HEV-27, Drive Motor Inverter Current Sensor.><br>2) Perform the Inspection Mode. <Ref. to HEV(diag)-27, Inspection Mode.> | Is the same DTC detected? (current malfunction) | Replace DMCM. <Ref. to CVT(TH58A)-157, Drive Motor Control Module.> | Problem is present in drive motor inverter amperage sensor. |

## CO:DTC P062F INTERNAL CONTROL MODULE EEPROM ERROR

**DIAGNOSIS:**

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-85, DTC P062F INTERNAL CONTROL MODULE EEPROM ERROR, Diagnostic Trouble Code (DTC) Detecting Criteria.>

**TROUBLE SYMPTOM:**

- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.

**CAUTION:**

**Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.>**

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK BECM.**<br>1) Perform the Clear Memory Mode. <Ref. to HEV(diag)-25, BATTERY ENERGY CONTROL SYSTEM, OPERATION, Clear Memory Mode.><br>2) Turn the ignition switch to OFF.<br>3) Wait for 30 seconds.<br>4) Turn the ignition switch to ON.<br>5) Read the DTC again. <Ref. to HEV(diag)-24, BATTERY ENERGY CONTROL SYSTEM, OPERATION, Read Diagnostic Trouble Code (DTC).> | Is the same DTC detected? (current malfunction) | Replace the high voltage battery. <Ref. to HEV-17, High Voltage Battery.> | Even if DTC is detected, the circuit has returned to a normal condition at this time. Reproduce the failure, and then perform the diagnosis again.<br>NOTE:<br>In this case, temporary poor contact of connector, temporary open or short circuit of harness may be the cause. |

## CP:DTC P0A1F BATTERY ENERGY CONTROL MODULE

**DIAGNOSIS:**

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-86, DTC P0A1F BATTERY ENERGY CONTROL MODULE, Diagnostic Trouble Code (DTC) Detecting Criteria.>

**TROUBLE SYMPTOM:**

- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.

**CAUTION:**

**Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.>**

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK BECM.**<br>1) Perform the Clear Memory Mode. <Ref. to HEV(diag)-25, BATTERY ENERGY CONTROL SYSTEM, OPERATION, Clear Memory Mode.><br>2) Turn the ignition switch to OFF.<br>3) Wait for 30 seconds.<br>4) Turn the ignition switch to ON.<br>5) Read the DTC again. <Ref. to HEV(diag)-24, BATTERY ENERGY CONTROL SYSTEM, OPERATION, Read Diagnostic Trouble Code (DTC).> | Is the same DTC detected? (current malfunction) | Replace the high voltage battery. <Ref. to HEV-17, High Voltage Battery.> | Even if DTC is detected, the circuit has returned to a normal condition at this time. Reproduce the failure, and then perform the diagnosis again.<br>NOTE:<br>In this case, temporary poor contact of connector, temporary open or short circuit of harness may be the cause. |

## CQ:DTC P0A7D HYBRID BATTERY PACK STATE OF CHARGE LOW

**DIAGNOSIS:**

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-87, DTC P0A7D HYBRID BATTERY PACK STATE OF CHARGE LOW, Diagnostic Trouble Code (DTC) Detecting Criteria.>

**TROUBLE SYMPTOM:**

- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.

**CAUTION:**

**Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.>**

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK FREEZE FRAME DATA.**<br>Using the Subaru Select Monitor, confirm the value of «High Voltage Battery Amperage» in the freeze frame data of battery energy control system. <Ref. to HEV(diag)-68, BATTERY ENERGY CONTROL SYSTEM, OPERATION, Freeze Frame Data Display.> | Is the value 1A (discharge) or more? | Go to step **2**. | Replace the high voltage battery. <Ref. to HEV-17, High Voltage Battery.> |
| 2 | **CHECK DTC.**<br>Using the Subaru Select Monitor, read DTCs of the following system.<br>• Hybrid powertrain control system <Ref. to HEV(diag)-24, HYBRID POWERTRAIN CONTROL SYSTEM, OPERATION, Read Diagnostic Trouble Code (DTC).><br>• Drive motor control system <Ref. to HEV(diag)-24, DRIVE MOTOR CONTROL SYSTEM, OPERATION, Read Diagnostic Trouble Code (DTC).><br>• CVT System <Ref. to CVT(HEV)(diag)-19, OPERATION, Read Diagnostic Trouble Code (DTC).> | Are any other DTCs detected? (current malfunction) | Perform the diagnosis according to DTC. <Ref. to HEV(diag)-74, LIST, List of Diagnostic Trouble Code (DTC).> <Ref. to CVT(HEV)(diag)-34, LIST, List of Diagnostic Trouble Code (DTC).> | Go to step **3**. |
| 3 | **CHECK CURRENT DATA.**<br>1) Turn the ignition to OFF.<br>2) Start the engine.<br>3) Check illumination of "DRIVING POSSIBLE (READY) INDICATOR" in the meter. | Is the indicator illuminating? | Go to step **4**. | Replace the HPCM. <Ref. to HEV-37, Hybrid Powertrain Control Module.> |
| 4 | **CHECK CURRENT DATA.**<br>1) Drive approximately 2 km (1.2 miles) at a speed of 30 km/h (18.6 MPH) or more.<br>2) Using the Subaru Select Monitor, confirm the current data of battery energy control system, the value of «High Voltage Battery SOC». <Ref. to HEV(diag)-58, BATTERY ENERGY CONTROL SYSTEM, OPERATION, Read Current Data.> | Is the value 6% or more? | Even if DTC is detected, the circuit has returned to a normal condition at this time. Reproduce the failure, and then perform the diagnosis again.<br>NOTE:<br>In this case, temporary poor contact of connector, temporary open or short circuit of harness may be the cause. | Replace the high voltage battery. <Ref. to HEV-17, High Voltage Battery.> |

## CR:DTC P0A7E HYBRID BATTERY PACK OVER TEMPERATURE

**DIAGNOSIS:**

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-88, DTC P0A7E HYBRID BATTERY PACK OVER TEMPERATURE, Diagnostic Trouble Code (DTC) Detecting Criteria.>

**TROUBLE SYMPTOM:**

- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.

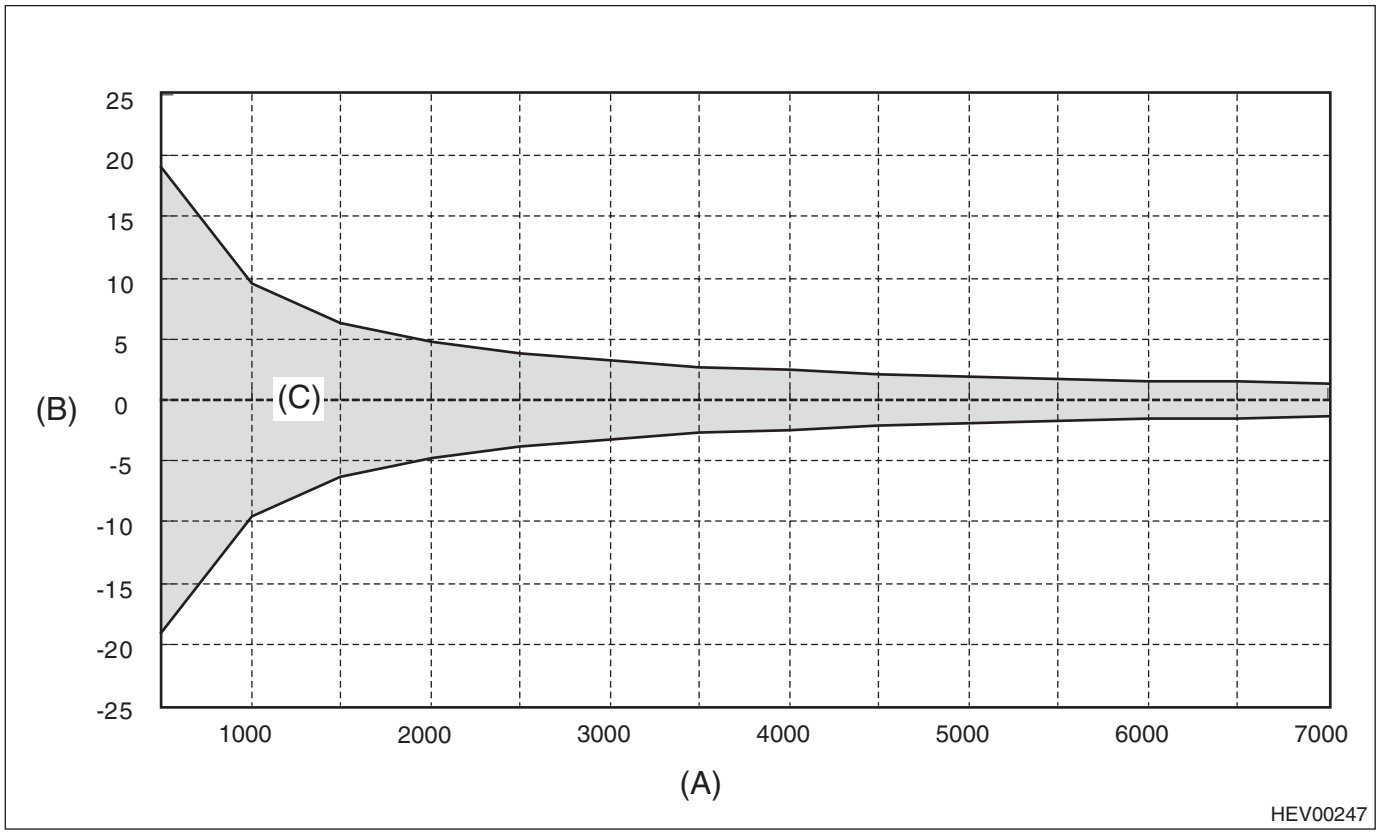
**CAUTION:**

**Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.>**

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK DTC.**<br>Using the Subaru Select Monitor, read DTCs of the following system.<br>• Drive motor control system <Ref. to HEV(diag)-24, BATTERY ENERGY CONTROL SYSTEM, OPERATION, Read Diagnostic Trouble Code (DTC).> | Is either DTC P0A83 or P0A82 detected? (current malfunction) | Perform the diagnosis according to DTC. <Ref. to HEV(diag)-78, DRIVE MOTOR CONTROL SYSTEM, LIST, List of Diagnostic Trouble Code (DTC).> | Go to step **2**. |
| 2 | **CHECK FREEZE FRAME DATA.**<br>Using the Subaru Select Monitor, confirm the value of «High Voltage Battery Cooling Fan Duty Target(HPCM)» in the freeze frame data of battery energy control system. <Ref. to HEV(diag)-14, HIGH VOLTAGE BATTERY, ELECTRICAL SPECIFICATION, Control Module I/O Signal.> | Is the value 20% or more? | Go to step **3**. | Replace the HPCM. <Ref. to HEV-37, Hybrid Powertrain Control Module.> |
| 3 | **CHECK HIGH VOLTAGE BATTERY COOLING FAN.**<br>Using the Subaru Select Monitor, perform «High Voltage Battery Cooling Fan» of System Operation Check Mode for the drive motor control system. <Ref. to HEV(diag)-73, DRIVE MOTOR CONTROL SYSTEM, OPERATION, System Operation Check Mode.> | Does the high voltage battery cooling fan operate? | Go to step **4**. | Check the high voltage battery cooling fan as a single part. <Ref. to HEV-60, High Voltage Battery Cooling System.> |
| 4 | **CHECK DUCT.**<br>Check the high voltage battery cooling fan ducts. <Ref. to HEV-60, High Voltage Battery Cooling System.> | Are the conditions of ducts normal? (Check for clogging, dislodging, etc.) | Go to step **5**. | Repair the ducts. |
| 5 | **CHECK FREEZE FRAME DATA.**<br>Using the Subaru Select Monitor, confirm the value of «High Voltage Battery Discharge Power Limit 1» in the freeze frame data of battery energy control system. <Ref. to HEV(diag)-68, BATTERY ENERGY CONTROL SYSTEM, OPERATION, Freeze Frame Data Display.> | Is the value 0.5 kw or less? | Go to step **6**. | Replace the high voltage battery. <Ref. to HEV-17, High Voltage Battery.> |
| 6 | **CHECK FREEZE FRAME DATA.**<br>Using the Subaru Select Monitor, confirm the value of «High Voltage Battery Charge Power 1» in the freeze frame data of battery energy control system. <Ref. to HEV(diag)-68, BATTERY ENERGY CONTROL SYSTEM, OPERATION, Freeze Frame Data Display.> | Is the value 0.5 kw or less? | Go to step **7**. | Replace the high voltage battery. <Ref. to HEV-17, High Voltage Battery.> |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 7 | **CHECK FREEZE FRAME DATA.**<br>Using the Subaru Select Monitor, confirm the values of «Drive Motor Torque Target(HPCM)» «Drive Motor Speed Target(HPCM)» in the freeze frame data of battery energy control system. <Ref. to HEV(diag)-68, BATTERY ENERGY CONTROL SYSTEM, OPERATION, Freeze Frame Data Display.> | Are the values of «Drive Motor Torque Target(HPCM)» and «Drive Motor Speed Target(HPCM)» within the standard in the margin? | Go to step **8**. | Replace the HPCM. <Ref. to HEV-37, Hybrid Powertrain Control Module.> |
| 8 | **CHECK FREEZE FRAME DATA.**<br>Using the Subaru Select Monitor, confirm the values of «Drive Motor Output Torque Actual» «Drive Motor Speed» in the freeze frame data of battery energy control system. <Ref. to HEV(diag)-68, BATTERY ENERGY CONTROL SYSTEM, OPERATION, Freeze Frame Data Display.> | Are the values of «Drive Motor Output Torque Actual» and «Drive Motor Speed» within the standard in the margin? | Replace the high voltage battery. <Ref. to HEV-17, High Voltage Battery.> | Replace DMCM. <Ref. to CVT(TH58A)-157, Drive Motor Control Module.> |

NOTE:




(A) Drive Motor Speed Target(HPCM) or Drive Motor Speed
(B) Drive Motor Torque Target (HPCM) or Drive Motor Output Torque Actual
(C) Standard

## CS:DTC P0A7F HYBRID BATTERY PACK DETERIORATION

**DIAGNOSIS:**

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-89, DTC P0A7F HYBRID BATTERY PACK DETERIORATION, Diagnostic Trouble Code (DTC) Detecting Criteria.>

**TROUBLE SYMPTOM:**

Normal control

NOTE:
If this DTC is detected, replace the high voltage battery. <Ref. to HEV-17, High Voltage Battery.>

## CT:DTC P0A95 HIGH VOLTAGE FUSE

**DIAGNOSIS:**

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-92, DTC P0A95 HIGH VOLTAGE FUSE, Diagnostic Trouble Code (DTC) Detecting Criteria.>

**TROUBLE SYMPTOM:**

- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.

**CAUTION:**
**Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.>**

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK SERVICE DISCONNECT PLUG.**<br>Check installation condition of service disconnect plug. <Ref. to HEV-15, Service Plug.> | Is the service disconnect plug securely installed? Is it locked? | Go to step **2**. | Securely install the service disconnect plug. |
| 2 | **CHECK CURRENT DATA.**<br>Using the Subaru Select Monitor, confirm the current data of battery energy control system, the value of «High Voltage Battery Fuse Condition». <Ref. to HEV(diag)-58, BATTERY ENERGY CONTROL SYSTEM, OPERATION, Read Current Data.> | Does the value show «Blow out»? | Go to step **3**. | Even if DTC is detected, the circuit has returned to a normal condition at this time. Reproduce the failure, and then perform the diagnosis again.<br>NOTE:<br>In this case, temporary poor contact of connector, temporary open or short circuit of harness may be the cause. |
| 3 | **CHECK SERVICE DISCONNECT PLUG.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the ground cable of the 12 volt auxiliary battery, and as for the 12 volt engine restart battery, disconnect the ground cable from the 12V engine restart battery sensor. <Ref. to NT-5, BATTERY, NOTE, Note.><br>3) Remove the service disconnect plug. <Ref. to HEV-15, Service Plug.><br>4) Measure the resistance between service disconnect plug terminals. | Is the resistance less than 1 Ω? | Replace the high voltage battery. <Ref. to HEV-17, High Voltage Battery.> | Replace the service disconnect plug. |

## CU:DTC P0A9C HYBRID BATTERY TEMPERATURE SENSOR "A" CIRCUIT RANGE/PERFORMANCE

**DIAGNOSIS:**

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-93, DTC P0A9C HYBRID BATTERY TEMPERATURE SENSOR "A" CIRCUIT RANGE/PERFORMANCE, Diagnostic Trouble Code (DTC) Detecting Criteria.>

**TROUBLE SYMPTOM:**

EV traveling/Auto Start Stop does not operate.
(Engine does not restart under EV traveling/Auto Start Stop condition.)

NOTE:
If this DTC is detected, replace the high voltage battery. <Ref. to HEV-17, High Voltage Battery.>

## CV:DTC P0A9D HYBRID BATTERY TEMPERATURE SENSOR "A" CIRCUIT LOW

**DIAGNOSIS:**

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-94, DTC P0A9D HYBRID BATTERY TEMPERATURE SENSOR "A" CIRCUIT LOW, Diagnostic Trouble Code (DTC) Detecting Criteria.>

**TROUBLE SYMPTOM:**

EV traveling/Auto Start Stop does not operate.
(Engine does not restart under EV traveling/Auto Start Stop condition.)

NOTE:
If this DTC is detected, replace the high voltage battery. <Ref. to HEV-17, High Voltage Battery.>

## CW:DTC P0A9E HYBRID BATTERY TEMPERATURE SENSOR "A" CIRCUIT HIGH

**DIAGNOSIS:**

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-95, DTC P0A9E HYBRID BATTERY TEMPERATURE SENSOR "A" CIRCUIT HIGH, Diagnostic Trouble Code (DTC) Detecting Criteria.>

**TROUBLE SYMPTOM:**

EV traveling/Auto Start Stop does not operate.
(Engine does not restart under EV traveling/Auto Start Stop condition.)

NOTE:
If this DTC is detected, replace the high voltage battery. <Ref. to HEV-17, High Voltage Battery.>

## CX:DTC P0AA4 HYBRID BATTERY NEGATIVE CONTACTOR CIRCUIT STUCK CLOSED

**DIAGNOSIS:**

- Immediately at fault recognition
- Detects welding in – side contactor and precharge contactor.
- If the difference between the total voltage of the high voltage battery and the inverter voltage is greater than or equal to the standard when the contactor is open, it is judged as NG.

**TROUBLE SYMPTOM:**

Normal control

**CAUTION:**

**Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.>**

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK BECM.**<br>1) Perform the Clear Memory Mode. <Ref. to HEV(diag)-25, BATTERY ENERGY CONTROL SYSTEM, OPERATION, Clear Memory Mode.><br>2) Start the engine.<br>3) Turn the ignition switch to OFF.<br>4) Wait for 30 seconds.<br>5) Turn the ignition switch to ON.<br>6) Read the DTC again. <Ref. to HEV(diag)-24, BATTERY ENERGY CONTROL SYSTEM, OPERATION, Read Diagnostic Trouble Code (DTC).> | Is DTC P0AA4 detected? (current malfunction) | Replace the high voltage battery. <Ref. to HEV-17, High Voltage Battery.> | Even if DTC is detected, the circuit has returned to a normal condition at this time. Reproduce the failure, and then perform the diagnosis again.<br>NOTE:<br>In this case, temporary poor contact of connector, temporary open or short circuit of harness may be the cause. |

# CY:DTC P0AA6 HYBRID BATTERY VOLTAGE SYSTEM ISOLATION FAULT

**DIAGNOSIS:**

- Detects leakage in high voltage system circuit.
- If hybrid system leakage resistance, leakage resistance in high voltage battery are smaller than the standard, it is judged as NG.
- Immediately at fault recognition

**TROUBLE SYMPTOM:**

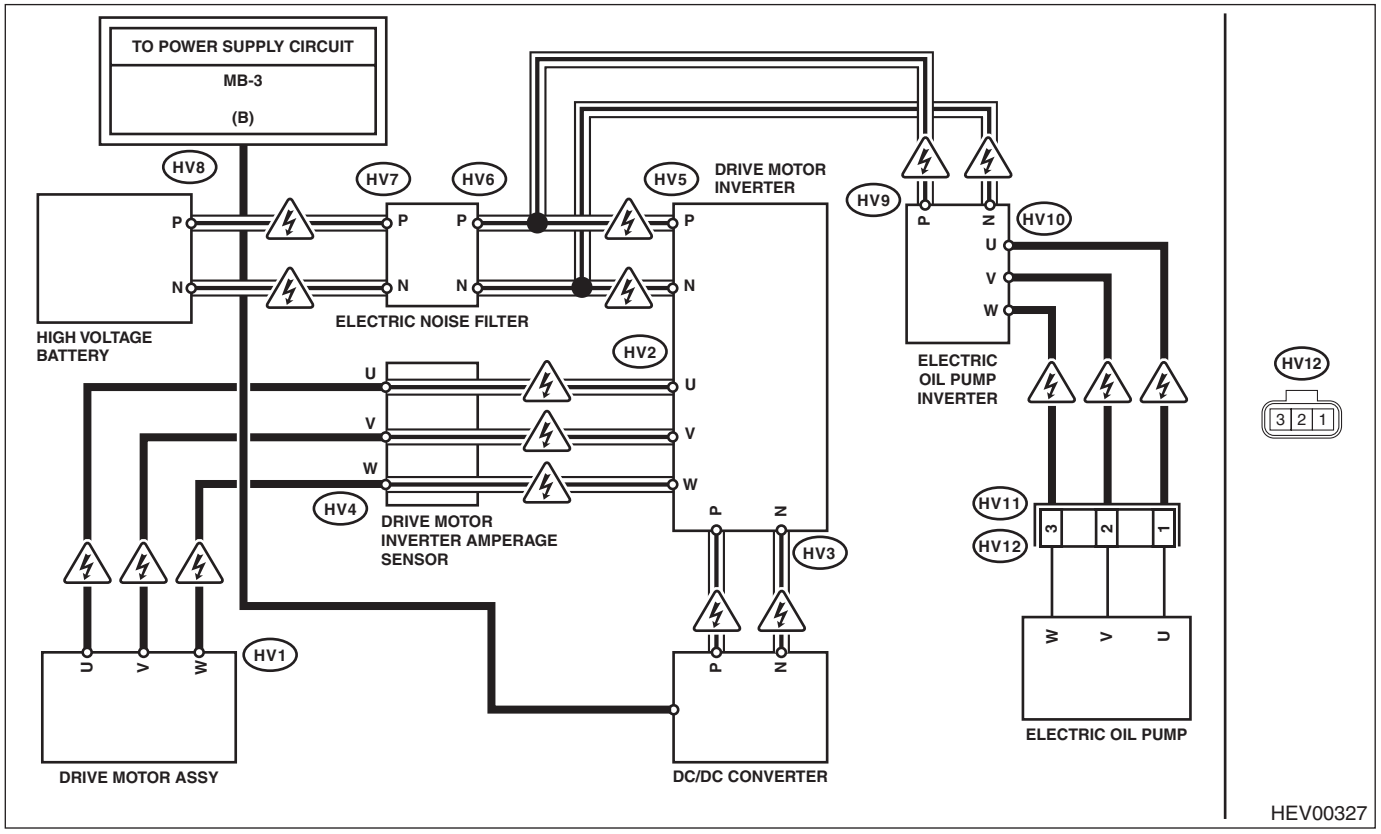
Normal control

**CAUTION:**

**Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.>**

**WIRING DIAGRAM**

Hybrid system <Ref. to WI(HEV)-140, WIRING DIAGRAM, Hybrid Electric Vehicle System.>




| Step | | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK CURRENT DATA.**<br>1) Turn the ignition switch to OFF → ON.<br>2) Leave the vehicle 1 minute unattended.<br>3) Using the Subaru Select Monitor, confirm the current data of battery energy control system, the values of «High Voltage Battery Pack Leakage Resistance (+)» «High Voltage Battery Pack Leakage Resistance (–)». <Ref. to HEV(diag)-58, BATTERY ENERGY CONTROL SYSTEM, OPERATION, Read Current Data.> | Is the value of «High Voltage Battery Pack Leakage Resistance (+)» or «High Voltage Battery Pack Leakage Resistance (–)» 290 kΩ or less? | Replace the high voltage battery. <Ref. to HEV-17, High Voltage Battery.> | Go to step **2**. |

| Step | | Check | Yes | No |
|---|---|---|---|---|
| 2 | **CHECK CURRENT DATA.**<br>1) Stop the engine.<br>2) Start the engine.<br>3) Using the Subaru Select Monitor, display the current data of battery energy control system, the values of «HEV System Leakage Resistance (+)» «HEV System Leakage Resistance (–)». <Ref. to HEV(diag)-58, BATTERY ENERGY CONTROL SYSTEM, OPERATION, Read Current Data.><br>4) With the current data displayed, drive the vehicle at 10 km/h (6.2 MPH) or faster at least 1 minute.<br>5) Using the Subaru Select Monitor, confirm the current data of battery energy control system, the recorded values of «HEV System Leakage Resistance (+)» «HEV System Leakage Resistance (–)». <Ref. to HEV(diag)-58, BATTERY ENERGY CONTROL SYSTEM, OPERATION, Read Current Data.> | Is the minimum value of «HEV System Leakage Resistance (+)» or «HEV System Leakage Resistance (–)» 290 kΩ or less? | Go to step **3**. | Even if DTC is detected, the circuit has returned to a normal condition at this time. Reproduce the failure, and then perform the diagnosis again.<br>NOTE:<br>In this case, temporary poor contact of connector, temporary open or short circuit of harness may be the cause. |
| 3 | **CHECK POWER CABLE AND BUS BAR.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the ground cable of the 12 volt auxiliary battery, and as for the 12 volt engine restart battery, disconnect the ground cable from the 12V engine restart battery sensor. <Ref. to NT-5, BATTERY, NOTE, Note.><br>3) Remove the service disconnect plug. <Ref. to HEV-15, Service Plug.><br>4) Wait for 10 minutes.<br>5) Disconnect the power cable (HV4) from drive motor inverter amperage sensor.<br>6) Using an insulation multimeter (250 V range), measure the resistance between high voltage battery side terminal and chassis ground of electric noise filter.<br>***Connector & terminal***<br>***(HV7) P — Chassis ground:***<br>***(HV7) N — Chassis ground:*** | Is the resistance 2 MΩ or more? | Go to step **13**. | Go to step **4**. |
| 4 | **CHECK POWER CABLE AND BUS BAR.**<br>1) Disconnect the power cable (HV10) from electric oil pump.<br>2) Using an insulation multimeter (250 V range), measure the resistance between high voltage battery side terminal and chassis ground of electric noise filter.<br>***Connector & terminal***<br>***(HV7) P — Chassis ground:***<br>***(HV7) N — Chassis ground:*** | Is the resistance 2 MΩ or more? | Go to step **14**. | Go to step **5**. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 5 | **CHECK BUS BAR.**<br>1) Check the bus bar between the high voltage battery (HV8) and the electric noise filter (HV7) and the surrounding area for metallic foreign bodies, and if there are any, remove them.<br>2) Using an insulation multimeter (250 V range), measure the resistance between high voltage battery side terminal and chassis ground of electric noise filter.<br>***Connector & terminal***<br>***(HV7) P — Chassis ground:***<br>***(HV7) N — Chassis ground:*** | Is the resistance 2 MΩ or more? | Even if DTC is detected, the circuit has returned to a normal condition at this time. Reproduce the failure, and then perform the diagnosis again. | Go to step **6**. |
| 6 | **CHECK POWER CABLE AND BUS BAR.**<br>1) Remove the bus bar between high voltage battery (HV8) and the electric noise filter (HV7).<br>2) Using an insulation multimeter (250 V range), measure the resistance between High Voltage battery terminals and chassis ground.<br>***Connector & terminal***<br>***(HV8) P — Chassis ground:***<br>***(HV8) N — Chassis ground:*** | Is the resistance 2 MΩ or more? | Go to step **7**. | Replace the high voltage battery. <Ref. to HEV-17, High Voltage Battery.> |
| 7 | **CHECK POWER CABLE AND BUS BAR.**<br>1) Check bus bars between the electric noise filter (HV6), the drive motor inverter (HV5), and electric oil pump inverter (HV9) and the surrounding area for metallic foreign bodies, and if there are any, remove them.<br>2) Using an insulation multimeter (250 V range), measure the resistance between high voltage battery side terminal and chassis ground of electric noise filter.<br>***Connector & terminal***<br>***(HV7) P — Chassis ground:***<br>***(HV7) N — Chassis ground:*** | Is the resistance 2 MΩ or more? | Even if DTC is detected, the circuit has returned to a normal condition at this time. Reproduce the failure, and then perform the diagnosis again. | Go to step **8**. |
| 8 | **CHECK POWER CABLE AND BUS BAR.**<br>1) Remove the DC/DC converter (HV3).<br>2) Using an insulation multimeter (250 V range), measure the resistance between high voltage battery side terminal and chassis ground of electric noise filter.<br>***Connector & terminal***<br>***(HV7) P — Chassis ground:***<br>***(HV7) N — Chassis ground:*** | Is the resistance 2 MΩ or more? | Replace the DC/DC converter. <Ref. to HEV-38, DC/DC Converter.> | Go to step **9**. |
| 9 | **CHECK POWER CABLE AND BUS BAR.**<br>1) Remove the electric oil pump inverter (HV9).<br>2) Using an insulation multimeter (250 V range), measure the resistance between high voltage battery side terminal and chassis ground of electric noise filter.<br>***Connector & terminal***<br>***(HV7) P — Chassis ground:***<br>***(HV7) N — Chassis ground:*** | Is the resistance 2 MΩ or more? | Replace the electric oil pump inverter. <Ref. to HEV-42, Inverter.> | Go to step **10**. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 10 | **CHECK POWER CABLE AND BUS BAR.**<br>1) Remove the drive motor inverter amperage sensor (HV2) from the drive motor inverter.<br>2) Check the bus bar of the drive motor inverter amperage sensor (HV2) and the surrounding area for metallic foreign bodies, and remove them if there any, then reinstall the sensor.<br>3) Using an insulation multimeter (250 V range), measure the resistance between high voltage battery side terminal and chassis ground of electric noise filter.<br>***Connector & terminal***<br>***(HV7) P — Chassis ground:***<br>***(HV7) N — Chassis ground:*** | Is the resistance 2 MΩ or more? | Even if DTC is detected, the circuit has returned to a normal condition at this time. Reproduce the failure, and then perform the diagnosis again. | Go to step **11**. |
| 11 | **CHECK POWER CABLE AND BUS BAR.**<br>1) Remove the drive motor inverter amperage sensor (HV2) from the drive motor inverter.<br>2) Using an insulation multimeter (250 V range), measure the resistance between high voltage battery side terminal and chassis ground of electric noise filter.<br>***Connector & terminal***<br>***(HV7) P — Chassis ground:***<br>***(HV7) N — Chassis ground:*** | Is the resistance 2 MΩ or more? | Replace the drive motor inverter amperage sensor. <Ref. to HEV-27, Drive Motor Inverter Current Sensor.> | Go to step **12**. |
| 12 | **CHECK POWER CABLE AND BUS BAR.**<br>1) Remove the bus bar between the electric noise filter (HV6) and the drive motor inverter (HV5).<br>2) Using an insulation multimeter (250 V range), measure the resistance between high voltage battery side terminal and chassis ground of electric noise filter.<br>***Connector & terminal***<br>***(HV7) P — Chassis ground:***<br>***(HV7) N — Chassis ground:*** | Is the resistance 2 MΩ or more? | Replace the drive motor inverter. <Ref. to HEV-42, Inverter.> | Replace the electric noise filter. <Ref. to HEV-31, Noise Filter.> |
| 13 | **CHECK POWER CABLE AND DRIVE MOTOR ASSEMBLY.**<br>1) Disconnect the power cable (HV1) from the drive motor assembly.<br>NOTE:<br>The gasket is not reusable.<br>2) Using an insulation multimeter (250 V range), measure the resistance between drive motor assembly and chassis ground.<br>***Connector & terminal***<br>***(HV1) U — Chassis ground:***<br>***(HV1) V — Chassis ground:***<br>***(HV1) W — Chassis ground:*** | Is the resistance 2 MΩ or more? | Replace the power cable. <Ref. to HEV-52, Power Cable.> | Replace the drive motor assembly. <Ref. to CVT(TH58A)-217, Drive Motor Assembly.> |
| 14 | **CHECK POWER CABLE AND ELECTRIC OIL PUMP.**<br>1) Disconnect the power cable (HV12) from electric oil pump.<br>2) Using an insulation multimeter (250 V range), measure the resistance between electric oil pump and chassis ground.<br>***Connector & terminal***<br>***(HV12) U — Chassis ground:***<br>***(HV12) V — Chassis ground:***<br>***(HV12) W — Chassis ground:*** | Is the resistance 2 MΩ or more? | Replace the power cable. <Ref. to HEV-52, Power Cable.> | Replace the electric oil pump. <Ref. to CVT(TH58A)-134, Electric Fluid Pump.> |

## CZ:DTC P0AA7 HYBRID BATTERY VOLTAGE SYSTEM ISOLATION SENSOR CIRCUIT

**DIAGNOSIS:**
- Detects a fault in leakage detection circuit.
- Detects open, short conditions in switches within the leakage detection circuit.
- Immediately at fault recognition

**TROUBLE SYMPTOM:**
Normal control

NOTE:
If this DTC is detected, replace the high voltage battery. <Ref. to HEV-17, High Voltage Battery.>

## DA:DTC P0AAD HYBRID BATTERY PACK AIR TEMPERATURE SENSOR "A" CIRCUIT RANGE/PERFORMANCE

**DIAGNOSIS:**
- Detected when two consecutive driving cycles with fault occur. (Single engine startup is counted as one drive cycle.)
- GENERAL DESCRIPTION <Ref. to GD(HEV)-96, DTC P0AAD HYBRID BATTERY PACK AIR TEMPERATURE SENSOR "A" CIRCUIT RANGE/PERFORMANCE, Diagnostic Trouble Code (DTC) Detecting Criteria.>

**TROUBLE SYMPTOM:**
Normal control

NOTE:
If this DTC is detected, replace the high voltage battery. <Ref. to HEV-17, High Voltage Battery.>

## DB:DTC P0AAE HYBRID BATTERY PACK AIR TEMPERATURE SENSOR "A" CIRCUIT LOW

**DIAGNOSIS:**
- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-97, DTC P0AAE HYBRID BATTERY PACK AIR TEMPERATURE SENSOR "A" CIRCUIT LOW, Diagnostic Trouble Code (DTC) Detecting Criteria.>

**TROUBLE SYMPTOM:**
Normal control

NOTE:
If this DTC is detected, replace the high voltage battery. <Ref. to HEV-17, High Voltage Battery.>

## DC:DTC P0AAF HYBRID BATTERY PACK AIR TEMPERATURE SENSOR "A" CIRCUIT HIGH

**DIAGNOSIS:**
- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-98, DTC P0AAF HYBRID BATTERY PACK AIR TEMPERATURE SENSOR "A" CIRCUIT HIGH, Diagnostic Trouble Code (DTC) Detecting Criteria.>

**TROUBLE SYMPTOM:**
Normal control

NOTE:
If this DTC is detected, replace the high voltage battery. <Ref. to HEV-17, High Voltage Battery.>

## DD:DTC P0ABF HYBRID BATTERY PACK CURRENT SENSOR "A" CIRCUIT

**DIAGNOSIS:**

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-99, DTC P0ABF HYBRID BATTERY PACK CURRENT SENSOR "A" CIRCUIT, Diagnostic Trouble Code (DTC) Detecting Criteria.>

**TROUBLE SYMPTOM:**

EV traveling/Auto Start Stop does not operate.
(Engine does not restart under EV traveling/Auto Start Stop condition.)

NOTE:
If this DTC is detected, replace the high voltage battery. <Ref. to HEV-17, High Voltage Battery.>

## DE:DTC P0AC0 HYBRID BATTERY PACK CURRENT SENSOR "A" CIRCUIT RANGE/PERFORMANCE

**DIAGNOSIS:**

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-100, DTC P0AC0 HYBRID BATTERY PACK CURRENT SENSOR "A" CIRCUIT RANGE/PERFORMANCE, Diagnostic Trouble Code (DTC) Detecting Criteria.>

**TROUBLE SYMPTOM:**

EV traveling/Auto Start Stop does not operate.
(Engine does not restart under EV traveling/Auto Start Stop condition.)

NOTE:
If this DTC is detected, replace the high voltage battery. <Ref. to HEV-17, High Voltage Battery.>

## DF:DTC P0AC1 HYBRID BATTERY PACK CURRENT SENSOR "A" CIRCUIT LOW

**DIAGNOSIS:**

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-101, DTC P0AC1 HYBRID BATTERY PACK CURRENT SENSOR "A" CIRCUIT LOW, Diagnostic Trouble Code (DTC) Detecting Criteria.>

**TROUBLE SYMPTOM:**

EV traveling/Auto Start Stop does not operate.
(Engine does not restart under EV traveling/Auto Start Stop condition.)

NOTE:
If this DTC is detected, replace the high voltage battery. <Ref. to HEV-17, High Voltage Battery.>

## DG:DTC P0AC2 HYBRID BATTERY PACK CURRENT SENSOR "A" CIRCUIT HIGH

**DIAGNOSIS:**

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-102, DTC P0AC2 HYBRID BATTERY PACK CURRENT SENSOR "A" CIRCUIT HIGH, Diagnostic Trouble Code (DTC) Detecting Criteria.>

**TROUBLE SYMPTOM:**

EV traveling/Auto Start Stop does not operate.
(Engine does not restart under EV traveling/Auto Start Stop condition.)

NOTE:
If this DTC is detected, replace the high voltage battery. <Ref. to HEV-17, High Voltage Battery.>

## DH:DTC P0AC3 HYBRID BATTERY PACK CURRENT SENSOR "A" CIRCUIT INTERMITTENT/ERRATIC

**DIAGNOSIS:**

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-103, DTC P0AC3 HYBRID BATTERY PACK CURRENT SENSOR "A" CIRCUIT INTERMITTENT/ERRATIC, Diagnostic Trouble Code (DTC) Detecting Criteria.>

**TROUBLE SYMPTOM:**

EV traveling/Auto Start Stop does not operate.
(Engine does not restart under EV traveling/Auto Start Stop condition.)

**CAUTION:**

**Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.>**

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK DTC.**<br>Using the Subaru Select Monitor, read DTCs of the following system.<br>• Drive motor control system <Ref. to HEV(diag)-24, DRIVE MOTOR CONTROL SYSTEM, OPERATION, Read Diagnostic Trouble Code (DTC).> | Are any other DTCs detected? (current malfunction) | Perform the diagnosis according to DTC. <Ref. to HEV(diag)-78, DRIVE MOTOR CONTROL SYSTEM, LIST, List of Diagnostic Trouble Code (DTC).> | Go to step **2**. |
| 2 | **CHECK CURRENT DATA.**<br>1) Perform the Clear Memory Mode. <Ref. to HEV(diag)-25, HYBRID POWERTRAIN CONTROL SYSTEM, OPERATION, Clear Memory Mode.><br>2) Start the engine.<br>3) Using the Subaru Select Monitor, confirm the current data of battery energy control system, the value of «High Voltage Battery Amperage Sensor Output». <Ref. to HEV(diag)-58, BATTERY ENERGY CONTROL SYSTEM, OPERATION, Read Current Data.> | Is the value 1 A or more? (When ignition is ON) | Replace the high voltage battery. <Ref. to HEV-17, High Voltage Battery.> | Even if DTC is detected, the circuit has returned to a normal condition at this time. Reproduce the failure, and then perform the diagnosis again.<br>NOTE:<br>In this case, temporary poor contact of connector, temporary open or short circuit of harness may be the cause. |

## DI: DTC P0AC6 HYBRID BATTERY TEMPERATURE SENSOR "B" CIRCUIT RANGE/PERFORMANCE

**DIAGNOSIS:**

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-105, DTC P0AC6 HYBRID BATTERY TEMPERATURE SENSOR "B" CIRCUIT RANGE/PERFORMANCE, Diagnostic Trouble Code (DTC) Detecting Criteria.>

**TROUBLE SYMPTOM:**

EV traveling/Auto Start Stop does not operate.
(Engine does not restart under EV traveling/Auto Start Stop condition.)

NOTE:
If this DTC is detected, replace the high voltage battery. <Ref. to HEV-17, High Voltage Battery.>

## DJ:DTC P0AC7 HYBRID BATTERY TEMPERATURE SENSOR "B" CIRCUIT LOW

**DIAGNOSIS:**

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-106, DTC P0AC7 HYBRID BATTERY TEMPERATURE SENSOR "B" CIRCUIT LOW, Diagnostic Trouble Code (DTC) Detecting Criteria.>

**TROUBLE SYMPTOM:**

EV traveling/Auto Start Stop does not operate.
(Engine does not restart under EV traveling/Auto Start Stop condition.)

NOTE:
If this DTC is detected, replace the high voltage battery. <Ref. to HEV-17, High Voltage Battery.>

## DK:DTC P0AC8 HYBRID BATTERY TEMPERATURE SENSOR "B" CIRCUIT HIGH

**DIAGNOSIS:**

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-107, DTC P0AC8 HYBRID BATTERY TEMPERATURE SENSOR "B" CIRCUIT HIGH, Diagnostic Trouble Code (DTC) Detecting Criteria.>

**TROUBLE SYMPTOM:**

EV traveling/Auto Start Stop does not operate.
(Engine does not restart under EV traveling/Auto Start Stop condition.)

NOTE:
If this DTC is detected, replace the high voltage battery. <Ref. to HEV-17, High Voltage Battery.>

## DL:DTC P0ACB HYBRID BATTERY TEMPERATURE SENSOR "C" CIRCUIT RANGE/PERFORMANCE

**DIAGNOSIS:**

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-108, DTC P0ACB HYBRID BATTERY TEMPERATURE SENSOR "C" CIRCUIT RANGE/PERFORMANCE, Diagnostic Trouble Code (DTC) Detecting Criteria.>

**TROUBLE SYMPTOM:**

EV traveling/Auto Start Stop does not operate.
(Engine does not restart under EV traveling/Auto Start Stop condition.)

NOTE:
If this DTC is detected, replace the high voltage battery. <Ref. to HEV-17, High Voltage Battery.>

## DM:DTC P0ACC HYBRID BATTERY TEMPERATURE SENSOR "C" CIRCUIT LOW

**DIAGNOSIS:**

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-109, DTC P0ACC HYBRID BATTERY TEMPERATURE SENSOR "C" CIRCUIT LOW, Diagnostic Trouble Code (DTC) Detecting Criteria.>

**TROUBLE SYMPTOM:**

EV traveling/Auto Start Stop does not operate.
(Engine does not restart under EV traveling/Auto Start Stop condition.)

NOTE:
If this DTC is detected, replace the high voltage battery. <Ref. to HEV-17, High Voltage Battery.>

## DN:DTC P0ACD HYBRID BATTERY TEMPERATURE SENSOR "C" CIRCUIT HIGH

**DIAGNOSIS:**

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-110, DTC P0ACD HYBRID BATTERY TEMPERATURE SENSOR "C" CIRCUIT HIGH, Diagnostic Trouble Code (DTC) Detecting Criteria.>

**TROUBLE SYMPTOM:**

EV traveling/Auto Start Stop does not operate.
(Engine does not restart under EV traveling/Auto Start Stop condition.)

NOTE:
If this DTC is detected, replace the high voltage battery. <Ref. to HEV-17, High Voltage Battery.>

## DO:DTC P0AD9 HYBRID BATTERY POSITIVE CONTACTOR CONTROL CIRCUIT/OPEN

**DIAGNOSIS:**

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-111, DTC P0AD9 HYBRID BATTERY POSITIVE CONTACTOR CONTROL CIRCUIT/OPEN, Diagnostic Trouble Code (DTC) Detecting Criteria.>

**TROUBLE SYMPTOM:**

- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.

NOTE:
If this DTC is detected, replace the high voltage battery. <Ref. to HEV-17, High Voltage Battery.>

## DP:DTC P0ADB HYBRID BATTERY POSITIVE CONTACTOR CONTROL CIRCUIT LOW

**DIAGNOSIS:**

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-112, DTC P0ADB HYBRID BATTERY POSITIVE CONTACTOR CONTROL CIRCUIT LOW, Diagnostic Trouble Code (DTC) Detecting Criteria.>

**TROUBLE SYMPTOM:**

- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.

NOTE:
If this DTC is detected, replace the high voltage battery. <Ref. to HEV-17, High Voltage Battery.>

## DQ:DTC P0ADD HYBRID BATTERY NEGATIVE CONTACTOR CONTROL CIRCUIT/OPEN

**DIAGNOSIS:**

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-113, DTC P0ADD HYBRID BATTERY NEGATIVE CONTACTOR CONTROL CIRCUIT/OPEN, Diagnostic Trouble Code (DTC) Detecting Criteria.>

**TROUBLE SYMPTOM:**

- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.

NOTE:
If this DTC is detected, replace the high voltage battery. <Ref. to HEV-17, High Voltage Battery.>

## DR:DTC P0ADF HYBRID BATTERY NEGATIVE CONTACTOR CONTROL CIRCUIT LOW

**DIAGNOSIS:**
- Detects short conditions in – side contactor control signal line.
- If short conditions are detected in – side contactor control signal line, it is judged as NG.
- Immediately at fault recognition

**TROUBLE SYMPTOM:**
Normal control

NOTE:
If this DTC is detected, replace the high voltage battery. <Ref. to HEV-17, High Voltage Battery.>

## DS:DTC P0AE4 HYBRID BATTERY PRECHARGE CONTACTOR CONTROL CIRCUIT

**DIAGNOSIS:**
- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-114, DTC P0AE4 HYBRID BATTERY PRECHARGE CONTACTOR CONTROL CIRCUIT, Diagnostic Trouble Code (DTC) Detecting Criteria.>

**TROUBLE SYMPTOM:**
- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.

NOTE:
If this DTC is detected, replace the high voltage battery. <Ref. to HEV-17, High Voltage Battery.>

## DT:DTC P0AE6 HYBRID BATTERY PRECHARGE CONTACTOR CONTROL CIRCUIT LOW

**DIAGNOSIS:**
- Detects short conditions in precharge contactor control signal line.
- If short conditions are detected in precharge contactor control signal line, it is judged as NG.
- Immediately at fault recognition

**TROUBLE SYMPTOM:**
Normal control

NOTE:
If this DTC is detected, replace the high voltage battery. <Ref. to HEV-17, High Voltage Battery.>

## DU:DTC P0B25 HYBRID BATTERY "A" VOLTAGE LOW

**DIAGNOSIS:**

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-115, DTC P0B25 HYBRID BATTERY "A" VOLTAGE LOW, Diagnostic Trouble Code (DTC) Detecting Criteria.>

**TROUBLE SYMPTOM:**

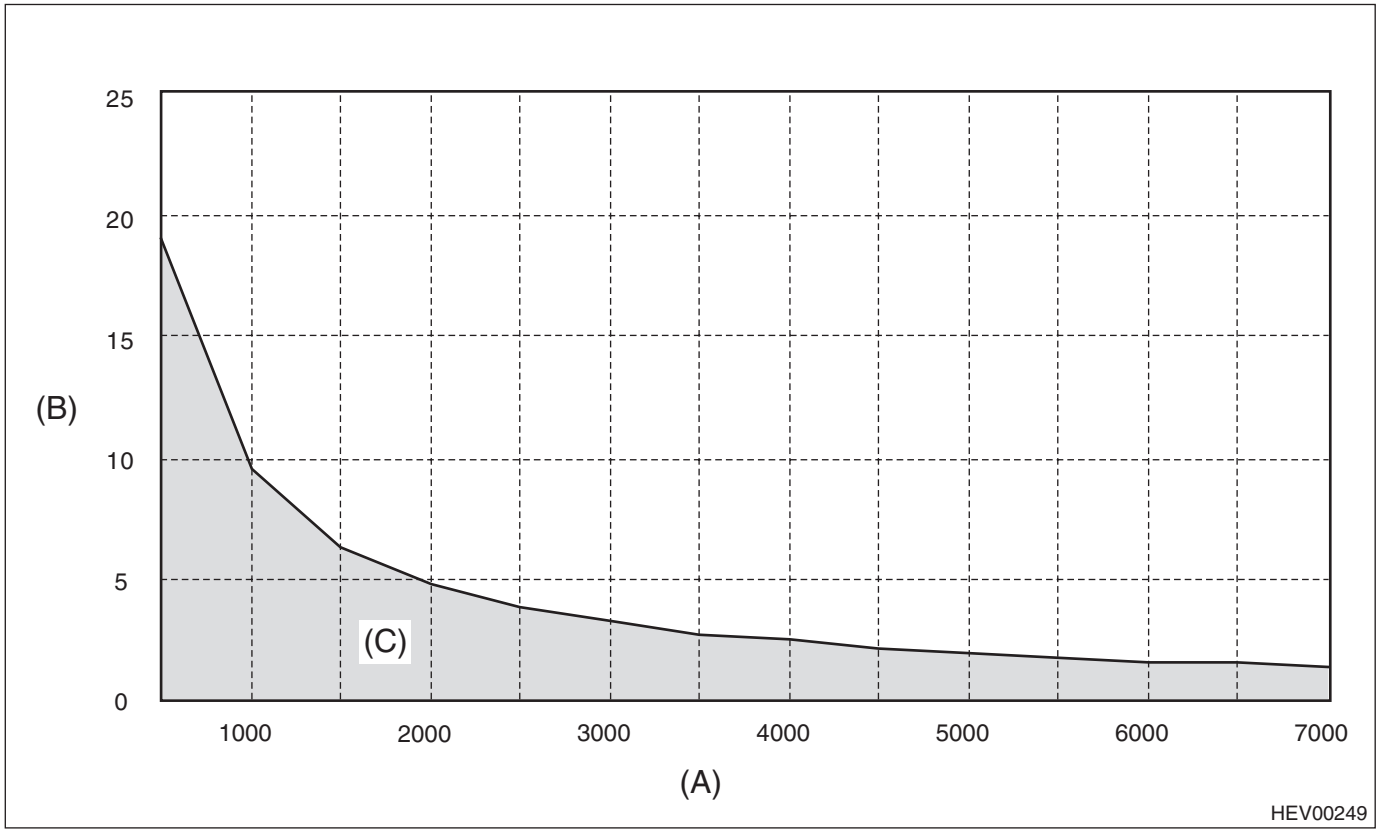
- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.

**CAUTION:**

**Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.>**

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK FREEZE FRAME DATA.**<br>Using the Subaru Select Monitor, confirm the value of «High Voltage Battery Discharge Power Limit 1» in the freeze frame data of battery energy control system. <Ref. to HEV(diag)-68, BATTERY ENERGY CONTROL SYSTEM, OPERATION, Freeze Frame Data Display.> | Does the value show 0 kw? | Go to step **2**. | Replace the high voltage battery. <Ref. to HEV-17, High Voltage Battery.> |
| 2 | **CHECK FREEZE FRAME DATA.**<br>Using the Subaru Select Monitor, confirm the values of «Drive Motor Torque Target(HPCM)» «Drive Motor Speed Target(HPCM)» in the freeze frame data of battery energy control system. <Ref. to HEV(diag)-68, BATTERY ENERGY CONTROL SYSTEM, OPERATION, Freeze Frame Data Display.> | Are the values of «Drive Motor Torque Target(HPCM)» and «Drive Motor Speed Target(HPCM)» within the standard in the margin? | Go to step **3**. | Replace the HPCM. <Ref. to HEV-37, Hybrid Powertrain Control Module.> |
| 3 | **CHECK FREEZE FRAME DATA.**<br>Using the Subaru Select Monitor, confirm the values of «Drive Motor Output Torque Actual» «Drive Motor Speed» in the freeze frame data of battery energy control system. <Ref. to HEV(diag)-68, BATTERY ENERGY CONTROL SYSTEM, OPERATION, Freeze Frame Data Display.> | Are the values of «Drive Motor Output Torque Actual» and «Drive Motor Speed» within the standard in the margin? | Replace the high voltage battery. <Ref. to HEV-17, High Voltage Battery.> | Replace DMCM. <Ref. to CVT(TH58A)-157, Drive Motor Control Module.> |

NOTE:




(A) Drive Motor Speed Target(HPCM) or Drive Motor Speed
(B) Drive Motor Torque Target (HPCM) or Drive Motor Output Torque Actual
(C) Standard

## DV:DTC P0B26 HYBRID BATTERY "A" VOLTAGE HIGH

**DIAGNOSIS:**

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-116, DTC P0B26 HYBRID BATTERY "A" VOLTAGE HIGH, Diagnostic Trouble Code (DTC) Detecting Criteria.>

**TROUBLE SYMPTOM:**

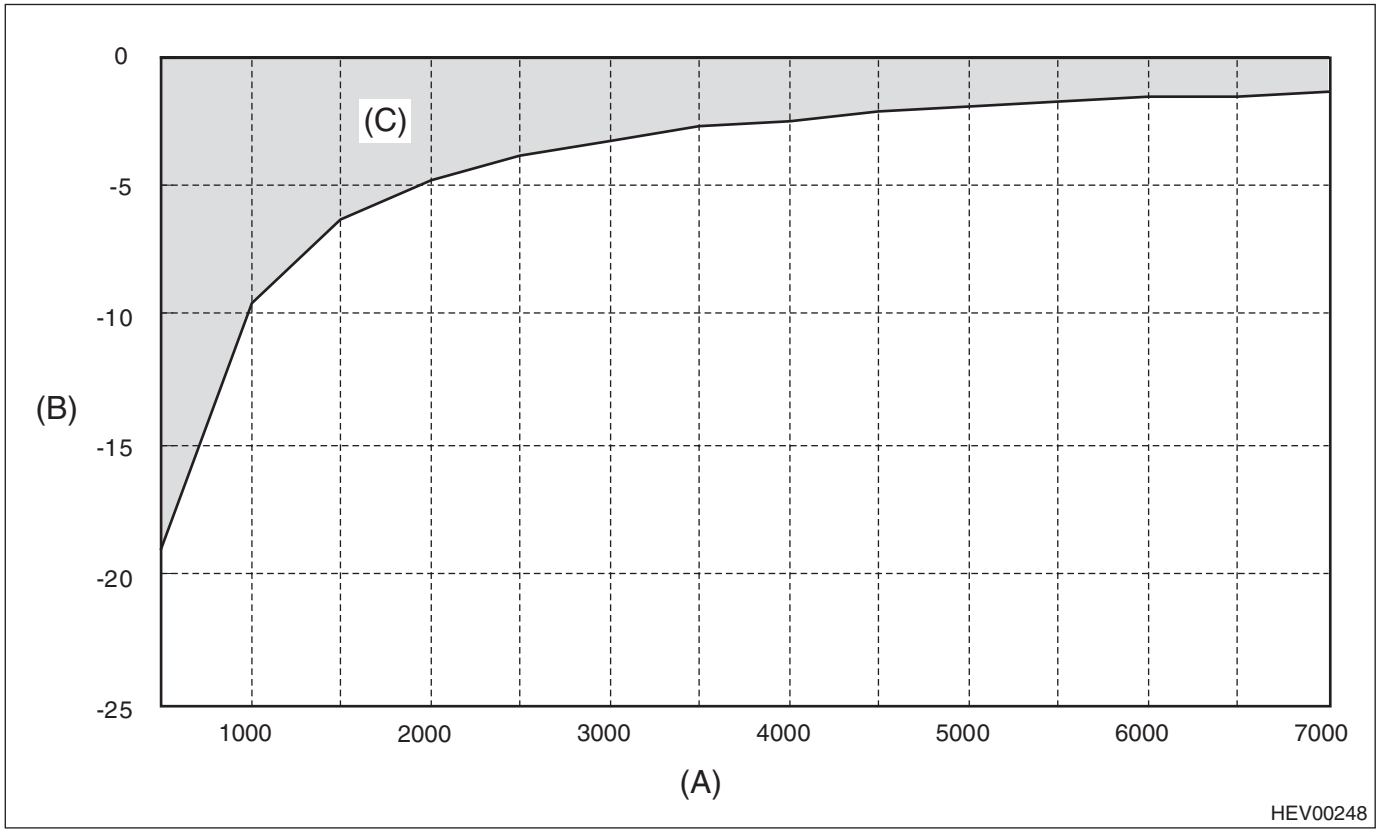
- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.

**CAUTION:**

**Before performing diagnosis, refer to “CAUTION” in “General Description”. <Ref. to HEV(diag)-8, CAUTION, General Description.>**

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK FREEZE FRAME DATA.**<br>Using the Subaru Select Monitor, confirm the value of «High Voltage Battery Charge Power 1» in the freeze frame data of battery energy control system. <Ref. to HEV(diag)-68, BATTERY ENERGY CONTROL SYSTEM, OPERATION, Freeze Frame Data Display.> | Does the value show 0 kw? | Go to step **2**. | Replace the high voltage battery. <Ref. to HEV-17, High Voltage Battery.> |
| 2 | **CHECK FREEZE FRAME DATA.**<br>Using the Subaru Select Monitor, confirm the values of «Drive Motor Torque Target(HPCM)» «Drive Motor Speed Target(HPCM)» in the freeze frame data of battery energy control system. <Ref. to HEV(diag)-68, BATTERY ENERGY CONTROL SYSTEM, OPERATION, Freeze Frame Data Display.> | Are the values of «Drive Motor Torque Target(HPCM)» and «Drive Motor Speed Target(HPCM)» within the standard in the margin? | Go to step **3**. | Replace the HPCM. <Ref. to HEV-37, Hybrid Powertrain Control Module.> |
| 3 | **CHECK FREEZE FRAME DATA.**<br>Using the Subaru Select Monitor, confirm the values of «Drive Motor Output Torque Actual» «Drive Motor Speed» in the freeze frame data of battery energy control system. <Ref. to HEV(diag)-68, BATTERY ENERGY CONTROL SYSTEM, OPERATION, Freeze Frame Data Display.> | Are the values of «Drive Motor Output Torque Actual» and «Drive Motor Speed» within the standard in the margin? | Replace the high voltage battery. <Ref. to HEV-17, High Voltage Battery.> | Replace DMCM. <Ref. to CVT(TH58A)-157, Drive Motor Control Module.> |

NOTE:




(A) Drive Motor Speed Target(HPCM) or Drive Motor Speed
(B) Drive Motor Torque Target (HPCM) or Drive Motor Output Torque Actual
(C) Standard

## DW:DTC P0B37 HIGH VOLTAGE SERVICE DISCONNECT OPEN

**DIAGNOSIS:**

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-117, DTC P0B37 HIGH VOLTAGE SERVICE DISCONNECT OPEN, Diagnostic Trouble Code (DTC) Detecting Criteria.>

**TROUBLE SYMPTOM:**

- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.

**CAUTION:**

**Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.>**

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK SERVICE DISCONNECT PLUG.**<br>Check installation condition of service disconnect plug. <Ref. to HEV-15, Service Plug.> | Is the service disconnect plug securely installed? Is it locked? | Go to step **2**. | Securely install the service disconnect plug. |
| 2 | **CHECK SERVICE DISCONNECT PLUG.**<br>1) Turn the ignition to OFF.<br>2) Disconnect the ground cable of the 12 volt auxiliary battery, and as for the 12 volt engine restart battery, disconnect the ground cable from the 12V engine restart battery sensor. <Ref. to NT-5, BATTERY, NOTE, Note.><br>3) Remove the service disconnect plug. <Ref. to HEV-15, Service Plug.> | Is the condition of service disconnect plug normal? (Check for defective lock, rust or contamination in terminals, etc.) | Go to step **3**. | Replace the service disconnect plug. |
| 3 | **CHECK CURRENT DATA.**<br>1) Install the service disconnect plug.<br>2) Turn the ignition switch to ON.<br>3) Using the Subaru Select Monitor, confirm the current data of battery energy control system, the value of «Service Plug Status». <Ref. to HEV(diag)-58, BATTERY ENERGY CONTROL SYSTEM, OPERATION, Read Current Data.> | Does the value show «OFF»? | Go to step **4**. | Even if DTC is detected, the circuit has returned to a normal condition at this time. Reproduce the failure, and then perform the diagnosis again.<br>NOTE:<br>In this case, temporary poor contact of connector, temporary open or short circuit of harness may be the cause. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 4 | **CHECK CURRENT DATA.**<br>1) Turn the ignition to OFF.<br>2) Disconnect the ground cable of the 12 volt auxiliary battery, and as for the 12 volt engine restart battery, disconnect the ground cable from the 12V engine restart battery sensor. <Ref. to NT-5, BATTERY, NOTE, Note.><br>3) Remove the service disconnect plug. <Ref. to HEV-15, Service Plug.><br>4) Install the service disconnect plug.<br>5) Turn the ignition switch to OFF.<br>6) Wait for 30 seconds.<br>7) Turn the ignition switch to ON.<br>8) Using the Subaru Select Monitor, confirm the current data of battery energy control system, the value of «Service Plug Status». <Ref. to HEV(diag)-58, BATTERY ENERGY CONTROL SYSTEM, OPERATION, Read Current Data.> | Does the value show «OFF»? | Replace the high voltage battery. <Ref. to HEV-17, High Voltage Battery.> | Even if DTC is detected, the circuit has returned to a normal condition at this time. Reproduce the failure, and then perform the diagnosis again.<br>NOTE:<br>In this case, temporary poor contact of connector, temporary open or short circuit of harness may be the cause. |

## DX:DTC P0B3C HYBRID BATTERY VOLTAGE SENSE "A" CIRCUIT RANGE/ PERFORMANCE

**DIAGNOSIS:**

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-118, DTC P0B3C HYBRID BATTERY VOLTAGE SENSE "A" CIRCUIT RANGE/PERFORMANCE, Diagnostic Trouble Code (DTC) Detecting Criteria.>

**TROUBLE SYMPTOM:**

EV traveling/Auto Start Stop does not operate.
(Engine does not restart under EV traveling/Auto Start Stop condition.)

NOTE:
If this DTC is detected, replace the high voltage battery. <Ref. to HEV-17, High Voltage Battery.>

## DY:DTC P0B3D HYBRID BATTERY VOLTAGE SENSE "A" CIRCUIT LOW

**DIAGNOSIS:**

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-119, DTC P0B3D HYBRID BATTERY VOLTAGE SENSE "A" CIRCUIT LOW, Diagnostic Trouble Code (DTC) Detecting Criteria.>

**TROUBLE SYMPTOM:**

EV traveling/Auto Start Stop does not operate.
(Engine does not restart under EV traveling/Auto Start Stop condition.)

NOTE:
If this DTC is detected, replace the high voltage battery. <Ref. to HEV-17, High Voltage Battery.>

## DZ:DTC P0B3E HYBRID BATTERY VOLTAGE SENSE "A" CIRCUIT HIGH

**DIAGNOSIS:**

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-120, DTC P0B3E HYBRID BATTERY VOLTAGE SENSE "A" CIRCUIT HIGH, Diagnostic Trouble Code (DTC) Detecting Criteria.>

**TROUBLE SYMPTOM:**

EV traveling/Auto Start Stop does not operate.
(Engine does not restart under EV traveling/Auto Start Stop condition.)

NOTE:
If this DTC is detected, replace the high voltage battery. <Ref. to HEV-17, High Voltage Battery.>

## EA:DTC P0B41 HYBRID BATTERY VOLTAGE SENSE "B" CIRCUIT RANGE/ PERFORMANCE

**DIAGNOSIS:**

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-121, DTC P0B41 HYBRID BATTERY VOLTAGE SENSE "B" CIRCUIT RANGE/PERFORMANCE, Diagnostic Trouble Code (DTC) Detecting Criteria.>

**TROUBLE SYMPTOM:**

EV traveling/Auto Start Stop does not operate.
(Engine does not restart under EV traveling/Auto Start Stop condition.)

NOTE:
If this DTC is detected, replace the high voltage battery. <Ref. to HEV-17, High Voltage Battery.>

## EB:DTC P0B42 HYBRID BATTERY VOLTAGE SENSE "B" CIRCUIT LOW

**DIAGNOSIS:**

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-122, DTC P0B42 HYBRID BATTERY VOLTAGE SENSE "B" CIRCUIT LOW, Diagnostic Trouble Code (DTC) Detecting Criteria.>

**TROUBLE SYMPTOM:**

EV traveling/Auto Start Stop does not operate.
(Engine does not restart under EV traveling/Auto Start Stop condition.)

NOTE:
If this DTC is detected, replace the high voltage battery. <Ref. to HEV-17, High Voltage Battery.>

## EC:DTC P0B43 HYBRID BATTERY VOLTAGE SENSE "B" CIRCUIT HIGH

**DIAGNOSIS:**

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-123, DTC P0B43 HYBRID BATTERY VOLTAGE SENSE "B" CIRCUIT HIGH, Diagnostic Trouble Code (DTC) Detecting Criteria.>

**TROUBLE SYMPTOM:**

EV traveling/Auto Start Stop does not operate.
(Engine does not restart under EV traveling/Auto Start Stop condition.)

NOTE:
If this DTC is detected, replace the high voltage battery. <Ref. to HEV-17, High Voltage Battery.>

## ED:DTC P0B46 HYBRID BATTERY VOLTAGE SENSE "C" CIRCUIT RANGE/ PERFORMANCE

**DIAGNOSIS:**

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-124, DTC P0B46 HYBRID BATTERY VOLTAGE SENSE "C" CIRCUIT RANGE/PERFORMANCE, Diagnostic Trouble Code (DTC) Detecting Criteria.>

**TROUBLE SYMPTOM:**

EV traveling/Auto Start Stop does not operate.
(Engine does not restart under EV traveling/Auto Start Stop condition.)

NOTE:
If this DTC is detected, replace the high voltage battery. <Ref. to HEV-17, High Voltage Battery.>

## EE:DTC P0B47 HYBRID BATTERY VOLTAGE SENSE "C" CIRCUIT LOW

**DIAGNOSIS:**

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-125, DTC P0B47 HYBRID BATTERY VOLTAGE SENSE "C" CIRCUIT LOW, Diagnostic Trouble Code (DTC) Detecting Criteria.>

**TROUBLE SYMPTOM:**

EV traveling/Auto Start Stop does not operate.
(Engine does not restart under EV traveling/Auto Start Stop condition.)

NOTE:
If this DTC is detected, replace the high voltage battery. <Ref. to HEV-17, High Voltage Battery.>

## EF:DTC P0B48 HYBRID BATTERY VOLTAGE SENSE "C" CIRCUIT HIGH

**DIAGNOSIS:**

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-126, DTC P0B48 HYBRID BATTERY VOLTAGE SENSE "C" CIRCUIT HIGH, Diagnostic Trouble Code (DTC) Detecting Criteria.>

**TROUBLE SYMPTOM:**

EV traveling/Auto Start Stop does not operate.
(Engine does not restart under EV traveling/Auto Start Stop condition.)

NOTE:
If this DTC is detected, replace the high voltage battery. <Ref. to HEV-17, High Voltage Battery.>

## EG:DTC P0B4A HYBRID BATTERY VOLTAGE SENSE "D" CIRCUIT

**DIAGNOSIS:**

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-127, DTC P0B4A HYBRID BATTERY VOLTAGE SENSE "D" CIRCUIT, Diagnostic Trouble Code (DTC) Detecting Criteria.>

**TROUBLE SYMPTOM:**

Normal control

NOTE:
If this DTC is detected, replace the high voltage battery. <Ref. to HEV-17, High Voltage Battery.>

## EH:DTC P0B4B HYBRID BATTERY VOLTAGE SENSE "D" CIRCUIT RANGE/PERFORMANCE

**DIAGNOSIS:**

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-128, DTC P0B4B HYBRID BATTERY VOLTAGE SENSE "D" CIRCUIT RANGE/PERFORMANCE, Diagnostic Trouble Code (DTC) Detecting Criteria.>

**TROUBLE SYMPTOM:**

EV traveling/Auto Start Stop does not operate.
(Engine does not restart under EV traveling/Auto Start Stop condition.)

NOTE:
If this DTC is detected, replace the high voltage battery. <Ref. to HEV-17, High Voltage Battery.>

## EI: DTC P0B4C HYBRID BATTERY VOLTAGE SENSE "D" CIRCUIT LOW

**DIAGNOSIS:**

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-129, DTC P0B4C HYBRID BATTERY VOLTAGE SENSE "D" CIRCUIT LOW, Diagnostic Trouble Code (DTC) Detecting Criteria.>

**TROUBLE SYMPTOM:**

EV traveling/Auto Start Stop does not operate.
(Engine does not restart under EV traveling/Auto Start Stop condition.)

NOTE:
If this DTC is detected, replace the high voltage battery. <Ref. to HEV-17, High Voltage Battery.>

## EJ: DTC P0B4D HYBRID BATTERY VOLTAGE SENSE "D" CIRCUIT HIGH

**DIAGNOSIS:**

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-130, DTC P0B4D HYBRID BATTERY VOLTAGE SENSE "D" CIRCUIT HIGH, Diagnostic Trouble Code (DTC) Detecting Criteria.>

**TROUBLE SYMPTOM:**

EV traveling/Auto Start Stop does not operate.
(Engine does not restart under EV traveling/Auto Start Stop condition.)

NOTE:
If this DTC is detected, replace the high voltage battery. <Ref. to HEV-17, High Voltage Battery.>

## EK: DTC P0B50 HYBRID BATTERY VOLTAGE SENSE "E" CIRCUIT RANGE/ PERFORMANCE

**DIAGNOSIS:**

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-131, DTC P0B50 HYBRID BATTERY VOLTAGE SENSE "E" CIRCUIT RANGE/PERFORMANCE, Diagnostic Trouble Code (DTC) Detecting Criteria.>

**TROUBLE SYMPTOM:**

EV traveling/Auto Start Stop does not operate.
(Engine does not restart under EV traveling/Auto Start Stop condition.)

NOTE:
If this DTC is detected, replace the high voltage battery. <Ref. to HEV-17, High Voltage Battery.>

## EL: DTC P0B51 HYBRID BATTERY VOLTAGE SENSE "E" CIRCUIT LOW

**DIAGNOSIS:**

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-132, DTC P0B51 HYBRID BATTERY VOLTAGE SENSE "E" CIRCUIT LOW, Diagnostic Trouble Code (DTC) Detecting Criteria.>

**TROUBLE SYMPTOM:**

EV traveling/Auto Start Stop does not operate.
(Engine does not restart under EV traveling/Auto Start Stop condition.)

NOTE:
If this DTC is detected, replace the high voltage battery. <Ref. to HEV-17, High Voltage Battery.>

## EM:DTC P0B52 HYBRID BATTERY VOLTAGE SENSE "E" CIRCUIT HIGH

**DIAGNOSIS:**

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-133, DTC P0B52 HYBRID BATTERY VOLTAGE SENSE "E" CIRCUIT HIGH, Diagnostic Trouble Code (DTC) Detecting Criteria.>

**TROUBLE SYMPTOM:**

EV traveling/Auto Start Stop does not operate.
(Engine does not restart under EV traveling/Auto Start Stop condition.)

NOTE:
If this DTC is detected, replace the high voltage battery. <Ref. to HEV-17, High Voltage Battery.>

## EN:DTC P0B55 HYBRID BATTERY VOLTAGE SENSE "F" CIRCUIT RANGE/ PERFORMANCE

**DIAGNOSIS:**

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-134, DTC P0B55 HYBRID BATTERY VOLTAGE SENSE "F" CIRCUIT RANGE/PERFORMANCE, Diagnostic Trouble Code (DTC) Detecting Criteria.>

**TROUBLE SYMPTOM:**

EV traveling/Auto Start Stop does not operate.
(Engine does not restart under EV traveling/Auto Start Stop condition.)

NOTE:
If this DTC is detected, replace the high voltage battery. <Ref. to HEV-17, High Voltage Battery.>

## EO:DTC P0B56 HYBRID BATTERY VOLTAGE SENSE "F" CIRCUIT LOW

**DIAGNOSIS:**

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-135, DTC P0B56 HYBRID BATTERY VOLTAGE SENSE "F" CIRCUIT LOW, Diagnostic Trouble Code (DTC) Detecting Criteria.>

**TROUBLE SYMPTOM:**

EV traveling/Auto Start Stop does not operate.
(Engine does not restart under EV traveling/Auto Start Stop condition.)

NOTE:
If this DTC is detected, replace the high voltage battery. <Ref. to HEV-17, High Voltage Battery.>

## EP:DTC P0B57 HYBRID BATTERY VOLTAGE SENSE "F" CIRCUIT HIGH

**DIAGNOSIS:**

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-136, DTC P0B57 HYBRID BATTERY VOLTAGE SENSE "F" CIRCUIT HIGH, Diagnostic Trouble Code (DTC) Detecting Criteria.>

**TROUBLE SYMPTOM:**

EV traveling/Auto Start Stop does not operate.
(Engine does not restart under EV traveling/Auto Start Stop condition.)

NOTE:
If this DTC is detected, replace the high voltage battery. <Ref. to HEV-17, High Voltage Battery.>

## EQ:DTC P0B5A HYBRID BATTERY VOLTAGE SENSE "G" CIRCUIT RANGE/ PERFORMANCE

**DIAGNOSIS:**

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-137, DTC P0B5A HYBRID BATTERY VOLTAGE SENSE "G" CIRCUIT RANGE/PERFORMANCE, Diagnostic Trouble Code (DTC) Detecting Criteria.>

**TROUBLE SYMPTOM:**

EV traveling/Auto Start Stop does not operate.
(Engine does not restart under EV traveling/Auto Start Stop condition.)

NOTE:
If this DTC is detected, replace the high voltage battery. <Ref. to HEV-17, High Voltage Battery.>

## ER:DTC P0B5B HYBRID BATTERY VOLTAGE SENSE "G" CIRCUIT LOW

**DIAGNOSIS:**

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-138, DTC P0B5B HYBRID BATTERY VOLTAGE SENSE "G" CIRCUIT LOW, Diagnostic Trouble Code (DTC) Detecting Criteria.>

**TROUBLE SYMPTOM:**

EV traveling/Auto Start Stop does not operate.
(Engine does not restart under EV traveling/Auto Start Stop condition.)

NOTE:
If this DTC is detected, replace the high voltage battery. <Ref. to HEV-17, High Voltage Battery.>

## ES:DTC P0B5C HYBRID BATTERY VOLTAGE SENSE "G" CIRCUIT HIGH

**DIAGNOSIS:**

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-139, DTC P0B5C HYBRID BATTERY VOLTAGE SENSE "G" CIRCUIT HIGH, Diagnostic Trouble Code (DTC) Detecting Criteria.>

**TROUBLE SYMPTOM:**

EV traveling/Auto Start Stop does not operate.
(Engine does not restart under EV traveling/Auto Start Stop condition.)

NOTE:
If this DTC is detected, replace the high voltage battery. <Ref. to HEV-17, High Voltage Battery.>

## ET:DTC P0BB8 HYBRID BATTERY VOLTAGE SENSE "Z" CIRCUIT

**DIAGNOSIS:**

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-140, DTC P0BB8 HYBRID BATTERY VOLTAGE SENSE "Z" CIRCUIT, Diagnostic Trouble Code (DTC) Detecting Criteria.>

**TROUBLE SYMPTOM:**

- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.

NOTE:
If this DTC is detected, replace the high voltage battery. <Ref. to HEV-17, High Voltage Battery.>

## EU:DTC P0C30 HYBRID BATTERY PACK STATE OF CHARGE HIGH

**DIAGNOSIS:**

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-141, DTC P0C30 HYBRID BATTERY PACK STATE OF CHARGE HIGH, Diagnostic Trouble Code (DTC) Detecting Criteria.>

**TROUBLE SYMPTOM:**

- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.

**CAUTION:**

**Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.>**

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK FREEZE FRAME DATA.**<br>Using the Subaru Select Monitor, confirm the value of «High Voltage Battery Amperage» in the freeze frame data of battery energy control system. <Ref. to HEV(diag)-68, BATTERY ENERGY CONTROL SYSTEM, OPERATION, Freeze Frame Data Display.> | Is the value –1A or less? | Go to step **2**. | Replace the high voltage battery. <Ref. to HEV-17, High Voltage Battery.> |
| 2 | **CHECK INDICATOR.**<br>1) Turn the ignition switch to OFF.<br>2) Start the engine.<br>3) Check illumination of "DRIVING POSSIBLE (READY) INDICATOR" in the meter. | Is the indicator illuminating? | Go to step **3**. | Replace HPCM and the high voltage battery. <Ref. to HEV-37, Hybrid Powertrain Control Module.> <Ref. to HEV-17, High Voltage Battery.> |
| 3 | **CHECK CURRENT DATA.**<br>1) Drive approximately 2 km (1.2 miles) at a speed of 30 km/h (18.6 MPH) or more.<br>2) Using the Subaru Select Monitor, confirm the current data of battery energy control system, the value of «High Voltage Battery SOC». <Ref. to HEV(diag)-58, BATTERY ENERGY CONTROL SYSTEM, OPERATION, Read Current Data.> | Is the value 94% or less? | Even if DTC is detected, the circuit has returned to a normal condition at this time. Reproduce the failure, and then perform the diagnosis again.<br>NOTE:<br>In this case, temporary poor contact of connector, temporary open or short circuit of harness may be the cause. | Replace the high voltage battery. <Ref. to HEV-17, High Voltage Battery.> |

# EV:DTC P0C78 HYBRID BATTERY SYSTEM PRECHARGE TIME TOO LONG

**DIAGNOSIS:**

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-142, DTC P0C78 HYBRID BATTERY SYSTEM PRECHARGE TIME TOO LONG, Diagnostic Trouble Code (DTC) Detecting Criteria.>

**TROUBLE SYMPTOM:**

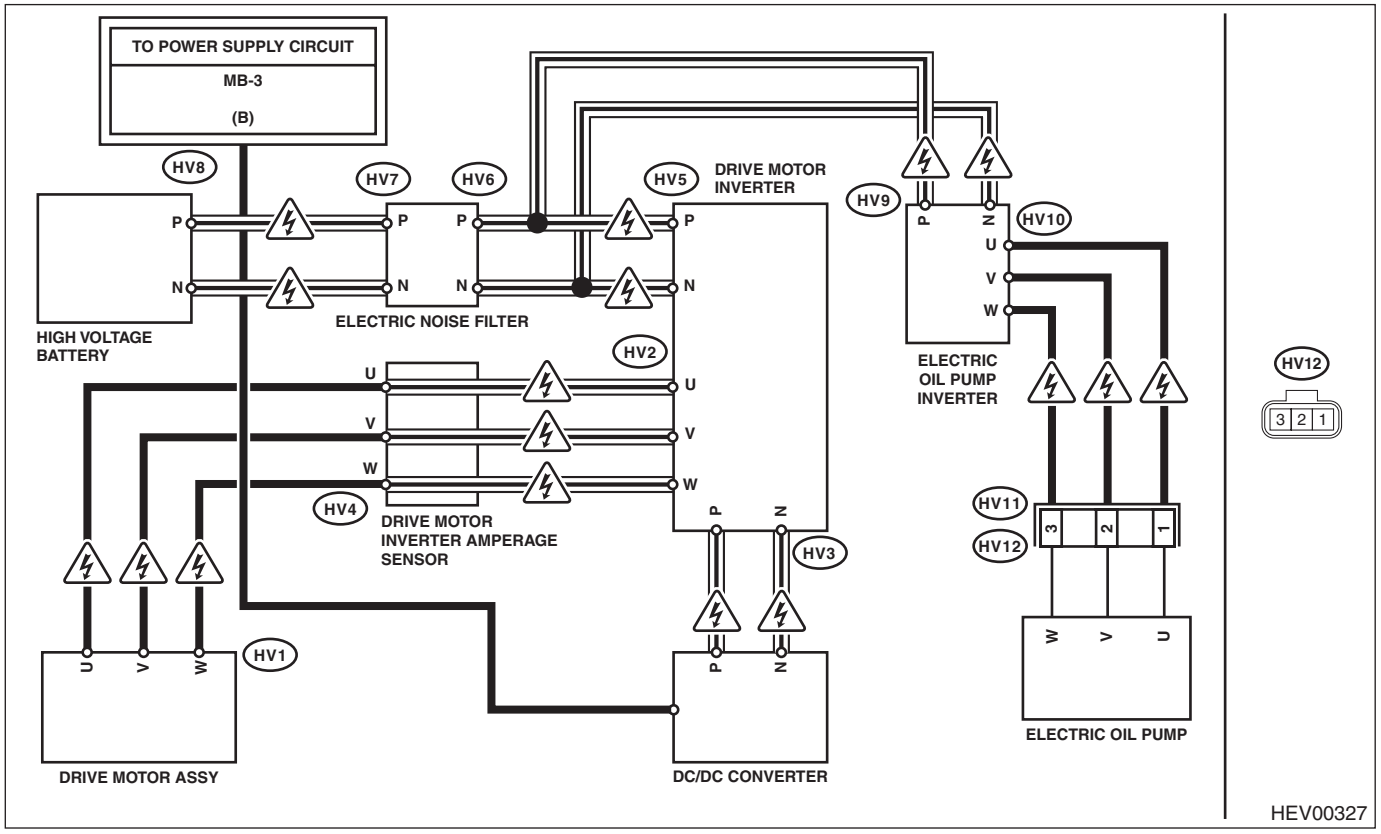
- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.

**CAUTION:**

**Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.>**

**WIRING DIAGRAM:**

Hybrid system <Ref. to WI(HEV)-140, WIRING DIAGRAM, Hybrid Electric Vehicle System.>

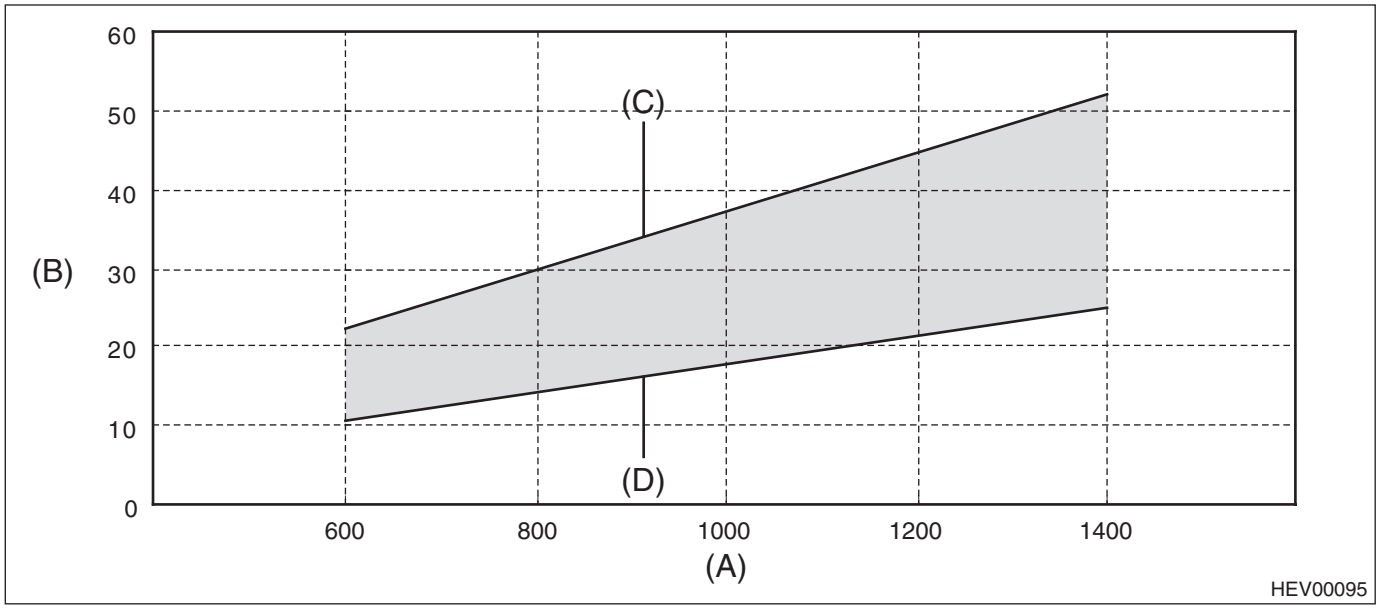



| Step | | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK DTC.**<br>Using the Subaru Select Monitor, read DTCs of the following system.<br>• Drive motor control system <Ref. to HEV(diag)-24, DRIVE MOTOR CONTROL SYSTEM, OPERATION, Read Diagnostic Trouble Code (DTC).> | Are any other DTCs detected? (current malfunction) | Perform the diagnosis according to DTC. <Ref. to HEV(diag)-78, DRIVE MOTOR CONTROL SYSTEM, LIST, List of Diagnostic Trouble Code (DTC).> | Go to step **2**. |
| 2 | **CHECK CURRENT DATA.**<br>Using the Subaru Select Monitor, confirm the current data of battery energy control system, the value of «High voltage Battery Total Voltage». <Ref. to HEV(diag)-58, BATTERY ENERGY CONTROL SYSTEM, OPERATION, Read Current Data.> | Is the value 75 V or more? | Go to step **3**. | Replace the high voltage battery. <Ref. to HEV-17, High Voltage Battery.> |

| Step | | Check | Yes | No |
|---|---|---|---|---|
| 3 | **CHECK DRIVE MOTOR.**<br>1) With the 12 V battery connected, remove the service disconnect plug. <Ref. to HEV-15, Service Plug.><br>**CAUTION:**<br>**Watch for an electrical short at each harness because the 12 V battery is connected.**<br>2) Lift up the vehicle.<br>3) Start the engine, and set the shift lever to "D" range.<br>4) Using the Subaru Select Monitor, confirm the current data of battery energy control system, the values of «Drive Motor Speed» «Drive Motor Inverter Input Voltage». <Ref. to HEV(diag)-58, BATTERY ENERGY CONTROL SYSTEM, OPERATION, Read Current Data.><br>NOTE:<br>When current data of the drive motor control system, «ATF Temperature» is 20 — 60°C (68 — 140°F). <Ref. to HEV(diag)-52, DRIVE MOTOR CONTROL SYSTEM, OPERATION, Read Current Data.> | Is «Drive Motor Inverter Input Voltage» within the standard in the margin when «Drive Motor Speed» is 600 — 1400 rpm? | Go to step **4**. | Replace the drive motor inverter. <Ref. to HEV-42, Inverter.> |
| 4 | **CHECK BUS BAR.**<br>1) Turn the ignition to OFF.<br>2) Disconnect the ground cable of the 12 volt auxiliary battery, and as for the 12 volt engine restart battery, disconnect the ground cable from the 12V engine restart battery sensor. <Ref. to NT-5, BATTERY, NOTE, Note.><br>3) Remove the service disconnect plug.<br>4) Wait for 10 minutes.<br>5) Check the bus bar. | Is the condition normal? (Check for loose bolts, insecure connection, foreign matter caught, trace of arc (burnt terminals) etc.) | Go to step **5**. | Retighten the bolts. Or replace the bus bar. |
| 5 | **CHECK BUS BAR.**<br>1) Remove the bus bar.<br>2) Using the tester, measure the resistance between bus bar terminals.<br>***Connector & terminal***<br>***(HV5) P — (HV6) P:***<br>***(HV5) N — (HV6) N:***<br>***(HV5) P — (HV9) P:***<br>***(HV5) N — (HV9) N:***<br>***(HV7) P — (HV8) P:***<br>***(HV7) N — (HV8) N:*** | Is the resistance less than 1 Ω? | Replace the high voltage battery. <Ref. to HEV-17, High Voltage Battery.> | Replace the bus bar. |

NOTE:
Value of «Drive Motor Inverter Input Voltage» is proportional to «Drive Motor Speed».
- 1000 rpm: 18 V — 37 V

- 1400 rpm: 25 V — 52 V




(A) Drive motor speed
(B) Drive Motor Inverter Input Voltage
(C) Standard at Max.
(D) Standard at Min.

## EW:DTC P0CA6 HYBRID BATTERY CHARGING CURRENT HIGH

**DIAGNOSIS:**

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-143, DTC P0CA6 HYBRID BATTERY CHARGING CURRENT HIGH, Diagnostic Trouble Code (DTC) Detecting Criteria.>

**TROUBLE SYMPTOM:**

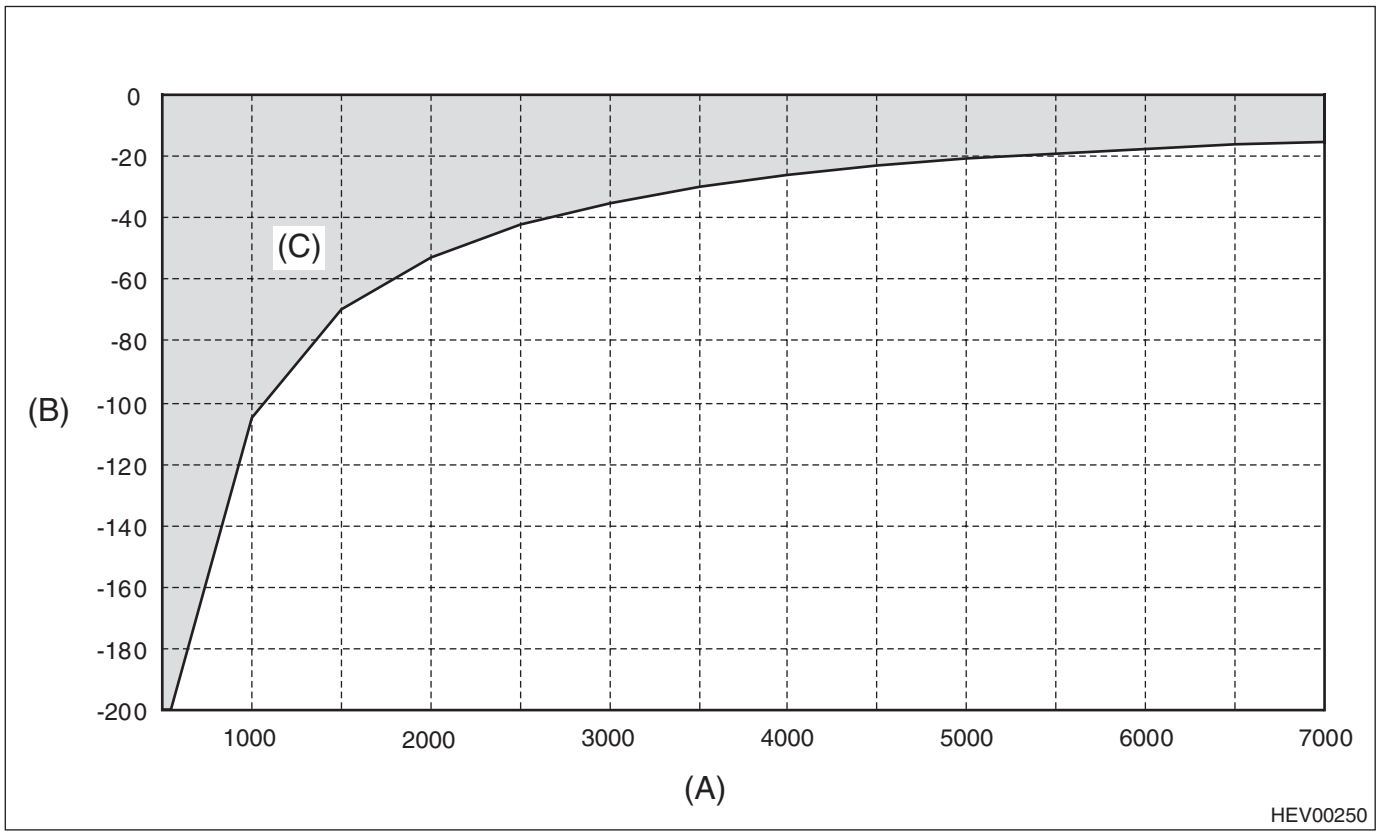
- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.

**CAUTION:**

**Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.>**

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK DTC.**<br>Read DTCs of the following system.<br>• Drive motor control system <Ref. to HEV(diag)-24, DRIVE MOTOR CONTROL SYSTEM, OPERATION, Read Diagnostic Trouble Code (DTC).> | Are any other DTCs detected? (current malfunction) | Perform the diagnosis according to DTC. <Ref. to HEV(diag)-78, DRIVE MOTOR CONTROL SYSTEM, LIST, List of Diagnostic Trouble Code (DTC).> | Go to step **2**. |
| 2 | **CHECK FREEZE FRAME DATA.**<br>Using the Subaru Select Monitor, confirm the value of «Drive Motor Torque Target(HPCM)» in the freeze frame data of the battery energy control system. <Ref. to HEV(diag)-68, BATTERY ENERGY CONTROL SYSTEM, OPERATION, Freeze Frame Data Display.> | Does the value show 0 N or less? | Go to step **3**. | Replace the high voltage battery. <Ref. to HEV-17, High Voltage Battery.> |
| 3 | **CHECK FREEZE FRAME DATA.**<br>Using the Subaru Select Monitor, confirm the values of «Drive Motor Torque Target(HPCM)» «Drive Motor Speed Target(HPCM)» in the freeze frame data of battery energy control system. <Ref. to HEV(diag)-68, BATTERY ENERGY CONTROL SYSTEM, OPERATION, Freeze Frame Data Display.> | Are the values of «Drive Motor Torque Target(HPCM)» and «Drive Motor Speed Target(HPCM)» within the standard in the margin? | Go to step **4**. | Replace the HPCM. <Ref. to HEV-37, Hybrid Powertrain Control Module.> |
| 4 | **CHECK FREEZE FRAME DATA.**<br>Using the Subaru Select Monitor, confirm the values of «Drive Motor Torque» «Drive Motor Speed» in the freeze frame data of battery energy control system. <Ref. to HEV(diag)-68, BATTERY ENERGY CONTROL SYSTEM, OPERATION, Freeze Frame Data Display.> | Are the values of «Drive Motor Output Torque Actual» and «Drive Motor Speed» within the standard in the margin? | Replace the high voltage battery. <Ref. to HEV-17, High Voltage Battery.> | Replace DMCM. <Ref. to CVT(TH58A)-157, Drive Motor Control Module.> |

NOTE:




(A) Drive Motor Speed Target(HPCM) or Drive Motor Speed
(B) Drive Motor Torque Target (HPCM) or Drive Motor Output Torque Actual
(C) Standard

## EX:DTC P0CA7 HYBRID BATTERY DISCHARGING CURRENT HIGH

**DIAGNOSIS:**

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-144, DTC P0CA7 HYBRID BATTERY DISCHARGING CURRENT HIGH, Diagnostic Trouble Code (DTC) Detecting Criteria.>

**TROUBLE SYMPTOM:**

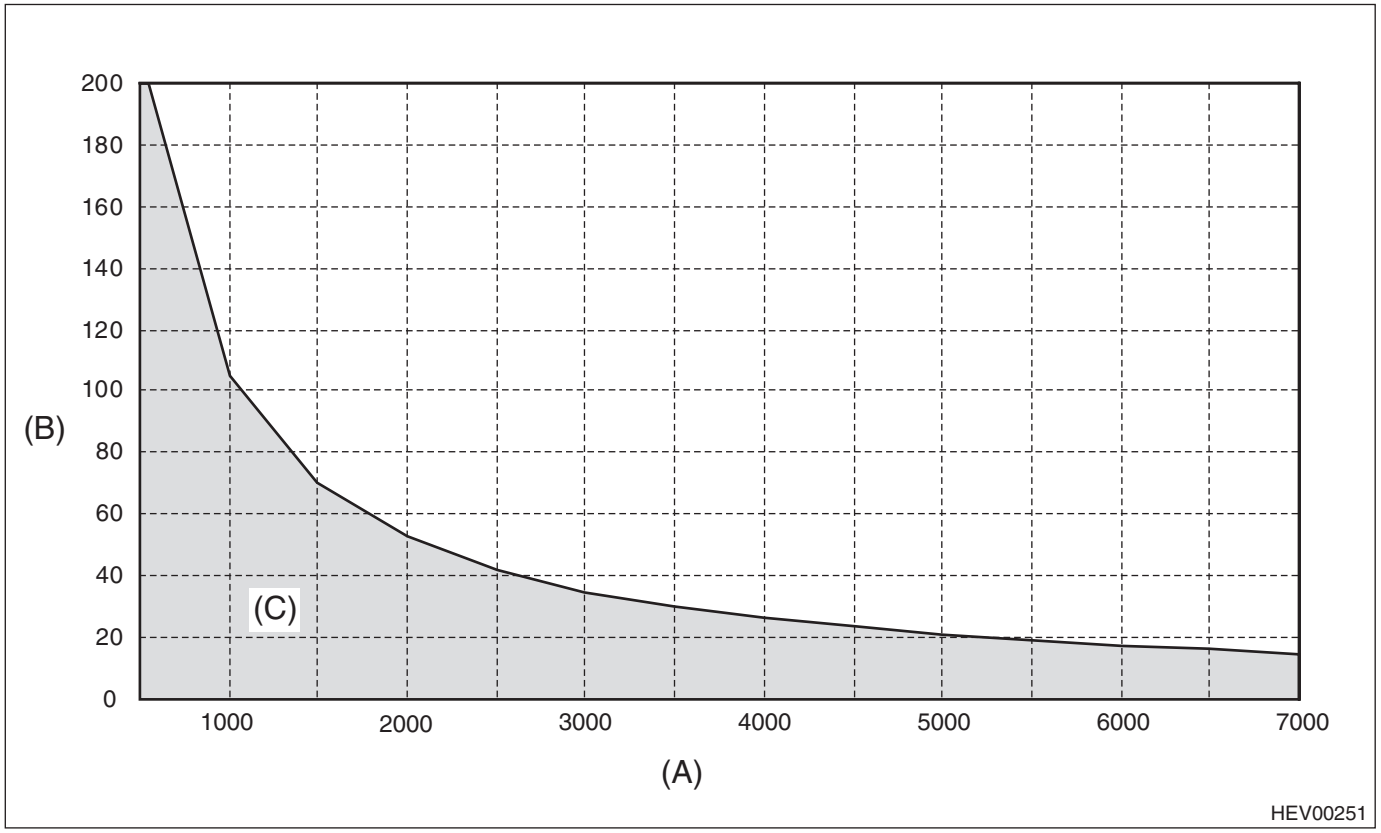
- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.

**CAUTION:**

**Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.>**

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK DTC.**<br>Read DTCs of the following system.<br>• Drive motor control system <Ref. to HEV(diag)-24, DRIVE MOTOR CONTROL SYSTEM, OPERATION, Read Diagnostic Trouble Code (DTC).> | Are any other DTCs detected? (current malfunction) | Perform the diagnosis according to DTC. <Ref. to HEV(diag)-78, DRIVE MOTOR CONTROL SYSTEM, LIST, List of Diagnostic Trouble Code (DTC).> | Go to step **2**. |
| 2 | **CHECK FREEZE FRAME DATA.**<br>Using the Subaru Select Monitor, confirm the value of «Drive Motor Output Torque Actual» in the freeze frame data of battery energy control system. <Ref. to HEV(diag)-68, BATTERY ENERGY CONTROL SYSTEM, OPERATION, Freeze Frame Data Display.> | Does the value show 0 N or more? | Go to step **3**. | Replace the high voltage battery. <Ref. to HEV-17, High Voltage Battery.> |
| 3 | **CHECK FREEZE FRAME DATA.**<br>Using the Subaru Select Monitor, confirm the values of «Drive Motor Torque Target(HPCM)» «Drive Motor Speed Target(HPCM)» in the freeze frame data of battery energy control system. <Ref. to HEV(diag)-68, BATTERY ENERGY CONTROL SYSTEM, OPERATION, Freeze Frame Data Display.> | Are the values of «Drive Motor Torque Target(HPCM)» and «Drive Motor Speed Target(HPCM)» within the standard in the margin? | Go to step **4**. | Replace the HPCM. <Ref. to HEV-37, Hybrid Powertrain Control Module.> |
| 4 | **CHECK FREEZE FRAME DATA.**<br>Using the Subaru Select Monitor, confirm the values of «Drive Motor Output Torque Actual» and «Drive Motor Speed» in the freeze frame data of battery energy control system. <Ref. to HEV(diag)-68, BATTERY ENERGY CONTROL SYSTEM, OPERATION, Freeze Frame Data Display.> | Are the values of «Drive Motor Output Torque Actual» and «Drive Motor Speed» within the standard in the margin? | Replace the high voltage battery. <Ref. to HEV-17, High Voltage Battery.> | Replace DMCM. <Ref. to CVT(TH58A)-157, Drive Motor Control Module.> |

NOTE:




(A) Drive Motor Speed Target(HPCM) or Drive Motor Speed
(B) Drive Motor Torque Target (HPCM) or Drive Motor Output Torque Actual
(C) Standard

# EY:DTC P1C40 HYBRID BATTERY POSITIVE CONTACTOR OR PRE-CHARGE CONTACTOR CIRCUIT STUCK CLOSED

**DIAGNOSIS:**

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-145, DTC P1C40 HYBRID BATTERY POSITIVE CONTACTOR OR PRE-CHARGE CONTACTOR CIRCUIT STUCK CLOSED, Diagnostic Trouble Code (DTC) Detecting Criteria.>

**TROUBLE SYMPTOM:**

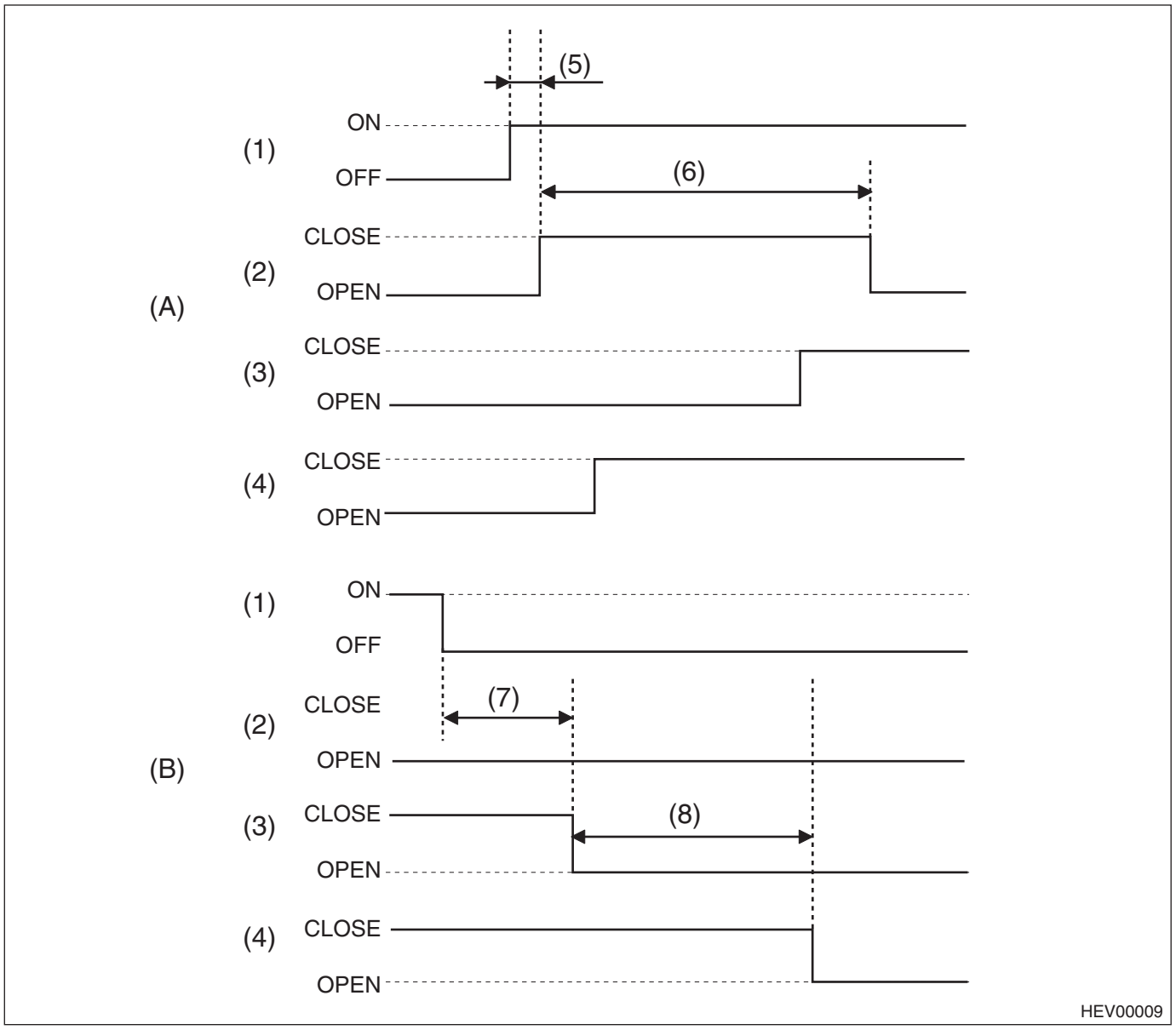
- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.

**CAUTION:**

**Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.>**

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK DTC.**<br>Read DTCs of the following system.<br>• Engine<br>• Transmission <Ref. to CVT(HEV)(diag)-19, OPERATION, Read Diagnostic Trouble Code (DTC).><br>• Hybrid powertrain control system <Ref. to HEV(diag)-24, HYBRID POWERTRAIN CONTROL SYSTEM, OPERATION, Read Diagnostic Trouble Code (DTC).><br>• Drive motor control system <Ref. to HEV(diag)-24, DRIVE MOTOR CONTROL SYSTEM, OPERATION, Read Diagnostic Trouble Code (DTC).><br>• Airbag system <Ref. to AB(diag)-27, OPERATION, Read Diagnostic Trouble Code (DTC).> | Are any other DTCs detected? (current malfunction) | First perform the diagnosis according to other DTCs. | Go to step **2**. |
| 2 | **CHECK BECM.**<br>1) Perform the Clear Memory Mode. <Ref. to HEV(diag)-25, BATTERY ENERGY CONTROL SYSTEM, OPERATION, Clear Memory Mode.><br>2) Start the engine.<br>3) Turn the ignition switch to OFF.<br>4) Wait for 30 seconds.<br>5) Turn the ignition switch to ON.<br>6) Read the DTC again. <Ref. to HEV(diag)-24, BATTERY ENERGY CONTROL SYSTEM, OPERATION, Read Diagnostic Trouble Code (DTC).> | Is the same DTC detected? (current malfunction) | Replace the high voltage battery. <Ref. to HEV-17, High Voltage Battery.> | Even if DTC is detected, the circuit has returned to a normal condition at this time. Reproduce the failure, and then perform the diagnosis again.<br>NOTE:<br>In this case, temporary poor contact of connector, temporary open or short circuit of harness may be the cause. |

NOTE:
Operation of contactor relay under the normal condition.




(A) Contactor relay closing sequence
(B) Contactor relay opening sequence

(1) Contactor command
(2) Precharge contactor status
(3) Positive contactor status
(4) Negative contactor status
(5) 10 seconds
(6) 0.8 seconds maximum
(7) 2.0 seconds maximum
(8) 1.3 seconds maximum

# EZ:DTC P1C41 HIGH VOLTAGE CIRCUIT SHORT

**DIAGNOSIS:**

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-146, DTC P1C41 HIGH VOLTAGE CIRCUIT SHORT, Diagnostic Trouble Code (DTC) Detecting Criteria.>

**TROUBLE SYMPTOM:**

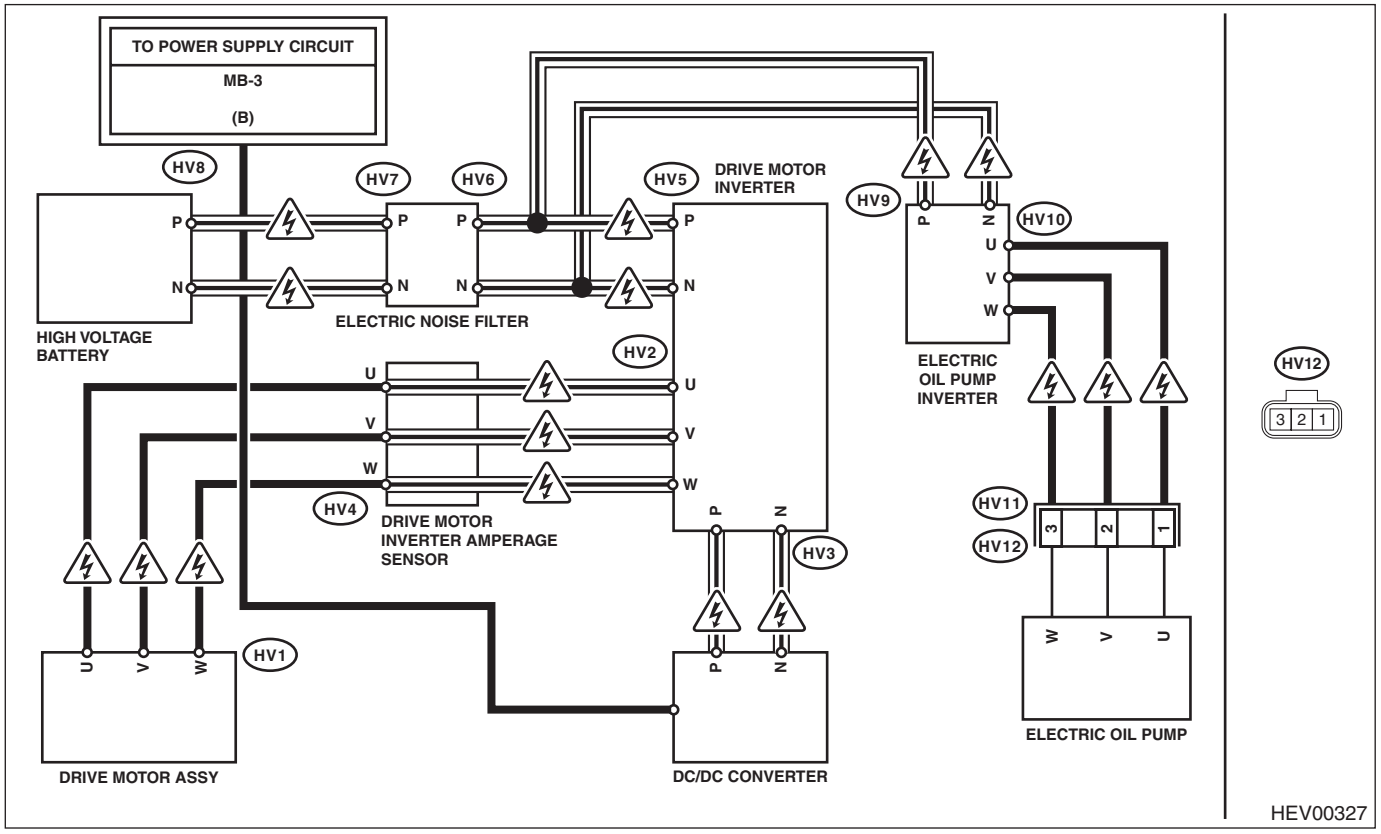
- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.

**CAUTION:**

**Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.>**

**WIRING DIAGRAM:**

Hybrid system <Ref. to WI(HEV)-140, WIRING DIAGRAM, Hybrid Electric Vehicle System.>




| Step | | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK DTC.**<br>Read the DTC. | Are any other DTCs detected? (current malfunction) | First perform the diagnosis according to other DTCs. | Go to step **2**. |
| 2 | **CHECK BUS BAR.**<br>1) Turn the ignition to OFF.<br>2) Disconnect the ground cable of the 12 volt auxiliary battery, and as for the 12 volt engine restart battery, disconnect the ground cable from the 12V engine restart battery sensor. <Ref. to NT-5, BATTERY, NOTE, Note.><br>3) Remove the service disconnect plug. <Ref. to HEV-15, Service Plug.><br>4) Wait for 10 minutes.<br>5) Visually check the bus bar. | Is the condition normal? (Check for loose bolts, insecure connection, foreign matter caught, trace of arc (burnt terminals) etc.) | Go to step **3**. | Retighten the bolts. Or replace the bus bar. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 3 | **CHECK POWER CABLE.**<br>Visually check the power cable. | Is the condition normal? (Check for loose bolts, insecure connection, foreign matter caught, trace of arc (burnt terminals) etc.) | Go to step **4**. | Retighten the bolts. Or replace the power cable. <Ref. to HEV-52, Power Cable.> |
| 4 | **CHECK EACH MODULE.**<br>Using a tester, measure the resistance between electric noise filter terminals on the high voltage battery side.<br>***Connector & terminal***<br>***(HV7) P — (HV7) N:*** | Is the resistance 1 Ω or more? | Go to step **7**. | Go to step **5**. |
| 5 | **CHECK DC/DC CONVERTER.**<br>1) Remove the DC/DC converter.<br>2) Using a tester, measure the resistance between electric noise filter terminals on the high voltage battery side.<br>***Connector & terminal***<br>***(HV7) P — (HV7) N:*** | Is the resistance 1 Ω or more? | Replace the DC/DC converter. <Ref. to HEV-38, DC/DC Converter.> | Go to step **6**. |
| 6 | **CHECK EACH MODULE.**<br>1) Disconnect the power cable (HV4) from drive motor inverter amperage sensor.<br>2) Remove the drive motor inverter amperage sensor (HV2).<br>3) Remove bus bars (HV5, HV6, HV7, HV8, HV9).<br>4) Using a tester, measure the resistance between terminals of each module.<br>***Connector & terminal***<br>***Drive motor inverter***<br>***(HV5) P — (HV5) N:***<br>***Electric noise filter***<br>***(HV7) P — (HV7) N:***<br>***High voltage battery***<br>***(HV8) P — (HV8) N:***<br>***Electric oil pump inverter***<br>***(HV9) P — (HV9) N:*** | Is the resistance 1 Ω or more? | Even if DTC is detected, the circuit has returned to a normal condition at this time. Reproduce the failure, and then perform the diagnosis again. | Replace the unit that has short circuits. |
| 7 | **CHECK EACH MODULE.**<br>Using a tester, measure the resistance between drive motor inverter amperage sensor terminals on the power cable side.<br>***Connector & terminal***<br>***(HV4) W — (HV4) V:***<br>***(HV4) W — (HV4) U:***<br>***(HV4) V — (HV4) U:*** | Is the resistance 1 Ω or more? | Go to step **9**. | Go to step **8**. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 8 | **CHECK EACH MODULE.**<br>1) Disconnect the power cable (HV4) from drive motor inverter amperage sensor.<br>2) Remove the drive motor inverter amperage sensor (HV2).<br>3) Disconnect the power cable (HV1) from the drive motor assembly.<br>NOTE:<br>The gasket is not reusable.<br>4) Using a tester, measure the resistance between each module and power cable terminals.<br>***Connector & terminal***<br>***Drive motor assembly***<br>***(HV1) W — (HV1) V:***<br>***(HV1) W — (HV1) U:***<br>***(HV1) V — (HV1) U:***<br>***Drive motor inverter***<br>***(HV2) W — (HV2) V:***<br>***(HV2) W — (HV2) U:***<br>***(HV2) V — (HV2) U:***<br>***Drive motor inverter amperage sensor***<br>***(HV4) W — (HV4) V:***<br>***(HV4) W — (HV4) U:***<br>***(HV4) V — (HV4) U:***<br>***Power cable***<br>***(HV4) W — (HV4) V:***<br>***(HV4) W — (HV4) U:***<br>***(HV4) V — (HV4) U:*** | Is the resistance 1 Ω or more? | Even if DTC is detected, the circuit has returned to a normal condition at this time. Reproduce the failure, and then perform the diagnosis again. | Replace the unit that has short circuits. |
| 9 | **CHECK EACH MODULE.**<br>1) Disconnect the power cable (HV10) from electric oil pump inverter.<br>2) Disconnect the power cable (HV12) from electric oil pump.<br>3) Using a tester, measure the resistance between each module and power cable terminals.<br>***Connector & terminal***<br>***Electric oil pump inverter***<br>***(HV10) W — (HV10) V:***<br>***(HV10) W — (HV10) U:***<br>***(HV10) V — (HV10) U:***<br>***Electric oil pump***<br>***(HV12) W — (HV12) V:***<br>***(HV12) W — (HV12) U:***<br>***(HV12) V — (HV12) U:***<br>***Power cable***<br>***(HV10) W — (HV10) V:***<br>***(HV10) W — (HV10) U:***<br>***(HV10) V — (HV10) U:*** | Is the resistance 1 Ω or more? | Even if DTC is detected, the circuit has returned to a normal condition at this time. Reproduce the failure, and then perform the diagnosis again. | Replace the unit that has short circuits. |

## FA:DTC P1C42 HIGH VOLTAGE CIRCUIT OPEN

**DIAGNOSIS:**

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-147, DTC P1C42 HIGH VOLTAGE CIRCUIT OPEN, Diagnostic Trouble Code (DTC) Detecting Criteria.>

**TROUBLE SYMPTOM:**

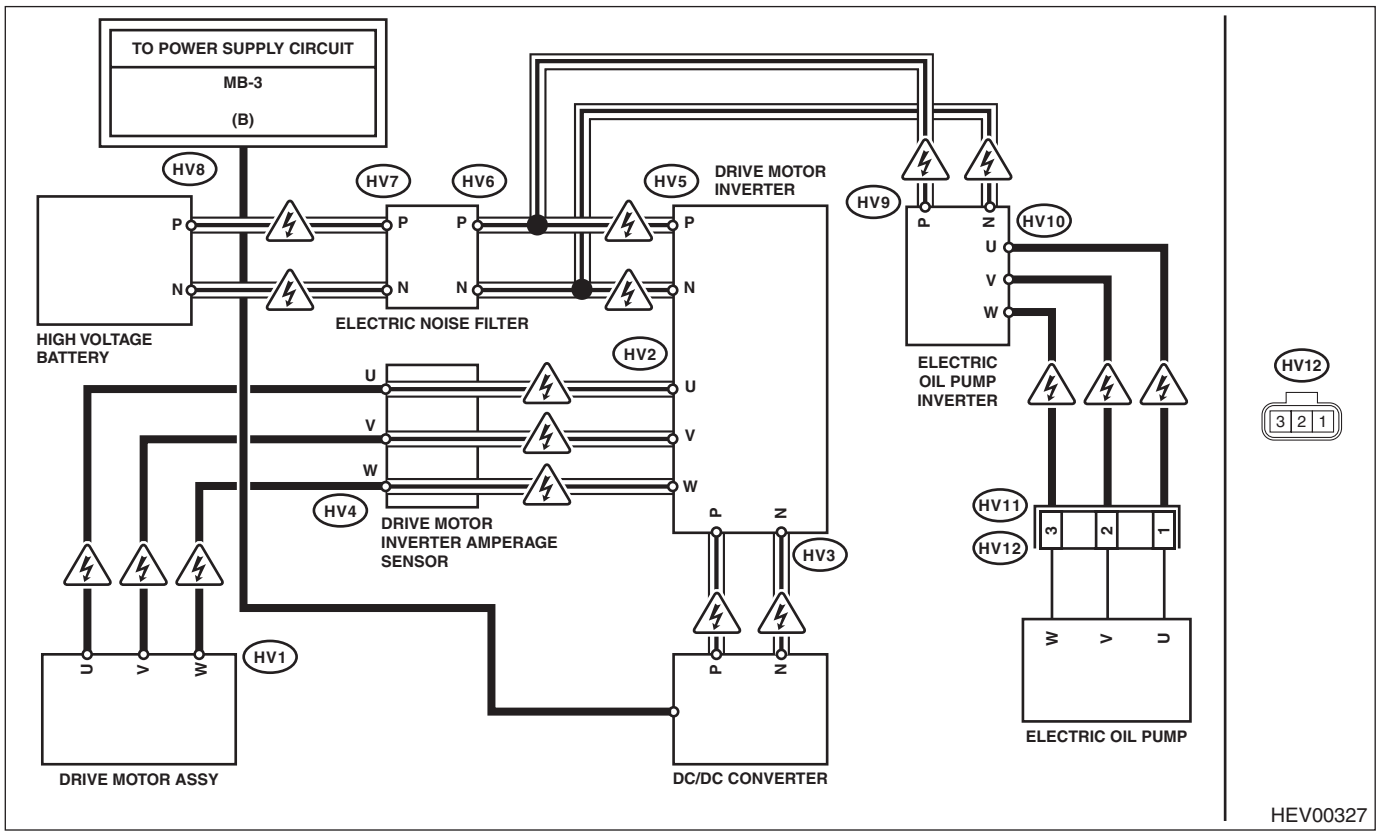
- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.

**CAUTION:**

**Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.>**

**WIRING DIAGRAM:**

Hybrid system <Ref. to WI(HEV)-140, WIRING DIAGRAM, Hybrid Electric Vehicle System.>

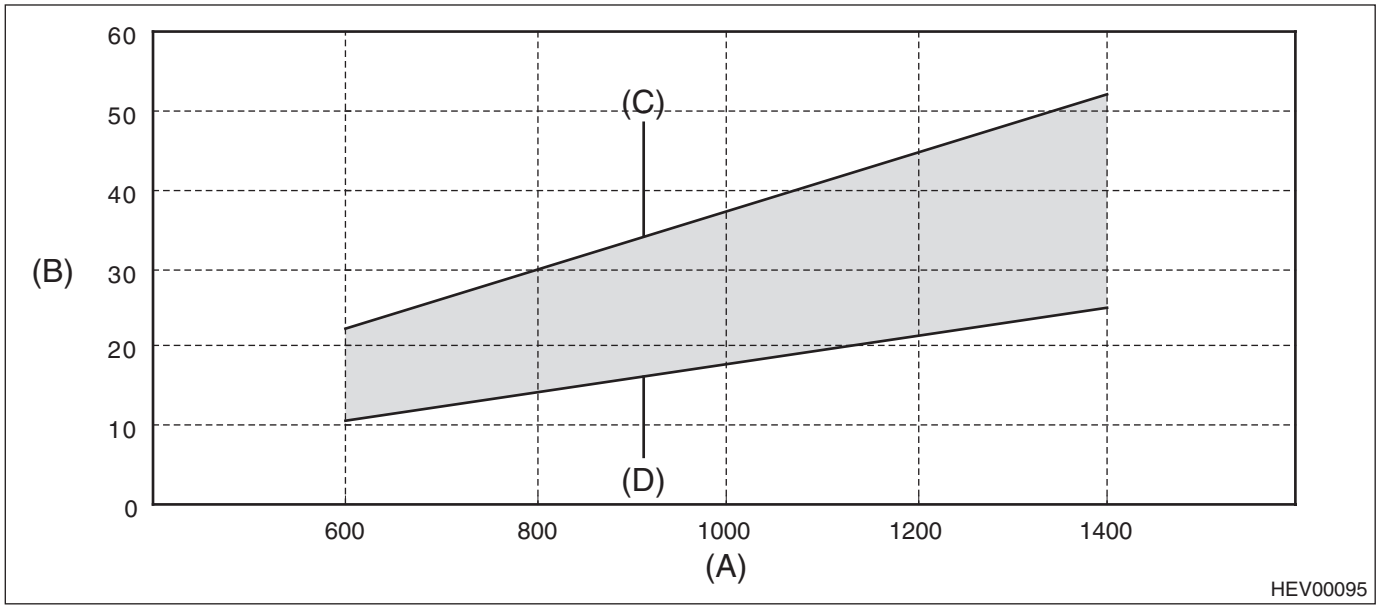



| Step | | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK BUS BAR.**<br>1) Turn the ignition to OFF.<br>2) Disconnect the ground cable of the 12 volt auxiliary battery, and as for the 12 volt engine restart battery, disconnect the ground cable from the 12V engine restart battery sensor. <Ref. to NT-5, BATTERY, NOTE, Note.><br>3) Remove the service disconnect plug. <Ref. to HEV-15, Service Plug.><br>4) Wait for 10 minutes.<br>5) Visually check the bus bar. | Is the condition normal? (Check for loose bolts, etc.) | Go to step **2**. | Retighten the bolts. Or replace the bus bar. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 2 | **CHECK BUS BAR.**<br>1) Remove the bus bar.<br>2) Using the tester, measure the resistance between bus bar terminals.<br>***Connector & terminal***<br>***(HV5) P — (HV6) P:***<br>***(HV5) N — (HV6) N:*** | Is the resistance less than 1 Ω? | Go to step **3**. | Replace the bus bar. (Between electric noise filter and drive motor inverter.) |
| 3 | **CHECK ELECTRIC NOISE FILTER.**<br>Using a tester, measure the resistance between electric noise filter terminals.<br>***Connector & terminal***<br>***(HV6) P — (HV7) P:***<br>***(HV6) N — (HV7) N:*** | Is the resistance less than 1 Ω? | Go to step **4**. | Replace the electric noise filter. <Ref. to HEV-31, Noise Filter.> |
| 4 | **CHECK BUS BAR.**<br>Using the tester, measure the resistance between bus bar terminals.<br>***Connector & terminal***<br>***(HV7) P — (HV8) P:***<br>***(HV7) N — (HV8) N:*** | Is the resistance less than 1 Ω? | Go to step **5**. | Replace the bus bar. (Between high voltage battery and electric noise filter.) |
| 5 | **CHECK DRIVE MOTOR.**<br>1) Replace the removed/disconnected parts back to the vehicle.<br>2) With the 12 V battery connected, remove the service disconnect plug. <Ref. to HEV-15, Service Plug.><br>**CAUTION:**<br>**Watch for an electrical short at each harness because the 12 V battery is connected.**<br>3) Lift up the vehicle.<br>4) Start the engine, and set the shift lever to "D" range.<br>5) Using the Subaru Select Monitor, confirm the current data of battery energy control system, the values of «Drive Motor Speed» «Drive Motor Inverter Input Voltage». <Ref. to HEV(diag)-58, BATTERY ENERGY CONTROL SYSTEM, OPERATION, Read Current Data.><br>NOTE:<br>When current data of the drive motor control system, «ATF Temperature» is 20 — 60°C (68 — 140°F). <Ref. to HEV(diag)-52, DRIVE MOTOR CONTROL SYSTEM, OPERATION, Read Current Data.> | Is «Drive Motor Inverter Input Voltage» within the standard in the margin when «Drive Motor Speed» is 600 — 1400 rpm? | Replace the high voltage battery. <Ref. to HEV-17, High Voltage Battery.> | Replace the drive motor inverter. <Ref. to HEV-42, Inverter.> |

NOTE:
Value of «Drive Motor Inverter Input Voltage» is proportional to «Drive Motor Speed».
- 1000 rpm: 18 V — 37 V

- 1400 rpm: 25 V — 52 V




(A) Drive motor speed
(B) Drive Motor Inverter Input Voltage
(C) Standard at Max.
(D) Standard at Min.

## FB:DTC P1C43 HYBRID BATTERY CONTACTOR POWER SUPPLY CIRCUIT

**DIAGNOSIS:**

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-148, DTC P1C43 HYBRID BATTERY CONTACTOR POWER SUPPLY CIRCUIT, Diagnostic Trouble Code (DTC) Detecting Criteria.>

**TROUBLE SYMPTOM:**

- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.

NOTE:
If this DTC is detected, replace the high voltage battery. <Ref. to HEV-17, High Voltage Battery.>

## FC:DTC P1C44 SUB CPU IN BECM

**DIAGNOSIS:**

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-149, DTC P1C44 SUB CPU IN BECM, Diagnostic Trouble Code (DTC) Detecting Criteria.>

**TROUBLE SYMPTOM:**

- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.

NOTE:
If this DTC is detected, replace the high voltage battery. <Ref. to HEV-17, High Voltage Battery.>

## FD:DTC P1C45 HYBRID BATTERY BLOCK 1 BALANCING PERFORMANCE

**DIAGNOSIS:**

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-150, DTC P1C45 HYBRID BATTERY BLOCK 1 BALANCING PERFORMANCE, Diagnostic Trouble Code (DTC) Detecting Criteria.>

**TROUBLE SYMPTOM:**

- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.

NOTE:
If this DTC is detected, replace the high voltage battery. <Ref. to HEV-17, High Voltage Battery.>

## FE:DTC P1C46 HYBRID BATTERY BLOCK 2 BALANCING PERFORMANCE

**DIAGNOSIS:**

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-151, DTC P1C46 HYBRID BATTERY BLOCK 2 BALANCING PERFORMANCE, Diagnostic Trouble Code (DTC) Detecting Criteria.>

**TROUBLE SYMPTOM:**

- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.

NOTE:
If this DTC is detected, replace the high voltage battery. <Ref. to HEV-17, High Voltage Battery.>

## FF:DTC P1C47 HYBRID BATTERY BLOCK 3 BALANCING PERFORMANCE

**DIAGNOSIS:**

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-152, DTC P1C47 HYBRID BATTERY BLOCK 3 BALANCING PERFORMANCE, Diagnostic Trouble Code (DTC) Detecting Criteria.>

**TROUBLE SYMPTOM:**

- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.

NOTE:
If this DTC is detected, replace the high voltage battery. <Ref. to HEV-17, High Voltage Battery.>

## FG:DTC P1C48 HYBRID BATTERY BLOCK 4 BALANCING PERFORMANCE

**DIAGNOSIS:**

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-153, DTC P1C48 HYBRID BATTERY BLOCK 4 BALANCING PERFORMANCE, Diagnostic Trouble Code (DTC) Detecting Criteria.>

**TROUBLE SYMPTOM:**

- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.

NOTE:
If this DTC is detected, replace the high voltage battery. <Ref. to HEV-17, High Voltage Battery.>

## FH:DTC P1C49 HYBRID BATTERY BLOCK 5 BALANCING PERFORMANCE

**DIAGNOSIS:**

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-154, DTC P1C49 HYBRID BATTERY BLOCK 5 BALANCING PERFORMANCE, Diagnostic Trouble Code (DTC) Detecting Criteria.>

**TROUBLE SYMPTOM:**

- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.

NOTE:
If this DTC is detected, replace the high voltage battery. <Ref. to HEV-17, High Voltage Battery.>

## FI: DTC P1C4A HYBRID BATTERY BLOCK 6 BALANCING PERFORMANCE

**DIAGNOSIS:**

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-155, DTC P1C4A HYBRID BATTERY BLOCK 6 BALANCING PERFORMANCE, Diagnostic Trouble Code (DTC) Detecting Criteria.>

**TROUBLE SYMPTOM:**

- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.

NOTE:
If this DTC is detected, replace the high voltage battery. <Ref. to HEV-17, High Voltage Battery.>

## FJ: DTC P1C5E HYBRID BATTERY BLOCK VOLTAGE TOO LOW

**DIAGNOSIS:**

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-156, DTC P1C5E HYBRID BATTERY BLOCK VOLTAGE TOO LOW, Diagnostic Trouble Code (DTC) Detecting Criteria.>

**TROUBLE SYMPTOM:**

- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.

NOTE:
If this DTC is detected, replace the high voltage battery. <Ref. to HEV-17, High Voltage Battery.>

## FK:DTC U0073 CONTROL MODULE COMMUNICATION BUS OFF

**DIAGNOSIS:**

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-157, DTC U0073 CONTROL MODULE COMMUNICATION BUS OFF, Diagnostic Trouble Code (DTC) Detecting Criteria.>

**TROUBLE SYMPTOM:**

- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.
- Sometimes driving power and shifting behavior are different from the normal states.

NOTE:
Perform the diagnosis for LAN system. <Ref. to LAN(HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.>

## FL:DTC U0075 CONTROL MODULE COMMUNICATION BUS "PU-CAN" OFF

**DIAGNOSIS:**

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-158, DTC U0075 CONTROL MODULE COMMUNICATION BUS "PU-CAN" OFF, Diagnostic Trouble Code (DTC) Detecting Criteria.>

**TROUBLE SYMPTOM:**

- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.
- Sometimes driving power and shifting behavior are different from the normal states.

NOTE:
Perform the diagnosis for LAN system. <Ref. to LAN(HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.>

## FM:DTC U0076 CONTROL MODULE COMMUNICATION BUS "HEV-CAN" OFF

**DIAGNOSIS:**

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-159, DTC U0076 CONTROL MODULE COMMUNICATION BUS "HEV-CAN" OFF, Diagnostic Trouble Code (DTC) Detecting Criteria.>

**TROUBLE SYMPTOM:**

- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.
- Sometimes driving power and shifting behavior are different from the normal states.

NOTE:
Perform the diagnosis for LAN system. <Ref. to LAN(HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.>

## FN:DTC U0100 LOST COMMUNICATION WITH ECM/PCM “A”

**DIAGNOSIS:**

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-161, DTC U0100 LOST COMMUNICATION WITH ECM/PCM “A”, Diagnostic Trouble Code (DTC) Detecting Criteria.>

**TROUBLE SYMPTOM:**

- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.
- Sometimes driving power and shifting behavior are different from the normal states.

NOTE:
Perform the diagnosis for LAN system. <Ref. to LAN(HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.>

## FO:DTC U0101 LOST COMMUNICATION WITH TCM

**DIAGNOSIS:**

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-162, DTC U0101 LOST COMMUNICATION WITH TCM, Diagnostic Trouble Code (DTC) Detecting Criteria.>

**TROUBLE SYMPTOM:**

- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.
- Sometimes driving power and shifting behavior are different from the normal states.

NOTE:
Perform the diagnosis for LAN system. <Ref. to LAN(HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.>

## FP:DTC U0110 LOST COMMUNICATION WITH DRIVE MOTOR CONTROL MODULE "A"

**DIAGNOSIS:**
- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-163, DTC U0110 LOST COMMUNICATION WITH DRIVE MOTOR CONTROL MODULE "A", Diagnostic Trouble Code (DTC) Detecting Criteria.>

**TROUBLE SYMPTOM:**
- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.
- Sometimes driving power and shifting behavior are different from the normal states.

NOTE:
Perform the diagnosis for LAN system. <Ref. to LAN(HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.>

## FQ:DTC U0111 LOST COMMUNICATION WITH BATTERY ENERGY CONTROL MODULE

**DIAGNOSIS:**
- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-165, DTC U0111 LOST COMMUNICATION WITH BATTERY ENERGY CONTROL MODULE, Diagnostic Trouble Code (DTC) Detecting Criteria.>

**TROUBLE SYMPTOM:**
- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.

NOTE:
Perform the diagnosis for LAN system. <Ref. to LAN(HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.>

## FR:DTC U0122 LOST COMMUNICATION WITH VEHICLE DYNAMICS CONTROL MODULE

**DIAGNOSIS:**
- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-167, DTC U0122 LOST COMMUNICATION WITH VEHICLE DYNAMICS CONTROL MODULE, Diagnostic Trouble Code (DTC) Detecting Criteria.>

**TROUBLE SYMPTOM:**
EV traveling/Auto Start Stop does not operate.

NOTE:
Perform the diagnosis for LAN system. <Ref. to LAN(HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.>

## FS:DTC U0131 LOST COMMUNICATION WITH POWER STEERING CONTROL MODULE

**DIAGNOSIS:**
- Detects CAN communication error with electric power steering system.
- Immediately at fault recognition

**TROUBLE SYMPTOM:**
Normal control

NOTE:
Perform the diagnosis for LAN system. <Ref. to LAN(HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.>

## FT: DTC U0140 LOST COMMUNICATION WITH BODY CONTROL MODULE

**DIAGNOSIS:**
- Detects CAN communication error with body integrated unit.
- Immediately at fault recognition

**TROUBLE SYMPTOM:**
Normal control

NOTE:
Perform the diagnosis for LAN system. <Ref. to LAN(HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.>

## FU: DTC U0151 LOST COMMUNICATION WITH RESTRAINTS CONTROL MODULE

**DIAGNOSIS:**
- Detects CAN communication error with airbag system.
- Immediately at fault recognition

**TROUBLE SYMPTOM:**
Normal control

NOTE:
Perform the diagnosis for LAN system. <Ref. to LAN(HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.>

## FV: DTC U0155 LOST COMMUNICATION WITH INSTRUMENT PANEL CLUSTER (IPC) CONTROL MODULE

**DIAGNOSIS:**
- Detects CAN communication error with combination meter.
- Immediately at fault recognition

**TROUBLE SYMPTOM:**
Normal control

NOTE:
Perform the diagnosis for LAN system. <Ref. to LAN(HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.>

## FW: DTC U0164 LOST COMMUNICATION WITH HVAC CONTROL MODULE

**DIAGNOSIS:**
- Detects CAN communication error with air conditioner.
- Immediately at fault recognition

**TROUBLE SYMPTOM:**
EV traveling/Auto Start Stop does not operate.

NOTE:
Perform the diagnosis for LAN system. <Ref. to LAN(HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.>

## FX: DTC U0287 LOST COMMUNICATION WITH TRANSMISSION FLUID PUMP MODULE

**DIAGNOSIS:**
- Detects CAN communication error with electric oil pump.
- Immediately at fault recognition

**TROUBLE SYMPTOM:**
Normal control

NOTE:
Perform the diagnosis for LAN system. <Ref. to LAN(HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.>

## FY:DTC U0401 INVALID DATA RECEIVED FROM ECM/PCM “A”

**DIAGNOSIS:**
- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-168, DTC U0401 INVALID DATA RECEIVED FROM ECM/PCM “A”, Diagnostic Trouble Code (DTC) Detecting Criteria.>

**TROUBLE SYMPTOM:**
- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.
- Sometimes driving power and shifting behavior are different from the normal states.

NOTE:
Perform the diagnosis for LAN system. <Ref. to LAN(HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.>

## FZ:DTC U0402 INVALID DATA RECEIVED FROM TCM

**DIAGNOSIS:**
- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-169, DTC U0402 INVALID DATA RECEIVED FROM TCM, Diagnostic Trouble Code (DTC) Detecting Criteria.>

**TROUBLE SYMPTOM:**
- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.
- Sometimes driving power and shifting behavior are different from the normal states.

NOTE:
Perform the diagnosis for LAN system. <Ref. to LAN(HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.>

## GA:DTC U0411 INVALID DATA RECEIVED FROM DRIVE MOTOR CONTROL MODULE "A"

**DIAGNOSIS:**
- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-170, DTC U0411 INVALID DATA RECEIVED FROM DRIVE MOTOR CONTROL MODULE "A", Diagnostic Trouble Code (DTC) Detecting Criteria.>

**TROUBLE SYMPTOM:**
- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.
- Sometimes driving power and shifting behavior are different from the normal states.

NOTE:
Perform the diagnosis for LAN system. <Ref. to LAN(HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.>

## GB:DTC U0412 INVALID DATA RECEIVED FROM BATTERY ENERGY CONTROL MODULE

**DIAGNOSIS:**
- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-172, DTC U0412 INVALID DATA RECEIVED FROM BATTERY ENERGY CONTROL MODULE, Diagnostic Trouble Code (DTC) Detecting Criteria.>

**TROUBLE SYMPTOM:**
- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.

NOTE:
Perform the diagnosis for LAN system. <Ref. to LAN(HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.>

## GC:DTC U0416 INVALID DATA RECEIVED FROM VEHICLE DYNAMICS CONTROL MODULE

**DIAGNOSIS:**
- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-174, DTC U0416 INVALID DATA RECEIVED FROM VEHICLE DYNAMICS CONTROL MODULE, Diagnostic Trouble Code (DTC) Detecting Criteria.>

**TROUBLE SYMPTOM:**
EV traveling/Auto Start Stop does not operate.

NOTE:
Perform the diagnosis for LAN system. <Ref. to LAN(HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.>

## GD:DTC U0420 INVALID DATA RECEIVED FROM POWER STEERING CONTROL MODULE

**DIAGNOSIS:**
- Detects CAN communication error with electric power steering system.
- Immediately at fault recognition

**TROUBLE SYMPTOM:**
Normal control

NOTE:
Perform the diagnosis for LAN system. <Ref. to LAN(HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.>

## GE:DTC U0422 INVALID DATA RECEIVED FROM BODY CONTROL MODULE

**DIAGNOSIS:**
- Detects CAN communication error with body integrated unit.
- Immediately at fault recognition

**TROUBLE SYMPTOM:**
Normal control

NOTE:
Perform the diagnosis for LAN system. <Ref. to LAN(HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.>

## GF:DTC U0423 INVALID DATA RECEIVED FROM INSTRUMENT PANEL CLUSTER CONTROL MODULE

**DIAGNOSIS:**
- Detects CAN communication error with combination meter.
- Immediately at fault recognition

**TROUBLE SYMPTOM:**
Normal control

NOTE:
Perform the diagnosis for LAN system. <Ref. to LAN(HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.>

## GG:DTC U0424 INVALID DATA RECEIVED FROM HVAC CONTROL MODULE

**DIAGNOSIS:**
- Detects CAN communication error with air conditioner.
- Immediately at fault recognition

**TROUBLE SYMPTOM:**
EV traveling/Auto Start Stop does not operate.

NOTE:
Perform the diagnosis for LAN system. <Ref. to LAN(HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.>

## GH:DTC U0452 INVALID DATA RECEIVED FROM RESTRAINTS CONTROL MODULE

**DIAGNOSIS:**
- Detects CAN communication error with airbag system.
- Immediately at fault recognition

**TROUBLE SYMPTOM:**
Normal control

NOTE:
Perform the diagnosis for LAN system. <Ref. to LAN(HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.>

## GI: DTC U0588 INVALID DATA RECEIVED FROM TRANSMISSION FLUID PUMP MODULE

**DIAGNOSIS:**
- Detects CAN communication error with electric oil pump.
- Immediately at fault recognition

**TROUBLE SYMPTOM:**
Normal control

NOTE:
Perform the diagnosis for LAN system. <Ref. to LAN(HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.>

## GJ:DTC U1100 LOST COMMUNICATION WITH ECM/PCM PU-CAN

**DIAGNOSIS:**
- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-175, DTC U1100 LOST COMMUNICATION WITH ECM/PCM PU-CAN, Diagnostic Trouble Code (DTC) Detecting Criteria.>

**TROUBLE SYMPTOM:**
- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.
- Sometimes driving power and shifting behavior are different from the normal states.

NOTE:
Perform the diagnosis for LAN system. <Ref. to LAN(HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.>

## GK:DTC U1101 LOST COMMUNICATION WITH TCM PU-CAN

**DIAGNOSIS:**
- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-176, DTC U1101 LOST COMMUNICATION WITH TCM PU-CAN, Diagnostic Trouble Code (DTC) Detecting Criteria.>

**TROUBLE SYMPTOM:**
- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.
- Sometimes driving power and shifting behavior are different from the normal states.

NOTE:
Perform the diagnosis for LAN system. <Ref. to LAN(HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.>

## GL:DTC U1290 LOST COMMUNICATION WITH HYBRID POWERTRAIN CONTROL MODULE HEV-CAN

**DIAGNOSIS:**
- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-177, DTC U1290 LOST COMMUNICATION WITH HYBRID POWERTRAIN CONTROL MODULE HEV-CAN, Diagnostic Trouble Code (DTC) Detecting Criteria.>

**TROUBLE SYMPTOM:**
- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.

NOTE:
Perform the diagnosis for LAN system. <Ref. to LAN(HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.>

## GM:DTC U1401 INVALID DATA RECEIVED FROM ECM/PCM PU-CAN

**DIAGNOSIS:**
- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-179, DTC U1401 INVALID DATA RECEIVED FROM ECM/PCM PU-CAN, Diagnostic Trouble Code (DTC) Detecting Criteria.>

**TROUBLE SYMPTOM:**
- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.
- Sometimes driving power and shifting behavior are different from the normal states.

NOTE:
Perform the diagnosis for LAN system. <Ref. to LAN(HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.>

## GN:DTC U1402 INVALID DATA RECEIVED FROM TCM PU-CAN

**DIAGNOSIS:**
- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-180, DTC U1402 INVALID DATA RECEIVED FROM TCM PU-CAN, Diagnostic Trouble Code (DTC) Detecting Criteria.>

**TROUBLE SYMPTOM:**
- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.
- Sometimes driving power and shifting behavior are different from the normal states.

NOTE:
Perform the diagnosis for LAN system. <Ref. to LAN(HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.>

## GO:DTC U1591 INVALID DATA RECEIVED FROM HYBRID POWERTRAIN CONTROL MODULE HEV-CAN

**DIAGNOSIS:**
- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-181, DTC U1591 INVALID DATA RECEIVED FROM HYBRID POWERTRAIN CONTROL MODULE HEV-CAN, Diagnostic Trouble Code (DTC) Detecting Criteria.>

**TROUBLE SYMPTOM:**
- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.

NOTE:
Perform the diagnosis for LAN system. <Ref. to LAN(HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.>

# GP:DTC U1676 LIN COMMUNICATION BUS ERROR HYBRID POWERTRAIN CONTROL MODULE

**DIAGNOSIS:**

- Detects LIN communication error.
- Immediately at fault recognition

**TROUBLE SYMPTOM:**

- EV traveling/Auto Start Stop does not operate.

(Engine does not restart under EV traveling/Auto Start Stop condition.)

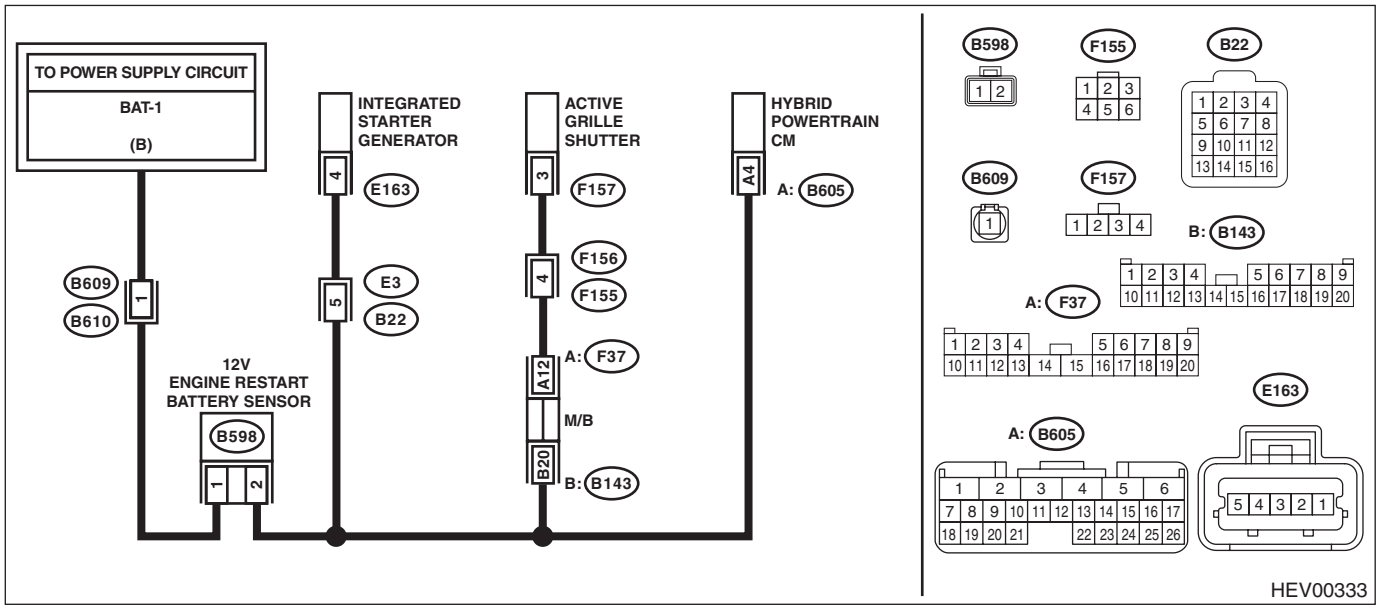
- Charge warning light illuminates.

**CAUTION:**

**Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.>**

**WIRING DIAGRAM**

Hybrid system <Ref. to WI(HEV)-140, WIRING DIAGRAM, Hybrid Electric Vehicle System.>




| Step | | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK BATTERY.**<br>Check the 12 volt engine restart battery. | Is the condition normal? | Go to step **2**. | Charge or replace the 12 volt engine restart battery. |
| 2 | **CHECK MODULES.**<br>1) Disconnect the integrated starter generator connector.<br>2) Perform the Clear Memory Mode. <Ref. to HEV(diag)-25, HYBRID POWERTRAIN CONTROL SYSTEM, OPERATION, Clear Memory Mode.><br>3) Read the DTC again. <Ref. to HEV(diag)-24, HYBRID POWERTRAIN CONTROL SYSTEM, OPERATION, Read Diagnostic Trouble Code (DTC).> | Is DTC U1676 detected? (current malfunction) | Go to step **3**. | Replace the integrated starter generator. <Ref. to SC(H4DO(HEV))-32, Integrated Starter Generator (ISG).> |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 3 | **CHECK MODULES.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the 12V engine restart battery sensor connector.<br>3) Perform the Clear Memory Mode. <Ref. to HEV(diag)-25, HYBRID POWERTRAIN CONTROL SYSTEM, OPERATION, Clear Memory Mode.><br>4) Read the DTC again. <Ref. to HEV(diag)-24, HYBRID POWERTRAIN CONTROL SYSTEM, OPERATION, Read Diagnostic Trouble Code (DTC).> | Is DTC U1676 detected? (current malfunction) | Go to step **4**. | Replace the 12V engine restart battery sensor. <Ref. to SC(H4DO(HEV))-60, Battery Sensor.> |
| 4 | **CHECK MODULES.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the active grille shutter connector.<br>3) Perform the Clear Memory Mode. <Ref. to HEV(diag)-25, HYBRID POWERTRAIN CONTROL SYSTEM, OPERATION, Clear Memory Mode.><br>4) Read the DTC again. <Ref. to HEV(diag)-24, HYBRID POWERTRAIN CONTROL SYSTEM, OPERATION, Read Diagnostic Trouble Code (DTC).> | Is DTC U1676 detected? (current malfunction) | Go to step **5**. | Replace the active grille shutter. |
| 5 | **CHECK HARNESS (OPEN CIRCUIT).**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the HPCM connector.<br>3) Using a tester, measure the resistance between the HPCM connector and connector of each unit.<br>***Connector & terminal***<br>***(B605) No. 4 — (F157) No. 3:***<br>***(B605) No. 4 — (B598) No. 2:***<br>***(B605) No. 4 — (E163) No. 4:*** | Is the resistance less than 1 Ω? | Go to step **6**. | Repair open circuit of the harness between HPCM connector and connector of each unit. |
| 6 | **CHECK HARNESS (SHORT TO GROUND).**<br>Using a tester, measure the resistance between HPCM connector and chassis ground.<br>***Connector & terminal***<br>***(B605) No. 4 — Chassis ground:*** | Is the resistance 1 MΩ or more? | Go to step **7**. | Repair ground short circuit of harness between the HPCM connector and the integrated starter generator connector. |
| 7 | **CHECK HARNESS (SHORT TO POWER).**<br>Using a tester, measure the voltage between the HPCM connector and chassis ground.<br>***Connector & terminal***<br>***(B605) No. 4 (+) — Chassis ground (–):*** | Is the voltage less than 1 V? | Replace the HPCM. <Ref. to HEV-37, Hybrid Powertrain Control Module.> | Repair the short circuit to power in harness between the HPCM connector and the integrated starter generator connector. |

# GQ:DTC U1711 LOST COMMUNICATION WITH BATTERY "2" MONITOR MODULE

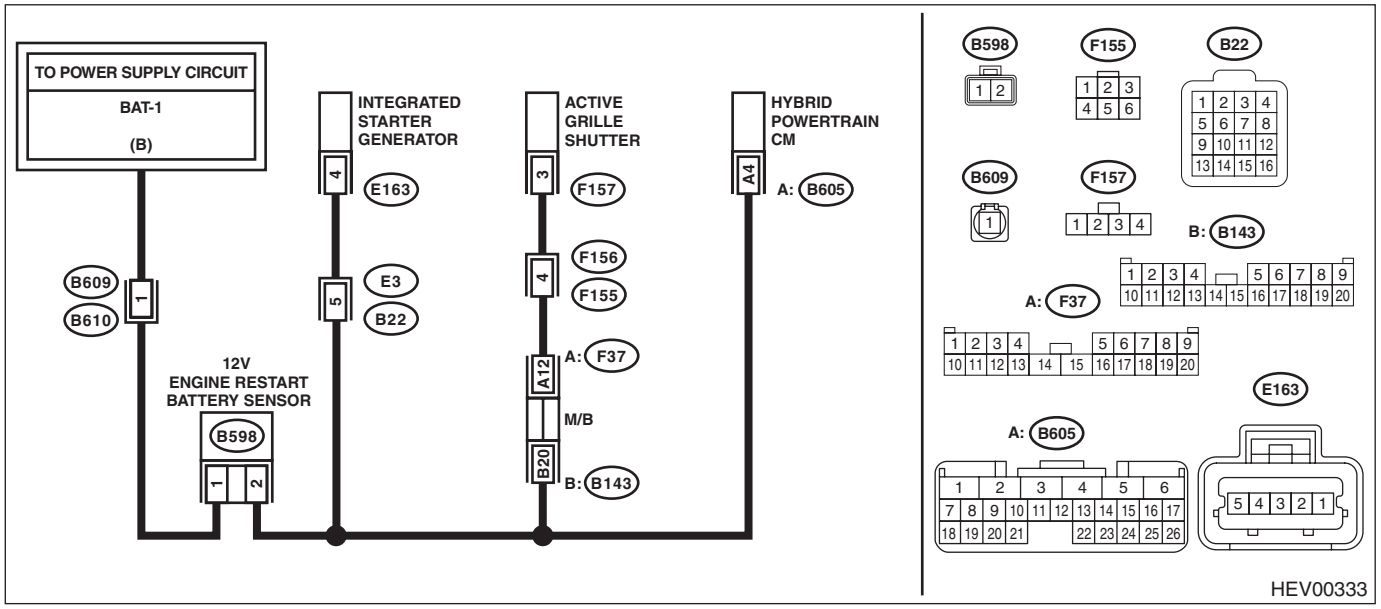
**DIAGNOSIS:**
- Detects LIN communication error with 12V engine restart battery sensor.
- Immediately at fault recognition

**TROUBLE SYMPTOM:**
- EV traveling/Auto Start Stop does not operate.
- Charge warning light illuminates.

**CAUTION:**
**Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.>**

NOTE:
This DTC may be set when terminals of the 12 volt engine restart battery are disconnected.

**WIRING DIAGRAM**
Hybrid system <Ref. to WI(HEV)-140, WIRING DIAGRAM, Hybrid Electric Vehicle System.>




| Step | | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK CONNECTOR.**<br>Check the connector (B598) of 12V engine restart battery sensor. | Is there looseness or poor contact of connector? | Repair the connector. | Go to step **2**. |
| 2 | **CHECK HARNESS (OPEN CIRCUIT).**<br>1) Disconnect the HPCM connector.<br>2) Disconnect the 12V engine restart battery sensor connector.<br>3) Using a tester, measure the resistance between the HPCM connector and 12V engine restart battery sensor connector.<br>***Connector & terminal***<br>***(B605) No. 4 — (B598) No. 2:***<br>***(B598) No. 1 — 12 volt engine restart battery positive terminal:*** | Is the resistance less than 1 Ω? | Go to step **3**. | Repair the open circuit of the harness between the HPCM connector and the 12 volt engine restart battery and the 12V engine restart battery sensor connector or replace fuses. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 3 | **CHECK HARNESS (SHORT TO GROUND).**<br>1) Disconnect the integrated starter generator connector.<br>2) Using a tester, measure the resistance between HPCM connector and chassis ground.<br>***Connector & terminal***<br>***(B605) No. 4 — Chassis ground:*** | Is the resistance 1 MΩ or more? | Go to step **4**. | Repair ground short circuit of harness between the HPCM connector and the 12V engine restart battery sensor connector. |
| 4 | **CHECK HARNESS (SHORT TO POWER).**<br>Using a tester, measure the voltage between the HPCM connector and chassis ground.<br>***Connector & terminal***<br>***(B605) No. 4 (+) — Chassis ground (–):*** | Is the voltage less than 1 V? | Go to step **5**. | Repair the short circuit to power in harness between the HPCM connector and the 12V engine restart battery sensor connector. |
| 5 | **CHECK BATTERY.**<br>Check the 12 volt engine restart battery. <Ref. to SC(H4DO(HEV))-39, Battery.> | Is the condition normal? | Replace the 12V engine restart battery sensor. <Ref. to SC(H4DO(HEV))-60, Battery Sensor.> | Replace or charge the battery. |

# GR:DTC U1720 LOST COMMUNICATION WITH INTEGRATED STARTER GENERATOR

**DIAGNOSIS:**
- Detects LIN communication error with integrated starter generator.
- Immediately at fault recognition

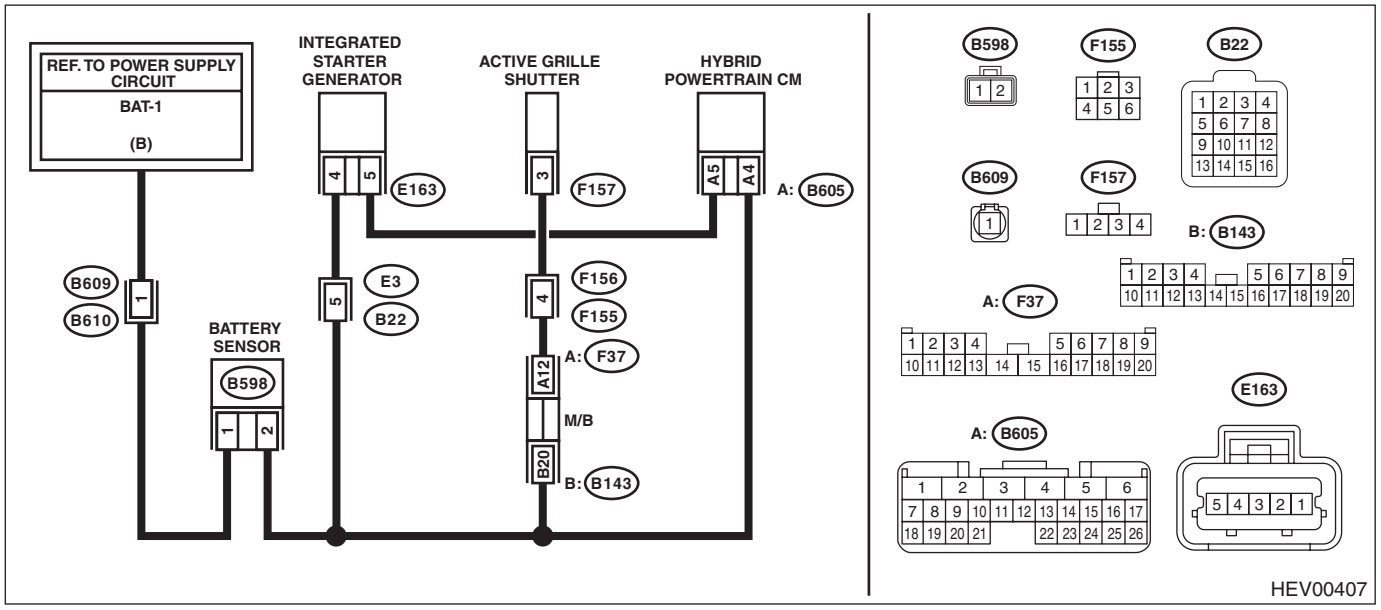
**TROUBLE SYMPTOM:**
- EV traveling/Auto Start Stop does not operate.

(Engine does not restart under EV traveling/Auto Start Stop condition.)
- Charge warning light illuminates.

**CAUTION:**
**Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.>**

NOTE:
This DTC may be set when terminals of the 12 volt engine restart battery are disconnected.

**WIRING DIAGRAM**
Hybrid system <Ref. to WI(HEV)-140, WIRING DIAGRAM, Hybrid Electric Vehicle System.>




| Step | | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK BATTERY.**<br>Check the 12 volt engine restart battery. | Is the condition normal? | Go to step **2**. | Replace or charge the battery. |
| 2 | **CHECK CONNECTOR.**<br>Check the integrated starter generator connector (E163). | Is there looseness or poor contact of connector? | Repair the connector. | Go to step **3**. |
| 3 | **CHECK HARNESS (SHORT TO GROUND).**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the HPCM connector.<br>3) Disconnect the integrated starter generator connector.<br>4) Disconnect the 12V engine restart battery sensor connector.<br>5) Using a tester, measure the resistance between HPCM connector and chassis ground.<br>***Connector & terminal***<br>***(B605) No. 4 — Chassis ground:*** | Is the resistance 1 MΩ or more? | Go to step **4**. | Repair ground short circuit of harness between the HPCM connector and the integrated starter generator connector. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 4 | **CHECK HARNESS (SHORT TO POWER).**<br>Using a tester, measure the voltage between the HPCM connector and chassis ground.<br>***Connector & terminal***<br>***(B605) No. 4 (+) — Chassis ground (–):*** | Is the voltage less than 1 V? | Go to step **5**. | Repair the short circuit to power in harness between the HPCM connector and the integrated starter generator connector. |
| 5 | **CHECK HARNESS (OPEN CIRCUIT).**<br>Using a tester, measure the resistance between the HPCM connector and integrated starter generator connector.<br>***Connector & terminal***<br>***(B605) No. 4 — (E163) No. 4:***<br>***(B605) No. 5 — (E163) No. 5:*** | Is the resistance less than 1 Ω? | Replace the integrated starter generator. <Ref. to SC(H4DO(HEV))-32, Integrated Starter Generator (ISG).> | Repair the open circuit of the harness between the HPCM connector and the integrated starter generator connector. |

# 19.Diagnostics with Phenomenon

## A: INSPECTION

### 1. SYMPTOM TABLE

| Symptoms | Maintenance parts | Note |
|---|---|---|
| Hybrid fail lamp does not illuminate. | CAN communication | Perform the basic inspection for LAN system. <Ref. to LAN(HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.> |
| | Combination meter assembly | Perform the basic inspection for meter system. <Ref. to IDI(diag)-2, COMBINATION METER, PROCEDURE, Basic Diagnostic Procedure.> |
| Hybrid fail lamp remains ON.<br>(If DTCs are detected, perform inspection according to those DTC diagnostic procedures.) | CAN communication | Perform the basic inspection for LAN system. <Ref. to LAN(HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.> |
| | Combination meter assembly | Perform the basic inspection for meter system. <Ref. to IDI(diag)-2, COMBINATION METER, PROCEDURE, Basic Diagnostic Procedure.> |
| Charge warning light illuminates. | Integrated starter generator | Check the charge warning light. <Ref. to SC(H4DO(HEV))-38, CHECK CHARGE WARNING LIGHT, INSPECTION, Integrated Starter Generator (ISG).> |
| Unable to switch to EV traveling. | CAN communication | Perform the basic inspection for LAN system. <Ref. to LAN(HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.> |
| | Combination meter assembly | Perform the basic inspection for meter system. <Ref. to IDI(diag)-2, COMBINATION METER, PROCEDURE, Basic Diagnostic Procedure.> |
| | Check EV traveling conditions.<br><Ref. to HEV(diag)-50, HYBRID POWERTRAIN CONTROL SYSTEM (Auto Start Stop AND EV TRAVELING CONDITIONS), OPERATION, Read Current Data.> | The brake vacuum pressure must be sufficient. (The vacuum pressure may decrease at high altitude or repetitive brake operation.) |
| | | The 12 volt engine restart battery must not have abnormality. |
| | | Engine coolant temperature must not be too low. (60°C (140°F) or more) |
| | | The shift lever must be in “D” range. |
| | | Battery pack must not have abnormality. |
| | | Integrated starter generator must not have abnormality. |
| | | ABS must not be operating. |
| | | There must not be a steep incline in uphill. |
| | | Accelerator pedal must not be depressed. |
| | | Brake pedal must not be depressed. |
| | | Warning lights are not illuminating. |
| | | DC/DC converter must be operating normally. |
| | | Drive motor must not have abnormality. |
| | | System Operation Check Mode must not be active. |

| Symptoms | Maintenance parts | Note |
|---|---|---|
| EV MODE indicator light does not illuminate. | CAN communication | Perform the basic inspection for LAN system. <Ref. to LAN(HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.> |
| | Combination meter assembly | Perform the basic inspection for meter system. <Ref. to IDI(diag)-2, COMBINATION METER, PROCEDURE, Basic Diagnostic Procedure.> |
| EV MODE indicator light remains on. | CAN communication | Perform the basic inspection for LAN system. <Ref. to LAN(HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.> |
| | Combination meter assembly | Perform the basic inspection for meter system. <Ref. to IDI(diag)-2, COMBINATION METER, PROCEDURE, Basic Diagnostic Procedure.> |
| Poor acceleration | Hybrid system | Perform the basic inspection for hybrid system. <Ref. to HEV(diag)-2, PROCEDURE, Basic Diagnostic Procedure.> |
| | Engine system | Perform the basic inspection for engine system. <Ref. to EN(H4DO HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.> |
| | CVT System | Perform the basic inspection for CVT system. <Ref. to CVT(HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.> |
| READY ON does not occur.<br>(Models without keyless access system) | Ignition switch assembly | Perform unit check for the ignition switch. |
| | IG relay | Perform unit check for the ignition relay. |
| | ECM power supply system | Perform the basic inspection for engine system. <Ref. to EN(H4DO HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.> |
| | Check READY mode conditions | The current data «Contactor Close Status» must be «close». (The ignition switch is OFF, battery runout prevention control is active, no fault conditions.) |
| | | Current data «Engine Speed» must have input. |
| | | Drive motor must not have abnormality. |
| | Combination meter assembly | Perform the basic inspection for meter system. <Ref. to IDI(diag)-2, PROCEDURE, Basic Diagnostic Procedure.> |
| | Hybrid system | Perform the basic inspection for hybrid system. <Ref. to HEV(diag)-2, PROCEDURE, Basic Diagnostic Procedure.> |
| | Engine system | Perform the basic inspection for engine system. <Ref. to EN(H4DO HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.> |

| Symptoms | Maintenance parts | Note |
|---|---|---|
| READY ON does not occur.<br>(Models with keyless access system) | Keyless access system | Perform the basic inspection for keyless access system. <Ref. to KPS(diag)-2, PROCEDURE, Basic Diagnostic Procedure.> |
| | ECM power supply system | Perform the basic inspection for engine system. <Ref. to EN(H4DO HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.> |
| | Check READY mode conditions | The current data «Contactor Close Status» must be «close». (The ignition switch is OFF, battery runout prevention control is active, no fault conditions.) |
| | | Current data «Engine Speed» must have input. |
| | | Drive motor must not have abnormality. |
| | Combination meter assembly | Perform the basic inspection for meter system. <Ref. to IDI(diag)-2, PROCEDURE, Basic Diagnostic Procedure.> |
| | Hybrid system | Perform the basic inspection for hybrid system. <Ref. to HEV(diag)-2, PROCEDURE, Basic Diagnostic Procedure.> |
| | Engine system | Perform the basic inspection for engine system. <Ref. to EN(H4DO HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.> |
| Defective operation of Auto Start Stop | Check Auto Start Stop mode conditions. <Ref. to HEV(diag)-50, HYBRID POWERTRAIN CONTROL SYSTEM (Auto Start Stop AND EV TRAVELING CONDITIONS), OPERATION, Read Current Data.> | The brake vacuum pressure must be sufficient. (The vacuum pressure may decrease at high altitude or repetitive brake operation.) |
| | | The 12 volt engine restart battery must not have abnormality. |
| | | Engine coolant temperature must not be too low. (60°C (140°F) or more) |
| | | The shift lever must be in “D” range. |
| | | Battery pack must not have abnormality. |
| | | Drive motor must not have abnormality. |
| | | Integrated starter generator must not have abnormality. |
| | | The vehicle must not be moving. (0.1 km/h (0.1 MPH) or less) |
| | | ABS must not be operating. |
| | | There must not be a steep incline in uphill. |
| | | Accelerator pedal must not be depressed. |
| | | Defroster must not be on. |
| | | Warning lights are not illuminating. |
| | | DC/DC converter must be operating normally. |
| | | System Operation Check Mode must not be active. |

| Symptoms | Maintenance parts | Note |
|---|---|---|
| The braking force is weak. | VDC system | Perform the basic inspection for VDC system. <Ref. to VDC(diag)-2, PROCEDURE, Basic Diagnostic Procedure.> |
| | Hybrid system (brake vacuum pump) | Perform the basic inspection for hybrid system. <Ref. to HEV(diag)-2, PROCEDURE, Basic Diagnostic Procedure.> |
| Engine does not restart under Auto Start Stop or EV traveling. | Engine system | Perform the basic inspection for engine system. <Ref. to EN(H4DO HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.> |
| | Hybrid system | Perform the basic inspection for hybrid system. <Ref. to HEV(diag)-2, PROCEDURE, Basic Diagnostic Procedure.><br>NOTE:<br>Restarting the engine may be temporarily prohibited due to certain voltage or temperature condition. In such case, the engine may be restarted when normal voltage or temperature condition is restored. |

# GENERAL DESCRIPTION (HEV)

# GD(HEV)


Page

1. List of Diagnostic Trouble Code (DTC) .....2
2. Diagnostic Trouble Code (DTC) Detecting Criteria .....11

# 1. General Description

## A: SPECIFICATION

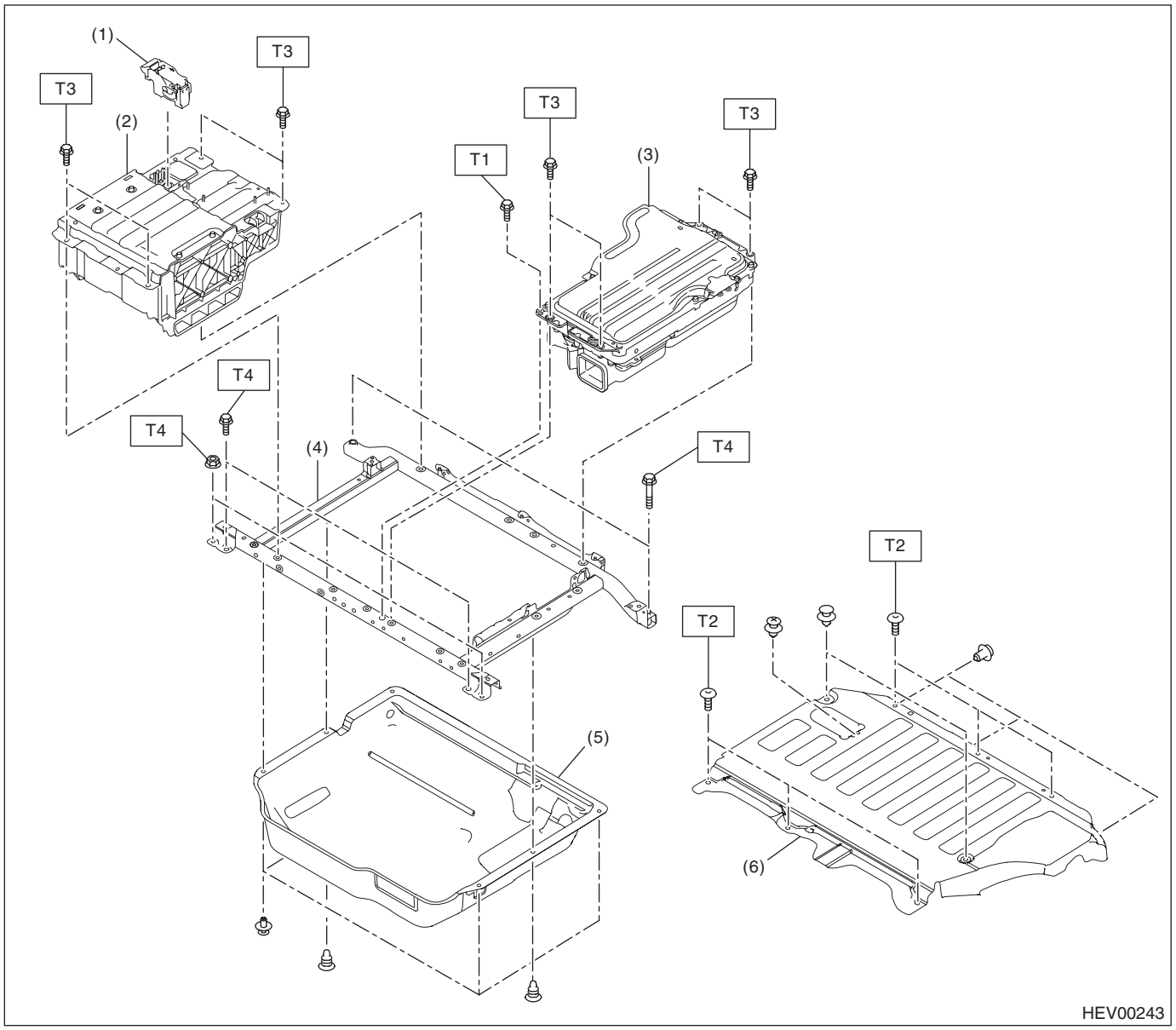
| | | |
|---|---|---|
| High voltage battery | Type | Ni - MH (nickel metal hydride) battery |
| | Total voltage | 100.8 V |
| | Rated capacity | 5.5 Ah |
| | Maximum output | 13.5 kW |
| Drive motor inverter | Type | Pulse width modulation |
| | Maximum output | 15 kW |
| DC/DC converter | Type | Pulse width modulation |
| | Rated output | 12 V - 130 A |
| Cooling fan assembly | Type | Plastic flange integrated brushless motor |
| | Rated voltage | 12 V |
| | Maximum output | 72 W |
| | Fan diameter (diameter × width) | 130 × 43.7 mm (5.12 × 1.72 in) |

## B: LOCATION

For installation location of the hybrid system electrical components, refer to “Electrical Component Location” in the “HYBRID ELECTRIC VEHICLE (DIAGNOSTICS)” section. <Ref. to HEV(diag)-9, Electrical Component Location.>

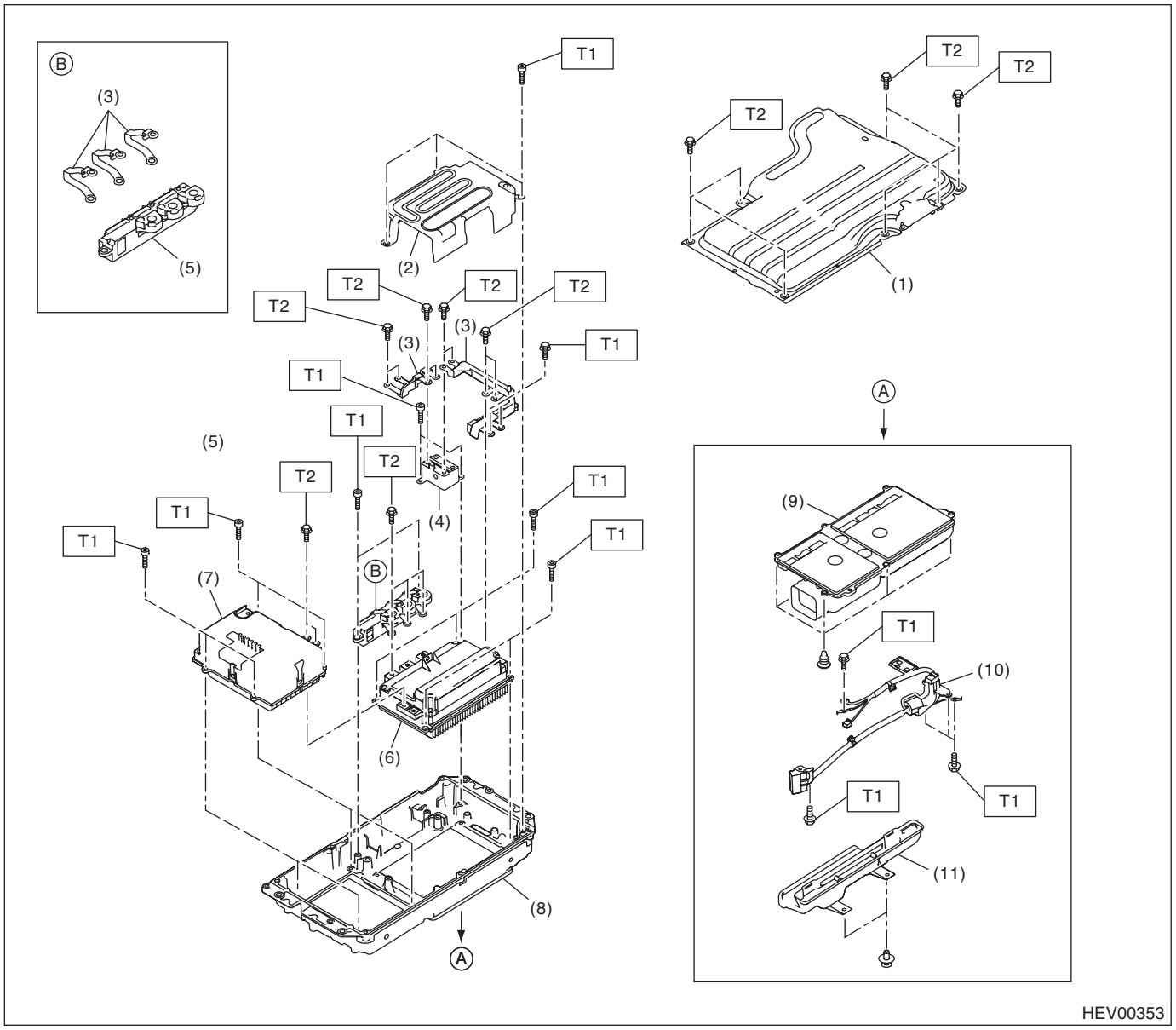
# C: COMPONENT

## 1. HIGH VOLTAGE BATTERY




| | | | | |
|---|---|---|---|---|
| (1) | Service disconnect plug | (4) | High voltage battery frame ASSY | ***Tightening torque: N·m (kgf-m, ft-lb)*** |
| (2) | High voltage battery (including battery energy control module (BECM)) | (5) | Cover - battery LWR | ***T1: 6.5 (0.7, 4.8)*** |
| (3) | Inverter ASSY | (6) | Battery cover | ***T2: 7.5 (0.8, 5.5)*** |
| | | | | ***T3: 22 (2.2, 16.2)*** |
| | | | | ***T4: 24.5 (2.5, 18.1)*** |

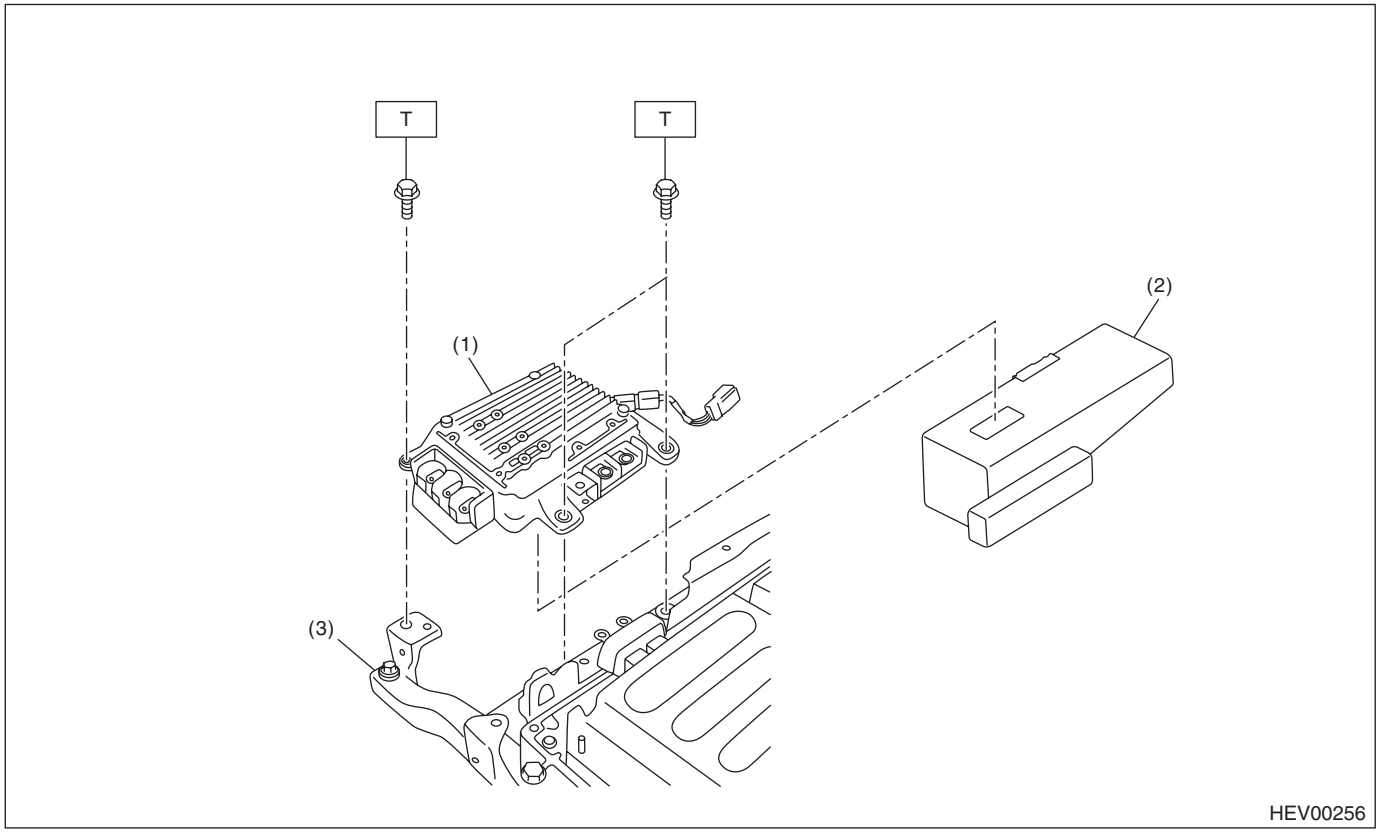
## 2. INVERTER ASSEMBLY




(1) Inverter cover
(2) Inverter shield
(3) Bus bar
(4) Electric noise filter
(5) Drive motor inverter amperage sensor
(6) Drive motor inverter
(7) DC/DC converter
(8) Inverter frame ASSY
(9) Duct inverter OUT
(10) Inverter harness
(11) Duct inverter IN

***Tightening torque: N·m (kgf-m, ft-lb)***
***T1: 6.5 (0.7, 4.8)***
***T2: 7.5 (0.8, 5.5)***

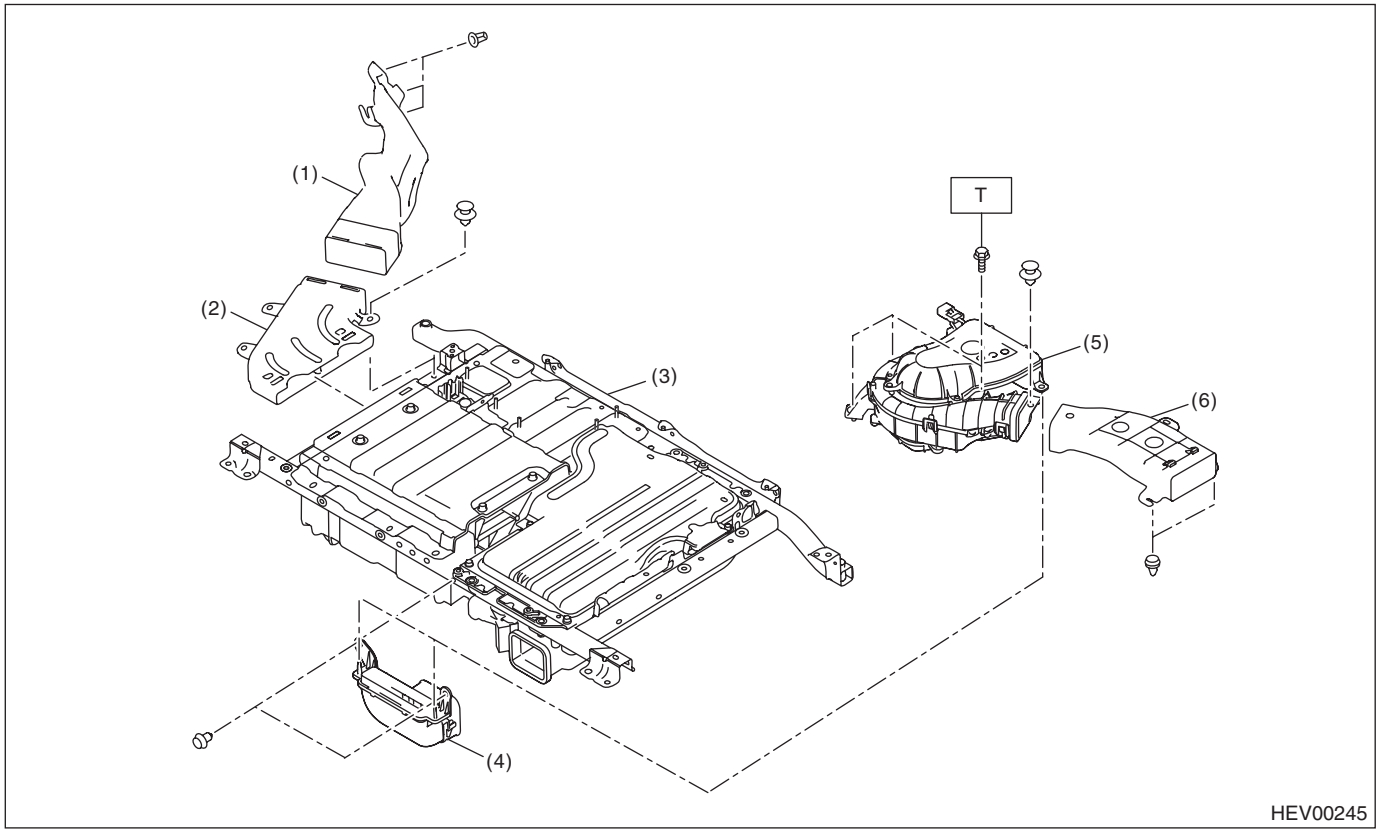
## 3. ELECTRIC OIL PUMP INVERTER




(1) Electric oil pump inverter
(2) Inverter spacer
(3) High voltage battery frame ASSY

| *Tightening torque: N·m (kgf-m, ft-lb)* |
|---|
| *T: 22 (2.2, 16.2)* |

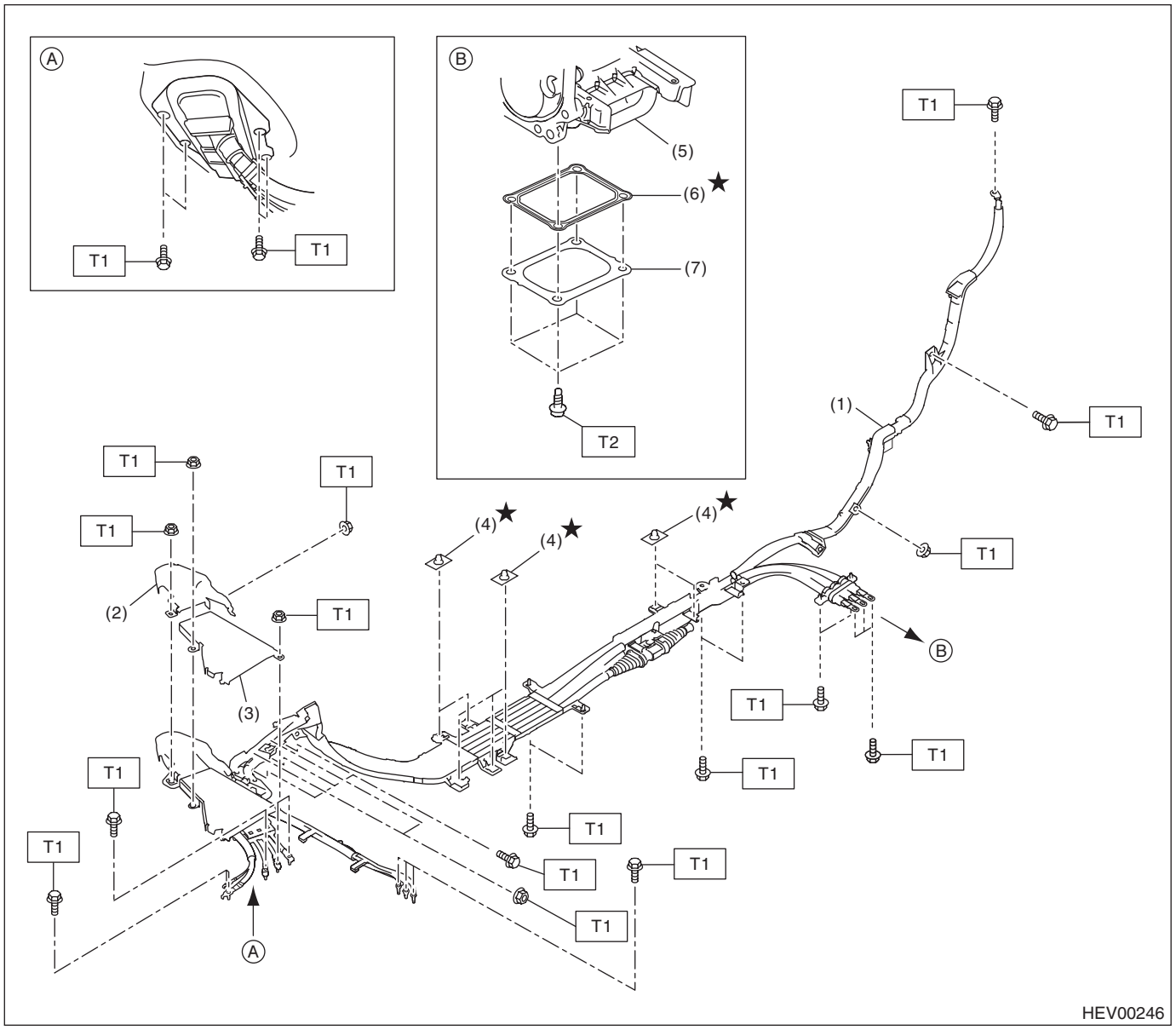
## 4. HIGH VOLTAGE BATTERY COOLING SYSTEM




(1) Cooling duct front (front)
(2) Cooling duct front (rear)
(3) Hybrid system SUB-ASSY
(4) Cooling fan duct
(5) Cooling fan ASSY
(6) Cooling duct rear

***Tightening torque: N·m (kgf-m, ft-lb)***
***T: 7.5 (0.8, 5.5)***

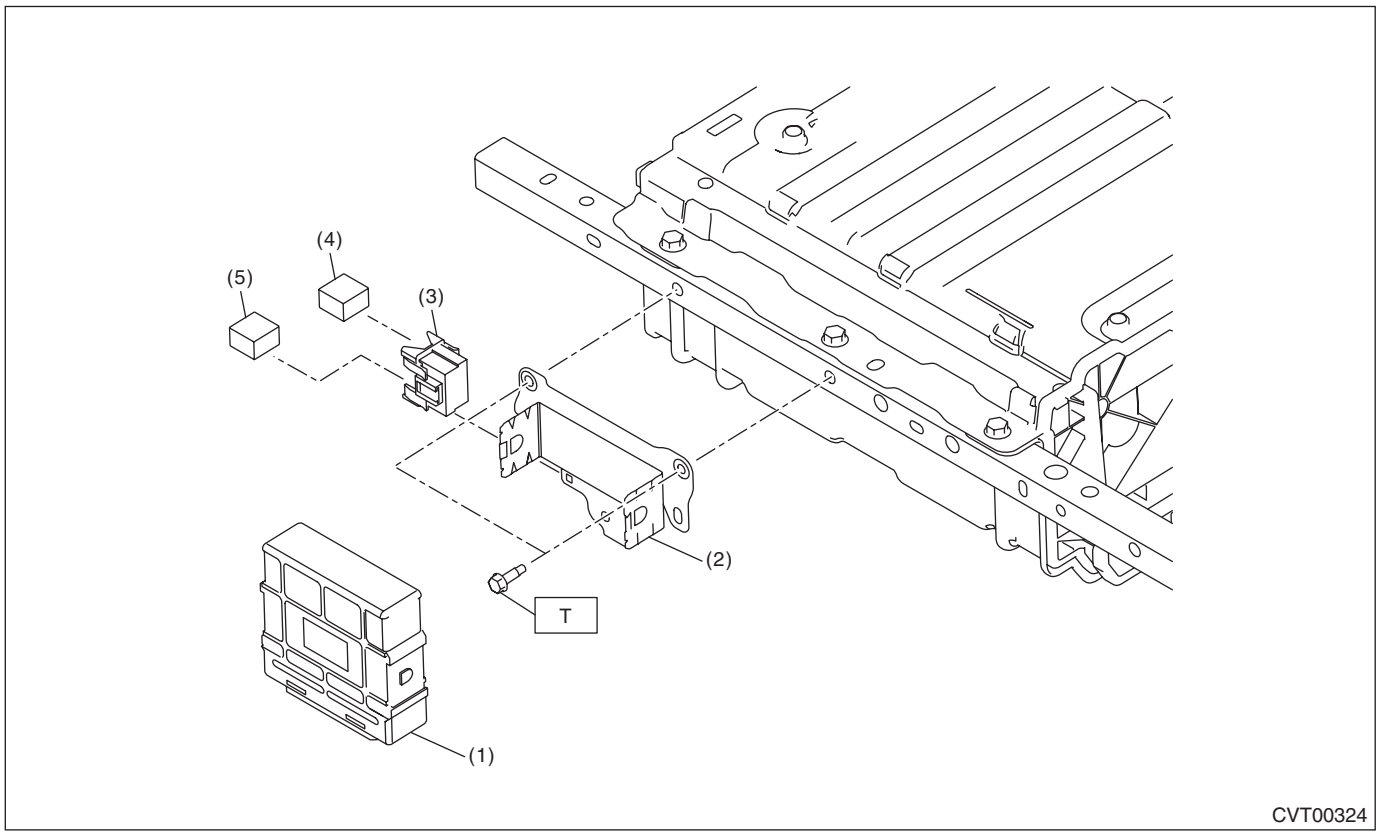
## 5. POWER CABLE




(1) Power cable
(2) Cover - shield seat
(3) Cover - shield battery
(4) Clip
(5) Drive motor case ASSY
(6) Gasket
(7) Power connect cover

***Tightening torque: N·m (kgf-m, ft-lb)***
***T1: 7.5 (0.8, 5.5)***
***T2: 25 (2.5, 18.4)***

## 6. DRIVE MOTOR CONTROL MODULE & RELAY

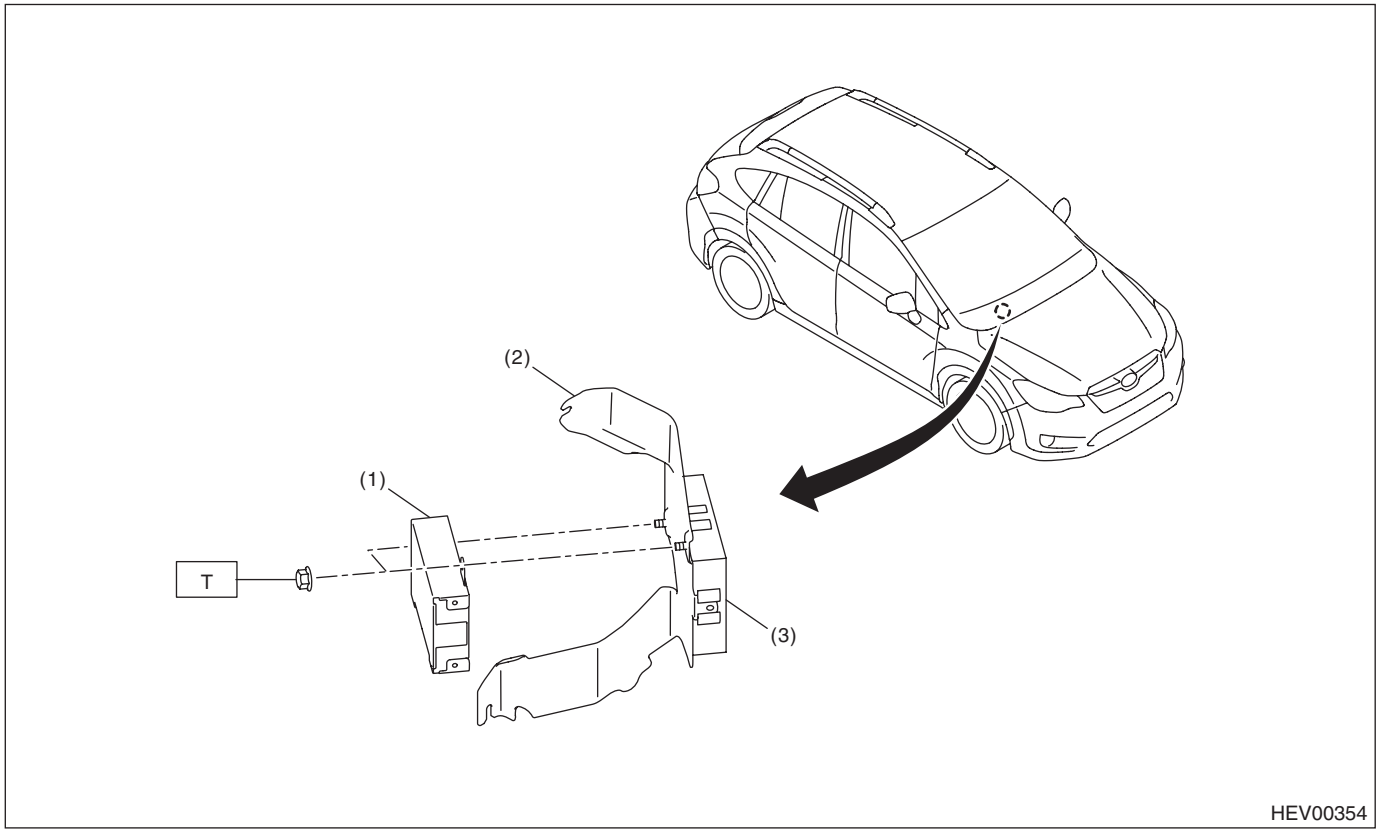



(1) Drive motor control module (DMCM)
(2) DMCM bracket
(3) Relay holder
(4) DMCM power relay
(5) Cooling fan / drive motor inverter power supply relay

***Tightening torque: N·m (kgf-m, ft-lb)***

***T: 6.5 (0.7, 4.8)***

## 7. HYBRID POWERTRAIN CONTROL MODULE

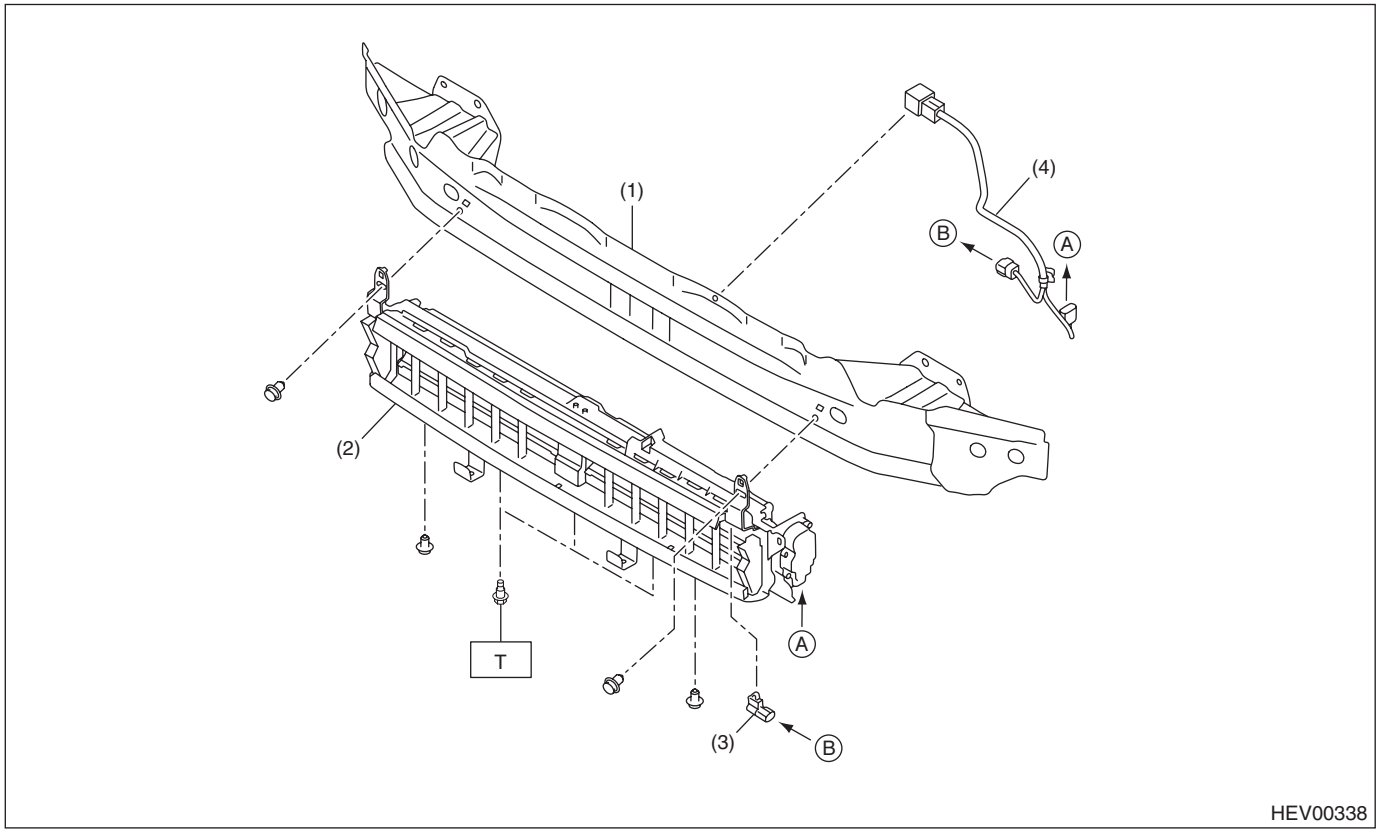



(1) Hybrid powertrain control module (HPCM)
(2) Bracket
(3) Engine control module (ECM)

***Tightening torque: N·m (kgf-m, ft-lb)***

***T: 7.5 (0.8, 5.5)***

## 8. ACTIVE GRILLE SHUTTER




| | | | | |
|---|---|---|---|---|
| (1) | Bumper beam COMPL - front | (3) | Ambient sensor | ***Tightening torque: N·m (kgf-m, ft-lb)*** |
| (2) | Active grille shutter (ACTGS) | (4) | Harness - ACTGS | ***T: 7.5 (0.8, 5.5)*** |

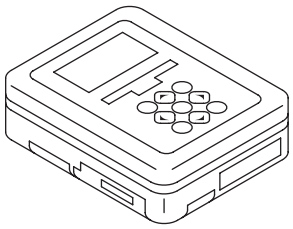
## D: CAUTION

**• The hybrid system includes a high voltage circuit. Mishandling could cause accidents such as electric shock or leak. Always check "CAUTION (HYBRID SYSTEM)" and perform the proper operation. <Ref. to PC-7, CAUTION (HYBRID SYSTEM), Precaution.>**

• When replacing the parts provided with memory functions, record the memory contents before disconnecting the battery ground cable. Otherwise, the memory is cleared.
• Reassemble the parts in the reverse order of disassembly procedure unless otherwise indicated.
• Connect the connectors securely during reassembly.
• After reassembly, make sure that the functional parts operate normally.

## E: PREPARATION TOOL

### 1. SPECIAL TOOL

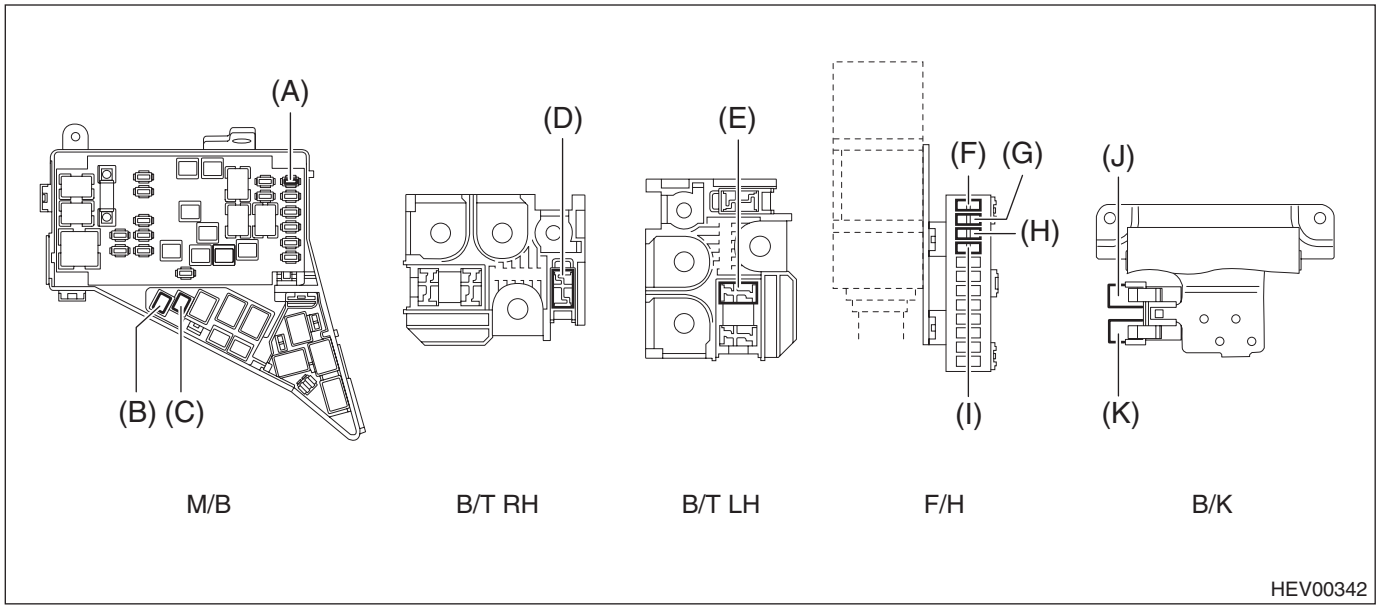
| ILLUSTRATION | TOOL NUMBER | DESCRIPTION | REMARKS |
|---|---|---|---|
|  ST1B022XU0 | 1B022XU0 | SUBARU SELECT MONITOR III KIT | Used for setting of each function and trouble-shooting for electrical system.<br>NOTE:<br>For detailed operation procedures of SUBARU SELECT MONITOR III, refer to "PC application help for Subaru Select Monitor". |

### 2. GENERAL TOOL

| TOOL NAME | REMARKS |
|---|---|
| Personal Protective Equipment (PPE) | Used for removing and installing high voltage components. |
| Insulation multimeter | Used for measuring resistance and voltage of high voltage components. |
| Insulating tape | Used for power cable terminals and high voltage battery terminals. |
| TORX® bit T30 | Used to remove and install the battery cover. |
| Circuit tester | Used for measuring resistance and voltage. |

# 2. Relay and Fuse

## A: LOCATION




| | | |
|---|---|---|
| Main fuse box | Fuse 7.5 A (HPCM) | (A) |
| | SBF fuse 30A (cooling fan ASSY / drive motor inverter power supply relay) | (B) |
| | SBF fuse 30A (BECM / DMCM power supply relay / HPCM) | (C) |
| Battery terminal RH | SBF fuse 60A (12V engine restart battery sensor) | (D) |
| Battery terminal LH | SBF fuse 200A (DC/DC converter) | (E) |
| Fuse holder | Fuse 15A (cooling fan ASSY / drive motor inverter power supply relay) | (F) |
| | Fuse 7.5 A (HPCM) | (G) |
| | Fuse 7.5A (BECM) | (H) |
| | Fuse 15A (DMCM) | (I) |
| DMCM bracket | DMCM power relay | (J) |
| | Cooling fan ASSY / drive motor inverter power supply relay | (K) |

NOTE:
For other related fuses, refer to the wiring diagram. <Ref. to WI(HEV)-140, WIRING DIAGRAM, Hybrid Electric Vehicle System.>

# B: INSPECTION

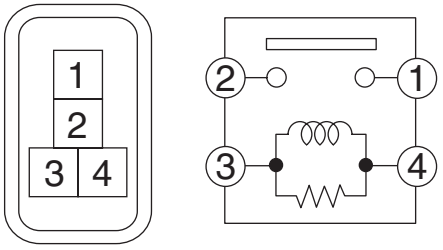
## 1. CHECK FUSE

1) Remove the fuse and inspect visually.
2) If the fuse is blown out, replace the fuse.

NOTE:
If the fuse is blown again, check the system wiring harness.

## 2. CHECK RELAY

1) Check the resistance between relay terminals.

| Terminal No. | Inspection conditions | Standard | Circuit |
|---|---|---|---|
| 1 — 2 | Always | 1 MΩ or more |   LI-01273 |
| 1 — 2 | Apply 12 volt engine restart battery between terminals 4 and 3. | Less than 1 Ω | |

2) Replace the relay if the inspection result is not within the standard value.

# 3. Hybrid Electric Vehicle System

## A: WIRING DIAGRAM

Refer to “Hybrid Electric Vehicle System” in WI section. <Ref. to WI(HEV)-140, WIRING DIAGRAM, Hybrid Electric Vehicle System.>

## B: INSPECTION

Refer to “Basic Diagnostic Procedure” of “HYBRID ELECTRIC VEHICLE (DIAGNOSTICS)” section. <Ref. to HEV(diag)-2, Basic Diagnostic Procedure.>

## C: NOTE

For procedure of each component in the hybrid system, refer to the respective sections.

- Service disconnect plug: <Ref. to HEV-15, Service Plug.>
- High voltage battery: <Ref. to HEV-17, High Voltage Battery.>
- Battery energy control module: <Ref. to HEV-26, Battery Energy Control Module.>
- Drive motor inverter amperage sensor: <Ref. to HEV-27, Drive Motor Inverter Current Sensor.>
- Electric noise filter: <Ref. to HEV-31, Noise Filter.>
- Hybrid powertrain control module: <Ref. to HEV-37, Hybrid Powertrain Control Module.>
- DC/DC converter: <Ref. to HEV-38, DC/DC Converter.>
- Inverter: <Ref. to HEV-42, Inverter.>
- Power cable: <Ref. to HEV-52, Power Cable.>
- High voltage battery cooling system: <Ref. to HEV-60, High Voltage Battery Cooling System.>
- Drive motor control module: <Ref. to HEV-74, Drive Motor Control Module.>
- Drive motor assembly: <Ref. to HEV-76, Drive Motor Assembly.>

# 4. Service Plug

## A: REMOVAL

**WARNING:**
**The hybrid system includes a high voltage circuit. Mishandling could cause accidents such as electric shock or leak. Always check "CAUTION (HYBRID SYSTEM)" and perform the proper operation. <Ref. to PC-7, CAUTION (HYBRID SYSTEM), Precaution.>**

**CAUTION:**
**Take the ignition key or access key out of the vehicle to avoid malfunctions of hybrid system.**
1) Disconnect the ground cable from battery. <Ref. to NT-5, BATTERY, NOTE, Note.>

NOTE:
For the 12 volt engine restart battery, disconnect the ground terminal from 12V engine restart battery sensor.
2) Remove the mat - rear floor CTR.
3) Remove the service disconnect plug.

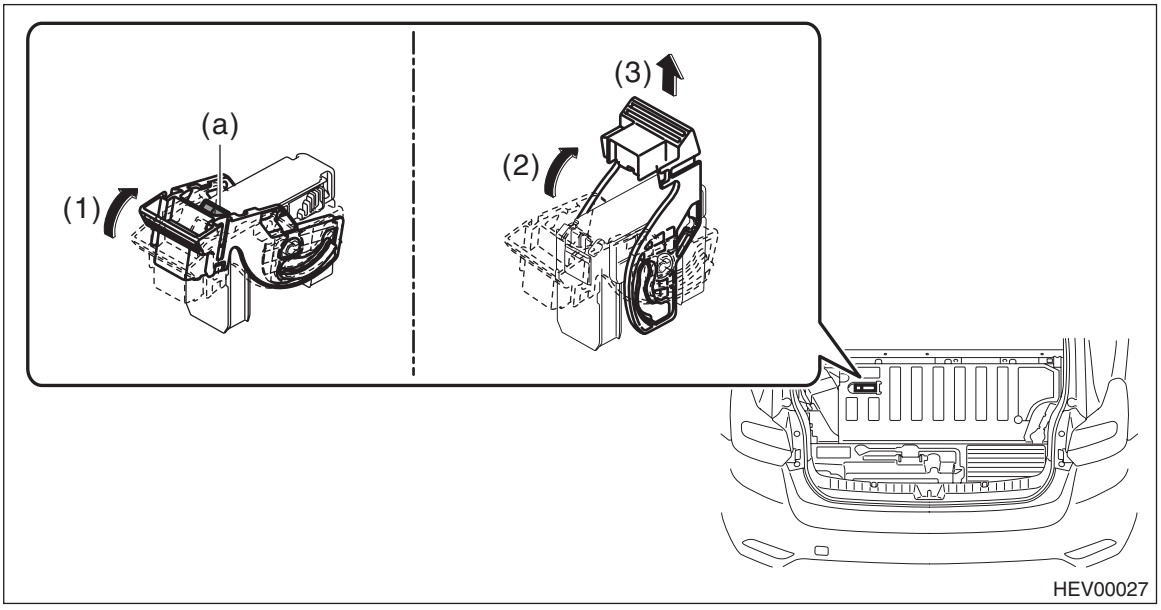
**WARNING:**
**• Carry the removed service disconnect plug in your pocket in order to prevent other engineers from accidentally installing the plug during work.**
**• After removal of the service disconnect plug, the condenser inside the inverter still have been charged to a high voltage. Wait for at least 10 minutes before handling the high voltage components, wiring, terminals or connectors.**

(1) Pull up the lever until it touches the stopper.
(2) Move the lever upwards while pressing the claw (a).

NOTE:
The lever locks in the vertical position.

(3) Pull out the service disconnect plug from high voltage battery.

**CAUTION:**
**After removing the service disconnect plug, cover the connection with a tape to protect from intrusion of foreign matter such as water or dusts.**



## B: INSTALLATION

**WARNING:**
**The hybrid system includes a high voltage circuit. Mishandling could cause accidents such as electric shock or leak. Always check "CAUTION (HYBRID SYSTEM)" and perform the proper operation. <Ref. to PC-7, CAUTION (HYBRID SYSTEM), Precaution.>**

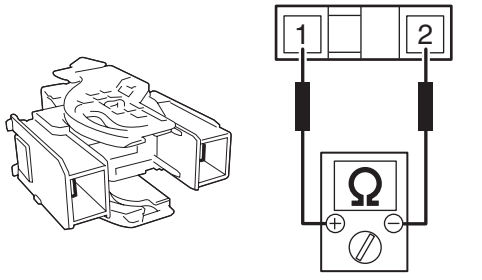
**CAUTION:**
**• Before attaching the service disconnect plug, make sure there are no tools left inside and also double check that the high voltage terminal is tight and the connectors are properly connected.**
**• Always replace faulty service disconnect plug with a new part.**
**• Always use the original service disconnect plug to install. Never use a service disconnect plug removed from another vehicle.**
Install each part in the reverse order of removal.

NOTE:
Move the lever to the horizontal position and push it until a click is heard and securely locked.

## C: INSPECTION

**UNIT INSPECTION**

***Preparation tool:***
***Circuit tester***
1) Measure the resistance between service disconnect plug terminals.

| Terminal No. | Inspection conditions | Standard | Connection diagram |
|---|---|---|---|
| 1 — 2 | Always | Less than 1 Ω |   HEV00028 |

2) If the service result is different from the standard value, replace the service disconnect plug.

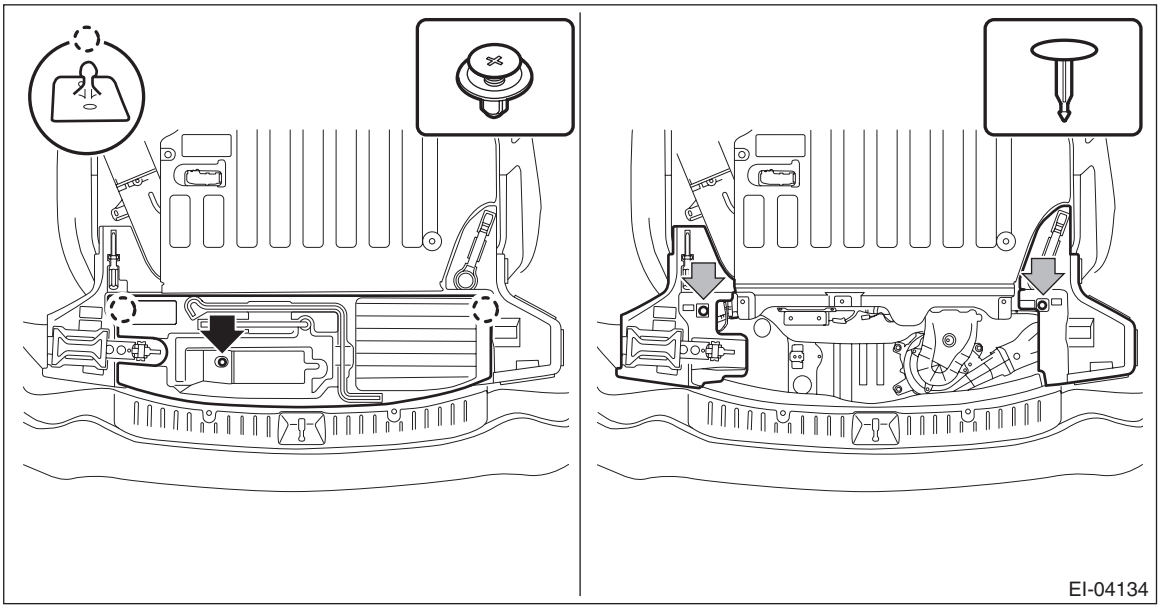
# 5. High Voltage Battery

## A: REMOVAL

**WARNING:**
**The hybrid system includes a high voltage circuit. Mishandling could cause accidents such as electric shock or leak. Always check "CAUTION (HYBRID SYSTEM)" and perform the proper operation. <Ref. to PC-7, CAUTION (HYBRID SYSTEM), Precaution.>**

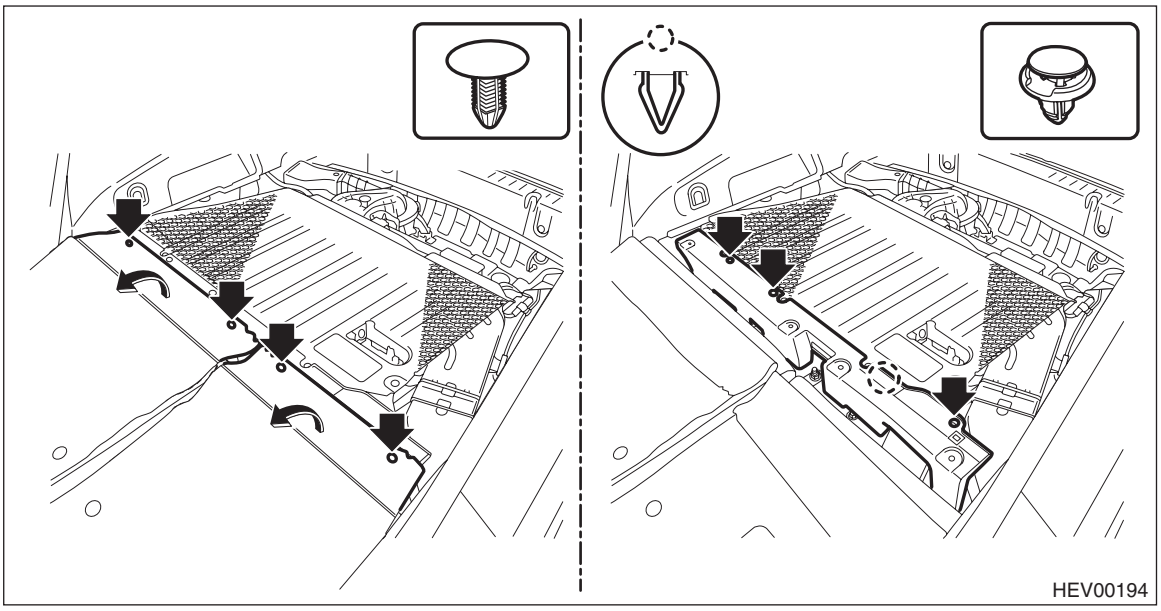
**CAUTION:**
**• Return the replaced high voltage battery to a qualified collection service for safety reasons. If you use manufacturer's designated channel, the battery will be handled properly and safely by a qualified collection service.**
**• If high voltage battery is not properly processed and disposed of or left unprocessed, it could cause electrical shock accidents. Always have the high voltage battery collected by the manufacturer.**
**• Do not leave the removed high voltage batteries in a place where water may splash. It could cause fire accidents.**

1) Remove the service disconnect plug. <Ref. to HEV-15, REMOVAL, Service Plug.>
2) Release the clips and claws, then detach the sub-trunk assembly and the spacer - rear floor side.



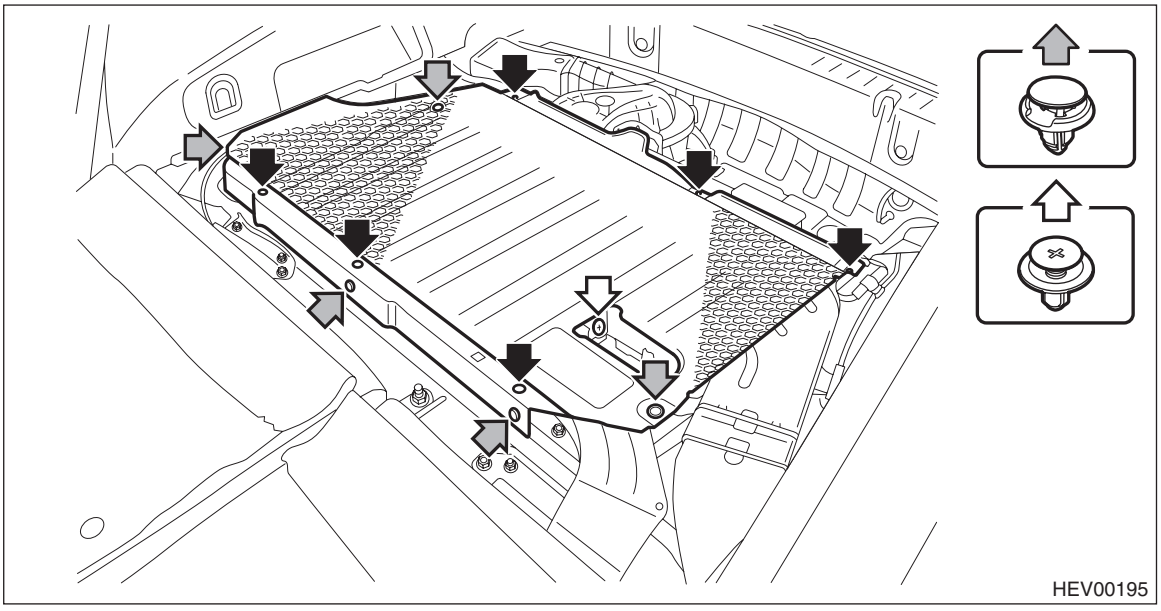

3) Remove the rear seat cushion and fold the backrest assemblies LH and RH. <Ref. to SE-23, REMOVAL, Rear Seat.>

4) Remove the spacer - rear floor front.
(1) Release the clips, and fold back the bottom of the cover COMPL - rear backrest LH and RH of the rear seat back.
(2) Release the clips and claws, then detach the spacer - rear floor front.

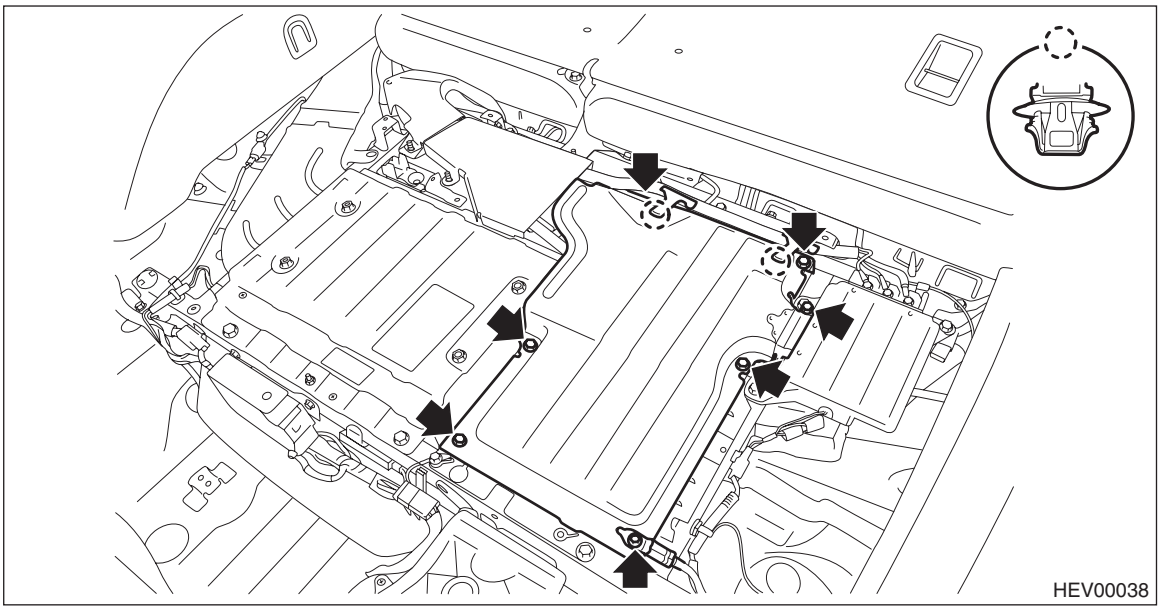



5) Remove the TORX®bolts, release the clips, and then remove the battery cover.

***Preparation tool:***
***TORX® T30***



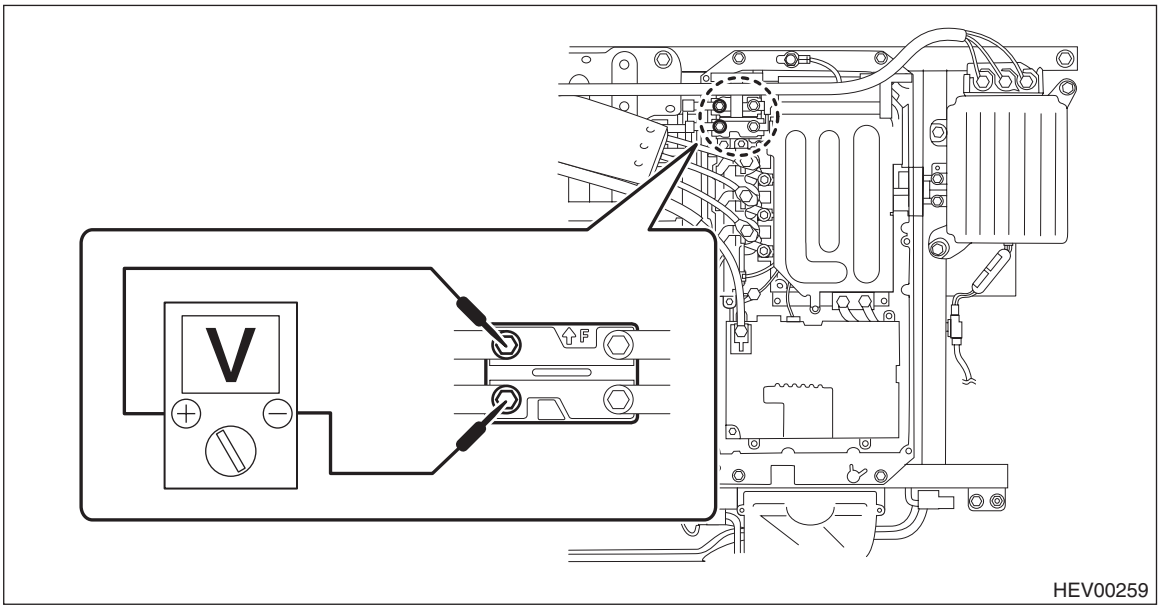
6) Remove the inverter cover.
   (1) Remove the bolts and ground terminal.
   (2) Release the cable clips, and remove the inverter cover.



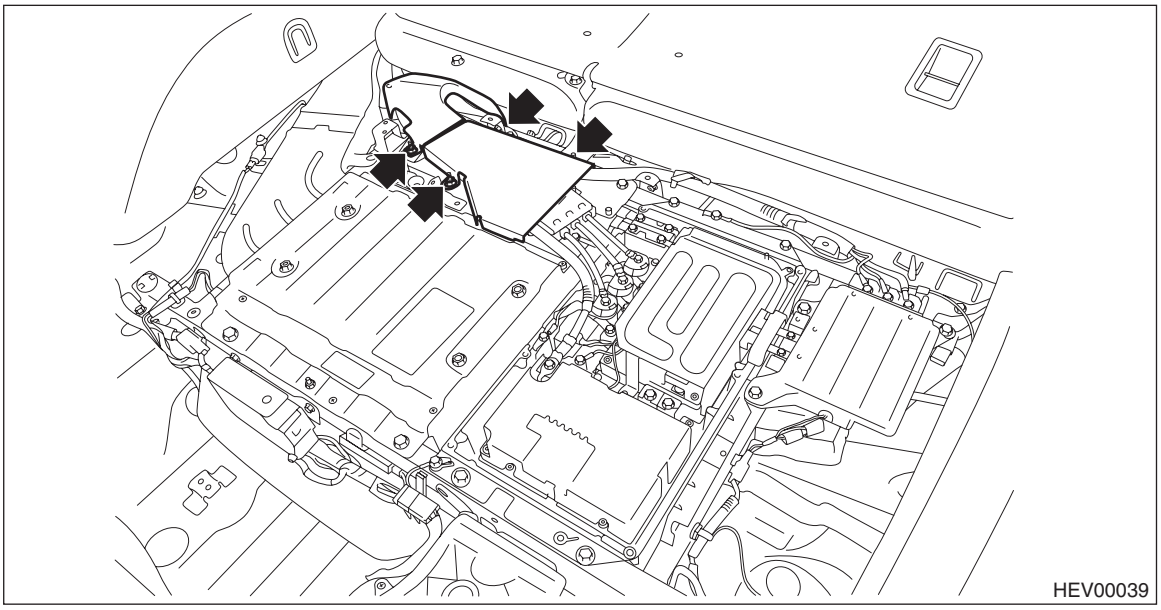

7) Perform zero-voltage test.
   (1) Measure the voltage of the high voltage DC line at the high voltage battery side of the electric noise filter.

***Preparation tool:***
***Insulation multimeter***

***Standard: 0 V***

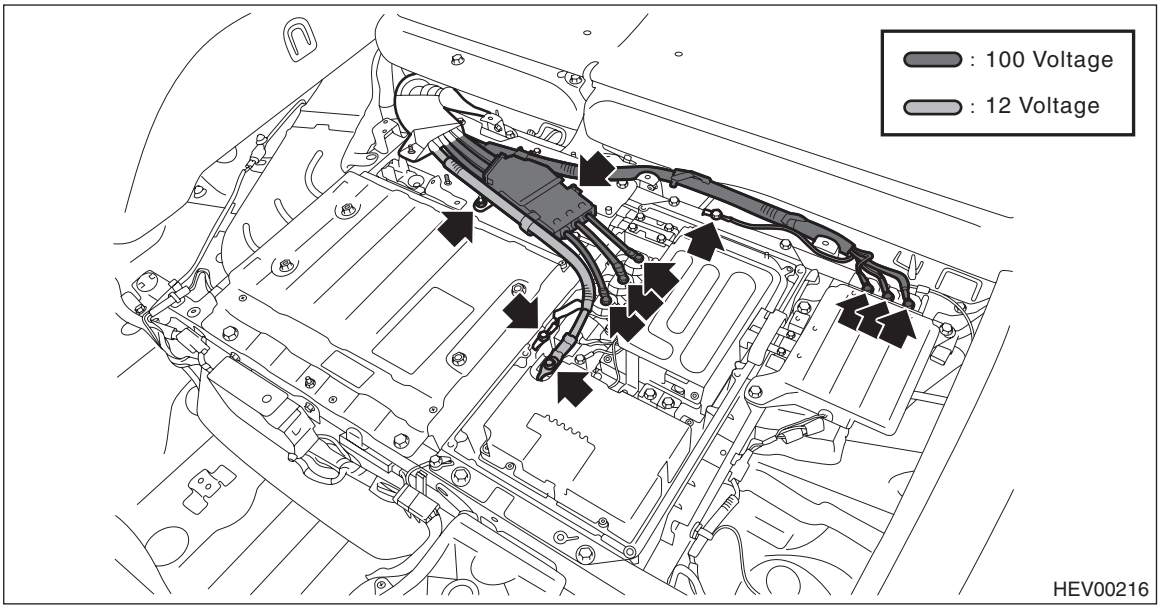


8) Remove the nut and remove the cover - shield battery and the cover - shield seat.




9) Remove the bolts and nuts and disconnect the ground terminal and the power cable.

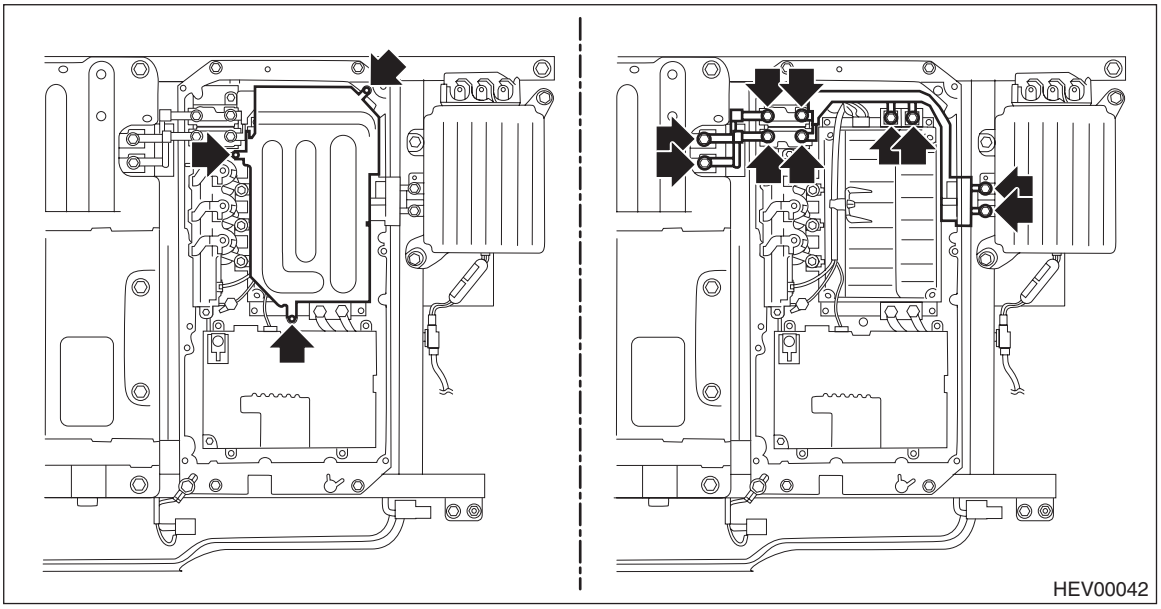
**CAUTION:**
- **Be careful not to use excessive force when disconnecting the power cable to avoid any damage.**
- **Always wrap the disconnected power cable terminals with insulating tape.**




10) Remove the cooling duct front (rear). <Ref. to HEV-62, COOLING DUCT FRONT (REAR), REMOVAL, High Voltage Battery Cooling System.>
11) Remove the cooling fan assembly. <Ref. to HEV-70, COOLING FAN ASSEMBLY, REMOVAL, High Voltage Battery Cooling System.>

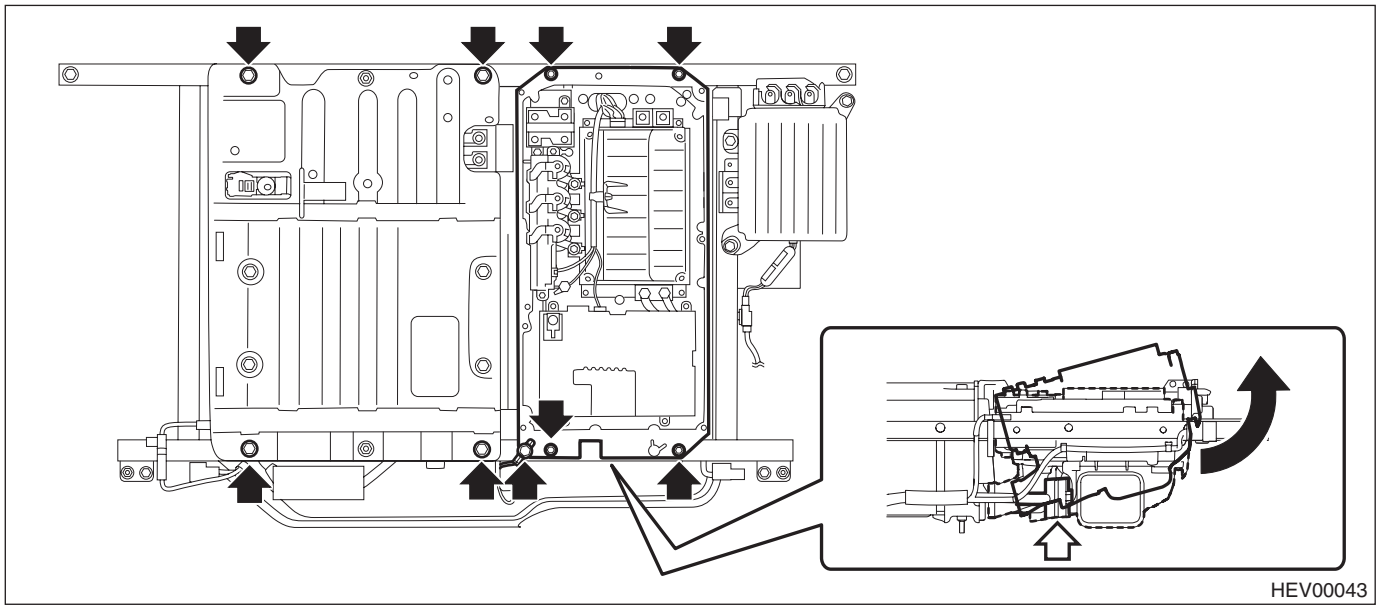
12) Remove the inverter assembly.
(1) Remove the bolts to remove the inverter shield.
(2) Remove the bolts and disconnect the bus bars between the high voltage battery and electric noise filter and between the electric noise filter and electric oil pump inverter respectively.

**CAUTION:**
**Always wrap the high voltage battery terminal with insulating tape.**




(3) Disconnect the connector.
(4) Remove all the mounting bolts of the high voltage battery to make the battery free.
(5) Remove the bolts, and then detach the ground terminal and the inverter assembly.

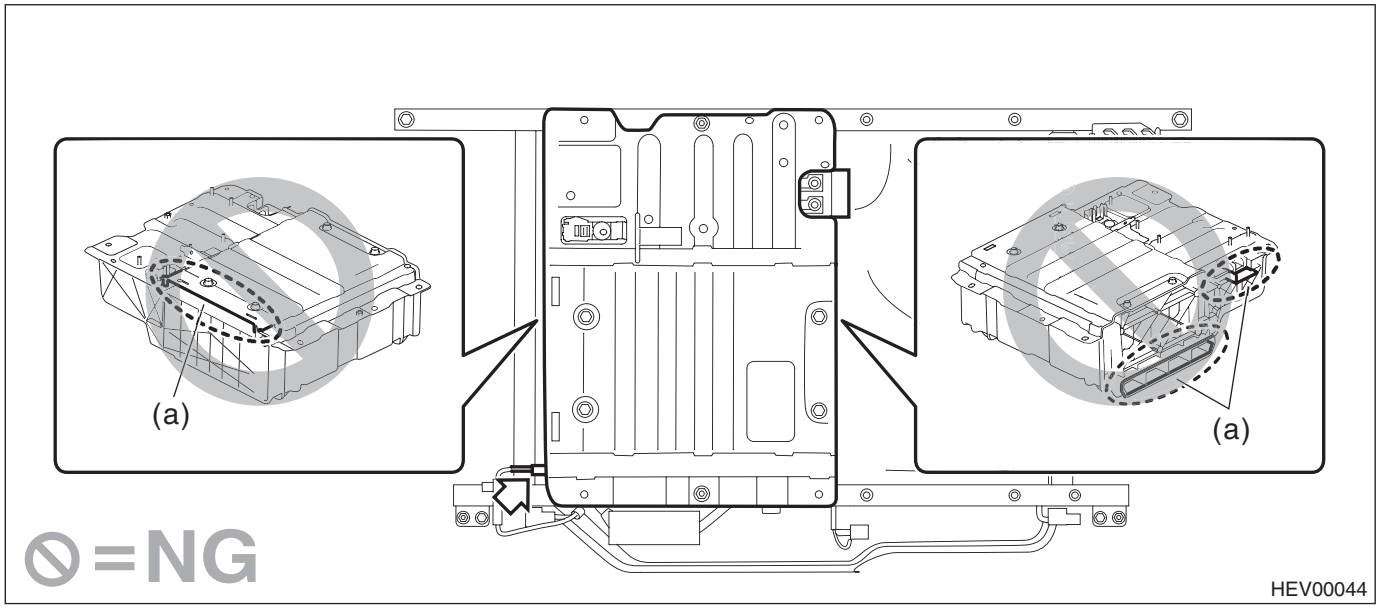
**CAUTION:**
**Be careful not to damage the duct seal located underneath the high voltage battery.**



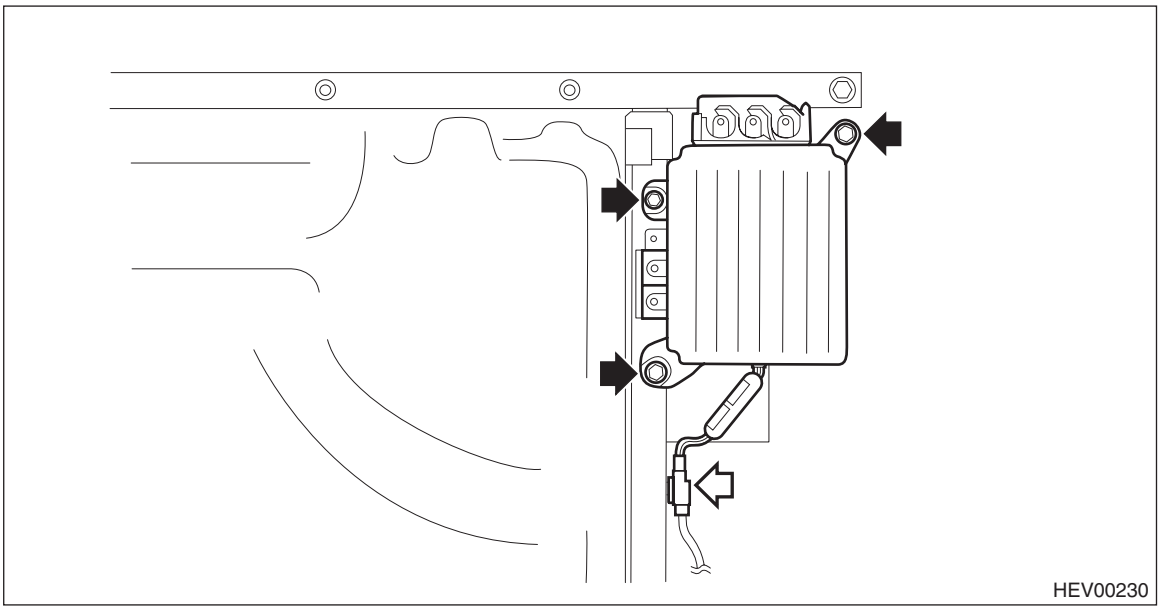
13) Remove the high voltage battery.

**CAUTION:**
**• Since the high voltage battery weighs a lot, do not hold it by the area (a). Otherwise it may break or deform. Also, two persons must work together when removing the high voltage battery.**
**• The high voltage battery is a non-disassembly part. Do not try to remove the cover or other parts for disassembly.**

(1) Disconnect the connector.
(2) Remove the high voltage battery from the high voltage battery frame assembly.

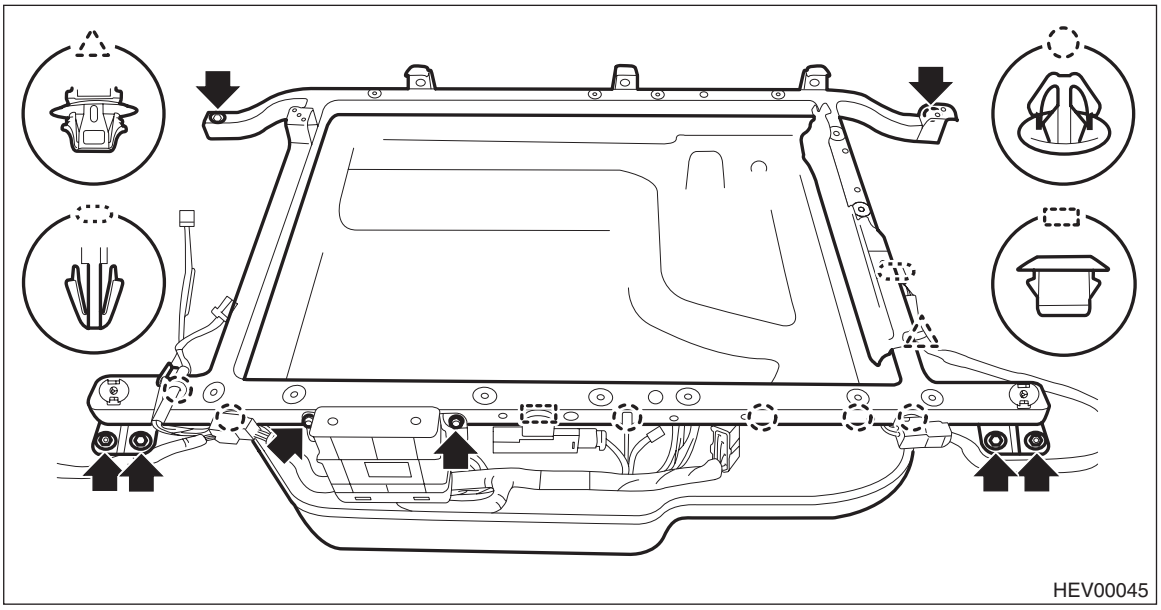



14) Remove the high voltage battery frame assembly.
(1) Remove the connectors and bolts, and remove the electric oil pump inverter.

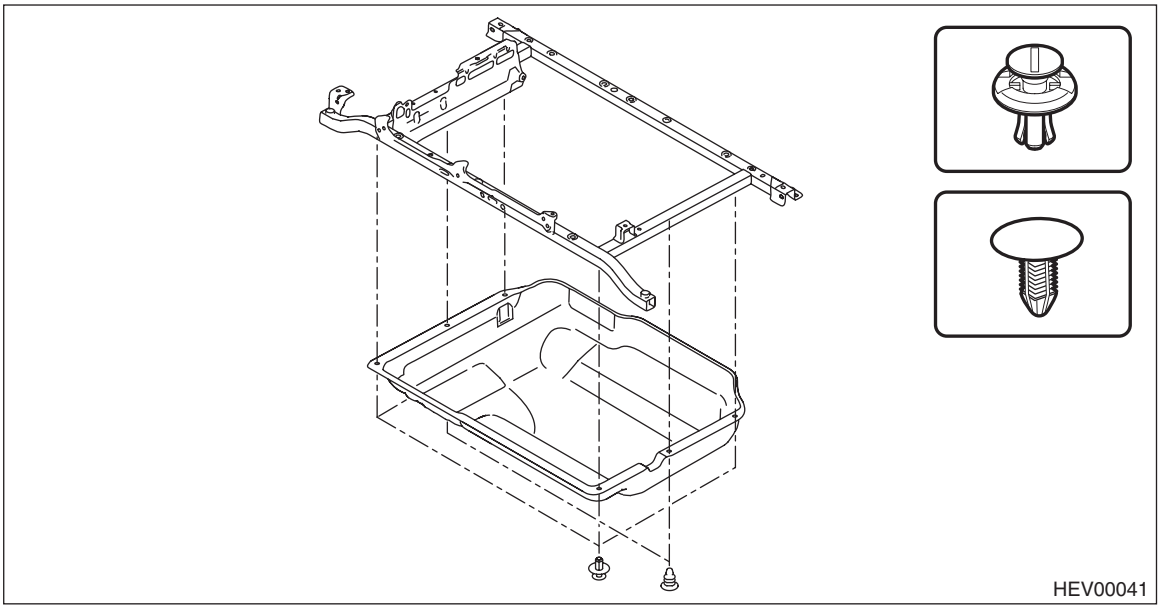



(2) Remove the connector clip and release the harness clip.

(3) Remove the bolts and nuts to remove the high voltage battery frame assembly from the vehicle.




(4) Release the clips, and remove the cover - battery LWR from the high voltage battery frame assembly.



## B: INSTALLATION

**WARNING:**
**The hybrid system includes a high voltage circuit. Mishandling could cause accidents such as electric shock or leak. Always check "CAUTION (HYBRID SYSTEM)" and perform the proper operation. <Ref. to PC-7, CAUTION (HYBRID SYSTEM), Precaution.>**

**CAUTION:**
**When replacing the high voltage battery with a new part, be sure to use the service disconnect plug bundled with the new battery. Also, never use the service disconnect plug from the old high voltage battery for another vehicle.**

1) Install the cover - battery LWR.
2) Install the high voltage battery frame assembly.

***Tightening torque:***
***24.5 N·m (2.5 kgf-m, 18.1 ft-lb)***

3) Install the electric oil pump inverter.

***Tightening torque:***
***22 N·m (2.2 kgf-m, 16.2 ft-lb)***

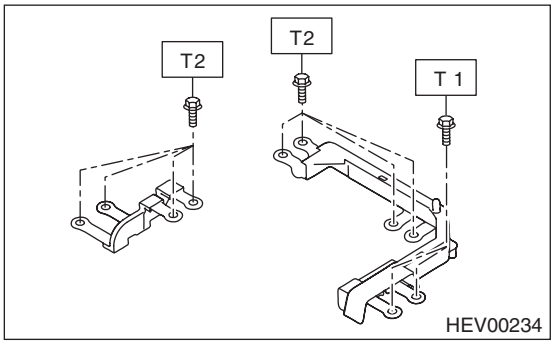
4) Mount the high voltage battery on the high voltage battery frame assembly, then install the inverter assembly.

**CAUTION:**
- **If the duct seal is damaged, replace it with a new part.**
- **Be sure that the high voltage battery is securely attached to the cooling duct inverter duct.**

***Tightening torque:***
***High voltage battery and inverter assembly: 22 N·m (2.2 kgf-m, 16.2 ft-lb)***
***Ground terminal: 6.5 N·m (0.7 kgf-m, 4.8 ft-lb)***

5) Connect the bus bar.

***Tightening torque:***
***T1: 6.5 N·m (0.7 kgf-m, 4.8 ft-lb)***
***T2: 7.5 N·m (0.8 kgf-m, 5.5 ft-lb)***




6) Install the inverter shield.

***Tightening torque:***
***6.5 N·m (0.7 kgf-m, 4.8 ft-lb)***

7) Install the cooling fan assembly. <Ref. to HEV-73, COOLING FAN ASSEMBLY, INSTALLATION, High Voltage Battery Cooling System.>
8) Install the cooling duct front (rear). <Ref. to HEV-71, COOLING DUCT FRONT (REAR), INSTALLATION, High Voltage Battery Cooling System.>

9) Connect the ground terminal and the power cable.

**CAUTION:**
**• When connecting the power cable, pay attention to the letters (U, V, and W) imprinted on the drive motor inverter amperage sensor body as well as on the protector of the power cable.**
**• Connect the power cable properly referring to the letters (U, V, and W) imprinted on the electric oil pump inverter body. The power cable with the identification tape is connected to (U) and the power cable with a claw is connected to (V).**
**• Do not apply excessive force to the terminals and watch to make sure the cable is not damaged or pinched.**

***Tightening torque:***
***7.5 N·m (0.8 kgf-m, 5.5 ft-lb)***
10) Install the cover - shield battery and the cover - shield seat.

***Tightening torque:***
***7.5 N·m (0.8 kgf-m, 5.5 ft-lb)***
11) Install the ground terminal and inverter cover.

**CAUTION:**
**Check that the sound proofing material on the inverter cover is not detached or damaged.**

***Tightening torque:***
***7.5 N·m (0.8 kgf-m, 5.5 ft-lb)***
12) Install the battery cover.

***Tightening torque:***
***7.5 N·m (0.8 kgf-m, 5.5 ft-lb)***
13) Install the spacer - rear floor front.
14) Install the rear seat cushion. <Ref. to SE-27, INSTALLATION, Rear Seat.>
15) Install the sub-trunk assembly and the spacer - rear floor side.
16) Install the service disconnect plug. <Ref. to HEV-16, INSTALLATION, Service Plug.>

## C: INSPECTION

1) Check that the high voltage battery has no deformation, cracks or other damages. <Ref. to PC-14, PRECAUTION FOR HIGH VOLTAGE BATTERY, CAUTION (HYBRID SYSTEM), Precaution.>
2) Connect the Subaru Select Monitor, and read the Diagnostic Trouble Code (DTC). If any diagnosis code (DTC) is displayed, refer to “List of Diagnostic Trouble Code (DTC)” in “HYBRID ELECTRIC VEHICLE (DIAGNOSTICS)” section. <Ref. to HEV(diag)-74, List of Diagnostic Trouble Code (DTC).>

# 6. Battery Energy Control Module

## A: NOTE

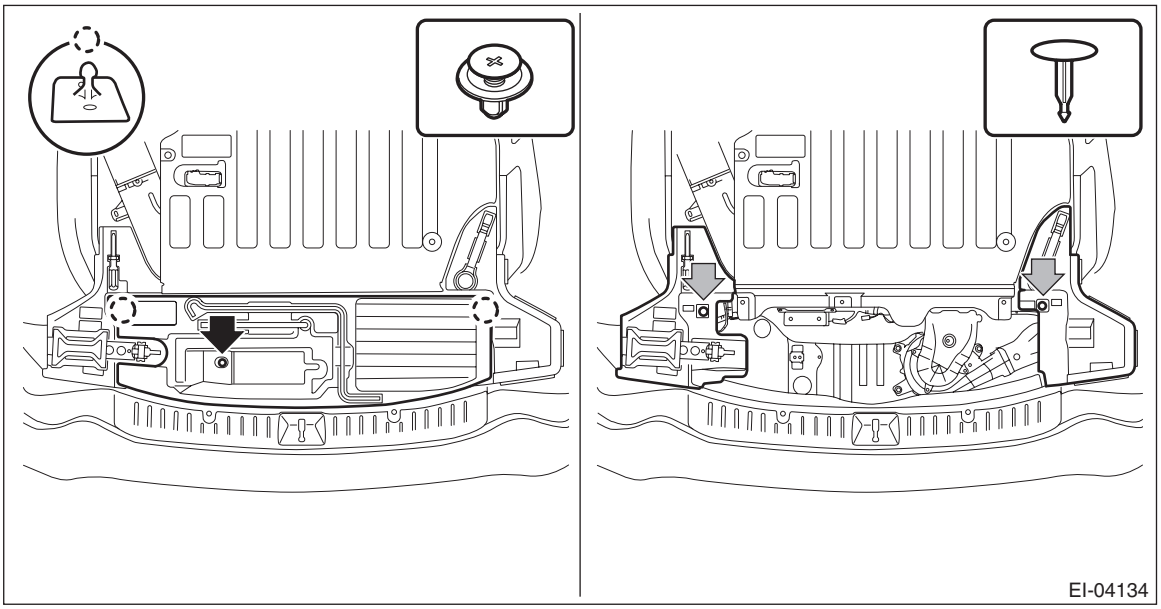
The battery energy control module is integral part of the high voltage battery. Refer to “High Voltage Battery” section for the work procedures. <Ref. to HEV-17, High Voltage Battery.>

# 7. Drive Motor Inverter Current Sensor

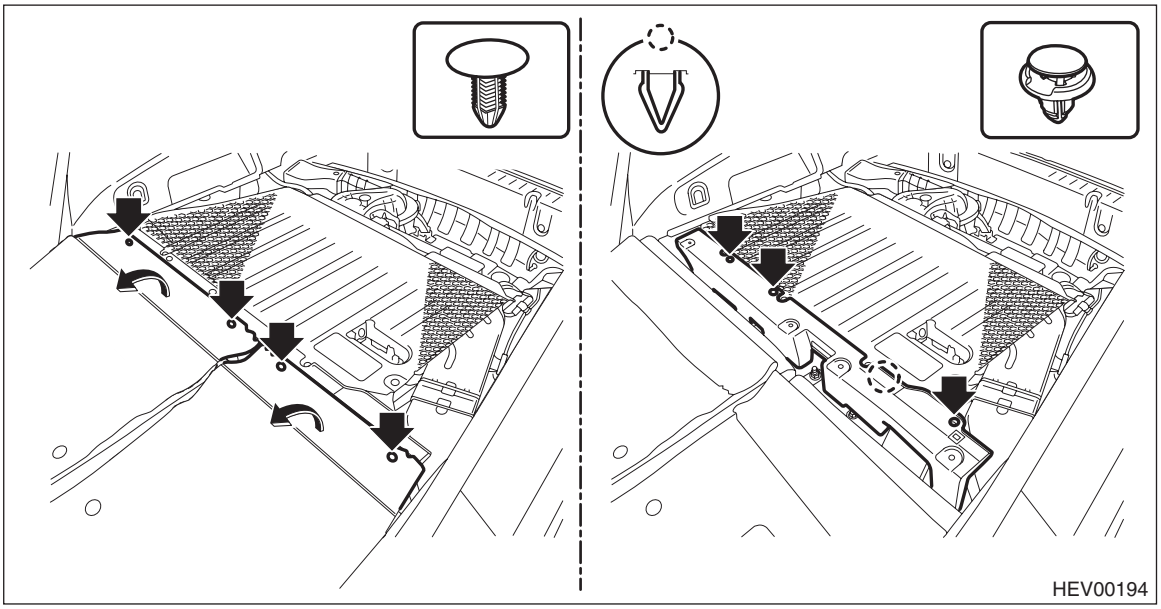
## A: REMOVAL

**WARNING:**
**The hybrid system includes a high voltage circuit. Mishandling could cause accidents such as electric shock or leak. Always check "CAUTION (HYBRID SYSTEM)" and perform the proper operation. <Ref. to PC-7, CAUTION (HYBRID SYSTEM), Precaution.>**

1) Remove the service disconnect plug. <Ref. to HEV-15, REMOVAL, Service Plug.>
2) Release the clips and claws, then detach the sub-trunk assembly and the spacer - rear floor side.

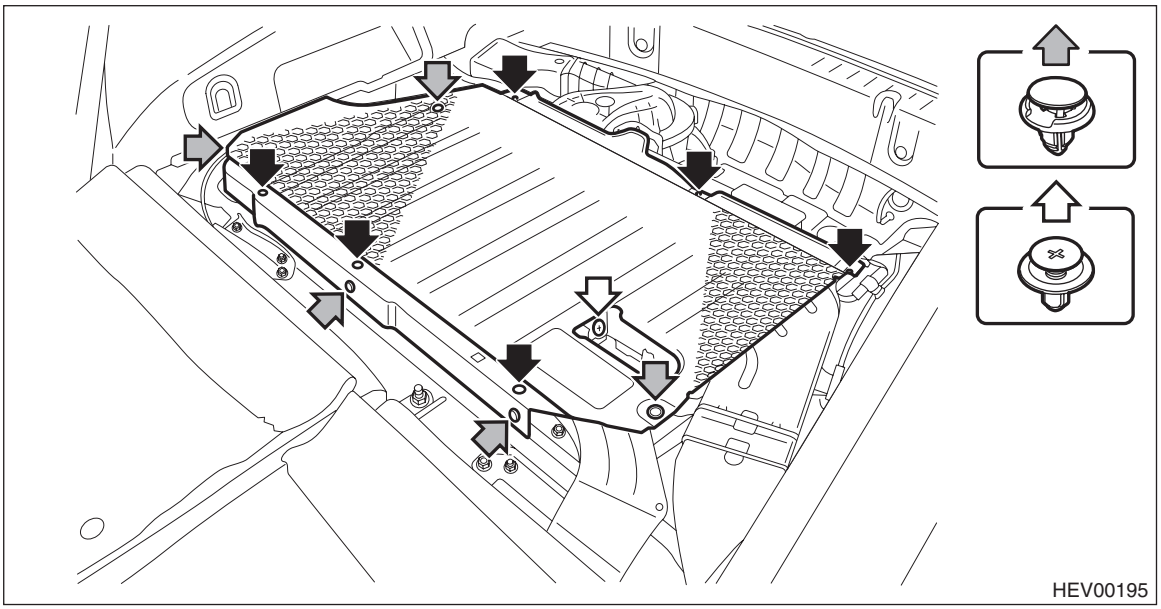



3) Remove the rear seat cushion and fold the backrest assemblies LH and RH. <Ref. to SE-23, REMOVAL, Rear Seat.>
4) Remove the spacer - rear floor front.
   (1) Release the clips, and fold back the bottom of the cover COMPL - rear backrest LH and RH of the rear seat back.
   (2) Release the clips and claws, then detach the spacer - rear floor front.

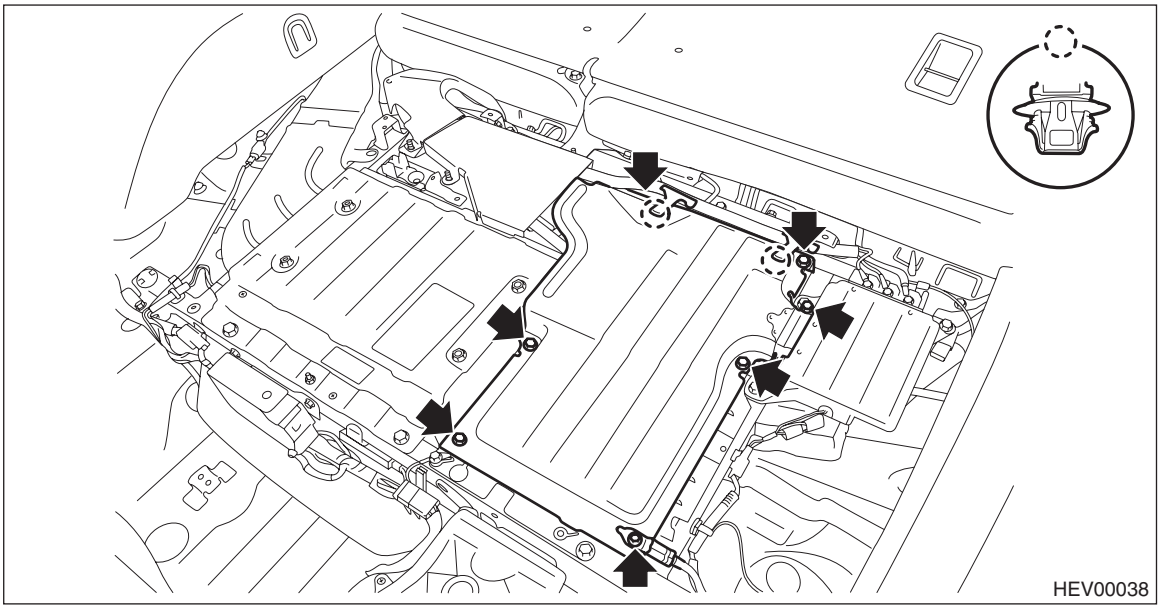


5) Remove the TORX® bolts, release the clips, and then remove the battery cover.

***Preparation tool:***
***TORX® T30***



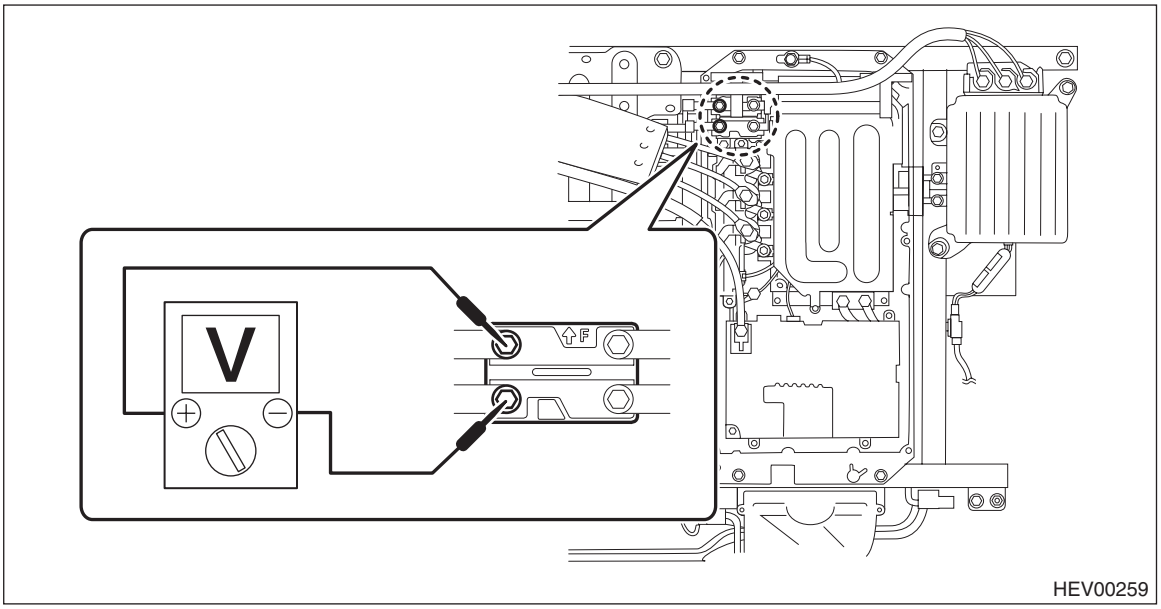

6) Remove the inverter cover.
(1) Remove the bolts and ground terminal.
(2) Release the cable clips, and remove the inverter cover.



7) Perform zero-voltage test.
(1) Measure the voltage of the high voltage DC line at the high voltage battery side of the electric noise filter.

***Preparation tool:***
***Insulation multimeter***

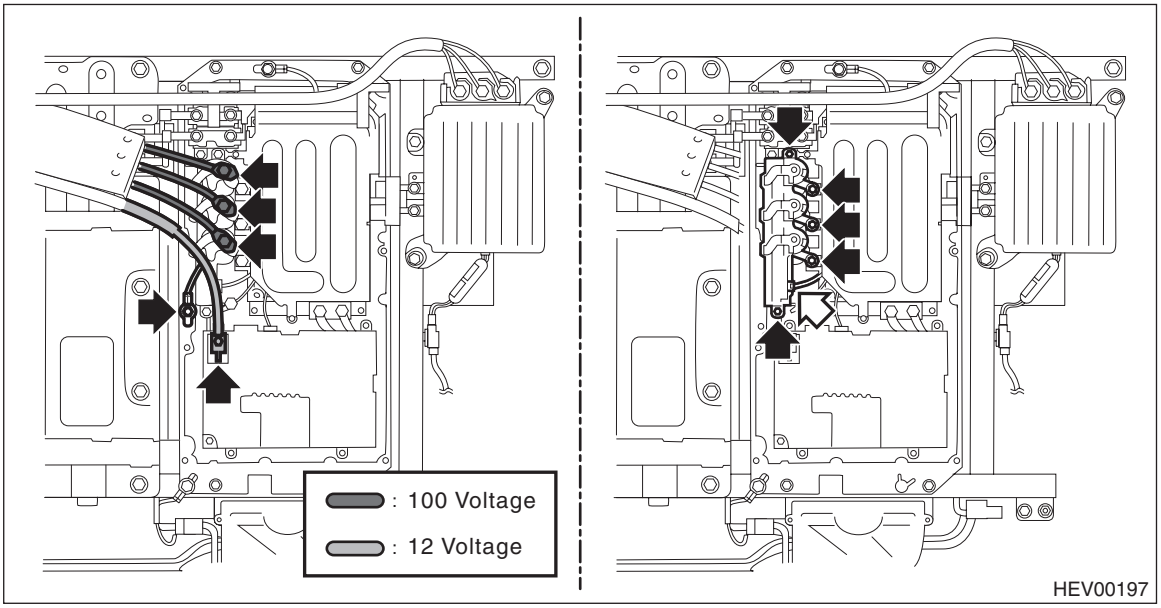
***Standard: 0 V***




8) Remove the drive motor inverter amperage sensor.

**CAUTION:**
- **Be careful not to use excessive force when disconnecting the power cable to avoid any damage.**
- **Always wrap the disconnected power cable terminals with insulating tape.**

(1) Remove the bolts and disconnect the ground terminal and the power cable.
(2) Remove the connectors and bolts, and remove the drive motor inverter amperage sensor.




(3) Remove the bus bar from the drive motor inverter amperage sensor.

## B: INSTALLATION

**WARNING:**
**The hybrid system includes a high voltage circuit. Mishandling could cause accidents such as electric shock or leak. Always check "CAUTION (HYBRID SYSTEM)" and perform the proper operation. <Ref. to PC-7, CAUTION (HYBRID SYSTEM), Precaution.>**

1) Install the drive motor inverter amperage sensor.

***Tightening torque:***
***6.5 N·m (0.7 kgf-m, 4.8 ft-lb)***

2) Connect the ground terminal and the power cable.

**CAUTION:**
**• When connecting the power cable, pay attention to the letters (U, V, and W) imprinted on the drive motor inverter amperage sensor body as well as on the protector of the power cable.**
**• Do not apply excessive force to the terminals and watch to make sure the cable is not damaged or pinched.**

***Tightening torque:***
***7.5 N·m (0.8 kgf-m, 5.5 ft-lb)***

3) Install the ground terminal and inverter cover.

**CAUTION:**
**Check that the sound proofing material on the inverter cover is not detached or damaged.**

***Tightening torque:***
***7.5 N·m (0.8 kgf-m, 5.5 ft-lb)***

4) Install the battery cover.

***Tightening torque:***
***7.5 N·m (0.8 kgf-m, 5.5 ft-lb)***

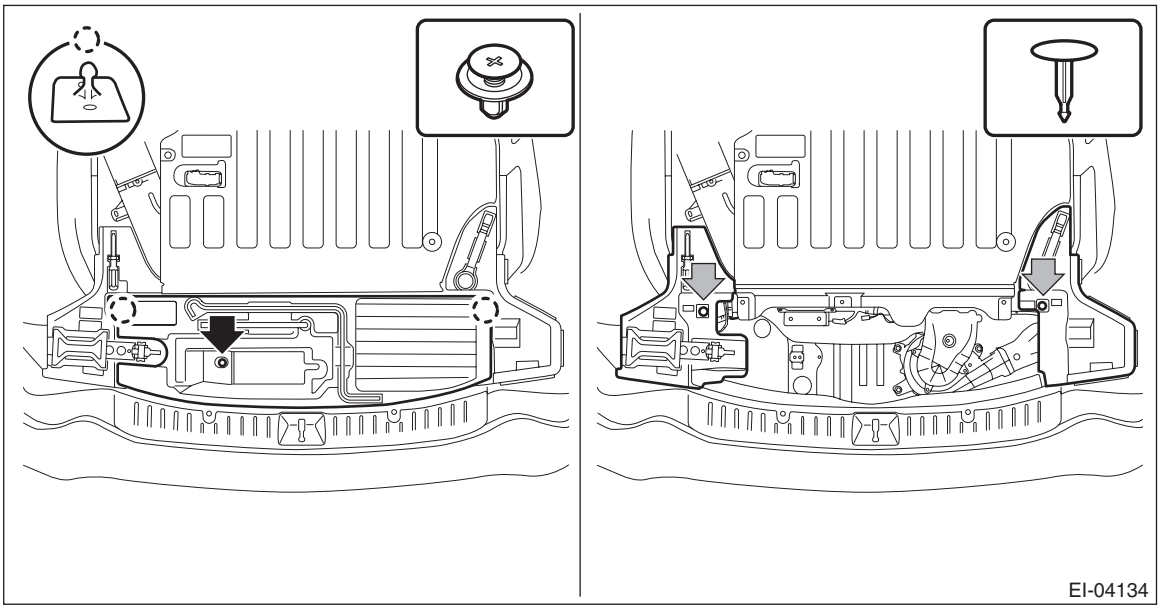
5) Install the spacer - rear floor front.
6) Install the rear seat cushion. <Ref. to SE-27, INSTALLATION, Rear Seat.>
7) Install the sub-trunk assembly and the spacer - rear floor side.
8) Install the service disconnect plug. <Ref. to HEV-16, INSTALLATION, Service Plug.>

# 8. Noise Filter

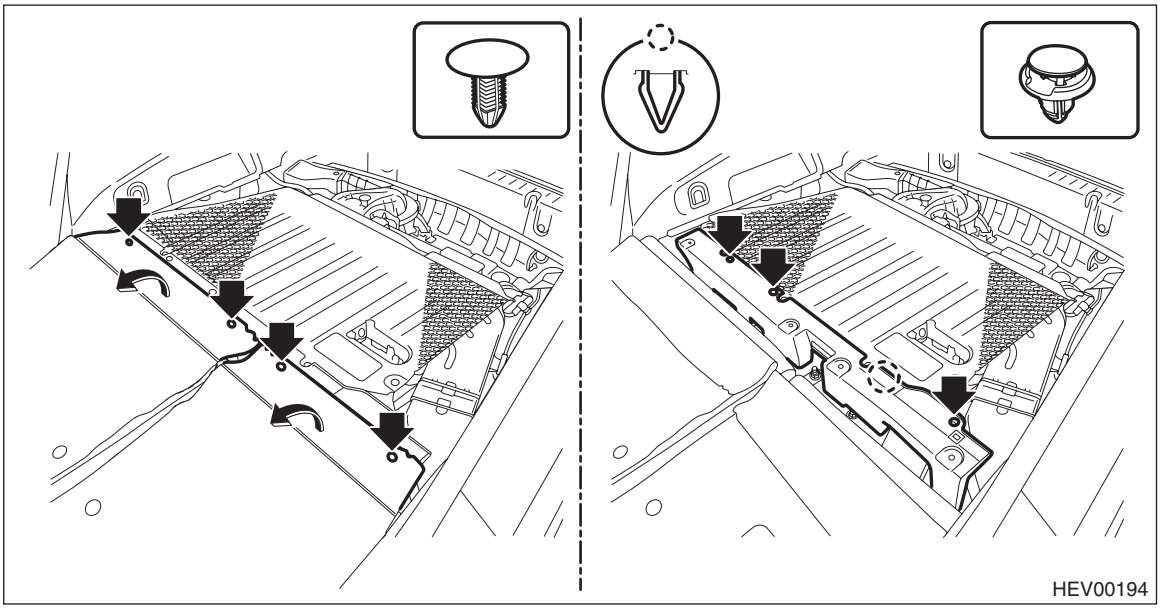
## A: REMOVAL

**WARNING:**
**The hybrid system includes a high voltage circuit. Mishandling could cause accidents such as electric shock or leak. Always check "CAUTION (HYBRID SYSTEM)" and perform the proper operation. <Ref. to PC-7, CAUTION (HYBRID SYSTEM), Precaution.>**

1) Remove the service disconnect plug. <Ref. to HEV-15, REMOVAL, Service Plug.>
2) Release the clips and claws, then detach the sub-trunk assembly and the spacer - rear floor side.

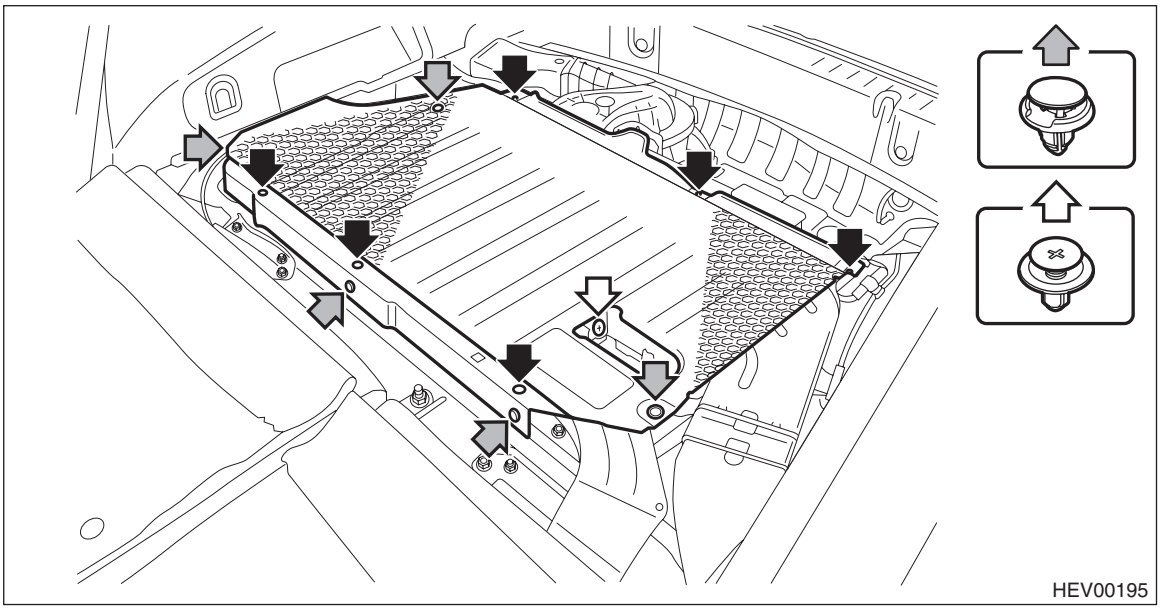



3) Remove the rear seat cushion and fold the backrest assemblies LH and RH. <Ref. to SE-23, REMOVAL, Rear Seat.>
4) Remove the spacer - rear floor front.
   (1) Release the clips, and fold back the bottom of the cover COMPL - rear backrest LH and RH of the rear seat back.
   (2) Release the clips and claws, then detach the spacer - rear floor front.

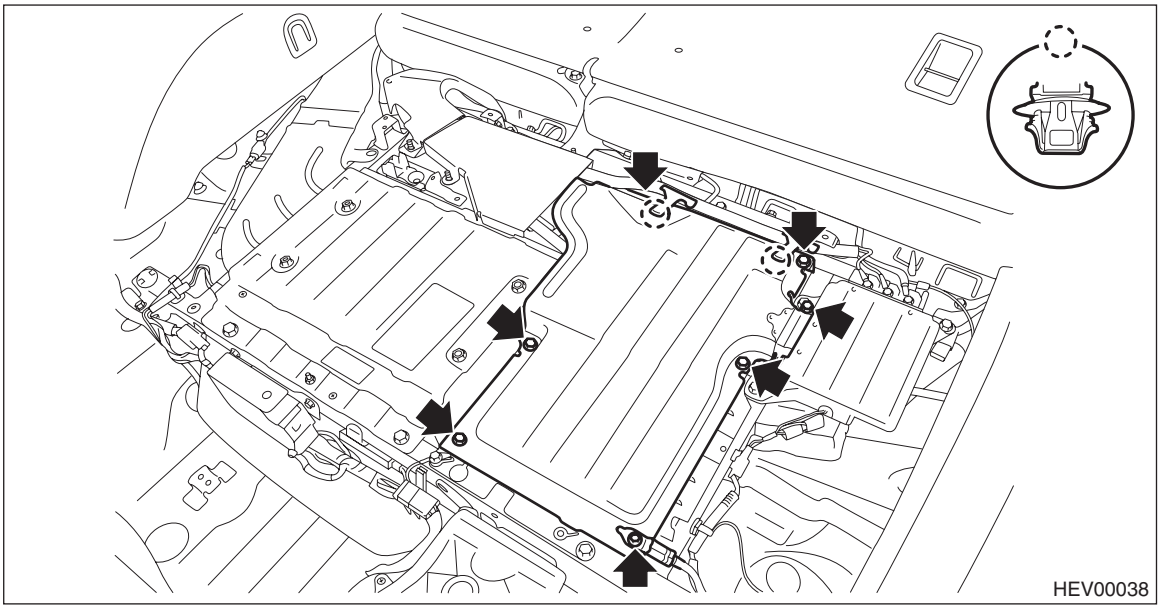


5) Remove the TORX® bolts, release the clips, and then remove the battery cover.

***Preparation tool:***
***TORX® T30***



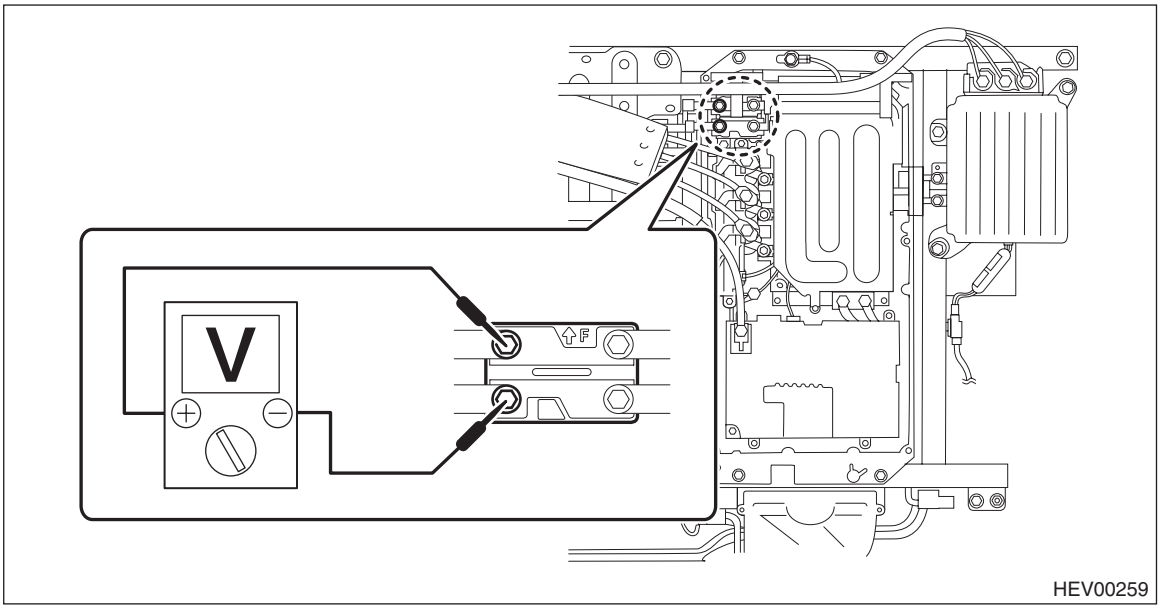

6) Remove the inverter cover.
(1) Remove the bolts and ground terminal.
(2) Release the cable clips, and remove the inverter cover.



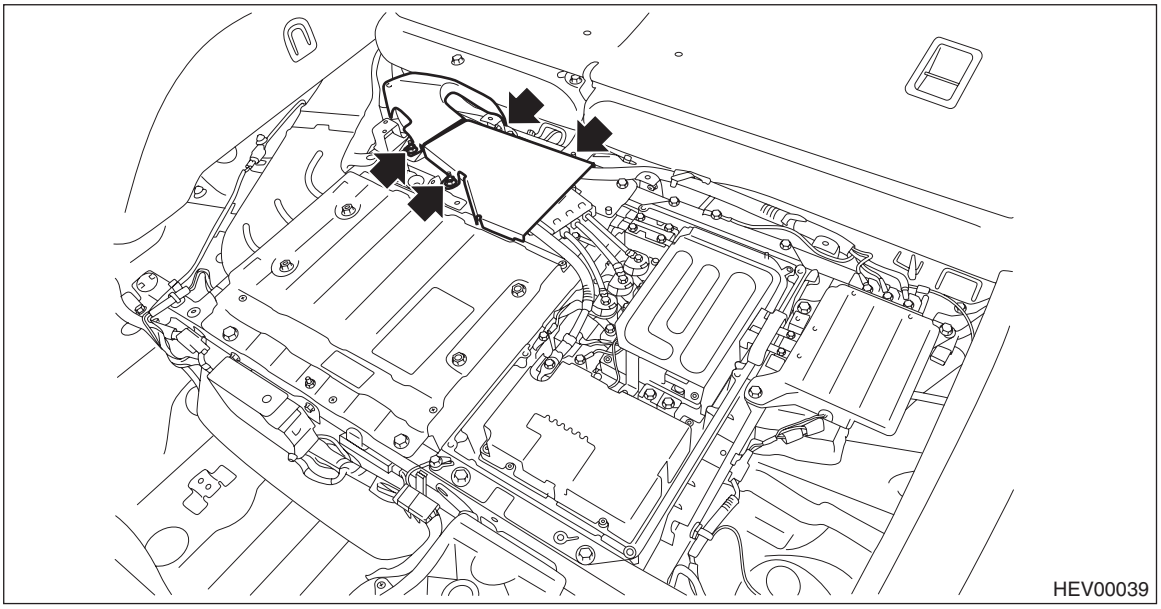
7) Perform zero-voltage test.
(1) Measure the voltage of the high voltage DC line at the high voltage battery side of the electric noise filter.

***Preparation tool:***
***Insulation multimeter***

***Standard: 0 V***

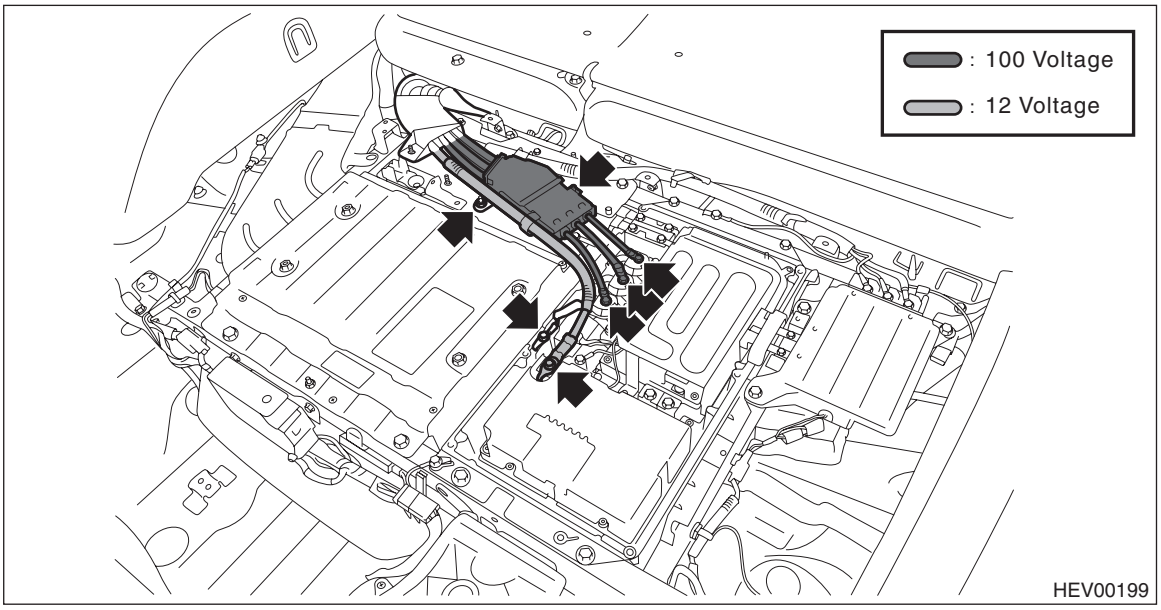



8) Remove the nut and remove the cover - shield battery and the cover - shield seat.



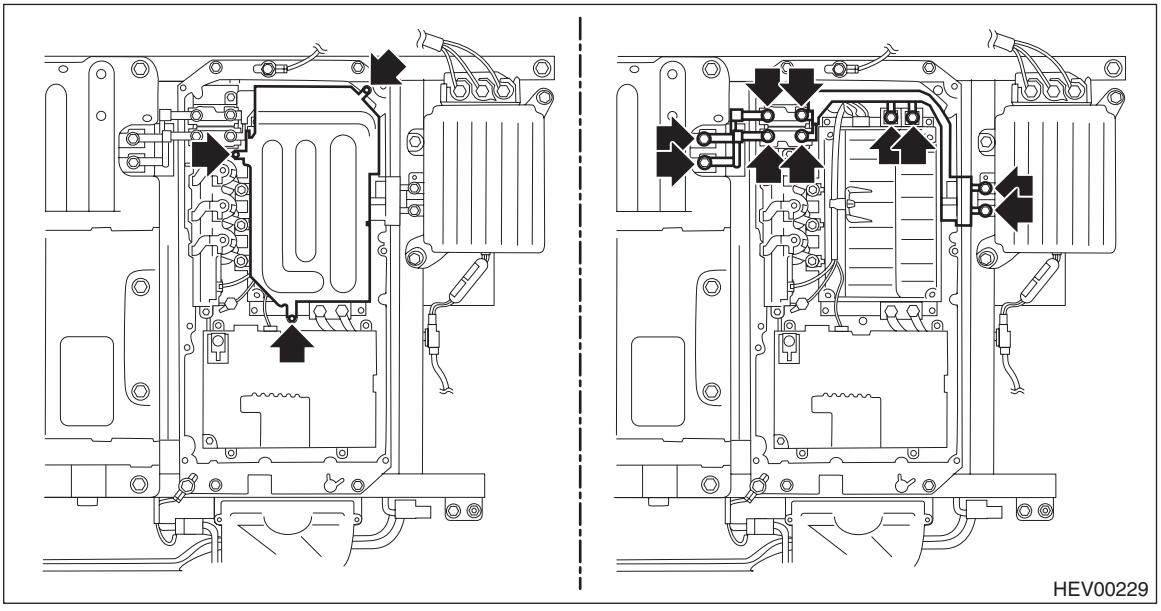
9) Remove the bolts and nuts and disconnect the ground terminal and the power cable.

**CAUTION:**
- **Be careful not to use excessive force when disconnecting the power cable to avoid any damage.**
- **Always wrap the disconnected power cable terminals with insulating tape.**

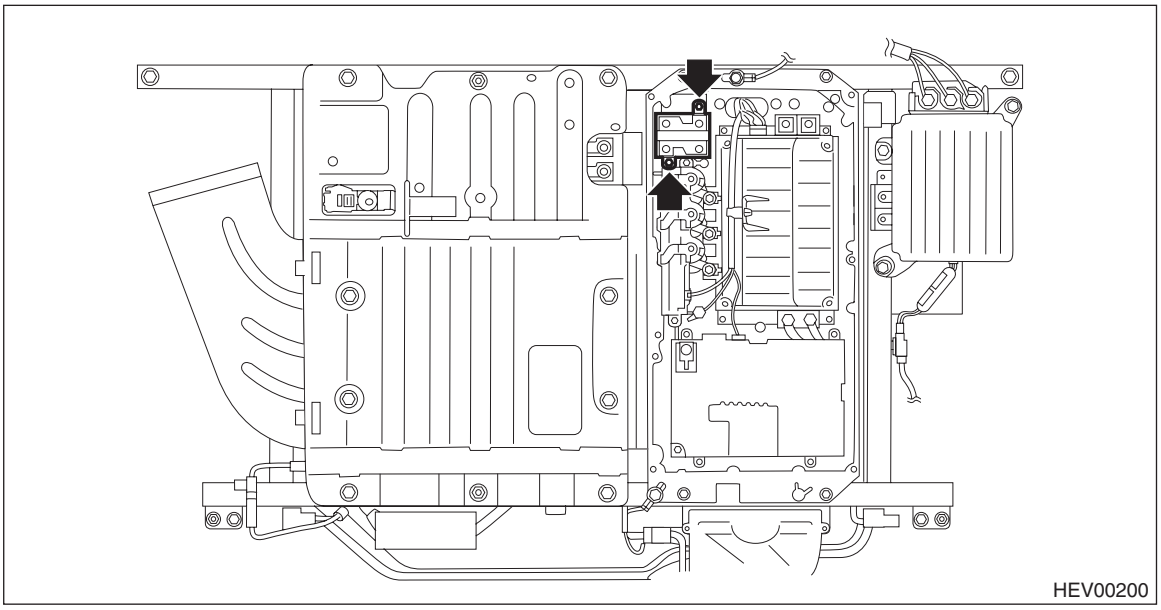



10) Remove the electric noise filter.
(1) Remove the bolts to remove the inverter shield.
(2) Remove the bolts and disconnect the bus bars between the high voltage battery and electric noise filter and between the electric noise filter and electric oil pump inverter respectively.

**CAUTION:**
**Always wrap the high voltage battery terminal with insulating tape.**



(3) Remove the bolts, and then remove the electric noise filter.




## B: INSTALLATION

**WARNING:**
**The hybrid system includes a high voltage circuit. Mishandling could cause accidents such as electric shock or leak. Always check "CAUTION (HYBRID SYSTEM)" and perform the proper operation. <Ref. to PC-7, CAUTION (HYBRID SYSTEM), Precaution.>**

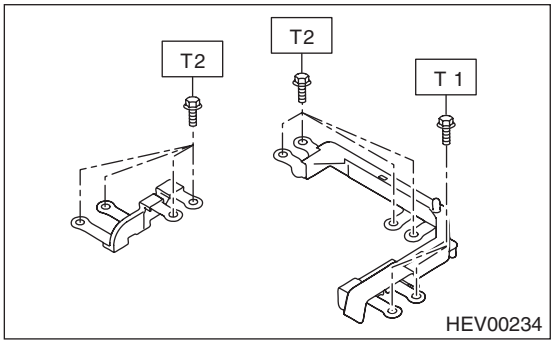
1) Install the electric noise filter.

NOTE:
The "F" mark of the electric noise filter should face toward the front of the vehicle when installed.

***Tightening torque:***
***6.5 N·m (0.7 kgf-m, 4.8 ft-lb)***

2) Connect the bus bar.

***Tightening torque:***
***T1: 6.5 N·m (0.7 kgf-m, 4.8 ft-lb)***
***T2: 7.5 N·m (0.8 kgf-m, 5.5 ft-lb)***




3) Install the inverter shield.

***Tightening torque:***
***6.5 N·m (0.7 kgf-m, 4.8 ft-lb)***

4) Connect the ground terminal and the power cable.

**CAUTION:**
**• When connecting the power cable, pay attention to the letters (U, V, and W) imprinted on the drive motor inverter amperage sensor body as well as on the protector of the power cable.**
**• Do not apply excessive force to the terminals and watch to make sure the cable is not damaged or pinched.**

***Tightening torque:***
***7.5 N·m (0.8 kgf-m, 5.5 ft-lb)***
5) Install the cover - shield battery and the cover - shield seat.

***Tightening torque:***
***7.5 N·m (0.8 kgf-m, 5.5 ft-lb)***
6) Install the ground terminal and inverter cover.

**CAUTION:**
**Check that the sound proofing material on the inverter cover is not detached or damaged.**

***Tightening torque:***
***7.5 N·m (0.8 kgf-m, 5.5 ft-lb)***
7) Install the battery cover.

***Tightening torque:***
***7.5 N·m (0.8 kgf-m, 5.5 ft-lb)***
8) Install the spacer - rear floor front.
9) Install the rear seat cushion. <Ref. to SE-27, INSTALLATION, Rear Seat.>
10) Install the sub-trunk assembly and the spacer - rear floor side.
11) Install the service disconnect plug. <Ref. to HEV-16, INSTALLATION, Service Plug.>

# 9. Hybrid Powertrain Control Module

## A: NOTE

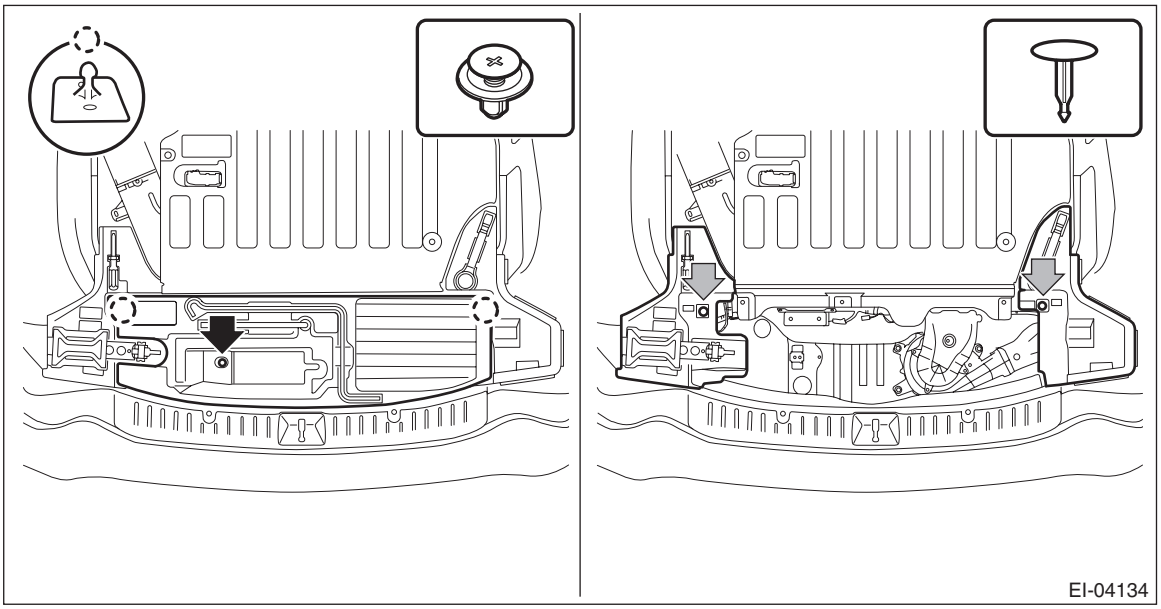
The hybrid powertrain control module is fixed to the engine control module (ECM) bracket. For operation procedures, refer to “FUEL INJECTION (FUEL SYSTEMS)” section. <Ref. to FU(H4DO(HEV))-85, Engine Control Module (ECM).>

# 10.DC/DC Converter

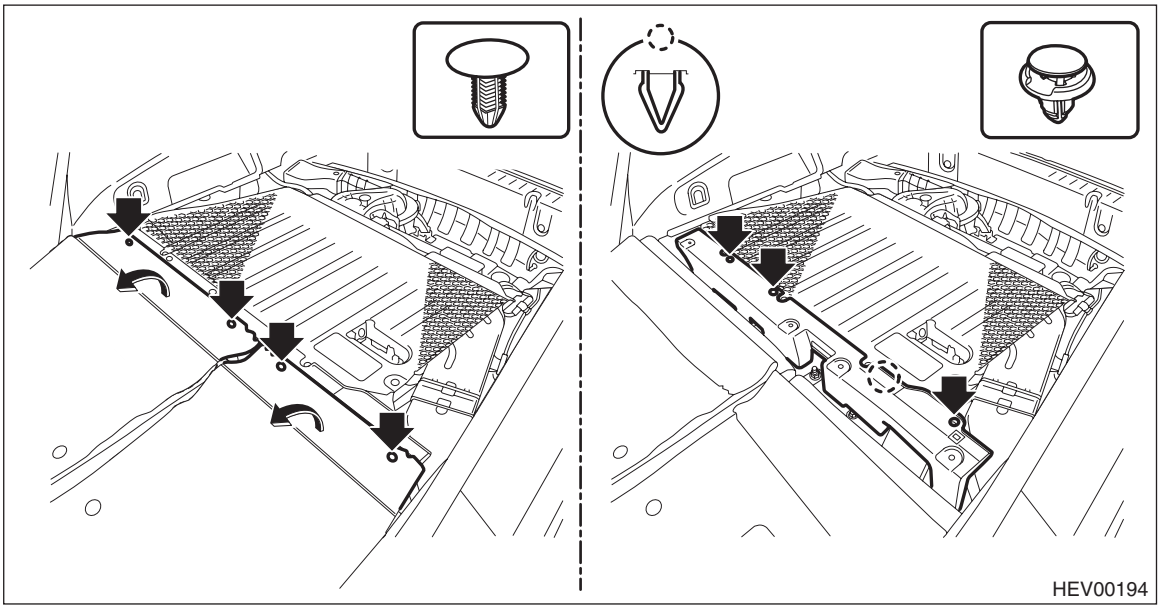
## A: REMOVAL

**WARNING:**
**The hybrid system includes a high voltage circuit. Mishandling could cause accidents such as electric shock or leak. Always check "CAUTION (HYBRID SYSTEM)" and perform the proper operation. <Ref. to PC-7, CAUTION (HYBRID SYSTEM), Precaution.>**

1) Remove the service disconnect plug. <Ref. to HEV-15, REMOVAL, Service Plug.>
2) Release the clips and claws, then detach the sub-trunk assembly and the spacer - rear floor side.

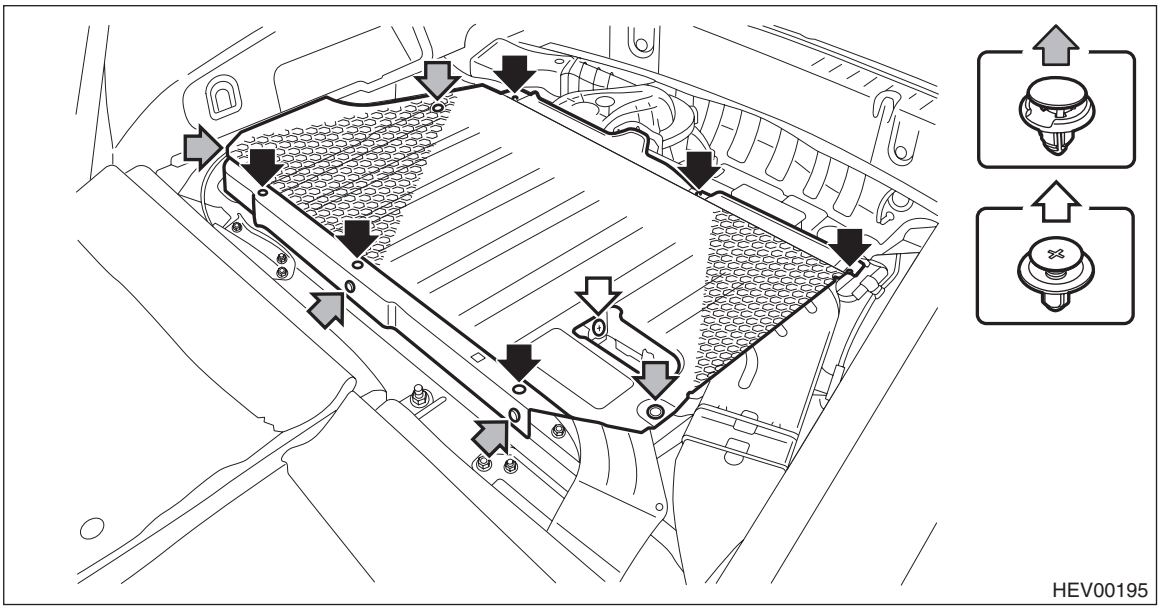



3) Remove the rear seat cushion and fold the backrest assemblies LH and RH. <Ref. to SE-23, REMOVAL, Rear Seat.>
4) Remove the spacer - rear floor front.
   (1) Release the clips, and fold back the bottom of the cover COMPL - rear backrest LH and RH of the rear seat back.
   (2) Release the clips and claws, then detach the spacer - rear floor front.

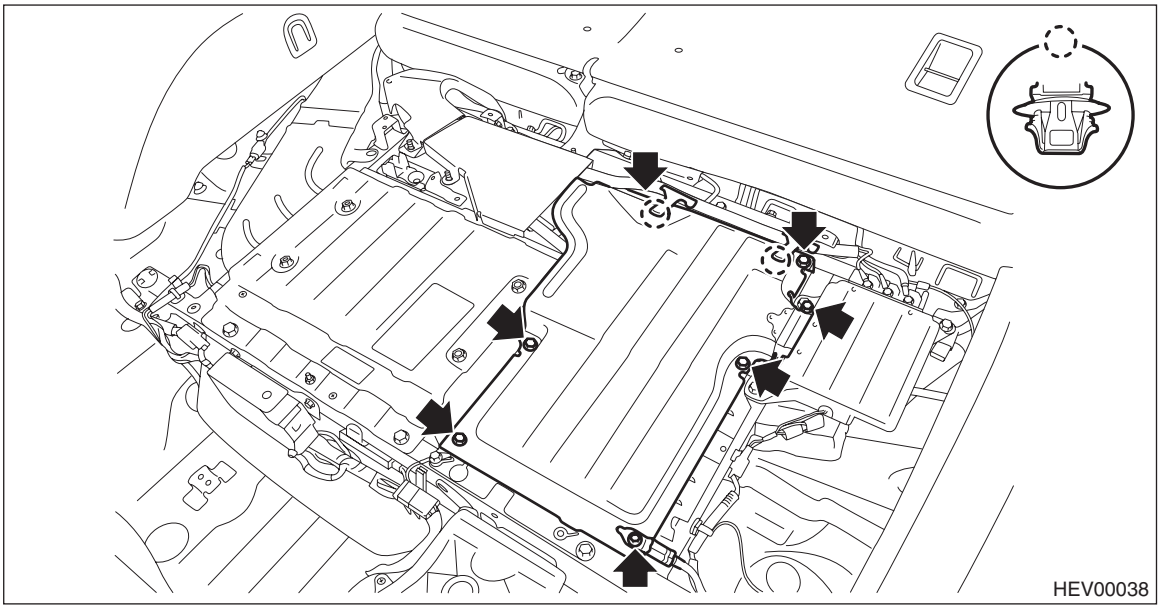


5) Remove the TORX® bolts, release the clips, and then remove the battery cover.

***Preparation tool:***
***TORX® T30***



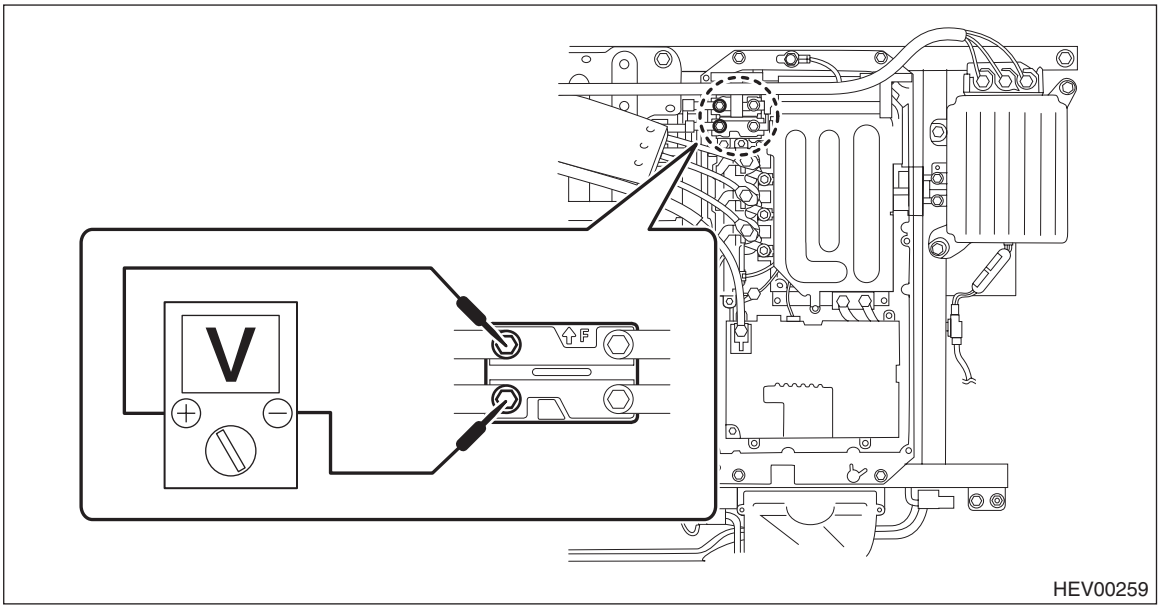

6) Remove the inverter cover.
(1) Remove the bolts and ground terminal.
(2) Release the cable clips, and remove the inverter cover.



7) Perform zero-voltage test.
(1) Measure the voltage of the high voltage DC line at the high voltage battery side of the electric noise filter.

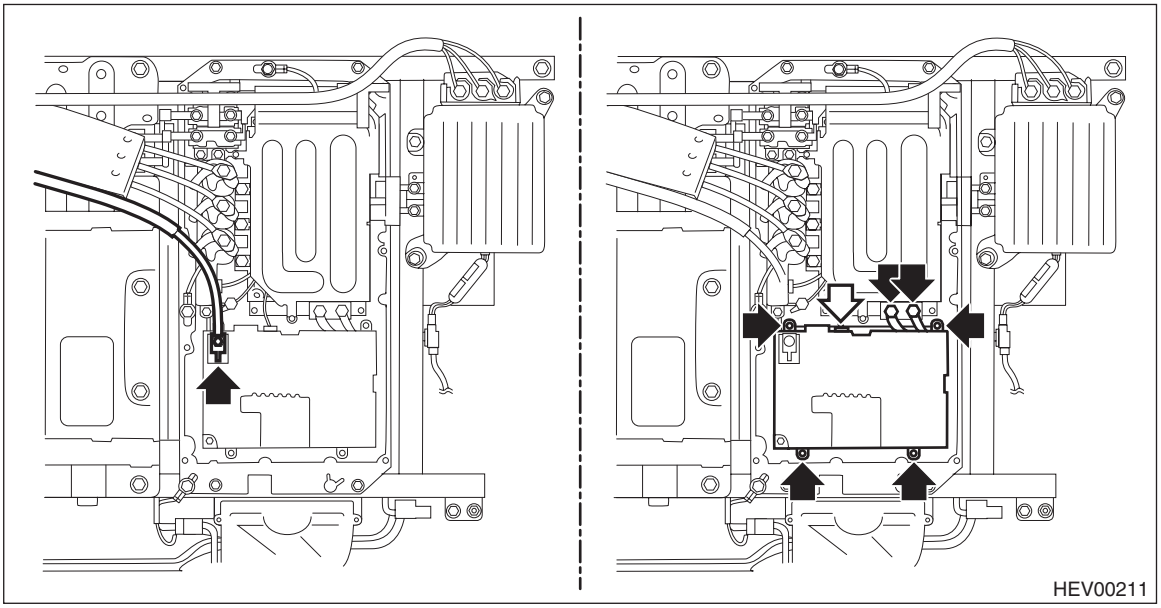
***Preparation tool:***
***Insulation multimeter***

***Standard: 0 V***




8) Remove the DC/DC converter.
(1) Remove the bolt and disconnect the power cable (12 V).

**CAUTION:**
**Be careful not to use excessive force when disconnecting the power cable to avoid any damage.**
(2) Remove the bolts, then disconnect the bus bar.
(3) Remove the connectors and bolts, and remove the DC/DC converter.



## B: INSTALLATION

**WARNING:**
**The hybrid system includes a high voltage circuit. Mishandling could cause accidents such as electric shock or leak. Always check "CAUTION (HYBRID SYSTEM)" and perform the proper operation. <Ref. to PC-7, CAUTION (HYBRID SYSTEM), Precaution.>**

1) Install the DC/DC converter.

***Tightening torque:***
***6.5 N·m (0.7 kgf-m, 4.8 ft-lb)***

2) Connect the bus bar.

***Tightening torque:***
***7.5 N·m (0.8 kgf-m, 5.5 ft-lb)***

3) Connect the power cable (12 V).

**CAUTION:**
**Do not apply excessive force to the terminals and watch to make sure the cable is not damaged or pinched.**

***Tightening torque:***
***7.5 N·m (0.8 kgf-m, 5.5 ft-lb)***

4) Install the ground terminal and inverter cover.

**CAUTION:**
**Check that the sound proofing material on the inverter cover is not detached or damaged.**

***Tightening torque:***
***7.5 N·m (0.8 kgf-m, 5.5 ft-lb)***

5) Install the battery cover.

***Tightening torque:***
***7.5 N·m (0.8 kgf-m, 5.5 ft-lb)***

6) Install the spacer - rear floor front.
7) Install the rear seat cushion. <Ref. to SE-27, INSTALLATION, Rear Seat.>
8) Install the sub-trunk assembly and the spacer - rear floor side.
9) Install the service disconnect plug. <Ref. to HEV-16, INSTALLATION, Service Plug.>

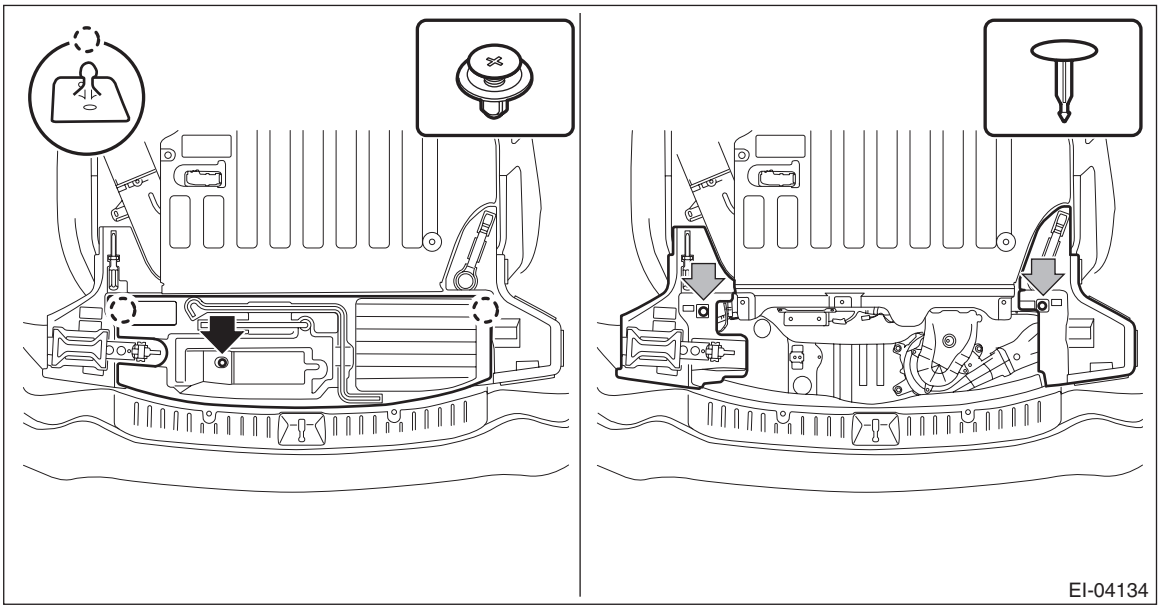
# 11.Inverter

## A: REMOVAL

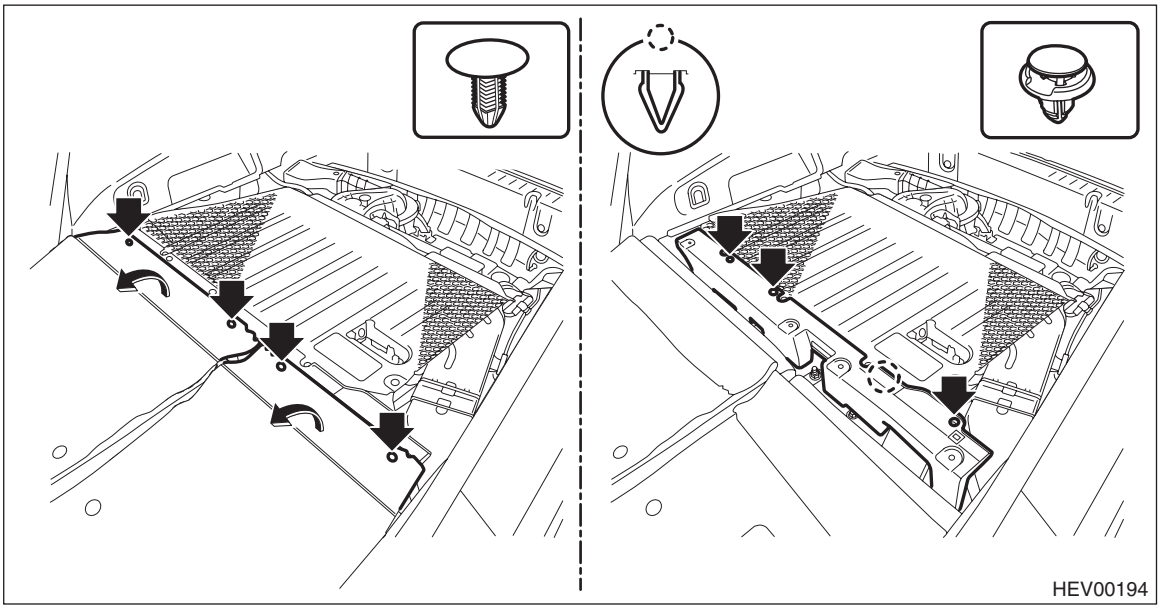
### 1. DRIVE MOTOR INVERTER

**WARNING:**
**The hybrid system includes a high voltage circuit. Mishandling could cause accidents such as electric shock or leak. Always check "CAUTION (HYBRID SYSTEM)" and perform the proper operation. <Ref. to PC-7, CAUTION (HYBRID SYSTEM), Precaution.>**

1) Remove the service disconnect plug. <Ref. to HEV-15, REMOVAL, Service Plug.>
2) Release the clips and claws, then detach the sub-trunk assembly and the spacer - rear floor side.

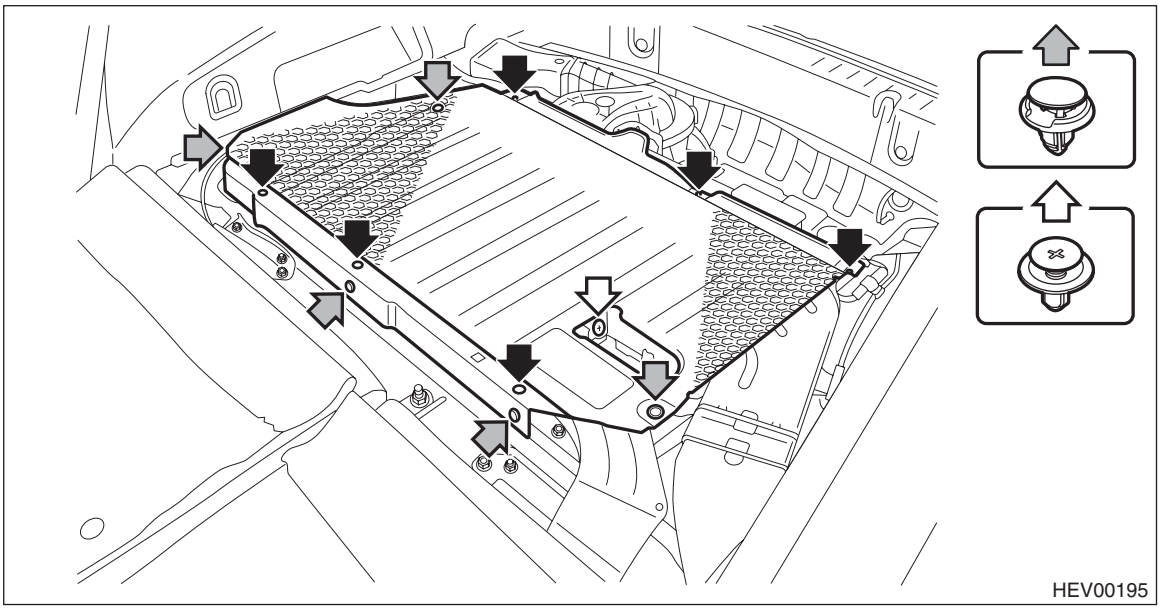



3) Remove the rear seat cushion and fold the backrest assemblies LH and RH. <Ref. to SE-23, REMOVAL, Rear Seat.>
4) Remove the spacer - rear floor front.
   (1) Release the clips, and fold back the bottom of the cover COMPL - rear backrest LH and RH of the rear seat back.
   (2) Release the clips and claws, then detach the spacer - rear floor front.

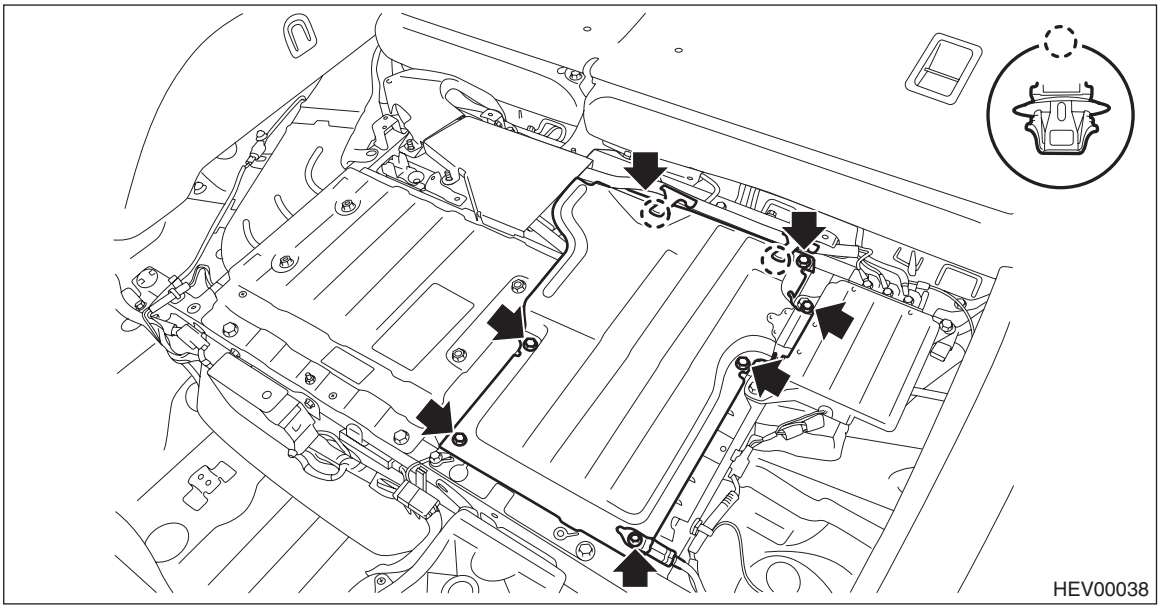


5) Remove the TORX® bolts, release the clips, and then remove the battery cover.

***Preparation tool:***
***TORX® T30***



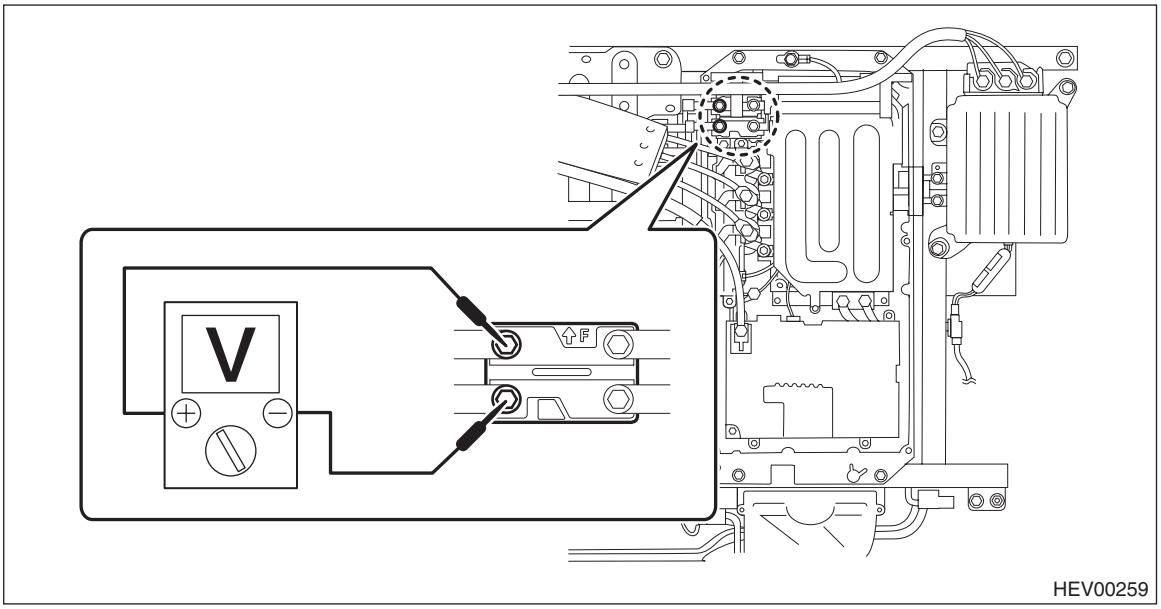

6) Remove the inverter cover.
(1) Remove the bolts and ground terminal.
(2) Release the cable clips, and remove the inverter cover.



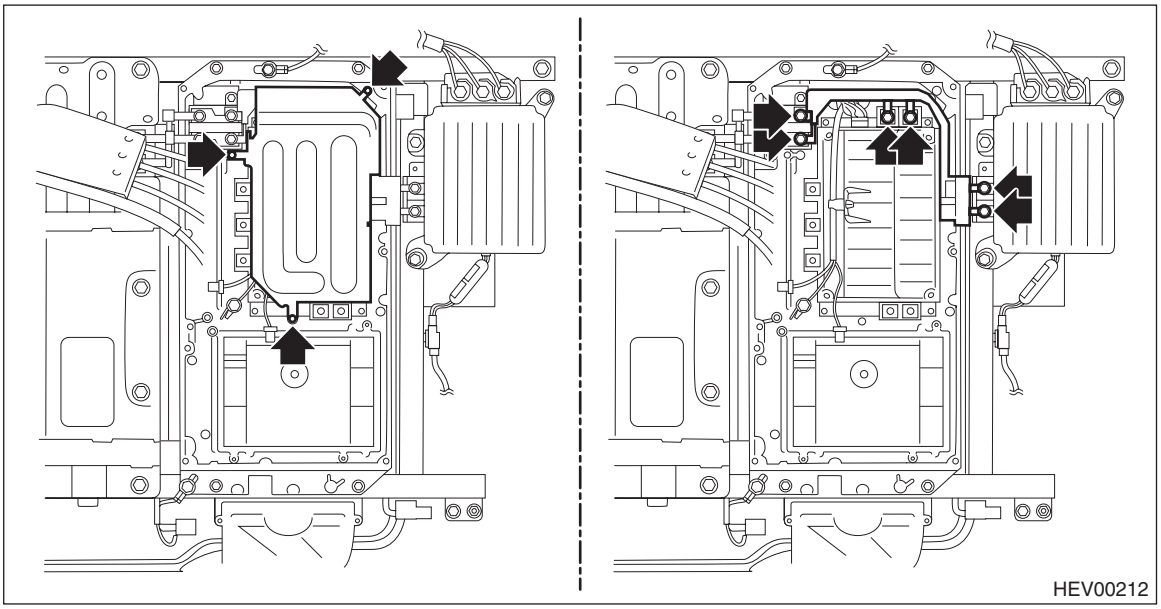
7) Perform zero-voltage test.
(1) Measure the voltage of the high voltage DC line at the high voltage battery side of the electric noise filter.

***Preparation tool:***
***Insulation multimeter***

***Standard: 0 V***

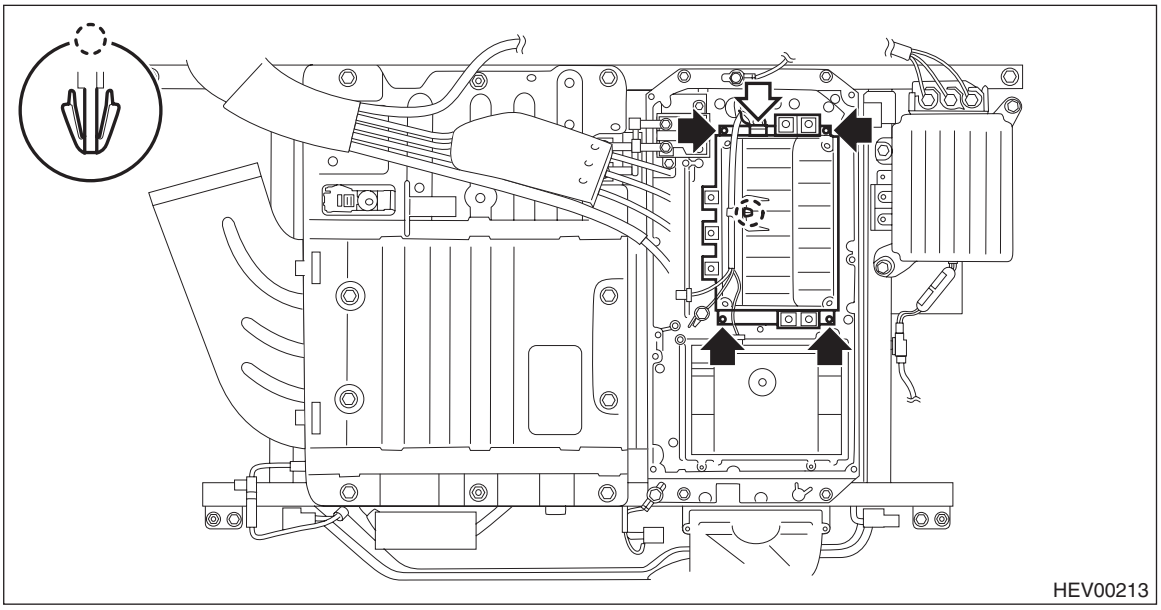



8) Remove the DC/DC converter. <Ref. to HEV-38, REMOVAL, DC/DC Converter.>
9) Remove the drive motor inverter amperage sensor. <Ref. to HEV-27, REMOVAL, Drive Motor Inverter Current Sensor.>
10) Remove the drive motor inverter.
(1) Remove the bolts to remove the inverter shield.
(2) Remove the bolts, then disconnect the bus bar between the electric noise filter and the electric oil pump inverter.




(3) Release the connector and the harness clip.

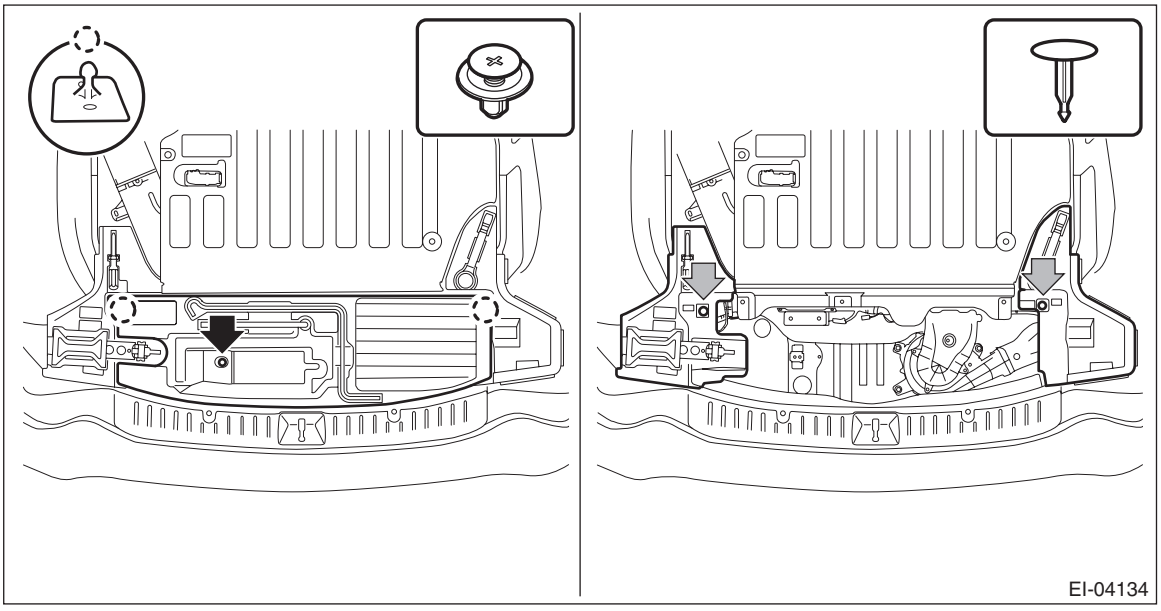
(4) Remove the bolts, and then remove the drive motor inverter.




## 2. ELECTRIC OIL PUMP INVERTER

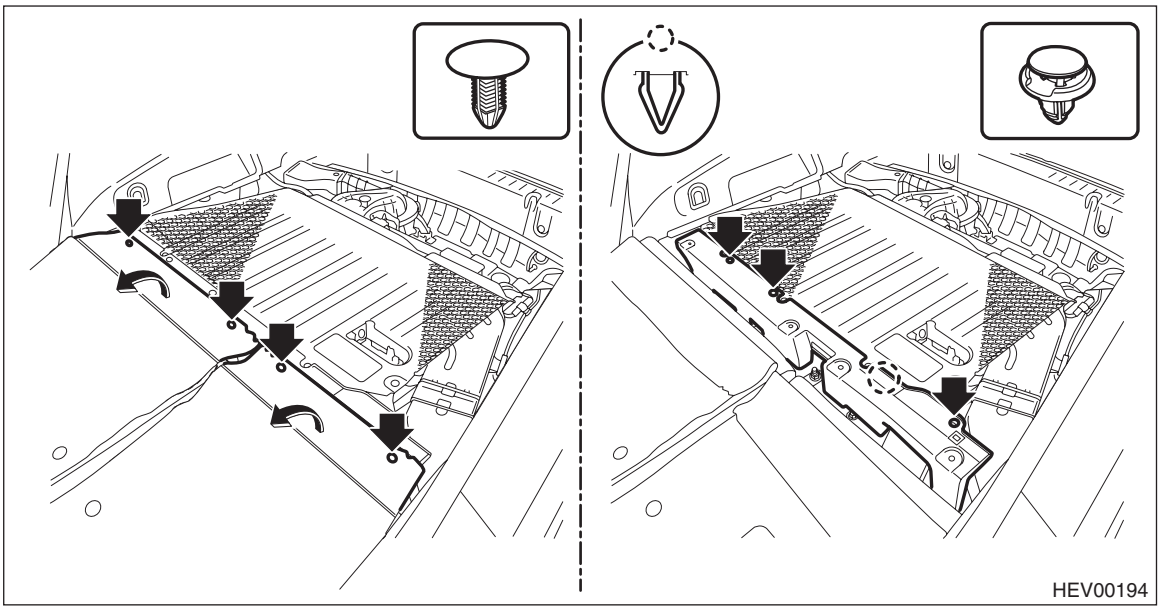
**WARNING:**
**The hybrid system includes a high voltage circuit. Mishandling could cause accidents such as electric shock or leak. Always check "CAUTION (HYBRID SYSTEM)" and perform the proper operation. <Ref. to PC-7, CAUTION (HYBRID SYSTEM), Precaution.>**

1) Remove the service disconnect plug. <Ref. to HEV-15, REMOVAL, Service Plug.>
2) Release the clips and claws, then detach the sub-trunk assembly and the spacer - rear floor side.



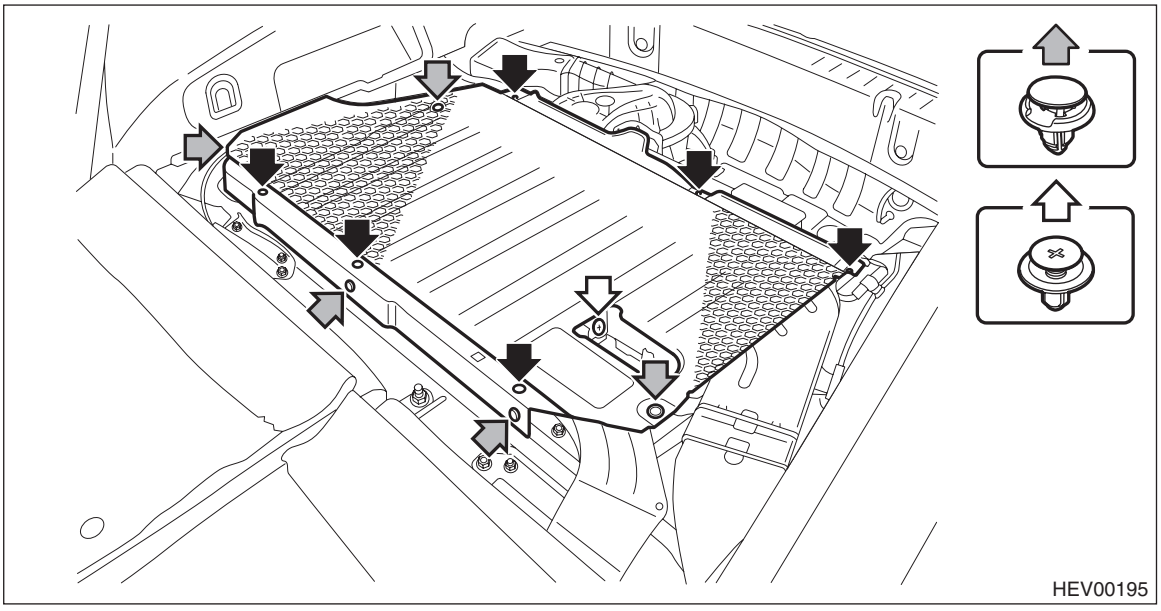

3) Remove the rear seat cushion and fold the backrest assemblies LH and RH. <Ref. to SE-23, REMOVAL, Rear Seat.>

4) Remove the spacer - rear floor front.
   (1) Release the clips, and fold back the bottom of the cover COMPL - rear backrest LH and RH of the rear seat back.
   (2) Release the clips and claws, then detach the spacer - rear floor front.

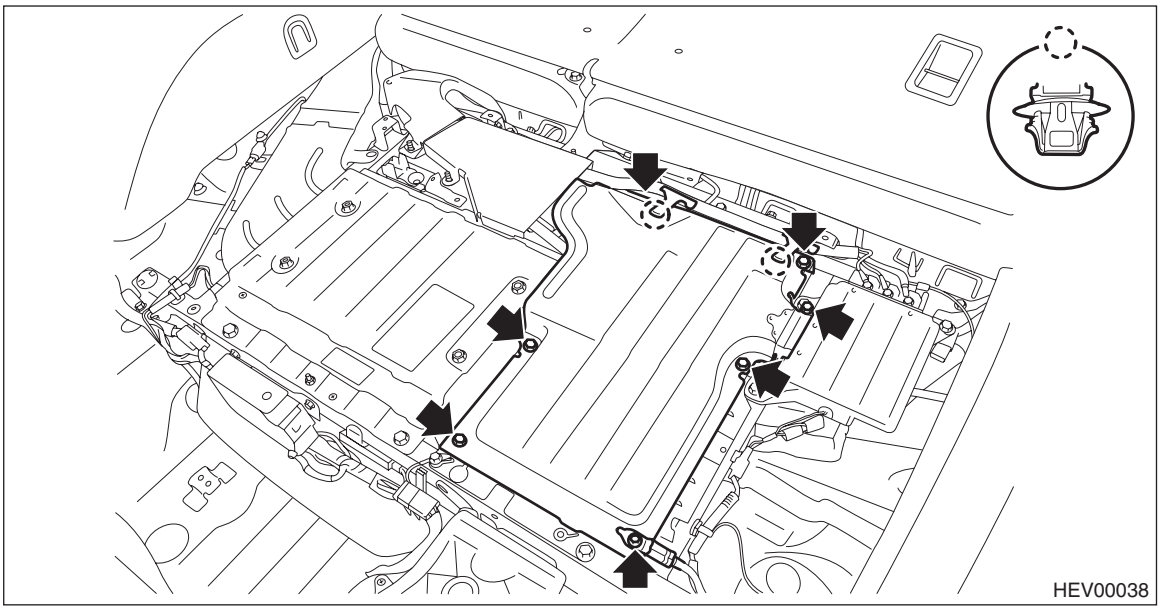



5) Remove the TORX® bolts, release the clips, and then remove the battery cover.

***Preparation tool:***
***TORX® T30***



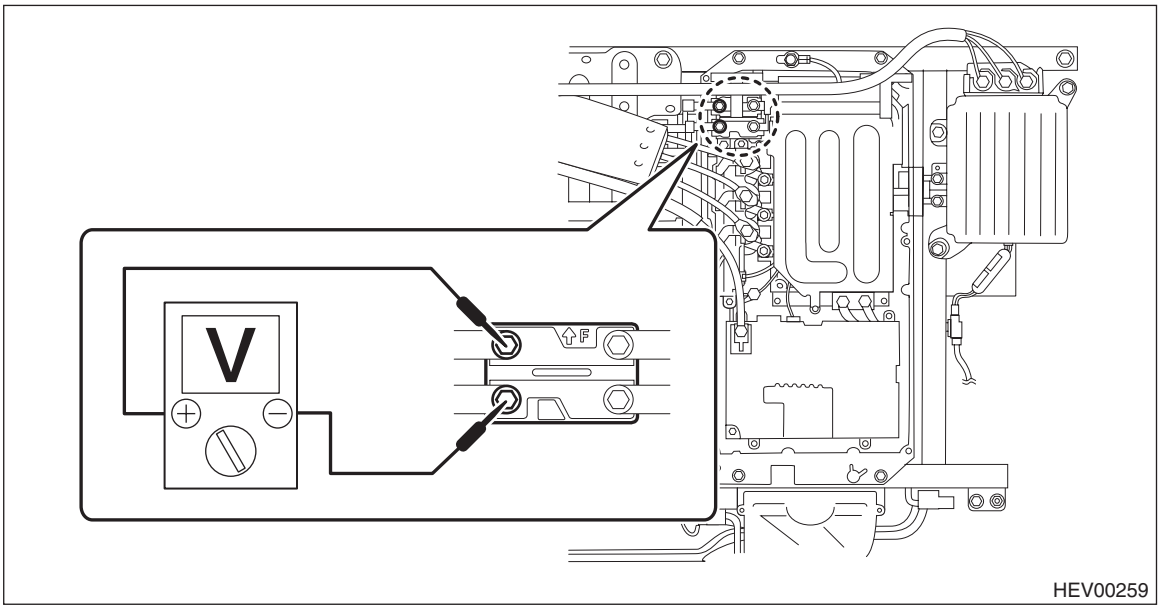
6) Remove the inverter cover.
   (1) Remove the bolts and ground terminal.
   (2) Release the cable clips, and remove the inverter cover.




7) Perform zero-voltage test.
   (1) Measure the voltage of the high voltage DC line at the high voltage battery side of the electric noise filter.

***Preparation tool:***
***Insulation multimeter***

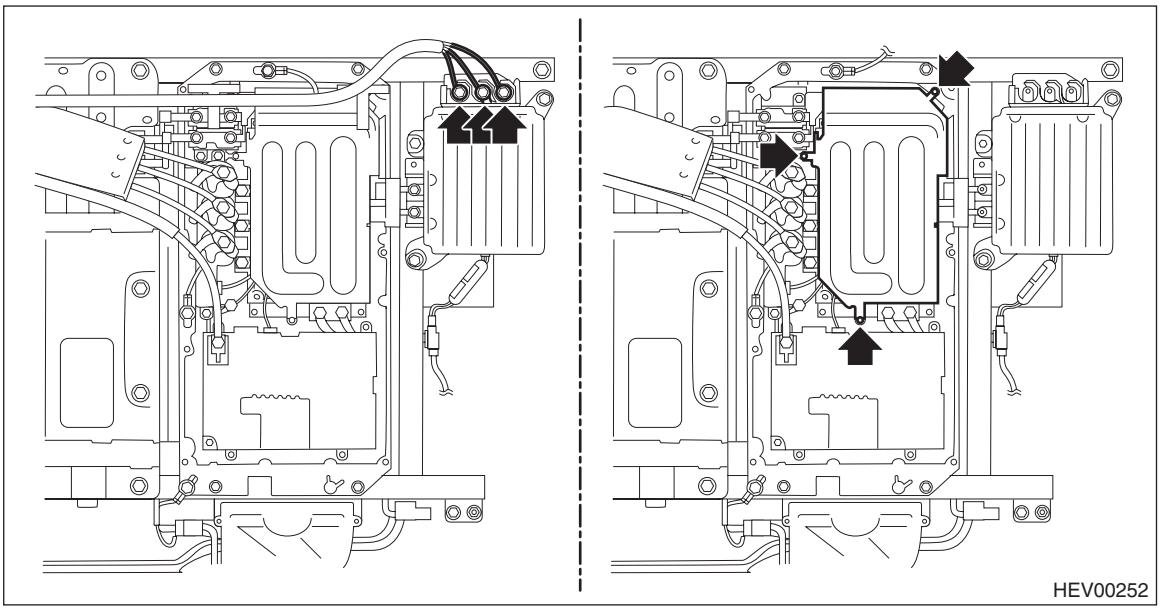
***Standard: 0 V***



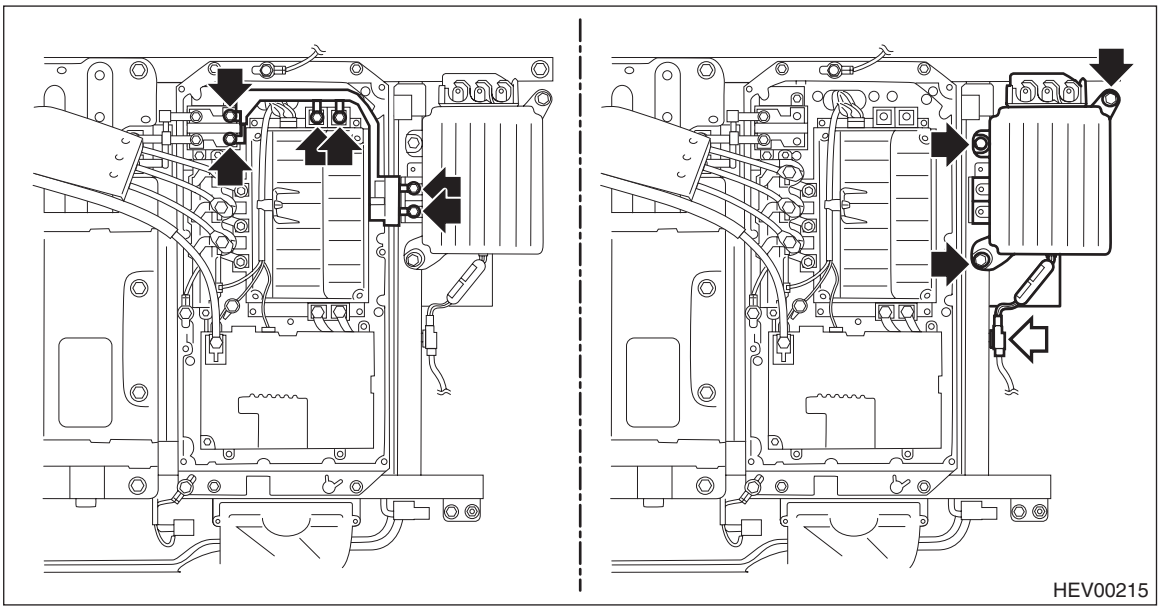
8) Remove the electric oil pump inverter.
(1) Remove the bolt and disconnect the power cable (100 V).

**CAUTION:**
- **Be careful not to use excessive force when disconnecting the power cable to avoid any damage.**
- **Always wrap the disconnected power cable terminals with insulating tape.**

(2) Remove the bolts to remove the inverter shield.




(3) Remove the bolts, then disconnect the bus bar between the electric noise filter and the electric oil pump inverter.
(4) Remove the connectors and bolts, and remove the electric oil pump inverter.




(5) Remove the inverter spacer from the electric oil pump inverter as necessary.

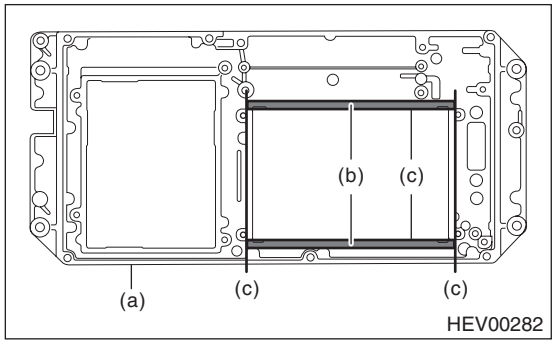
# B: INSTALLATION

## 1. DRIVE MOTOR INVERTER

**WARNING:**
**The hybrid system includes a high voltage circuit. Mishandling could cause accidents such as electric shock or leak. Always check "CAUTION (HYBRID SYSTEM)" and perform the proper operation. <Ref. to PC-7, CAUTION (HYBRID SYSTEM), Precaution.>**

1) Install the drive motor inverter.

**CAUTION:**
**Replace the EPT sealer attached to the inverter frame assembly with a new part.**

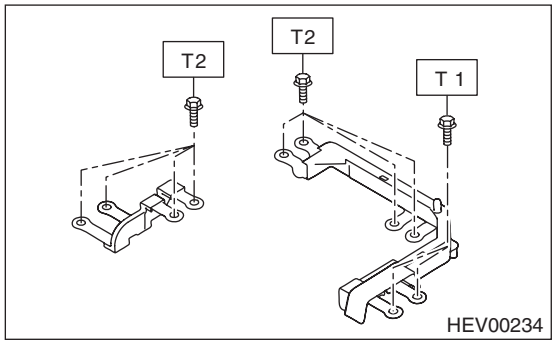



(a) Inverter frame ASSY
(b) EPT sealer
(c) Reference line for attachment

***Tightening torque:***
***6.5 N·m (0.7 kgf-m, 4.8 ft-lb)***

2) Connect the bus bar.

***Tightening torque:***
***T1: 6.5 N·m (0.7 kgf-m, 4.8 ft-lb)***
***T2: 7.5 N·m (0.8 kgf-m, 5.5 ft-lb)***




3) Install the inverter shield.

***Tightening torque:***
***6.5 N·m (0.7 kgf-m, 4.8 ft-lb)***

4) Install the drive motor inverter amperage sensor. <Ref. to HEV-30, INSTALLATION, Drive Motor Inverter Current Sensor.>
5) Install the DC/DC converter. <Ref. to HEV-41, INSTALLATION, DC/DC Converter.>

6) Install the ground terminal and inverter cover.

**CAUTION:**
**Check that the sound proofing material on the inverter cover is not detached or damaged before installing the inverter cover.**

***Tightening torque:***
***7.5 N·m (0.8 kgf-m, 5.5 ft-lb)***
7) Install the battery cover.

***Tightening torque:***
***7.5 N·m (0.8 kgf-m, 5.5 ft-lb)***
8) Install the spacer - rear floor front.
9) Install the rear seat cushion. <Ref. to SE-27, INSTALLATION, Rear Seat.>
10) Install the sub-trunk assembly and the spacer - rear floor side.
11) Install the service disconnect plug. <Ref. to HEV-16, INSTALLATION, Service Plug.>

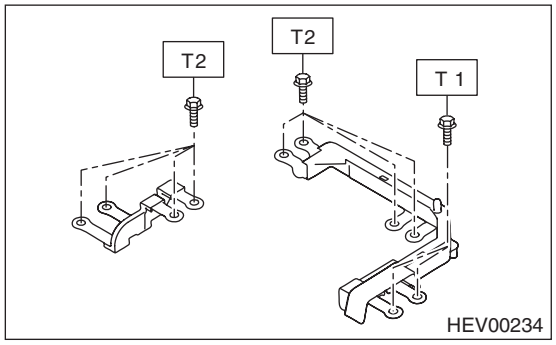
## 2. ELECTRIC OIL PUMP INVERTER

**WARNING:**
**The hybrid system includes a high voltage circuit. Mishandling could cause accidents such as electric shock or leak. Always check "CAUTION (HYBRID SYSTEM)" and perform the proper operation. <Ref. to PC-7, CAUTION (HYBRID SYSTEM), Precaution.>**
1) Install the electric oil pump inverter.

NOTE:
If the inverter spacer has been removed, install it to the electric oil pump inverter.

***Tightening torque:***
***22 N·m (2.2 kgf-m, 16.2 ft-lb)***
2) Connect the bus bar.

***Tightening torque:***
***T1: 6.5 N·m (0.7 kgf-m, 4.8 ft-lb)***
***T2: 7.5 N·m (0.8 kgf-m, 5.5 ft-lb)***




3) Install the inverter shield.

***Tightening torque:***
***6.5 N·m (0.7 kgf-m, 4.8 ft-lb)***

4) Connect the power cable (100 V).

**CAUTION:**
**• Connect the power cable properly referring to the letters (U, V, and W) imprinted on the electric oil pump inverter body. The power cable with the identification tape is connected to (U) and the power cable with a claw is connected to (V).**
**• Do not apply excessive force to the terminals and watch to make sure the cable is not damaged or pinched.**

***Tightening torque:***
***7.5 N·m (0.8 kgf-m, 5.5 ft-lb)***
5) Install the ground terminal and inverter cover.

**CAUTION:**
**Check that the sound proofing material on the inverter cover is not detached or damaged.**

***Tightening torque:***
***7.5 N·m (0.8 kgf-m, 5.5 ft-lb)***
6) Install the battery cover.

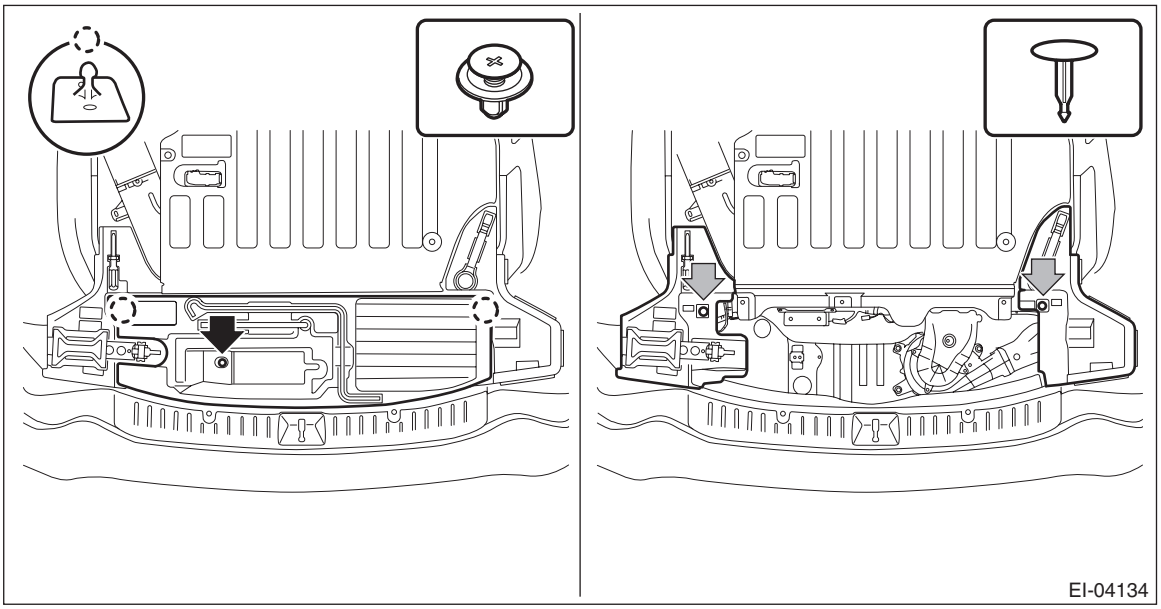
***Tightening torque:***
***7.5 N·m (0.8 kgf-m, 5.5 ft-lb)***
7) Install the spacer - rear floor front.
8) Install the rear seat cushion. <Ref. to SE-27, INSTALLATION, Rear Seat.>
9) Install the sub-trunk assembly and the spacer - rear floor side.
10) Install the service disconnect plug. <Ref. to HEV-16, INSTALLATION, Service Plug.>

# 12.Power Cable

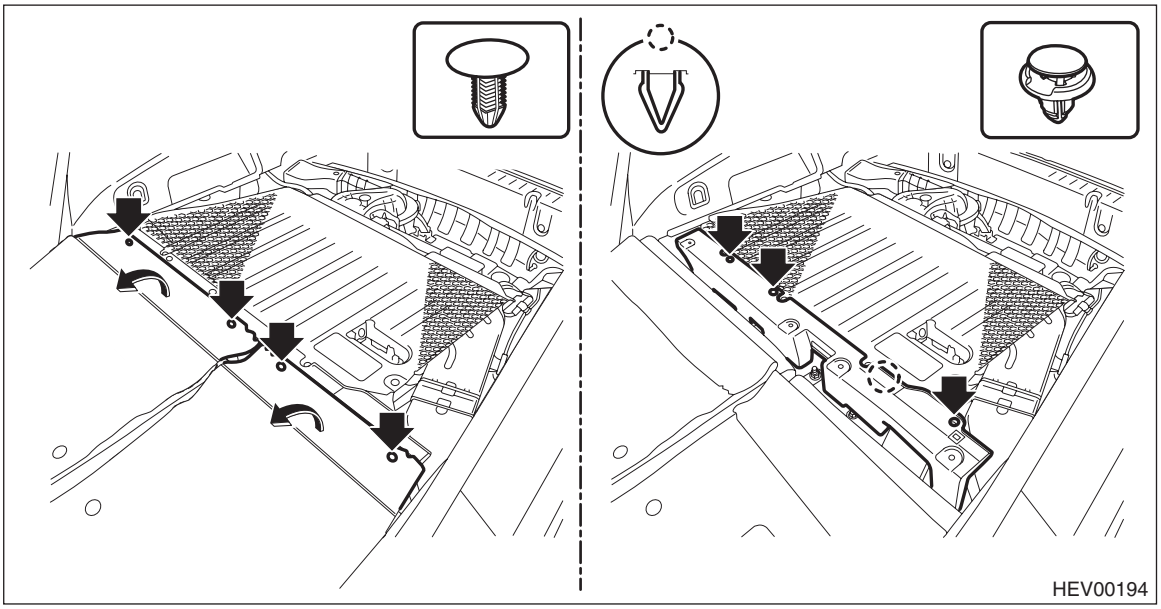
## A: REMOVAL

**WARNING:**
**The hybrid system includes a high voltage circuit. Mishandling could cause accidents such as electric shock or leak. Always check "CAUTION (HYBRID SYSTEM)" and perform the proper operation. <Ref. to PC-7, CAUTION (HYBRID SYSTEM), Precaution.>**

1) Remove the service disconnect plug. <Ref. to HEV-15, REMOVAL, Service Plug.>
2) Release the clips and claws, then detach the sub-trunk assembly and the spacer - rear floor side.

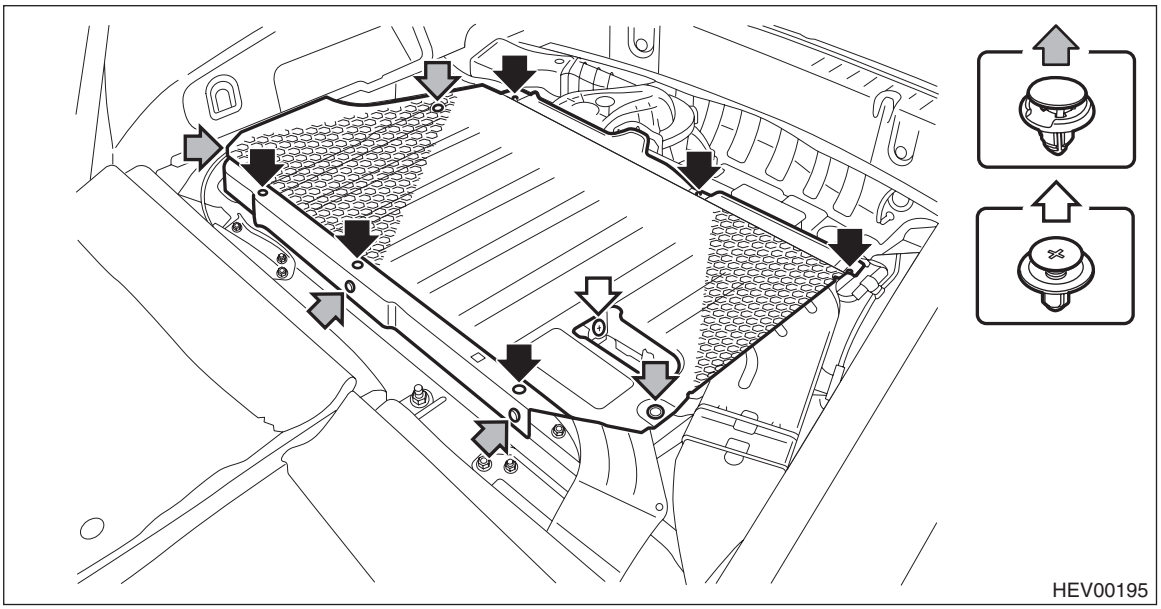



3) Remove the rear seat cushion and fold the backrest assemblies LH and RH. <Ref. to SE-23, REMOVAL, Rear Seat.>
4) Remove the spacer - rear floor front.
   (1) Release the clips, and fold back the bottom of the cover COMPL - rear backrest LH and RH of the rear seat back.
   (2) Release the clips and claws, then detach the spacer - rear floor front.

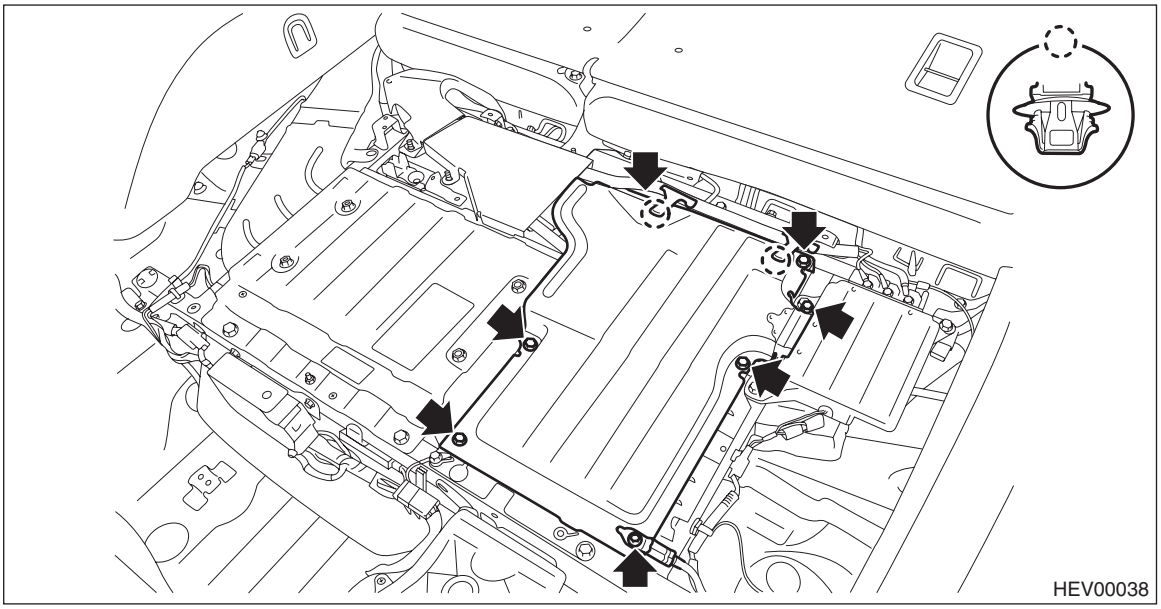


5) Remove the TORX® bolts, release the clips, and then remove the battery cover.

***Preparation tool:***
***TORX® T30***



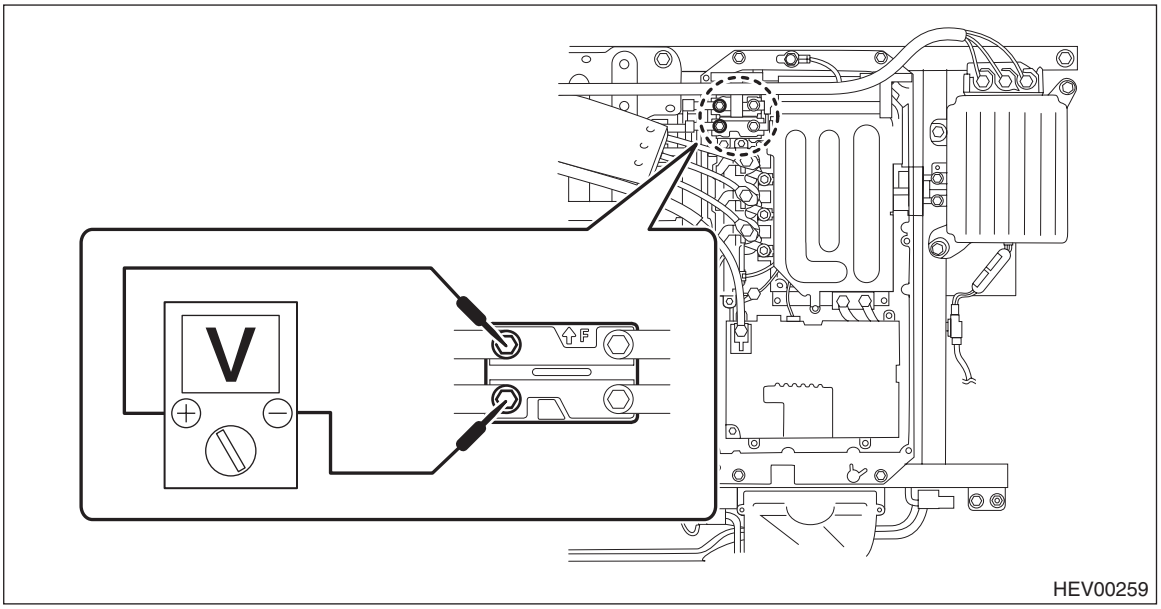

6) Remove the inverter cover.
(1) Remove the bolts and ground terminal.
(2) Release the cable clips, and remove the inverter cover.



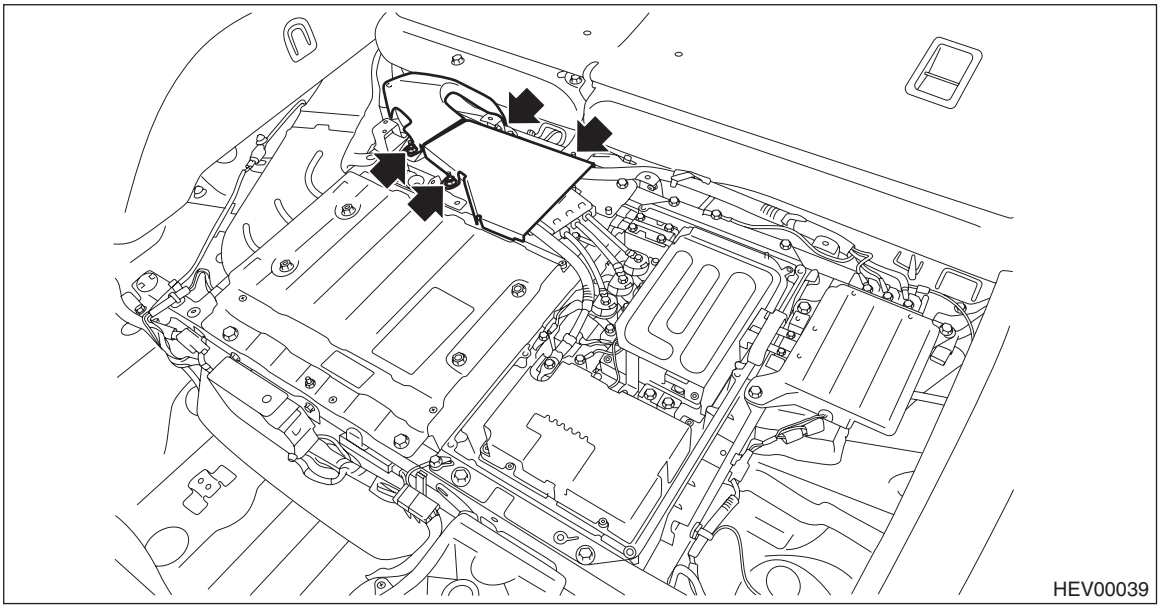
7) Perform zero-voltage test.
(1) Measure the voltage of the high voltage DC line at the high voltage battery side of the electric noise filter.

***Preparation tool:***
***Insulation multimeter***

***Standard: 0 V***

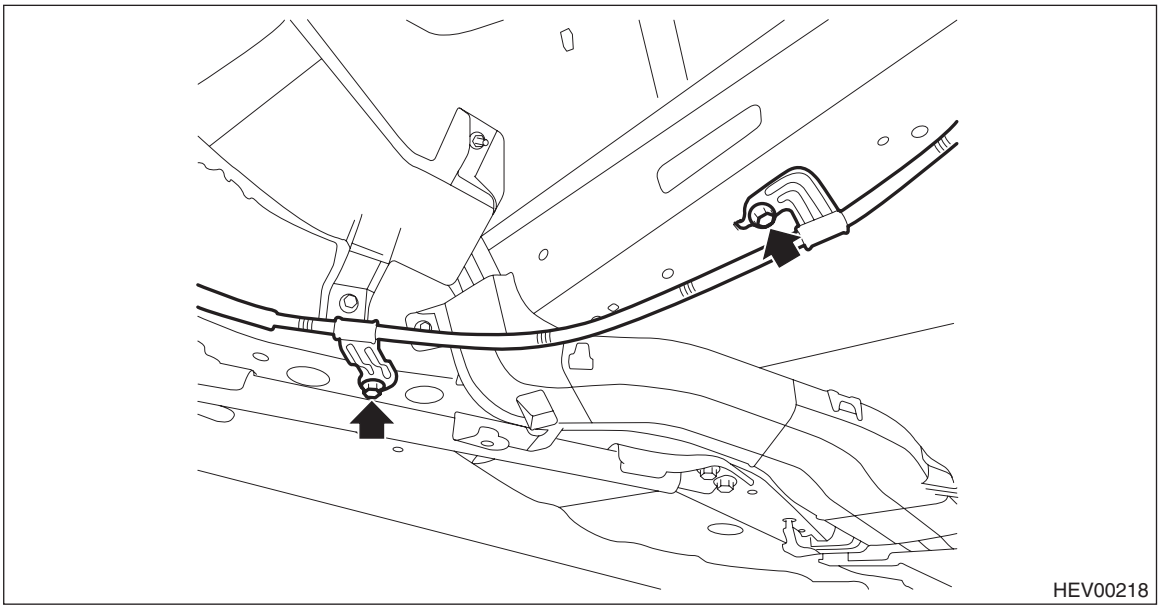



8) Remove the nut and remove the cover - shield battery and the cover - shield seat.



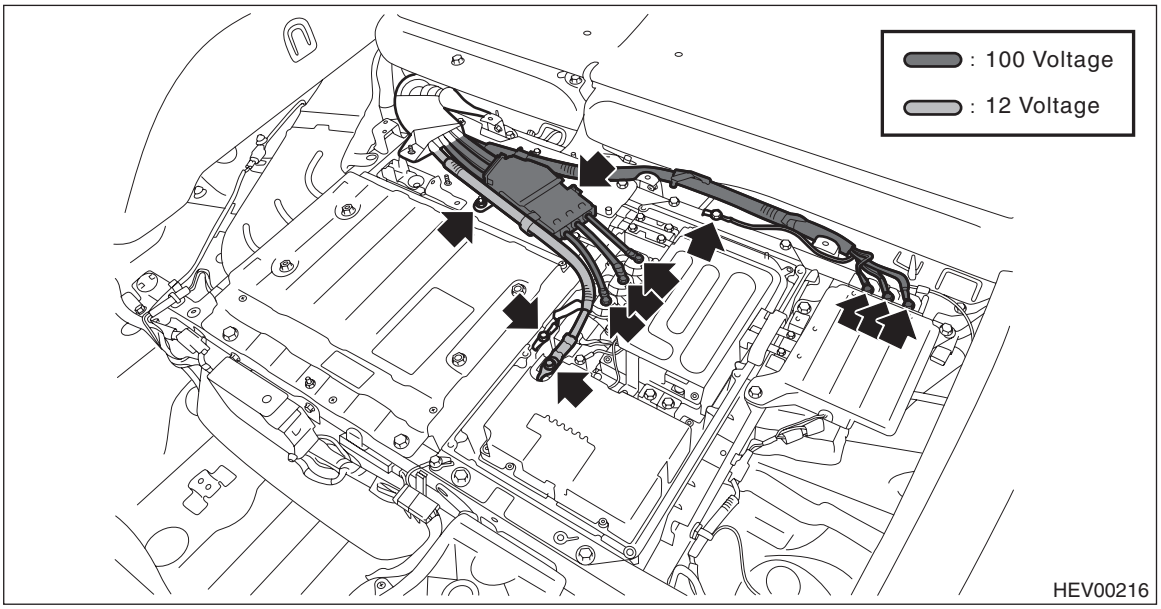

9) Remove the front under cover. <Ref. to EI-32, REMOVAL, Front Under Cover.>
10) Remove the floor under protector. <Ref. to EI-34, REMOVAL, Floor Under Protector.>
11) Remove the fuel tank. <Ref. to FU(H4DO(HEV))-105, REMOVAL, Fuel Tank.>

12) Remove the bolt securing the cable assembly - parking brake.

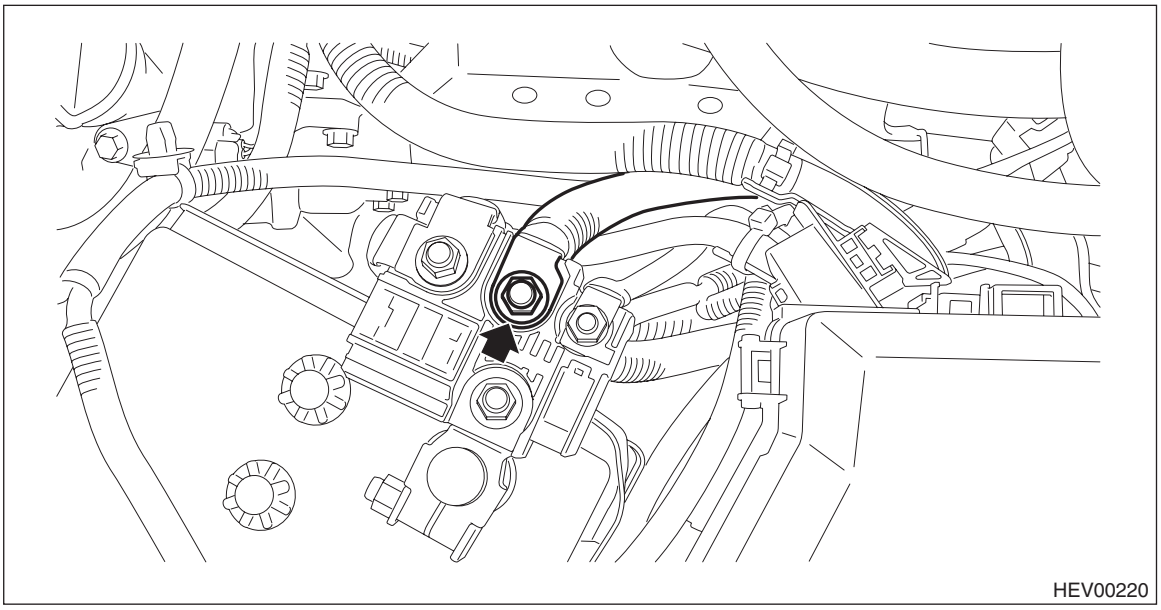



13) Remove the power cable.
(1) Remove the bolts and nuts and disconnect the ground terminal and the power cable.

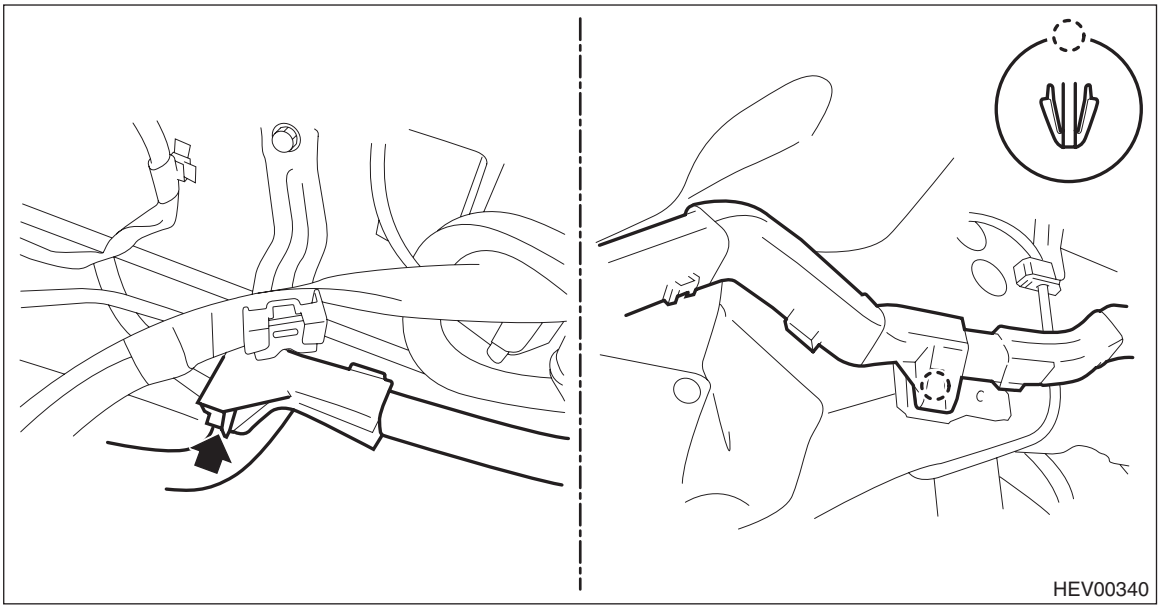
**CAUTION:**
- **Be careful not to use excessive force when disconnecting the power cable to avoid any damage.**
- **Always wrap the disconnected power cable terminals with insulating tape.**



(2) Remove the nut and disconnect the power cable positive terminal from the 12 volt auxiliary battery.



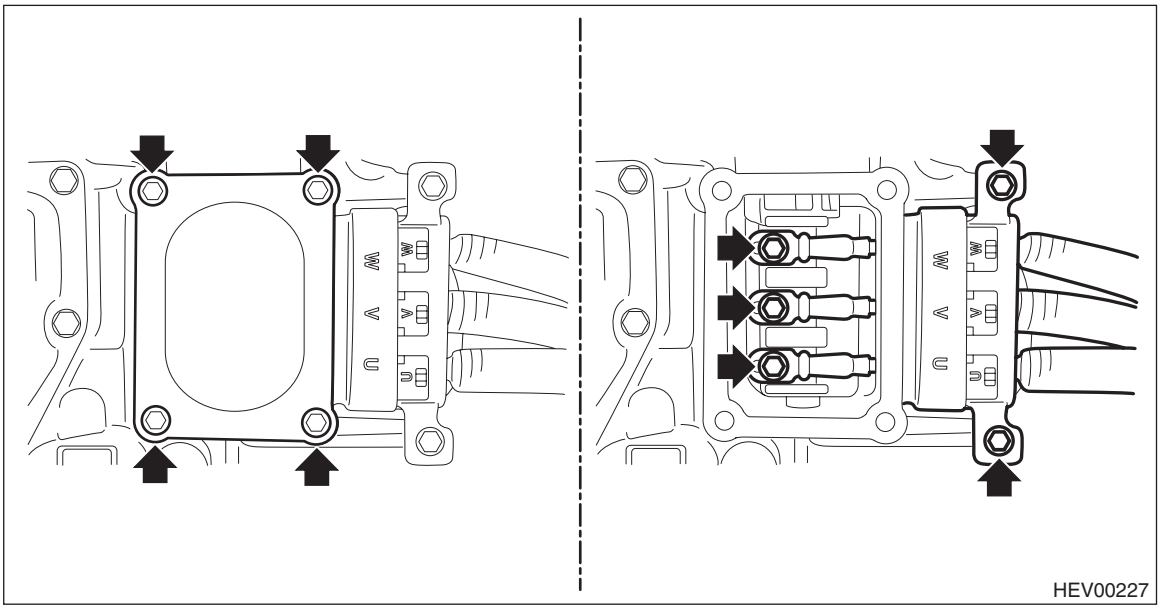

(3) Release the power cable clamp and the power cable clip.




(4) Remove the bolt, then remove the power connect cover and the gasket.

(5) Remove the bolts and nuts to pull out the terminal box assembly.

**CAUTION:**
- **Be sure to insulate the power cable terminal by wrapping it with insulating tape.**
- **Be careful not to use excessive force or damage the power cable during removal.**

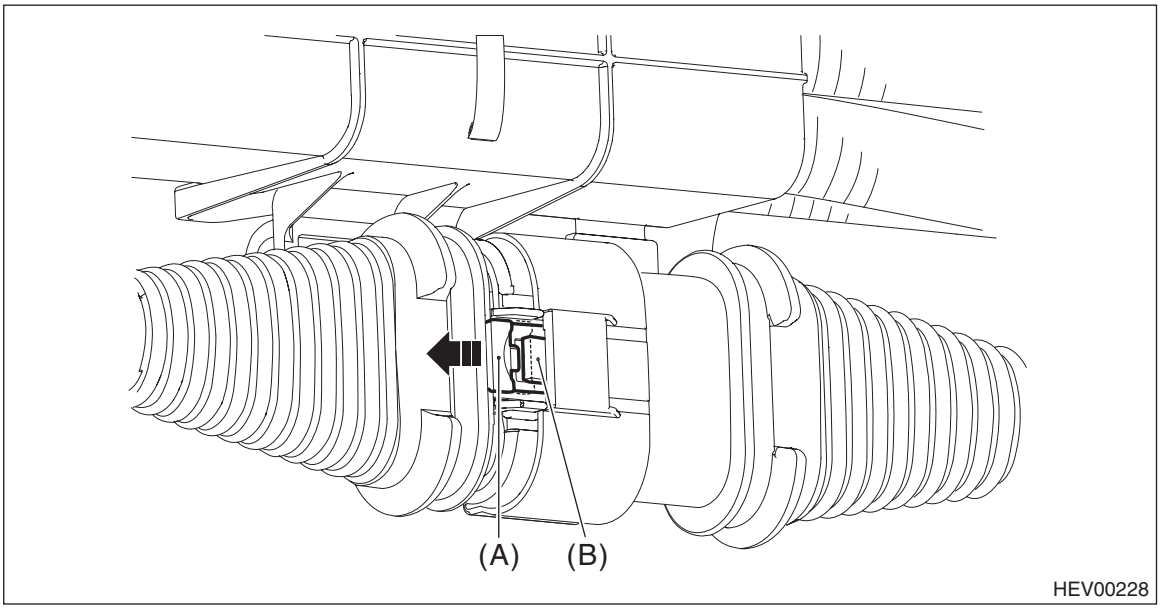


HEV00227

NOTE:
To prevent intrusion of foreign matter such as oil, water and dirt after removal, install the power connect cover and cover the terminal box assembly with tape.

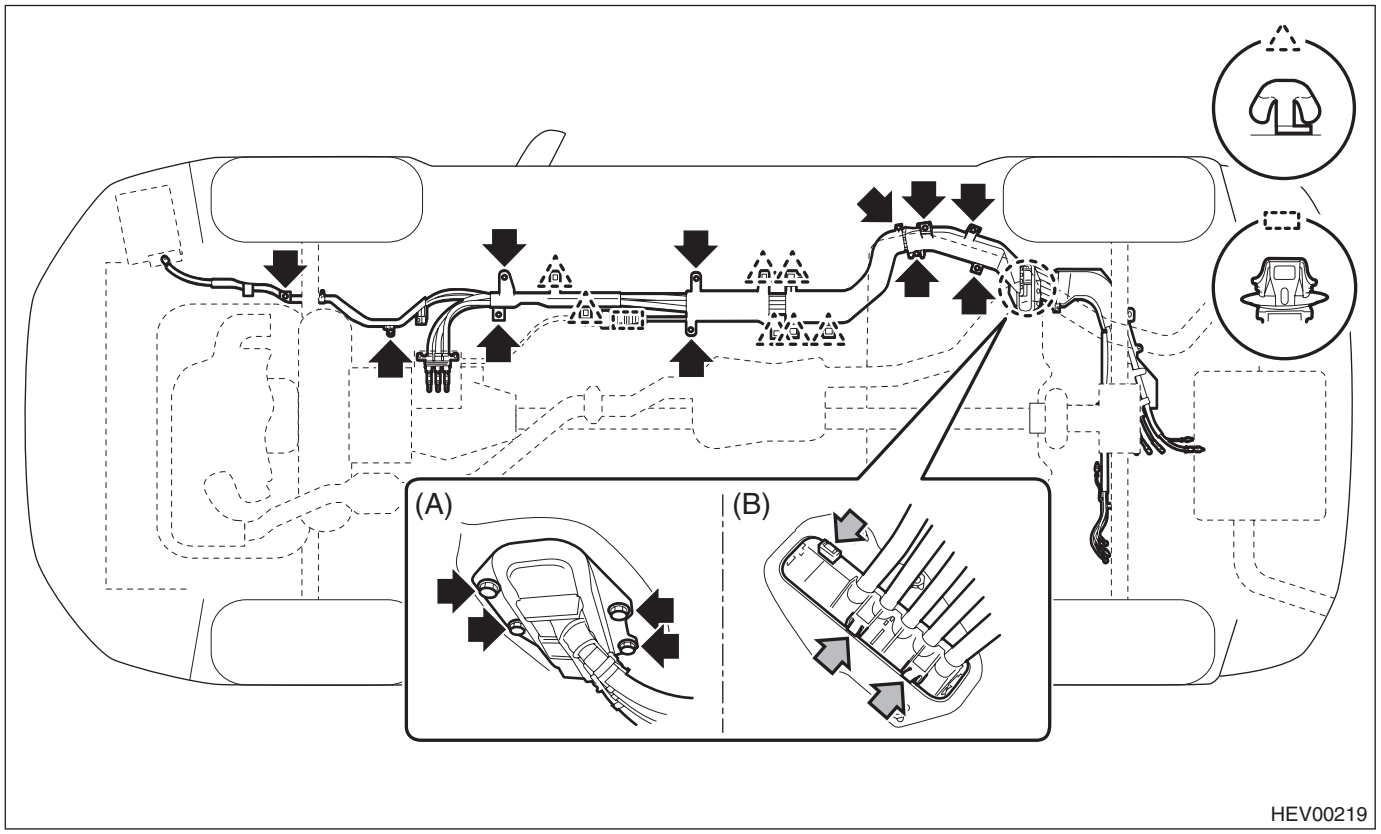
(6) Push the claw (B) while pulling the slide lock (A) in the direction of the arrow, and then disconnect the electric oil pump harness connector.

**CAUTION:**
- **After disconnecting the connectors, cover the female side connector with a clean cloth or plastic bag to protect from intrusion of foreign matter such as oil, water, or dusts. Also, cover the male side connector using insulating tape.**
- **If any foreign matter is found, remove them carefully so that the electrodes in the connector are not damaged. If there is any moisture, make it dry completely.**
- **Be careful not to use excessive force when removing the electric oil pump harness connector to avoid any damage.**



HEV00228

(7) Remove the bolts and nuts, release the clips and claws, and disconnect the power cable from the vehicle.




(A) Outside passenger room (B) Passenger room side

## B: INSTALLATION

**WARNING:**
**The hybrid system includes a high voltage circuit. Mishandling could cause accidents such as electric shock or leak. Always check "CAUTION (HYBRID SYSTEM)" and perform the proper operation. <Ref. to PC-7, CAUTION (HYBRID SYSTEM), Precaution.>**

1) Install the power cable.

**CAUTION:**
**• When connecting the power cable, pay attention to the letters (U, V, and W) imprinted on the drive motor inverter amperage sensor body as well as on the protector of the power cable.**
**• Connect the power cable properly referring to the letters (U, V, and W) imprinted on the electric oil pump inverter body. The power cable with the identification tape is connected to (U) and the power cable with a claw is connected to (V).**
**• Match the letters (U, V, and W) imprinted on both the power cable and the transmission body, then insert the cable to the transmission and fix securely.**
**• Insert the electric oil pump connector into the mating connector until a click is heard and lock it securely.**
**• Be careful not to allow foreign matter from entering the drive motor case assembly. If any foreign matter is found, remove them carefully so that the electrodes are not damaged.**
**• If there is any moisture in the drive motor case assembly, dry it completely before continuing work.**
**• Do not apply excessive force to the terminals and watch to make sure the cable is not damaged or pinched.**
**• Replace the power cable clip with a new part.**
**• Replace power connect cover gasket with a new part.**

***Tightening torque:***
***Power cable: 7.5 N·m (0.8 kgf-m, 5.5 ft-lb)***
***Power connect cover: 25 N·m (2.5 kgf-m, 18.4 ft-lb)***

2) Install the cable assembly - parking brake bolt.

***Tightening torque:***
***18 N·m (1.8 kgf-m, 13.3 ft-lb)***

3) Install the fuel tank. <Ref. to FU(H4DO(HEV))-111, INSTALLATION, Fuel Tank.>
4) Install the front under protector. <Ref. to EI-35, INSTALLATION, Floor Under Protector.>
5) Install the front under cover. <Ref. to EI-32, INSTALLATION, Front Under Cover.>
6) Install the cover - shield battery and the cover - shield seat.

***Tightening torque:***
***7.5 N·m (0.8 kgf-m, 5.5 ft-lb)***

7) Install the ground terminal and inverter cover.

**CAUTION:**
**Check that the sound proofing material on the inverter cover is not detached or damaged.**

***Tightening torque:***
***7.5 N·m (0.8 kgf-m, 5.5 ft-lb)***

8) Install the battery cover.

***Tightening torque:***
***7.5 N·m (0.8 kgf-m, 5.5 ft-lb)***

9) Install the spacer - rear floor front.
10) Install the rear seat cushion. <Ref. to SE-27, INSTALLATION, Rear Seat.>
11) Install the sub-trunk assembly and the spacer - rear floor side.
12) Install the service disconnect plug. <Ref. to HEV-16, INSTALLATION, Service Plug.>

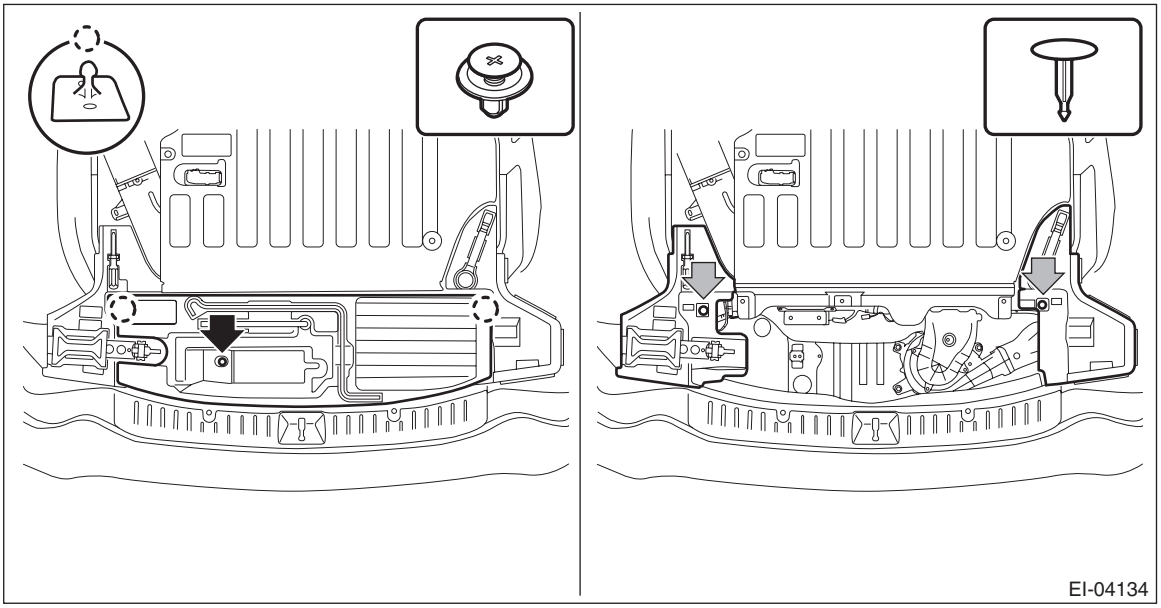
# 13.High Voltage Battery Cooling System

## A: REMOVAL

### 1. COOLING DUCT FRONT (FRONT)

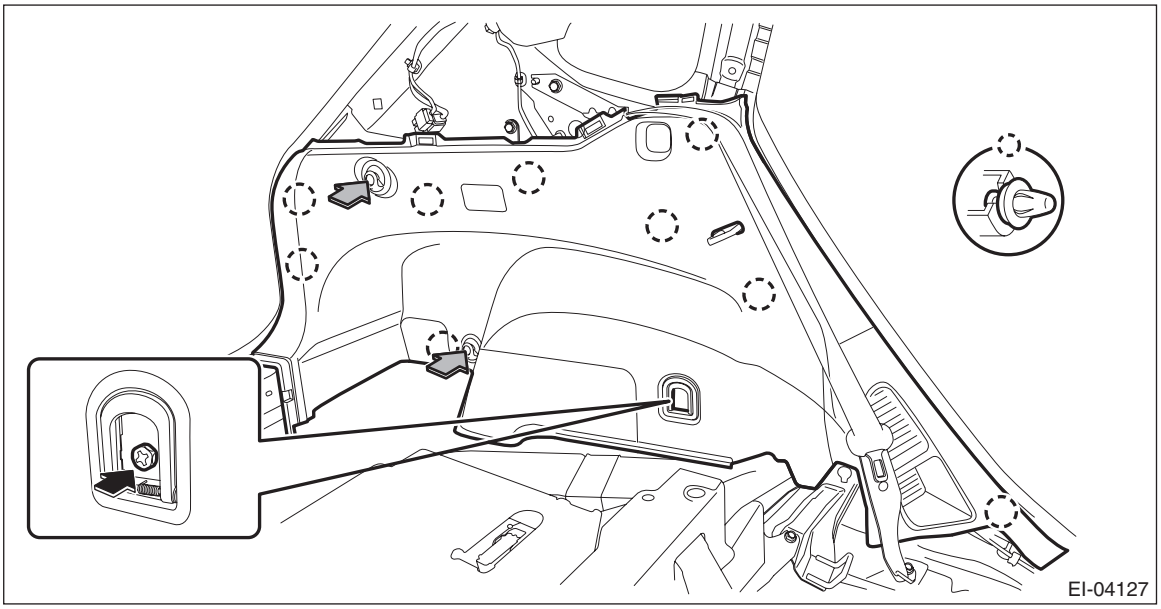
1) Disconnect the ground cable from battery. <Ref. to NT-5, BATTERY, NOTE, Note.>

NOTE:
For the 12 volt engine restart battery, disconnect the ground terminal from 12V engine restart battery sensor.
2) Remove the mat - rear floor CTR.
3) Release the clips and claws, then detach the sub-trunk assembly and the spacer - rear floor side LH.

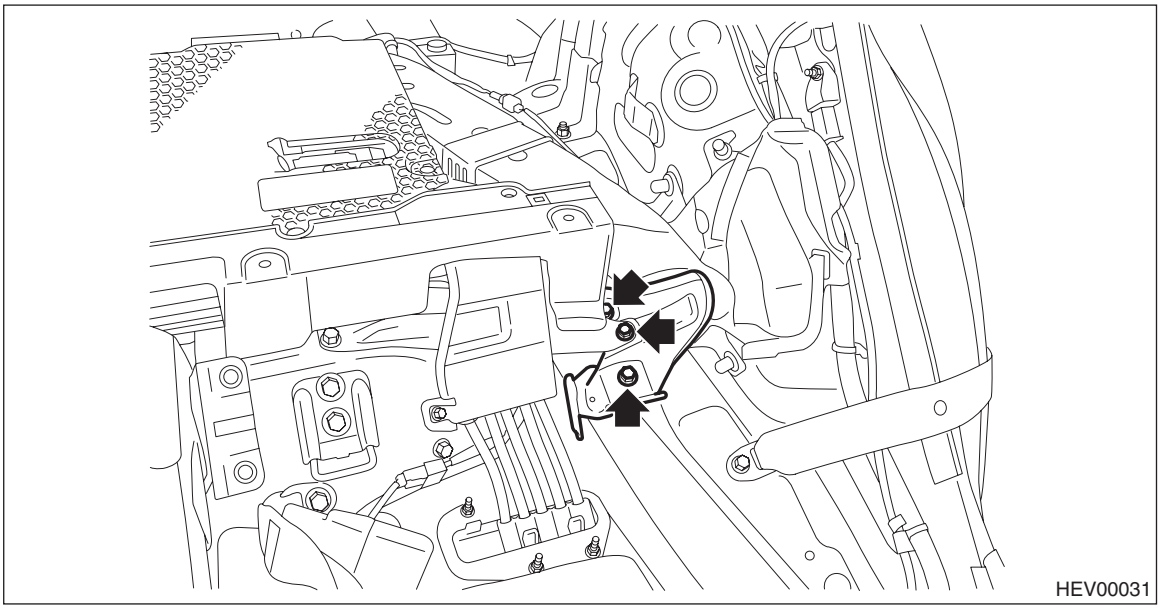


4) Remove the trim panel - rear apron LH.
(1) Remove the following parts. Refer to “Rear Quarter Trim” of “EXTERIOR/INTERIOR TRIM” section for the work procedures. <Ref. to EI-112, REMOVAL, Rear Quarter Trim.>
- Trim panel - rear quarter pillar UPR LH
- Rear seat cushion assembly
- Cover side sill - rear INN LH
- Trim panel - rear skirt

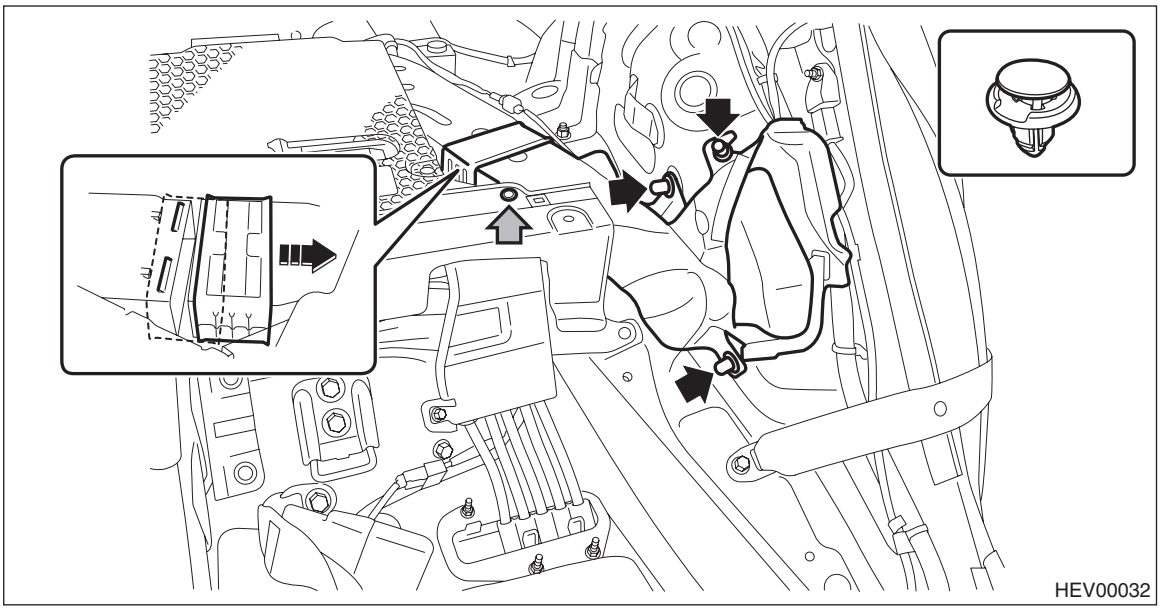
(2) Remove the caps, and remove the bolts.
(3) Remove the screws, and release the clips.
(4) Disconnect the connectors and remove the trim panel - rear apron LH.




5) Remove the backrest assembly LH. <Ref. to SE-23, REMOVAL, Rear Seat.>
6) Remove the bolts, and remove the hinge assembly - rear backrest.



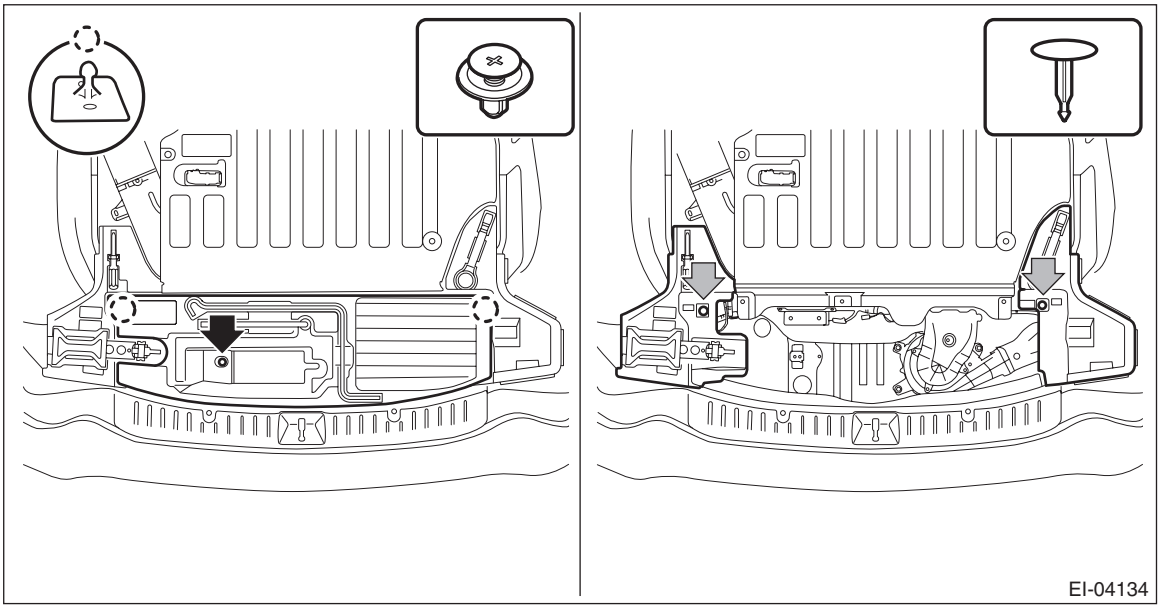
7) Remove the cooling duct front (front).
   (1) Release the clip of the spacer - rear floor front.
   (2) Release the plastic nut and slide lock, and remove the cooling duct front (front).



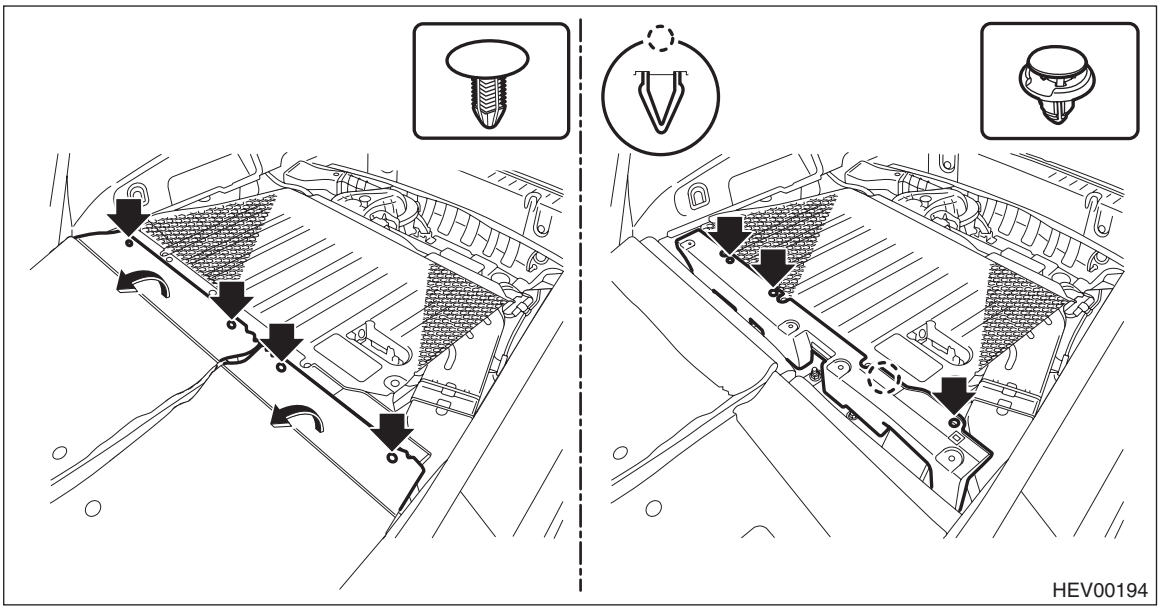

## 2. COOLING DUCT FRONT (REAR)

**WARNING:**
**The hybrid system includes a high voltage circuit. Mishandling could cause accidents such as electric shock or leak. Always check "CAUTION (HYBRID SYSTEM)" and perform the proper operation. <Ref. to PC-7, CAUTION (HYBRID SYSTEM), Precaution.>**

1) Remove the service disconnect plug. <Ref. to HEV-15, REMOVAL, Service Plug.>
2) Release the clips and claws, then detach the sub-trunk assembly and the spacer - rear floor side.

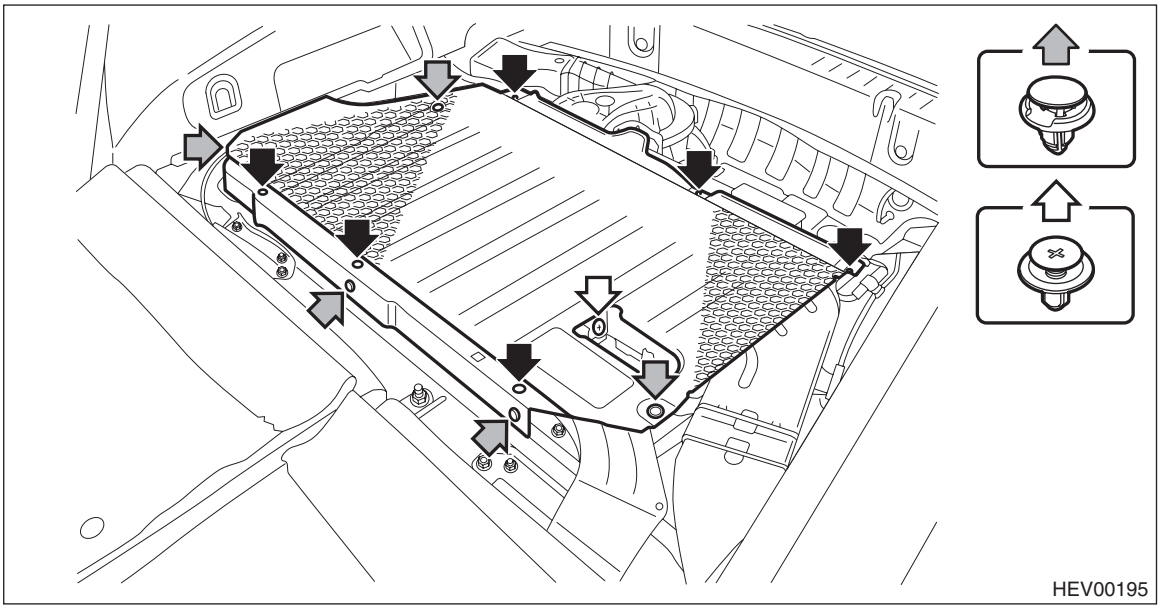


3) Remove the spacer - rear floor front.
(1) Release the clips, and fold back the bottom of the cover COMPL - rear backrest LH and RH of the rear seat back.
(2) Release the clips and claws, then detach the spacer - rear floor front.

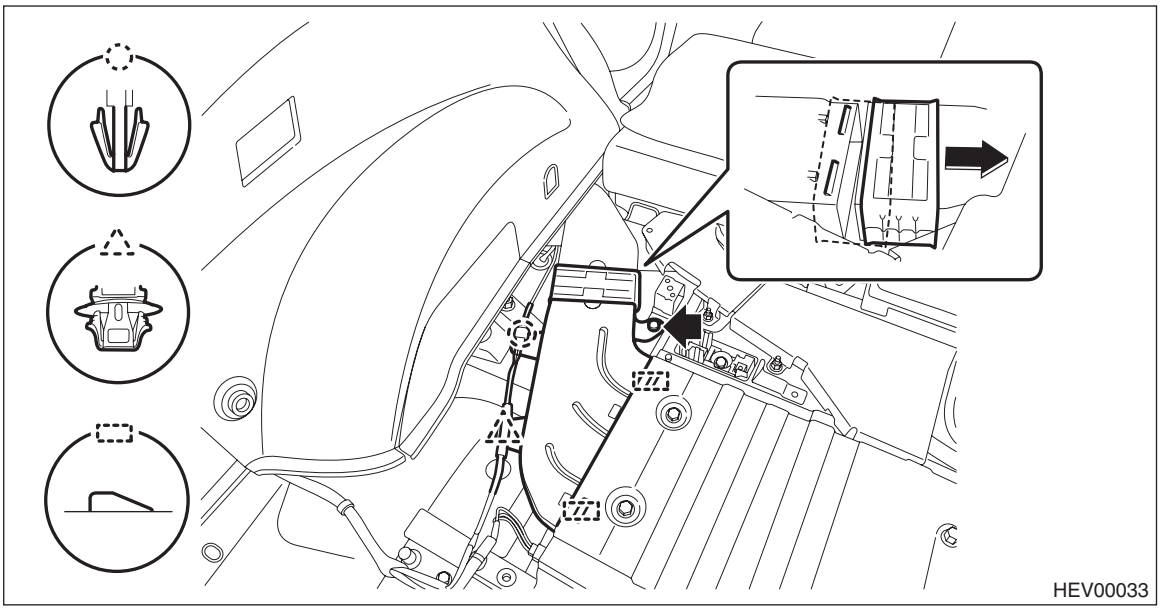



4) Remove the TORX® bolts, release the clips, and then remove the battery cover.

***Preparation tool:***
***TORX® T30***

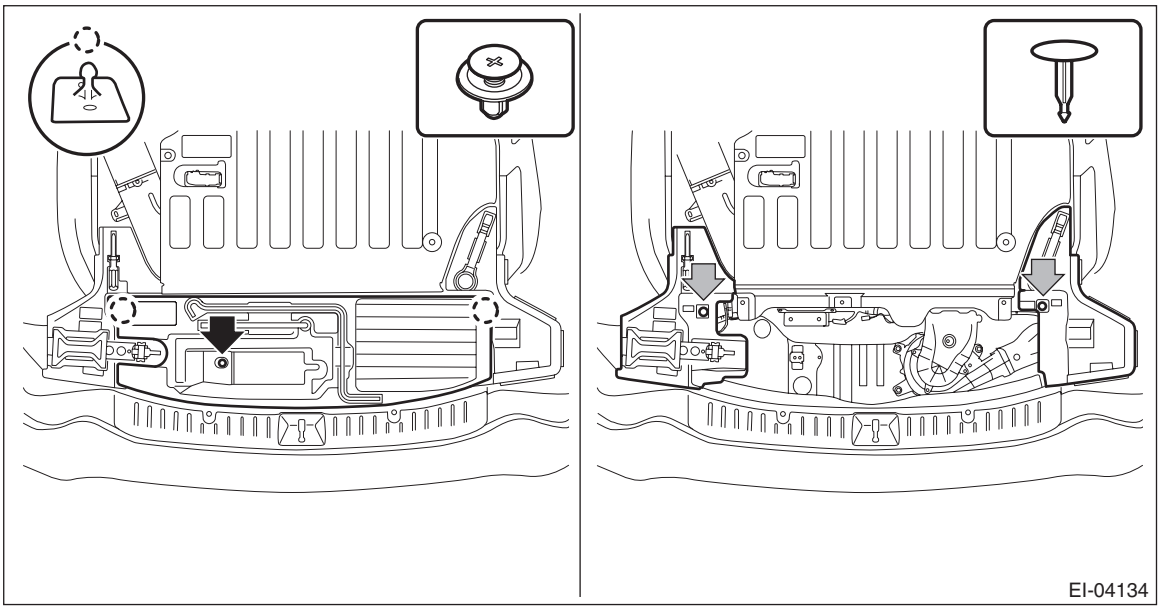


5) Remove the cooling duct front (rear).
   (1) Release the slide lock, clip, and harness clip.
   (2) Release the claws, and remove the cooling duct front (rear).

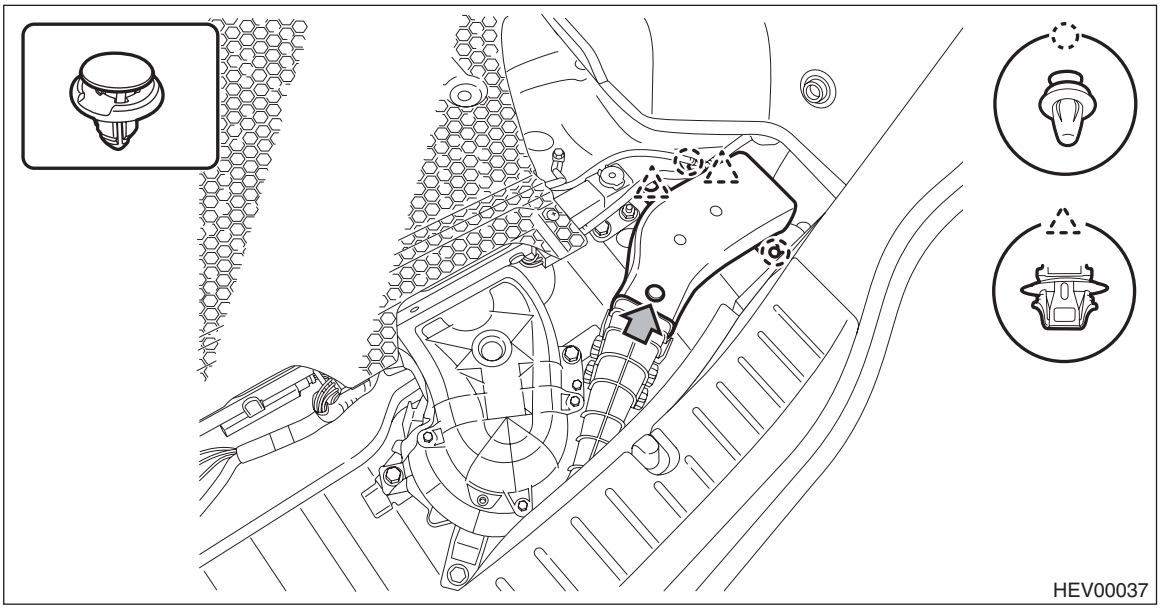



### 3. COOLING DUCT REAR

1) Remove the mat - rear floor CTR.
2) Release the clips and claws, then detach the sub-trunk assembly and the spacer - rear floor side RH.



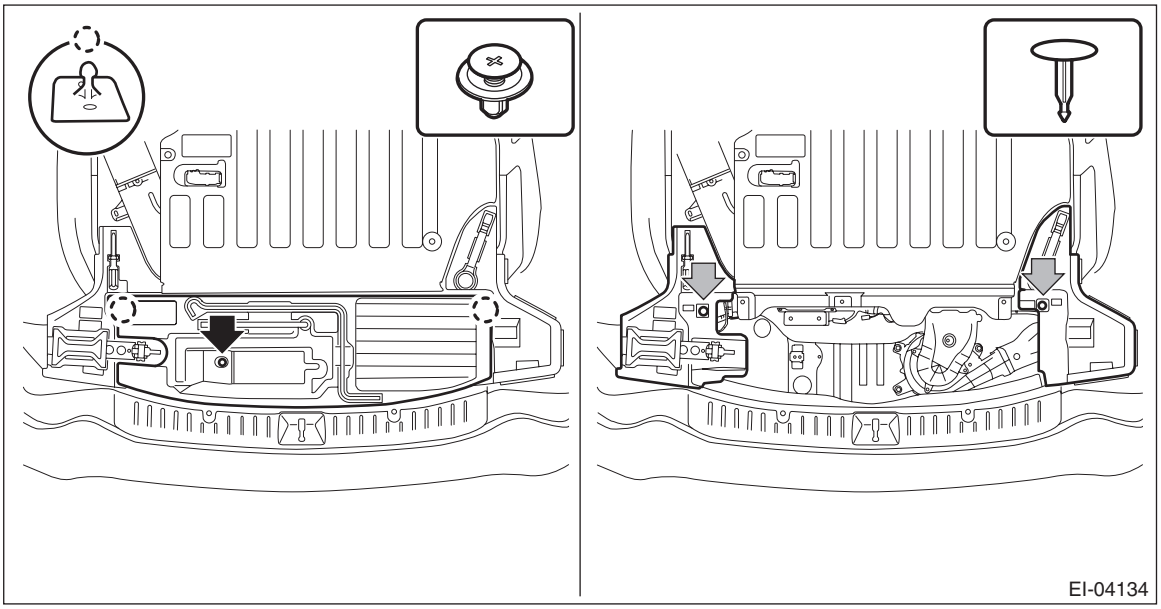
3) Release the clips and harness clips, then detach the cooling duct rear.




## 4. COOLING DUCT INVERTER ASSEMBLY

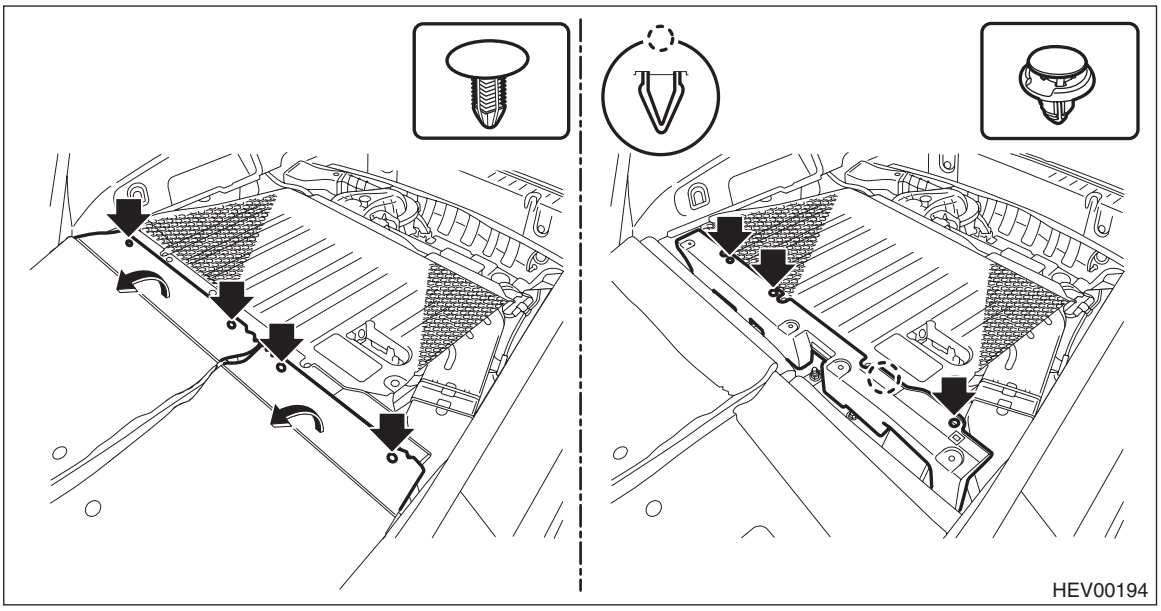
**WARNING:**
**The hybrid system includes a high voltage circuit. Mishandling could cause accidents such as electric shock or leak. Always check "CAUTION (HYBRID SYSTEM)" and perform the proper operation. <Ref. to PC-7, CAUTION (HYBRID SYSTEM), Precaution.>**

1) Remove the service disconnect plug. <Ref. to HEV-15, REMOVAL, Service Plug.>
2) Release the clips and claws, then detach the sub-trunk assembly and the spacer - rear floor side.



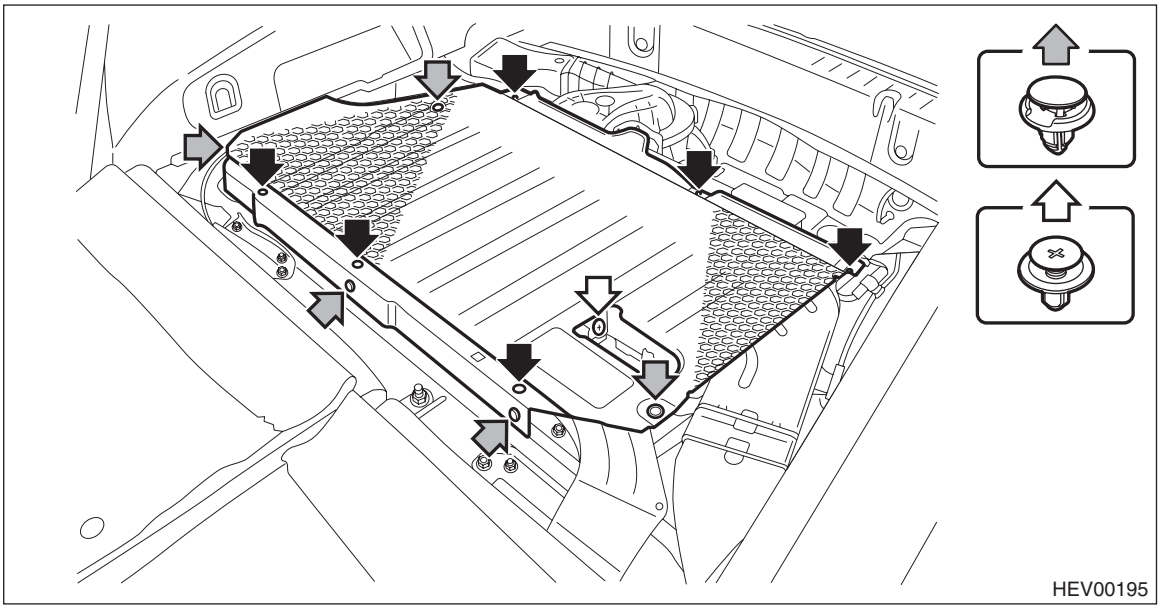

3) Remove the rear seat cushion and fold the backrest assemblies LH and RH. <Ref. to SE-23, REMOVAL, Rear Seat.>

4) Remove the spacer - rear floor front.
(1) Release the clips, and fold back the bottom of the cover COMPL - rear backrest LH and RH of the rear seat back.
(2) Release the clips and claws, then detach the spacer - rear floor front.

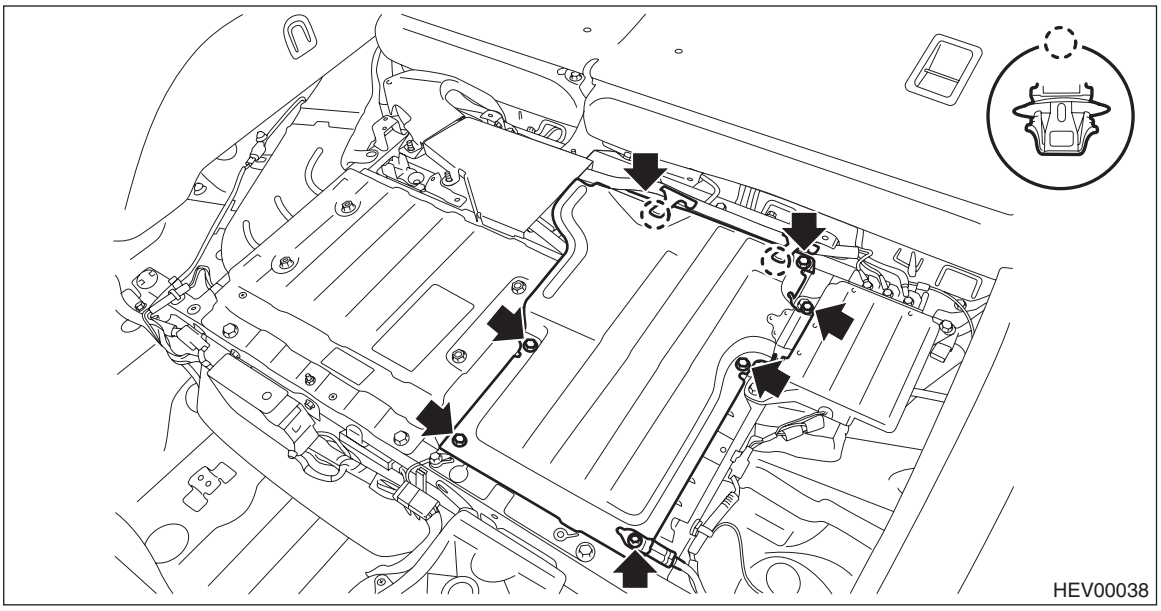



5) Remove the TORX® bolts, release the clips, and then remove the battery cover.

***Preparation tool:***
***TORX® T30***



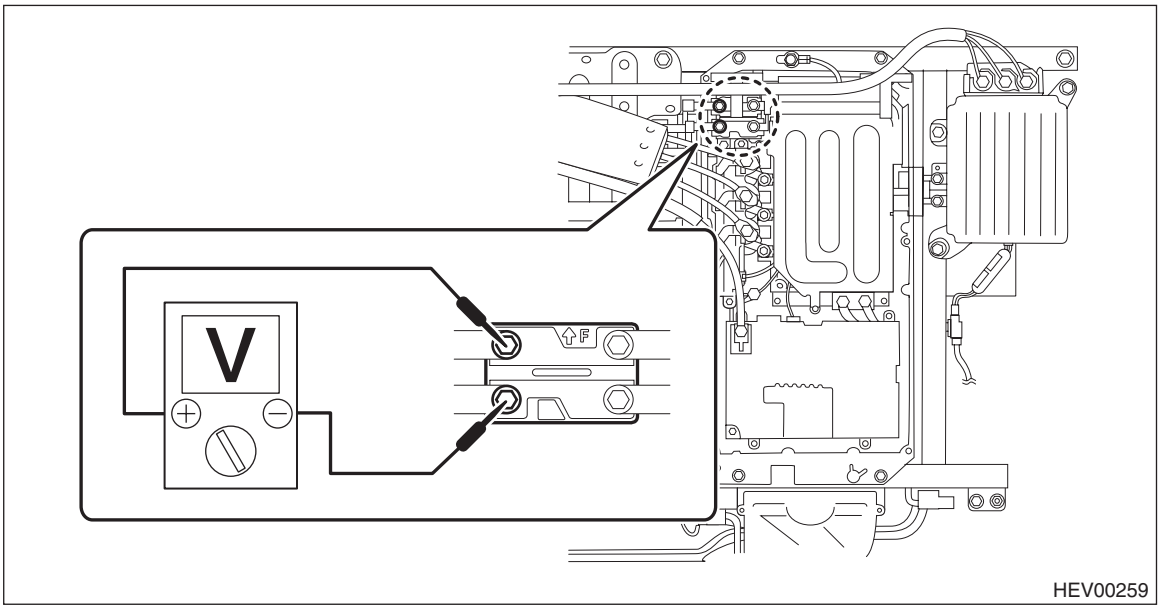
6) Remove the inverter cover.
   (1) Remove the bolts and ground terminal.
   (2) Release the cable clips, and remove the inverter cover.



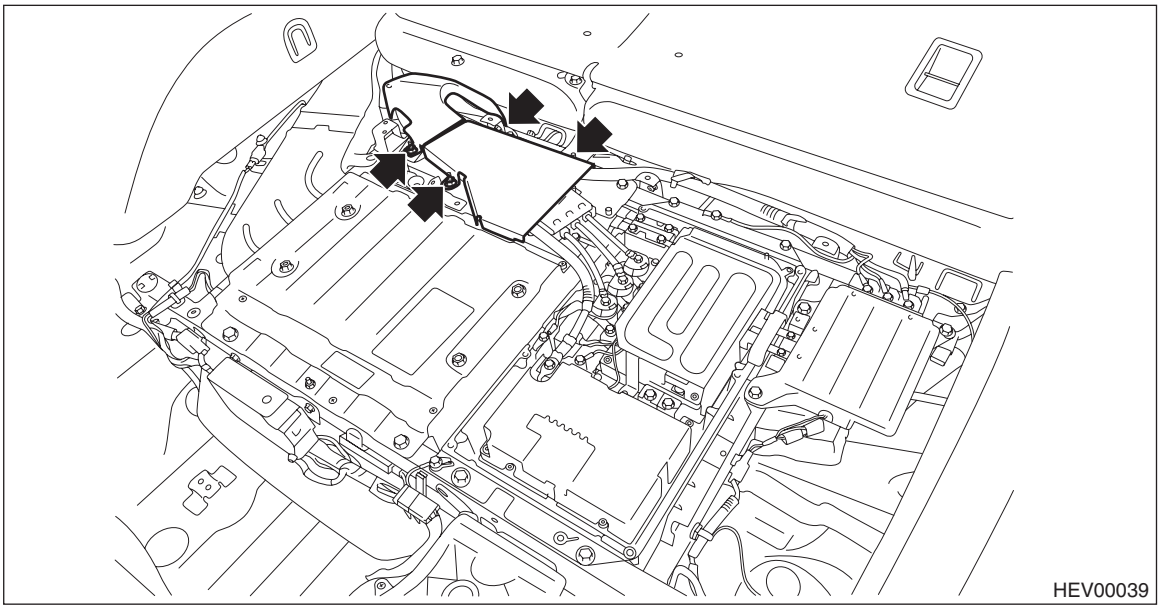

7) Perform zero-voltage test.
   (1) Measure the voltage of the high voltage DC line at the high voltage battery side of the electric noise filter.

***Preparation tool:***
***Insulation multimeter***

***Standard: 0 V***

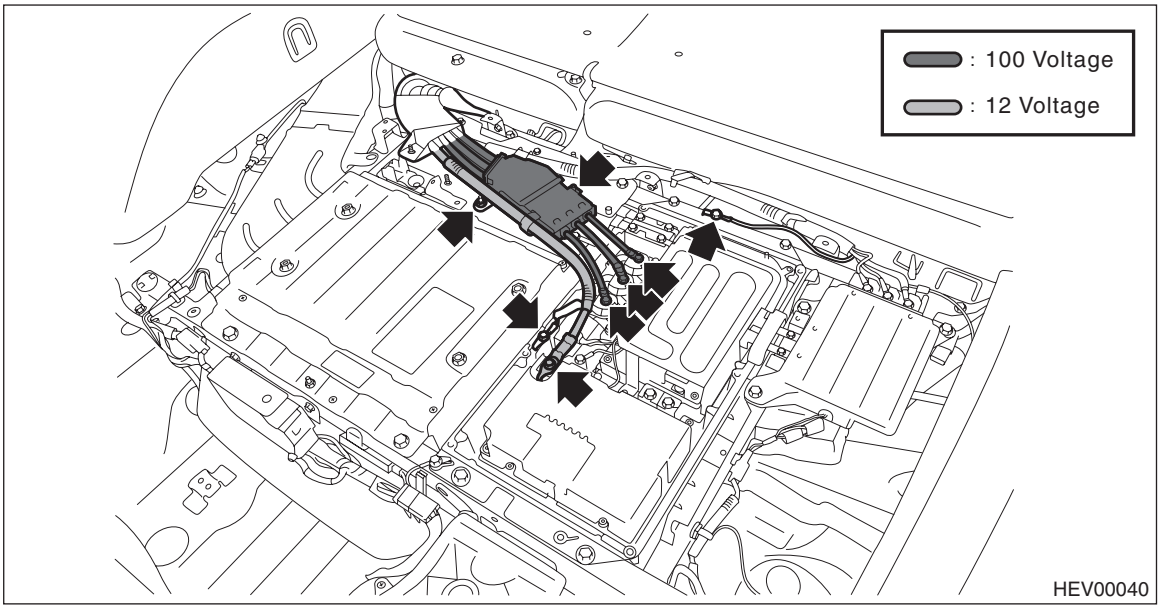


8) Remove the nut and remove the cover - shield battery and the cover - shield seat.




9) Remove the bolts and nuts and disconnect the ground terminal and the power cable.

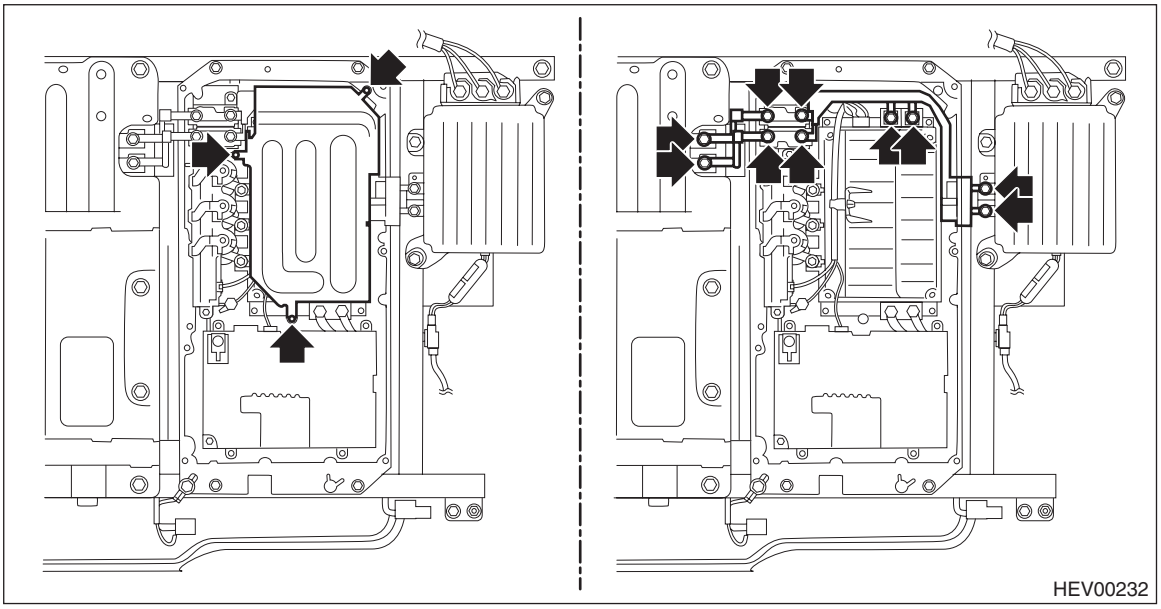
**CAUTION:**
- **Be careful not to use excessive force when disconnecting the power cable to avoid any damage.**
- **Always wrap the disconnected power cable terminals with insulating tape.**




10) Remove the cooling duct front (rear). <Ref. to HEV-62, COOLING DUCT FRONT (REAR), REMOVAL, High Voltage Battery Cooling System.>
11) Remove the cooling fan assembly. <Ref. to HEV-70, COOLING FAN ASSEMBLY, REMOVAL, High Voltage Battery Cooling System.>

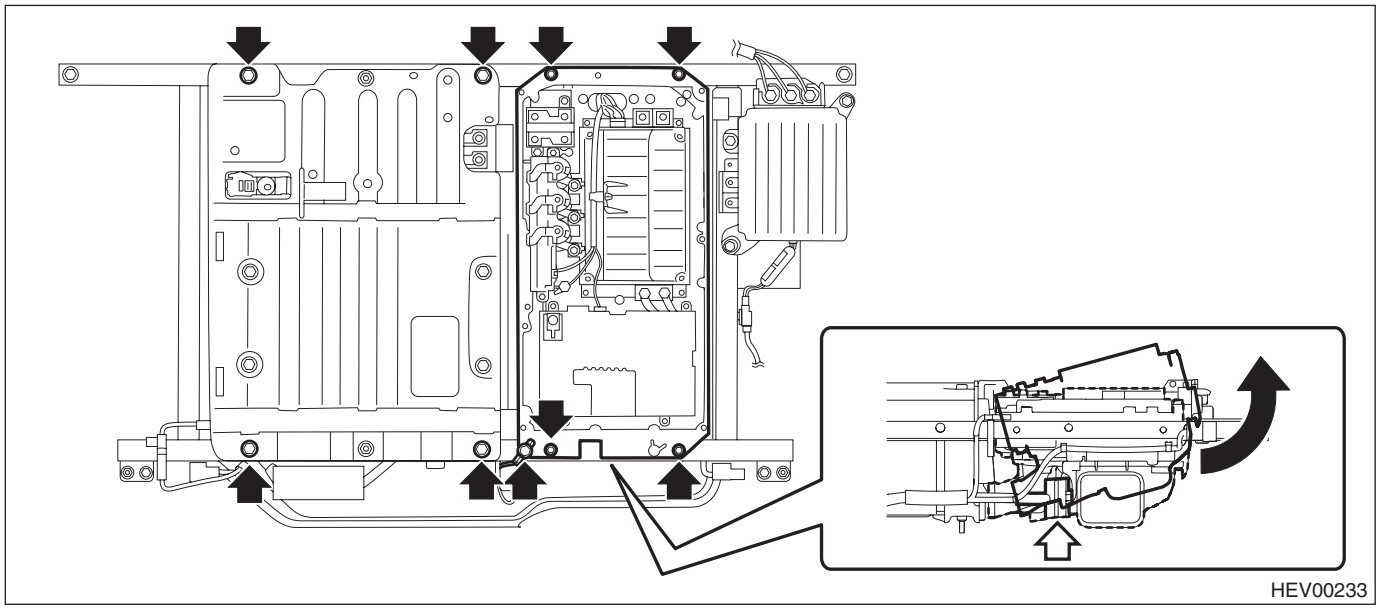
12) Remove the inverter assembly.
(1) Remove the bolts to remove the inverter shield.
(2) Remove the bolts and disconnect the bus bars between the high voltage battery and electric noise filter and between the electric noise filter and electric oil pump inverter respectively.

**CAUTION:**
**Always wrap the high voltage battery terminal with insulating tape.**

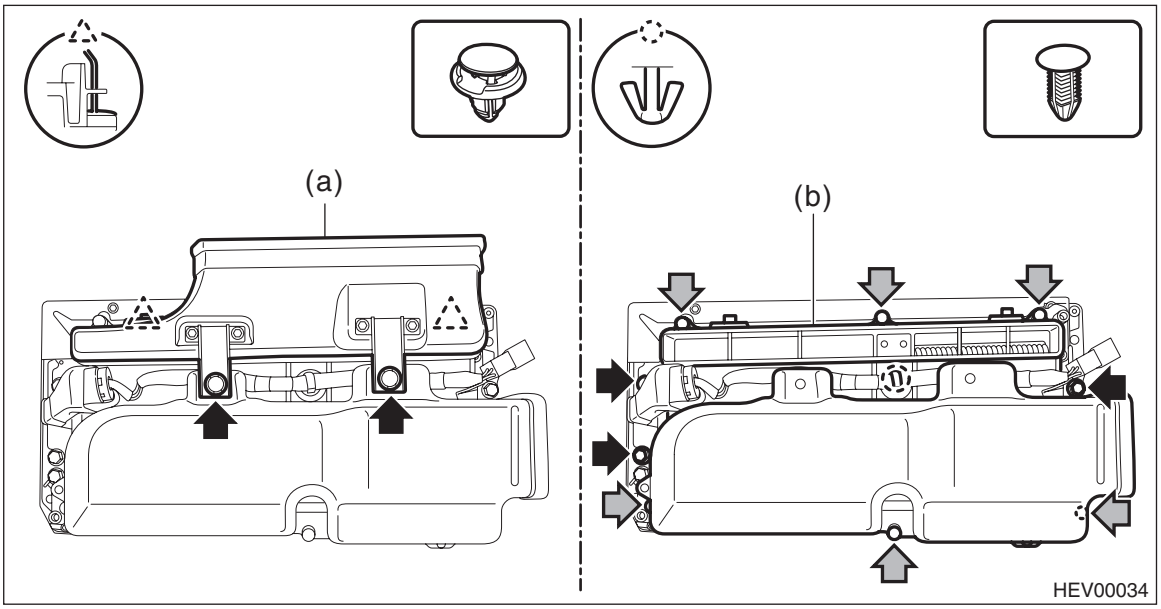



(3) Disconnect the connector.
(4) Remove all the mounting bolts of the high voltage battery to make the battery free.
(5) Remove the bolts, and then detach the ground terminal and the inverter assembly.

**CAUTION:**
**Be careful not to damage the duct seal located underneath the high voltage battery.**



13) Remove the cooling duct inverter assembly.
(1) Release the clips and hooks, then remove the duct inverter IN (a).
(2) Remove the bolt.
(3) Release the clips and harness clips, then remove the duct inverter OUT (b).

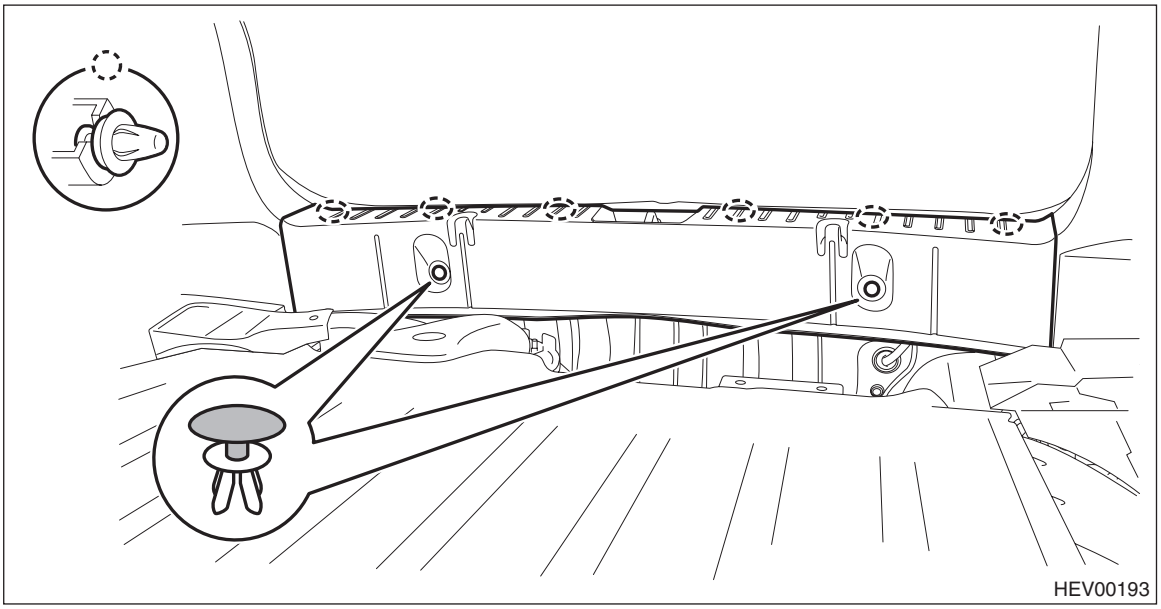



NOTE:
Leave the harness on the inverter frame assembly side.

## 5. COOLING FAN ASSEMBLY

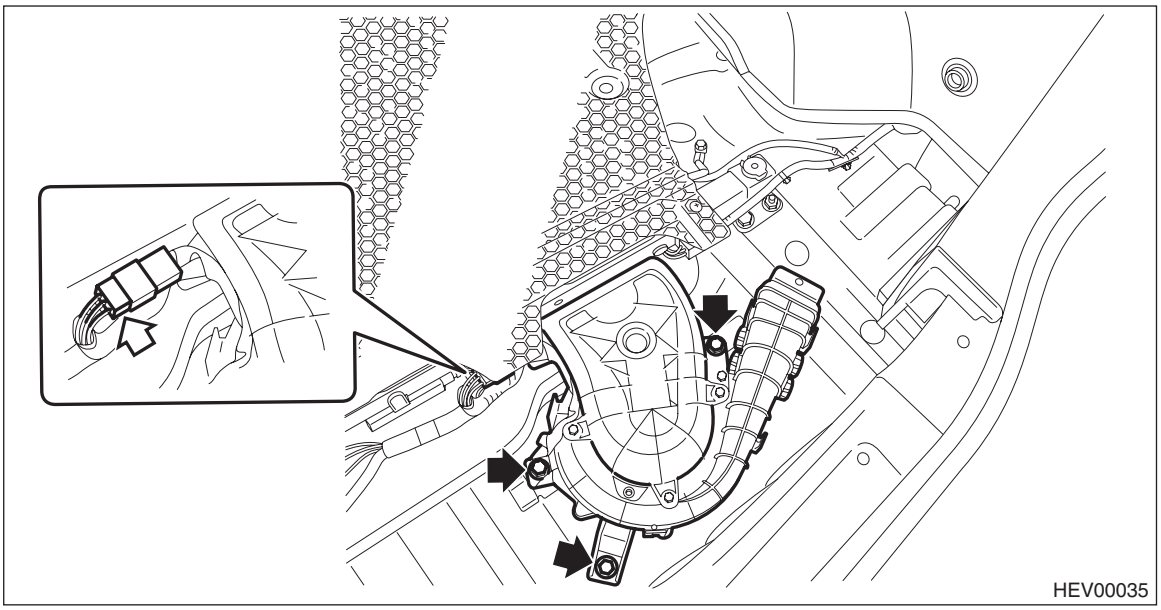
1) Disconnect the ground cable from battery. <Ref. to NT-5, BATTERY, NOTE, Note.>

NOTE:
For the 12 volt engine restart battery, disconnect the ground terminal from 12V engine restart battery sensor.
2) Remove the mat - rear floor CTR.
3) Release the clips and claws, then detach the sub-trunk assembly and the spacer - rear floor side RH.
4) Release the clips, then remove the trim panel - rear skirt.

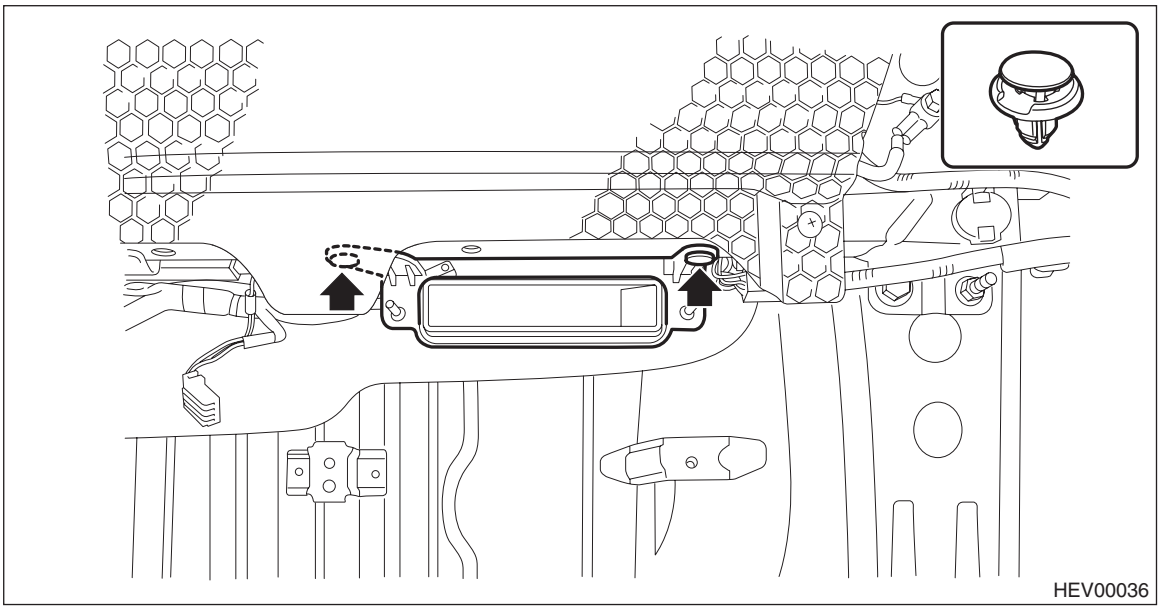



5) Remove the cooling duct rear. <Ref. to HEV-64, COOLING DUCT REAR, REMOVAL, High Voltage Battery Cooling System.>

6) Remove the cooling fan assembly.
(1) Release the connector and the clip.
(2) Remove the bolts, then remove the cooling fan assembly.




7) Release the clips, and remove the cooling fan duct from the cooling duct inverter assembly.




## B: INSTALLATION

### 1. COOLING DUCT FRONT (FRONT)

Install each part in the reverse order of removal.

***Tightening torque:***
***33 N·m (3.4 kgf-m, 24.3 ft-lb)***

### 2. COOLING DUCT FRONT (REAR)

**WARNING:**
**The hybrid system includes a high voltage circuit. Mishandling could cause accidents such as electric shock or leak. Always check "CAUTION (HYBRID SYSTEM)" and perform the proper operation. <Ref. to PC-7, CAUTION (HYBRID SYSTEM), Precaution.>**
1) Install the cooling duct front (rear).

2) Install the battery cover.

***Tightening torque:***
***7.5 N·m (0.8 kgf-m, 5.5 ft-lb)***
3) Install the spacer - rear floor front.
4) Install the rear seat cushion. <Ref. to SE-27, INSTALLATION, Rear Seat.>
5) Install the sub-trunk assembly and the spacer - rear floor side LH.
6) Install the service disconnect plug. <Ref. to HEV-16, INSTALLATION, Service Plug.>

## 3. COOLING DUCT REAR

Install each part in the reverse order of removal.

## 4. COOLING DUCT INVERTER ASSEMBLY

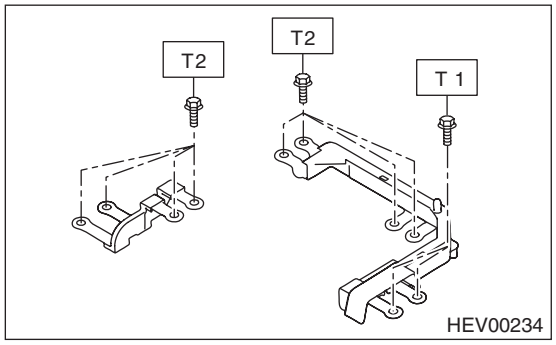
**WARNING:**
**The hybrid system includes a high voltage circuit. Mishandling could cause accidents such as electric shock or leak. Always check "CAUTION (HYBRID SYSTEM)" and perform the proper operation. <Ref. to PC-7, CAUTION (HYBRID SYSTEM), Precaution.>**
1) Install the cooling duct inverter assembly.

***Tightening torque:***
***6.5 N·m (0.7 kgf-m, 4.8 ft-lb)***
2) Mount the high voltage battery on the high voltage battery frame assembly, then install the inverter assembly.

**CAUTION:**
- **If the duct seal is damaged, replace it with a new part.**
- **Be sure that the high voltage battery is securely attached to the cooling duct inverter duct.**

***Tightening torque:***
***High voltage battery and inverter assembly: 22 N·m (2.2 kgf-m, 16.2 ft-lb)***
***Ground terminal: 6.5 N·m (0.7 kgf-m, 4.8 ft-lb)***
3) Connect the bus bar.

***Tightening torque:***
***T1: 6.5 N·m (0.7 kgf-m, 4.8 ft-lb)***
***T2: 7.5 N·m (0.8 kgf-m, 5.5 ft-lb)***




4) Install the inverter shield.

***Tightening torque:***
***6.5 N·m (0.7 kgf-m, 4.8 ft-lb)***
5) Install the cooling fan assembly. <Ref. to HEV-73, COOLING FAN ASSEMBLY, INSTALLATION, High Voltage Battery Cooling System.>
6) Install the cooling duct front (rear). <Ref. to HEV-71, COOLING DUCT FRONT (REAR), INSTALLATION, High Voltage Battery Cooling System.>

7) Connect the ground terminal and the power cable.

**CAUTION:**
**• When connecting the power cable, pay attention to the letters (U, V, and W) imprinted on the drive motor inverter amperage sensor body as well as on the protector of the power cable.**
**• Do not apply excessive force to the terminals and watch to make sure the cable is not damaged or pinched.**

***Tightening torque:***
***7.5 N·m (0.8 kgf-m, 5.5 ft-lb)***
8) Install the cover - shield battery and the cover - shield seat.

***Tightening torque:***
***7.5 N·m (0.8 kgf-m, 5.5 ft-lb)***
9) Install the ground terminal and inverter cover.

**CAUTION:**
**Check that the sound proofing material on the inverter cover is not detached or damaged.**

***Tightening torque:***
***7.5 N·m (0.8 kgf-m, 5.5 ft-lb)***
10) Install the battery cover.

***Tightening torque:***
***7.5 N·m (0.8 kgf-m, 5.5 ft-lb)***
11) Install the spacer - rear floor front.
12) Install the rear seat cushion. <Ref. to SE-27, INSTALLATION, Rear Seat.>
13) Install the sub-trunk assembly and the spacer - rear floor side.
14) Install the service disconnect plug. <Ref. to HEV-16, INSTALLATION, Service Plug.>

### 5. COOLING FAN ASSEMBLY

Install each part in the reverse order of removal.

***Tightening torque:***
***7.5 N·m (0.8 kgf-m, 5.5 ft-lb)***

## C: INSPECTION

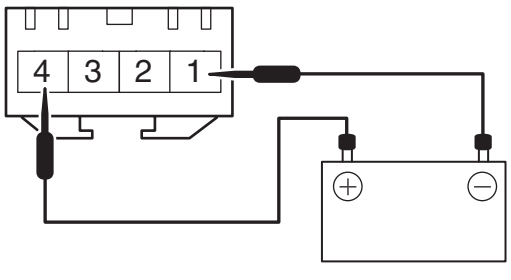
### 1. DUCT

Check the duct for clogging, crack, or deformation. If defective, replace the duct.

### 2. FAN MOTOR

#### UNIT INSPECTION

1) Check the motor operation when battery voltage is applied between the terminals of motor.

| Terminal No. | Inspection conditions | Specification | Connection diagram |
|---|---|---|---|
| 4 (+) — 1 (–) | Connect battery to the terminals | Rotation |  HEV00192 |

2) If it does not operate normally, replace the cooling fan assembly.

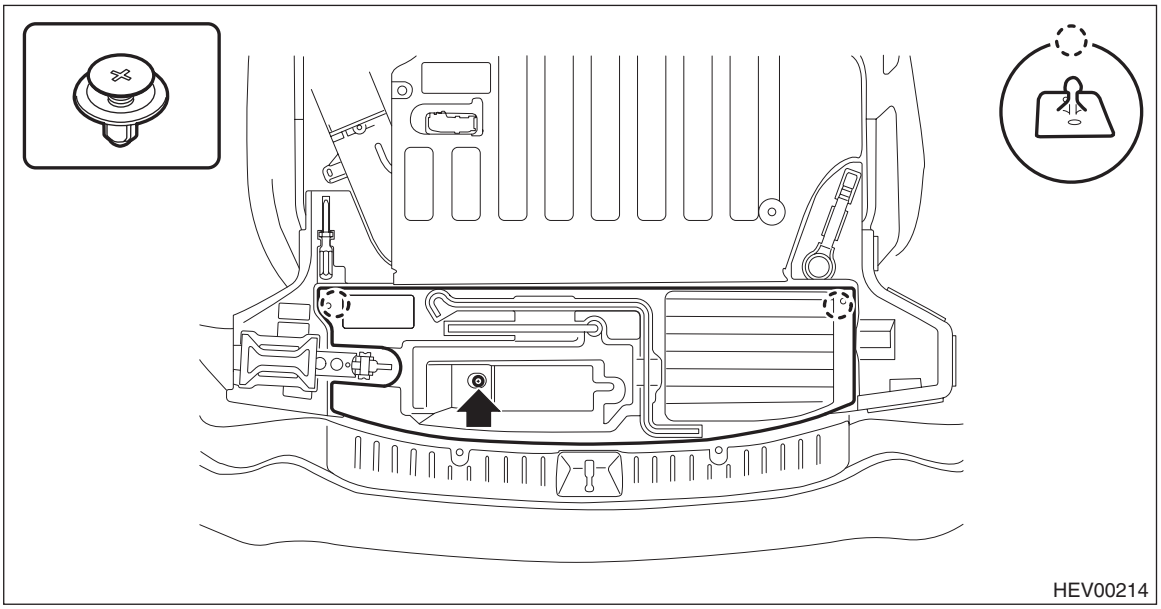
# 14.Drive Motor Control Module

## A: REMOVAL

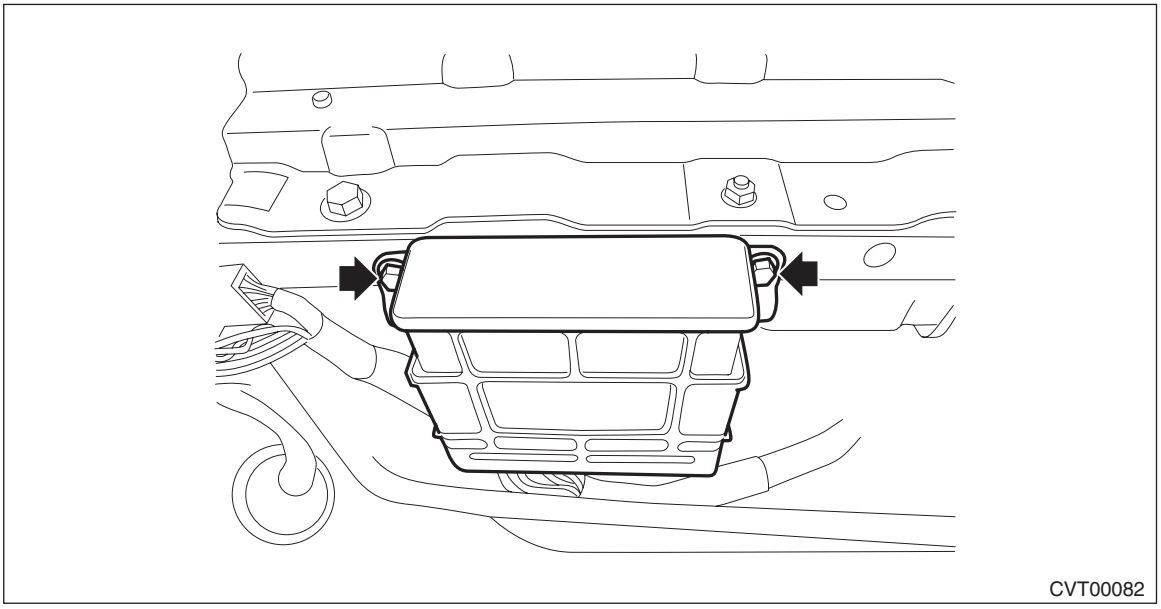
1) Disconnect the ground cable from battery. <Ref. to NT-5, BATTERY, NOTE, Note.>

NOTE:
For the 12 volt engine restart battery, disconnect the ground terminal from 12V engine restart battery sensor.

2) Remove the mat - rear floor CTR.
3) Release the clips and claws, then remove the sub-trunk box.




4) Remove the drive motor control module.
   (1) Remove the drive motor control module mounting bolts.




   (2) Disconnect the connector from the drive motor control module.
   (3) Release the relay holder, ground terminal, and harness clip.

NOTE:
Replace the drive motor control module and the bracket as a set.

## B: INSTALLATION

**CAUTION:**
- **If replaced with a new one, install the drive motor control module on the bracket.**
- **To avoid the damage to bracket and the drive motor control module, do not remove module once installed on the bracket. If installed by mistake, the part must be replaced with a new part.**

Install each part in the reverse order of removal.

***Tightening torque:***
***6.5 N·m (0.7 kgf-m, 4.8 ft-lb)***

# 15.Drive Motor Assembly

## A: NOTE

For drive motor assembly, refer to “CONTINUOUSLY VARIABLE TRANSMISSION” section. <Ref. to CVT(TH58A)-217, Drive Motor Assembly.>

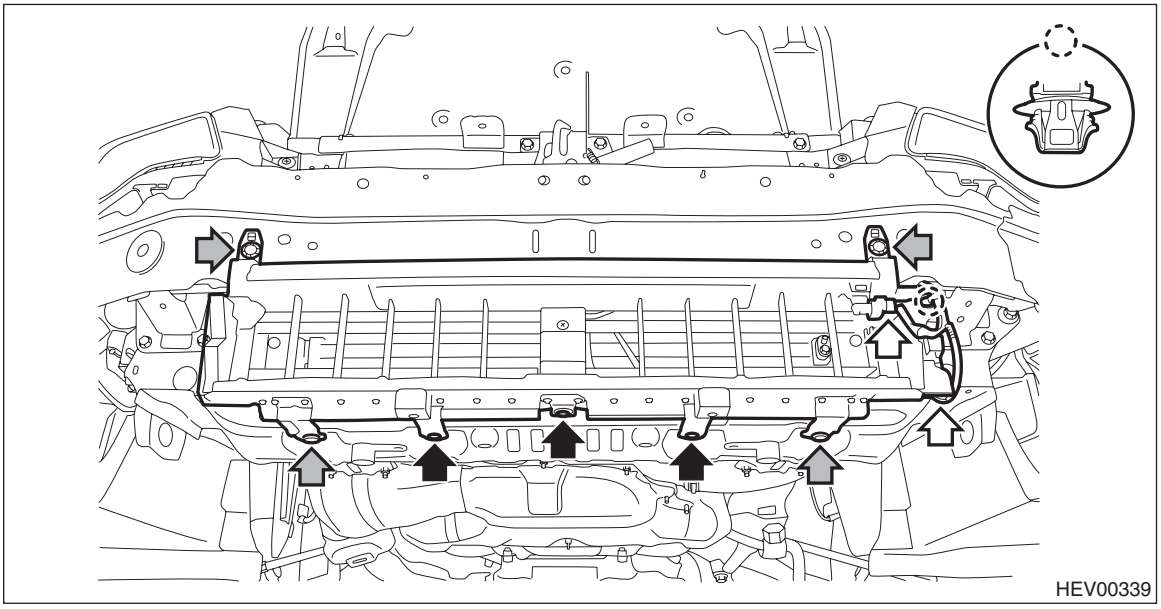
# 16.Active Grille Shutter

## A: REMOVAL

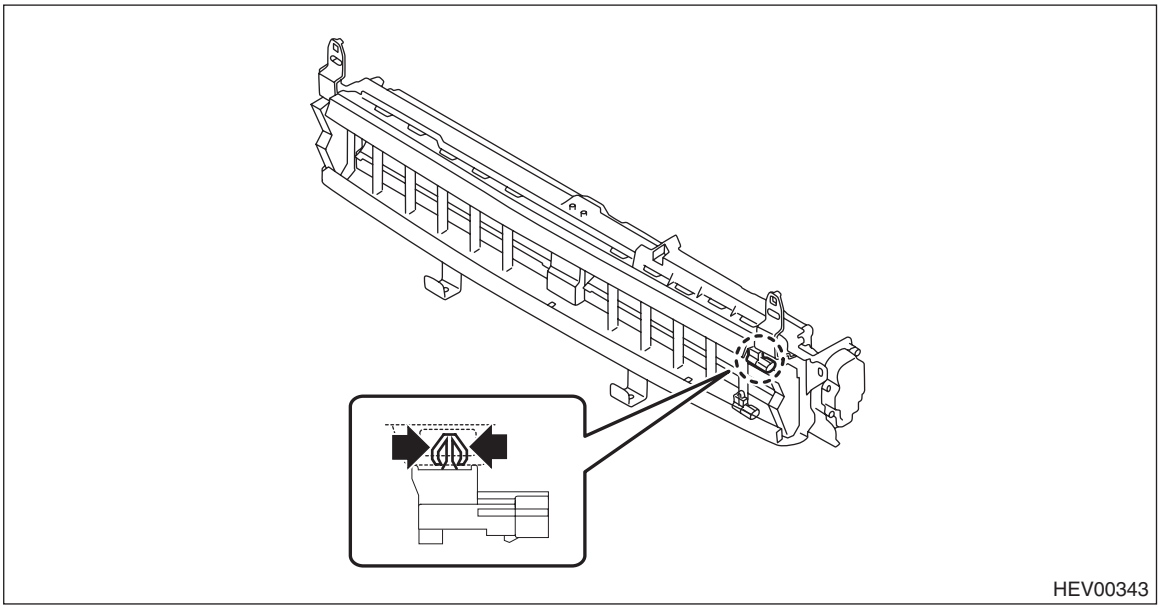
1) Disconnect the ground cable from battery. <Ref. to NT-5, BATTERY, NOTE, Note.>

NOTE:
For the 12 volt engine restart battery side, disconnect the ground terminal from the 12V engine restart battery sensor.

2) Remove the front under cover. <Ref. to EI-32, REMOVAL, Front Under Cover.>
3) Remove the bumper face - front. <Ref. to EI-40, REMOVAL, Front Bumper.>
4) Remove the active grille shutter.
   (1) Disconnect each connector and release the harness clip.
   (2) Remove the bolts, release the clips, and then remove the active grille shutter.


HEV00339

   (3) Release the claws and then remove the ambient sensor.


HEV00343

## B: INSTALLATION

1) Install each part in the reverse order of removal.

***Tightening torque:***
***7.5 N·m (0.8 kgf-m, 5.5 ft-lb)***

2) When the active grille shutter has been replaced, perform calibration procedure (system operation check of the ACTGS control system). <Ref. to EN(H4DO HEV)(diag)-67, OPERATION, System Operation Check Mode.>

# 17.Diagnostics with Phenomenon

## A: INSPECTION

Refer to “Diagnostics with Phenomenon” in the “HYBRID ELECTRIC VEHICLE (DIAGNOSTICS)” section. <Ref. to HEV(diag)-341, Diagnostics with Phenomenon.>

# HYBRID ELECTRIC VEHICLE (DIAGNOSTICS)

# *HEV(diag)*


| | | Page |
|---|---|---|
| 1. | Basic Diagnostic Procedure | 2 |
| 2. | Check List for Interview | 5 |
| 3. | General Description | 8 |
| 4. | Electrical Component Location | 9 |
| 5. | Control Module I/O Signal | 10 |
| 6. | General Scan Tool | 15 |
| 7. | Subaru Select Monitor | 18 |
| 8. | Read Diagnostic Trouble Code (DTC) | 24 |
| 9. | Clear Memory Mode | 25 |
| 10. | All Readiness Diagnostic Code(s) | 26 |
| 11. | Inspection Mode | 27 |
| 12. | Drive Cycle | 32 |
| 13. | Read Current Data | 40 |
| 14. | Freeze Frame Data Display | 63 |
| 15. | System Operation Check Mode | 71 |
| 16. | List of Diagnostic Trouble Code (DTC) | 74 |
| 17. | Fail-Safe Chart | 87 |
| 18. | Diagnostic Procedure with Diagnostic Trouble Code (DTC) | 94 |
| 19. | Diagnostics with Phenomenon | 341 |

# 1. Basic Diagnostic Procedure

## A: PROCEDURE

### 1. MODEL WITHOUT KEYLESS ACCESS WITH PUSH BUTTON START SYSTEM

**CAUTION:**
**When the body integrated unit is replaced, registration of the immobilizer system is required. For details, refer to the "REGISTRATION MANUAL FOR IMMOBILIZER".**

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CONFIRM NUMBER OF REGISTERED IMMOBILIZER KEY.**<br>Confirm the number of registered immobilizer key. For details, refer to the "REGISTRATION MANUAL FOR IMMOBILIZER". | Is the number of registration 0? | Register the immobilizer system. | Go to step **2**. |
| 2 | **CHECK SECURITY INDICATOR LIGHT.**<br>1) Remove the ignition key from ignition switch.<br>2) Wait at least 60 seconds. | Does the security indicator light blink? | Go to step **3**. | Check the security indicator light circuit. <Ref. to IM(diag)-11, CHECK SECURITY INDICATOR LIGHT CIRCUIT, INSPECTION, Diagnostics Chart for Security Indicator Light.> |
| 3 | **CHECK KEY SWITCH.**<br>Insert the ignition key in the ignition switch. (OFF or ACC) | Does the security indicator light remain blinking? | Check the key switch circuit. <Ref. to IM(diag)-13, CHECK KEY SWITCH CIRCUIT, INSPECTION, Diagnostics Chart for Security Indicator Light.> | Go to step **4**. |
| 4 | **CHECK SECURITY INDICATOR LIGHT.**<br>Check the security indicator light status in the condition of step 3. | Does the security indicator light go off? | Go to step **7**. | Go to step **5**. |
| 5 | **CHECK SECURITY INDICATOR LIGHT.**<br>Turn the ignition switch to ON. | Does the security indicator light go off? | Go to step **7**. | Go to step **6**. |
| 6 | **CHECK ENGINE START.**<br>Turn the ignition switch to START. | Does the starter operate? | Check the LAN communication system. <Ref. to LAN(w/o HEV)(diag)-2, Basic Diagnostic Procedure.> <Ref. to LAN(HEV)(diag)-2, Basic Diagnostic Procedure.> | Go to step **8**. |
| 7 | **CHECK ENGINE START.**<br>Turn the ignition switch to START. | Does the engine start? | Immobilizer system is normal. | Go to step **9**. |

| Step | | Check | Yes | No |
|---|---|---|---|---|
| 8 | **CHECK DTC.**<br>Read the DTC of body integrated unit and ECM and time stamp using Subaru Select Monitor.<br>NOTE:<br>For time stamp, refer to “LAN SYSTEM”. <Ref. to LAN(w/o HEV)(diag)-6, TIME STAMP, CAUTION, General Description.> <Ref. to LAN(HEV)(diag)-6, TIME STAMP, CAUTION, General Description.> | Is the DTC displayed on screen? | Go to step **10**. | Replace the body integrated unit. <Ref. to SL-87, Body Integrated Unit.> |
| 9 | **CHECK DTC.**<br>Read the DTC of body integrated unit and ECM and time stamp using Subaru Select Monitor.<br>NOTE:<br>For time stamp, refer to “LAN SYSTEM”. <Ref. to LAN(w/o HEV)(diag)-6, TIME STAMP, CAUTION, General Description.> <Ref. to LAN(HEV)(diag)-6, TIME STAMP, CAUTION, General Description.> | Is the DTC displayed on screen? | Go to step **10**. | Perform the diagnosis for engine system. <Ref. to EN(H4DO w/o HEV)(diag)-73, PROCEDURE, Diagnostics for Engine Starting Failure.> <Ref. to EN(H4DO HEV)(diag)-70, PROCEDURE, Diagnostics for Engine Starting Failure.> |
| 10 | **CHECK FREEZE FRAME DATA.**<br>Using the Subaru Select Monitor, check the Freeze Frame Data. | Are the data recorded? | Record the data. Go to step **11**. | Go to step **11**. |
| 11 | **PERFORM DIAGNOSIS.**<br>1) Inspect using the “Diagnostic Procedure with Diagnostic Trouble Code (DTC)”. <Ref. to IM(diag)-16, Diagnostic Procedure with Diagnostic Trouble Code (DTC).><br>2) Repair the trouble cause.<br>3) Perform the Clear Memory Mode.<br>4) Read DTCs again. | Is the DTC displayed on screen? | Inspect using the “Diagnostic Procedure with Diagnostic Trouble Code (DTC)”. <Ref. to IM(diag)-16, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> | Finish the diagnosis. |

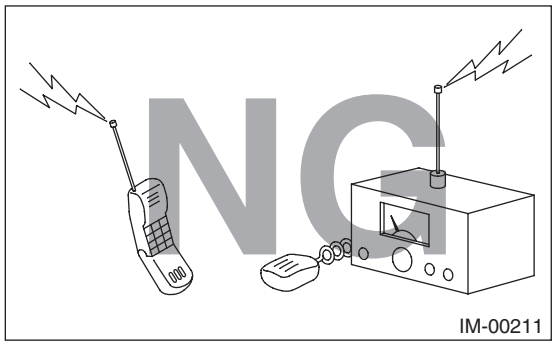
## 2. MODEL WITH KEYLESS ACCESS WITH PUSH BUTTON START SYSTEM

NOTE:
For immobilizer diagnosis of model with the keyless access with push button start system, refer to “Keyless Access with Push Button Start System”. <Ref. to KPS(diag)-2, Basic Diagnostic Procedure.>

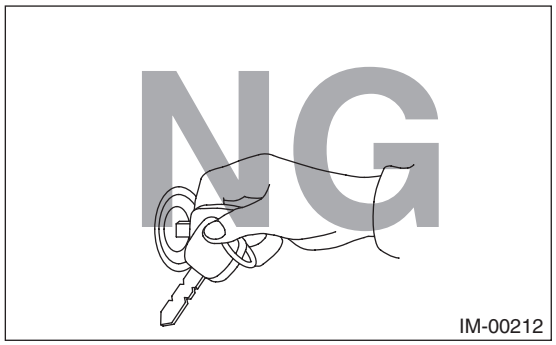
# 2. General Description

## A: CAUTION

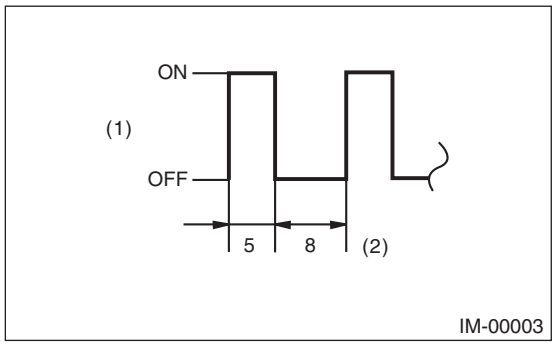
**CAUTION:**
- **Do not use the electrical test equipment on the airbag system wiring harnesses and connector circuits.**
- **Be careful not to damage the airbag system wiring harness.**
- **While diagnostic items are being checked, do not operate radios, portable telephones, etc. which emit electromagnetic waves near or inside the vehicle.**




- **When turning the ignition switch to ON or OFF while diagnostic items are being checked, do not allow keys with different ID codes close to the ignition switch. If the ignition key is on a key holder, remove it from the key holder before performing diagnoses.**




- **When repeatedly turning the ignition switch to ON or OFF while diagnostic items are being checked, it should be switched in cycles of "ON" for at least 5 seconds → "OFF" for at least 8 seconds.**

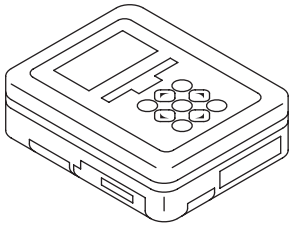



(1) Ignition switch position
(2) Sec.

- **If the engine fails to start with a registered ignition key, detach the ignition key from ignition switch and wait for approx. 1 second until security indicator light begins to flash. And then start the engine again.**
- **Before performing the diagnostics, obtain all keys for the vehicle from the owner.**
- **Do not register a body integrated unit already registered to another vehicle to diagnose failures or inspect functions.**

# B: PREPARATION TOOL

## 1. SPECIAL TOOL

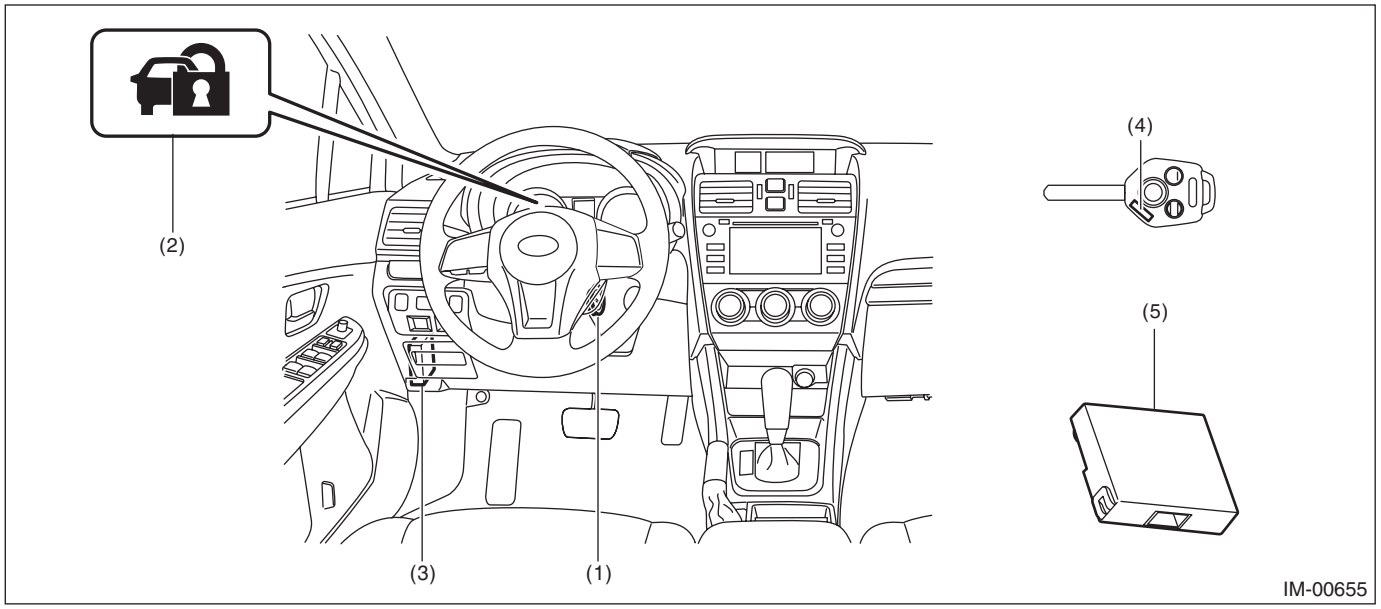
| ILLUSTRATION | TOOL NUMBER | DESCRIPTION | REMARKS |
|---|---|---|---|
|  ST1B022XU0 | 1B022XU0 | SUBARU SELECT MONITOR III KIT | Used for setting of each function and trouble-shooting for electrical system.<br>NOTE:<br>For detailed operation procedures of SUBARU SELECT MONITOR III, refer to “PC application help for Subaru Select Monitor”. |

## 2. GENERAL TOOL

| TOOL NAME | REMARKS |
|---|---|
| Circuit tester | Used for measuring resistance, voltage and current. |

# 3. Electrical Component Location

## A: LOCATION




(1) Antenna
(2) Security indicator light (LED bulb)
(3) Body integrated unit
(4) Transponder
(5) Security control module (for C0 and C5 models only)

# 4. Immobilizer Control Module I/O Signal

## A: WIRING DIAGRAM

### 1. IMMOBILIZER

Refer to “Immobilizer System” in the wiring diagram. <Ref. to WI(w/o HEV)-143, WIRING DIAGRAM, Immobilizer System.> <Ref. to WI(HEV)-151, WIRING DIAGRAM, Immobilizer System.>

# 5. Subaru Select Monitor

## A: OPERATION

### 1. HOW TO USE THE SUBARU SELECT MONITOR

For operation procedures, refer to the “PC application help for Subaru Select Monitor”.

### 2. READ DIAGNOSTIC TROUBLE CODE (DTC) FOR ENGINE AND BODY INTEGRATED UNIT

Refer to “Read Diagnostic Trouble Code (DTC)” for information about how to indicate DTC. <Ref. to IM(diag)-9, Read Diagnostic Trouble Code (DTC).>

NOTE:
If a problem is detected, repair the trouble cause. <Ref. to IM(diag)-19, DTC B1572 IMM CIRCUIT FAILURE (EXCEPT ANTENNA CIRCUIT), Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

# 6. Read Diagnostic Trouble Code (DTC)

## A: OPERATION

### 1. ECM

For operation procedures, refer to the “PC application help for Subaru Select Monitor”.

NOTE:
For details concerning DTC, refer to the List of Diagnostic Trouble Codes (DTC). <Ref. to IM(diag)-14, LIST, List of Diagnostic Trouble Code (DTC).>

### 2. BODY INTEGRATED UNIT

For operation procedures, refer to the “PC application help for Subaru Select Monitor”.

NOTE:
For details concerning DTC, refer to the List of Diagnostic Trouble Codes (DTC). <Ref. to IM(diag)-14, LIST, List of Diagnostic Trouble Code (DTC).>

# 7. Clear Memory Mode

## A: OPERATION

### 1. ECM

For operation procedures, refer to the “PC application help for Subaru Select Monitor”.

NOTE:
Initial diagnosis of electronic throttle control is performed after memory clearance. Wait for 10 seconds or more after turning the ignition switch to ON, and then start the engine.

### 2. BODY INTEGRATED UNIT

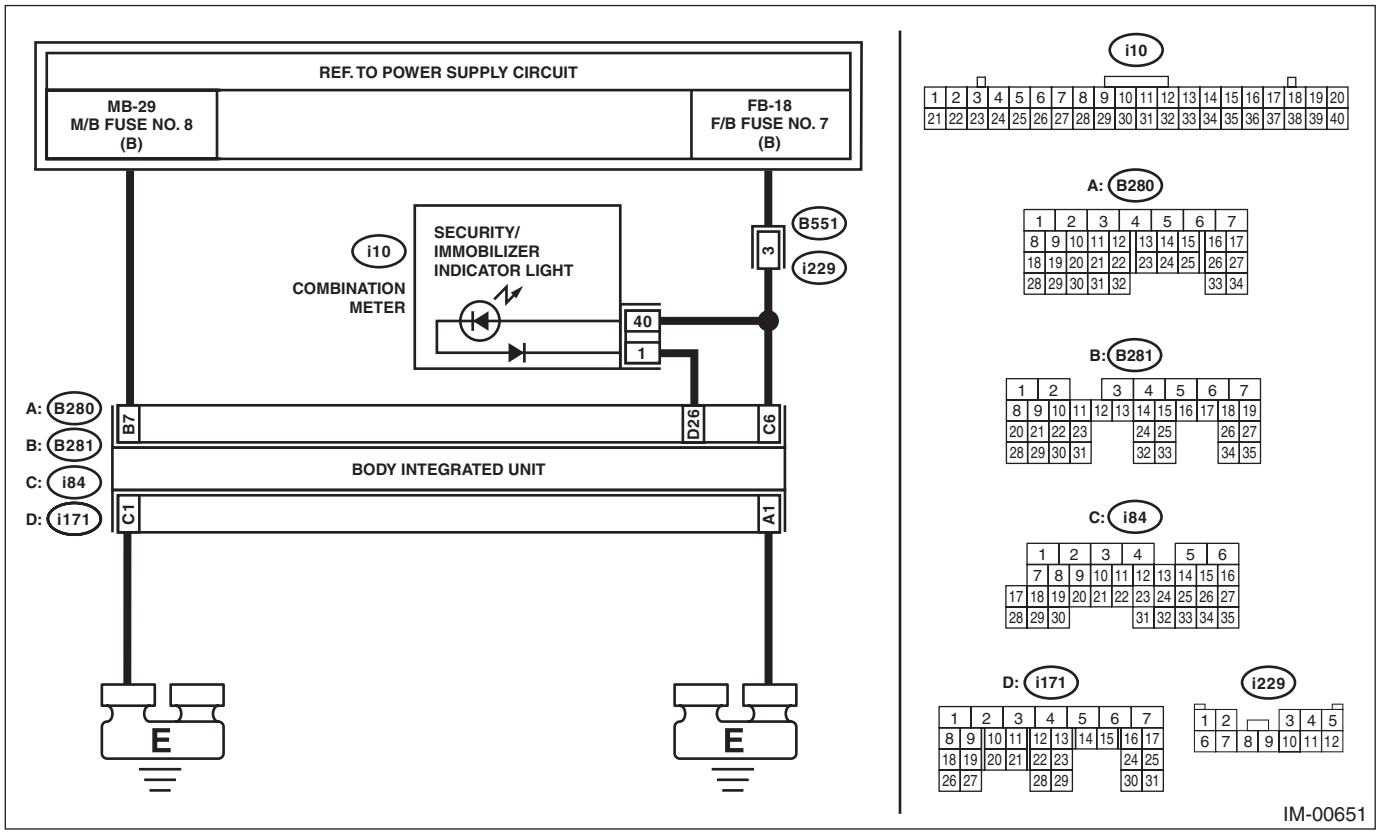
For operation procedures, refer to the “PC application help for Subaru Select Monitor”.

# 8. Diagnostics Chart for Security Indicator Light

## A: INSPECTION

### 1. CHECK SECURITY INDICATOR LIGHT CIRCUIT

**CAUTION:**
**When the body integrated unit is replaced, registration of the immobilizer system is required. For details, refer to the "REGISTRATION MANUAL FOR IMMOBILIZER".**
**WIRING DIAGRAM:**
Immobilizer system <Ref. to WI(w/o HEV)-143, WIRING DIAGRAM, Immobilizer System.> <Ref. to WI(HEV)-151, WIRING DIAGRAM, Immobilizer System.>



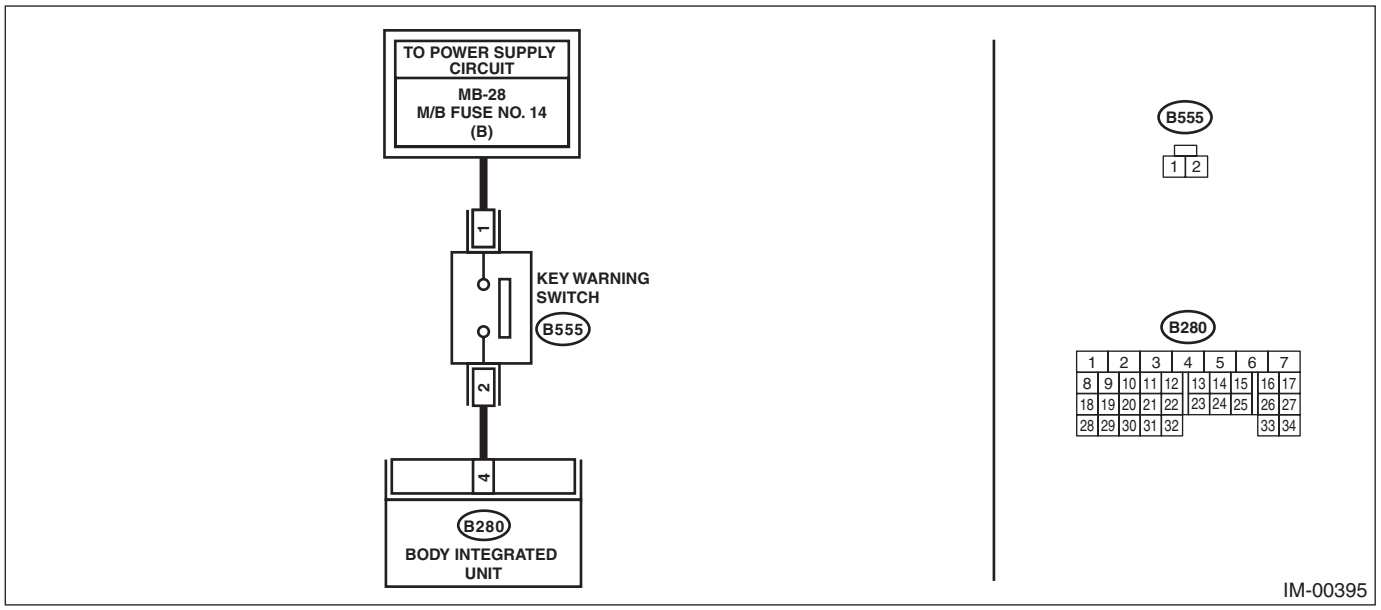

| Step | | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK FUSE.**<br>1) Remove the ignition key from ignition switch. Or, turn off the power.<br>2) Check the fuse (M/B No. 8). | Is the fuse OK? | Go to step **2**. | Replace the fuse. If the replaced fuse blows out easily, repair the short circuit in the harness between the fuse and body integrated unit. |
| 2 | **CHECK SECURITY INDICATOR LIGHT.**<br>1) Disconnect the connector from body integrated unit.<br>2) Connect the resistor (100 Ω) between the body integrated unit connector terminal (i171) No. 26 and chassis ground. | Does the security indicator light illuminate? | Go to step **3**. | Go to step **5**. |

# Diagnostics Chart for Security Indicator Light

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 3 | **CHECK BODY INTEGRATED UNIT GROUND CIRCUIT.**<br>Measure the resistance between the body integrated unit connector terminal and chassis ground.<br>***Connector & terminal***<br>***(B280) No. 1 — Chassis ground:***<br>***(i84) No. 1 — Chassis ground:*** | Is the resistance less than 10 Ω? | Go to step **4**. | Repair the open circuit of the body integrated unit ground circuit. |
| 4 | **CHECK BODY INTEGRATED UNIT POWER SUPPLY CIRCUIT.**<br>Measure the voltage between the body integrated unit connector terminal and chassis ground.<br>***Connector & terminal***<br>***(B281) No. 7 (+) — Chassis ground (–):***<br>***(i84) No. 6 (+) — Chassis ground (–):*** | Is the voltage 10 V or more? | Replace the body integrated unit. <Ref. to SL-87, Body Integrated Unit.> | Check the harness for open or short circuit between body integrated unit and fuse. |
| 5 | **CHECK COMBINATION METER CIRCUIT.**<br>1) Remove the combination meter. <Ref. to IDI-20, Combination Meter.><br>2) Measure the voltage between combination meter connector terminal and chassis ground.<br>***Connector & terminal***<br>***(i10) No. 40 (+) — Chassis ground (–):*** | Is the voltage 10 V or more? | Go to step **6**. | Check for an open or short circuit in the harness between the combination meter and fuse. |
| 6 | **CHECK COMBINATION METER CIRCUIT.**<br>Measure the resistance between the body integrated unit connector terminal and combination meter connector terminal.<br>***Connector & terminal***<br>***(i171) No. 26 — (i10) No. 1:*** | Is the resistance less than 10 Ω? | LED bulb is defective. Replace the combination meter case assembly. <Ref. to IDI-22, DISASSEMBLY, Combination Meter.> | Repair the harness or connector. |

## 2. CHECK KEY SWITCH CIRCUIT

**CAUTION:**
**When the body integrated unit is replaced, registration of the immobilizer system is required. For details, refer to the "REGISTRATION MANUAL FOR IMMOBILIZER".**
**WIRING DIAGRAM:**
Immobilizer system <Ref. to WI(w/o HEV)-143, WIRING DIAGRAM, Immobilizer System.> <Ref. to WI(HEV)-151, WIRING DIAGRAM, Immobilizer System.>




| Step | | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK POWER SUPPLY CIRCUIT.**<br>1) Disconnect the connector from key warning switch.<br>2) Measure the voltage between key warning switch connector terminal and chassis ground.<br>***Connector & terminal***<br>***(B555) No. 1 (+) — Chassis ground (–):*** | Is the voltage 10 V or more? | Go to step **2**. | Check the harness for an open or short between the key warning switch and fuse. |
| 2 | **CHECK KEY WARNING SWITCH.**<br>1) Insert the ignition key in the ignition switch. (OFF or ACC)<br>2) Measure the resistance between key warning switch connector terminals.<br>***Connector & terminal***<br>***No. 1 — No. 2:*** | Is the resistance less than 1 Ω? | Go to step **3**. | Replace the key warning switch. |
| 3 | **CHECK KEY WARNING SWITCH.**<br>1) Remove the ignition key from ignition switch.<br>2) Measure the resistance between key warning switch connector terminals.<br>***Connector & terminal***<br>***No. 1 — No. 2:*** | Is the resistance 1 MΩ or more? | Go to step **4**. | Replace the key warning switch. |
| 4 | **CHECK HARNESS BETWEEN KEY WARNING SWITCH AND BODY INTEGRATED UNIT.**<br>1) Disconnect the connector from body integrated unit.<br>2) Measure the resistance between key warning switch connector terminal and body integrated unit connector terminal.<br>***Connector & terminal***<br>***(B555) No. 2 — (B280) No. 4:*** | Is the resistance less than 10 Ω? | Replace the body integrated unit. <Ref. to SL-87, Body Integrated Unit.> | Repair the harness between key warning switch and body integrated unit. |

# 9. List of Diagnostic Trouble Code (DTC)

## A: LIST

### 1. ECM

| DTC | Item | Contents of diagnosis | Index No. |
|---|---|---|---|
| B1570 | Antenna | Faulty antenna | <Ref. to IM(diag)-16, DTC B1570 ANTENNA, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| B1571 | Reference Code Incompatibility | Reference code incompatibility between body integrated unit and ECM | <Ref. to IM(diag)-18, DTC B1571 REFERENCE CODE INCOMPATIBILITY, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| B1572 | IMM Circuit Failure (Except Antenna Circuit) | Communication failure between body integrated unit and ECM | <Ref. to IM(diag)-19, DTC B1572 IMM CIRCUIT FAILURE (EXCEPT ANTENNA CIRCUIT), Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| B1574 | Key Communication Failure | Communication failure between key and body integrated unit | <Ref. to IM(diag)-22, DTC B1574 KEY COMMUNICATION FAILURE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| B1575 | Incorrect Immobilizer Key | Incorrect immobilizer key (Use of unregistered key in body integrated unit) | <Ref. to IM(diag)-22, DTC B1575 INCORRECT IMMOBILIZER KEY, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| B1576 | EGI Control Module EEPROM | ECM malfunctioning | <Ref. to IM(diag)-23, DTC B1576 EGI CONTROL MODULE EEPROM, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| B1577 | IMM Control Module EEPROM | Body integrated unit malfunctioning | <Ref. to IM(diag)-23, DTC B1577 IMM CONTROL MODULE EEPROM, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| B1578 | Meter Failure (Except for model for C0 or C5) | • Reference code incompatibility between combination meter and body integrated unit<br>• Communication failure between body integrated unit and ECM | <Ref. to IM(diag)-24, DTC B1578 METER FAILURE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| | Meter Failure (Model for C0 or C5) | • Reference code incompatibility between body integrated unit and security control module<br>• Communication failure between body integrated unit and ECM | |

NOTE:
Perform diagnosis of engine DTC when a DTC other than an immobilizer DTC is detected. <Ref. to EN(H4DO w/o HEV)(diag)-96, List of Diagnostic Trouble Code (DTC).>

## 2. BODY INTEGRATED UNIT

| DTC | Item | Contents of diagnosis | Index No. | Relation between ECM and DTC |
|---|---|---|---|---|
| B1401 | M Collation NG | Reference code incompatibility between combination meter and body integrated unit | <Ref. to IM(diag)-24, DTC B1401 M COLLATION NG, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> | B1578 |
| B1402 | Immobilizer Key Collation NG | • Incorrect immobilizer key (Use of unregistered key in body integrated unit)<br>• Faulty antenna<br>• Communication failure between key and body integrated unit | <Ref. to IM(diag)-25, DTC B1402 IMMOBILIZER KEY COLLATION NG, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> | • B1575<br>• B1570<br>• B1574 |
| B1405 | SCU Collation NG | Reference code incompatibility between body integrated unit and security control module | <Ref. to IM(diag)-25, DTC B1405 SCU COLLATION NG, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> | B1578 |
| B1406 | SCU_EEPROM_NG | Malfunction of security control module | <Ref. to IM(diag)-25, DTC B1406 SCU_EEPROM_NG, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> | B1578 |
| B1407 | M Communication Abnormal | Communication failure between body integrated unit and combination meter | <Ref. to IM(diag)-26, DTC B1407 M COMMUNICATION ABNORMAL, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> | B1578 |
| B1408 | Meter EEPROM Abnormal | Combination meter malfunction | <Ref. to IM(diag)-26, DTC B1408 METER EEPROM ABNORMAL, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> | B1578 |
| B1409 | SCU Communication Abnormal | Communication failure between body integrated unit and security control module | <Ref. to IM(diag)-27, DTC B1409 SCU COMMUNICATION ABNORMAL, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> | B1578 |
| B1410 | Transponder Communication Abnormal | Communication failure between key and body integrated unit | <Ref. to IM(diag)-29, DTC B1410 TRANSPONDER COMMUNICATION ABNORMAL, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> | B1574 |
| B1411 | Immobilizer Antenna Abnormal | Faulty antenna | <Ref. to IM(diag)-29, DTC B1411 IMMOBILIZER ANTENNA ABNORMAL, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> | B1570 |

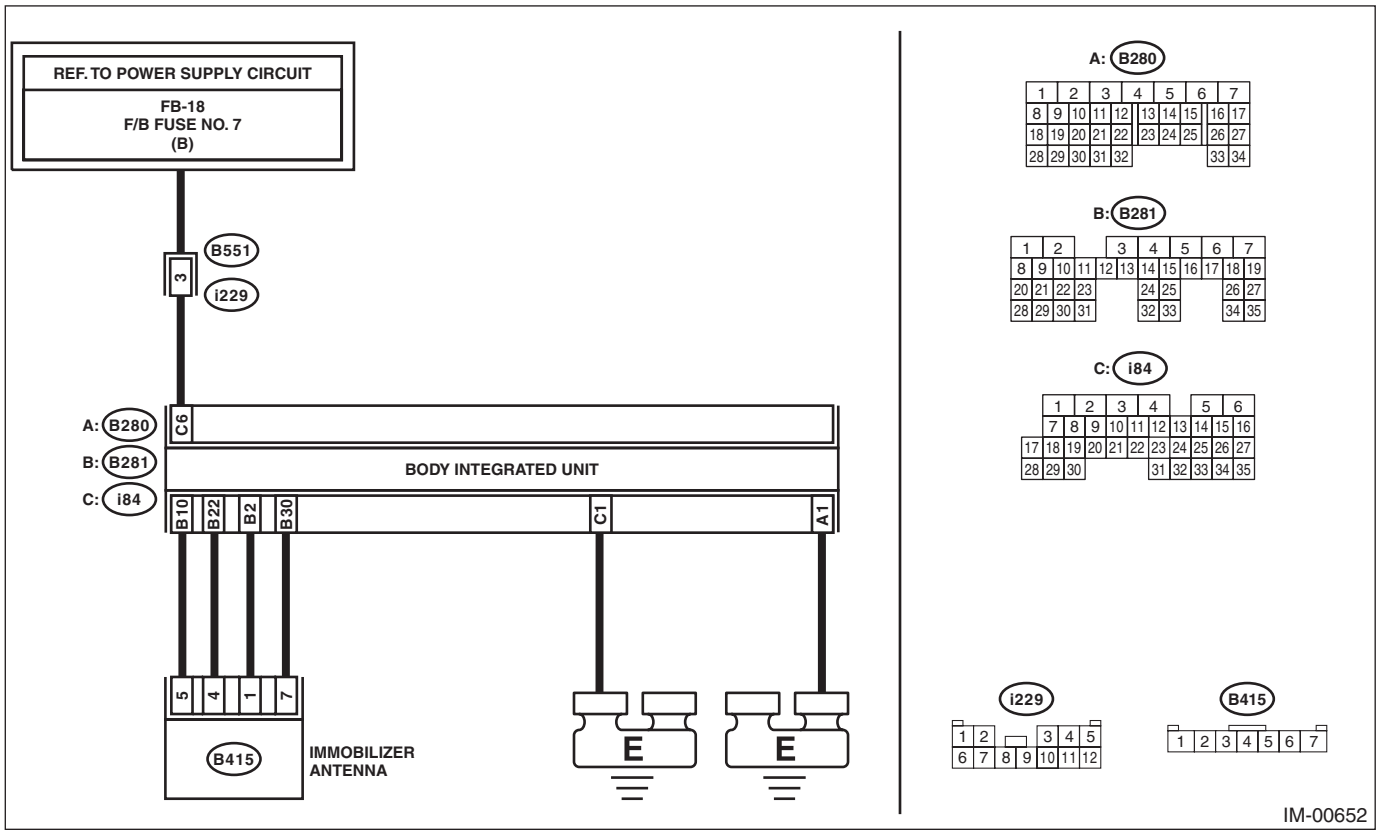
NOTE:
The starter relay control is performed in immobilizer system. When the body integrated unit detects a nonconformity of reference code, it immediately outputs a starter relay cut signal to ECM, and then ECM stops the starter relay operation. In this case, engine does not start, and DTC is not recorded in ECM. Check that the engine does not start on the DTC of body integrated unit.

# 10.Diagnostic Procedure with Diagnostic Trouble Code (DTC)

## A: DTC B1570 ANTENNA

**DTC DETECTING CONDITION:**
Faulty antenna

**CAUTION:**
**When the body integrated unit is replaced, registration of the immobilizer system is required. For details, refer to the "REGISTRATION MANUAL FOR IMMOBILIZER".**
**WIRING DIAGRAM:**
Immobilizer system <Ref. to WI(w/o HEV)-143, WIRING DIAGRAM, Immobilizer System.> <Ref. to WI(HEV)-151, WIRING DIAGRAM, Immobilizer System.>




| Step | | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK BODY INTEGRATED UNIT POWER SUPPLY CIRCUIT.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the connector from body integrated unit.<br>3) Measure the voltage between the body integrated unit connector terminal and chassis ground.<br>***Connector & terminal***<br>***(i84) No. 6 (+) — Chassis ground (–):*** | Is the voltage 10 V or more? | Go to step **2**. | Check the harness for open or short circuit between body integrated unit and fuse. |
| 2 | **CHECK BODY INTEGRATED UNIT GROUND CIRCUIT.**<br>Measure the resistance between the body integrated unit connector terminal and chassis ground.<br>***Connector & terminal***<br>***(B280) No. 1 — Chassis ground:***<br>***(i84) No. 1 — Chassis ground:*** | Is the resistance less than 10 Ω? | Go to step **3**. | Repair the open circuit of the body integrated unit ground circuit. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 3 | **CHECK ANTENNA POWER SUPPLY CIRCUIT.**<br>1) Connect the connector to body integrated unit.<br>2) Disconnect the connector from the antenna.<br>3) Insert the ignition key into the key cylinder, then measure the voltage between the antenna connector terminal and the chassis ground.<br>***Connector & terminal***<br>***(B415) No. 1 (+) — Chassis ground (–):*** | Is the voltage 5±0.5 V approx. 200 ms after inserting the ignition key into the key cylinder? And then, does the voltage return to 0 V within 2 s? | Go to step **5**. | Go to step **4**. |
| 4 | **CHECK ANTENNA POWER SUPPLY CIRCUIT.**<br>1) Disconnect the connector from body integrated unit.<br>2) Measure the resistance of body integrated unit connector terminal and antenna connector terminal.<br>***Connector & terminal***<br>***(B281) No. 2 — (B415) No. 1:*** | Is the resistance less than 10 Ω? | Replace the body integrated unit. <Ref. to SL-87, Body Integrated Unit.> | Repair the harness or connector between body integrated unit and antenna. |
| 5 | **CHECK ANTENNA GROUND CIRCUIT.**<br>Measure the resistance between antenna connector terminal and chassis ground.<br>***Connector & terminal***<br>***(B417) No. 7 — Chassis ground:*** | Is the resistance less than 10 Ω? | Go to step **7**. | Go to step **6**. |
| 6 | **CHECK ANTENNA GROUND CIRCUIT.**<br>1) Disconnect the connector from body integrated unit.<br>2) Measure the resistance between antenna connector terminal and chassis ground.<br>***Connector & terminal***<br>***(B281) No. 30 — (B415) No. 7:*** | Is the resistance less than 10 Ω? | Replace the body integrated unit. <Ref. to SL-87, Body Integrated Unit.> | Repair the harness or connector between body integrated unit and antenna. |
| 7 | **CHECK ANTENNA COMMUNICATION CIRCUIT.**<br>Measure the resistance of body integrated unit connector terminal and antenna connector terminal.<br>***Connector & terminal***<br>***(B281) No. 10 — (B415) No. 5:***<br>***(B281) No. 22 — (B415) No. 4:*** | Is the resistance less than 10 Ω? | Go to step **8**. | Repair the harness or connector between body integrated unit and antenna. |
| 8 | **CHECK ANTENNA.**<br>1) Replace the immobilizer antenna.<br>2) Insert the ignition key in the ignition switch. (OFF or ACC)<br>3) Check DTC of body integrated unit. | Is DTC B1411 detected? | Replace the body integrated unit. <Ref. to SL-87, Body Integrated Unit.> | Antenna has a failure. |

## B: DTC B1571 REFERENCE CODE INCOMPATIBILITY

**DTC DETECTING CONDITION:**
Reference code incompatibility between body integrated unit and ECM

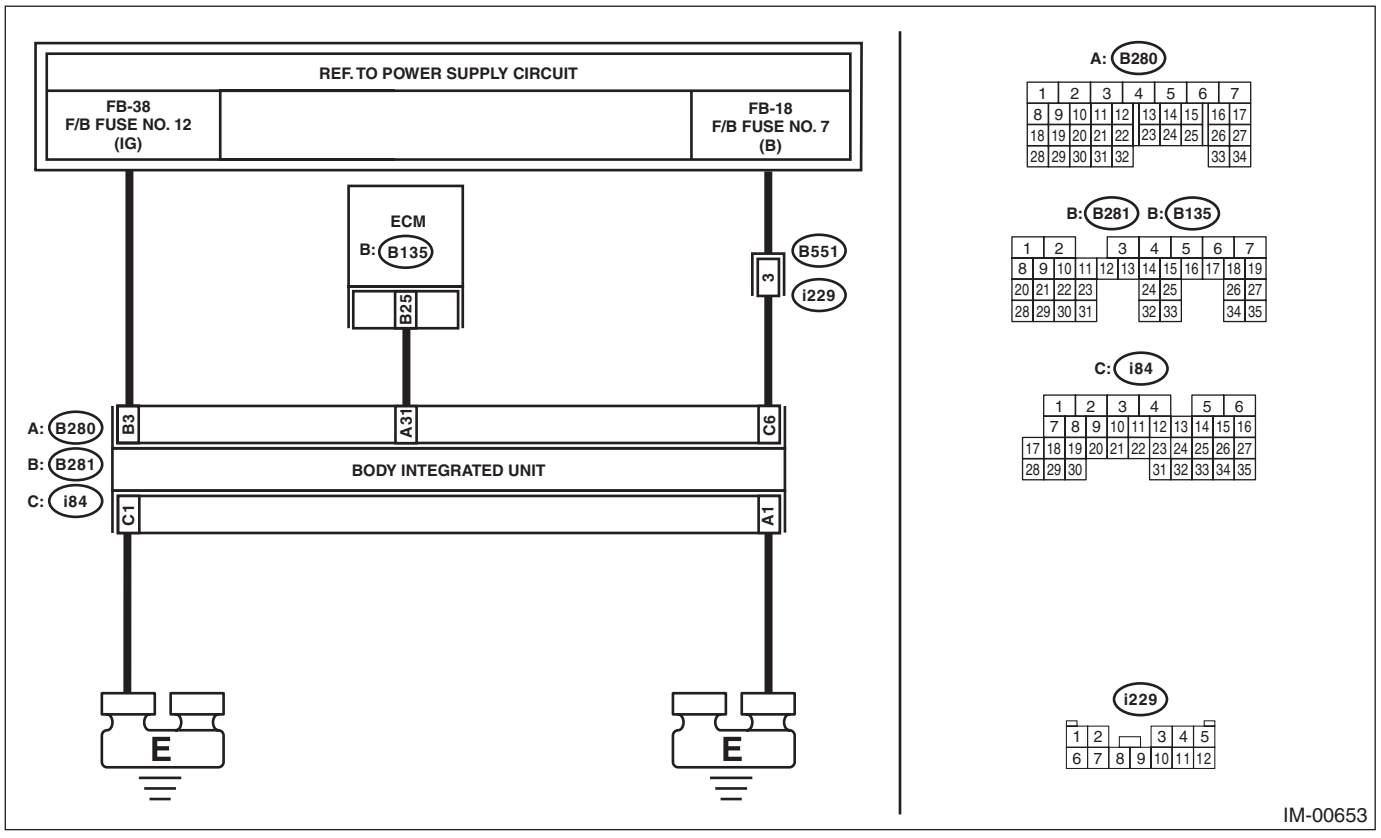
**CAUTION:**
**When the body integrated unit is replaced, registration of the immobilizer system is required. For details, refer to the "REGISTRATION MANUAL FOR IMMOBILIZER".**

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CONFIRM NUMBER OF REGISTERED IMMOBILIZER KEY.**<br>Confirm the number of registered immobilizer key. Refer to the "REGISTRATION MANUAL FOR IMMOBILIZER". | Is the number of registration 0? | Go to step **2**. | Go to step **3**. |
| 2 | **PERFORM IMMOBILIZER SYSTEM REGISTRATION.**<br>Register the immobilizer system. Refer to the "REGISTRATION MANUAL FOR IMMOBILIZER". | Is registration complete? | Finish the diagnosis. | Go to step **4**. |
| 3 | **PERFORM ECM REGISTRATION.**<br>Perform ECM registration. Refer to the "REGISTRATION MANUAL FOR IMMOBILIZER". | Is registration complete? | Finish the diagnosis. | Go to step **4**. |
| 4 | **CHECK FOR ANY OTHER DTC ON DISPLAY.** | Is any other DTC displayed? | Perform the diagnosis according to DTC. | Go to step **5**. |
| 5 | **PERFORM ECM REGISTRATION.**<br>1) Replace the ECM.<br>2) Perform ECM registration. Refer to the "REGISTRATION MANUAL FOR IMMOBILIZER". | Is registration complete? | Finish the diagnosis. | Replace the body integrated unit. <Ref. to SL-87, Body Integrated Unit.> |

# C: DTC B1572 IMM CIRCUIT FAILURE (EXCEPT ANTENNA CIRCUIT)

**DTC DETECTING CONDITION:**
Communication failure between body integrated unit and ECM

**CAUTION:**
**When the body integrated unit is replaced, registration of the immobilizer system is required. For details, refer to the "REGISTRATION MANUAL FOR IMMOBILIZER".**
**WIRING DIAGRAM:**
Immobilizer system <Ref. to WI(w/o HEV)-143, WIRING DIAGRAM, Immobilizer System.> <Ref. to WI(HEV)-151, WIRING DIAGRAM, Immobilizer System.>




| Step | | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK BODY INTEGRATED UNIT POWER SUPPLY CIRCUIT.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the connector from body integrated unit.<br>3) Measure the voltage between the body integrated unit connector terminal and chassis ground.<br>***Connector & terminal***<br>***(i84) No. 6 (+) — Chassis ground (–):*** | Is the voltage 10 V or more? | Go to step **2**. | Check the harness for open or short circuit between body integrated unit and fuse. |
| 2 | **CHECK BODY INTEGRATED UNIT POWER SUPPLY CIRCUIT.**<br>1) Turn the ignition switch to ON.<br>2) Measure the voltage between the body integrated unit connector terminal and chassis ground.<br>***Connector & terminal***<br>***(B281) No. 3 (+) — Chassis ground (–):*** | Is the voltage 10 V or more? | Go to step **3**. | Check the harness for open or short circuit between the body integrated unit and ignition switch. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 3 | **CHECK BODY INTEGRATED UNIT GROUND CIRCUIT.**<br>1) Turn the ignition switch to OFF.<br>2) Measure the resistance between the body integrated unit connector terminal and chassis ground.<br>***Connector & terminal***<br>***(B280) No. 1 — Chassis ground:***<br>***(i84) No. 1 — Chassis ground:*** | Is the resistance less than 10 Ω? | Go to step **4**. | Repair the open circuit of the body integrated unit ground circuit. |
| 4 | **CHECK GROUND CIRCUIT FOR ECM.**<br>Measure the resistance between the ECM ground terminal and engine ground.<br>***Connector & terminal***<br>***(B134) No. 3 — Chassis ground:***<br>***(B134) No. 4 — Chassis ground:***<br>***(B136) No. 1 — Chassis ground:***<br>***(B136) No. 2 — Chassis ground:***<br>***(B136) No. 3 — Chassis ground:*** | Is the resistance less than 10 Ω? | Go to step **5**. | Repair the ECM ground circuit. |
| 5 | **CHECK HARNESS BETWEEN BODY INTEGRATED UNIT AND ECM.**<br>1) Disconnect the connector from ECM.<br>2) Measure the resistance between body integrated unit connector terminal and ECM connector terminal.<br>***Connector & terminal***<br>***(B280) No. 31 — (B135) No. 25:*** | Is the resistance less than 10 Ω? | Go to step **6**. | Repair the open circuit of the harness between the body integrated unit and ECM. |
| 6 | **CHECK COMMUNICATION CIRCUIT HARNESS.**<br>1) Turn the ignition switch to ON.<br>2) Measure the voltage between the body integrated unit connector terminal and chassis ground.<br>***Connector & terminal***<br>***(B280) No. 31 (+) — Chassis ground (–):*** | Is the voltage 6 V or more? | Repair the harness between body integrated unit and ECM. | Go to step **7**. |
| 7 | **CHECK COMMUNICATION CIRCUIT HARNESS.**<br>Measure the voltage between ECM connector terminal and engine ground.<br>***Connector & terminal***<br>***(B135) No. 25 (+) — Engine ground (–):*** | Is the voltage 6 V or more? | Repair the harness between body integrated unit and ECM. | Go to step **8**. |
| 8 | **CHECK COMMUNICATION CIRCUIT HARNESS.**<br>1) Turn the ignition switch to OFF.<br>2) Measure the resistance between the body integrated unit connector terminal and chassis ground.<br>***Connector & terminal***<br>***(B280) No. 31 — Chassis ground:*** | Is the resistance less than 10 Ω? | Repair the harness between body integrated unit and ECM. | Go to step **9**. |
| 9 | **CHECK COMMUNICATION CIRCUIT HARNESS.**<br>Measure the resistance between ECM connector terminal and engine ground.<br>***Connector & terminal***<br>***(B135) No. 25 — Engine ground:*** | Is the resistance less than 10 Ω? | Repair the harness between body integrated unit and ECM. | Go to step **10**. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 10 | **CHECK ECM.**<br>1) Replace the ECM. (Do not perform ECM registration.)<br>2) Turn the ignition switch to ON.<br>3) Wait for 5 seconds.<br>4) Read the DTC relating the ECM using the Subaru Select Monitor. | Is DTC B1572 detected? | Replace the body integrated unit. <Ref. to SL-87, Body Integrated Unit.> | ECM has a failure. Perform ECM registration. Refer to the “REGISTRATION MANUAL FOR IMMOBILIZER”. |

## D: DTC B1574 KEY COMMUNICATION FAILURE

**DTC DETECTING CONDITION:**
Communication failure between key and body integrated unit

**CAUTION:**
**When the body integrated unit is replaced, registration of the immobilizer system is required. For details, refer to the "REGISTRATION MANUAL FOR IMMOBILIZER".**

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK IGNITION KEY.**<br>1) Remove the ignition key from the ignition switch.<br>2) Insert the ignition key into the ignition switch, and then turn the ignition switch to ON.<br>3) Read the DTC of body integrated unit using Subaru Select Monitor. | Is DTC B1410 detected? | Go to step **2**. | Finish the diagnosis. |
| 2 | **CHECK IGNITION KEY.**<br>1) Prepare another ignition key.<br>2) Insert the ignition key into the ignition switch, and then turn the ignition switch to ON.<br>3) Read the DTC of body integrated unit using Subaru Select Monitor. | Is DTC B1410 detected? | Go to step **3**. | Ignition key unit was defective. |
| 3 | **CHECK IMMOBILIZER ANTENNA.**<br>1) Replace the immobilizer antenna.<br>2) Insert the ignition key into the ignition switch, and then turn the ignition switch to ON.<br>3) Read the DTC of body integrated unit using Subaru Select Monitor. | Is DTC B1410 detected? | Replace the body integrated unit. <Ref. to SL-87, Body Integrated Unit.> | Immobilizer antenna was defective. |

## E: DTC B1575 INCORRECT IMMOBILIZER KEY

**DTC DETECTING CONDITION:**
Incorrect immobilizer key (use of unregistered key in body integrated unit)

**CAUTION:**
**When the body integrated unit is replaced, registration of the immobilizer system is required. For details, refer to the "REGISTRATION MANUAL FOR IMMOBILIZER".**

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **PERFORM IGNITION KEY REGISTRATION.**<br>Perform key registration. Refer to the "REGISTRATION MANUAL FOR IMMOBILIZER". | Is key registration complete? | Finish the diagnosis. | Replace ignition keys (including transponder) which cannot be registered. Go to step **2**. |
| 2 | **PERFORM IGNITION KEY REGISTRATION.**<br>Perform key registration. Refer to the "REGISTRATION MANUAL FOR IMMOBILIZER". | Is key registration complete? | Finish the diagnosis. | Replace the body integrated unit. <Ref. to SL-87, Body Integrated Unit.> |

## F: DTC B1576 EGI CONTROL MODULE EEPROM

**DTC DETECTING CONDITION:**

- ECM malfunctioning
- Inaccessible ROM in ECM during key registration.

**CAUTION:**
**When the ECM is replaced, registration of the immobilizer system is required. For details, refer to the "REGISTRATION MANUAL FOR IMMOBILIZER".**

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **PERFORM ECM REGISTRATION.**<br>Perform ECM registration. Refer to the "REGISTRATION MANUAL FOR IMMOBILIZER". | Is registration complete? | Finish the diagnosis. | Go to step **2**. |
| 2 | **PERFORM ECM REGISTRATION.**<br>Perform ECM registration. Refer to the "REGISTRATION MANUAL FOR IMMOBILIZER". | Is registration complete? | Finish the diagnosis. | Go to step **3**. |
| 3 | **PERFORM ECM REGISTRATION.**<br>Perform ECM registration. Refer to the "REGISTRATION MANUAL FOR IMMOBILIZER". | Is registration complete? | Finish the diagnosis. | Replace the ECM. <Ref. to FU(H4DO(w/o HEV))-100, Engine Control Module (ECM).> |

## G: DTC B1577 IMM CONTROL MODULE EEPROM

**DTC DETECTING CONDITION:**

- Body integrated unit malfunctioning
- Failed to access ROM inside the body integrated unit.

**CAUTION:**
**When the body integrated unit is replaced, registration of the immobilizer system is required. For details, refer to the "REGISTRATION MANUAL FOR IMMOBILIZER".**

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **PERFORM ECM REGISTRATION.**<br>Perform ECM registration. Refer to the "REGISTRATION MANUAL FOR IMMOBILIZER". | Is registration complete? | Finish the diagnosis. | Go to step **2**. |
| 2 | **PERFORM ECM REGISTRATION.**<br>Perform ECM registration. Refer to the "REGISTRATION MANUAL FOR IMMOBILIZER". | Is registration complete? | Finish the diagnosis. | Go to step **3**. |
| 3 | **PERFORM ECM REGISTRATION.**<br>Perform ECM registration. Refer to the "REGISTRATION MANUAL FOR IMMOBILIZER". | Is registration complete? | Finish the diagnosis. | Replace the body integrated unit. <Ref. to SL-87, Body Integrated Unit.> |

## H: DTC B1578 METER FAILURE

**DTC DETECTING CONDITION:**

- Except for C0 and C5 models

Reference code incompatibility between combination meter and body integrated unit or communication failure between body integrated unit and ECM

- For C0 and C5 models

Reference code incompatibility between security control module and body integrated unit or communication failure between body integrated unit and ECM

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK DTC.**<br>Read the DTC of body integrated unit using Subaru Select Monitor. | Is any of DTC B1401, B1405, B1406, B1407, B1408 or B1409 detected? | Perform the diagnosis according to the DTC. | <Ref. to IM(diag)-19, DTC B1572 IMM CIRCUIT FAILURE (EXCEPT ANTENNA CIRCUIT), Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |

## I: DTC B1401 M COLLATION NG

**DTC DETECTING CONDITION:**

Reference code incompatibility between combination meter and body integrated unit

**CAUTION:**

**When the combination meter is replaced, registration of the immobilizer system is required. For details, refer to the "REGISTRATION MANUAL FOR IMMOBILIZER".**

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK DTC.**<br>Read the DTC of body integrated unit using Subaru Select Monitor. | Is any of DTC B1407 or B1408 detected? | Perform the diagnosis according to the DTC. | Go to step **2**. |
| 2 | **CHECK COMBINATION METER REGISTRATION.**<br>Perform registration of combination meter. Refer to the "REGISTRATION MANUAL FOR IMMOBILIZER". | Is registration complete? | Finish the diagnosis. | Go to step **3**. |
| 3 | **CHECK DTC.**<br>Read the DTC of body integrated unit using Subaru Select Monitor. | Is any of DTC B1407 or B1408 detected? | Perform the diagnosis according to the DTC. | Replace the combination meter. <Ref. to IDI-20, Combination Meter.> |

## J: DTC B1402 IMMOBILIZER KEY COLLATION NG

**DTC DETECTING CONDITION:**

- Incorrect immobilizer key (use of unregistered key in body integrated unit)
- Faulty antenna
- Communication failure between key and body integrated unit

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK DTC.**<br>Read the DTC of body integrated unit using Subaru Select Monitor. | Is any of DTC B1410 or B1411 detected? | Perform the diagnosis according to the DTC. | <Ref. to IM(diag)-22, DTC B1575 INCORRECT IMMOBILIZER KEY, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |

## K: DTC B1405 SCU COLLATION NG

**DTC DETECTING CONDITION:**

Reference code incompatibility between security control module and body integrated unit

**CAUTION:**

**When the security control module is replaced, registration of the immobilizer system is required. For details, refer to the "REGISTRATION MANUAL FOR IMMOBILIZER".**

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK DTC.**<br>Read the DTC of body integrated unit using Subaru Select Monitor. | Is any of DTC B1406 or B1409 detected? | Perform the diagnosis according to DTC. | Go to step **2**. |
| 2 | **PERFORM SECURITY CONTROL MODULE REGISTRATION.**<br>Perform security control module registration. Refer to the "REGISTRATION MANUAL FOR IMMOBILIZER". | Is registration complete? | Finish the diagnosis. | Go to step **3**. |
| 3 | **CHECK DTC.**<br>Read the DTC of body integrated unit using Subaru Select Monitor. | Is any of DTC B1406 or B1409 detected? | Perform the diagnosis according to DTC. | Replace the security control module. <Ref. to SL-80, Security Control Module.> |

## L: DTC B1406 SCU_EEPROM_NG

**DTC DETECTING CONDITION:**

- Defective security control module
- ROM of security control module cannot be accessed

**CAUTION:**

**When the security control module is replaced, registration of the immobilizer system is required. For details, refer to the "REGISTRATION MANUAL FOR IMMOBILIZER".**

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **PERFORM SECURITY CONTROL MODULE REGISTRATION.**<br>1) Perform security control module registration. Refer to the "REGISTRATION MANUAL FOR IMMOBILIZER".<br>2) Read the DTC of body integrated unit using Subaru Select Monitor. | Is DTC B1406 detected? | Replace the security control module. <Ref. to SL-80, Security Control Module.> | Finish the diagnosis. |

## M: DTC B1407 M COMMUNICATION ABNORMAL

**DTC DETECTING CONDITION:**
Communication failure between body integrated unit and combination meter

**CAUTION:**
**When the combination meter is replaced, registration of the immobilizer system is required. For details, refer to the "REGISTRATION MANUAL FOR IMMOBILIZER".**

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK DTC.**<br>Read the DTC of body integrated unit using Subaru Select Monitor. | Is DTC of the body integrated unit except for DTC B1407 displayed? | Perform the diagnosis according to the DTC. | Replace the combination meter. <Ref. to IDI-20, Combination Meter.> |

## N: DTC B1408 METER EEPROM ABNORMAL

**DTC DETECTING CONDITION:**
Defective combination meter

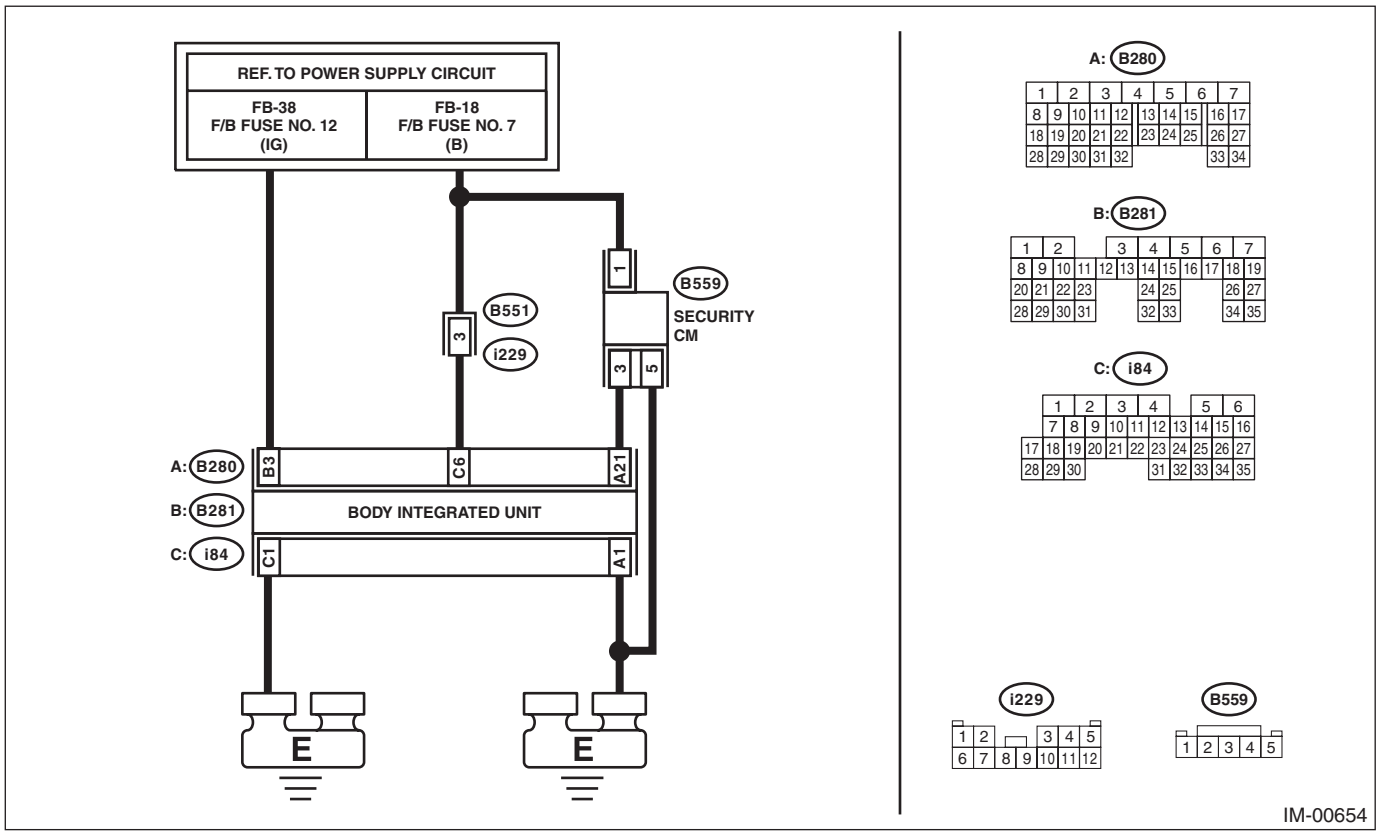
**CAUTION:**
**When the combination meter is replaced, registration of the immobilizer system is required. For details, refer to the "REGISTRATION MANUAL FOR IMMOBILIZER".**

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK COMBINATION METER REGISTRATION.**<br>1) Perform registration of combination meter. Refer to the "REGISTRATION MANUAL FOR IMMOBILIZER".<br>2) Read the DTC of body integrated unit using Subaru Select Monitor. | Is DTC B1408 detected? | Replace the combination meter. <Ref. to IDI-20, Combination Meter.> | Finish the diagnosis. |

## O: DTC B1409 SCU COMMUNICATION ABNORMAL

**DTC DETECTING CONDITION:**
Communication failure between body integrated unit and security control module

**CAUTION:**
**When the body integrated unit is replaced, registration of the immobilizer system is required. For details, refer to the "REGISTRATION MANUAL FOR IMMOBILIZER".**
**WIRING DIAGRAM:**
Immobilizer system <Ref. to WI(w/o HEV)-143, WIRING DIAGRAM, Immobilizer System.> <Ref. to WI(HEV)-151, WIRING DIAGRAM, Immobilizer System.>




| Step | | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK BODY INTEGRATED UNIT POWER SUPPLY CIRCUIT.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the connector from body integrated unit.<br>3) Measure the voltage between the body integrated unit connector terminal and chassis ground.<br>***Connector & terminal***<br>***(i84) No. 6 (+) — Chassis ground (–):*** | Is the voltage 10 V or more? | Go to step **2**. | Check the harness for open or short circuit between body integrated unit and fuse. |
| 2 | **CHECK BODY INTEGRATED UNIT POWER SUPPLY CIRCUIT.**<br>1) Turn the ignition switch to ON.<br>2) Measure the voltage between the body integrated unit connector terminal and chassis ground.<br>***Connector & terminal***<br>***(B281) No. 3 (+) — Chassis ground (–):*** | Is the voltage 10 V or more? | Go to step **3**. | Check the harness for open or short circuit between the body integrated unit and ignition switch. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 3 | **CHECK BODY INTEGRATED UNIT GROUND CIRCUIT.**<br>1) Turn the ignition switch to OFF.<br>2) Measure the resistance between the body integrated unit connector terminal and chassis ground.<br>***Connector & terminal***<br>***(B280) No. 1 — Chassis ground:***<br>***(i84) No. 1 — Chassis ground:*** | Is the resistance less than 10 Ω? | Go to step **4**. | Repair the open circuit of the body integrated unit ground circuit. |
| 4 | **CHECK SECURITY CONTROL MODULE POWER SUPPLY CIRCUIT.**<br>1) Disconnect the connector from the security control module.<br>2) Measure the power supply between security control module connector terminal and chassis ground.<br>***Connector & terminal***<br>***(B559) No. 1 (+) — Chassis ground (–):*** | Is the voltage 10 V or more? | Go to step **5**. | Check for an open or short circuit in the harness between security control module and fuse. |
| 5 | **CHECK SECURITY CONTROL MODULE GROUND CIRCUIT.**<br>Measure the resistance between security control module connector terminal and chassis ground.<br>***Connector & terminal***<br>***(B559) No. 5 — Chassis ground:*** | Is the resistance less than 10 Ω? | Go to step **6**. | Repair the open circuit of the security control module ground circuit. |
| 6 | **CHECK HARNESS BETWEEN BODY INTEGRATED UNIT AND SECURITY CONTROL MODULE.**<br>Measure the resistance between the body integrated unit connector terminal and security control module connector terminal.<br>***Connector & terminal***<br>***(B280) No. 21 — (B559) No. 3:*** | Is the resistance less than 10 Ω? | Go to step **7**. | Repair the harness between body integrated unit and security control module. |
| 7 | **CHECK COMMUNICATION CIRCUIT HARNESS.**<br>1) Turn the ignition switch to ON.<br>2) Measure the voltage between security control module connector terminal and chassis ground.<br>***Connector & terminal***<br>***(B559) No. 3 (+) — Chassis ground (–):*** | Is the voltage 6 V or more? | Repair the harness between body integrated unit and security control module. | Go to step **8**. |
| 8 | **CHECK COMMUNICATION CIRCUIT HARNESS.**<br>1) Turn the ignition switch to ON.<br>2) Measure the voltage between the body integrated unit connector terminal and chassis ground.<br>***Connector & terminal***<br>***(B280) No. 21 (+) — Chassis ground (–):*** | Is the voltage 6 V or more? | Repair the harness between body integrated unit and security control module. | Go to step **9**. |
| 9 | **CHECK COMMUNICATION CIRCUIT HARNESS.**<br>1) Turn the ignition switch to OFF.<br>2) Measure the resistance between security control module connector terminal and chassis ground.<br>***Connector & terminal***<br>***(B559) No. 3 — Chassis ground:*** | Is the resistance less than 10 Ω? | Repair the harness between body integrated unit and ECM. | Go to step **10**. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 10 | **CHECK COMMUNICATION CIRCUIT HARNESS.**<br>1) Turn the ignition switch to ON.<br>2) Measure the resistance between the body integrated unit connector terminal and chassis ground.<br>***Connector & terminal***<br>***(B280) No. 21 — Chassis ground:*** | Is the resistance less than 10 Ω? | Repair the harness between body integrated unit and security control module. | Go to step **11**. |
| 11 | **CHECK SECURITY CONTROL MODULE.**<br>1) Replace the security control module. (Do not perform security control module registration.)<br>2) Turn the ignition switch to ON.<br>3) Read the DTC of body integrated unit using Subaru Select Monitor. | Is DTC B1409 detected? | Replace the body integrated unit. <Ref. to SL-87, Body Integrated Unit.> | Security control module was defective. Perform security control module registration. Refer to the “REGISTRATION MANUAL FOR IMMOBILIZER”. |

## P: DTC B1410 TRANSPONDER COMMUNICATION ABNORMAL

NOTE:
Refer to DTC B1574 for diagnostic procedure. <Ref. to IM(diag)-22, DTC B1574 KEY COMMUNICATION FAILURE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

## Q: DTC B1411 IMMOBILIZER ANTENNA ABNORMAL

NOTE:
Refer to DTC B1570 for diagnostic procedure. <Ref. to IM(diag)-16, DTC B1570 ANTENNA, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

# LAN SYSTEM (DIAGNOSTICS)

# *LAN(w/o HEV)(diag)*


| | | Page |
|---|---|---|
| 1. | Basic Diagnostic Procedure | 2 |
| 2. | Check List for Interview | 4 |
| 3. | General Description | 5 |
| 4. | Electrical Component Location | 8 |
| 5. | Control Module I/O Signal | 9 |
| 6. | Subaru Select Monitor | 10 |
| 7. | Read Diagnostic Trouble Code (DTC) | 25 |
| 8. | Clear Memory Mode | 26 |
| 9. | CAN Communication Circuit Check | 27 |
| 10. | List of Diagnostic Trouble Code (DTC) | 64 |
| 11. | Diagnostic Procedure with Diagnostic Trouble Code (DTC) | 95 |
| 12. | General Diagnostic Table | 120 |

# 1. Basic Diagnostic Procedure

## A: PROCEDURE

**CAUTION:**
**• Subaru Select Monitor kit is required for reading DTC, performing diagnosis and reading current data.**
**• Before removal or installation, be sure to remove any foreign matter (dust, moisture, oil, etc.).**
**• Registration of immobilizer may be needed after the replacement of control modules, etc. For detailed procedure, refer to the "REGISTRATION MANUAL FOR IMMOBILIZER".**

NOTE:
• Using the Function Setting (Customize), check that the keyless access system is not in a cancelled state. <Ref. to SL-128, OPERATION, Function Setting (Customize).>
• Check List for Interview <Ref. to KPS(diag)-4, Check List for Interview.>

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK BATTERY.**<br>Using a tester, measure the voltage for 12 volt auxiliary battery. | Is the voltage 11 V or more? | Go to step **2**. | Charge or replace the battery and perform check pre-inspection. Go to step **2**. |
| 2 | **CHECK PRE-INSPECTION.**<br>Use the interview check list to interview the user. <Ref. to KPS(diag)-4, Check List for Interview.> | Was the symptoms of the trouble recorded in the interview? | Go to step **3**. | Interview the user again. |
| 3 | **BASIC INSPECTION.**<br>Perform the inspection for LAN system. <Ref. to LAN(w/o HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.> <Ref. to LAN(HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.> | Is LAN system normal? | Go to step **4**. | Perform the inspection according to the diagnosis for LAN system. <Ref. to LAN(w/o HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.> <Ref. to LAN(HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.> |
| 4 | **CHECK TROUBLE SYMPTOM.**<br>1) Read diagnostic trouble code (DTC) for the keyless access system. <Ref. to KPS(diag)-29, OPERATION, Read Diagnostic Trouble Code (DTC).><br>NOTE:<br>If the communication function of the Subaru Select Monitor cannot be executed properly, check the communication circuit. <Ref. to KPS(diag)-26, COMMUNICATION FOR INITIALIZING IMPOSSIBLE, Subaru Select Monitor.><br>2) Record all DTCs, time stamp and freeze frame data.<br>NOTE:<br>For time stamp, refer to "LAN SYSTEM". <Ref. to LAN(HEV)(diag)-6, TIME STAMP, CAUTION, General Description.> | Is DTC displayed on Subaru Select Monitor? | Perform diagnosis according to the DTC. | Go to step **5**. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 5 | **CHECK PHENOMENON LIST.**<br>Check the “Phenomenon List”. <Ref. to KPS(diag)-108, General Diagnostic Table.> | Is there a symptom that corresponds in the phenomenon list? | Perform diagnosis according to the procedures in the phenomenon list. | Go to step **6**. |
| 6 | **CHECK TROUBLE PHENOMENON.**<br>1) Perform check of current data.<br>2) Perform a function check.<br>3) Perform a unit check. | Was the trouble cause found? | Repair the cause of trouble. | Repeat a basic check again. |

# 2. Check List for Interview

## A: CHECK

Inspect the following items regarding the vehicle's state.

<table>
<tr><td colspan="4">Keyless Access with Push Button Start System Trouble Check List for Interview Received Year Month Date</td></tr>
<tr><td colspan="2" rowspan="2">Customer's name</td><td>Registration No.</td><td>Initial year of registration<br>Year Month Date</td></tr>
<tr><td>Vehicle model</td><td>Frame number</td></tr>
<tr><td>Interviewer</td><td>Inspector</td><td>Engine type</td><td>Odometer reading</td></tr>
<tr><td colspan="4">Customer specified content</td></tr>
<tr><td>Date and time when the trouble occurred</td><td></td><td>Frequency of trouble occurrence</td><td></td></tr>
<tr><td>Condition of trouble occurrence</td><td></td><td>Weather</td><td></td></tr>
<tr><td>Road conditions</td><td></td><td>Occurrence location</td><td></td></tr>
<tr><td>Accessory installation condition</td><td colspan="3"></td></tr>
<tr><td colspan="4">Trouble condition</td></tr>
<tr><td colspan="3">❑ Diagnostic code</td><td>❑( )</td></tr>
<tr><td rowspan="2">❑ Immobilizer system</td><td colspan="2">Engine does not start</td><td>❑ Starter does not operate<br>❑ Starter operates but engine does not start<br>❑ Engine starts but stops immediately</td></tr>
<tr><td colspan="3">Does not start with remote engine starter</td></tr>
<tr><td rowspan="2">❑ Steering lock system</td><td colspan="3">The steering lock is not released</td></tr>
<tr><td colspan="3">The steering lock does not lock</td></tr>
<tr><td rowspan="7">❑ Keyless access system</td><td colspan="3">Can not lock/unlock using the touch sensor (lock), touch sensor (unlock), trunk opener button or rear gate opener button and rear lock button</td></tr>
<tr><td colspan="2">Cannot lock with the touch sensor (lock)<br>Cannot unlock with the touch sensor (unlock)<br>Cannot lock nor unlock with the touch sensor (lock), touch sensor (unlock)<br>Trunk does not open with the trunk opener button.<br>Rear gate can not be locked with the rear lock button</td><td>❑ Driver's side door<br>❑ Passenger's side door<br>❑ Rear gate door</td></tr>
<tr><td colspan="3">Cannot unlock with the rear gate opener button</td></tr>
<tr><td colspan="2">The access key lockout prevention feature does not function</td><td>❑ Passenger room<br>❑ Luggage room</td></tr>
<tr><td colspan="3">The LED does not illuminate when the access key button is pressed</td></tr>
<tr><td colspan="3">The external buzzer does not beep</td></tr>
<tr><td colspan="3">The passenger room buzzer does not sound</td></tr>
<tr><td>❑ Other</td><td colspan="3">The room light or map light does not illuminate<br>( )</td></tr>
</table>

NOTE:
- Perform the diagnostics according to the basic diagnostic procedure.
- If the room light or map light does not illuminate and the keyless access does not function at the same time, the back-up fuse may be loose or blown.

# 3. General Description

## A: CAUTION

### 1. SRS AIRBAG SYSTEM

The airbag system wiring harness is routed near the keyless access with push button start system.

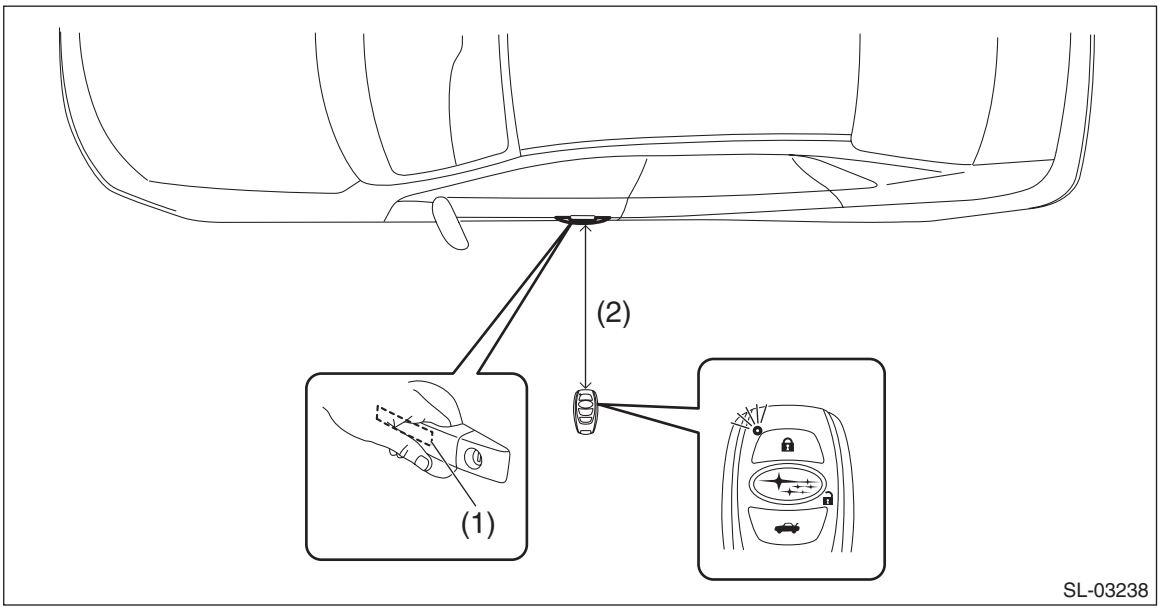
**CAUTION:**
- **Do not use electrical test equipment on any wiring harnesses and connectors in the airbag system.**
- **Be careful not to damage the wiring harness of the airbag system when servicing the keyless access with push button start system.**

### 2. KEYLESS ACCESS WITH PUSH BUTTON START SYSTEM

NOTE:
- Using the function setting (ECM customizing), check that the keyless access system is not OFF. <Ref. to SL-128, OPERATION, Function Setting (Customize).>
- The dark current is approx. 400 mA if there is communication between the vehicle and access key.
- The dark current is approx. 40 mA if there is no communication between the vehicle and access key.*

* No communication with the vehicle means that the keyless access function has been cancelled or that the access key has not been near the vehicle for 15 minutes or more after door locking.

1) Keyless access door unlock function check



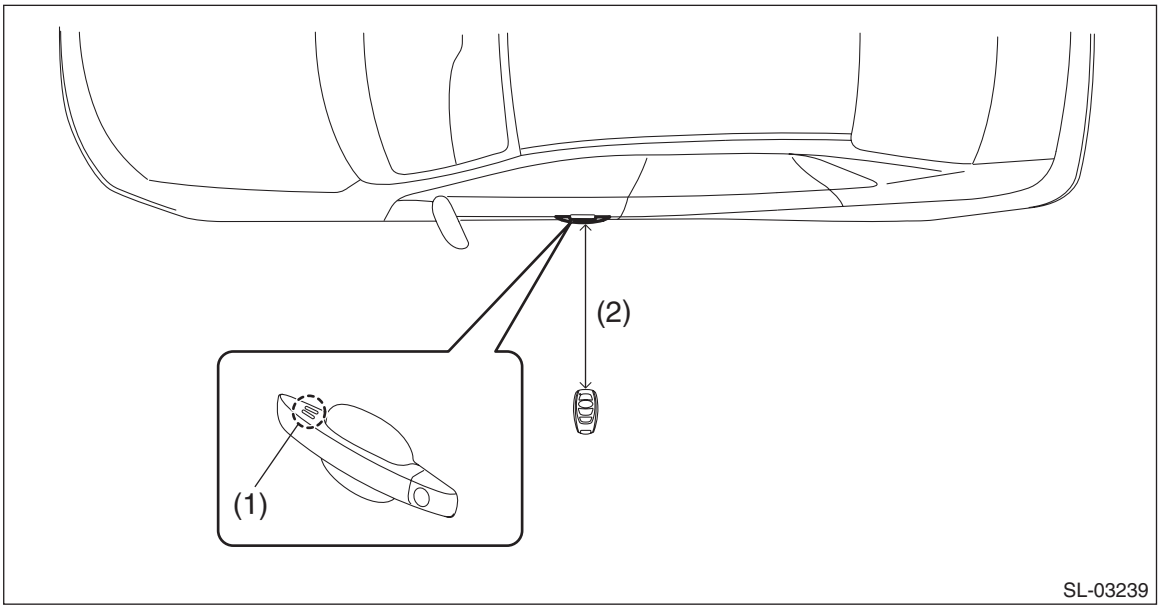

(1) Touch sensor (unlock) (2) 40 — 80 cm

(1) When carrying the access key with all doors locked by keyless lock operation, check that when the touch sensor (unlock) built in to the back side surface of door outer handle of front door is touched, the driver's door will unlock (when touched on the driver's side) or all doors will unlock (when touched on the passenger's side) and the answer-back function operates (hazard light blinks twice, access buzzer sounds twice).

(2) In the keyless access door unlock detection area, hold the access key at the same height as the outer handle (approx. 80 cm from the ground) and in the direction shown in the figure, and check that the vehicle becomes unlock mode [access key LED (red) blinks] at 40 to 80 cm from the vehicle.

NOTE:
Check the access key battery if the LED (red) does not illuminates when the access key button is pressed. <Ref. to SL-94, INSPECTION, Access Key.>

2) Check keyless access door lock function




(1) Touch sensor (lock) (2) Approx. 30 cm

(1) When carrying the access key outside of the vehicle with all doors closed and unlocked, check that when the touch sensor (lock) on the surface of door outer handle of front door is touched, all doors will lock and the answer-back function operates (hazard light blinks once, access buzzer sounds once).

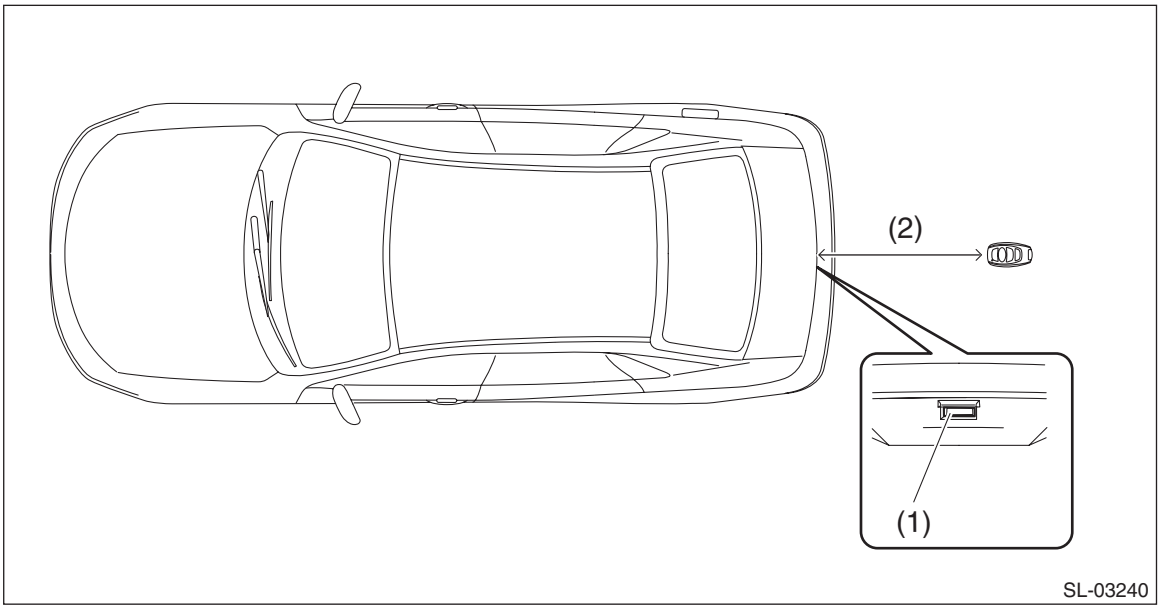
**CAUTION:**
**If the access key is within the vehicle but not within the detection area (in the instrument panel, on the rear tray, in the glove box, on the floor, or in the door trim pocket), then lockout protection will not function when the doors are locked and the access key will be locked into the vehicle.**

(2) To check the keyless access door lock operation range, hold the access key at a height of 10 cm under the bottom edge of the door glass (approx. 80 cm from the ground) in the direction shown in the figure, and check that all doors lock and the answer-back function operates (hazard light blinks once, access buzzer sounds once) when you touch the touch sensor (lock) at a distance of approx. 30 cm from the vehicle.

(3) Check the passenger's side door in the same manner.

NOTE:
- When the door cannot lock if the touch sensor (lock) is touched, touch the touch sensor (lock) with palm.
- Since communication is not possible within close range (20 cm or less) of the door outer handle, the access key may not operate if you touch the touch sensor (lock) with the same hand you are holding the access key.
- If the lockout prevention buzzer sounds, it is possible that the interior transmitter has radio wave leakage.

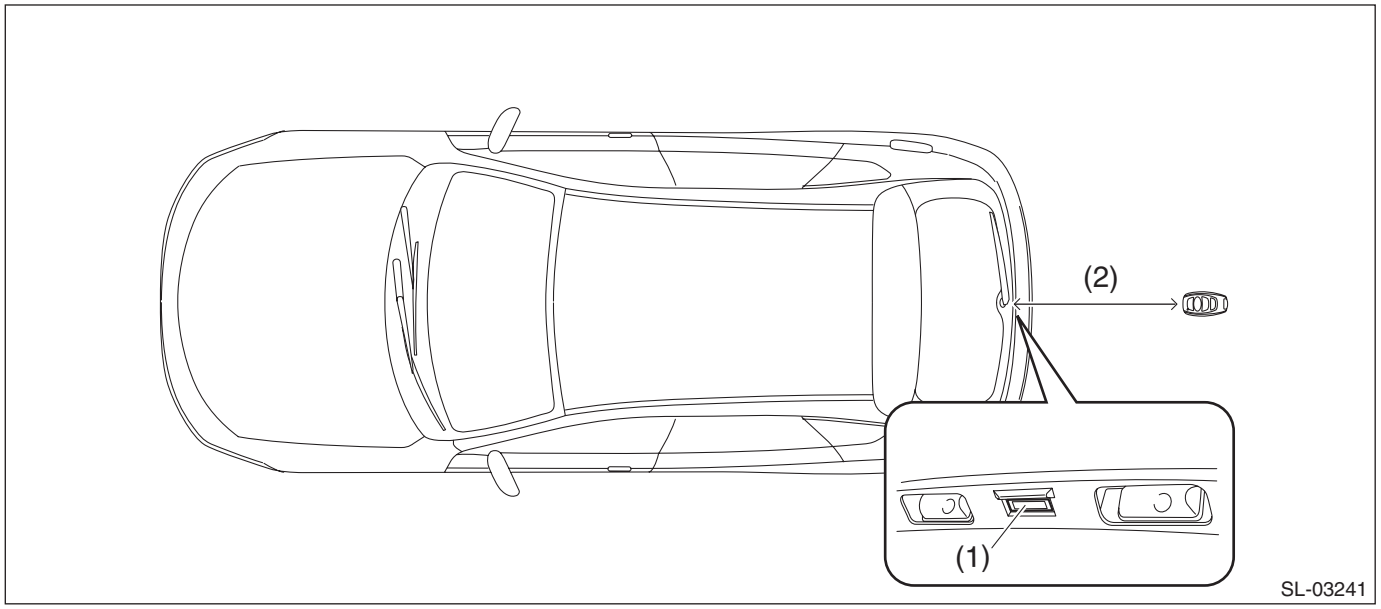
3) Check of the keyless access trunk open function




(1) Trunk opener button (2) 40 — 80 cm

(1) With the trunk closed, check that the trunk opens and the answer-back function operates (hazard light blinks twice, access buzzer sounds twice) when you press the trunk opener button while carrying the access key.
(2) To check the keyless access trunk open operation range, hold the access key behind and in the center of the vehicle at the same height as the trunk opener button (90 cm from the ground) in the direction shown in the figure, and check that the trunk opens and the answer-back function operates (hazard light blinks twice, access buzzer sounds twice) when the trunk opener button is pressed at a distance of 40 to 80 cm from the vehicle.

4) Check of the keyless access rear gate function




(1) Rear gate opener button (2) 40 — 80 cm

(1) With the rear gate locked, check that the all doors unlocks and the rear gate opens simultaneously and the answer-back function operates (hazard light blinks twice, external buzzer sounds twice) when you press the rear gate opener button while carrying the access key.
(2) To check the range for keyless access rear gate open operation, hold the access key behind and in the center of the vehicle at the same height as the rear gate opener button (90 cm from the ground) in the direction shown in the figure, and check that the all doors unlocks and the rear gate opens simultaneously and the answer-back function operates (hazard light blinks twice, external buzzer sounds twice) when the rear gate opener button is pressed at a distance of 40 to 80 cm from the vehicle.
(3) With the rear gate unlock, check that the all doors lock and the answer-back function operates (hazard light blinks once, external buzzer sounds once) when rear lock button is pressed while carrying the access key.

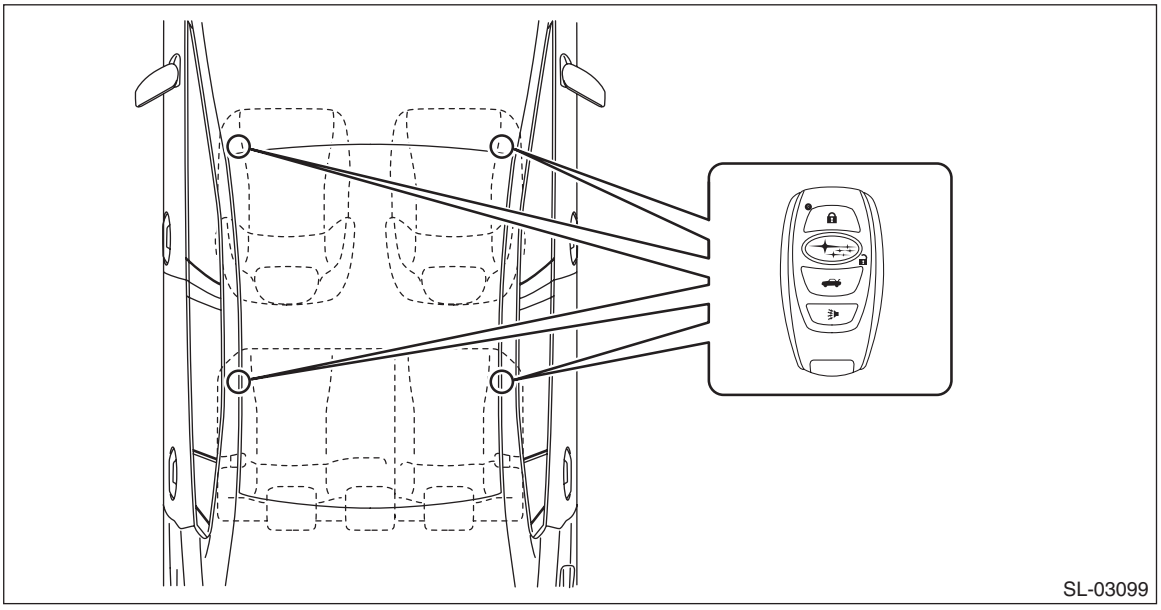
5) Check of the keyless access ignition switching function

(1) With the ignition OFF, ride in the vehicle while carrying the access key. With the shift lever in the P range, check that the push button ignition switch indicator illuminates in green when you depress the brake pedal, then check that the engine starts when you press the push button ignition switch while the indicator green light is on.

(2) While carrying the access key, check that the status changes as follows each time you press the push button ignition switch without depressing the brake pedal: 'Ignition OFF' → 'ACC ON' → 'Ignition ON' → 'Ignition OFF'. However, if the push button ignition switch is pressed from ignition ON while the shift lever is in a range other than the P range, the ignition is not turned OFF and instead changes to ACC ON.

(3) After the vehicle has stopped, ignition is turned OFF when you press the push button ignition switch (engine stopped · all power supplies OFF). However, if the push button ignition switch is pressed with the vehicle stopped while the shift lever is in a range other than the P range, the ignition is not turned OFF and instead the power supplies changes to ACC ON. Check that the steering lock operates if you open the door in the ignition OFF state (the shift lever must be in P range).

(4) To check the range of the keyless access ignition operation, position the access key on the sheet at the check position and in the direction indicated in the figure, and check that the engine can start.




**CAUTION:**
**The access key may not be correctly detected even though it is within the detection area in the passenger room, if it is on the instrument panel, on the rear tray, in the glove box, on the floor, or in the door trim pocket.**

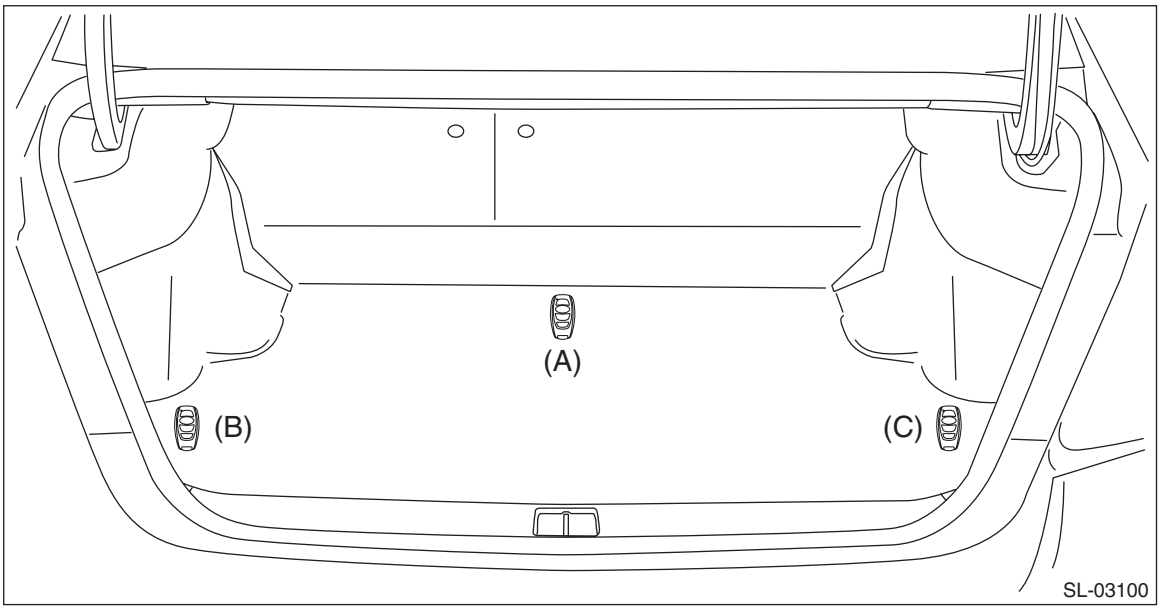
NOTE:
Perform the check multiple times, once each with the access key positioned on the driver's seat, on the passenger's seat, and on the rear seat in 2 locations.

6) Lockout protection function check with the access key in the trunk

**CAUTION:**
**Open one of the windows before performing this check in order to prevent the key from being locked inside the vehicle.**

(1) With all doors closed and locked, and with the access key in the trunk room, check that the access buzzer sounds (approx. 2 seconds) when the trunk is closed. Also check that the trunk opens when you press the trunk opener button.

(2) To check the detection range of the lockout protection function with the access key in the trunk, position the access key in the direction shown in the figure, and check that the lockout protection function operates normally when you check the lockout protection function for the access key locked in the trunk.




**CAUTION:**
**The lockout protection function will not operate if the access key is any of the locations described below.**

- Near the spare tire or on the edge of the trunk room.
- Inside a bag made of metallic material or near metal objects.

NOTE:
Perform the check in two locations or more inside the trunk.

7) Lockout protection function check (in the passenger room)

**CAUTION:**
**Open one of the windows before performing this check in order to prevent the key from being locked inside the vehicle.**

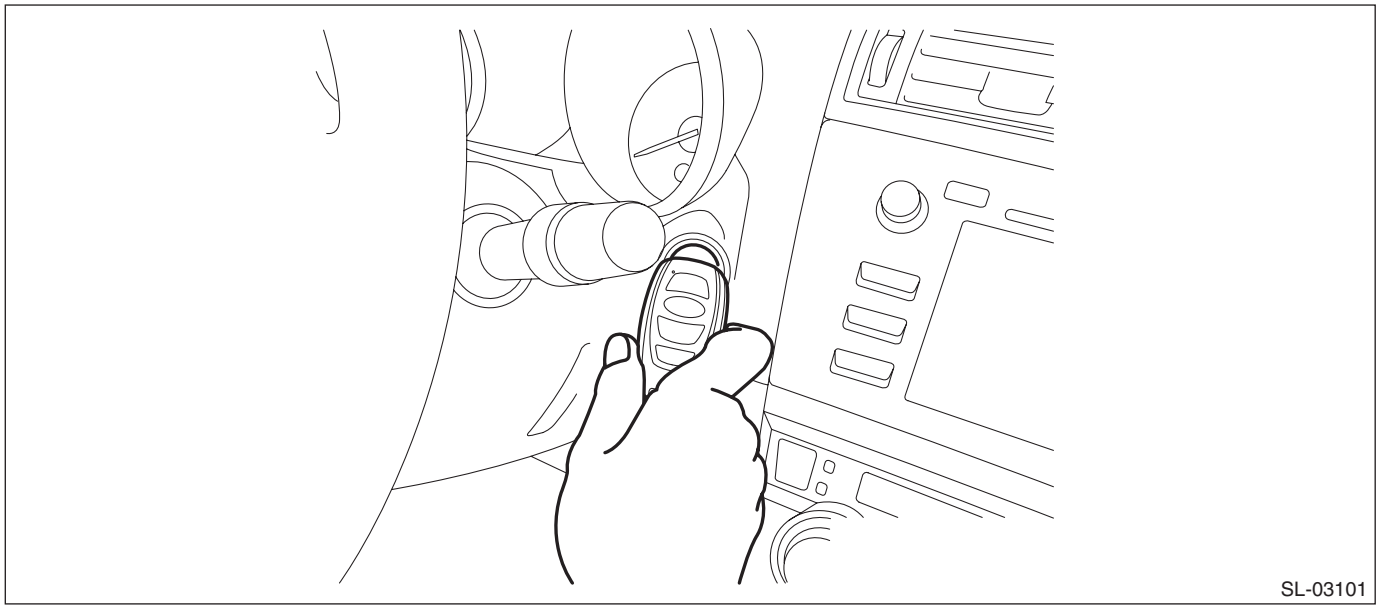
(1) Position the access key on the driver's or passenger's seat.

(2) Close all doors. (with all doors unlocked)

(3) Check that the doors do not lock and the lockout protection buzzer (exterior) sounds for 2 seconds when you touch the touch sensor (lock) of either the driver's or passenger's door.

8) Check of the keyless access cancel function
(1) After setting the keyless access cancel function, check that all keyless access and start system (keyless access) functions are inoperable. (For cancel setting, refer to <Ref. to SL-128, OPERATION, Function Setting (Customize).>)

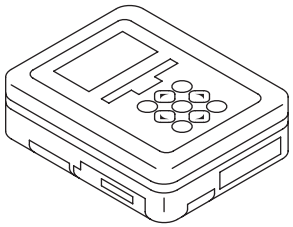
NOTE:
When keyless access is cancelled, door lock and unlock can be operated by access key button operation and the starter system can be operated by passing the access key over the push button ignition switch with the access key button toward you.




9) Access key diagnostic mode
(1) Connect the Subaru Select Monitor, and select «Work Support» of «Keyless access system». <Ref. to KPS(diag)-37, Keyless Access System Check.>
(2) From «Work Support», select «Function Check Sequence».
(3) From «Function Check Sequence», select «Keyless access system check».
(4) Select the transmitter to check from the items.
(5) Check that the door lock buzzer sounds (short blips, a continuous beeping sound for the center room antenna) when the access key is near the selected transmitter or antenna.

# B: PREPARATION TOOL

## 1. SPECIAL TOOL

| ILLUSTRATION | TOOL NUMBER | DESCRIPTION | REMARKS |
|---|---|---|---|
|  ST1B022XU0 | 1B022XU0 | SUBARU SELECT MONITOR III KIT | Used for setting of each function and troubleshooting for electrical system.<br>NOTE:<br>For detailed operation procedures of Subaru Select Monitor III, refer to “PC application help for Subaru Select Monitor”. |

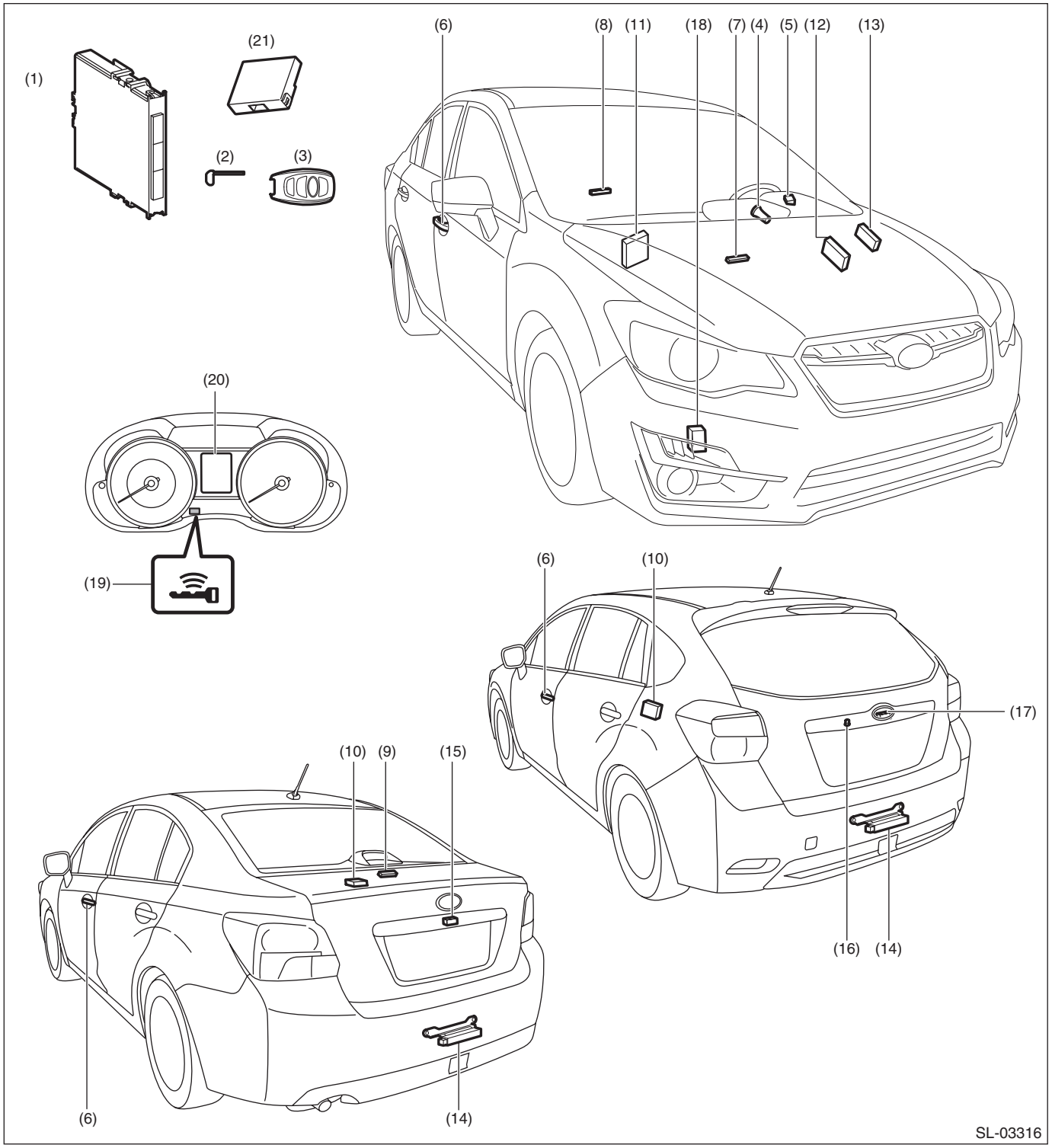
## 2. GENERAL TOOL

| TOOL NAME | REMARKS |
|---|---|
| Circuit tester | Used for measuring resistance, voltage and current. |

# 4. Electrical Component Location

## A: LOCATION

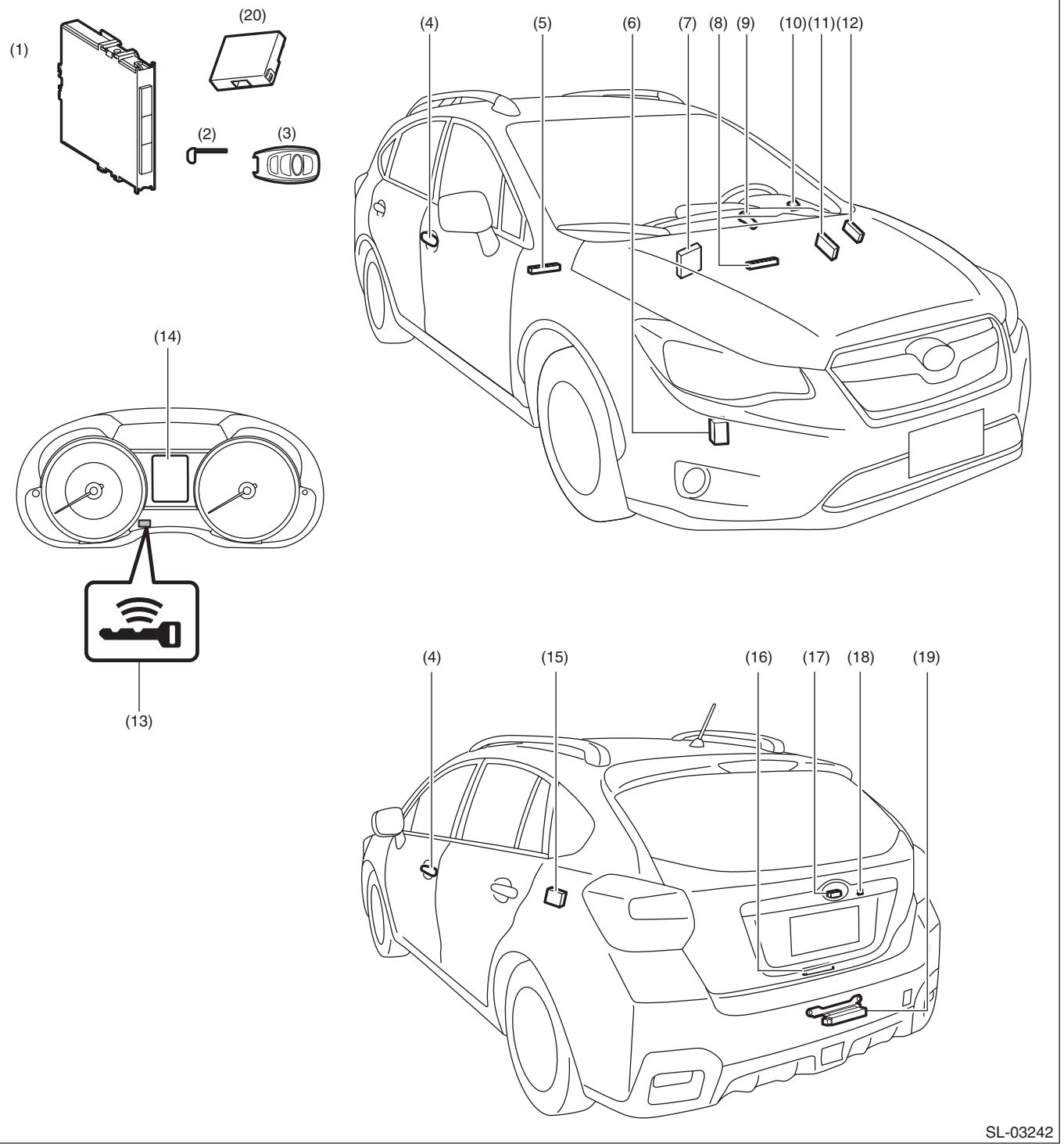
- Gasoline engine model



(1) Keyless access CM
(2) Mechanical key
(3) Access key
(4) Push button ignition switch
(5) Steering lock CM
(6) Front outer handle (front exterior antenna)
– Touch sensor (lock)
– Touch sensor (unlock)
(7) Front interior antenna
(8) Center interior antenna*1 or rear interior antenna*2
(9) Rear interior antenna*1
(10) Receiver
(11) ECM
(12) TCM
(13) Body integrated unit
(14) Rear exterior antenna
(15) Trunk opener button*1
(16) Rear lock button*2
(17) Rear gate opener button*2
(18) Access buzzer
(19) Access key warning light
(20) Multi-information display
(21) ID code box (For C0 and C5 models only)

*1: 4 door model
*2: 5 door model

- HEV model

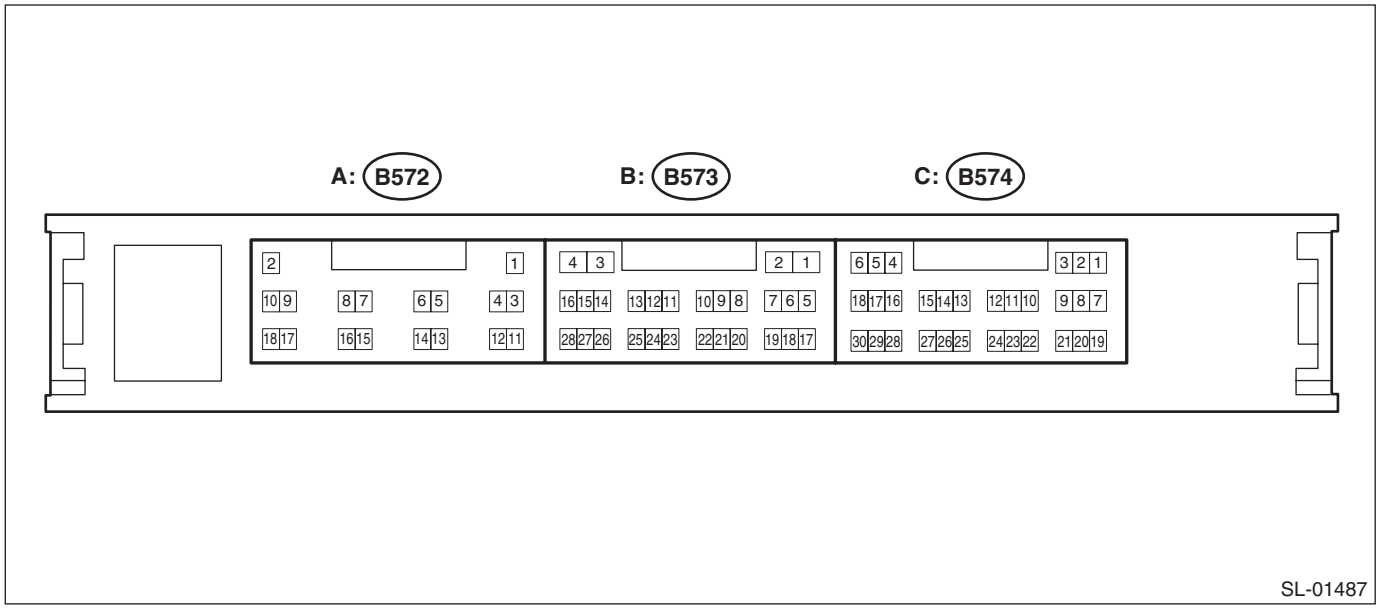


(1) Keyless access CM
(2) Mechanical key
(3) Access key
(4) Front outer handle (front exterior antenna)
– Touch sensor (lock)
– Touch sensor (unlock)
(5) Center interior antenna
(6) Access buzzer
(7) ECM
(8) Front interior antenna
(9) Push button ignition switch
(10) Steering lock CM
(11) TCM
(12) Body integrated unit
(13) Access key warning light
(14) Multi-information display
(15) Receiver
(16) Rear interior antenna
(17) Rear gate opener button
(18) Rear lock button
(19) Rear exterior antenna
(20) ID code box
(For C0 and C5 model only)

# 5. Control Module I/O Signal

## A: ELECTRICAL SPECIFICATION

### 1. KEYLESS ACCESS CM




| Terminal No. | Terminal symbol | Contents |
|---|---|---|
| (B572) No. 2 | +B | +B |
| (B572) No. 3 | INDS | Start switch indicator (green) output |
| (B572) No. 5 | N-SW | Neutral switch input |
| (B572) No. 7 | STSW | STSW output |
| (B572) No. 9 | IG2D | IG2 relay drive output |
| (B572) No. 10 | CLUT | Clutch switch input |
| (B572) No. 11 | GND | GND |
| (B572) No. 13 | EGIO | Immobilizer communication 1 |
| (B572) No. 14 | EGII | Immobilizer communication 2 |
| (B572) No. 17 | TACH | Engine speed input |
| (B572) No. 18 | STPI | Stop light switch input |
| (B573) No. 1 | CG8B | Outside rear antenna output – |
| (B573) No. 2 | CLG8 | Outside rear antenna output + |
| (B573) No. 5 | RCO | Tuner power supply |
| (B573) No. 8 | CG7B | Inside rear antenna output – |
| (B573) No. 9 | CLG7 | Inside rear antenna output + |
| (B573) No. 10 | CG6B | Inside center antenna output – |
| (B573) No. 11 | CLG6 | Inside center antenna output + |
| (B573) No. 15 | IDW | ID code box presence judgment terminal |
| (B573) No. 17 | RDA | Tuner reception data input |
| (B573) No. 19 | RSSI | Tuner reception start signal input |
| (B573) No. 27 | TSW5 | Rear gate lock request switch input / trunk opener button input |
| (B573) No. 28 | ACCR | ACC cutoff input |
| (B574) No. 1 | VC5 | Immobilizer amplifier power supply (start switch) |
| (B574) No. 2 | CG5B | Inside front antenna output – |
| (B574) No. 3 | CLG5 | Inside front antenna output + |
| (B574) No. 4 | ACCD | ACC relay drive output |
| (B574) No. 5 | IG | IGN power supply |

| Terminal No. | Terminal symbol | Contents |
|---|---|---|
| (B574) No. 6 | IG1D | IG1 relay drive output |
| (B574) No. 7 | CODE | Immobilizer signal reception (start switch) |
| (B574) No. 8 | TSW2 | Passenger's lock sensor signal input |
| (B574) No. 9 | TXCT | Immobilizer signal transmission (start switch) |
| (B574) No. 10 | CG2B | Passenger's antenna output – |
| (B574) No. 11 | CLG2 | Passenger's antenna output + |
| (B574) No. 12 | CLG1 | Driver's antenna output + |
| (B574) No. 13 | CG1B | Driver's antenna output – |
| (B574) No. 14 | CANH | HS-CAN H |
| (B574) No. 15 | CANL | HS-CAN L |
| (B574) No. 16 | SWIL | Start switch character illumination output |
| (B574) No. 17 | LIN | LIN communication |
| (B574) No. 18 | INDW | Start switch indicator (orange) output |
| (B574) No. 19 | POS1 | Driver's sensor drive power supply |
| (B574) No. 20 | TSW1 | Driver's lock sensor signal input |
| (B574) No. 21 | POS2 | Passenger's sensor drive power supply |
| (B574) No. 22 | SEN1 | Driver's unlock sensor signal input |
| (B574) No. 23 | SEN2 | Passenger's unlock sensor signal input |
| (B574) No. 24 | AGND | Immobilizer amplifier GND (start switch) |
| (B574) No. 25 | P | Parking position switch input |
| (B574) No. 26 | SLP | Steering lock position input |
| (B574) No. 27 | SPD | Vehicle speed signal input |
| (B574) No. 28 | SSW1 | Start switch input 1 |
| (B574) No. 29 | SLR+ | Steering motor power supply signal output |
| (B574) No. 30 | SSW2 | Start switch input 2 |

Disconnect the control module connector (B572) before checking the following items.

NOTE:
If the measured value is out of standard, it is possible that the vehicle has a fault.

| Terminal No. | Item | Measuring condition | Standard |
|---|---|---|---|
| (B572) No. 2 (+B) ←→ (B572) No. 11 (GND) | Voltage | Always | 9.5 — 16 V |
| (B572) No. 11 (GND) ←→ Chassis ground | Resistance | Always | Less than 1 Ω |

NOTE:
If the measured value is out of standard, it is possible that the vehicle has a fault.

| Terminal No. | Item | Measuring condition | Standard |
|---|---|---|---|
| (B573) No. 15 (IDW) ←→ Chassis ground<br>(For EK, ER, EN models only) | Continuity | Always | Continuity exists |

Disconnect the control module connectors (B574) and (B572) before checking the following items.

NOTE:
If the measured value is out of standard, it is possible that the vehicle has a fault.

| Terminal No. | Item | Measuring condition | Standard |
|---|---|---|---|
| (B574) No. 4 (ACCD) ←→ Chassis ground | Resistance | Always (20°C) | 152.61 — 216.5 Ω |
| (B572) No. 9 (IG2D) ←→ Chassis ground | Resistance | Always (20°C) | 74.15 — 460.88 Ω |
| (B574) No. 6 (IG1D) ←→ Chassis ground | Resistance | Always (20°C) | 50.87 — 72.17 Ω |
| (B572) No. 18 (STP1) ←→ Chassis ground (AT model only) | Voltage | Brake pedal depressed → released | 11 — 14 V → 1 V or less |
| (B574) No. 25 (P) ←→ Chassis ground (AT model only) | Resistance | Except for shift positions P → Shift position P | 40 kΩ or more → 200 Ω or less |
| (B574) No. 27 (SPD) ←→ Chassis ground | Resistance | Always | 30 kΩ or more |
| (B574) No. 28 (SSW1) ←→ Chassis ground | Resistance | Push button ignition switch pressed → released | Less than 1 Ω → 10 kΩ or more |
| (B574) No. 29 (SLR+) ←→ Chassis ground | Resistance | Always | 10 kΩ or more |
| (B574) No. 30 (SSW2) ←→ Chassis ground | Resistance | Push button ignition switch pressed → released | Less than 1 Ω → 10 kΩ or more |
| (B574) No. 17 (LIN) ←→ Chassis ground | Continuity | Always | Continuity does not exist |
| (B574) No. 14 (CANH) ←→ Chassis ground | Pulse | ACC ON or IGN ON | Pulse generation |
| (B574) No. 15 (CANL) ←→ Chassis ground | Pulse | ACC ON or IGN ON | Pulse generation |

Connect the control module connector before checking the following items.

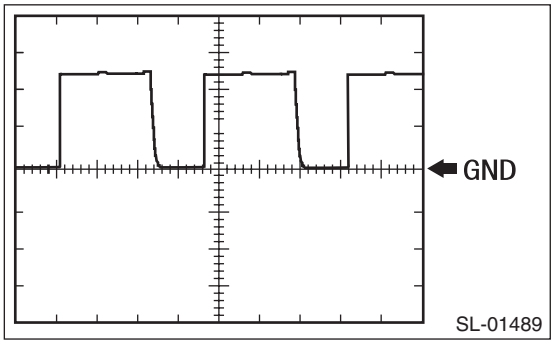
NOTE:
If the measured value is out of standard, it is possible that the keyless access CM has a fault.

| Terminal No. | Item | Measuring condition | Standard |
|---|---|---|---|
| (B574) No. 1 (VC5) ←→ (B574) No. 24 (AGND) | Voltage | 30 seconds or more have passed after the door was opened or closed with IG OFF and the brake pedal released. | 1 V or less |
| | Waveform | Within 30 seconds after the push button ignition switch is pressed with IG OFF and access key not in the passenger room. | Waveform 1 |
| (B574) No. 2 (CG5B) ←→ (B572) No. 11 (GND) | Pulse | All doors closed, ACC and IG OFF, access key not in passenger room, touch sensor (lock) OFF → ON | No pulse output → Pulse output detected |
| (B574) No. 3 (CLG5) ←→ (B572) No. 11 (GND) | Pulse | All doors closed, ACC and IG OFF, access key not in passenger room, touch sensor (lock) OFF → ON | No pulse output → Pulse output detected |
| (B574) No. 4 (ACCD) ←→ (B572) No. 11 (GND) | Voltage | IG OFF → ACC ON | 1 V or less → 9 — 14 V |
| (B574) No. 6 (IG1D) ←→ (B572) No. 11 (GND) | Voltage | ACC ON → IG ON | 1 V or less → 9 — 14 V |
| (B574) No. 7 (CODE) ←→ (B574) No. 24 (AGND) | Voltage | 30 seconds or more have passed after the door was opened or closed with IG OFF and the brake pedal released. | 1 V or less |
| | Waveform | Turn the ignition switch to OFF and with the access key near the push button ignition switch, press the push button ignition switch*1 | Waveform 2 |
| (B574) No. 9 (TXCT) ←→ (B574) No. 24 (AGND) | Voltage | 30 seconds or more have passed after the door was opened or closed with IG OFF and the brake pedal released. | 1 V or less |
| | Waveform | Turn the ignition switch to OFF and with the access key near the push button ignition switch, press the push button ignition switch*1 | Waveform 3 |
| (B574) No. 10 (CG2B) ←→ (B572) No. 11 (GND) | Pulse | ACC and IG OFF, all doors closed, all doors locked by lock operation with wireless remote control, access key not in passenger room | No pulse output → Pulse output detected |
| (B574) No. 11 (CLG2) ←→ (B572) No. 11 (GND) | Pulse | ACC and IG OFF, all doors closed, all doors locked by lock operation with wireless remote control, access key not in passenger room | No pulse output → Pulse output detected |
| (B574) No. 12 (CLG1) ←→ (B572) No. 11 (GND) | Pulse | ACC and IG OFF, all doors closed, all doors locked by lock operation with wireless remote control, access key not in passenger room | No pulse output → Pulse output detected |
| (B574) No. 13 (CG1B) ←→ (B572) No. 11 (GND) | Pulse | ACC and IG OFF, all doors closed, all doors locked by lock operation with wireless remote control, access key not in passenger room | No pulse output → Pulse output detected |
| (B574) No. 19 (POS1) ←→ (B572) No. 11 (GND) | Voltage | ACC and IG OFF → ACC or IG ON | 9 — 14 V → less than 2V |
| (B574) No. 21 (POS2) ←→ (B572) No. 11 (GND) | Voltage | ACC and IG OFF → ACC or IG ON | 9 — 14 V → less than 2V |
| (B574) No. 24 (AGND) ←→ Chassis ground | Resistance | Always | Less than 1 Ω |
| (B574) No. 25 (P) ←→ (B572) No. 11 (GND)<br>(AT model only) | Voltage | Except for shift positions P → Shift position P | 9 — 14 V or more → 1.5 V or less |
| (B574) No. 26 (SLP) ←→ (B572) No. 11 (GND) | Voltage | With ignition switch OFF and shift position P, Steering lock → Steering unlock | 11 — 14 V → 1.2 V or less |

| Terminal No. | Item | Measuring condition | Standard |
|---|---|---|---|
| (B574) No. 27 (SPD) ←→ Chassis ground | Pulse | Driving at approx. 5 km/h | Pulse generation according to vehicle speed (approx. 5 km/h: 3.54 Hz) |
| (B574) No. 28 (SSW1) ←→ (B572) No. 11 (GND) | Voltage | Push button ignition switch released → pressed | 11 — 14 V → 1 V or less |
| (B574) No. 29 (SLR+) ←→ (B572) No. 11 (GND) | Voltage | When the following conditions are met, the doors are closed → opened, and steering lock motor is driven<br>• Steering lock is unlocked<br>• IG OFF<br>• Shift position P | 11 — 14 V (Steering lock motor is stopped) → 1 V or less (Steering lock motor is driven) |
| (B574) No. 30 (SSW2) ←→ (B572) No. 11 (GND) | Voltage | Push button ignition switch released → pressed | 11 — 14 V → 1 V or less |
| (B573) No. 1 (CG8B) ←→ (B572) No. 11 (GND) | Pulse | ACC and IG OFF, all doors closed, all doors locked, trunk opener button or rear gate opener button OFF → ON | No pulse output → Pulse output detected |
| (B573) No. 2 (CLG8) ←→ (B572) No. 11 (GND) | Pulse | ACC and IG OFF, all doors closed, all doors locked, trunk opener button or rear gate opener button OFF → ON | No pulse output → Pulse output detected |
| (B573) No. 5 (RCO) ←→ (B572) No. 11 (GND) | Voltage | ACC and IG OFF, access key is locked or unlock switch OFF → ON | 1 V or less → 4.5 — 5.5 V |
| (B573) No. 8 (CG7B) ←→ (B572) No. 11 (GND)<br>(5 door model) | Pulse | All doors closed, ACC and IG OFF, access key not in passenger room, touch sensor (lock) OFF → ON | No pulse output → Pulse output detected |
| (B573) No. 8 (CG7B) ←→ (B572) No. 11 (GND)<br>(4 door model) | Pulse | All doors closed, all doors locked, trunk opened → closed | No pulse output → Pulse output detected |
| (B573) No. 9 (CLG7) ←→ (B572) No. 11 (GND)<br>(5 door model) | Pulse | All doors closed, ACC and IG OFF, access key not in passenger room, touch sensor (lock) OFF → ON | No pulse output → Pulse output detected |
| (B573) No. 9 (CLG7) ←→ (B572) No. 11 (GND)<br>(4 door model) | Pulse | All doors closed, all doors locked, trunk opened → closed | No pulse output → Pulse output detected |
| (B573) No. 19 (RSSI) ←→ (B572) No. 11 (GND) | Voltage | All doors closed, all doors locked, access key is locked or unlock switch OFF → ON | 11 — 14 V → 2 V or less |
| (B573) No. 27 (TSW5) ←→ (B572) No. 11 (GND) | Pulse/voltage | ACC and IG OFF, all doors locked, trunk opener button or rear gate lock button OFF → ON | 9 V or more → less than 2 V |
| (B572) No. 9 (IG2D) ←→ (B572) No. 11 (GND) | Voltage | ACC ON → IG ON | 1 V or less → 9 — 14 V |
| (B572) No. 13 (EGIO) ←→ (B574) No. 24 (AGND) | Voltage/pulse | Within 3 seconds after engine has been initially ignited or within 3 seconds after initial IG ON following battery removal and installation | 11 — 14 V → pulse generation (waveform 4) |
| (B572) No. 14 (EGII) ←→ (B574) No. 24 (AGND) | Voltage/pulse | Within 3 seconds after engine has been initially ignited or within 3 seconds after initial IG ON following battery removal and installation | 11 — 14 V → pulse generation (waveform 4) |
| (B574) No. 8 (TSW2) ←→ (B572) No. 11 (GND) | Voltage | ACC and IG OFF, all doors closed, all doors locked, access key carried, passenger's seat touch sensor (lock) OFF → ON | 9 V or more → less than 2 V (→ 9 V or more) |
| (B574) No. 20 (TSW1) ←→ (B572) No. 11 (GND) | Voltage | ACC and IG OFF, all doors closed, all doors locked, access key carried, driver's seat touch sensor (lock) OFF → ON | 9 V or more → less than 2 V (→ 9 V or more) |
| (B574) No. 23 (SEN2) ←→ (B572) No. 11 (GND) | Voltage | ACC and IG OFF, all doors closed, all doors locked, access key carried, passenger's seat touch sensor (unlock) OFF → ON | 9 V or more → less than 2 V (→ 9 V or more) |

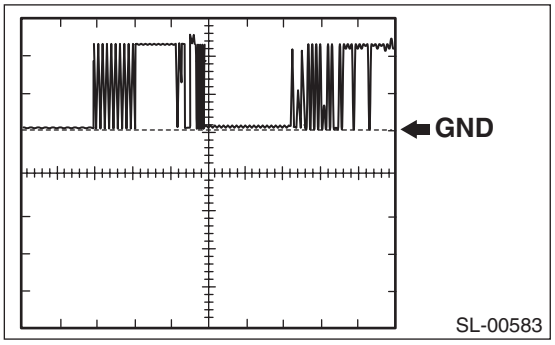
| Terminal No. | Item | Measuring condition | Standard |
|---|---|---|---|
| (B574) No. 22 (SEN1) ←→ (B572) No. 11 (GND) | Voltage | ACC and IG OFF, all doors closed, all doors locked, access key carried, driver's seat touch sensor (unlock) OFF → ON | 9 V or more → less than 2 V (→ 9 V or more) |
| (B574) No. 16 (SWIL) ←→ (B572) No. 11 (GND) | Voltage | When illumination of start switch goes off, headlight goes OFF → ON | Less than 2 V → 9 V or more |
| (B572) No. 17 (TACH) ←→ Chassis ground | Waveform | While engine idling | Pulse generation (waveform 5) |
| (B573) No. 28 (ACCR) ←→ (B572) No. 11 (GND) | Voltage | Brake pedal depressed, push button ignition switch pressed (while cranking) → Except when cranking | Less than 2 V → 9 V or more |
| (B572) No. 5 (N-SW) ←→ (B572) No. 11 (GND) | Voltage | ACC ON → IG ON | Less than 2 V → 9 V or more |
| (B573) No. 10 (CG6B) ←→ (B572) No. 11 (GND) (4 door models only) | Pulse | All doors closed, ACC and IG OFF, access key not in passenger room, touch sensor (lock) OFF → ON | No pulse output → Pulse output detected |
| (B573) No. 11 (CG6G) ←→ (B572) No. 11 (GND) (4 door models only) | Pulse | All doors closed, ACC and IG OFF, access key not in passenger room, touch sensor (lock) OFF → ON | No pulse output → Pulse output detected |
| (B573) No. 17 (RDA) ←→ (B572) No. 11 (GND) | Pulse | All doors closed, ACC and IG OFF, access key not in passenger room, touch sensor (lock) OFF → ON | 2 V or less → 11 — 14 V → 2 V or less |
| (B572) No. 7 (STSW) ←→ (B572) No. 11 (GND) | Voltage | Shift lever is in position P or position N and access key is in passenger room. While depressing the brake pedal, press the push button ignition switch. (Engine start) | Less than 2 V → 9 V or more |
| (B572) No. 3 (INDS) ←→ (B572) No. 11 (GND) | Voltage | Depress the brake pedal. | 9 V or more |
| (B574) No. 18 (INDW) ←→ (B572) No. 11 (GND) | Voltage | With ACC ON or IG ON, brake pedal not depressed. | 9 V or more |

NOTE:
*1: Remove the access key battery before checking.
1. Waveform 1




| Item | Contents |
|---|---|
| Measured terminal | (B574) No. 1 (VC5) ←→ (B574) No. 24 (AGND) |
| Equipment setting | 2 V/DIV, 200 ms/DIV |
| Measuring condition | Within 30 seconds after the push button ignition switch is pressed with IG OFF and access key not in the passenger room. |

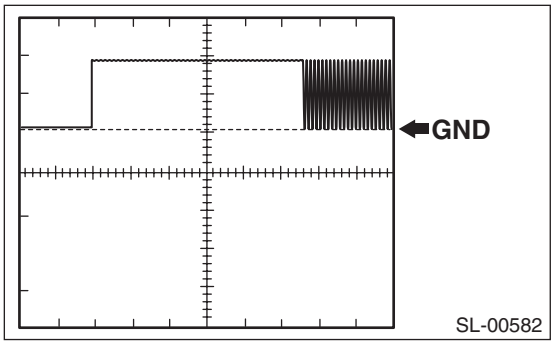
2. Waveform 2




| Item | Contents |
|---|---|
| Measured terminal | (B574) No. 7 (CODE) ←→ (B574) No. 24 (AGND) |
| Equipment setting | 2 V/DIV, 20 ms/DIV |
| Measuring condition | Turn the ignition switch to OFF and with the access key near the push button ignition switch, press the push button ignition switch. *1 |

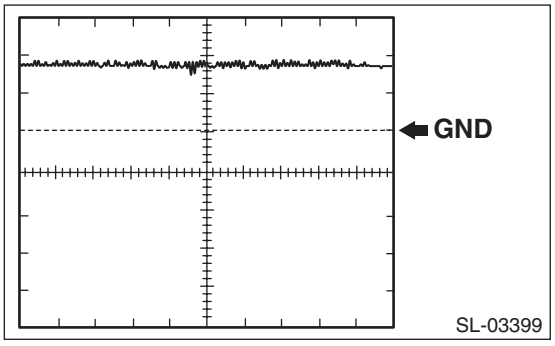
NOTE:
*1: Remove the access key battery before checking.

3. Waveform 3



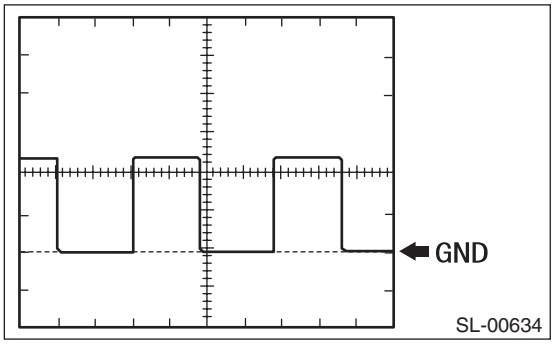

| Item | Contents |
|---|---|
| Measured terminal | (B574) No. 9 (TXCT) ←→ (B574) No. 24 (AGND) |
| Equipment setting | 2 V/DIV, 20 ms/DIV |
| Measuring condition | Within 30 seconds after the push button ignition switch is pressed with IG OFF and access key not in the passenger room. |

4. Waveform 4



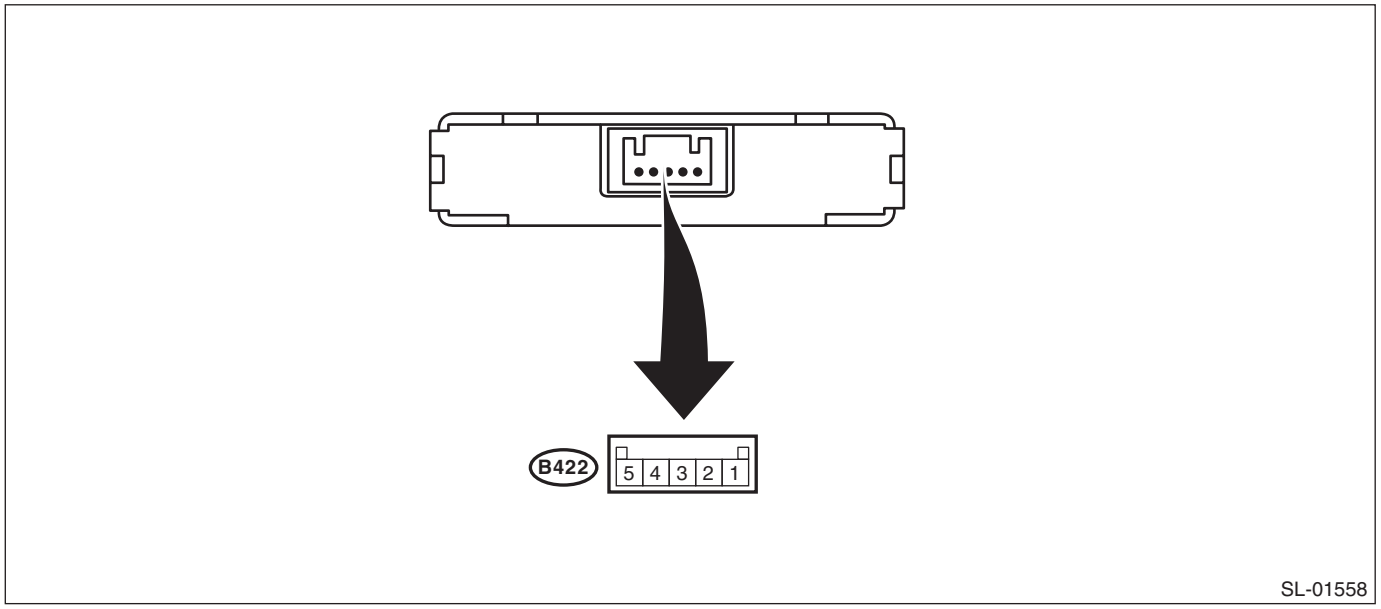

| Item | Contents |
|---|---|
| Measured terminal | (B572) No. 13 (EGIO) ←→ (B572) No. 11 (GND) |
| Equipment setting | 5 V/DIV, 100 ms/DIV |
| Measuring condition | Within 3 seconds after engine has been initially ignited or within 3 seconds after initial IG ON following battery removal and installation |

5. Waveform 5




| Item | Contents |
|---|---|
| Equipment setting | 5 V/DIV, 100 ms/DIV |

## 2. ID CODE BOX




| Terminal No. | Terminal symbol | Contents |
|---|---|---|
| (B422) No. 1 | +B | +B |
| (B422) No. 2 | LIN | LIN communication |
| (B422) No. 3 | IMO2 | Immobilizer communication 2 |
| (B422) No. 4 | IMO1 | Immobilizer communication 1 |
| (B422) No. 5 | GND | GND |

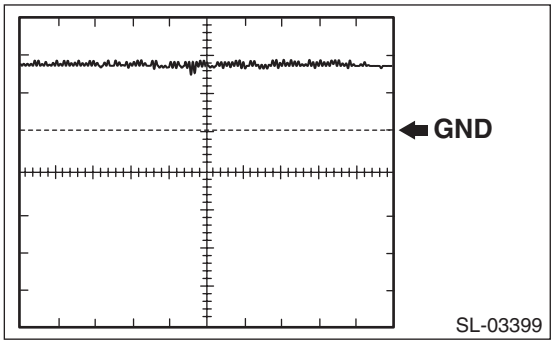
NOTE:
Disconnect the control module connector before checking the following items.

| Terminal No. | Standard | Measuring condition | Item |
|---|---|---|---|
| 1(+B) ←→ 5 (GND) | 10 — 14 V | Always | Voltage |
| 3 (IMO2) ←→ 5 (GND) | 0 V | Ignition OFF | Voltage |
| 4 (IMO1) ←→ 5 (GND) | 0 V | Ignition OFF | Voltage |
| 5 (GND) ←→ Chassis ground | Continuity exists | Always | Continuity |

NOTE:
Connect the control module connector before checking the following items.

| Terminal No. | Standard | Measuring condition | Item |
|---|---|---|---|
| 3 (IMO2) ←→ 5 (GND) | 0 V | Ignition OFF | Voltage |
| 3 (IMO2) ←→ 5 (GND) | Waveform 1 | Ignition ON | Voltage |
| 4 (IMO1) ←→ 5 (GND) | 0 V | Ignition OFF | Voltage |
| 4 (IMO1) ←→ 5 (GND) | Waveform 1 | Ignition ON | Voltage |

Waveform 1

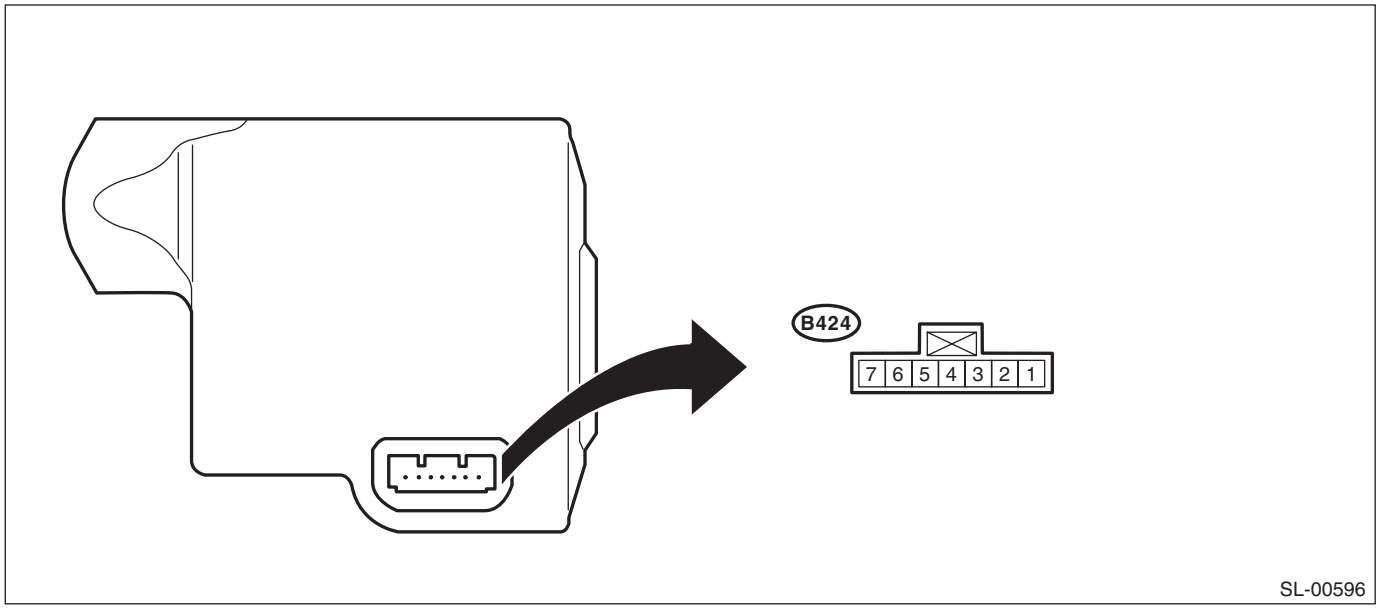



| Item | Contents |
|---|---|
| Measured terminal | 4 (IMO1) ←→ 5 (GND) |
| Equipment setting | 5 V/DIV, 100 ms/DIV |
| Measuring condition | Ignition ON |

## 3. BODY INTEGRATED UNIT

Refer to the BODY CONTROL SYSTEM (DIAGNOSTICS) for the I/O Signal of the body integrated unit. <Ref. to BC(diag)-6, ELECTRICAL SPECIFICATION, Control Module I/O Signal.>

### 4. STEERING LOCK CM




| Terminal No. | Terminal symbol | Contents |
|---|---|---|
| (B424) No. 1 | GND | GND |
| (B424) No. 3 | SLR+ | Steering lock motor drive power supply |
| (B424) No. 4 | SLP | Unlock position output |
| (B424) No. 5 | LIN | LIN communication |
| (B424) No. 6 | IG2 | IGN power supply |
| (B424) No. 7 | B | +B |

NOTE:
Perform the following check from the back side of the connector, with the connector of the control module connected.
If the measured value is out of standard, it is possible that the vehicle has a fault.

| Terminal No. | Standard | Measuring condition | Item |
|---|---|---|---|
| 1 (GND) ←→ Chassis ground | Continuity exists | Always | Continuity |
| — | — | — | — |
| 3 (SLR+) ←→ Chassis ground | 10 — 14 V → 1 V or less | Motor not operating → Motor operating | Voltage |
| 4 (SLP) ←→ Chassis ground | 10 — 14 V → 1 V or less | Lock → Unlock | Voltage |
| 5 (LIN) | Input/output signal | — | — |
| 6 (IG2) ←→ Chassis ground | 10 — 14 V | Ignition ON | Voltage |
| 7 (B) ←→ Chassis ground | 10 — 14 V | Always | Voltage |

## B: WIRING DIAGRAM

• Refer to “Keyless Access System” in the wiring diagram. <Ref. to WI(w/o HEV)-153, WIRING DIAGRAM, Keyless Access System.> <Ref. to WI(HEV)-158, WIRING DIAGRAM, Keyless Access System.>
• Refer to “Push Button Start System” in WI section. <Ref. to WI(w/o HEV)-179, WIRING DIAGRAM, Push Button Start System.> <Ref. to WI(HEV)-181, WIRING DIAGRAM, Push Button Start System.>

# 6. Subaru Select Monitor

## A: OPERATION

For operation procedures, refer to the “PC application help for Subaru Select Monitor”.

## B: COMMUNICATION FOR INITIALIZING IMPOSSIBLE

NOTE:
Confirm that the LAN system is working properly before the diagnosis.
Subaru Select Monitor communication line is open or shorted.

**DETECTING CONDITION:**

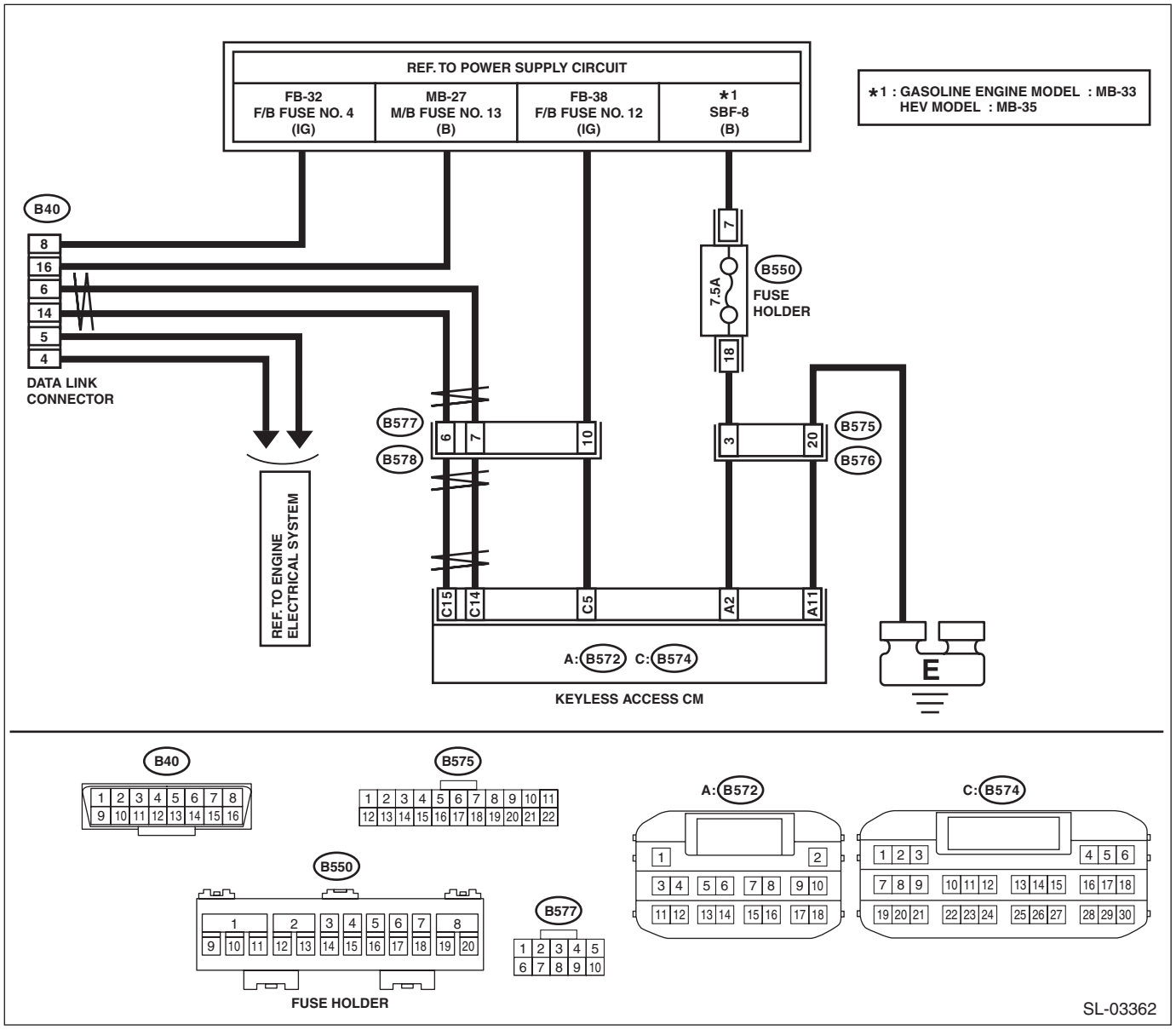
- Defective harness
- Power supply circuit malfunction
- Defective keyless access CM
- Defective CAN communication circuit
- Defective Subaru Select Monitor

**TROUBLE SYMPTOM:**

Not communicable with Subaru Select Monitor.

**WIRING DIAGRAM:**

- Push button start system <Ref. to WI(w/o HEV)-179, WIRING DIAGRAM, Push Button Start System.> <Ref. to WI(HEV)-181, WIRING DIAGRAM, Push Button Start System.>
- CAN communication system <Ref. to WI(w/o HEV)-65, WIRING DIAGRAM, CAN Communication System.> <Ref. to WI(HEV)-65, WIRING DIAGRAM, CAN Communication System.>




| Step | | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK OTHER COMMUNICATION.**<br>Communicate with the system other than the keyless access system using the Subaru Select Monitor. | Is the communication to other control module possible? | Go to step **2**. | Perform the "Communication for Initializing Impossible" of LAN system. <Ref. to LAN(HEV)(diag)-10, COMMUNICATION FOR INITIALIZING IMPOSSIBLE, Subaru Select Monitor.> |

| Step | | Check | Yes | No |
|---|---|---|---|---|
| 2 | **CHECK DTC.**<br>Read the DTC of the LAN system using the Subaru Select Monitor. <Ref. to LAN(HEV)(diag)-27, OPERATION, Read Diagnostic Trouble Code (DTC).> | Is DTC detected? | Perform the diagnosis according to DTC. | Go to step **3**. |
| 3 | **CHECK KEYLESS ACCESS CM.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the keyless access CM connector.<br>3) Connect the disconnected connectors.<br>4) Perform communication with the keyless access system using the Subaru Select Monitor. | Is communication possible? | It is possible that temporary poor communication occurs. | Replace the keyless access CM. <Ref. to SL-110, Keyless Access CM.> |

**CAUTION:**
**For replacement procedure of keyless access CM, refer to the "REGISTRATION MANUAL FOR IMMOBILIZER".**

# 7. Read Diagnostic Trouble Code (DTC)

## A: OPERATION

For operation procedures, refer to the “PC application help for Subaru Select Monitor”.

# 8. Read Current Data

## A: OPERATION

For operation procedures, refer to the “PC application help for Subaru Select Monitor”.

## B: LIST

1. Keyless access system

| Items to be displayed | Unit of measure | Contents | Note |
|---|---|---|---|
| Driver’s unlock touch sensor switch | ON/OFF | Keyless access CM input value | ON when the touch sensor (unlock) built on the back surface of the driver’s door outer handle is touched |
| Passenger’s unlock touch sensor switch | ON/OFF | Keyless access CM input value | ON when the touch sensor (unlock) built on the back surface of the passenger’s door outer handle is touched |
| Driver’s lock touch sensor SW | ON/OFF | Keyless access CM input value | ON when the touch sensor (lock) built on the surface of the driver’s door outer handle is touched |
| Passenger’s lock touch sensor SW | ON/OFF | Keyless access CM input value | ON when the touch sensor (lock) built on the surface of the passenger’s door outer handle is touched |
| Rear Gate Request SW | ON/OFF | Keyless access CM input value | ON when rear lock button is pressed (5 door models only) |
| Trunk Request SW | ON/OFF | Keyless access CM input value | ON when the trunk opener button is pressed (4 door models only) |
| Secret code Keyless registration | Unregistered/Registered | Keyless access CM input value | Registered when secret code keyless registration |
| IGN SW | ON/OFF | Keyless access CM input value | ON when ignition is ON |
| B/up fuse | Connecting/Not connected | Keyless access CM internal value | When backup fuse is connected/connecting |
| ACC SW | ON/OFF | Keyless access CM input value | ON when accessory or ignition is ON |
| Incorrect vehicle ID | Yes/No | Keyless access CM internal value | Yes when the access key is different when keyless access is performed |
| No response | Yes/No | Keyless access CM internal value | Yes when there is no response from the access key when keyless access is performed |
| Incorrect response code, format | Yes/No | Keyless access CM internal value | Yes if the response from the access key differs when keyless access is performed |
| Exhausted battery | Yes/No | Keyless access CM internal value | Yes if the access key battery is depleted |
| Incorrect response code, ID code | Yes/No | Keyless access CM internal value | Yes if the response from the access key differs when keyless access is performed |
| Incorrect response code, collation result | Yes/No | Keyless access CM internal value | Yes if the response from the access key differs when keyless access is performed |
| Incorrect ID code | Yes/No | Keyless access CM internal value | Yes if the response from the access key differs when keyless access is performed |
| Incorrect rolling code | Yes/No | Keyless access CM internal value | Yes if the response from the access key differs when keyless access is performed |
| Smart Cancel | Cancel/Normal | Keyless access CM internal value | Cancel in the keyless access function stopped condition |
| Simple Smart system cancel | Cancel/Normal | Keyless access CM internal value | Cancel in the simple cancel function set condition |
| ID Code Box W/H Connection State | Connecting/Not connected | Keyless access CM internal value | Connecting status of the terminal (B573) No. 15 |

| Items to be displayed | Unit of measure | Contents | Note |
|---|---|---|---|
| ID Code Box Existence Judging | ON/OFF/Existence Judging | Keyless access CM internal value | Normal «Existence Judging» |
| Immobilizer | Set/Unset | Keyless access CM internal value | Set when the immobilizer is set |
| Remote engine starter communication ID confirmation | Collation NG/Collation OK | Keyless access CM internal value | Collation OK when using a registered remote control engine starter |
| Remote engine starter code registration confirmation | Unregistered/Registered | Keyless access CM internal value | Registered when the code is registered |
| STLC sleep possible status | Possible/Impossible | Steering lock CM internal value | Possible when sleep mode is possible |
| STLC wake-up transmission status | Transmission/No transmission | Steering lock CM internal value | Transmission when wake-up signal is transmitted |
| Lock side sensor status | ON/OFF | Steering lock CM internal value | OFF in an unlocked status |
| Unlock side sensor status | ON/OFF | Steering lock CM internal value | OFF in an unlocked status |
| Lock confirmation | Confirmed/Unconfirmed | Steering lock CM internal value | Confirmed when steering lock is locked |
| Unlock confirmation | Confirmed/Unconfirmed | Steering lock CM internal value | Confirmed when steering lock is unlocked |
| Sensor initialization | Completed/Not Completed | Steering lock CM internal value | Completed when sensor initial operation is completed |
| Motor protection control status | Rejected range/Permitted range | Steering lock CM internal value | Permitted range when motor protection control is not activated |
| Motor operation prohibition voltage evaluation | ON/OFF | Steering lock CM internal value | OFF when motor operation is prohibited |
| Diagnosis response | Normal/Response | Steering lock CM internal value | Response when diagnostic communication is in progress |
| Sensor abnormal | Normal/Abnormal | Steering lock CM internal value | Abnormal when a trouble occurs in steering lock CM |
| Motor power supply short-circuit abnormal | Normal/Abnormal | Steering lock CM internal value | Abnormal when a trouble occurs in steering lock CM |
| Motor driver short-circuit abnormal | Normal/Abnormal | Steering lock CM internal value | Abnormal when a trouble occurs in steering lock CM |
| Lock bar engagement abnormal | Normal/Abnormal | Steering lock CM internal value | ON when the steering lock bar has experienced interference |
| Push start abnormal | Normal/Abnormal | Steering lock CM internal value | Abnormal when a trouble occurs in steering lock CM |
| Lock side relay operation | Stopped/Activating | Steering lock CM internal value | Operating in unlock → lock status |
| Unlock side relay operation | Stopped/Activating | Steering lock CM internal value | Operating in lock → unlock status |
| Motor drive FET drive | Stopped/Activating | Steering lock CM internal value | Operating when the motor drive FET is operating |
| Motor reversal protection control | Stopped/Activating | Steering lock CM internal value | Operating when the motor drive FET is operating |
| Engine start | Engine start permission/ Engine start prohibition | Steering lock CM internal value | Permission when ignition ON |
| Sensor abnormal (past) | Normal/Abnormal | Steering lock CM internal value | Abnormal when a trouble occurs in steering lock CM |
| Motor power supply short-circuit abnormal (past) | Normal/Abnormal | Steering lock CM internal value | Abnormal when a trouble occurs in steering lock CM |
| Motor driver short-circuit abnormal (past) | Normal/Abnormal | Steering lock CM internal value | Abnormal when a trouble occurs in steering lock CM |

| Items to be displayed | Unit of measure | Contents | Note |
|---|---|---|---|
| Steering lock lock/unlock command reception history | ON (keep 10 sec)/OFF | Steering lock CM internal value | ON when steering lock is locked → unlocked, unlocked → locked |
| Lock bar engagement abnormal (past) | ON/OFF | Steering lock CM internal value | ON when the steering lock bar has experienced interference in the past |
| Push start abnormal (past) | Normal/Abnormal | Steering lock CM internal value | Abnormal when a trouble occurs in steering lock CM |
| STLC Abnormal EEPROM access | Normal/Abnormal | Steering lock CM internal value | Abnormal when a trouble occurs in steering lock CM |
| ID code BOX sleep possible status | Impossible/Possible | Keyless access CM internal value (models without ID code box) or ID code box internal value (models with ID code box) | Possible when sleep mode is possible |
| ID code BOX wake-up transmission status | No transmission/Transmission | Keyless access CM internal value (models without ID code box) or ID code box internal value (models with ID code box) | Transmission when wake-up signal is transmitted |
| ID code BOX Abnormal EEPROM access (now) | Normal/Abnormal | Keyless access CM internal value (models without ID code box) or ID code box internal value (models with ID code box) | Abnormal when ID code box is abnormal |
| EGI code reception status | Reception/Not yet received | Keyless access CM internal value (models without ID code box) or ID code box internal value (models with ID code box) | Reception at engine start operation |
| Engine start permission request reception status | Reception/Not yet received | Keyless access CM internal value (models without ID code box) or ID code box internal value (models with ID code box) | Reception at ignition ON |
| Provisional injection request reception status | Reception/Not yet received | Keyless access CM internal value (models without ID code box) or ID code box internal value (models with ID code box) | Reception at ignition ON |
| Code collation result between smart ECM and ID code box | Normal/Abnormal | Keyless access CM internal value (models without ID code box) or ID code box internal value (models with ID code box) | Normal when engine start is allowed |
| Code collation result between steering locked ECM and ID code box | Normal/Abnormal | Keyless access CM internal value (models without ID code box) or ID code box internal value (models with ID code box) | Normal when steering lock operation allowed |

| Items to be displayed | Unit of measure | Contents | Note |
|---|---|---|---|
| Steering lock unlock request reception status | Reception (keep 10 sec)/ Not yet received | Keyless access CM internal value (models without ID code box) or ID code box internal value (models with ID code box) | Reception when steering lock is performing unlock |
| Steering lock lock request reception status | Reception (keep 10 sec)/ Not yet received | Keyless access CM internal value (models without ID code box) or ID code box internal value (models with ID code box) | Reception when steering lock is performing lock |
| Driver's external transmitter output circuit abnormal | Normal/Abnormal | Keyless access CM internal value | Abnormal when a trouble occurs in transmitter output circuit |
| Passenger's external transmitter output circuit abnormal | Normal/Abnormal | Keyless access CM internal value | Abnormal when a trouble occurs in transmitter output circuit |
| Driver's external transmitter output circuit abnormal (past) | Normal/Abnormal | Keyless access CM internal value | Abnormal when a trouble occurs in transmitter output circuit in the past |
| Passenger's external transmitter output circuit abnormal (past) | Normal/Abnormal | Keyless access CM internal value | Abnormal when a trouble occurs in transmitter output circuit in the past |
| ID code registration mode status | Normal/Regist./Deletion | — | For immobilizer registration |
| Smart related ECM code registration mode status | On mode/Normal | | |
| ID code collation completion confirmation | Completed/Normal | | |
| ID code registration completion confirmation | Completed/Normal | | |
| Smart related ECM code registration completion confirmation | Completed/Normal | | |
| Registered smart key confirmation status | Confirming/Normal | | |
| Smart related ECM code confirmation status | Confirming/Normal | | |
| ID code registration status | Registering/Normal | | |
| ID code collation status | Normal/Collating the immobilizer/Collating the smart | | |
| All registered keys confirmation status | Confirming/Normal | | |
| Confirmed number of all registered keys | 0 — 7 | | |
| Number of required registrations (smart) | 0 — 7 | | |
| Number of collation completed (smart) | 0 — 7 | | |
| Number of registration completed (smart) | 0 — 7 | Keyless access CM internal value | Number of recognized keyless access CM |
| ID Code Box | Connecting/Not connected | Keyless access CM internal value | Connecting with ID code box normal connection |
| Steering Lock ECM | Connecting/Not connected | Keyless access CM internal value | Connecting with steering lock CM normal connection |

| Items to be displayed | Unit of measure | Contents | Note |
|---|---|---|---|
| Driver's lock request SW/ touch sensor switch ON edge record | ON/OFF | Keyless access CM internal value | The display is continued when the collation is once established by the combination indicated on the left.<br>NOTE:<br>When confirming the data on the left, confirm after performing Keyless access system check. <Ref. to KPS(diag)-37, Keyless Access System Check.> |
| Passenger's unlock request SW/touch sensor switch ON edge record | ON/OFF | Keyless access CM internal value | |
| Rear gate lock request SW ON edge history | ON/OFF | Keyless access CM internal value | |
| Driver's unlock touch sensor switch ON edge record | ON/OFF | Keyless access CM internal value | |
| Passenger's unlock touch sensor switch ON edge record | ON/OFF | Keyless access CM internal value | |
| Trunk unlock request SW ON edge history | ON/OFF | Keyless access CM internal value | |
| Collation OK result history (driver's external transmitter + interior tuner) | ON/OFF | Keyless access CM internal value | |
| Collation OK result history (passenger's external transmitter + interior tuner) | ON/OFF | Keyless access CM internal value | |
| Collation OK result history (front interior transmitter + interior tuner) | ON/OFF | Keyless access CM internal value | |
| Collation OK result history (rear interior transmitter + interior tuner) | ON/OFF | Keyless access CM internal value | |
| Collation OK result history (trunk internal transmitter + interior tuner) | ON/OFF | Keyless access CM internal value | |
| Collation OK result history (trunk external transmitter + interior tuner) | ON/OFF | Keyless access CM internal value | |
| Collation OK result history (rear gate internal transmitter + interior tuner) | ON/OFF | Keyless access CM internal value | |
| Collation OK result history (rear gate external transmitter + interior tuner) | ON/OFF | Keyless access CM internal value | |
| Collation OK result history (immobilizer amplifier + immobilizer amplifier) | ON/OFF | Keyless access CM internal value | |
| Push start SW 1 | ON/OFF | Keyless access CM input value | ON when push button start is pressed |
| Push start SW 2 | ON/OFF | Keyless access CM input value | ON when push button start is pressed |
| Stop light SW | ON/OFF | Keyless access CM input value | ON when brake pedal is depressed |
| Steering Unlock Switch | ON/OFF | Keyless access CM input value | OFF when steering locked |
| Shift P signal(AT only) | ON/OFF | Keyless access CM input value | ON when the shift position is "P" |
| Neutral SW/Clutch SW | ON/OFF | Keyless access CM output value | ON when the shift position is at "P" or "N" |
| Shift N signal(AT only) | ON/OFF | Keyless access CM input value | ON when the shift position is "N" |

| Items to be displayed | Unit of measure | Contents | Note |
|---|---|---|---|
| Delivery mode signal(AT only) | ON/OFF | Keyless access CM input value | OFF in other than the delivery mode |
| IGN2 relay monitor (drive output) | ON/OFF | Keyless access CM output value | ON during IG relay 2 (push button start) drive output |
| IGN1 relay monitor (drive output) | ON/OFF | Keyless access CM output value | ON during IG relay 1 (push button start) drive output |
| ACC relay monitor | ON/OFF | Keyless access CM output value | ON during accessory relay (push button start) drive output |
| IGN2 relay monitor (coil voltage) | ON/OFF | Keyless access CM output value | ON during IG relay 2 (push button start) drive output |
| IGN1 relay monitor (coil voltage) | ON/OFF | ON during IG relay 1 (push button start) drive output | ON during IG relay 1 (push button start) drive output |
| IGN latch monitor | ON/OFF | Keyless access CM output value | ON during IG relay 2 (push button start) drive output |
| STSW signal monitor | ON/OFF | Keyless access CM output value | ON when brake pedal is depressed and push button ignition switch is pressed |
| ACCR signal | ON/OFF | Keyless access CM input value | ON during starter relay drive output |
| Vehicle speed signal | Drive status/Stop status | Keyless access CM input value | Set as “Drive status” when vehicle speed is input |
| Engine Speed | Rotating/Stopped | Keyless access CM input value | Set as “Rotating” while the engine is running |
| Power supply status | All OFF status | Keyless access CM output value | Displayed when IG relay 1 (push button start), IG relay 2 (push button start), and accessory relay (push button start) are all OFF |
| | ACC relay ON status | Keyless access CM output value | Displayed when accessory ON |
| | IGN1 relay ON status | Keyless access CM output value | Displayed when ignition ON |
| | IGN2 relay ON status | Keyless access CM output value | Displayed when ignition ON |
| | STSW Condition | Keyless access CM output value | Displayed when brake pedal is depressed, and push button ignition switch is pressed |
| Vehicle identification | GAS MT/GAS AT/HEV AT/ Auto Start Stop MT/Auto Start Stop AT | Keyless access CM output value | Equipped vehicle is displayed. |
| IGN1 external circuit abnormal | No/Yes | Keyless access CM output value | Yes when IGN1 external circuit is faulty |
| IGN2 external circuit abnormal | No/Yes | Keyless access CM output value | Yes when IGN2 external circuit is faulty |
| Start SW trouble | No/Yes | Keyless access CM output value | Yes when start SW is faulty |
| P signal mismatch | No/Yes | Keyless access CM output value | Yes when shift P signal is abnormal |
| Steering lock unlock waiting time out | No/Yes | Keyless access CM output value | Yes when steering lock unlock time out occurred |
| Key collation waiting time out | No/Yes | Keyless access CM output value | Yes when key collation time out occurred |

2. Body integrated unit

Refer to the BODY CONTROL SYSTEM (DIAGNOSTICS) for the current data of the body integrated unit. <Ref. to BC(diag)-12, LIST, Read Current Data.>

# 9. Clear Memory Mode

## A: OPERATION

For operation procedures, refer to the “PC application help for Subaru Select Monitor”.

NOTE:
Initial diagnosis of electronic throttle control is performed after memory clearance. Wait for 10 seconds or more after turning the ignition switch to ON, and then start the engine.

# 10.Keyless Access System Check

## A: OPERATION

1) On «Main Menu» display, select {Each System Check}.
2) On «System Selection Menu» display, select {Keyless access system}.
3) On «Keyless access system» display, select {Work Support}.
4) Select {Function Check Sequence}.
5) Select {Keyless access system check}.
6) Select the transmitter to be checked and click [OK].
7) Select [Exit] to exit the system check. The screen will return to the «Keyless access system check» screen.

| Data | Customize setting | Remarks |
|---|---|---|
| Keyless access system check | Driver side external transmitter - internal tuner | When the setting content on the left is selected, the access key is neared to the selected transmitter (access antenna) and collation matches, the buzzer will sound. |
| | Passenger side external transmitter - internal tuner | |
| | Fr internal transmitter - internal tuner | |
| | Rr internal transmitter - internal tuner | |
| | Trunk-internal transmitter - trunk-internal tuner | |
| | Trunk-external transmitter - trunk-internal tuner | |
| | R gate internal transmitter - internal tuner | |
| | R gate external transmitter - internal tuner | |
| | Immobilizer amplifier transmission | |
| Collation result history Clear | Execution | |
| | — | |

NOTE:
For detailed operation procedures, refer to “PC application help for Subaru Select Monitor”.

# 11.System Operation Check Mode

## A: OPERATION

1) On «Main Menu» display, select {Each System Check}.
2) On «System Selection Menu» display, select {Keyless access system}.
3) On «Keyless access system» display, select {Work Support}.
4) Select {System Operation Check Mode}.
5) Select the check point and click [OK].
6) Select [Exit] to exit the drive item mode. The screen will return to the «Drive item» screen.

NOTE:
Each output check continues to run for five seconds before stopping automatically.

| Data | Keyless access CM output check | Remarks |
|---|---|---|
| Tuner power supply ON (indoor tuner) | Output | Perform the power supply check for the receiver. |
| | Stop | |
| Driver's external transmitter | Output | Perform the output check for the driver's side door outside antenna. |
| | Stop | |
| Passenger's external transmitter | Output | Perform the output check for the passenger's side door outside antenna. |
| | Stop | |
| STSW | Output | Turn on the STSW. *2 |
| | Stop | |
| IGN2 | Output | Turn on the IGN2. |
| | Stop | |
| IGN1 | Output | Turn on the IGN1. |
| | Stop | |
| ACC | Output | Turn on the ACC. |
| | Stop | |
| Start SW character illumination lighted | Output | Perform ON output of the push button ignition switch back-up light. *1 |
| | Stop | |
| Start SW indicator lighted (green) | Output | Perform ON output of the push button ignition switch back-up light. *1 |
| | Stop | |
| Start SW indicator lighted (orange) | Output | Perform ON output of the push button ignition switch back-up light. *1 |
| | Stop | |
| Steering lock power supply | Output | Output power supply signal from power supply CM to steering lock CM. |
| | Stop | |

*1: When lit by a condition other than for a system operation check mode, it will not become unlit even when set to OFF or no output.
*2: When performed with ignition switch ON, engine will start. Therefore, great care must be exercised.

NOTE:
For detailed operation procedures, refer to “PC application help for Subaru Select Monitor”.

# 12.List of Diagnostic Trouble Code (DTC)

## A: LIST

1. Keyless access system

| DTC | Item | Content of diagnosis | Note |
|---|---|---|---|
| U0073 | Control Module Communication Bus Off | Detected when CAN line abnormality is detected. | <Ref. to KPS(diag)-44, DTC U0073 CONTROL MODULE COMMUNICATION BUS OFF, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| U0100 | Lost Communication With ECM/PCM “A” | Detected when CAN data from the engine control module (ECM) does not arrive. | <Ref. to KPS(diag)-44, DTC U0100 LOST COMMUNICATION WITH ECM/PCM “A”, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| U0101 | Lost Communication With TCM | Detected when CAN data from TCM does not arrive. | <Ref. to KPS(diag)-44, DTC U0101 LOST COMMUNICATION WITH TCM, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| U0122 | Lost Communication With Vehicle Dynamics Control Module | Detected when CAN data from VDC does not arrive. | <Ref. to KPS(diag)-44, DTC U0122 LOST COMMUNICATION WITH VEHICLE DYNAMICS CONTROL MODULE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| U0140 | Lost Communication With Body Control Module | Detected when CAN data from BIU does not arrive. | <Ref. to KPS(diag)-44, DTC U0140 LOST COMMUNICATION WITH BODY CONTROL MODULE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| U0155 | Lost Communication With Instrument Panel Cluster (IPC) Control Module | Detected when CAN data from meter does not arrive. | <Ref. to KPS(diag)-44, DTC U0155 LOST COMMUNICATION WITH INSTRUMENT PANEL CLUSTER (IPC) CONTROL MODULE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| U0401 | Invalid Data Received From ECM/PCM “A” | Detected when there is malfunction in CAN data from the engine control module (ECM). | <Ref. to KPS(diag)-44, DTC U0401 INVALID DATA RECEIVED FROM ECM/PCM “A”, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| U0422 | Invalid Data Received From Body Control Module | Detected when CAN data from BIU is abnormal. | <Ref. to KPS(diag)-45, DTC U0422 INVALID DATA RECEIVED FROM BODY CONTROL MODULE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| U1120 | Lost Communication With Autostart Stop Control Module | Detected when CAN data from hybrid system or from Auto Start Stop system does not arrive. | <Ref. to KPS(diag)-45, DTC U1120 LOST COMMUNICATION WITH AUTOSTART STOP CONTROL MODULE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| B1242 | Wireless Tuner Abnormal | When short circuit occurs in harness between keyless access CM and receiver. | <Ref. to KPS(diag)-46, DTC B1242 WIRELESS TUNER ABNORMAL, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| B2271 | IGN Fuse Blown or IGN Circuit Abnormal | • When malfunction is detected in IG1 and IG2 drive circuits in the keyless access CM.<br>• When malfunction is detected in IG hold circuit in the keyless access CM. | <Ref. to KPS(diag)-48, DTC B2271 IGN FUSE BLOWN OR IGN CIRCUIT ABNORMAL, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| B2274 | ACC Monitor | When malfunction is detected in ACC relay drive circuit in the keyless access CM or external circuit. | <Ref. to KPS(diag)-50, DTC B2274 ACC MONITOR, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |

| DTC | Item | Content of diagnosis | Note |
|---|---|---|---|
| B2275 | STSW Circuit Abnormal | • When malfunction is detected in engine start permission signal output circuit in the keyless access CM.<br>• When malfunction is detected in external engine start permission signal circuit. | <Ref. to KPS(diag)-52, DTC B2275 STSW CIRCUIT ABNORMAL, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| B2276 | ACCR Signal Abnormal | When input error occurs in accessory relay cut input signal of keyless access CM. | <Ref. to KPS(diag)-54, DTC B2276 ACCR SIGNAL ABNORMAL, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| B2277 | Submerging Circuit Abnormal | When the water-submersion detection circuit integrated into the keyless access CM detects the water submersion. | <Ref. to KPS(diag)-56, DTC B2277 SUBMERGING CIRCUIT ABNORMAL, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| B2282 | Vehicle Speed Signal Abnormal | When the vehicle speed signal transmitted from the combination meter via solid line and the vehicle speed signal transmitted via CAN communication line do not match.) | <Ref. to KPS(diag)-57, DTC B2282 VEHICLE SPEED SIGNAL ABNORMAL, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| B2283 | Vehicle Speed Sensor Fault Detection | Either of the following malfunctions is detected. (Vehicle speed sensor failure is detected.)<br>• Vehicle speed signal failure detection 1: Excessive deceleration detection<br>• Vehicle speed signal failure detection 2: Engine speed interlock detection | <Ref. to KPS(diag)-59, DTC B2283 VEHICLE SPEED SENSOR FAULT DETECTION, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| B2284 | Brake Signal (Cable-Information Does Not Match to Bean-Information) | When the brake signal transmitted via solid line and the brake signal transmitted via CAN communication line do not match. | <Ref. to KPS(diag)-61, DTC B2284 BRAKE SIGNAL (CABLE-INFORMATION DOES NOT MATCH TO BEAN-INFORMATION), Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| B2285 | Steering Lock Position Signal Abnormal | When the steering lock position signal transmitted from the steering lock CM via solid line and the steering lock position signal transmitted via LIN communication system do not match. | <Ref. to KPS(diag)-64, DTC B2285 STEERING LOCK POSITION SIGNAL ABNORMAL, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| B2286 | Driving Possible Signal Abnormal | When the engine speed signal transmitted from the ECM via solid line and the engine speed signal transmitted via CAN communication line do not match. | <Ref. to KPS(diag)-67, DTC B2286 DRIVING POSSIBLE SIGNAL ABNORMAL, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |

| DTC | Item | Content of diagnosis | Note |
|---|---|---|---|
| B228A | Sub-Travel Possible Signal Abnormal | When the engine speed signal transmitted from the ECM via solid line and the engine speed signal transmitted via CAN communication line do not match. | <Ref. to KPS(diag)-70, DTC B228A SUB-TRAVEL POSSIBLE SIGNAL ABNORMAL, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| B2779 | Remote Control Engine Starter Communication Collation NG | When the keyless access CM does not respond to engine start even when the remote control engine starter is ON, or when there is a code mismatch. | <Ref. to KPS(diag)-73, DTC B2779 REMOTE CONTROL ENGINE STARTER COMMUNICATION COLLATION NG, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| B2781 | Steering Lock ECU Open/Short | • When malfunction is detected in lock/unlock position detection sensor.<br>• When the open or short circuit in the steering lock motor drive circuit is detected. | <Ref. to KPS(diag)-73, DTC B2781 STEERING LOCK ECU OPEN/SHORT, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| B2782 | Steering Lock Power Supply Circuit Abnormal (Smart ECU-Side Abnormal) | When the open or short circuit in the steering lock motor power supply circuit is detected. | <Ref. to KPS(diag)-74, DTC B2782 STEERING LOCK POWER SUPPLY CIRCUIT ABNORMAL (SMART ECU-SIDE ABNORMAL), Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| B2784 | Antenna Coil Fault | When open or short circuit occurs in the antenna coil. | <Ref. to KPS(diag)-76, DTC B2784 ANTENNA COIL FAULT, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| B2785 | LIN Communication Error | When the keyless access CM detects the collation system LIN bus communication error three times in a row. | <Ref. to KPS(diag)-77, DTC B2785 LIN COMMUNICATION ERROR, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| B2786 | No Response From Steering Lock ECU | When communication between keyless access CM and steering lock CM is interrupted for a set amount of time. | <Ref. to KPS(diag)-79, DTC B2786 NO RESPONSE FROM STEERING LOCK ECU, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| B2788 | IGN1 Input Abnormal | When mismatch occurs in the IG1 input of the steering lock CM between LIN communication line input and solid line input. | <Ref. to KPS(diag)-81, DTC B2788 IGN1 INPUT ABNORMAL, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| B2789 | ID Code Box No Response | • When communication between keyless access CM and ID code box is interrupted for a set amount of time.<br>• Open or short circuit in the wiring harness between keyless access CM and ID code box | <Ref. to KPS(diag)-83, DTC B2789 ID CODE BOX NO RESPONSE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| B278A | Abnormal Immobilizer Power Supply | When the power supply circuit of the push button ignition switch is shorted to ground. | <Ref. to KPS(diag)-85, DTC B278A ABNORMAL IMMOBILIZER POWER SUPPLY, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |

| DTC | Item | Content of diagnosis | Note |
|---|---|---|---|
| B278D | ID Code Box Recognition Judgment Abnormal | • When ID code box ON input is detected while the ID code box setting is set to OFF.<br>• When ID code box LIN signal is received while the ID code box setting is set to OFF. | <Ref. to KPS(diag)-87, DTC B278D ID CODE BOX RECOGNITION JUDGMENT ABNORMAL, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| B2790 | ID Code Box Abnormal (EEPROM Abnormal) | An error has occurred inside the ID code box. | <Ref. to KPS(diag)-88, DTC B2790 ID CODE BOX ABNORMAL (EEPROM ABNORMAL), Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| B27A1 | Driver Side External Antenna Output Stage Open | When open circuit occurs in the harness between keyless access CM and driver's side front door outer handle. | <Ref. to KPS(diag)-89, DTC B27A1 DRIVER SIDE EXTERNAL ANTENNA OUTPUT STAGE OPEN, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| B27A2 | Passenger Side External Antenna Output Stage Open | When open circuit occurs in the harness between keyless access CM and passenger's side front door outer handle. | <Ref. to KPS(diag)-91, DTC B27A2 PASSENGER SIDE EXTERNAL ANTENNA OUTPUT STAGE OPEN, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| B27A5 | Front Internal Antenna Output Stage Open | When open circuit occurs in the harness between keyless access CM and front interior antenna. | <Ref. to KPS(diag)-93, DTC B27A5 FRONT INTERNAL ANTENNA OUTPUT STAGE OPEN, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| B27A6 | Rear Internal Antenna Output Stage Open | When open circuit occurs in the harness between keyless access CM and rear interior antenna. | <Ref. to KPS(diag)-95, DTC B27A6 REAR INTERNAL ANTENNA OUTPUT STAGE OPEN, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| B27A7 | Trunk/Rear Gate Internal Antenna Output Stage Open | When open circuit occurs in the harness between keyless access CM and rear interior antenna. | <Ref. to KPS(diag)-97, DTC B27A7 TRUNK/REAR GATE INTERNAL ANTENNA OUTPUT STAGE OPEN, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| B27A8 | Trunk/Rear Gate External Antenna Output Stage Open | When open circuit occurs in the harness between keyless access CM and rear exterior antenna. | <Ref. to KPS(diag)-100, DTC B27A8 TRUNK/REAR GATE EXTERNAL ANTENNA OUTPUT STAGE OPEN, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |

2. Immobilizer (ECM)

| DTC | Item | Content of diagnosis | Note |
|---|---|---|---|
| B1571 | Reference Code Incompatibility | Reference code mismatch occurs between keyless access CM (model without ID code box) or ID code box (model with ID code box) and ECM. | <Ref. to KPS(diag)-102, DTC B1571 REFERENCE CODE INCOMPATIBILITY, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| B1572 | IMM Circuit Failure (Except Antenna Circuit) | Communication error occurs between keyless access CM (model without ID code box) or ID code box (model with ID code box) and ECM. | <Ref. to KPS(diag)-103, DTC B1572 IMM CIRCUIT FAILURE (EXCEPT ANTENNA CIRCUIT), Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| B1576 | EGI Control Module EEPROM | ECM malfunctioning | <Ref. to KPS(diag)-107, DTC B1576 EGI CONTROL MODULE EEPROM, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| B1577 | IMM Control Module EEPROM | Malfunction occurs between keyless access CM (model without ID code box) or ID code box (model with ID code box) and ECM. | <Ref. to KPS(diag)-107, DTC B1577 IMM CONTROL MODULE EEPROM, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |

# 13.Diagnostic Procedure with Diagnostic Trouble Code (DTC)

## A: DTC U0073 CONTROL MODULE COMMUNICATION BUS OFF

Detected when CAN line abnormality is detected.

NOTE:
Perform the diagnosis for LAN system. <Ref. to LAN(w/o HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.> <Ref. to LAN(HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.>

## B: DTC U0100 LOST COMMUNICATION WITH ECM/PCM “A”

Detected when CAN data from the engine control module (ECM) does not arrive.

NOTE:
Perform the diagnosis for LAN system. <Ref. to LAN(w/o HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.> <Ref. to LAN(HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.>

## C: DTC U0101 LOST COMMUNICATION WITH TCM

Detected when CAN data from TCM does not arrive.

NOTE:
Perform the diagnosis for LAN system. <Ref. to LAN(w/o HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.> <Ref. to LAN(HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.>

## D: DTC U0122 LOST COMMUNICATION WITH VEHICLE DYNAMICS CONTROL MODULE

Detected when CAN data from VDC does not arrive.

NOTE:
Perform the diagnosis for LAN system. <Ref. to LAN(w/o HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.> <Ref. to LAN(HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.>

## E: DTC U0140 LOST COMMUNICATION WITH BODY CONTROL MODULE

Detected when CAN data from BIU does not arrive.

NOTE:
Perform the diagnosis for LAN system. <Ref. to LAN(w/o HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.> <Ref. to LAN(HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.>

## F: DTC U0155 LOST COMMUNICATION WITH INSTRUMENT PANEL CLUSTER (IPC) CONTROL MODULE

Detected when CAN data from meter does not arrive.

NOTE:
Perform the diagnosis for LAN system. <Ref. to LAN(w/o HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.> <Ref. to LAN(HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.>

## G: DTC U0401 INVALID DATA RECEIVED FROM ECM/PCM “A”

Detected when there is malfunction in CAN data from the engine control module (ECM).

NOTE:
Perform the diagnosis for LAN system. <Ref. to LAN(w/o HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.> <Ref. to LAN(HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.>

## H: DTC U0422 INVALID DATA RECEIVED FROM BODY CONTROL MODULE

Detected when CAN data from BIU is abnormal.

NOTE:
Perform the diagnosis for LAN system. <Ref. to LAN(w/o HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.> <Ref. to LAN(HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.>

## I: DTC U1120 LOST COMMUNICATION WITH AUTOSTART STOP CONTROL MODULE

Detected when CAN data from hybrid system or from Auto Start Stop system is abnormal.

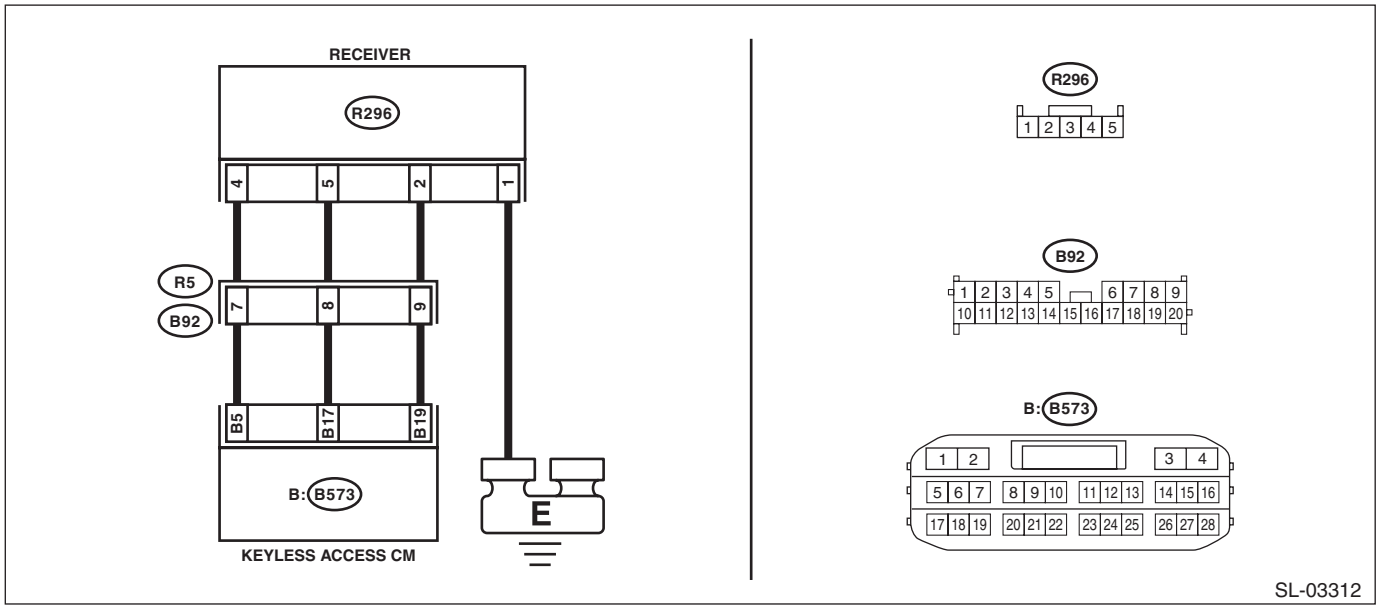
NOTE:
Perform the diagnosis for LAN system. <Ref. to LAN(w/o HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.> <Ref. to LAN(HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.>

## J: DTC B1242 WIRELESS TUNER ABNORMAL

**DTC DETECTING CONDITION:**
When short circuit occurs in harness between keyless access CM and receiver.
**TROUBLE SYMPTOM:**
- The keyless access with push button start function (except for emergency function) does not operate properly.
- Operation by the access key button does not function.

**CAUTION:**
- **For replacement procedure of keyless access CM, refer to the "REGISTRATION MANUAL FOR IMMOBILIZER".**
- **When the harness comes close to the receiver, the performance of keyless access system operation and wireless operation may reduce. So, when replacing or inspecting the receiver and harness, do not change the route and length of the surrounding harnesses.**

**WIRING DIAGRAM:**
Push button start system <Ref. to WI(w/o HEV)-179, WIRING DIAGRAM, Push Button Start System.> <Ref. to WI(HEV)-181, WIRING DIAGRAM, Push Button Start System.>




| Step | | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK LAN SYSTEM.**<br>Inspect LAN system. <Ref. to LAN(w/o HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.> <Ref. to LAN(HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.> | Is LAN system normal? | Go to step **2**. | Perform the inspection according to the diagnosis for LAN system. |
| 2 | **CHECK HARNESS.**<br>1) Disconnect the keyless access CM connector.<br>2) Disconnect the receiver connector.<br>3) Using the tester, measure the resistance between terminals of keyless access CM connector and receiver connector, and keyless access CM and chassis ground.<br>***Connector & terminal***<br>***(B573) No. 19 — (R296) No. 2:***<br>***(B573) No. 17 — (R296) No. 5:***<br>***(B573) No. 5 — (R296) No. 4:***<br>***(R296) No. 1 — Chassis ground:*** | Is the resistance less than 1 Ω? | Go to step **3**. | Repair or replace the open circuit of harness. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 3 | **CHECK HARNESS.**<br>Using a tester, measure the resistance between the keyless access CM connector and chassis ground.<br>***Connector & terminal***<br>***(B573) No. 19 — Chassis ground:***<br>***(B573) No. 17 — Chassis ground:***<br>***(B573) No. 5 — Chassis ground:*** | Is the resistance 10 kΩ or more? | Go to step **4**. | Repair or replace the short circuit of the harness. |
| 4 | **CHECK RECEIVER.**<br>1) Replace the receiver, and then connect it. <Ref. to SL-108, Receiver.><br>2) Using the Subaru Select Monitor, clear the memory.<br>3) Use the Subaru Select Monitor and read DTCs. | Is B1242 displayed? | Replace the keyless access CM. <Ref. to SL-110, Keyless Access CM.> | Receiver has a malfunction. |

# K: DTC B2271 IGN FUSE BLOWN OR IGN CIRCUIT ABNORMAL

**DTC DETECTING CONDITION:**

- When malfunction is detected in IG1 and IG2 drive circuits in the keyless access CM.
- When malfunction is detected in IG hold circuit in the keyless access CM.

**TROUBLE SYMPTOM:**

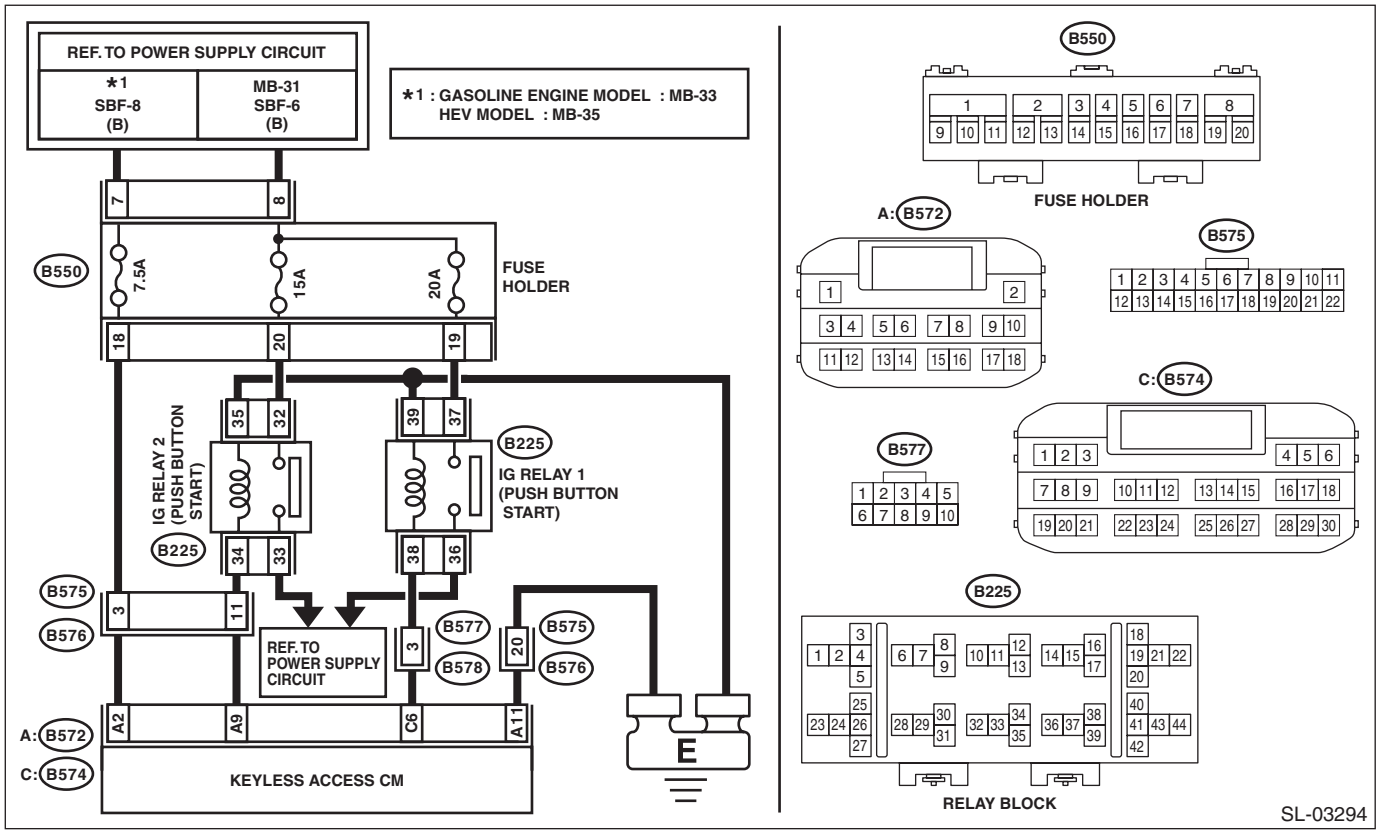
Not all functions operate at IGN ON.

**CAUTION:**

**For replacement procedure of keyless access CM, refer to the "REGISTRATION MANUAL FOR IMMOBILIZER".**

**WIRING DIAGRAM:**

Push button start system <Ref. to WI(w/o HEV)-179, WIRING DIAGRAM, Push Button Start System.> <Ref. to WI(HEV)-181, WIRING DIAGRAM, Push Button Start System.>



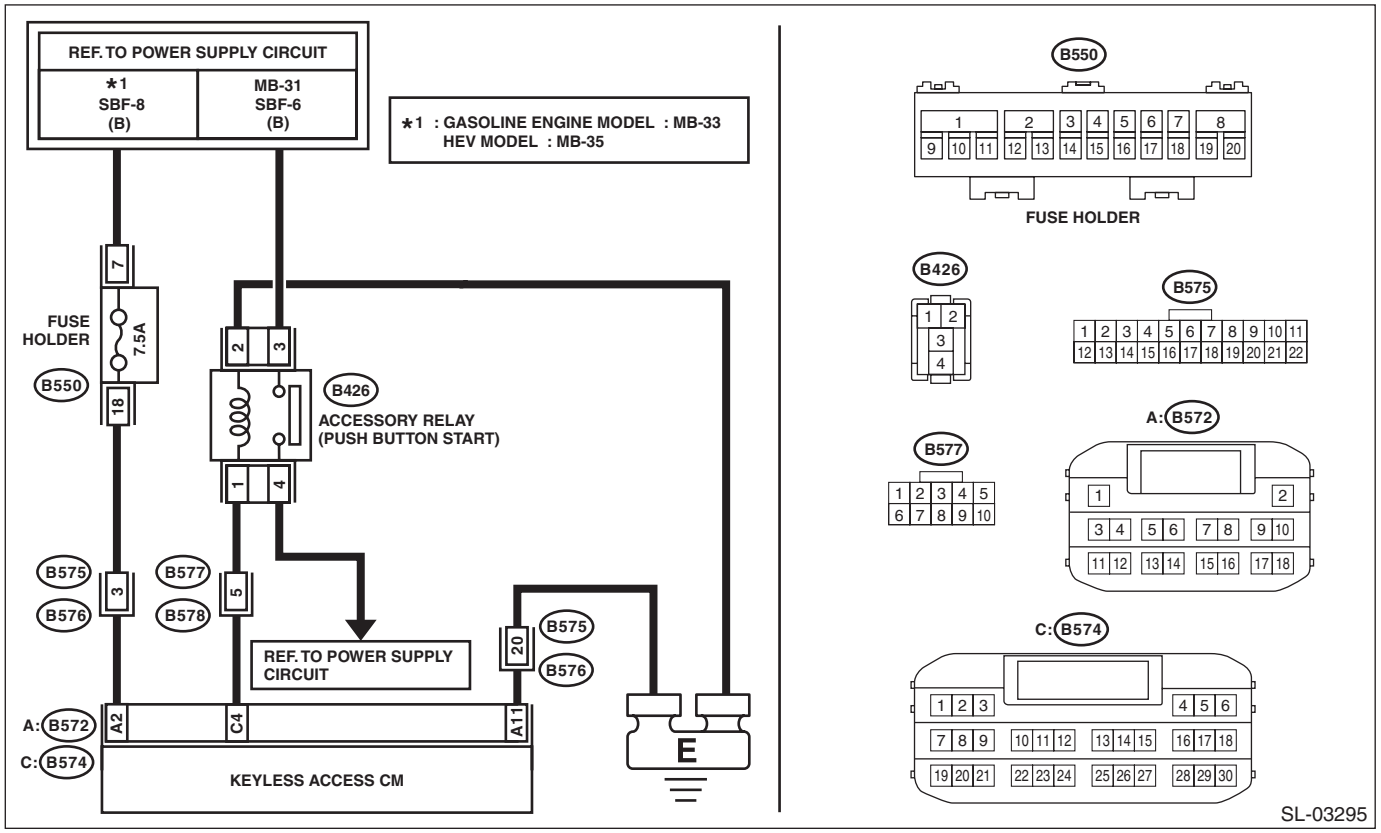

| Step | | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK LAN SYSTEM.**<br>Inspect LAN system. <Ref. to LAN(w/o HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.> <Ref. to LAN(HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.> | Is LAN system normal? | Go to step **2**. | Perform the inspection according to the diagnosis for LAN system. |
| 2 | **CHECK FUSE.**<br>Check the fuse. | Is the fuse OK? | Go to step **3**. | Replace the fuse. When the replaced fuse is blown immediately, check the power supply circuit for short-circuited. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 3 | **CHECK HARNESS.**<br>1) Disconnect the keyless access CM connector.<br>2) Using a tester, measure the voltage between the keyless access CM connector and chassis ground.<br>***Connector & terminal***<br>***(B572) No. 2 (+) — Chassis ground (–):*** | Is the voltage 9.5 — 16 V? | Go to step **4**. | Check the power supply circuit. |
| 4 | **CHECK HARNESS.**<br>Using a tester, measure the resistance between the keyless access CM connector and chassis ground.<br>***Connector & terminal***<br>***(B572) No. 11 — Chassis ground:*** | Is the resistance less than 1 Ω? | Go to step **5**. | Repair or replace the open circuit of harness. |
| 5 | **CHECK HARNESS.**<br>1) Disconnect the keyless access CM connector.<br>2) Using a tester, measure the resistance between the keyless access CM connector and chassis ground.<br>***Connector & terminal***<br>***(B572) No. 9 — Chassis ground:*** | Is resistance 74.15 — 460.88 Ω? (20°C) | Go to step **6**. | Check IG relay 2. Go to step **7**. |
| 6 | **CHECK HARNESS.**<br>1) Disconnect the keyless access CM connector.<br>2) Using a tester, measure the resistance between the keyless access CM connector and chassis ground.<br>***Connector & terminal***<br>***(B574) No. 6 — Chassis ground:*** | Is resistance 50.87 — 72.17 Ω? (20°C) | Go to step **8**. | Check IG relay 1. Go to step **7**. |
| 7 | **CHECK RELAY.**<br>Perform unit inspection of IG relay 1 and IG relay 2. <Ref. to SL-13, CHECK RELAY, INSPECTION, Relay and Fuse.> | Is the relay OK? | Go to step **8**. | Replace the relay. <Ref. to SL-119, REMOVAL, IG Relay1 (Push Button Start).> <Ref. to SL-121, REMOVAL, IG Relay2 (Push Button Start).> |
| 8 | **CHECK KEYLESS ACCESS CM.**<br>1) Connect the keyless access CM connector.<br>2) Using a tester, measure the voltage between the terminals of keyless access CM connector.<br>***Connector & terminal***<br>***(B574) No. 6 (+) — Chassis ground (–):***<br>***(B572) No. 9 (+) — Chassis ground (–):*** | Is the voltage 1 V or less → 9.5 — 16 V when ACC → IGN ON? | System is normal. It is possible that temporary poor contact occurs. | Replace the keyless access CM. <Ref. to SL-110, REMOVAL, Keyless Access CM.> |

## L: DTC B2274 ACC MONITOR

**DTC DETECTING CONDITION:**
When malfunction is detected in ACC relay drive circuit in the keyless access CM or external circuit.
**TROUBLE SYMPTOM:**
Each function does not operate at the ACC position.

**CAUTION:**
**For replacement procedure of keyless access CM, refer to the "REGISTRATION MANUAL FOR IMMOBILIZER".**
**WIRING DIAGRAM:**
Push button start system <Ref. to WI(w/o HEV)-179, WIRING DIAGRAM, Push Button Start System.> <Ref. to WI(HEV)-181, WIRING DIAGRAM, Push Button Start System.>




| Step | | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK LAN SYSTEM.**<br>Inspect LAN system. <Ref. to LAN(w/o HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.> <Ref. to LAN(HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.> | Is LAN system normal? | Go to step **2**. | Perform the inspection according to the diagnosis for LAN system. |
| 2 | **CHECK FUSE.**<br>Remove the fuse. | Is the fuse OK? | Go to step **3**. | Replace the fuse. When the replaced fuse is blown immediately, check the power supply circuit for short-circuited. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 3 | **CHECK HARNESS.**<br>1) Disconnect the keyless access CM connector.<br>2) Using a tester, measure the resistance between the keyless access CM connector and chassis ground.<br>***Connector & terminal***<br>***(B572) No. 2 (+) — Chassis ground (–):*** | Is the voltage 9.5 — 16 V? | Go to step **4**. | Check the power supply circuit. |
| 4 | **CHECK HARNESS.**<br>Using a tester, measure the resistance between the keyless access CM connector and chassis ground.<br>***Connector & terminal***<br>***(B572) No. 11 — Chassis ground:*** | Is the resistance less than 1 Ω? | Go to step **5**. | Repair or replace the open circuit of harness. |
| 5 | **CHECK HARNESS.**<br>1) Disconnect the keyless access CM connector.<br>2) Using a tester, measure the resistance between the keyless access CM connector and chassis ground.<br>***Connector & terminal***<br>***(B574) No. 4 — Chassis ground:*** | Is resistance 152.61 — 216.5 Ω? (20°C) | Go to step **7**. | Go to step **6**. |
| 6 | **CHECK RELAY.**<br>Perform inspection of ACC relay unit. <Ref. to SL-123, Accessory Relay (Push Button Start).> | Is the relay OK? | Go to step **7**. | Replace the relay. |
| 7 | **CHECK HARNESS.**<br>Using a tester, measure the resistance between keyless access CM connectors.<br>***Connector & terminal***<br>***(B574) No. 4 — (B426) No. 2:***<br>***(B426) No. 3 — Chassis ground:*** | Is the resistance less than 1 Ω? | Go to step **8**. | Repair or replace the open circuit of harness. |
| 8 | **CHECK KEYLESS ACCESS CM.**<br>1) Connect the keyless access CM connector.<br>2) Using a tester, measure the voltage between keyless access CM connectors.<br>***Connector & terminal***<br>***(B574) No. 4 (+) — Chassis ground (–):*** | Is the voltage 1 V or less → 9.5 — 16 V when OFF → ACC ON? | System is normal. It is possible that temporary poor contact occurs. | Replace the keyless access CM. <Ref. to SL-110, Keyless Access CM.> |

## M: DTC B2275 STSW CIRCUIT ABNORMAL

**DTC DETECTING CONDITION:**

- When malfunction is detected in engine start permission signal output circuit in the keyless access CM.
- When malfunction is detected in external engine start permission signal circuit.

**TROUBLE SYMPTOM:**

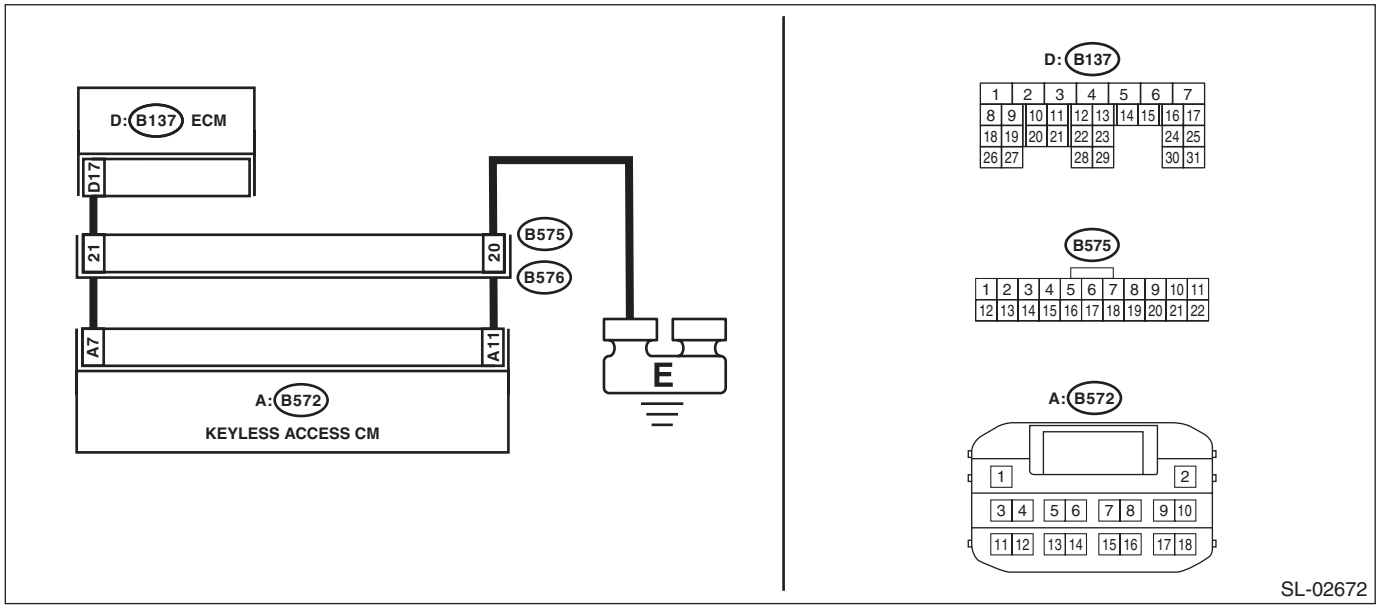
Engine will not start.

**CAUTION:**

**For replacement procedure of keyless access CM, refer to the "REGISTRATION MANUAL FOR IMMOBILIZER".**

**WIRING DIAGRAM:**

Push button start system <Ref. to WI(w/o HEV)-179, WIRING DIAGRAM, Push Button Start System.> <Ref. to WI(HEV)-181, WIRING DIAGRAM, Push Button Start System.>



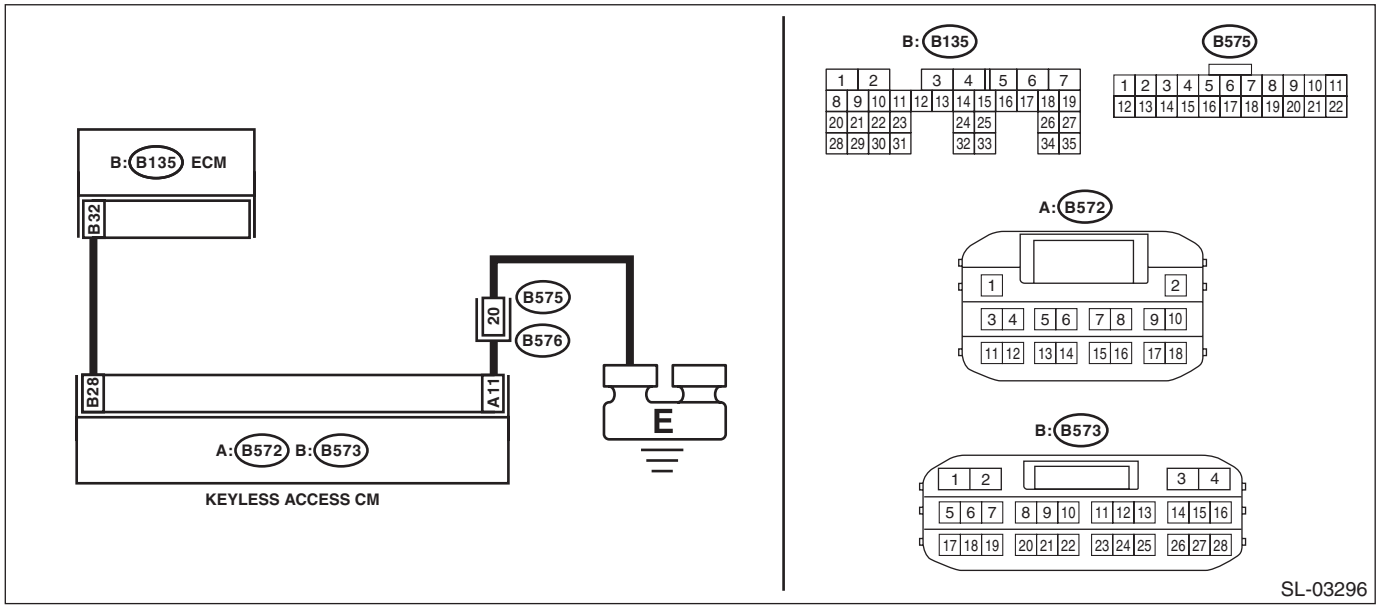

| Step | | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK LAN SYSTEM.**<br>Inspect LAN system. <Ref. to LAN(w/o HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.> <Ref. to LAN(HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.> | Is LAN system normal? | Go to step **2**. | Perform the inspection according to the diagnosis for LAN system. |
| 2 | **CHECK FUSE.**<br>Remove the fuse. | Is the fuse OK? | Go to step **3**. | Replace the fuse. When the replaced fuse is blown immediately, check the power supply circuit for short-circuited. |
| 3 | **CHECK HARNESS.**<br>1) Disconnect the keyless access CM connector and ECM connector.<br>2) Using a tester, measure the resistance between the keyless access CM connector and ECM.<br>***Connector & terminal***<br>***(B572) No. 7 — (B137) No. 17:*** | Is the resistance less than 1 Ω? | Go to step **4**. | Repair or replace the open circuit of harness. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 4 | **CHECK HARNESS.**<br>Using a tester, measure the resistance between the keyless access CM connector and chassis ground.<br>***Connector & terminal***<br>***(B572) No. 11 — Chassis ground:*** | Is the resistance less than 1 Ω? | Go to step **5**. | Repair or replace the open circuit of harness. |
| 5 | **CHECK HARNESS.**<br>Using a tester, measure the resistance between the keyless access CM connector and chassis ground.<br>***Connector & terminal***<br>***(B572) No. 7 — Chassis ground:*** | Is the resistance 10 kΩ or more? | Go to step **6**. | Repair or replace the short circuit of the harness. |
| 6 | **CHECK KEYLESS ACCESS CM.**<br>1) Connect the keyless access CM connector and ECM connector.<br>2) Using a tester, measure the voltage between the terminals of keyless access CM connector.<br>***Connector & terminal***<br>***(B572) No. 7 (+) — (B572) No. 11 (–):*** | Is the voltage 2 V or less → 9 V or more when the push button ignition switch is turned on while depressing the brake pedal with the shift position in P or N? | Perform inspection according to the diagnosis of engine. <Ref. to EN(H4DO w/o HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.> <Ref. to EN(H4DO HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.> | Replace the keyless access CM. <Ref. to SL-110, Keyless Access CM.> |

## N: DTC B2276 ACCR SIGNAL ABNORMAL

**DTC DETECTING CONDITION:**
When input error occurs in accessory relay cut input signal of keyless access CM.
**TROUBLE SYMPTOM:**
- The accessory power supply is not cut during engine start.
- Starter rotation is slow.

**CAUTION:**
**For replacement procedure of keyless access CM, refer to the "REGISTRATION MANUAL FOR IMMOBILIZER".**
**WIRING DIAGRAM:**
Push button start system <Ref. to WI(w/o HEV)-179, WIRING DIAGRAM, Push Button Start System.> <Ref. to WI(HEV)-181, WIRING DIAGRAM, Push Button Start System.>




| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK LAN SYSTEM.**<br>Inspect LAN system. <Ref. to LAN(w/o HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.> <Ref. to LAN(HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.> | Is LAN system normal? | Go to step **2**. | Perform the inspection according to the diagnosis for LAN system. |
| 2 | **CHECK HARNESS.**<br>1) Disconnect the keyless access CM connector and ECM connector.<br>2) Using a tester, measure the resistance between the keyless access CM connector and ECM.<br>***Connector & terminal***<br>***(B573) No. 28 — (B135) No. 32:*** | Is the resistance less than 1 Ω? | Go to step **3**. | Repair or replace the open circuit of harness. |
| 3 | **CHECK HARNESS.**<br>Using a tester, measure the resistance between the keyless access CM connector and chassis ground.<br>***Connector & terminal***<br>***(B573) No. 28 — Chassis ground:*** | Is the resistance 10 kΩ or more? | Go to step **4**. | Repair or replace the short circuit of the harness. |
| 4 | **CHECK HARNESS.**<br>Using a tester, measure the resistance between the keyless access CM connector and chassis ground.<br>***Connector & terminal***<br>***(B572) No. 11 — Chassis ground:*** | Is the resistance less than 1 Ω? | Go to step **5**. | Repair or replace the open circuit of harness. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 5 | **CHECK KEYLESS ACCESS CM.**<br>1) Connect the keyless access CM connector and ECM connector.<br>2) Using a tester, measure the voltage between terminals of the keyless access CM connector when the push button ignition switch is pressed, while depressing the brake pedal with the shift lever in the “P” range.<br>***Connector & terminal***<br>***(B573) No. 28 (+) — (B572) No. 11 (–):*** | Is the voltage 9.5 — 16 V → 1 V or less? | Replace the keyless access CM. <Ref. to SL-110, Keyless Access CM.> | Replace the ECM. <Ref. to FU(H4DO(w/o HEV))-100, REMOVAL, Engine Control Module (ECM).> <Ref. to FU(H4DO(HEV))-85, REMOVAL, Engine Control Module (ECM).> |

## O: DTC B2277 SUBMERGING CIRCUIT ABNORMAL

**DTC DETECTING CONDITION:**

When the water-submersion detection circuit integrated into the keyless access CM detects the water submersion.

**TROUBLE SYMPTOM:**

- The ignition can be turned ON, but cannot be turned OFF.
- Engine will not start.

**CAUTION:**

**For replacement procedure of keyless access CM, refer to the "REGISTRATION MANUAL FOR IMMOBILIZER".**

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK LAN SYSTEM.**<br>Inspect LAN system. <Ref. to LAN(w/o HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.> <Ref. to LAN(HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.> | Is LAN system normal? | Go to step **2**. | Perform the inspection according to the diagnosis for LAN system. |
| 2 | **CHECK SUBMERSION CONDITION.**<br>Check the keyless access CM and environment of equipment, and check the harness for any trace of water submersion. | Is there any trace of water submersion? | Take necessary measures against water submersion and replace the keyless access CM. <Ref. to SL-110, Keyless Access CM.> | Replace the keyless access CM. <Ref. to SL-110, Keyless Access CM.> |

# P: DTC B2282 VEHICLE SPEED SIGNAL ABNORMAL

**DTC DETECTING CONDITION:**

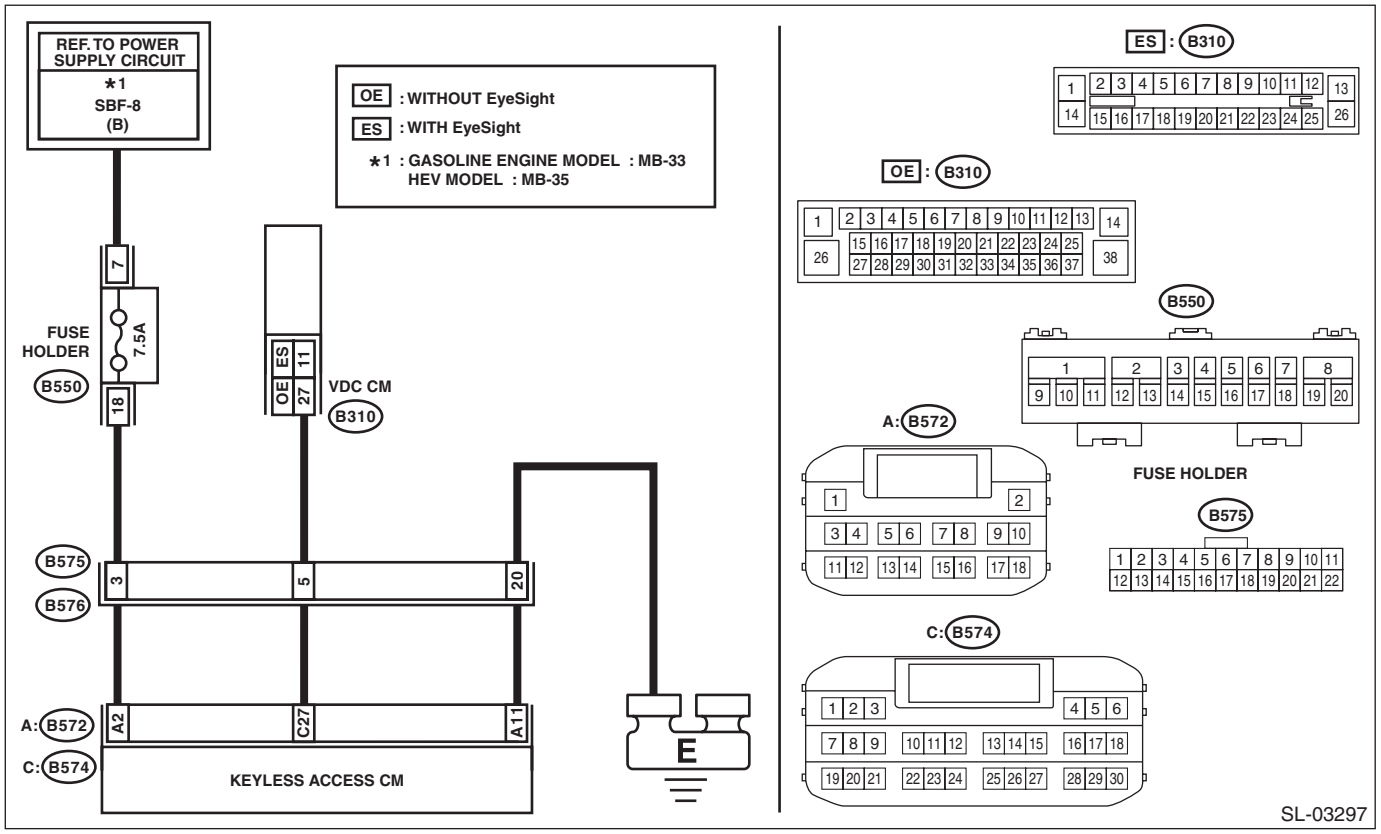
When the vehicle speed signal transmitted from VDC via solid line and the vehicle speed signal transmitted via CAN communication line do not match.

**CAUTION:**

**For replacement procedure of keyless access CM, refer to the "REGISTRATION MANUAL FOR IMMOBILIZER".**

**WIRING DIAGRAM:**

Push button start system <Ref. to WI(w/o HEV)-179, WIRING DIAGRAM, Push Button Start System.> <Ref. to WI(HEV)-181, WIRING DIAGRAM, Push Button Start System.>




| Step | | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK LAN SYSTEM.**<br>Inspect LAN system. <Ref. to LAN(w/o HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.> <Ref. to LAN(HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.> | Is LAN system normal? | Go to step **2**. | Perform the inspection according to the diagnosis for LAN system. |
| 2 | **CHECK COMBINATION METER.**<br>Check that the speedometer is displayed normally. | Is the meter display normal? | Go to step **3**. | Check the VDC. <Ref. to VDC(diag)-2, PROCEDURE, Basic Diagnostic Procedure.> |
| 3 | **CHECK CURRENT DATA.**<br>Confirm the current data display of keyless access system using Subaru Select Monitor.<br>• Vehicle speed signal | Is the parked state or driving state displayed normally? | Go to step **4**. | Check the VDC. <Ref. to VDC(diag)-2, PROCEDURE, Basic Diagnostic Procedure.> |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 4 | **CHECK FUSE.**<br>Remove the fuse. | Is the fuse OK? | Go to step **5**. | Replace the fuse. When the replaced fuse is blown immediately, check the power supply circuit for short-circuited. |
| 5 | **CHECK HARNESS.**<br>1) Disconnect the keyless access CM connector.<br>2) Using a tester, measure the voltage between keyless access CM connectors.<br>***Connector & terminal***<br>***(B572) No. 2 (+) — Chassis ground (–):*** | Is the voltage 9.5 — 16 V? | Go to step **6**. | Check the power supply circuit. |
| 6 | **CHECK HARNESS.**<br>Using a tester, measure the resistance between the keyless access CM connector and chassis ground.<br>***Connector & terminal***<br>***(B572) No. 11 — Chassis ground:*** | Is the resistance less than 1 Ω? | Go to step **7**. | Repair or replace the open circuit of harness. |
| 7 | **CHECK HARNESS.**<br>1) Disconnect the keyless access CM connector.<br>2) Disconnect the combination meter connector.<br>3) Using a tester, measure the resistance between the keyless access CM connector and VDC CM connector.<br>***Connector & terminal***<br>***Without EyeSight***<br>***(B574) No. 27 — (B310) No. 27:***<br>***With EyeSight***<br>***(B574) No. 27 — (B310) No. 11:*** | Is the resistance less than 1 Ω? | Go to step **8**. | Repair or replace the open circuit of harness. |
| 8 | **CHECK HARNESS.**<br>Using a tester, measure the resistance between the keyless access CM connector and chassis ground.<br>***Connector & terminal***<br>***(B574) No. 27 — Chassis ground:*** | Is the resistance 10 kΩ or more? | Go to step **9**. | Repair or replace the short circuit of the harness. |
| 9 | **CHECK KEYLESS ACCESS CM.**<br>1) Connect each connector.<br>2) Using the Subaru Select Monitor, measure the waveform between the terminals of keyless access CM.<br>***Connector & terminal***<br>***(B574) No. 27 — Chassis ground:*** | Is 3.54 Hz displayed when the vehicle is driven at approx. 5 km/h? Or does the value change from 3.54 Hz when the vehicle stops? | Replace the keyless access CM. <Ref. to SL-110, Keyless Access CM.> | Check the VDC. <Ref. to VDC(diag)-2, PROCEDURE, Basic Diagnostic Procedure.> |

# Q: DTC B2283 VEHICLE SPEED SENSOR FAULT DETECTION

**DTC DETECTING CONDITION:**

Either of the following malfunctions is detected (Vehicle speed sensor failure is detected.).

- Vehicle speed signal failure detection 1: Excessive deceleration detection
- Vehicle speed signal failure detection 2: Engine speed interlock detection

**TROUBLE SYMPTOM:**

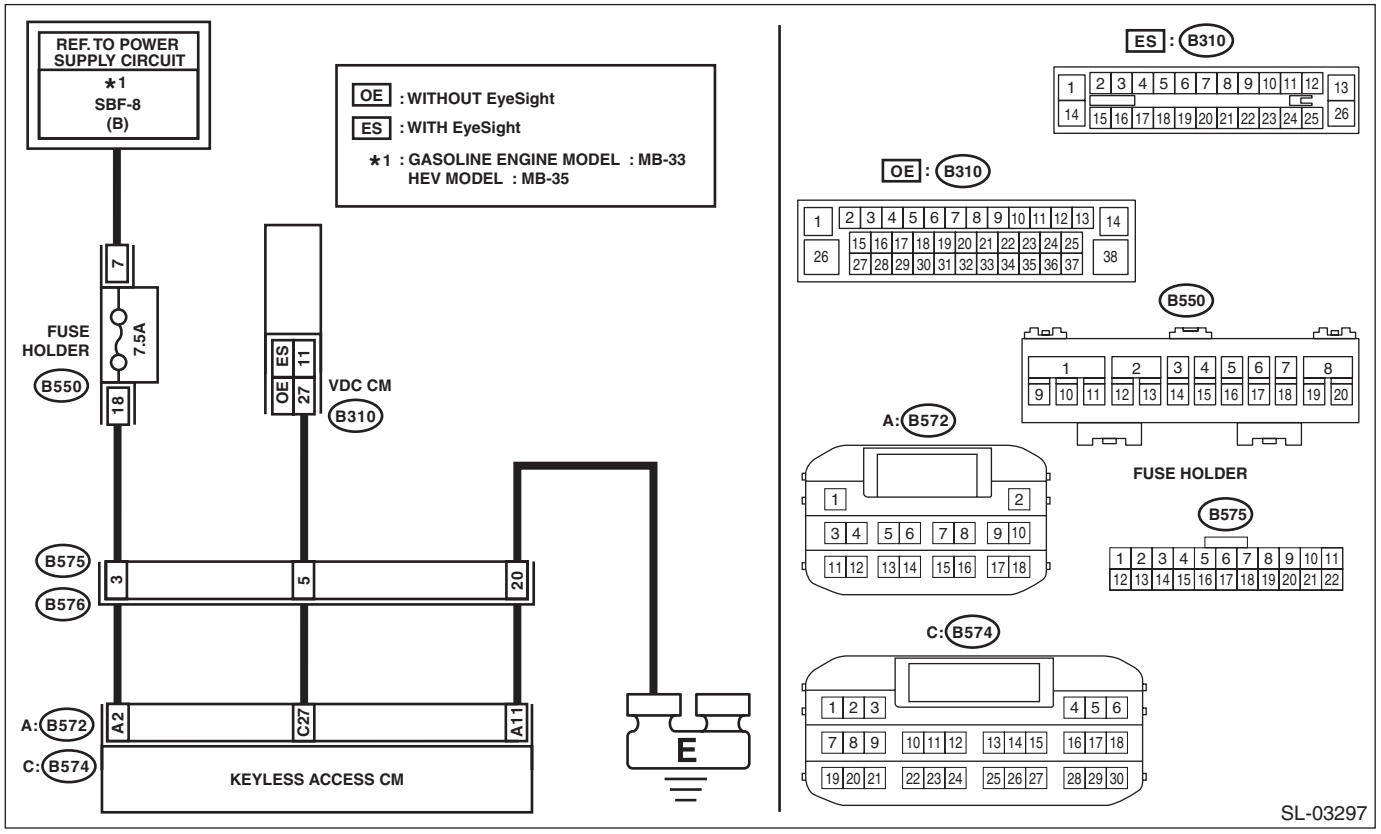
The steering lock cannot be released.

**CAUTION:**

**For replacement procedure of keyless access CM, refer to the "REGISTRATION MANUAL FOR IMMOBILIZER".**

**WIRING DIAGRAM:**

Push button start system <Ref. to WI(w/o HEV)-179, WIRING DIAGRAM, Push Button Start System.> <Ref. to WI(HEV)-181, WIRING DIAGRAM, Push Button Start System.>




| Step | | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK LAN SYSTEM.**<br>Inspect LAN system. <Ref. to LAN(w/o HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.> <Ref. to LAN(HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.> | Is LAN system normal? | Go to step **2**. | Perform the inspection according to the diagnosis for LAN system. |
| 2 | **CHECK COMBINATION METER.**<br>Check that the speedometer is displayed normally.<br>• Vehicle speed signal | Is the meter display normal? | Go to step **3**. | Check the VDC. <Ref. to VDC(diag)-2, PROCEDURE, Basic Diagnostic Procedure.> |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 3 | **CHECK CURRENT DATA.**<br>Confirm the current data display of keyless access system using Subaru Select Monitor.<br>• Vehicle speed signal | Is the parked state or driving state displayed normally? | Go to step **4**. | Check the VDC. <Ref. to VDC(diag)-2, PROCEDURE, Basic Diagnostic Procedure.> |
| 4 | **CHECK FUSE.**<br>Remove the fuse. | Is the fuse OK? | Go to step **5**. | Replace the fuse. When the replaced fuse is blown immediately, check the power supply circuit for short-circuited. |
| 5 | **CHECK HARNESS.**<br>1) Disconnect the keyless access CM connector.<br>2) Using a tester, measure the voltage between keyless access CM connectors.<br>***Connector & terminal***<br>***(B572) No. 2 (+) — Chassis ground (–):*** | Is the voltage 9.5 — 16 V? | Go to step **6**. | Check the power supply circuit. |
| 6 | **CHECK HARNESS.**<br>Using a tester, measure the resistance between the keyless access CM connector and chassis ground.<br>***Connector & terminal***<br>***(B572) No. 11 — Chassis ground:*** | Is the resistance less than 1 Ω? | Go to step **7**. | Repair or replace the open circuit of harness. |
| 7 | **CHECK HARNESS.**<br>1) Disconnect the keyless access CM connector.<br>2) Disconnect the combination meter connector.<br>3) Using a tester, measure the resistance between the keyless access CM connector and VDC CM connector.<br>***Connector & terminal***<br>***Without EyeSight***<br>***(B574) No. 27 — (B310) No. 27:***<br>***With EyeSight***<br>***(B574) No. 27 — (B310) No. 11:*** | Is the resistance less than 1 Ω? | Go to step **8**. | Repair or replace the open circuit of harness. |
| 8 | **CHECK HARNESS.**<br>Using a tester, measure the resistance between the keyless access CM connector and chassis ground.<br>***Connector & terminal***<br>***(B574) No. 27 — Chassis ground:*** | Is the resistance 10 kΩ or more? | Go to step **9**. | Repair or replace the short circuit of the harness. |
| 9 | **CHECK KEYLESS ACCESS CM.**<br>1) Connect each connector.<br>2) Using the Subaru Select Monitor, measure the waveform between the terminals of keyless access CM.<br>***Connector & terminal***<br>***(B574) No. 27 — Chassis ground:*** | Is 3.54 Hz displayed when the vehicle is driven at approx. 5 km/h? Or does the value change from 3.54 Hz when the vehicle stops? | Replace the keyless access CM. <Ref. to SL-110, Keyless Access CM.> | Check the VDC. <Ref. to VDC(diag)-2, PROCEDURE, Basic Diagnostic Procedure.> |

## R: DTC B2284 BRAKE SIGNAL (CABLE-INFORMATION DOES NOT MATCH TO BEAN-INFORMATION)

**DTC DETECTING CONDITION:**

When the brake signal transmitted via the hard wire and the brake signal transmitted from body integrated unit via CAN communication line do not match.

**TROUBLE SYMPTOM:**

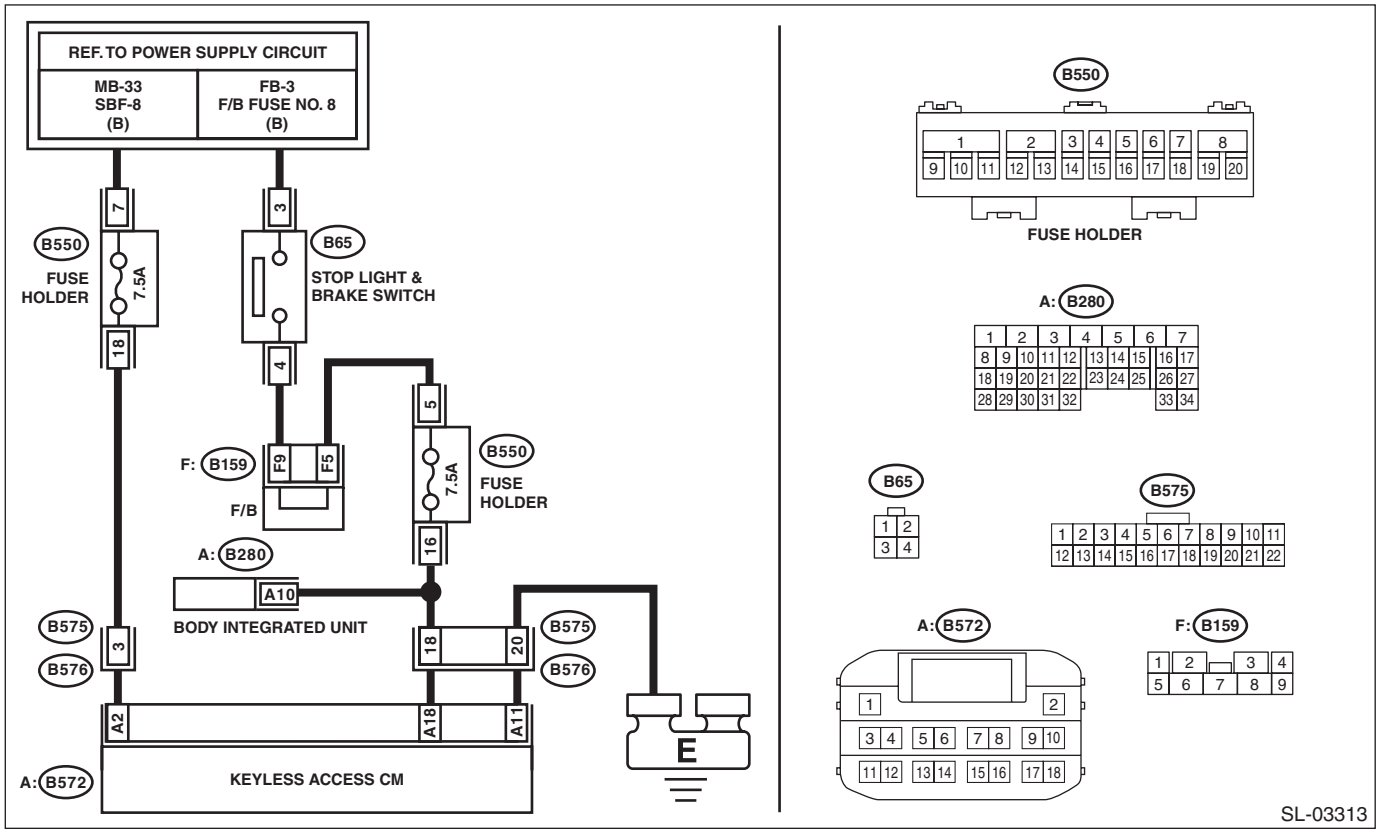
**CAUTION:**

**For replacement procedure of keyless access CM, refer to the "REGISTRATION MANUAL FOR IMMOBILIZER".**

**WIRING DIAGRAM:**

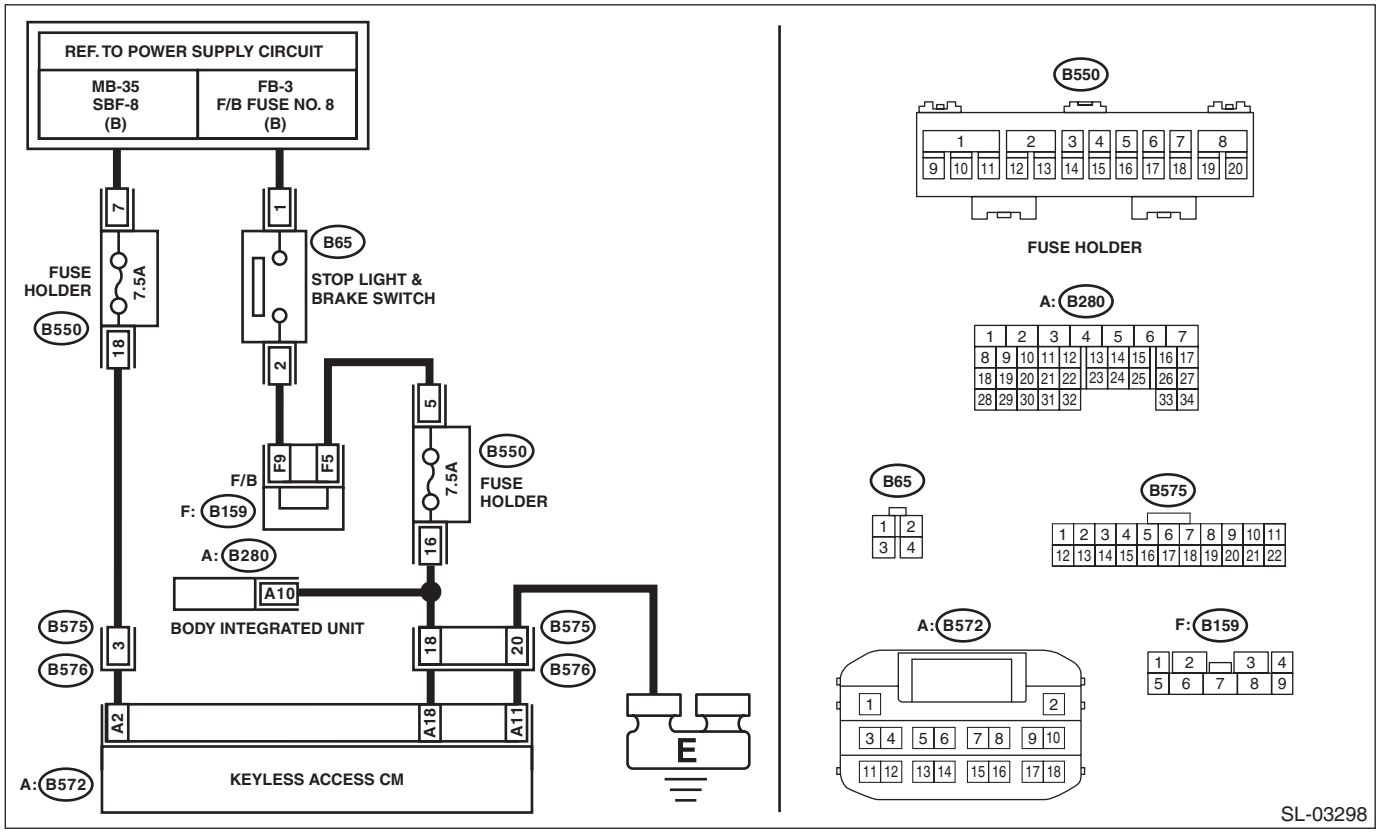
- Gasoline engine model

Stop light system <Ref. to WI(w/o HEV)-211, WIRING DIAGRAM, Stop Light System.>



- HEV model

Stop light system <Ref. to WI(HEV)-210, WIRING DIAGRAM, Stop Light System.>




| Step | | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK LAN SYSTEM.**<br>Inspect LAN system. <Ref. to LAN(w/o HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.> <Ref. to LAN(HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.> | Is LAN system normal? | Go to step **2**. | Perform the inspection according to the diagnosis for LAN system. |
| 2 | **CHECK CURRENT DATA.**<br>Confirm the current data display of keyless access system using Subaru Select Monitor.<br>• Stop light SW | Is DTC displayed normally according to the brake pedal operation? | Go to step **3**. | Check the stop light system. |
| 3 | **CHECK CURRENT DATA.**<br>Check the current data display of body integrated unit using Subaru Select Monitor.<br>• Stop light SW | Is DTC displayed normally according to the brake pedal operation? | Go to step **4**. | Check body integrated unit <Ref. to BC(diag)-2, PROCEDURE, Basic Diagnostic Procedure.> and the stop light switch circuit. |
| 4 | **CHECK FUSE.**<br>Check the fuse. | Is the fuse OK? | Go to step **5**. | Replace the fuse. When the replaced fuse is blown immediately, check the power supply circuit for short-circuited. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 5 | **CHECK HARNESS.**<br>1) Disconnect the keyless access CM connector.<br>2) Using a tester, measure the voltage between keyless access CM connectors.<br>***Connector & terminal***<br>***(B572) No. 2 (+) — Chassis ground (–):*** | Is the voltage 9.5 — 16 V? | Go to step **6**. | Check the power supply circuit. |
| 6 | **CHECK HARNESS.**<br>Using a tester, measure the resistance between the keyless access CM connector and chassis ground.<br>***Connector & terminal***<br>***(B572) No. 11 — Chassis ground:*** | Is the resistance less than 1 Ω? | Go to step **7**. | Repair or replace the open circuit of harness. |
| 7 | **CHECK HARNESS.**<br>1) Disconnect the stop light switch connector.<br>2) Using a tester, measure the resistance between the keyless access CM connector and stop light switch connector.<br>***Connector & terminal***<br>***Gasoline engine model***<br>***(B572) No. 18 — (B65) No. 4:***<br>***HEV model***<br>***(B572) No. 18 — (B65) No. 2:*** | Is the resistance less than 1 Ω? | Go to step **8**. | Repair or replace the open circuit of harness. |
| 8 | **CHECK HARNESS.**<br>Using a tester, measure the resistance between the keyless access CM connector and chassis ground.<br>***Connector & terminal***<br>***(B572) No. 18 — Chassis ground:*** | Is the resistance 10 kΩ or more? | Go to step **9**. | Repair or replace the short circuit of the harness. |
| 9 | **CHECK HARNESS.**<br>Using a tester, measure the voltage between the keyless access CM connector and chassis ground when the brake pedal is depressed.<br>***Connector & terminal***<br>***(B572) No. 18 (+) — Chassis ground (–):*** | Does the voltage change as follows? Brake pedal not depressed: 1 V or less → Brake pedal depressed: 11 — 14 V | Replace the keyless access CM. <Ref. to SL-110, REMOVAL, Keyless Access CM.> | Check the power supply circuit of stop light switch. |

# S: DTC B2285 STEERING LOCK POSITION SIGNAL ABNORMAL

**DTC DETECTING CONDITION:**

When the steering lock position signal transmitted from the steering lock CM via solid line and the steering lock position signal transmitted via LIN communication system do not match.

**TROUBLE SYMPTOM:**

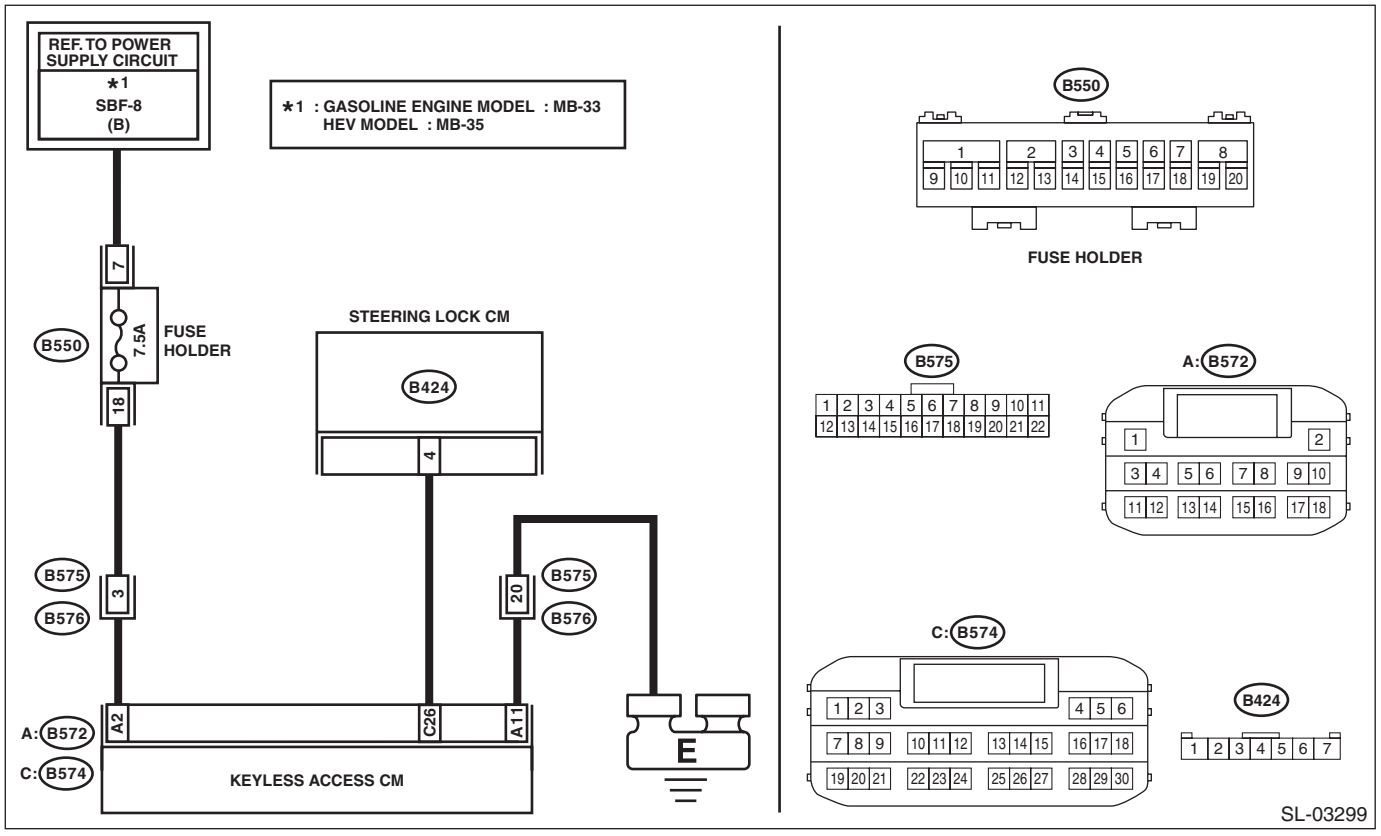
- There are conditions when the steering lock is not released.
- Engine will not start.

**CAUTION:**

**For replacement procedure of keyless access CM, refer to the "REGISTRATION MANUAL FOR IMMOBILIZER".**

**WIRING DIAGRAM:**

Push button start system <Ref. to WI(w/o HEV)-179, WIRING DIAGRAM, Push Button Start System.> <Ref. to WI(HEV)-181, WIRING DIAGRAM, Push Button Start System.>




| Step | | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK LAN SYSTEM.**<br>Inspect LAN system. <Ref. to LAN(w/o HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.> <Ref. to LAN(HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.> | Is LAN system normal? | Go to step **2**. | Perform the inspection according to the diagnosis for LAN system. |
| 2 | **CHECK DTC.**<br>Use the Subaru Select Monitor and read DTCs. | Is B2785 displayed? | Perform the inspection according to B2785. <Ref. to KPS(diag)-77, DTC B2785 LIN COMMUNICATION ERROR, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> | Go to step **3**. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 3 | **CHECK CURRENT DATA.**<br>Confirm the current data display of keyless access system using Subaru Select Monitor.<br>When locked:<br>• Lock side sensor status: ON<br>• Unlock side sensor status: OFF<br>• Lock confirmation: Confirmed<br>• Unlock confirmation: Not confirmed<br>When unlocked:<br>• Lock side sensor status: OFF<br>• Unlock side sensor status: ON<br>• Lock confirmation: Not confirmed<br>• Unlock confirmation: Confirmed<br>NOTE:<br>To lock the steering lock, turn off the power, and open → close, or close → open the driver's door. To unlock the steering lock, turn the ignition switch to ACC ON or IGN ON. | Are the readings as shown on the left according to the steering lock status? | Go to step **4**. | Replace the steering lock CM. <Ref. to SL-113, REMOVAL, Steering Lock CM.> |
| 4 | **CHECK CURRENT DATA.**<br>Confirm the current data display of keyless access system using Subaru Select Monitor.<br>When locked:<br>• Steering unlock switch: OFF<br>When unlocked:<br>• Steering unlock switch: ON<br>NOTE:<br>To lock the steering lock, turn off the power, and open → close, or close → open the driver's door. To unlock the steering lock, turn the ignition switch to ACC ON or IGN ON. | Are the readings as shown on the left according to the steering lock status? | Replace the keyless access CM. <Ref. to SL-110, REMOVAL, Keyless Access CM.> | Go to step **5**. |
| 5 | **CHECK FUSE.**<br>Check the fuse. | Is the fuse OK? | Go to step **6**. | Replace the fuse. When the replaced fuse is blown immediately, check the power supply circuit for short-circuited. |
| 6 | **CHECK HARNESS.**<br>1) Disconnect the keyless access CM connector.<br>2) Using a tester, measure the voltage between keyless access CM connectors.<br>***Connector & terminal***<br>***(B572) No. 2 (+) — Chassis ground (–):*** | Is the voltage 9.5 — 16 V? | Go to step **7**. | Check the power supply circuit. |
| 7 | **CHECK HARNESS.**<br>Using a tester, measure the resistance between the keyless access CM connector and chassis ground.<br>***Connector & terminal***<br>***(B572) No. 11 — Chassis ground:*** | Is the resistance less than 1 Ω? | Go to step **8**. | Repair or replace the open circuit of harness. |
| 8 | **CHECK HARNESS.**<br>Using a tester, measure the resistance between the steering lock CM connector and chassis ground.<br>***Connector & terminal***<br>***(B424) No. 4 — Chassis ground:*** | Does the following occur?<br>Steering lock: 10 kΩ or more →<br>Steering unlock: less than 1 Ω | Go to step **9**. | Replace the steering lock CM. <Ref. to SL-113, REMOVAL, Steering Lock CM.> |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 9 | **CHECK HARNESS.**<br>1) Disconnect the keyless access CM connector.<br>2) Disconnect the steering lock CM connector.<br>3) Using a tester, measure the resistance between the keyless access CM connector and steering lock CM.<br>***Connector & terminal***<br>***(B574) No. 26 — (B424) No. 4:*** | Is the resistance less than 1 Ω? | Go to step **10**. | Repair or replace the open circuit of harness. |
| 10 | **CHECK HARNESS.**<br>Using a tester, measure the resistance between the keyless access CM connector and chassis ground.<br>***Connector & terminal***<br>***(B574) No. 26 — Chassis ground:*** | Is the resistance 10 kΩ or more? | Replace the keyless access CM. <Ref. to SL-110, REMOVAL, Keyless Access CM.> | Repair or replace the short circuit of the harness. |

# T: DTC B2286 DRIVING POSSIBLE SIGNAL ABNORMAL

**DTC DETECTING CONDITION:**

When the engine speed signal transmitted from the ECM via solid line and the engine speed signal transmitted from the ECM via CAN communication line do not match.

**TROUBLE SYMPTOM:**

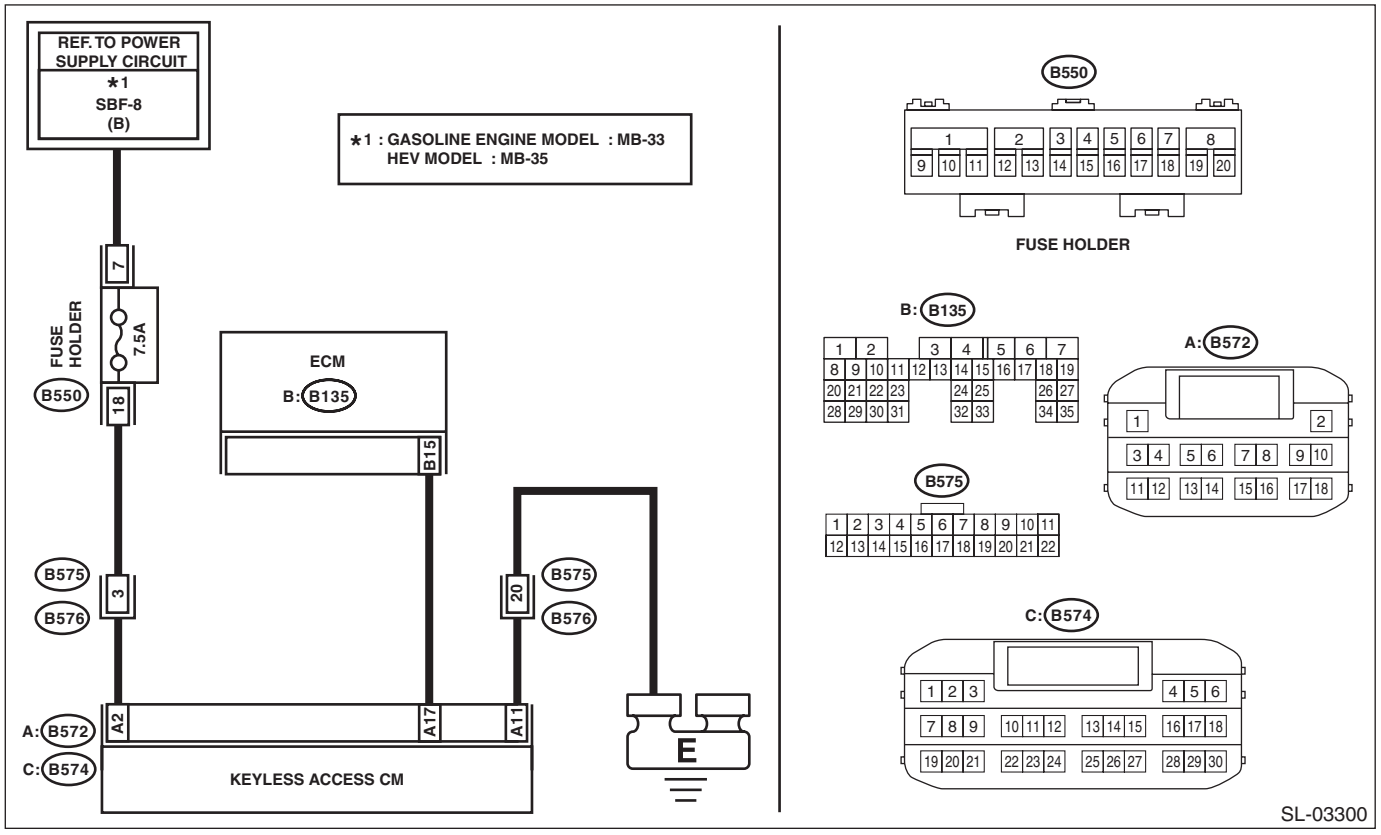
Cannot start the engine, or the engine stops after starting.

**CAUTION:**

**For replacement procedure of keyless access CM, refer to the "REGISTRATION MANUAL FOR IMMOBILIZER".**

**WIRING DIAGRAM:**

Push button start system <Ref. to WI(w/o HEV)-179, WIRING DIAGRAM, Push Button Start System.> <Ref. to WI(HEV)-181, WIRING DIAGRAM, Push Button Start System.>




| Step | | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK LAN SYSTEM.**<br>Inspect LAN system. <Ref. to LAN(w/o HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.> <Ref. to LAN(HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.> | Is LAN system normal? | Go to step **2**. | Perform the inspection according to the diagnosis for LAN system. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 2 | **CHECK CURRENT DATA.**<br>Confirm the current data display of keyless access system using Subaru Select Monitor.<br>• Engine speed | Can the data be read normally? | Perform the diagnosis for the engine. <Ref. to EN(H4DO w/o HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.> <Ref. to EN(H4DO HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.> | Go to step **3**. |
| 3 | **CHECK FUSE.**<br>Remove the fuse. | Is the fuse OK? | Go to step **4**. | Replace the fuse. When the replaced fuse is blown immediately, check the power supply circuit for short-circuited. |
| 4 | **CHECK HARNESS.**<br>1) Disconnect the keyless access CM connector.<br>2) Using a tester, measure the voltage between keyless access CM connectors.<br>***Connector & terminal***<br>***(B572) No. 2 (+) — Chassis ground (–):*** | Is the voltage 9.5 — 16 V? | Go to step **5**. | Check the power supply circuit. |
| 5 | **CHECK HARNESS.**<br>Using a tester, measure the resistance between the keyless access CM connector and chassis ground.<br>***Connector & terminal***<br>***(B572) No. 11 — Chassis ground:*** | Is the resistance less than 1 Ω? | Go to step **6**. | Repair or replace the open circuit of harness. |
| 6 | **CHECK HARNESS.**<br>1) Disconnect the keyless access CM connector.<br>2) Disconnect the ECM connector.<br>3) Using a tester, measure the resistance between the keyless access CM connector and ECM connector.<br>***Connector & terminal***<br>***(B572) No. 17 — (B135) No. 15:*** | Is the resistance less than 1 Ω? | Go to step **7**. | Repair or replace the open circuit of harness. |
| 7 | **CHECK HARNESS.**<br>Using a tester, measure the resistance between the keyless access CM connector and chassis ground.<br>***Connector & terminal***<br>***(B572) No. 17 — Chassis ground:*** | Is the resistance 10 kΩ or more? | Go to step **8**. | Repair or replace the open circuit of harness. |

| Step | | Check | Yes | No |
|---|---|---|---|---|
| 8 | **CHECK HARNESS.**<br>1) Connect the keyless access CM connector and ECM connector.<br>2) Using the Subaru Select Monitor, measure the waveform between the keyless access CM connector and chassis ground.<br>***Connector & terminal***<br>***(B572) No. 17 — Chassis ground:*** | Does the pulse stop when the engine is stopped, and does the pulse generate when the engine is started? | Replace the keyless access CM. <Ref. to SL-110, Keyless Access CM.> | Perform the diagnosis for the engine. <Ref. to EN(H4DO w/o HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.> <Ref. to EN(H4DO HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.> |

## U: DTC B228A SUB-TRAVEL POSSIBLE SIGNAL ABNORMAL

**DTC DETECTING CONDITION:**

When the engine speed signal transmitted from the ECM via solid line and the engine speed signal transmitted from the ECM via CAN communication line do not match.

**TROUBLE SYMPTOM:**

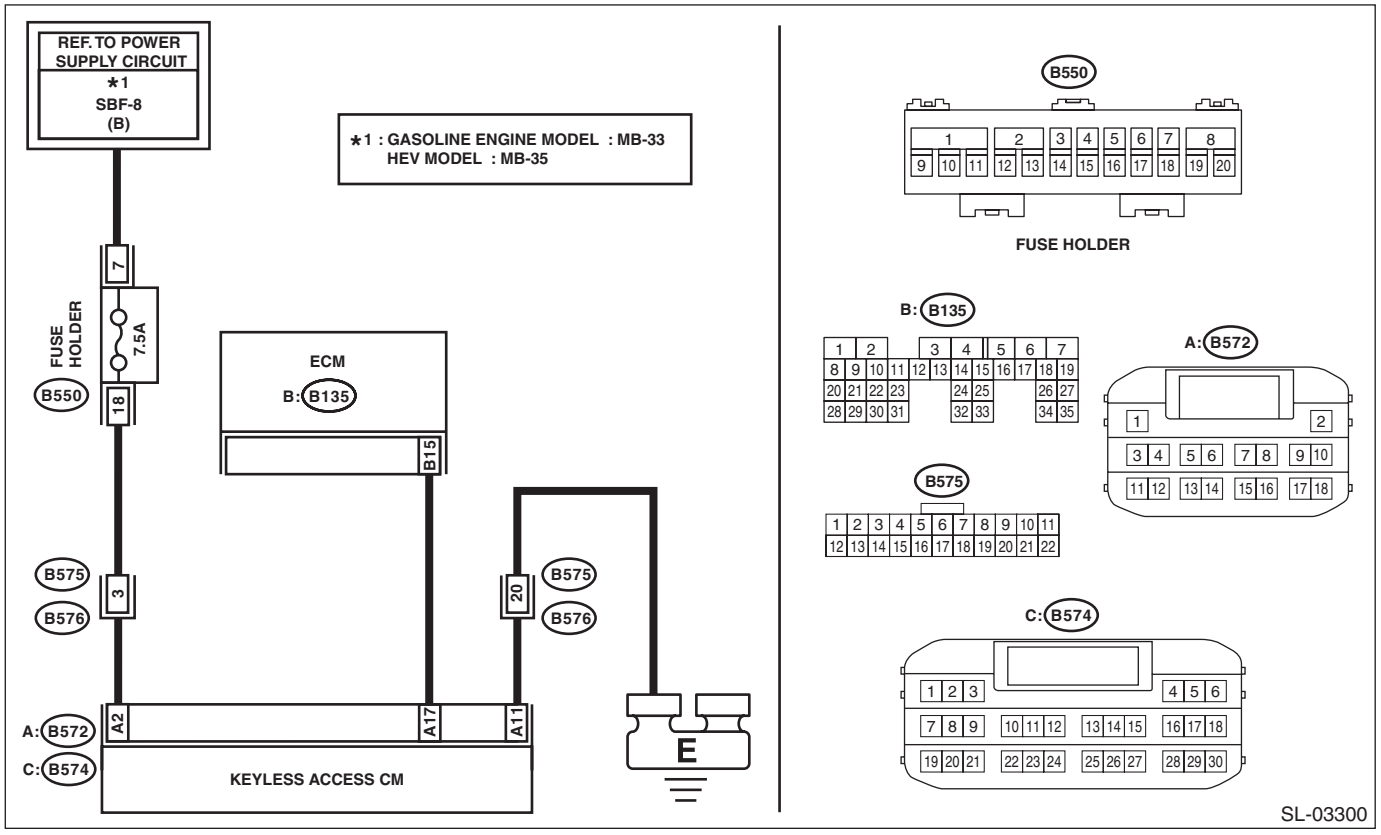
Cannot start the engine, or the engine stops after starting.

**CAUTION:**

**For replacement procedure of keyless access CM, refer to the "REGISTRATION MANUAL FOR IMMOBILIZER".**

**WIRING DIAGRAM:**

Push button start system <Ref. to WI(w/o HEV)-179, WIRING DIAGRAM, Push Button Start System.> <Ref. to WI(HEV)-181, WIRING DIAGRAM, Push Button Start System.>




| Step | | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK LAN SYSTEM.**<br>Inspect LAN system. <Ref. to LAN(w/o HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.> <Ref. to LAN(HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.> | Is LAN system normal? | Go to step **2**. | Perform the inspection according to the diagnosis for LAN system. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 2 | **CHECK CURRENT DATA.**<br>Confirm the current data display of keyless access system using Subaru Select Monitor.<br>• Engine speed | Can the data be read normally? | Perform the diagnosis for the engine. <Ref. to EN(H4DO w/o HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.> <Ref. to EN(H4DO HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.> | Go to step **3**. |
| 3 | **CHECK FUSE.**<br>Remove the fuse. | Is the fuse OK? | Go to step **4**. | Replace the fuse. When the replaced fuse is blown immediately, check the power supply circuit for short-circuited. |
| 4 | **CHECK HARNESS.**<br>1) Disconnect the keyless access CM connector.<br>2) Using a tester, measure the voltage between keyless access CM connectors.<br>***Connector & terminal***<br>***(B572) No. 2 (+) — Chassis ground (–):*** | Is the voltage 9.5 — 16 V? | Go to step **5**. | Check the power supply circuit. |
| 5 | **CHECK HARNESS.**<br>Using a tester, measure the resistance between the keyless access CM connector and chassis ground.<br>***Connector & terminal***<br>***(B572) No. 11 — Chassis ground:*** | Is the resistance less than 1 Ω? | Go to step **6**. | Repair or replace the open circuit of harness. |
| 6 | **CHECK HARNESS.**<br>1) Disconnect the keyless access CM connector.<br>2) Disconnect the ECM connector.<br>3) Using a tester, measure the resistance between the keyless access CM connector and ECM connector.<br>***Connector & terminal***<br>***(B572) No. 17 — (B135) No. 15:*** | Is the resistance less than 1 Ω? | Go to step **7**. | Repair or replace the open circuit of harness. |
| 7 | **CHECK HARNESS.**<br>Using a tester, measure the resistance between the keyless access CM connector and chassis ground.<br>***Connector & terminal***<br>***(B572) No. 17 — Chassis ground:*** | Is the resistance 10 kΩ or more? | Go to step **8**. | Repair or replace the open circuit of harness. |

| Step | | Check | Yes | No |
|---|---|---|---|---|
| 8 | **CHECK HARNESS.**<br>1) Connect the keyless access CM connector and ECM connector.<br>2) Using the Subaru Select Monitor, measure the waveform between the keyless access CM connector and chassis ground.<br>***Connector & terminal***<br>***(B572) No. 17 — Chassis ground:*** | Does the pulse stop when the engine is stopped, and does the pulse generate when the engine is started? | Replace the keyless access CM. <Ref. to SL-110, Keyless Access CM.> | Perform the diagnosis for the engine. <Ref. to EN(H4DO w/o HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.> <Ref. to EN(H4DO HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.> |

## V: DTC B2779 REMOTE CONTROL ENGINE STARTER COMMUNICATION COLLATION NG

**DTC DETECTING CONDITION:**

Keyless access CM does not respond to engine start even when the remote control engine starter is ON, or there is a code mismatch.

**TROUBLE SYMPTOM:**

Remote engine starter does not function.

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **REGISTER THE REMOTE ENGINE STARTER.**<br>1) Clear the DTC.<br>2) Register the remote engine starter using the Subaru Select Monitor. (Refer to the "REGISTRATION MANUAL FOR IMMOBILIZER".)<br>3) Read the DTC again. | Is DTC B2779 detected? | Replace the remote engine starter. | System is normal. It is possible that temporary poor contact occurs. |

## W: DTC B2781 STEERING LOCK ECU OPEN/SHORT

**DTC DETECTING CONDITION:**

- When malfunction is detected in lock/unlock position detection sensor.
- When the open or short circuit in the steering lock motor drive circuit is detected.

**TROUBLE SYMPTOM:**

- The steering lock cannot be released.
- Engine will not start.

**CAUTION:**

**For replacement procedure of steering lock CM, refer to the "REGISTRATION MANUAL FOR IMMOBILIZER".**

NOTE:

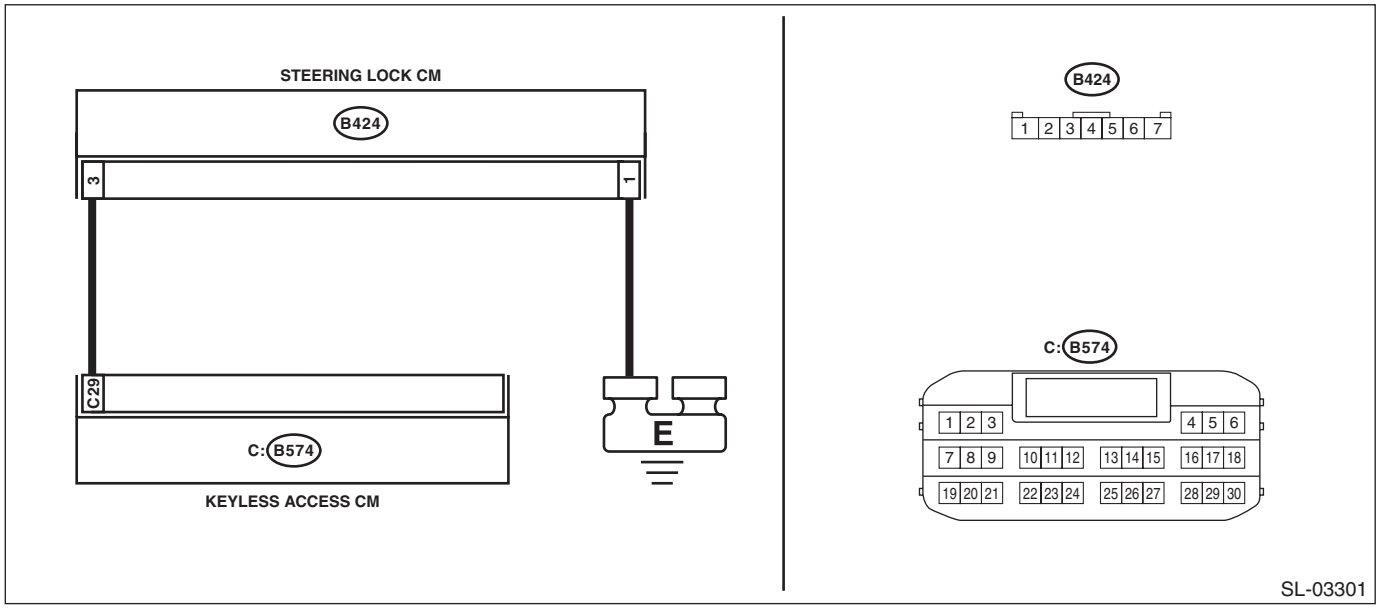
When all ECMs connected to collation system LIN bus cannot communicate with the keyless access CM, DTC B2785 is output.

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK DTC.**<br>Use the Subaru Select Monitor and read DTCs. | Is B2785 displayed? | Perform the diagnosis according to DTC. | Replace the steering lock CM. <Ref. to SL-113, Steering Lock CM.> |

## X: DTC B2782 STEERING LOCK POWER SUPPLY CIRCUIT ABNORMAL (SMART ECU-SIDE ABNORMAL)

**DTC DETECTING CONDITION:**
When the open or short circuit in the steering lock motor power supply circuit is detected.
**TROUBLE SYMPTOM:**
- The steering lock cannot be released.
- Engine will not start.

**CAUTION:**
**For replacement procedure of keyless access CM and steering lock CM, refer to the "REGISTRATION MANUAL FOR IMMOBILIZER".**
**WIRING DIAGRAM:**
Push button start system <Ref. to WI(w/o HEV)-179, WIRING DIAGRAM, Push Button Start System.> <Ref. to WI(HEV)-181, WIRING DIAGRAM, Push Button Start System.>



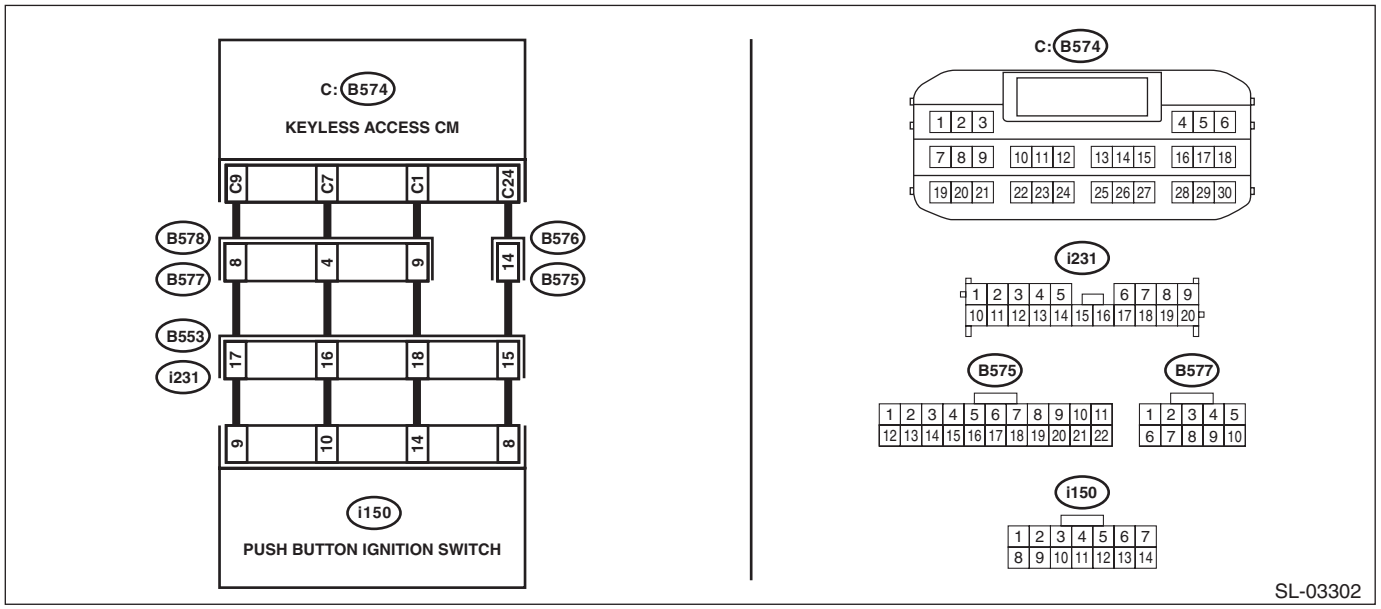

| Step | | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK STEERING LOCK CM.**<br>1) Disconnect the steering lock CM connector.<br>2) Using a tester, measure the resistance between the steering lock CM connector and chassis ground.<br>***Connector & terminal***<br>***(B424) No. 1 — Chassis ground:*** | Is the resistance less than 1 Ω? | Go to step **2**. | Repair or replace the open circuit of harness. |
| 2 | **CHECK CURRENT DATA.**<br>1) Connect the steering lock CM connector.<br>2) Set to ACC OFF, IGN OFF, and the shift position P.<br>3) Using a tester, open the door, and measure the voltage between terminals of steering CM connector when the steering lock motor is driven.<br>***Connector & terminal***<br>***(B424) No. 3 (+) — (B424) No. 1 (–):*** | Does the voltage change as follows? Steering lock motor in operation: 1 V or less → Steering lock motor is stopped: 11 — 14 V | Go to step **3**. | Go to step **4**. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 3 | **CHECK DTC.**<br>1) Turn the ignition switch to ON.<br>2) Using the Subaru Select Monitor, clear the memory.<br>3) Turn the ignition switch to OFF.<br>4) Disconnect the battery ground cable and reconnect it, and then clear the abnormal information displayed on the data monitor.<br>5) Turn the ignition switch to ON.<br>6) Use the Subaru Select Monitor and read DTCs. | Is B2782 displayed? | Replace the steering lock CM. <Ref. to SL-113, Steering Lock CM.> | System is normal. It is possible that temporary poor contact occurs. |
| 4 | **CHECK CONNECTOR.**<br>1) Disconnect the steering lock CM connector.<br>2) Disconnect the keyless access CM connector. | Are connectors normal? | Go to step **5**. | Repair or replace the connector. |
| 5 | **CHECK HARNESS.**<br>Using a tester, measure the resistance between steering lock CM connector and keyless access CM connector.<br>***Connector & terminal***<br>***(B574) No. 29 — (B424) No. 3:*** | Is the resistance less than 1 Ω? | Go to step **6**. | Repair or replace the open circuit of harness. |
| 6 | **CHECK HARNESS.**<br>Using a tester, measure the resistance between steering lock CM connector and chassis ground, and between keyless access CM connector and chassis ground.<br>***Connector & terminal***<br>***(B424) No. 3 — Chassis ground:***<br>***(B574) No. 29 — Chassis ground:*** | Is the resistance 10 kΩ or more? | Replace the keyless access CM. <Ref. to SL-110, Keyless Access CM.> | Repair or replace the short circuit of the harness. |

# Y: DTC B2784 ANTENNA COIL FAULT

**DTC DETECTING CONDITION:**
When open or short circuit occurs in the antenna coil.
**TROUBLE SYMPTOM:**
The keyless access function may not be operable.

**CAUTION:**
**For replacement procedure of keyless access CM and steering lock CM, refer to the "REGISTRATION MANUAL FOR IMMOBILIZER".**
**WIRING DIAGRAM:**
Immobilizer system <Ref. to WI(w/o HEV)-143, WIRING DIAGRAM, Immobilizer System.> <Ref. to WI(HEV)-151, WIRING DIAGRAM, Immobilizer System.>




| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK STEERING LOCK CM.**<br>1) Disconnect the push button ignition switch connector.<br>2) Disconnect the keyless access CM connector.<br>3) Using the tester, measure the resistance between terminals.<br>***Connector & terminal***<br>***(i150) No. 14 — (B574) No. 1:***<br>***(i150) No. 9 — (B574) No. 9:***<br>***(i150) No. 10 — (B574) No. 7:***<br>***(i150) No. 8 — (B574) No. 24:*** | Is the resistance less than 1 Ω? | Go to step **2**. | Repair or replace the open circuit of harness. |
| 2 | **CHECK HARNESS.**<br>Using the tester, measure the resistance between terminals.<br>***Connector & terminal***<br>***(i150) No. 14 — Chassis ground:***<br>***(i150) No. 9 — Chassis ground:***<br>***(i150) No. 10 — Chassis ground:*** | Is the resistance 10 kΩ or more? | Go to step **3**. | Repair or replace the short circuit of the harness. |
| 3 | **CHECK PUSH BUTTON IGNITION SWITCH.**<br>1) Replace the push button ignition switch. <Ref. to SL-114, Push Button Ignition Switch.><br>2) Using the Subaru Select Monitor, clear the memory.<br>3) Use the Subaru Select Monitor and read DTCs. | Is B2784 displayed? | Replace the keyless access CM. <Ref. to SL-110, Keyless Access CM.> | Malfunction occurred in the push button ignition switch. |

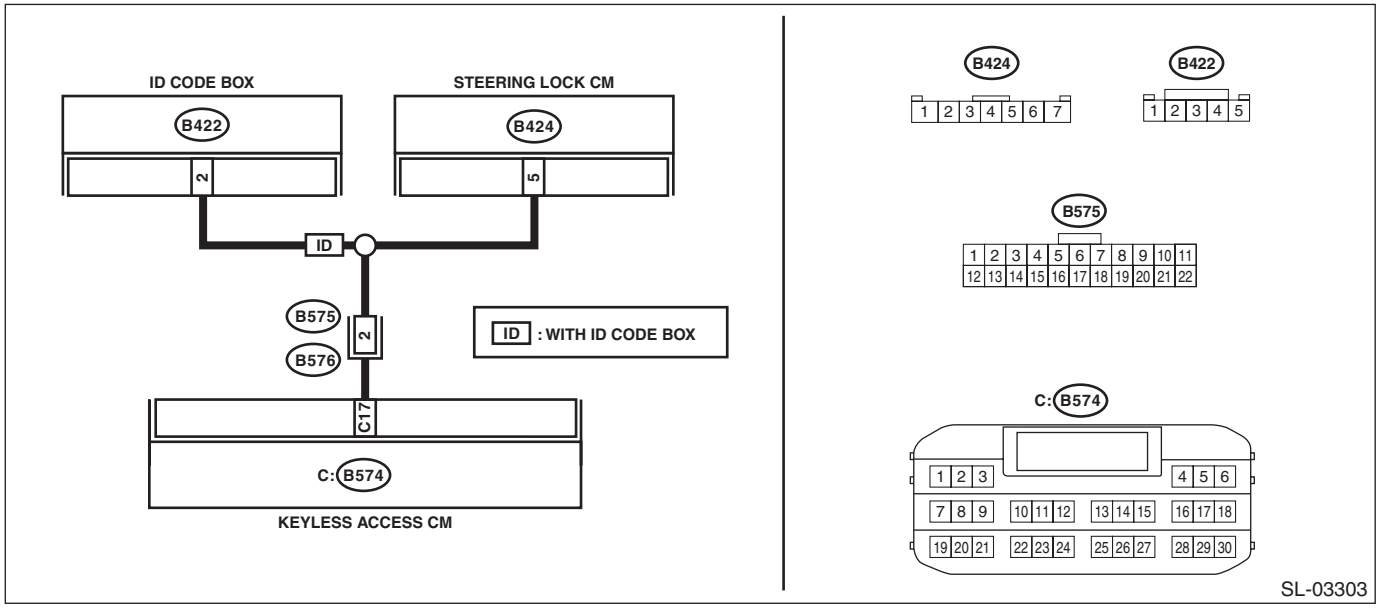
# Z: DTC B2785 LIN COMMUNICATION ERROR

**DTC DETECTING CONDITION:**
When the keyless access CM detected the collation system LIN bus communication error three times in a row.

**TROUBLE SYMPTOM:**
The keyless access function may not be operable.

**CAUTION:**
**For replacement procedure of keyless access CM and steering lock CM, refer to the "REGISTRATION MANUAL FOR IMMOBILIZER".**

**WIRING DIAGRAM:**
Push button start system <Ref. to WI(w/o HEV)-179, WIRING DIAGRAM, Push Button Start System.> <Ref. to WI(HEV)-181, WIRING DIAGRAM, Push Button Start System.>




| Step | | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK DTC.**<br>Use the Subaru Select Monitor and read DTCs. | Is B2785 displayed? | Go to step **2**. | Check the connector. |
| 2 | **CHECK HARNESS.**<br>1) Disconnect the keyless access CM connector.<br>2) Disconnect the steering lock CM connector.<br>3) Disconnect the ID code box connector. (with ID code box)<br>4) Using the tester, measure the resistance between terminals.<br>***Connector & terminal***<br>***(B574) No. 17 — (B424) No. 5:***<br>***(B574) No. 17 — (B422) No. 2: (with ID code box)*** | Is the resistance less than 1 Ω? | Go to step **3**. | Repair or replace the open circuit of harness. |
| 3 | **CHECK HARNESS.**<br>Using the tester, measure the resistance between terminals.<br>***Connector & terminal***<br>***(B424) No. 5 — Chassis ground:***<br>***(B574) No. 17 — Chassis ground:***<br>***(B422) No. 5 — Chassis ground: (with ID code box)*** | Is the resistance 10 kΩ or more? | Go to step **4**. | Repair or replace the short circuit of the harness. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 4 | **CHECK HARNESS.**<br>1) Connect the keyless access CM connector only.<br>2) Use the Subaru Select Monitor and read DTCs. | Is B2785 displayed? | Replace the keyless access CM. <Ref. to SL-110, Keyless Access CM.> | Go to step **5**. |
| 5 | **CHECK ID CODE BOX.**<br>NOTE:<br>For model without ID code box, go to the next step.<br>1) Connect only the ID code box.<br>2) Use the Subaru Select Monitor and read DTCs. | Is B2785 displayed? | Replace the ID code box. | Go to step **6**. |
| 6 | **CHECK STEERING LOCK CM.**<br>1) Replace the steering lock CM, and then connect it. <Ref. to SL-113, Steering Lock CM.><br>2) Using the Subaru Select Monitor, clear the memory.<br>3) Use the Subaru Select Monitor and read DTCs. | Is B2785 displayed? | Replace the keyless access CM. <Ref. to SL-110, Keyless Access CM.> | Malfunction occurred in the steering lock CM. |

## AA:DTC B2786 NO RESPONSE FROM STEERING LOCK ECU

**DTC DETECTING CONDITION:**

When communication between keyless access CM and steering lock CM is interrupted for a set amount of time.

**TROUBLE SYMPTOM:**

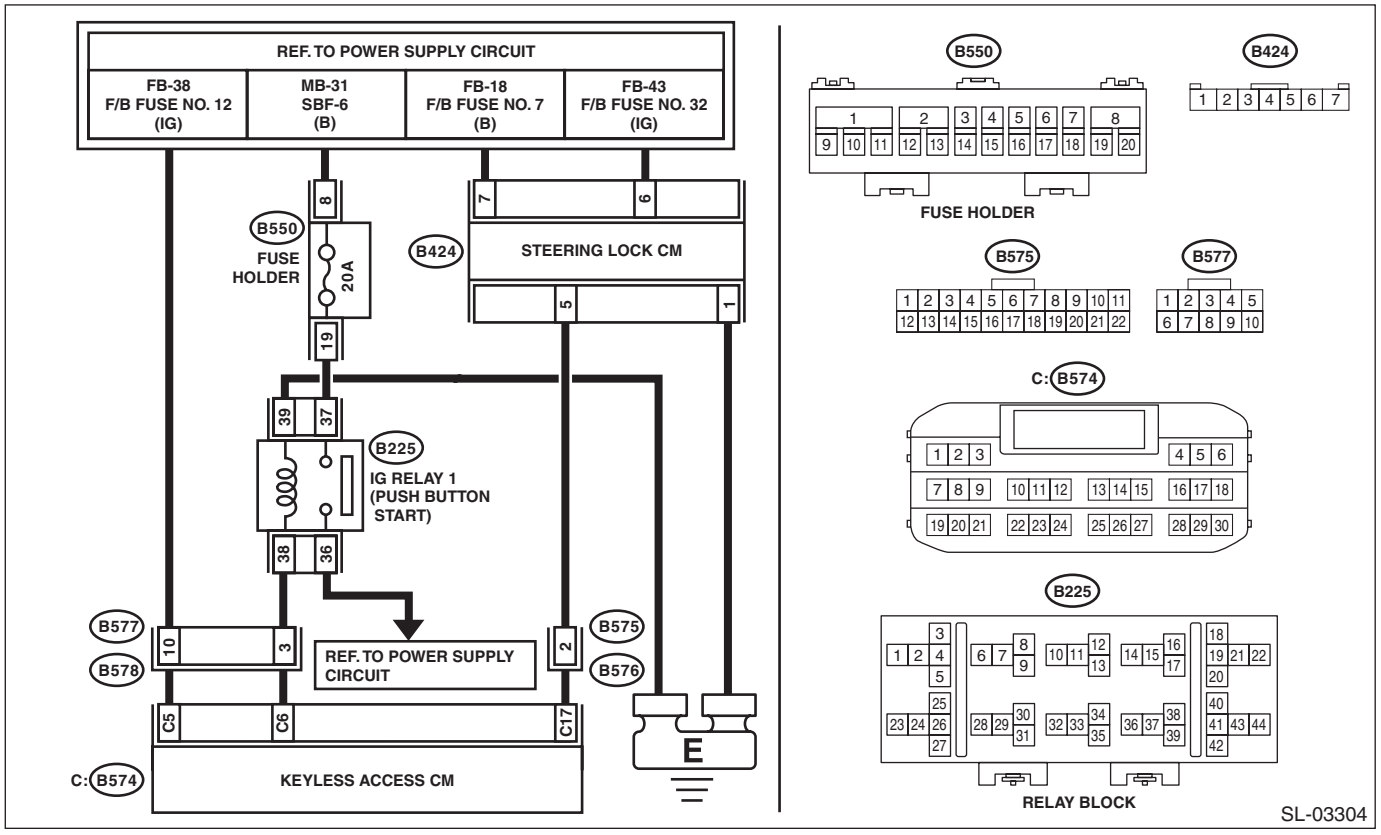
The steering lock cannot be released.

**CAUTION:**

**For replacement procedure of keyless access CM and steering lock CM, refer to the "REGISTRATION MANUAL FOR IMMOBILIZER".**

**WIRING DIAGRAM:**

Push button start system <Ref. to WI(w/o HEV)-179, WIRING DIAGRAM, Push Button Start System.> <Ref. to WI(HEV)-181, WIRING DIAGRAM, Push Button Start System.>




| Step | | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK DTC.**<br>Use the Subaru Select Monitor and read DTCs. | Is a DTC other than B2786 displayed? | Perform the diagnosis according to DTC. | Go to step **2**. |
| 2 | **CHECK HARNESS.**<br>1) Disconnect the keyless access CM connector.<br>2) Disconnect the steering lock CM connector.<br>3) Using the tester, measure the resistance between terminals.<br>***Connector & terminal***<br>***(B574) No. 17 — (B424) No. 5:*** | Is the resistance less than 1 Ω? | Go to step **3**. | Repair or replace the open circuit of harness. |
| 3 | **CHECK HARNESS.**<br>Using the tester, measure the resistance between terminals.<br>***Connector & terminal***<br>***(B424) No. 5 — Chassis ground:***<br>***(B574) No. 17 — Chassis ground:*** | Is the resistance 10 kΩ or more? | Go to step **4**. | Repair or replace the short circuit of the harness. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 4 | **CHECK HARNESS.**<br>Using a tester, measure the resistance between the steering lock CM connector and chassis ground.<br>***Connector & terminal***<br>***(B424) No. 1 — Chassis ground:*** | Is the resistance less than 1 Ω? | Go to step **5**. | Repair or replace the open circuit of harness. |
| 5 | **CHECK HARNESS.**<br>1) Turn the ignition switch to ON.<br>2) Using a tester, measure the voltage between the steering lock CM connector and chassis ground.<br>***Connector & terminal***<br>***(B424) No. 6 (+) — Chassis ground (–):***<br>***(B424) No. 7 (+) — Chassis ground (–):*** | Is the voltage 11 — 14 V? | Go to step **6**. | Repair or replace the open circuit of harness. |
| 6 | **CHECK STEERING LOCK CM.**<br>1) Turn the ignition switch to ON.<br>2) Replace the steering lock CM. <Ref. to SL-113, Steering Lock CM.><br>3) Using the Subaru Select Monitor, clear the memory.<br>4) Use the Subaru Select Monitor and read DTCs. | Is B2786 displayed? | Replace the keyless access CM. <Ref. to SL-110, Keyless Access CM.> | Malfunction occurred in the steering lock CM. |

# AB:DTC B2788 IGN1 INPUT ABNORMAL

**DTC DETECTING CONDITION:**

When mismatch occurs in the IG1 input of the steering lock CM for both LIN communication line input (IG1 input value of keyless access CM) and solid line input.

**TROUBLE SYMPTOM:**

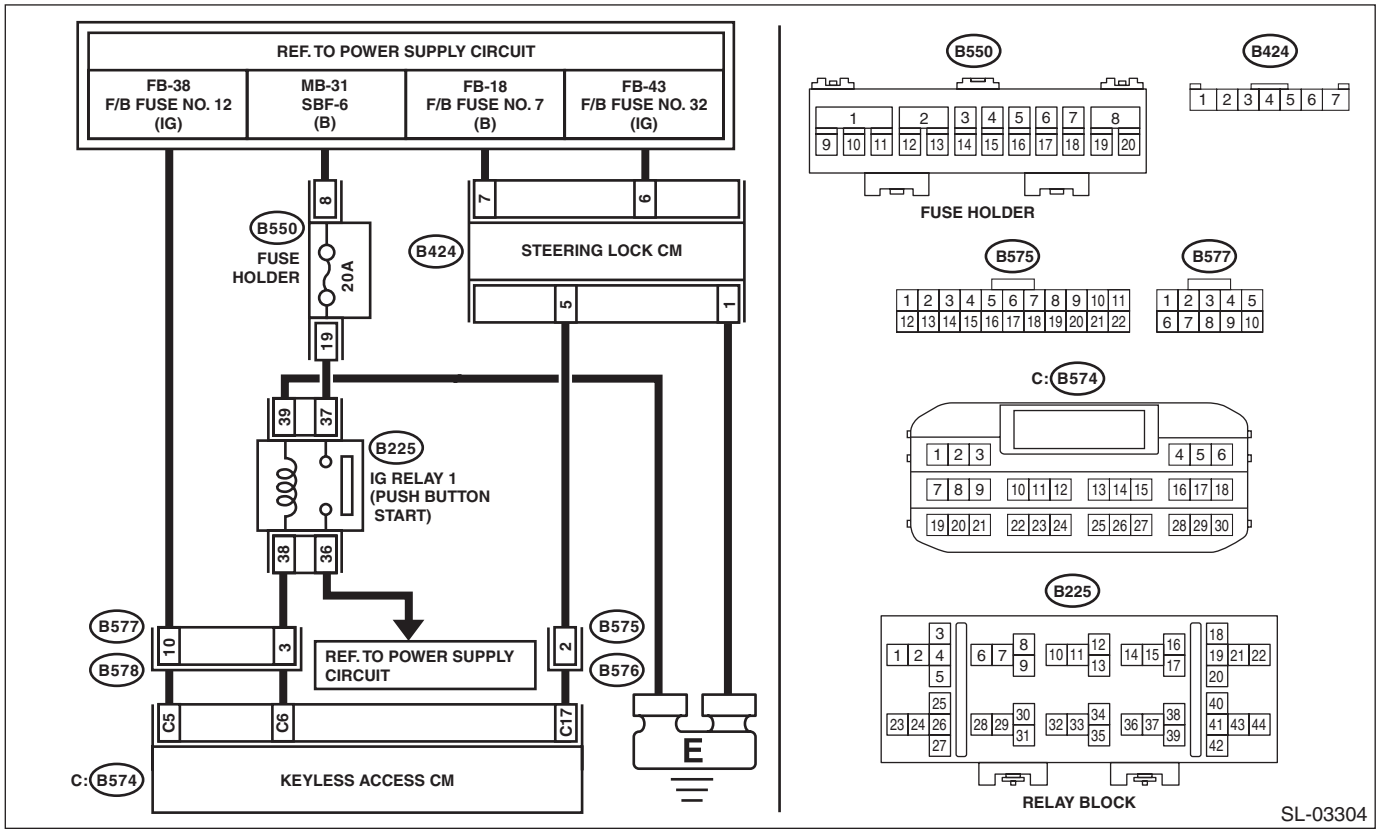
The steering lock cannot be released.

**CAUTION:**

**For replacement procedure of steering lock CM, refer to the "REGISTRATION MANUAL FOR IMMOBILIZER".**

**WIRING DIAGRAM:**

Push button start system <Ref. to WI(w/o HEV)-179, WIRING DIAGRAM, Push Button Start System.> <Ref. to WI(HEV)-181, WIRING DIAGRAM, Push Button Start System.>




| Step | | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK FUSE.**<br>Check the fuse. | Is the fuse OK? | Go to step **2**. | Replace the fuse. When the replaced fuse is blown immediately, check the power supply circuit for short-circuited. |
| 2 | **CHECK CURRENT DATA.**<br>Check the current data display of keyless access CM using the Subaru Select Monitor.<br>• IGN SW | Is the display normal according to the ignition switch operation? | Go to step **3**. | Go to step **5**. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 3 | **CHECK HARNESS.**<br>1) Disconnect the steering lock CM connector.<br>2) Using a tester, measure the resistance between the steering lock CM connector and chassis ground.<br>***Connector & terminal***<br>***(B424) No. 1 — Chassis ground:*** | Is the resistance less than 1 Ω? | Go to step **4**. | Repair or replace the open circuit of harness. |
| 4 | **CHECK HARNESS.**<br>1) Connect the steering lock CM connector.<br>2) Using the tester, measure the voltage between terminals.<br>***Connector & terminal***<br>***(B424) No. 6 (+) — (B424) No. 1 (–):*** | Is the voltage 11 — 14 V with IG ON?<br>Is the voltage less than 1 V with IG OFF? | Replace the steering lock CM. <Ref. to SL-113, REMOVAL, Steering Lock CM.> | Check the DC power supply circuit. |
| 5 | **CHECK HARNESS.**<br>Using a tester, measure the voltage between the keyless access CM connector and chassis ground.<br>***Connector & terminal***<br>***(B574) No. 5 (+) — Chassis ground (–):*** | Is the voltage 11 — 14 V with IG ON?<br>Is the voltage less than 1 V with IG OFF? | Replace the keyless access CM. <Ref. to SL-110, REMOVAL, Keyless Access CM.> | Check the DC power supply circuit. |

# AC:DTC B2789 ID CODE BOX NO RESPONSE

**DTC DETECTING CONDITION:**

- When communication between keyless access CM and ID code box is interrupted for a set amount of time.
- Open or short circuit in the wiring harness between keyless access CM and ID code box

**TROUBLE SYMPTOM:**

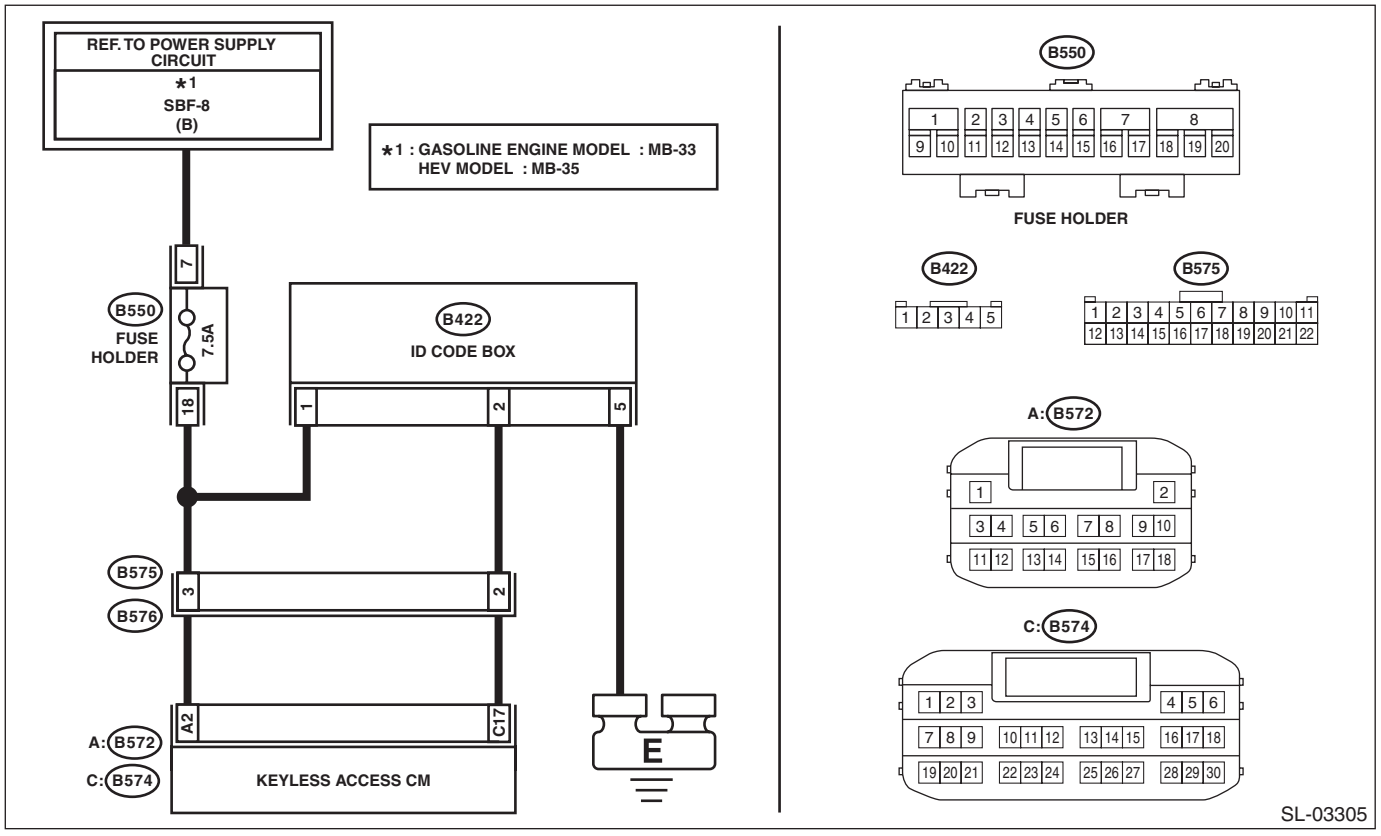
Engine will not start.

**CAUTION:**

**For replacement procedure of keyless access CM and ID code box, refer to the "REGISTRATION MANUAL FOR IMMOBILIZER".**

**WIRING DIAGRAM:**

Push button start system <Ref. to WI(w/o HEV)-179, WIRING DIAGRAM, Push Button Start System.> <Ref. to WI(HEV)-181, WIRING DIAGRAM, Push Button Start System.>




| Step | | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK DTC.**<br>Use the Subaru Select Monitor and read DTCs. | Is B2789 displayed? | Go to step **2**. | Check the connector. |
| 2 | **CHECK HARNESS.**<br>1) Disconnect the keyless access CM connector.<br>2) Disconnect the ID code box connector.<br>3) Using the tester, measure the resistance between terminals.<br>***Connector & terminal***<br>***(B574) No. 17 — (B422) No. 2:*** | Is the resistance less than 1 Ω? | Go to step **3**. | Repair or replace the open circuit of harness. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 3 | **CHECK HARNESS.**<br>Using a tester, measure the resistance between the keyless access CM connector and chassis ground, and between ID code box connector and chassis ground.<br>***Connector & terminal***<br>***(B574) No. 17 — Chassis ground:***<br>***(B422) No. 2 — Chassis ground:*** | Is the resistance 10 kΩ or more? | Go to step **4**. | Repair or replace the short circuit of the harness. |
| 4 | **CHECK HARNESS.**<br>Using a tester, measure the resistance between ID code box connector and chassis ground.<br>***Connector & terminal***<br>***(B422) No. 5 — Chassis ground:*** | Is the resistance less than 1 Ω? | Go to step **5**. | Repair or replace the open circuit of harness. |
| 5 | **CHECK HARNESS.**<br>Using a tester, measure the voltage between ID code box connector and chassis ground.<br>***Connector & terminal***<br>***(B422) No. 1 (+) — Chassis ground (–):*** | Is the voltage 11 — 14 V? | Go to step **6**. | Repair or replace the open circuit of harness. |
| 6 | **CHECK ID CODE BOX.**<br>1) Replace the ID code box. <Ref. to SL-112, ID Code Box.><br>2) Using the Subaru Select Monitor, clear the memory.<br>3) Use the Subaru Select Monitor and read DTCs. | Is B2789 displayed? | Replace the keyless access CM. <Ref. to SL-110, Keyless Access CM.> | ID code box has an error. |

# AD:DTC B278A ABNORMAL IMMOBILIZER POWER SUPPLY

**DTC DETECTING CONDITION:**

When the power supply circuit of the push button ignition switch is shorted to ground.

**TROUBLE SYMPTOM:**

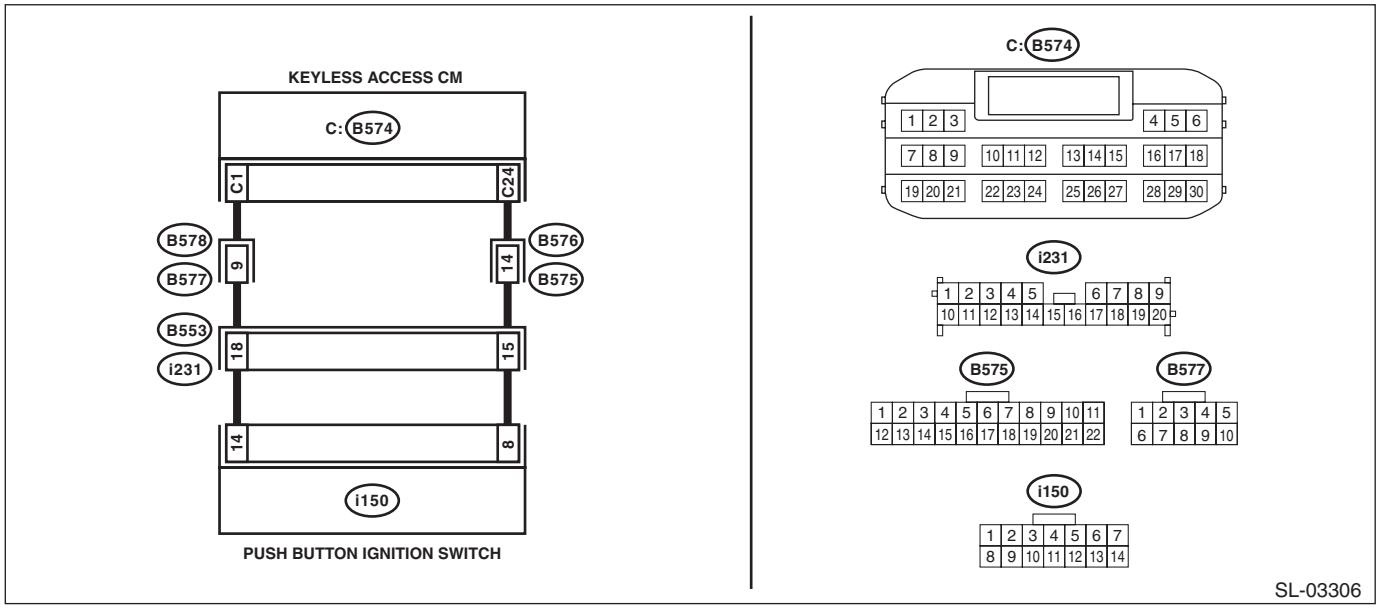
- Engine will not start.
- The keyless access system function does not operate.

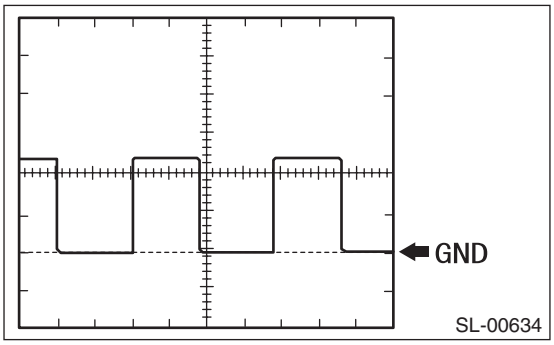
**CAUTION:**

**For replacement procedure of keyless access CM, refer to the "REGISTRATION MANUAL FOR IMMOBILIZER".**

**WIRING DIAGRAM:**

Immobilizer system <Ref. to WI(w/o HEV)-143, WIRING DIAGRAM, Immobilizer System.> <Ref. to WI(HEV)-151, WIRING DIAGRAM, Immobilizer System.>




| Step | | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK KEYLESS ACCESS CM.**<br>1) Turn the ignition switch to OFF.<br>2) Take the access key out of the passenger room.<br>3) Push the push button ignition switch. Within 30 seconds, use oscilloscope to measure the waveform between connectors.<br>***Connector & terminal***<br>***(i150) No. 14 — (i150) No. 8:***<br>  | Is the waveform shown in the left column displayed? | Replace the push button ignition switch. <Ref. to SL-114, Push Button Ignition Switch.> | Go to step **2**. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 2 | **CHECK HARNESS.**<br>1) Disconnect the keyless access CM connector.<br>2) Disconnect the push button ignition switch connector.<br>3) Using the tester, measure the resistance between terminals.<br>***Connector & terminal***<br>***(i150) No. 14 — (B574) No. 1:***<br>***(i150) No. 8 — (B574) No. 24:*** | Is the resistance less than 1 Ω? | Go to step **3**. | Repair or replace the open circuit of harness. |
| 3 | **CHECK HARNESS.**<br>Using a tester, measure the resistance between the keyless access CM connector and chassis ground.<br>***Connector & terminal***<br>***(B574) No. 1 — Chassis ground:*** | Is the resistance 10 kΩ or more? | Go to step **4**. | Repair or replace the short circuit of the harness. |
| 4 | **CHECK HARNESS.**<br>Using a tester, measure the resistance between the keyless access CM connector and chassis ground.<br>***Connector & terminal***<br>***(B574) No. 24 — Chassis ground:*** | Is the resistance 1 Ω or less? | Replace the keyless access CM. <Ref. to SL-110, Keyless Access CM.> | Repair or replace the harness. |

# AE:DTC B278D ID CODE BOX RECOGNITION JUDGMENT ABNORMAL

**DTC DETECTING CONDITION:**

- When ID code box setting is set to OFF, ID code box ON input is detected.
- When ID code box setting is set to OFF, ID code box LIN signal is received.

**TROUBLE SYMPTOM:**

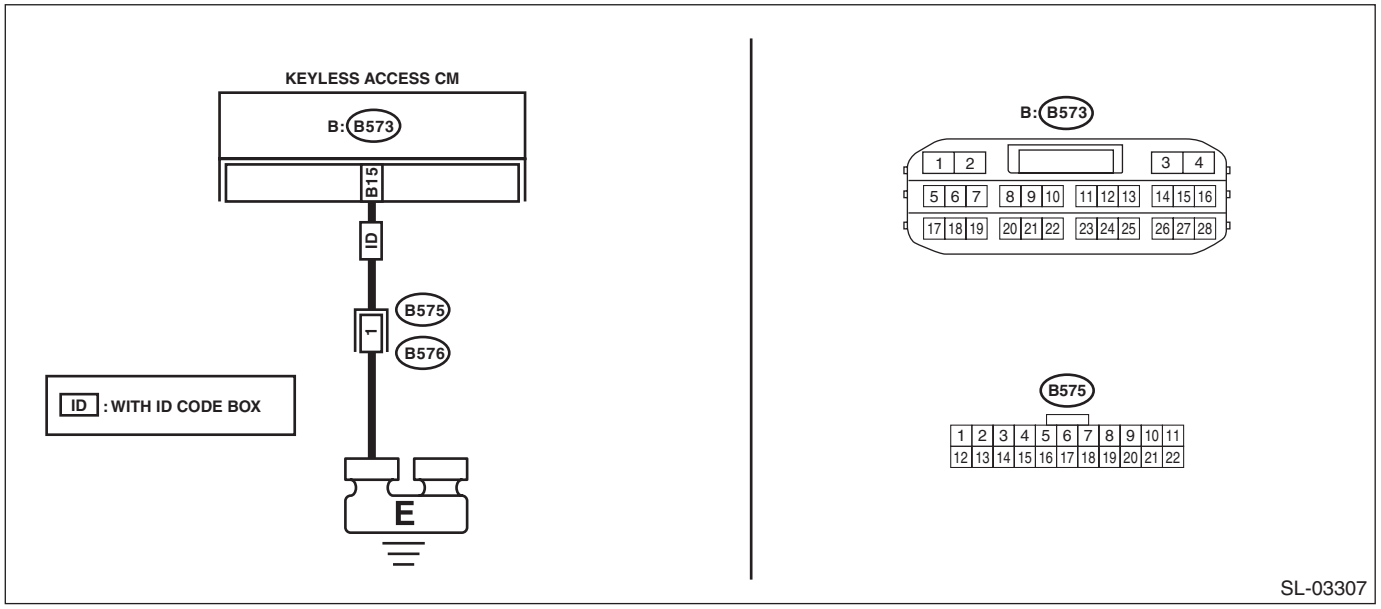
Engine will not start.

**CAUTION:**

**For replacement procedure of keyless access CM, refer to the "REGISTRATION MANUAL FOR IMMOBILIZER".**

**WIRING DIAGRAM:**

Push button start system <Ref. to WI(w/o HEV)-179, WIRING DIAGRAM, Push Button Start System.> <Ref. to WI(HEV)-181, WIRING DIAGRAM, Push Button Start System.>




| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK DTC.**<br>1) Turn the ignition switch to OFF.<br>2) Using the Subaru Select Monitor, clear the keyless access system memory.<br>3) Turn the ignition switch to OFF → ON.<br>4) Use the Subaru Select Monitor and read DTCs. | Is B278D displayed? | Go to step **2**. | System is normal. It is possible that temporary poor contact occurs. |
| 2 | **CHECK HARNESS.**<br>1) Disconnect the keyless access CM connector.<br>2) Measure the resistance between keyless access CM connector and chassis ground.<br>***Connector & terminal***<br>***(B573) No. 15 — Chassis ground:*** | Is the resistance 10 kΩ or more? | Replace the keyless access CM. <Ref. to SL-110, Keyless Access CM.> | Repair or replace the short circuit of the harness. |

## AF:DTC B2790 ID CODE BOX ABNORMAL (EEPROM ABNORMAL)

**DTC DETECTING CONDITION:**
An error has occurred inside the ID code box.
**TROUBLE SYMPTOM:**
Engine will not start.

**CAUTION:**
**For replacement procedure of ID code box, refer to the "REGISTRATION MANUAL FOR IMMOBILIZER".**

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK DTC.**<br>1) Turn the ignition switch to OFF.<br>2) Using the Subaru Select Monitor, clear the keyless access system memory.<br>3) Turn the ignition switch to OFF → ON.<br>4) Register the ID code box.<br>5) Use the Subaru Select Monitor and read DTCs. | Is B2790 displayed? | Replace the ID code box. <Ref. to SL-112, ID Code Box.> | System is normal. It is possible that temporary poor contact occurs. |

# AG:DTC B27A1 DRIVER SIDE EXTERNAL ANTENNA OUTPUT STAGE OPEN

**DTC DETECTING CONDITION:**

When open circuit occurs in the harness between keyless access CM and driver's side front door outer handle.

**TROUBLE SYMPTOM:**

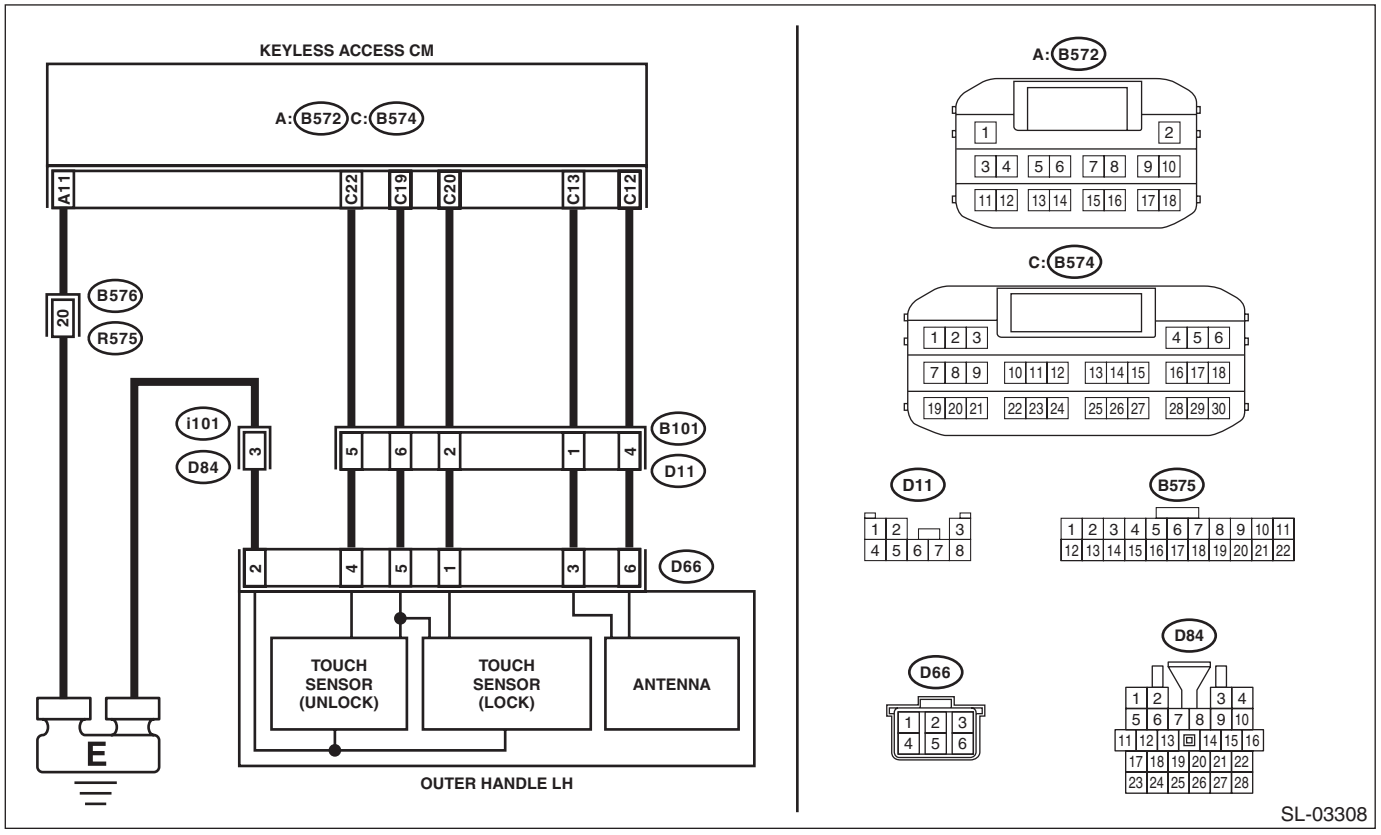
Keyless access system does not function.

**CAUTION:**

**For replacement procedure of keyless access CM, refer to the "REGISTRATION MANUAL FOR IMMOBILIZER".**

**WIRING DIAGRAM:**

Keyless access system <Ref. to WI(w/o HEV)-153, WIRING DIAGRAM, Keyless Access System.> <Ref. to WI(HEV)-158, WIRING DIAGRAM, Keyless Access System.>




| Step | | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK LAN SYSTEM.**<br>Inspect LAN system. <Ref. to LAN(w/o HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.> <Ref. to LAN(HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.> | Is LAN system normal? | Go to step **2**. | Perform the inspection according to the diagnosis for LAN system. |
| 2 | **CHECK CONNECTOR.**<br>1) Disconnect the keyless access CM connector.<br>2) Disconnect the front door outer handle connector. | Is the connector OK? | Go to step **3**. | Repair or replace the connector. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 3 | **CHECK HARNESS.**<br>Using a tester, measure the resistance between the keyless access CM connector and front door outer handle connector, and between front door outer handle connector and chassis ground.<br>***Connector & terminal***<br>***(B574) No. 12 — (D66) No. 6:***<br>***(B574) No. 13 — (D66) No. 3:***<br>***(D66) No. 2 — Chassis ground:***<br>***(B572) No. 11 — Chassis ground:*** | Is the resistance less than 1 Ω? | Go to step **4**. | Repair or replace the open circuit of harness. |
| 4 | **CHECK HARNESS.**<br>Using a tester, measure the resistance between the keyless access CM connector and chassis ground, and between front door outer handle connector and chassis ground.<br>***Connector & terminal***<br>***(B574) No. 12 — Chassis ground:***<br>***(B574) No. 13 — Chassis ground:***<br>***(D66) No. 6 — Chassis ground:***<br>***(D66) No. 3 — Chassis ground:*** | Is the resistance 10 kΩ or more? | Go to step **5**. | Repair or replace the short circuit of the harness. |
| 5 | **CHECK KEYLESS ACCESS CM.**<br>1) Connect the keyless access CM connector.<br>2) Use an oscilloscope, measure the waveform between terminals with ignition switch OFF, all doors closed and access key not in passenger room.<br>***Connector & terminal***<br>***(B574) No. 12 — (B572) No. 11:***<br>***(B574) No. 13 — (B572) No. 11:*** | Does pulse output change from pulse output OFF → pulse output ON by the lock operation using access key? | Go to step **6**. | Replace the keyless access CM. <Ref. to SL-110, Keyless Access CM.> |
| 6 | **CHECK FRONT DOOR OUTER HANDLE.**<br>1) Replace the driver's front door outer handle with the passenger's front door outer handle.<br>2) Read DTC using the Subaru Select Monitor. | Is B27A1 displayed? | Replace the keyless access CM. <Ref. to SL-110, Keyless Access CM.> | Replace the driver's front door outer handle. <Ref. to SL-40, Front Outer Handle.> |

## AH:DTC B27A2 PASSENGER SIDE EXTERNAL ANTENNA OUTPUT STAGE OPEN

**DTC DETECTING CONDITION:**

When open circuit occurs in the harness between keyless access CM and passenger's side front door outer handle.

**TROUBLE SYMPTOM:**

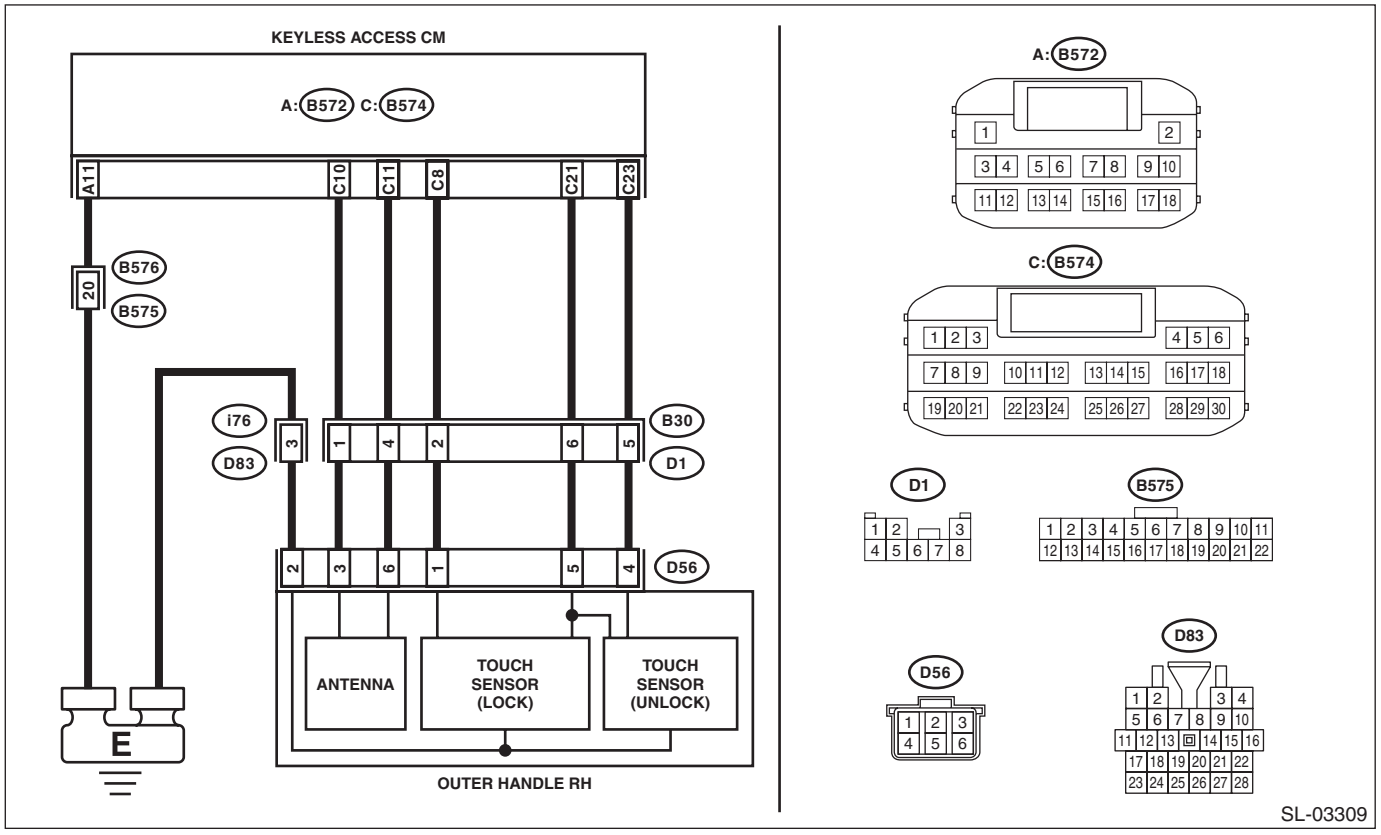
Keyless access system does not function.

**CAUTION:**

**For replacement procedure of keyless access CM, refer to the "REGISTRATION MANUAL FOR IMMOBILIZER".**

**WIRING DIAGRAM:**

Keyless access system <Ref. to WI(w/o HEV)-153, WIRING DIAGRAM, Keyless Access System.> <Ref. to WI(HEV)-158, WIRING DIAGRAM, Keyless Access System.>



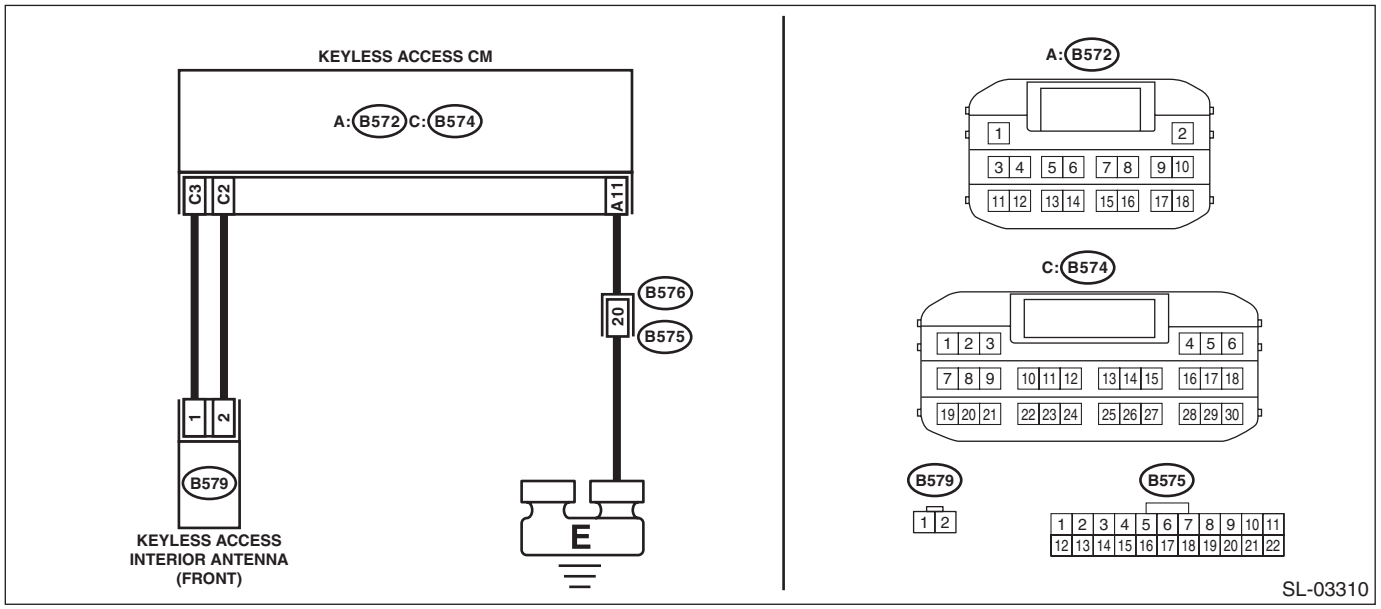

| Step | | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK LAN SYSTEM.**<br>Inspect LAN system. <Ref. to LAN(w/o HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.> <Ref. to LAN(HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.> | Is LAN system normal? | Go to step **2**. | Perform the inspection according to the diagnosis for LAN system. |
| 2 | **CHECK CONNECTOR.**<br>1) Disconnect the keyless access CM connector.<br>2) Disconnect the front door outer handle connector. | Is the connector OK? | Go to step **3**. | Repair or replace the connector. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 3 | **CHECK HARNESS.**<br>Using a tester, measure the resistance between the keyless access CM connector and front door outer handle connector, and between front door outer handle connector and chassis ground.<br>***Connector & terminal***<br>***(B574) No. 11 — (D56) No. 6:***<br>***(B574) No. 10 — (D56) No. 3:***<br>***(D56) No. 2 — Chassis ground:***<br>***(B572) No. 11 — Chassis ground:*** | Is the resistance less than 1 Ω? | Go to step **4**. | Repair or replace the open circuit of harness. |
| 4 | **CHECK HARNESS.**<br>Using a tester, measure the resistance between the keyless access CM connector and chassis ground, and between front door outer handle connector and chassis ground.<br>***Connector & terminal***<br>***(B574) No. 11 — Chassis ground:***<br>***(B574) No. 10 — Chassis ground:***<br>***(D56) No. 6 — Chassis ground:***<br>***(D56) No. 3 — Chassis ground:*** | Is the resistance 10 kΩ or more? | Go to step **5**. | Repair or replace the short circuit of the harness. |
| 5 | **CHECK KEYLESS ACCESS CM.**<br>1) Connect the keyless access CM connector.<br>2) Use an oscilloscope, measure the waveform between terminals with ignition switch OFF, all doors closed and access key not in passenger room.<br>***Connector & terminal***<br>***(B574) No. 12 — (B572) No. 11:***<br>***(B574) No. 13 — (B572) No. 11:*** | Does pulse output change from pulse output OFF → pulse output ON by the lock operation using access key? | Go to step **6**. | Replace the keyless access CM. <Ref. to SL-110, Keyless Access CM.> |
| 6 | **CHECK FRONT DOOR OUTER HANDLE.**<br>1) Replace the passenger's front door outer handle with the driver's front door outer handle.<br>2) Read DTC using the Subaru Select Monitor. | Is B27A2 displayed? | Replace the keyless access CM. <Ref. to SL-110, Keyless Access CM.> | Replace the passenger's front door outer handle. <Ref. to SL-40, Front Outer Handle.> |

## AI: DTC B27A5 FRONT INTERNAL ANTENNA OUTPUT STAGE OPEN

**DTC DETECTING CONDITION:**
When open circuit occurs in the harness between keyless access CM and front interior antenna.
**TROUBLE SYMPTOM:**
Keyless access system does not function. (When the access key is in the front area of the passenger room)

**CAUTION:**
**For replacement procedure of keyless access CM, refer to the "REGISTRATION MANUAL FOR IMMOBILIZER".**
**WIRING DIAGRAM:**
Keyless access system <Ref. to WI(w/o HEV)-153, WIRING DIAGRAM, Keyless Access System.> <Ref. to WI(HEV)-158, WIRING DIAGRAM, Keyless Access System.>




| Step | | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK LAN SYSTEM.**<br>Inspect LAN system. <Ref. to LAN(w/o HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.> <Ref. to LAN(HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.> | Is LAN system normal? | Go to step **2**. | Perform the inspection according to the diagnosis for LAN system. |
| 2 | **CHECK CONNECTOR.**<br>1) Disconnect the keyless access CM connector.<br>2) Disconnect the front interior antenna connector. | Is the connector OK? | Go to step **3**. | Repair or replace the connector. |
| 3 | **CHECK HARNESS.**<br>Using a tester, measure the resistance between the keyless access CM connector and front interior antenna connector, and between front interior antenna connector and chassis ground.<br>***Connector & terminal***<br>***(B574) No. 3 — (B579) No. 1:***<br>***(B574) No. 2 — (B579) No. 2:***<br>***(B572) No. 11 — Chassis ground:*** | Is the resistance less than 1 Ω? | Go to step **4**. | Repair or replace the open circuit of harness. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 4 | **CHECK HARNESS.**<br>Using a tester, measure the resistance between the keyless access CM connector and chassis ground, and between front interior antenna connector and chassis ground.<br>***Connector & terminal***<br>***(B574) No. 3 — Chassis ground:***<br>***(B579) No. 1 — Chassis ground:***<br>***(B574) No. 2 — Chassis ground:***<br>***(B579) No. 2 — Chassis ground:*** | Is the resistance 10 kΩ or more? | Go to step **5**. | Repair or replace the short circuit of the harness. |
| 5 | **CHECK KEYLESS ACCESS CM.**<br>1) Connect the keyless access CM connector.<br>2) Use an oscilloscope, measure the waveform between terminals with ignition switch OFF, all doors closed and access key not in passenger room.<br>***Connector & terminal***<br>***(B574) No. 3 — (B572) No. 11:***<br>***(B574) No. 2 — (B572) No. 11:*** | Does pulse output change from pulse output OFF → pulse output ON by operating the touch sensor (lock)? | Go to step **6**. | Replace the keyless access CM. <Ref. to SL-110, Keyless Access CM.> |
| 6 | **CHECK FRONT INTERIOR ANTENNA.**<br>1) Replace the front interior antenna. <Ref. to SL-99, Keyless Access Indoor Antenna.><br>2) Read DTC using the Subaru Select Monitor. | Is B27A5 displayed? | Replace the keyless access CM. <Ref. to SL-110, Keyless Access CM.> | Malfunction occurred in the front interior antenna. |

# AJ:DTC B27A6 REAR INTERNAL ANTENNA OUTPUT STAGE OPEN

**DTC DETECTING CONDITION:**

When open circuit occurs in the harness between keyless access CM and center interior antenna.

**TROUBLE SYMPTOM:**

Keyless access system does not function. (When the access key is in the rear area of the passenger room (near the seat))

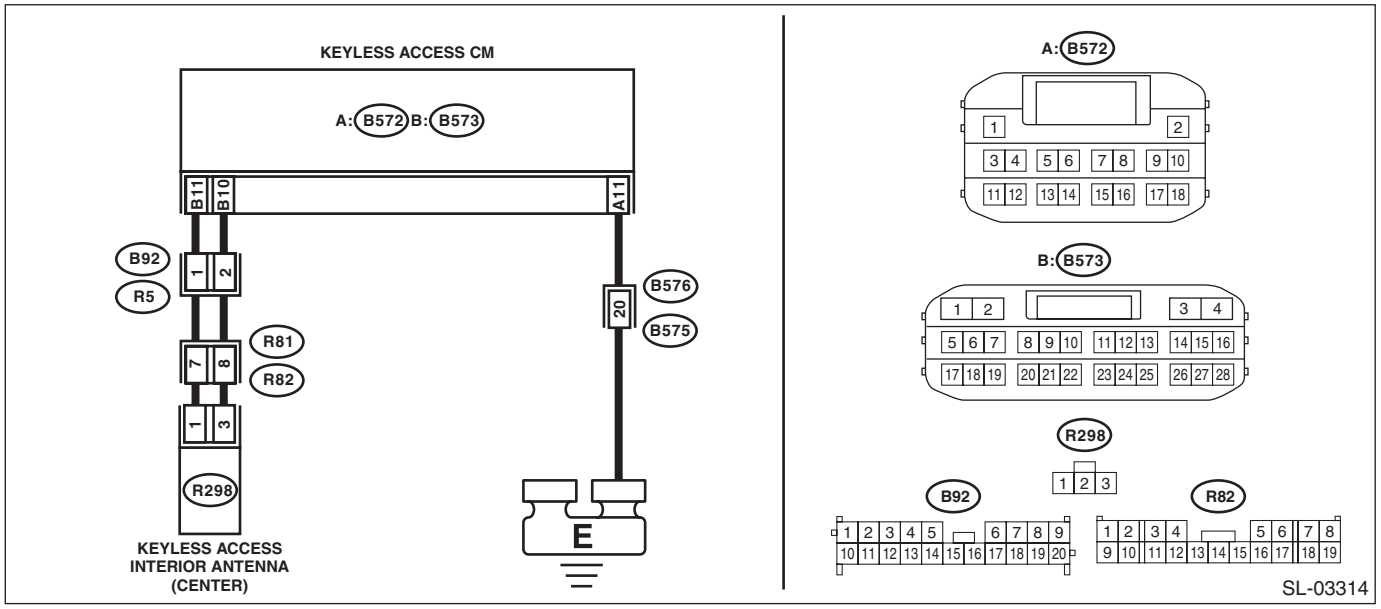
**CAUTION:**

**For replacement procedure of keyless access CM, refer to the "REGISTRATION MANUAL FOR IMMOBILIZER".**

**WIRING DIAGRAM:**

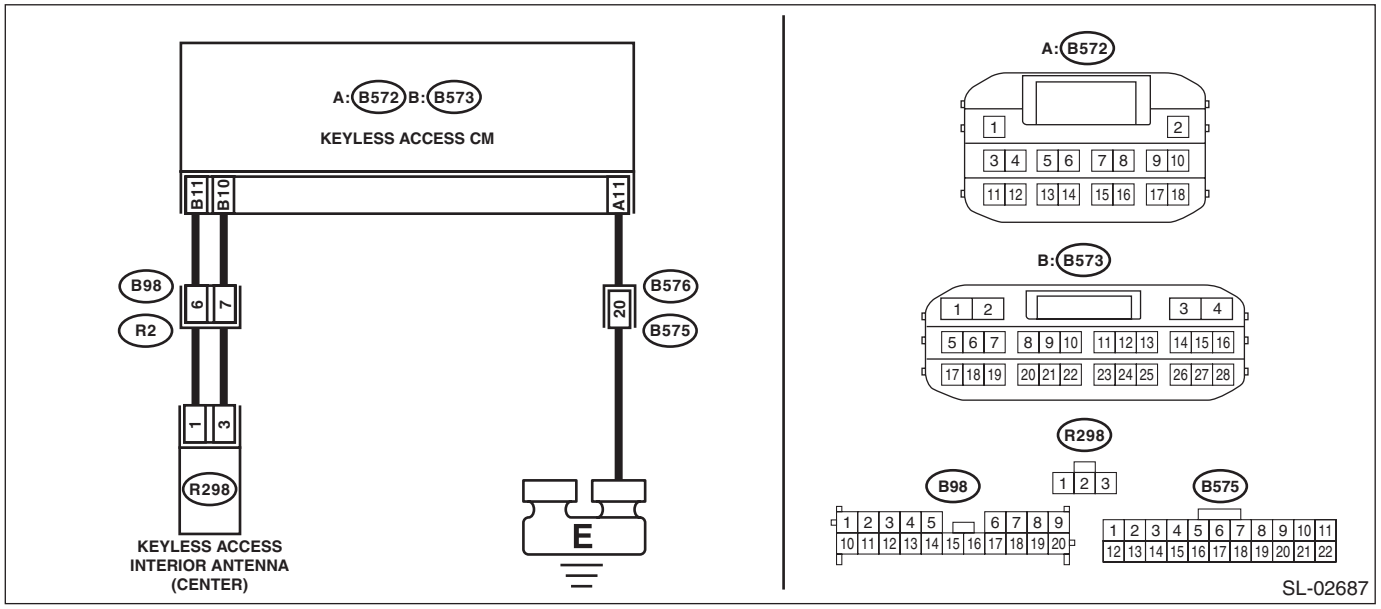
- Gasoline engine model

Keyless access system <Ref. to WI(w/o HEV)-153, WIRING DIAGRAM, Keyless Access System.>




- HEV model

Keyless access system <Ref. to WI(HEV)-158, WIRING DIAGRAM, Keyless Access System.>



| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK LAN SYSTEM.**<br>Inspect LAN system. <Ref. to LAN(w/o HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.> <Ref. to LAN(HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.> | Is LAN system normal? | Go to step **2**. | Perform the inspection according to the diagnosis for LAN system. |
| 2 | **CHECK CONNECTOR.**<br>1) Disconnect the keyless access CM connector.<br>2) Disconnect the center interior antenna connector. | Is the connector OK? | Go to step **3**. | Repair or replace the connector. |
| 3 | **CHECK HARNESS.**<br>Using a tester, measure the resistance between the keyless access CM connector and center interior antenna connector, and between center interior antenna connector and chassis ground.<br>***Connector & terminal***<br>***(B573) No. 10 — (R298) No. 3:***<br>***(B573) No. 11 — (R298) No. 1:***<br>***(B572) No. 11 — Chassis ground:*** | Is the resistance less than 1 Ω? | Go to step **4**. | Repair or replace the open circuit of harness. |
| 4 | **CHECK HARNESS.**<br>Using a tester, measure the resistance between the keyless access CM connector and chassis ground, and between center interior antenna connector and chassis ground.<br>***Connector & terminal***<br>***(B573) No. 10 — Chassis ground:***<br>***(B573) No. 11 — Chassis ground:***<br>***(R298) No. 1 — Chassis ground:***<br>***(R298) No. 3 — Chassis ground:*** | Is the resistance 10 kΩ or more? | Go to step **5**. | Repair or replace the short circuit of the harness. |
| 5 | **CHECK KEYLESS ACCESS CM.**<br>1) Connect the keyless access CM connector.<br>2) Use an oscilloscope, measure the waveform between terminals with ignition switch OFF, all doors closed and access key not in passenger room.<br>***Connector & terminal***<br>***(B573) No. 10 — (B572) No. 11:***<br>***(B573) No. 11 — (B572) No. 11:*** | Does pulse output change from pulse output OFF → pulse output ON by operating the touch sensor (lock)? | Go to step **6**. | Replace the keyless access CM. <Ref. to SL-110, Keyless Access CM.> |
| 6 | **CHECK CENTER INTERIOR ANTENNA.**<br>1) Replace the center interior antenna. <Ref. to SL-99, Keyless Access Indoor Antenna.><br>2) Read DTC using the Subaru Select Monitor. | Is B27A6 displayed? | Replace the keyless access CM. <Ref. to SL-110, Keyless Access CM.> | Malfunction occurred in the center interior antenna. |

## AK:DTC B27A7 TRUNK/REAR GATE INTERNAL ANTENNA OUTPUT STAGE OPEN

**DTC DETECTING CONDITION:**

When open circuit occurs in the harness between keyless access CM and rear interior antenna.

**TROUBLE SYMPTOM:**

Keyless access system does not function. (When the access key is in the rear area of the passenger room (in the luggage room or the trunk))

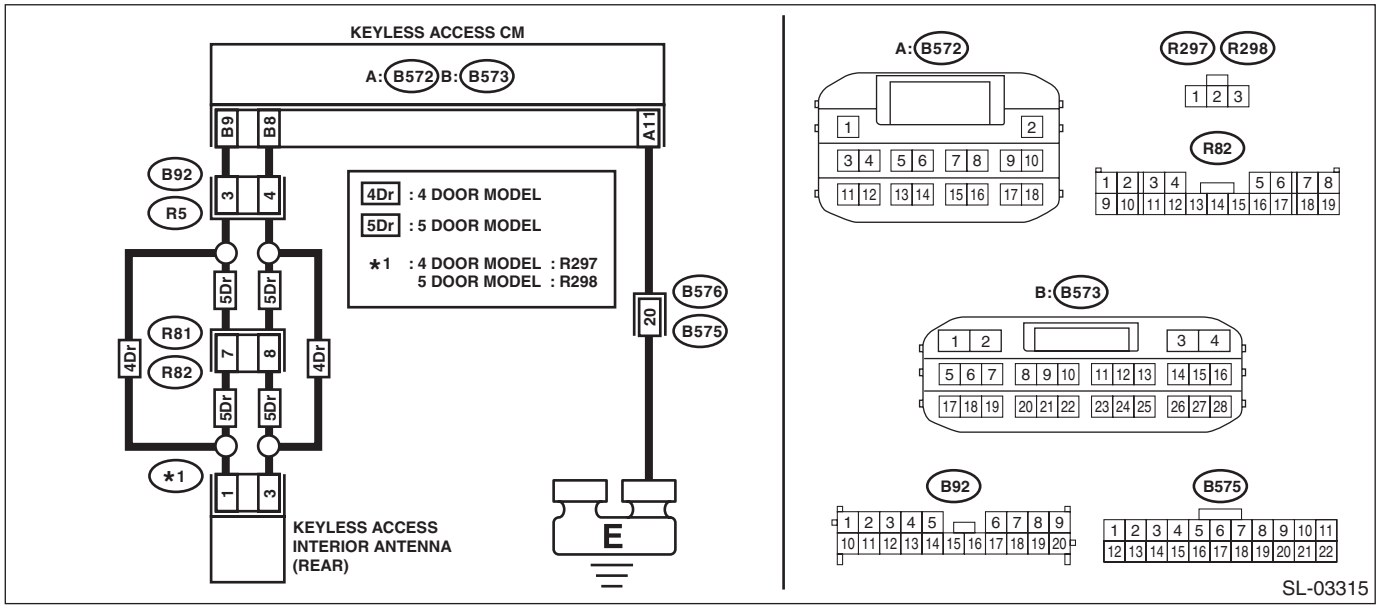
**CAUTION:**

**For replacement procedure of keyless access CM, refer to the "REGISTRATION MANUAL FOR IMMOBILIZER".**

**WIRING DIAGRAM:**

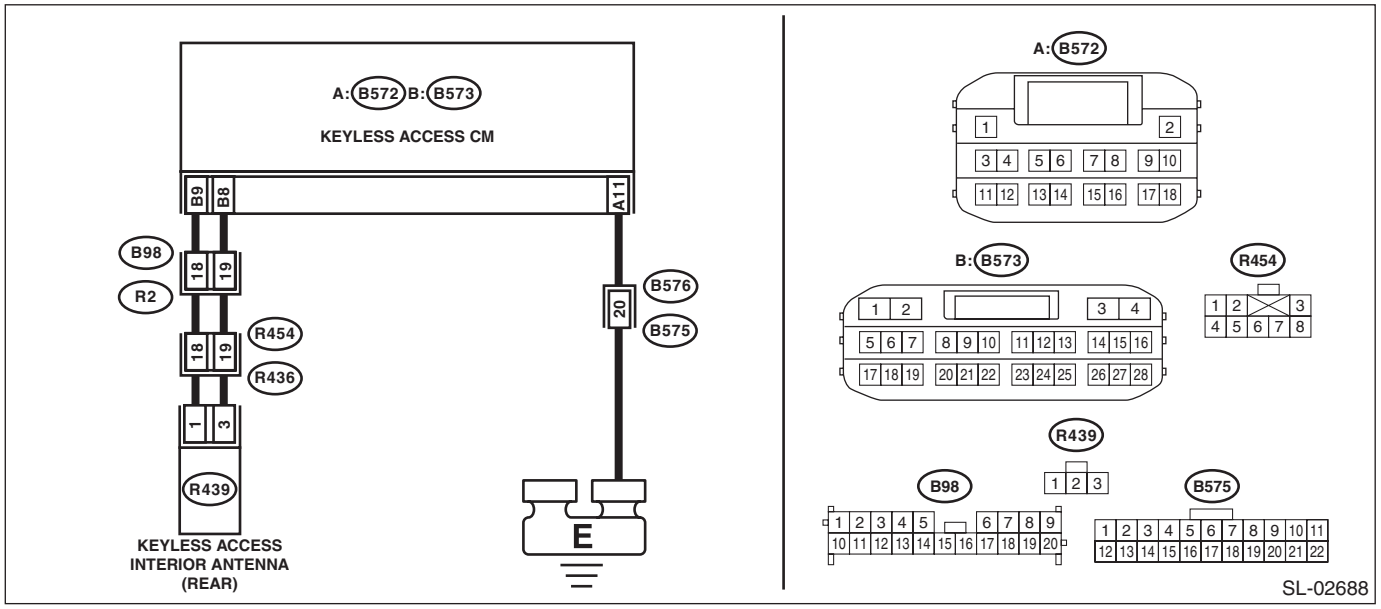
- Gasoline engine model

Keyless access system <Ref. to WI(w/o HEV)-153, WIRING DIAGRAM, Keyless Access System.>




- HEV model

Keyless access system <Ref. to WI(HEV)-158, WIRING DIAGRAM, Keyless Access System.>



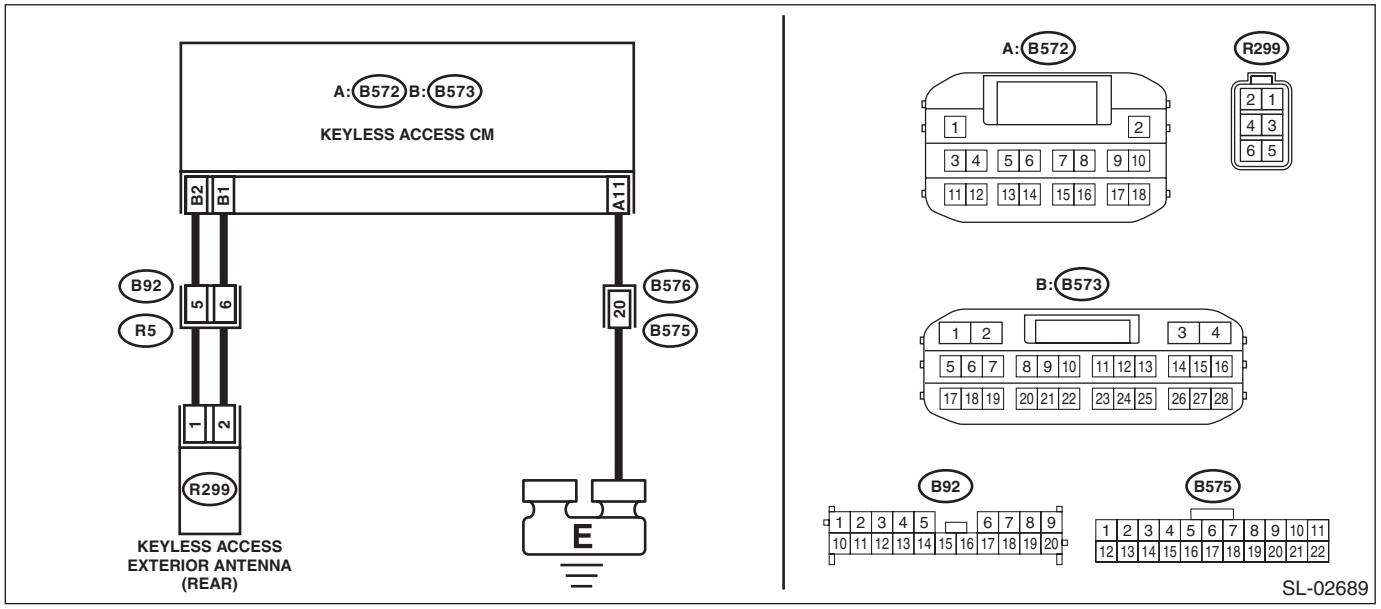
| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK LAN SYSTEM.**<br>Inspect LAN system. <Ref. to LAN(w/o HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.> <Ref. to LAN(HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.> | Is LAN system normal? | Go to step **2**. | Perform the inspection according to the diagnosis for LAN system. |
| 2 | **CHECK CONNECTOR.**<br>1) Disconnect the keyless access CM connector.<br>2) Disconnect the rear interior antenna connector. | Is the connector OK? | Go to step **3**. | Repair or replace the connector. |
| 3 | **CHECK HARNESS.**<br>Using a tester, measure the resistance between the keyless access CM connector and rear interior antenna connector, and between rear interior antenna connector and chassis ground.<br>***Connector & terminal***<br>***Gasoline engine model (4 door model)***<br>***(B573) No. 9 — (R297) No. 1:***<br>***(B573) No. 8 — (R297) No. 3:***<br>***(B572) No. 11 — Chassis ground:***<br>***Gasoline engine model (5 door model)***<br>***(B573) No. 9 — (R298) No. 1:***<br>***(B573) No. 8 — (R298) No. 3:***<br>***(B572) No. 11 — Chassis ground:***<br>***HEV model***<br>***(B573) No. 9 — (R439) No. 1:***<br>***(B573) No. 8 — (R439) No. 3:***<br>***(B572) No. 11 — Chassis ground:*** | Is the resistance less than 1 Ω? | Go to step **4**. | Repair or replace the open circuit of harness. |
| 4 | **CHECK HARNESS.**<br>Using a tester, measure the resistance between the keyless access CM connector and chassis ground, and between rear interior antenna connector and chassis ground.<br>***Connector & terminal***<br>***Gasoline engine model (4 door model)***<br>***(B573) No. 9 — Chassis ground:***<br>***(B573) No. 8 — Chassis ground:***<br>***(R297) No. 1 — Chassis ground:***<br>***(R297) No. 3 — Chassis ground:***<br>***Gasoline engine model (5 door model)***<br>***(B573) No. 9 — Chassis ground:***<br>***(B573) No. 8 — Chassis ground:***<br>***(R298) No. 1 — Chassis ground:***<br>***(R298) No. 3 — Chassis ground:***<br>***HEV model***<br>***(B573) No. 9 — Chassis ground:***<br>***(B573) No. 8 — Chassis ground:***<br>***(R439) No. 1 — Chassis ground:***<br>***(R439) No. 3 — Chassis ground:*** | Is the resistance 10 kΩ or more? | Go to step **5**. | Repair or replace the short circuit of the harness. |
| 5 | **CHECK KEYLESS ACCESS CM.**<br>1) Connect the keyless access CM connector.<br>2) Use an oscilloscope, measure the waveform between terminals with ignition switch OFF, all doors closed and access key not in passenger room.<br>***Connector & terminal***<br>***(B573) No. 9 — (B572) No. 11:***<br>***(B573) No. 8 — (B572) No. 11:*** | Does pulse output change from pulse output OFF → pulse output ON by operating the touch sensor (lock)? | Go to step **6**. | Replace the keyless access CM. <Ref. to SL-110, Keyless Access CM.> |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 6 | **CHECK REAR INTERIOR ANTENNA.**<br>1) Replace the rear interior antenna. <Ref. to SL-99, Keyless Access Indoor Antenna.><br>2) Read DTC using the Subaru Select Monitor. | Is B27A7 displayed? | Replace the keyless access CM. <Ref. to SL-110, Keyless Access CM.> | Malfunction occurred in the rear interior antenna. |

# AL:DTC B27A8 TRUNK/REAR GATE EXTERNAL ANTENNA OUTPUT STAGE OPEN

**DTC DETECTING CONDITION:**
When open circuit occurs in the harness between keyless access CM and rear exterior antenna.
**TROUBLE SYMPTOM:**
Keyless access system does not function.
(Unable to unlock with the rear gate opener button, unable to lock with the rear lock button, or unable to open/close the trunk with the trunk opener button.)

**CAUTION:**
**For replacement procedure of keyless access CM, refer to the "REGISTRATION MANUAL FOR IMMOBILIZER".**
**WIRING DIAGRAM:**
Keyless access system <Ref. to WI(w/o HEV)-153, WIRING DIAGRAM, Keyless Access System.> <Ref. to WI(HEV)-158, WIRING DIAGRAM, Keyless Access System.>




| Step | | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK LAN SYSTEM.**<br>Inspect LAN system. <Ref. to LAN(w/o HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.> <Ref. to LAN(HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.> | Is LAN system normal? | Go to step **2**. | Perform the inspection according to the diagnosis for LAN system. |
| 2 | **CHECK CONNECTOR.**<br>1) Disconnect the keyless access CM connector.<br>2) Disconnect the rear exterior antenna connector. | Is the connector OK? | Go to step **3**. | Repair or replace the connector. |
| 3 | **CHECK HARNESS.**<br>Using a tester, measure the resistance between the keyless access CM connector and rear exterior antenna connector, and between rear exterior antenna connector and chassis ground.<br>***Connector & terminal***<br>***(B573) No. 2 — (R299) No. 1:***<br>***(B573) No. 1 — (R299) No. 2:*** | Is the resistance less than 1 Ω? | Go to step **4**. | Repair or replace the open circuit of harness. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 4 | **CHECK HARNESS.**<br>Using a tester, measure the resistance between the keyless access CM connector and chassis ground, and between rear exterior antenna connector and chassis ground.<br>***Connector & terminal***<br>***(B573) No. 2 — Chassis ground:***<br>***(B573) No. 1 — Chassis ground:***<br>***(R299) No. 1 — Chassis ground:***<br>***(R299) No. 2 — Chassis ground:*** | Is the resistance 10 kΩ or more? | Go to step **5**. | Repair or replace the short circuit of the harness. |
| 5 | **CHECK REAR EXTERIOR ANTENNA.**<br>1) Remove the rear exterior antenna.<br>2) Using a tester, measure the resistance between rear exterior antenna connectors.<br>***Connector & terminal***<br>***(R299) No. 1 — No. 2:*** | Is the resistance less than 1 Ω? | Go to step **6**. | Replace the rear exterior antenna. <Ref. to SL-103, Keyless Access Outdoor Antenna.> |
| 6 | **CHECK KEYLESS ACCESS CM.**<br>1) Replace the keyless access CM. <Ref. to SL-110, Keyless Access CM.><br>2) Read DTC using the Subaru Select Monitor. | Is B27A8 displayed? | Replace the rear exterior antenna. <Ref. to SL-103, Keyless Access Outdoor Antenna.> | Malfunction occurred in the keyless access CM. |

## AM:DTC B1571 REFERENCE CODE INCOMPATIBILITY

**DTC DETECTING CONDITION:**

Incompatibility of reference code between keyless access CM (model without ID code box) or ID code box (model with ID code box) and ECM occurs.

**TROUBLE SYMPTOM:**

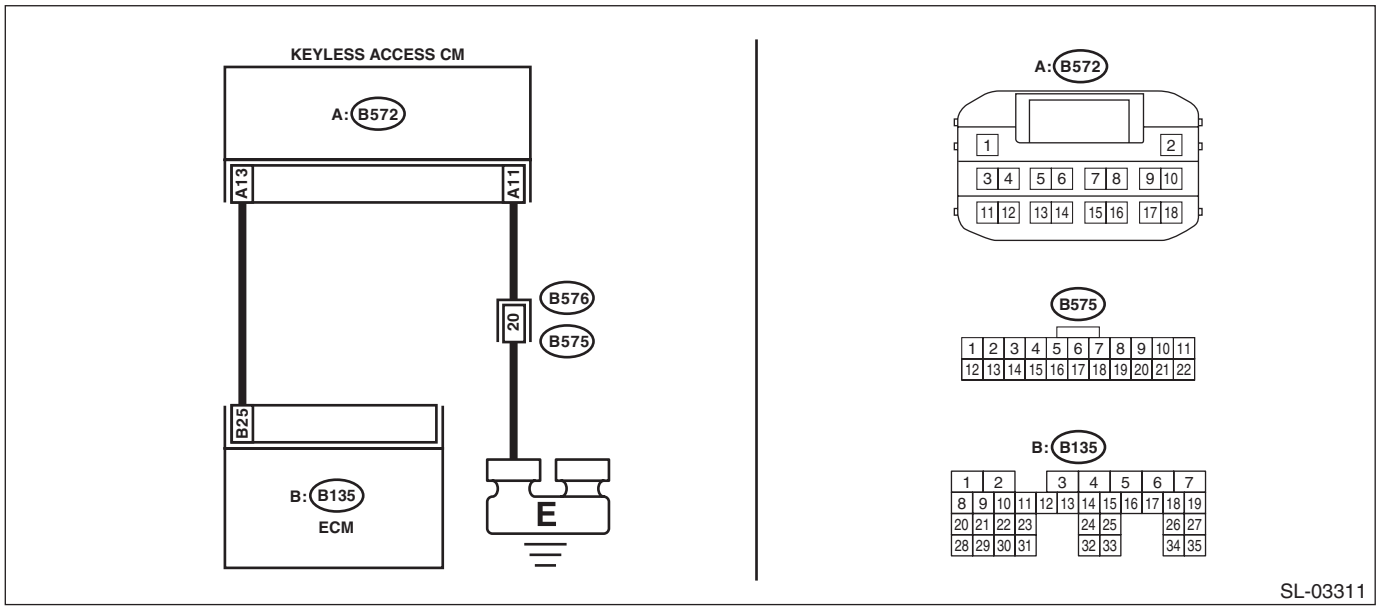
Engine will not start.

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK ECM.**<br>Perform ECM registration. Refer to the “REGISTRATION MANUAL FOR IMMOBILIZER”. | Is ECM registration finished? And does the engine start? | System is normal. | Go to step **2**. |
| 2 | **REPLACE ECM.**<br>1) Install the ECM from other normal operating vehicle (with push button start) which use same ECM to the vehicle to be diagnosed.<br>2) Perform ECM registration. Refer to the “REGISTRATION MANUAL FOR IMMOBILIZER”. | Is ECM registration finished? And does the engine start? | Replace the ECM. <Ref. to FU(H4DO(w/o HEV))-100, REMOVAL, Engine Control Module (ECM).> <Ref. to FU(H4DO(HEV))-85, REMOVAL, Engine Control Module (ECM).> Install the ECM from other vehicle to the original vehicle. | Replace Keyless access CM (model without ID code box), <Ref. to SL-110, Keyless Access CM.> or replace ID code box (model with ID code box). <Ref. to SL-112, REMOVAL, ID Code Box.> |

# AN:DTC B1572 IMM CIRCUIT FAILURE (EXCEPT ANTENNA CIRCUIT)

## 1. EXCEPT FOR C0 AND C5 MODELS

**DTC DETECTING CONDITION:**
Communication error between keyless access CM and ECM
**TROUBLE SYMPTOM:**
Engine will not start.
**WIRING DIAGRAM:**
Push button start system <Ref. to WI(w/o HEV)-179, WIRING DIAGRAM, Push Button Start System.> <Ref. to WI(HEV)-181, WIRING DIAGRAM, Push Button Start System.>

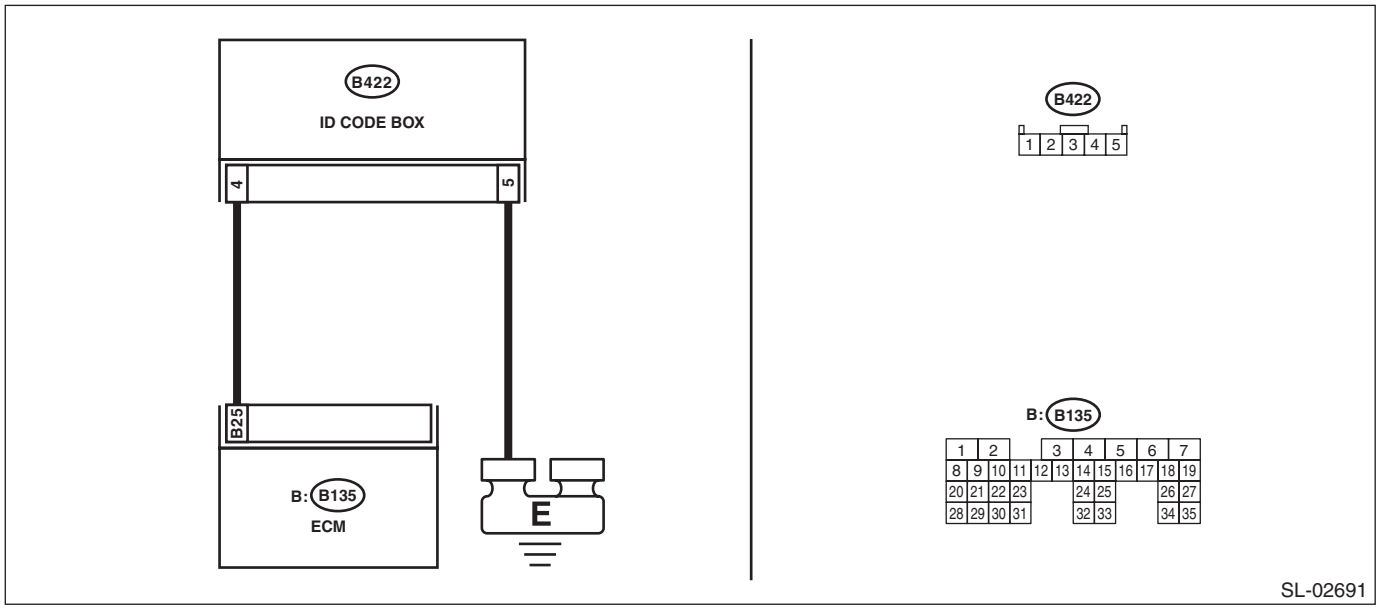



| Step | | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK CURRENT DATA.**<br>1) Turn the ignition switch to ON.<br>2) Check the keyless access CM data using the Subaru Select Monitor.<br>3) Display the next data. “Immobilizer” “Engine start” “Unlock confirmation”<br>***Data***<br>***Immobilizer = Unset:***<br>***Engine start = Engine start permission:***<br>***Unlock confirmation = Confirmed:*** | Is the data displayed as described above? | Go to step **2**. | Perform diagnostics with phenomenon. <Ref. to KPS(diag)-142, ENGINE DOES NOT START, INSPECTION, Diagnostics with Phenomenon.> |
| 2 | **CHECK CURRENT DATA.**<br>Use the Subaru Select Monitor to check the keyless access CM data when holding down the push button ignition switch while depressing on the brake pedal.<br>***Data***<br>***EGI code reception status = Reception:***<br>NOTE:<br>If “Reception” is displayed, the status changes to “Not yet received” in 10 seconds. When performing the check again, perform the check after turning the ignition to OFF. | Is the data displayed as described above? | Go to step **3**. | Repair or replace the harness between keyless access CM and ECM. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 3 | **CHECK WIRING HARNESS.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the keyless access CM connector and ECM connector.<br>3) Using a tester, measure the resistance between the keyless access CM connector and ECM.<br>***Connector & terminal***<br>***(B572) No. 13 — (B135) No. 25:*** | Is the resistance less than 10 Ω? | Go to step **4**. | Repair or replace the open circuit of harness. |
| 4 | **CHECK WIRING HARNESS.**<br>Using a tester, measure the resistance between the keyless access CM connector and chassis ground.<br>***Connector & terminal***<br>***(B572) No. 11 — Chassis ground:*** | Is the resistance less than 10 Ω? | Go to step **5**. | Repair or replace the open circuit of harness. |
| 5 | **CHECK ECM.**<br>1) Install the ECM from other normal operating vehicle (with push button start) which use same ECM to the vehicle to be diagnosed.<br>2) Perform ECM registration. Refer to the “REGISTRATION MANUAL FOR IMMOBILIZER”. | Is ECM registration finished? And does the engine start? | Replace the ECM. <Ref. to FU(H4DO(w/o HEV))-100, REMOVAL, Engine Control Module (ECM).> <Ref. to FU(H4DO(HEV))-85, REMOVAL, Engine Control Module (ECM).> Install the ECM from other vehicle to the original vehicle. | Replace the keyless access CM. <Ref. to SL-110, Keyless Access CM.> |

## 2. FOR C0 AND C5 MODELS

**DTC DETECTING CONDITION:**
Communication error between ID code box and ECM
**TROUBLE SYMPTOM:**
Engine will not start.
**WIRING DIAGRAM:**
Push button start system <Ref. to WI(w/o HEV)-179, WIRING DIAGRAM, Push Button Start System.> <Ref. to WI(HEV)-181, WIRING DIAGRAM, Push Button Start System.>




| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK CURRENT DATA.**<br>1) Turn the ignition switch to ON.<br>2) Check the keyless access CM data using the Subaru Select Monitor.<br>3) Display the next data. “Immobilizer” “Engine start” “Unlock confirmation”<br>***Data***<br>***Immobilizer = Unset:***<br>***Engine start = Engine start permission:***<br>***Unlock confirmation = Confirmed:*** | Is the data displayed as described above? | Go to step **2**. | Perform diagnostics with phenomenon. <Ref. to KPS(diag)-142, ENGINE DOES NOT START, INSPECTION, Diagnostics with Phenomenon.> |
| 2 | **CHECK CURRENT DATA.**<br>Use the Subaru Select Monitor to check the keyless access CM data when holding down the push button ignition switch while depressing on the brake pedal.<br>***Data***<br>***EGI code reception status = Reception:***<br>NOTE:<br>If “Reception” is displayed, the status changes to “Not yet received” in 10 seconds. When performing the check again, perform the check after turning the ignition to OFF. | Is the data displayed as described above? | Go to step **3**. | Repair or replace the harness between ID code box and ECM. |
| 3 | **CHECK WIRING HARNESS.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the ID code box connector and the ECM connector.<br>3) Using a tester, measure the resistance between ID code box connector and ECM.<br>***Connector & terminal***<br>***(B422) No. 4 — (B135) No. 25:*** | Is the resistance less than 10 Ω? | Go to step **4**. | Repair or replace the open circuit of harness. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 4 | **CHECK WIRING HARNESS.**<br>Using a tester, measure the resistance between ID code box connector and chassis ground.<br>***Connector & terminal***<br>***(B422) No. 5 — Chassis ground:*** | Is the resistance less than 10 Ω? | Go to step **5**. | Repair or replace the open circuit of harness. |
| 5 | **CHECK ECM.**<br>1) Install the ECM from other normal operating vehicle (with push button start) which use same ECM to the vehicle to be diagnosed.<br>2) Perform ECM registration. Refer to the "REGISTRATION MANUAL FOR IMMOBILIZER". | Is ECM registration finished? And does the engine start? | Replace the ECM. <Ref. to FU(H4DO(w/o HEV))-100, REMOVAL, Engine Control Module (ECM).> <Ref. to FU(H4DO(HEV))-85, REMOVAL, Engine Control Module (ECM).> Install the ECM from other vehicle to the original vehicle. | Replace the ID code box. <Ref. to SL-112, REMOVAL, ID Code Box.> |

## AO:DTC B1576 EGI CONTROL MODULE EEPROM

**DTC DETECTING CONDITION:**

- ECM malfunctioning
- When inaccessible to ROM in ECM during registration.

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **PERFORM ECM REGISTRATION.**<br>Perform ECM registration. Refer to the "REGISTRATION MANUAL FOR IMMOBILIZER". | Is ECM registration complete? | Make sure that the engine can start. This completes the work. | Go to step **2**. |
| 2 | **PERFORM ECM REGISTRATION.**<br>Perform ECM registration. Refer to the "REGISTRATION MANUAL FOR IMMOBILIZER". | Is ECM registration complete? | Make sure that the engine can start. This completes the work. | Go to step **3**. |
| 3 | **PERFORM ECM REGISTRATION.**<br>Perform ECM registration. Refer to the "REGISTRATION MANUAL FOR IMMOBILIZER". | Is ECM registration complete? | Make sure that the engine can start. This completes the work. | Replace the ECM. <Ref. to FU(H4DO(w/o HEV))-100, REMOVAL, Engine Control Module (ECM).> <Ref. to FU(H4DO(HEV))-85, REMOVAL, Engine Control Module (ECM).> |

## AP:DTC B1577 IMM CONTROL MODULE EEPROM

### 1. EXCEPT FOR C0 AND C5 MODELS

**DTC DETECTING CONDITION:**

- Defective keyless access CM
- When inaccessible to ROM in keyless access CM.

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK DTC.**<br>1) Turn the ignition switch to ON.<br>2) Perform the clear memory operation of ECM.<br>3) Turn the ignition switch to OFF.<br>4) Remove and install the battery.<br>5) Turn the ignition switch to ON.<br>6) After 5 seconds or more, read DTC. | Is B1577 displayed? | Replace the keyless access CM. <Ref. to SL-110, Keyless Access CM.> | System is normal. |

### 2. FOR C0 AND C5 MODELS

**DTC DETECTING CONDITION:**

- ID code box malfunction
- When inaccessible to ROM in ID code box.

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK DTC.**<br>1) Turn the ignition switch to ON.<br>2) Perform the clear memory operation of ECM.<br>3) Turn the ignition switch to OFF.<br>4) Register the ID code box.<br>5) Read the DTC again. | Is B1577 displayed? | Replace the ID code box. <Ref. to SL-112, ID Code Box.> | System is normal. |

# 14.General Diagnostic Table

## A: INSPECTION

### 1. IMMOBILIZER SYSTEM

| Symptoms | Note |
|---|---|
| Engine does not start | <Ref. to KPS(diag)-142, ENGINE DOES NOT START, INSPECTION, Diagnostics with Phenomenon.> |
| | <Ref. to KPS(diag)-76, DTC B2784 ANTENNA COIL FAULT, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| | <Ref. to KPS(diag)-85, DTC B278A ABNORMAL IMMOBILIZER POWER SUPPLY, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| | <Ref. to KPS(diag)-77, DTC B2785 LIN COMMUNICATION ERROR, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| | <Ref. to KPS(diag)-83, DTC B2789 ID CODE BOX NO RESPONSE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| | <Ref. to KPS(diag)-88, DTC B2790 ID CODE BOX ABNORMAL (EEPROM ABNORMAL), Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| | Check the brake switch. <Ref. to BR-76, INSPECTION, Stop Light Switch.> |
| | Check the parking switch signal. <Ref. to CS-61, INSPECTION, AT Shift Lock Solenoid and “P” Range Switch.> |
| | Check the DTC of the ECM. |
| Cannot register the immobilizer. | Refer to the “REGISTRATION MANUAL FOR IMMOBILIZER”. |
| Engine does not start with the remote engine starter. | <Ref. to KPS(diag)-73, DTC B2779 REMOTE CONTROL ENGINE STARTER COMMUNICATION COLLATION NG, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |

## 2. KEYLESS ACCESS SYSTEM

| Symptoms | Reference |
|---|---|
| All doors cannot be locked/unlocked with keyless access. | <Ref. to KPS(diag)-110, KEYLESS ACCESS LOCK/UNLOCK CANNOT BE PERFORMED FROM ANY OF THE DOORS, INSPECTION, Diagnostics with Phenomenon.> |
| Cannot lock with keyless access from the driver's door. | <Ref. to KPS(diag)-112, CANNOT LOCK WITH KEYLESS ACCESS FROM THE DRIVER'S DOOR, INSPECTION, Diagnostics with Phenomenon.> |
| Cannot lock/unlock from the driver's door with keyless access. | <Ref. to KPS(diag)-113, CANNOT LOCK/UNLOCK WITH KEYLESS ACCESS FROM THE DRIVER'S DOOR, INSPECTION, Diagnostics with Phenomenon.> |
| Cannot unlock from the driver's door with keyless access. | <Ref. to KPS(diag)-114, CANNOT UNLOCK WITH KEYLESS ACCESS FROM THE DRIVER'S DOOR, INSPECTION, Diagnostics with Phenomenon.> |
| Cannot unlock from the passenger's door with keyless access. | <Ref. to KPS(diag)-117, CANNOT UNLOCK WITH KEYLESS ACCESS FROM THE PASSENGER'S DOOR, INSPECTION, Diagnostics with Phenomenon.> |
| Cannot lock/unlock from the passenger's door with keyless access. | <Ref. to KPS(diag)-116, CANNOT LOCK/UNLOCK WITH KEYLESS ACCESS FROM THE PASSENGER'S DOOR, INSPECTION, Diagnostics with Phenomenon.> |
| Cannot lock from the passenger's door with keyless access. | <Ref. to KPS(diag)-115, CANNOT LOCK WITH KEYLESS ACCESS FROM THE PASSENGER'S DOOR, INSPECTION, Diagnostics with Phenomenon.> |
| Trunk does not open with the trunk opener button. | <Ref. to KPS(diag)-118, TRUNK WILL NOT OPEN WITH KEYLESS ACCESS, INSPECTION, Diagnostics with Phenomenon.> |
| Access key lockout protection function in the trunk does not operate. | <Ref. to KPS(diag)-120, ACCESS KEY LOCKOUT PROTECTION FUNCTION IN THE TRUNK DOES NOT OPERATE, INSPECTION, Diagnostics with Phenomenon.> |
| Keyless access passenger room buzzer does not sound. | <Ref. to KPS(diag)-121, THE KEYLESS ACCESS PASSENGER ROOM BUZZER DOES NOT SOUND, INSPECTION, Diagnostics with Phenomenon.> |
| Keyless access external buzzer does not beep. | <Ref. to KPS(diag)-122, THE KEYLESS ACCESS EXTERNAL BUZZER DOES NOT BEEP, INSPECTION, Diagnostics with Phenomenon.> |
| Interior collation does not function. | <Ref. to KPS(diag)-124, INTERNAL COLLATION DOES NOT FUNCTION, INSPECTION, Diagnostics with Phenomenon.> |
| Rear gate cannot be unlocked with the rear gate opener button. | <Ref. to KPS(diag)-127, CAN NOT UNLOCK WHEN USING THE REAR GATE OPENER BUTTON, INSPECTION, Diagnostics with Phenomenon.> |
| Rear gate can not be locked when using the rear lock button. | <Ref. to KPS(diag)-129, CAN NOT LOCK WHEN USING THE REAR LOCK BUTTON, INSPECTION, Diagnostics with Phenomenon.> |

## 3. STEERING LOCK SYSTEM

| Symptoms | Index |
|---|---|
| The steering lock cannot be released (cannot start the engine) | <Ref. to KPS(diag)-131, THE STEERING LOCK IS NOT RELEASED, INSPECTION, Diagnostics with Phenomenon.> |
| The steering lock does not operate | <Ref. to KPS(diag)-133, THE STEERING LOCK DOES NOT OPERATE, INSPECTION, Diagnostics with Phenomenon.> |

## 4. POWER SUPPLY SWITCHING SYSTEM

| Symptoms | Index |
|---|---|
| Power will not turn ON (both accessory and ignition) | <Ref. to KPS(diag)-135, POWER WILL NOT TURN ON (BOTH ACCESSORY AND IGNITION), INSPECTION, Diagnostics with Phenomenon.> |
| Power will not turn ON (accessory only) | <Ref. to KPS(diag)-138, POWER WILL NOT TURN ON (ACCESSORY DOES NOT TURN ON, BUT IGNITION TURNS ON), INSPECTION, Diagnostics with Phenomenon.> |
| Power will not turn ON (ignition only) | <Ref. to KPS(diag)-140, POWER WILL NOT TURN ON (ACCESSORY TURNS ON, BUT IGNITION DOES NOT TURN ON), INSPECTION, Diagnostics with Phenomenon.> |

# 15.Diagnostics with Phenomenon

## A: INSPECTION

### 1. KEYLESS ACCESS LOCK/UNLOCK CANNOT BE PERFORMED FROM ANY OF THE DOORS

**CAUTION:**
**• Check that there are no other registered access keys inside the vehicle.**
**• Inspect LAN system according to the basic diagnostic procedure, and make sure that there is no fault.**
**• Check that the keyless access function is not stopped.**
**• When the access key or keyless access CM is replaced, registration of the immobilizer is required. For the relevant procedures, refer to the "REGISTRATION MANUAL FOR IMMOBILIZER".**

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK OPERATION OF KEYLESS DOOR LOCK.**<br>Using the keyless function of the access key, check the operation of the door lock. | Does it lock/unlock normally? | Check the exterior antenna, oscillator, touch sensor, lock/unlock buttons. | Go to step **2**. |
| 2 | **CHECK ACCESS KEY.**<br>Check for whether lock and unlock is possible with the registered access key. | Is there any access key which can lock/unlock when the touch sensor is operated? | Check the access key that does not operate. Go to step **3**. | Go to step **4**. |
| 3 | **CHECK ACCESS KEY.**<br>Measure the battery voltage of the access key that does not operate. | Is the voltage 2.5 — 3.2 V? | Replace the access key. | Replace the battery. |
| 4 | **CHECK DOOR LOCK.**<br>Operate the driver's center door lock switch. | Does the door lock operate? | Go to step **5**. | Check the door lock control system. <Ref. to SL-14, INSPECTION, Door Lock Control System.> |
| 5 | **CHECK HARNESS.**<br>1) Disconnect the receiver connector (R296).<br>2) Using a tester, measure the resistance between receiver and chassis ground.<br>***Connector & terminal***<br>***(R296) No. 1 — Chassis ground:*** | Is the resistance less than 10 Ω? | Go to step **6**. | Repair or replace the open circuit of harness. |
| 6 | **CHECK HARNESS.**<br>1) Disconnect the keyless access CM connector.<br>2) Using a tester, measure the resistance between receiver and keyless access CM.<br>***Connector & terminal***<br>***(R296) No. 4 — (B573) No. 5:***<br>***(R296) No. 5 — (B573) No. 17:***<br>***(R296) No. 2 — (B573) No. 19:*** | Is the resistance less than 10 Ω? | Go to step **7**. | Repair or replace the open circuit of harness. |
| 7 | **CHECK RECEIVER.**<br>Replace with a receiver that is operating normally. <Ref. to SL-108, REMOVAL, Receiver.> | When the front unlock sensor and the rear gate opener button are operated, does it lock/unlock? | Malfunction occurred in receiver. | Go to step **8**. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 8 | **CHECK HARNESS.**<br>Using a tester, measure the voltage between the keyless access CM connector and chassis ground.<br>***Connector & terminal***<br>***(B572) No. 2 (+) — Chassis ground (–):*** | Is the voltage 10 V or more when the ignition switch is turned to ON? | Go to step **9**. | Check the keyless access CM power supply circuit. |
| 9 | **CHECK HARNESS.**<br>Using a tester, measure the resistance between the keyless access CM connector and chassis ground.<br>***Connector & terminal***<br>***(B572) No. 11 — Chassis ground:*** | Is the resistance less than 10 Ω? | Replace the keyless access CM. <Ref. to SL-110, REMOVAL, Keyless Access CM.> | Repair or replace the open circuit of harness. |

## 2. CANNOT LOCK WITH KEYLESS ACCESS FROM THE DRIVER'S DOOR

**CAUTION:**
**• Check that there are no other registered access keys inside the vehicle.**
**• Inspect LAN system according to the basic diagnostic procedure, and make sure that there is no fault.**
**• Check that the keyless access function is not stopped.**
**• When the access key or keyless access CM is replaced, registration of the immobilizer is required. For the relevant procedures, refer to the "REGISTRATION MANUAL FOR IMMOBILIZER".**

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK DOOR LOCK SWITCH.**<br>Check that the lock/unlock operates with the driver's door lock switch. | Does it lock/unlock normally? | Go to step **2**. | Check the door lock circuit. <Ref. to SL-14, SYMPTOM CHART, INSPECTION, Door Lock Control System.> |
| 2 | **CHECK CURRENT DATA.**<br>1) Display the current data «Driver's seat lock status SW input» of body integrated unit using Subaru Select Monitor.<br>2) Read the data when locking/unlocking the driver's side lock actuator. | Does the data change from ON/OFF? | Go to step **3**. | Check the door lock switch circuit. |
| 3 | **CHECK CURRENT DATA.**<br>1) Display the current data «Driver's lock touch sensor SW» of Keyless access system check for keyless access system using Subaru Select Monitor.<br>2) Read the data when operating the touch sensor (lock) of the door outer handle. | Does the data change from ON/OFF according to the sensor operation? | Replace the keyless access CM. <Ref. to SL-110, Keyless Access CM.> | Go to step **4**. |
| 4 | **CHECK HARNESS.**<br>1) Disconnect the keyless access CM connector.<br>2) Disconnect the front outer handle connector.<br>3) Using a tester, measure the resistance between the keyless access CM connector and front outer handle connector.<br>***Connector & terminal***<br>***(B574) No. 20 — (D66) No. 1:*** | Is the resistance less than 1 Ω? | Go to step **5**. | Repair or replace the open circuit of harness. |
| 5 | **CHECK HARNESS.**<br>Using a tester, measure the resistance between the keyless access CM connector and chassis ground, and between front outer handle connector and chassis ground.<br>***Connector & terminal***<br>***(B574) No. 20 — Chassis ground:***<br>***(D66) No. 1 — Chassis ground:*** | Is the resistance 10 kΩ or more? | Go to step **6**. | Repair or replace the short circuit of the harness. |
| 6 | **REPLACE FRONT DOOR OUTER HANDLE.**<br>Replace the driver's side front outer handle with the passenger's side front outer handle. <Ref. to SL-40, REMOVAL, Front Outer Handle.> | Does it operate properly? | Replace the driver's front outer handle. <Ref. to SL-40, REMOVAL, Front Outer Handle.> | Replace the keyless access CM. <Ref. to SL-110, Keyless Access CM.> |

## 3. CANNOT LOCK/UNLOCK WITH KEYLESS ACCESS FROM THE DRIVER'S DOOR

**CAUTION:**
**• Check that there are no other registered access keys inside the vehicle.**
**• Inspect LAN system according to the basic diagnostic procedure, and make sure that there is no fault.**
**• Check that the keyless access function is not stopped.**
**• When the access key or keyless access CM is replaced, registration of the immobilizer is required. For the relevant procedures, refer to the "REGISTRATION MANUAL FOR IMMOBILIZER".**

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK DOOR LOCK SWITCH.**<br>Check that the lock/unlock operates with the driver's door lock switch. | Does it lock/unlock normally? | Go to step **2**. | Check the door lock circuit. <Ref. to SL-14, SYMPTOM CHART, INSPECTION, Door Lock Control System.> |
| 2 | **CHECK FUSE.**<br>Check the fuse. | Is the fuse OK? | Go to step **3**. | Replace the fuse. |
| 3 | **CHECK HARNESS.**<br>1) Disconnect the keyless access CM connector.<br>2) Disconnect the front outer handle connector.<br>3) Using a tester, measure the resistance between the keyless access CM connector and front outer handle connector, and between front outer handle connector and chassis ground.<br>***Connector & terminal***<br>***(B574) No. 12 — (D66) No. 6:***<br>***(B574) No. 13 — (D66) No. 3:***<br>***(B574) No. 19 — (D66) No. 5:***<br>***(D66) No. 2 — Chassis ground:*** | Is the resistance less than 1 Ω? | Go to step **4**. | Repair or replace the open circuit of harness. |
| 4 | **CHECK HARNESS.**<br>Using a tester, measure the resistance between the keyless access CM connector and chassis ground, and between front outer handle connector and chassis ground.<br>***Connector & terminal***<br>***(B574) No. 12 — Chassis ground:***<br>***(D66) No. 6 — Chassis ground:***<br>***(B574) No. 13 — Chassis ground:***<br>***(D66) No. 3 — Chassis ground:*** | Is the resistance 10 kΩ or more? | Go to step **5**. | Repair or replace the short circuit of the harness. |
| 5 | **CHECK KEYLESS ACCESS CM.**<br>1) Connect the keyless access CM connector.<br>2) Turn the ignition switch to OFF, close all doors and take the access key out of passenger room.<br>3) Use the Subaru Select Monitor, measure the waveform between the keyless access CM connectors.<br>***Connector & terminal***<br>***(D66) No. 6 — (D66) No. 3:*** | Does pulse output change from pulse output OFF → pulse output ON by the lock operation using access key? | Go to step **6**. | Replace the keyless access CM. <Ref. to SL-110, Keyless Access CM.> |
| 6 | **REPLACE FRONT DOOR OUTER HANDLE.**<br>Replace the driver's side front outer handle with the passenger's side front outer handle. <Ref. to SL-40, REMOVAL, Front Outer Handle.> | Does it operate properly? | Replace the driver's front outer handle. <Ref. to SL-40, Front Outer Handle.> | Replace the keyless access CM. <Ref. to SL-110, Keyless Access CM.> |

## 4. CANNOT UNLOCK WITH KEYLESS ACCESS FROM THE DRIVER'S DOOR

**CAUTION:**
**• Check that there are no other registered access keys inside the vehicle.**
**• Inspect LAN system according to the basic diagnostic procedure, and make sure that there is no fault.**
**• Check that the keyless access function is not stopped.**
**• When the access key or keyless access CM is replaced, registration of the immobilizer is required. For the relevant procedures, refer to the "REGISTRATION MANUAL FOR IMMOBILIZER".**

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK DOOR LOCK SWITCH.**<br>Check that the lock/unlock operates with the driver's door lock switch. | Does it lock/unlock normally? | Go to step **2**. | Check the door lock circuit. <Ref. to SL-14, SYMPTOM CHART, INSPECTION, Door Lock Control System.> |
| 2 | **CHECK CURRENT DATA.**<br>1) Display the current data «Driver's seat lock status SW input» of body integrated unit using Subaru Select Monitor.<br>2) Read the data when locking/unlocking the driver's side lock actuator. | Does the data change from ON/OFF? | Go to step **3**. | Check the door lock switch circuit. |
| 3 | **CHECK CURRENT DATA.**<br>1) Display the current data «Driver's unlock touch sensor switch» of Keyless access system check for keyless access system using Subaru Select Monitor.<br>2) Read the data when operating the touch sensor (unlock) of the door outer handle. | Does the data change from ON/OFF according to the sensor operation? | Replace the keyless access CM. <Ref. to SL-110, Keyless Access CM.> | Go to step **4**. |
| 4 | **CHECK HARNESS.**<br>1) Disconnect the keyless access CM connector.<br>2) Disconnect the front outer handle connector.<br>3) Using a tester, measure the resistance between the keyless access CM connector and front outer handle connector.<br>***Connector & terminal***<br>***(B574) No. 22 — (D66) No. 4:*** | Is the resistance less than 1 Ω? | Go to step **5**. | Repair or replace the open circuit of harness. |
| 5 | **CHECK HARNESS.**<br>Using a tester, measure the resistance between the keyless access CM connector and chassis ground, and between front outer handle connector and chassis ground.<br>***Connector & terminal***<br>***(B574) No. 22 — Chassis ground:***<br>***(D66) No. 4 — Chassis ground:*** | Is the resistance 10 kΩ or more? | Go to step **6**. | Repair or replace the short circuit of the harness. |
| 6 | **REPLACE FRONT DOOR OUTER HANDLE.**<br>Replace the driver's side front outer handle with the passenger's side front outer handle. <Ref. to SL-40, REMOVAL, Front Outer Handle.> | Does it operate properly? | Replace the driver's front outer handle. <Ref. to SL-40, REMOVAL, Front Outer Handle.> | Replace the keyless access CM. <Ref. to SL-110, Keyless Access CM.> |

## 5. CANNOT LOCK WITH KEYLESS ACCESS FROM THE PASSENGER'S DOOR

**CAUTION:**
**• Check that there are no other registered access keys inside the vehicle.**
**• Inspect LAN system according to the basic diagnostic procedure, and make sure that there is no fault.**
**• Check that the keyless access function is not stopped.**
**• When the access key or keyless access CM is replaced, registration of the immobilizer is required. For the relevant procedures, refer to the "REGISTRATION MANUAL FOR IMMOBILIZER".**

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK DOOR LOCK SWITCH.**<br>Check that the lock/unlock operates with the driver's door lock switch. | Does it lock/unlock normally? | Go to step **2**. | Check the door lock circuit. <Ref. to SL-14, SYMPTOM CHART, INSPECTION, Door Lock Control System.> |
| 2 | **CHECK CURRENT DATA.**<br>1) Display the current data «Passenger's seat lock status SW input» of body integrated unit using Subaru Select Monitor.<br>2) Read the data when locking/unlocking the passenger's side lock actuator. | Does the data change from ON/OFF? | Go to step **3**. | Check the door lock switch circuit. |
| 3 | **CHECK CURRENT DATA.**<br>1) Display the current data «Passenger's lock touch sensor SW» of Keyless access system check for keyless access system using Subaru Select Monitor.<br>2) Read the data when operating the touch sensor (lock) of the door outer handle. | Does the data change from ON/OFF according to the sensor operation? | Replace the keyless access CM. <Ref. to SL-110, Keyless Access CM.> | Go to step **4**. |
| 4 | **CHECK HARNESS.**<br>1) Disconnect the keyless access CM connector.<br>2) Disconnect the front outer handle connector.<br>3) Using a tester, measure the resistance between the keyless access CM connector and front outer handle connector.<br>***Connector & terminal***<br>***(B574) No. 8 — (D56) No. 1:*** | Is the resistance less than 1 Ω? | Go to step **5**. | Repair or replace the open circuit of harness. |
| 5 | **CHECK HARNESS.**<br>Using a tester, measure the resistance between the keyless access CM connector and chassis ground, and between front outer handle connector and chassis ground.<br>***Connector & terminal***<br>***(B574) No. 8 — Chassis ground:***<br>***(D56) No. 1 — Chassis ground:*** | Is the resistance 10 kΩ or more? | Go to step **6**. | Repair or replace the short circuit of the harness. |
| 6 | **REPLACE FRONT DOOR OUTER HANDLE.**<br>Replace the passenger's side front outer handle with the driver's side front outer handle. <Ref. to SL-40, REMOVAL, Front Outer Handle.> | Does it operate properly? | Replace the passenger's front outer handle. <Ref. to SL-40, REMOVAL, Front Outer Handle.> | Replace the keyless access CM. <Ref. to SL-110, Keyless Access CM.> |

## 6. CANNOT LOCK/UNLOCK WITH KEYLESS ACCESS FROM THE PASSENGER'S DOOR

**CAUTION:**
- **Check that there are no other registered access keys inside the vehicle.**
- **Inspect LAN system according to the basic diagnostic procedure, and make sure that there is no fault.**
- **Check that the keyless access function is not stopped.**
- **When the access key or keyless access CM is replaced, registration of the immobilizer is required. For the relevant procedures, refer to the "REGISTRATION MANUAL FOR IMMOBILIZER".**

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK DOOR LOCK SWITCH.**<br>Check that the lock/unlock operates with the driver's door lock switch. | Does it lock/unlock normally? | Go to step **2**. | Check the door lock circuit. <Ref. to SL-14, SYMPTOM CHART, INSPECTION, Door Lock Control System.> |
| 2 | **CHECK FUSE.**<br>Check the fuse. | Is the fuse OK? | Go to step **3**. | Replace the fuse. |
| 3 | **CHECK HARNESS.**<br>1) Disconnect the keyless access CM connector.<br>2) Disconnect the front outer handle connector.<br>3) Using a tester, measure the resistance between the keyless access CM connector and front outer handle connector, and between front outer handle connector and chassis ground.<br>***Connector & terminal***<br>***(B574) No. 11 — (D56) No. 6:***<br>***(B574) No. 10 — (D56) No. 3:***<br>***(B574) No. 21 — (D56) No. 5:***<br>***(D56) No. 2 — Chassis ground:*** | Is the resistance less than 1 Ω? | Go to step **4**. | Repair or replace the open circuit of harness. |
| 4 | **CHECK HARNESS.**<br>Using a tester, measure the resistance between the keyless access CM connector and chassis ground, and between front outer handle connector and chassis ground.<br>***Connector & terminal***<br>***(B574) No. 11 — Chassis ground:***<br>***(D56) No. 6 — Chassis ground:***<br>***(B574) No. 10 — Chassis ground:***<br>***(D56) No. 3 — Chassis ground:*** | Is the resistance 10 kΩ or more? | Go to step **5**. | Repair or replace the short circuit of the harness. |
| 5 | **CHECK KEYLESS ACCESS CM.**<br>1) Connect the keyless access CM connector.<br>2) Turn the ignition switch to OFF, close all doors and take the access key out of passenger room.<br>3) Use the Subaru Select Monitor, measure the waveform between the keyless access CM connectors.<br>***Connector & terminal***<br>***(D56) No. 6 — (D66) No. 3:*** | Does pulse output change from pulse output OFF → pulse output ON by the lock operation using access key? | Go to step **6**. | Replace the keyless access CM. <Ref. to SL-110, Keyless Access CM.> |
| 6 | **REPLACE FRONT DOOR OUTER HANDLE.**<br>Replace the passenger's side front outer handle with the driver's side front outer handle. <Ref. to SL-40, REMOVAL, Front Outer Handle.> | Does it operate properly? | Replace the passenger's front outer handle. <Ref. to SL-40, Front Outer Handle.> | Replace the keyless access CM. <Ref. to SL-110, Keyless Access CM.> |

## 7. CANNOT UNLOCK WITH KEYLESS ACCESS FROM THE PASSENGER'S DOOR

**CAUTION:**
**• Check that there are no other registered access keys inside the vehicle.**
**• Inspect LAN system according to the basic diagnostic procedure, and make sure that there is no fault.**
**• Check that the keyless access function is not stopped.**
**• When the access key or keyless access CM is replaced, registration of the immobilizer is required. For the relevant procedures, refer to the "REGISTRATION MANUAL FOR IMMOBILIZER".**

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK DOOR LOCK SWITCH.**<br>Check that the lock/unlock operates with the driver's door lock switch. | Does it lock/unlock normally? | Go to step **2**. | Check the door lock circuit. <Ref. to SL-14, SYMPTOM CHART, INSPECTION, Door Lock Control System.> |
| 2 | **CHECK CURRENT DATA.**<br>1) Display the current data «Passenger's seat lock status SW input» of body integrated unit using Subaru Select Monitor.<br>2) Read the data when locking/unlocking the passenger's side lock actuator. | Does the data change from ON/OFF? | Go to step **3**. | Check the door lock switch circuit. |
| 3 | **CHECK CURRENT DATA.**<br>1) Display the current data «Passenger's unlock touch sensor switch» of Keyless access system check for keyless access system using Subaru Select Monitor.<br>2) Read the data when operating the touch sensor (unlock) of the door outer handle. | Does the data change from ON/OFF according to the sensor operation? | Replace the keyless access CM. <Ref. to SL-110, Keyless Access CM.> | Go to step **4**. |
| 4 | **CHECK HARNESS.**<br>1) Disconnect the keyless access CM connector.<br>2) Disconnect the front outer handle connector.<br>3) Using a tester, measure the resistance between the keyless access CM connector and front outer handle connector.<br>***Connector & terminal***<br>***(B574) No. 23 — (D56) No. 4:*** | Is the resistance less than 1 Ω? | Go to step **5**. | Repair or replace the open circuit of harness. |
| 5 | **CHECK HARNESS.**<br>Using a tester, measure the resistance between the keyless access CM connector and chassis ground, and between front outer handle connector and chassis ground.<br>***Connector & terminal***<br>***(B574) No. 23 — Chassis ground:***<br>***(D56) No. 4 — Chassis ground:*** | Is the resistance 10 kΩ or more? | Go to step **6**. | Repair or replace the short circuit of the harness. |
| 6 | **REPLACE FRONT DOOR OUTER HANDLE.**<br>Replace the passenger's side front outer handle with the driver's side front outer handle. <Ref. to SL-40, REMOVAL, Front Outer Handle.> | Does it operate properly? | Replace the passenger's front outer handle. <Ref. to SL-40, REMOVAL, Front Outer Handle.> | Replace the keyless access CM. <Ref. to SL-110, Keyless Access CM.> |

## 8. TRUNK WILL NOT OPEN WITH KEYLESS ACCESS

**CAUTION:**
**• Check that there are no other registered access keys inside the trunk.**
**• Inspect LAN system according to the basic diagnostic procedure, and make sure that there is no fault.**
**• Check that the keyless access function is not stopped.**
**• When the access key or keyless access CM is replaced, registration of the immobilizer is required. For the relevant procedures, refer to the "REGISTRATION MANUAL FOR IMMOBILIZER".**

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK TRUNK OPENER BUTTON.**<br>Check that the trunk opens with the driver's seat trunk opener button. | Does it open normally? | Go to step **2**. | Check the door lock circuit. <Ref. to SL-14, SYMPTOM CHART, INSPECTION, Door Lock Control System.> |
| 2 | **CHECK KEYLESS OPERATION.**<br>Check that the trunk opens when the trunk opener button of the access key is operated. | Does it open normally? | Go to step **7**. | Go to step **3**. |
| 3 | **CHECK TRUNK UNLOCK OPERATION.**<br>1) Using the Subaru Select Monitor, select the function check «R gate/trunk UNLK output» of the body integrated unit.<br>2) Check that the trunk opens when the R gate/trunk UNLK signal is output. | Does it open normally? | Go to step **7**. | Go to step **4**. |
| 4 | **CHECK WIRING HARNESS.**<br>1) Disconnect the body integrated unit connector and trunk lid lock actuator connector.<br>2) Check the continuity between body integrated unit connector and trunk lid lock actuator connector.<br>***Connector & terminal***<br>***(i171) No. 7 — (R186) No. 1:*** | Is there continuity? | Go to step **5**. | Repair or replace the open circuit of harness. |
| 5 | **CHECK WIRING HARNESS.**<br>Check the continuity between the trunk lid lock actuator connector and chassis ground.<br>***Connector & terminal***<br>***(R186) No. 2 — Chassis ground:*** | Is there continuity? | Go to step **6**. | Repair or replace the open circuit of harness. |
| 6 | **CHECK TRUNK LID LOCK ACTUATOR.**<br>Check the trunk lid lock actuator. <Ref. to SL-58, Trunk Lid Latch and Actuator Assembly.> | Is trunk lid actuator normal? | Replace the body integrated unit. <Ref. to SL-87, Body Integrated Unit.> | Replace the trunk lid latch & actuator assembly. <Ref. to SL-58, Trunk Lid Latch and Actuator Assembly.> |
| 7 | **CHECK ACCESS KEY.**<br>Check the access key LED when the trunk opener button of the access key is operated. | Does the access key LED illuminate? | Go to step **8**. | Replace the access key. <Ref. to SL-94, REPLACEMENT, Access Key.> |
| 8 | **CHECK ACCESS KEY.**<br>1) Prepare all access keys registered to the vehicle.<br>2) Check that the trunk opens with each access key. | Does it open normally? | Go to step **9**. | Replace the access key. <Ref. to SL-94, REPLACEMENT, Access Key.> |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 9 | **CHECK CURRENT DATA.**<br>1) Display the current data «Trunk Request SW» of the keyless access CM using the Subaru Select Monitor.<br>2) Read the data when pressing the trunk opener button. | Does the data display ON? | Go to step **13**. | Go to step **10**. |
| 10 | **CHECK WIRING HARNESS.**<br>1) Disconnect the trunk opener button connector and the keyless access CM connector.<br>2) Using a tester, check continuity between the trunk opener button connector and keyless access CM connector.<br>***Connector & terminal***<br>***(R294) No. 1 — (B573) No. 27:*** | Is there continuity? | Go to step **11**. | Repair or replace the open circuit of harness. |
| 11 | **CHECK WIRING HARNESS.**<br>1) Using a tester, check the continuity between the trunk opener button connector and chassis ground.<br>***Connector & terminal***<br>***(R294) No. 2 — Chassis ground:*** | Is there continuity? | Go to step **12**. | Repair or replace the open circuit of harness. |
| 12 | **CHECK TRUNK OPENER BUTTON.**<br>Using a tester, check the continuity between trunk opener button connector terminals.<br>***Connector & terminal***<br>***(R294) No. 1 — No. 2:*** | Is there continuity when pressing the switch? | Go to step **13**. | Replace the trunk opener button. <Ref. to SL-107, Trunk Opener Button.> |
| 13 | **CHECK WIRING HARNESS.**<br>1) Disconnect the exterior rear antenna connector and the keyless access CM connector.<br>2) Using a tester, check continuity between the exterior rear antenna connector and keyless access CM connector.<br>***Connector & terminal***<br>***(R299) No. 1 — (B573) No. 2:***<br>***(R299) No. 2 — (B573) No. 1:*** | Is there continuity? | Go to step **14**. | Repair or replace the open circuit of harness. |
| 14 | **CHECK OUTSIDE REAR ANTENNA.**<br>Replace the outside rear antenna with new or properly working parts. | Does it operate properly? | Replace the outside rear antenna. <Ref. to SL-103, REMOVAL, Keyless Access Outdoor Antenna.> | Go to step **15**. |
| 15 | **CHECK KEYLESS ACCESS SYSTEM CHECK.**<br>1) Using the Subaru Select Monitor, select System check of the keyless access CM «Trunk external transmitter + interior tuner». <Ref. to KPS(diag)-37, Keyless Access System Check.><br>2) Hold the access key 1 m or more away from the trunk, then come closer to within 0.8 m. | Does the outside buzzer sound? | System is normal. | Replace the keyless access CM. <Ref. to SL-110, Keyless Access CM.> |

## 9. ACCESS KEY LOCKOUT PROTECTION FUNCTION IN THE TRUNK DOES NOT OPERATE

**CAUTION:**
**• Inspect LAN system according to the basic diagnostic procedure, and make sure that there is no fault.**
**• Check that the keyless access function is not stopped.**
**• When the access key or keyless access CM is replaced, registration of the immobilizer is required. For the relevant procedures, refer to the "REGISTRATION MANUAL FOR IMMOBILIZER".**

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK TRUNK OPENER BUTTON.**<br>Check that the trunk opens with the driver's seat trunk opener button. | Does it open normally? | Go to step **2**. | Check the door lock circuit. <Ref. to SL-14, INSPECTION, Door Lock Control System.> |
| 2 | **CHECK KEYLESS OPERATION.**<br>Check that the trunk opens when the trunk opener button of the access key is operated. | Does it open normally? | Go to step **7**. | Go to step **3**. |
| 3 | **CHECK TRUNK UNLOCK OPERATION.**<br>1) Using the Subaru Select Monitor, select the function check «R gate/trunk UNLK output» of the body integrated unit.<br>2) Check that the trunk opens when the R gate/trunk UNLK signal is output. | Does it open normally? | Go to step **7**. | Go to step **4**. |
| 4 | **CHECK WIRING HARNESS.**<br>1) Disconnect the body integrated unit connector and trunk lid lock actuator connector.<br>2) Check the continuity between body integrated unit connector and trunk lid lock actuator connector.<br>***Connector & terminal***<br>***(i171) No. 7 — (R186) No. 1:*** | Is there continuity? | Go to step **5**. | Repair or replace the open circuit of harness. |
| 5 | **CHECK WIRING HARNESS.**<br>Check the continuity between the trunk lid lock actuator connector and chassis ground.<br>***Connector & terminal***<br>***(R186) No. 2 — Chassis ground:*** | Is there continuity? | Go to step **6**. | Repair or replace the open circuit of harness. |
| 6 | **CHECK TRUNK LID LOCK ACTUATOR.**<br>Check the trunk lid lock actuator. <Ref. to SL-58, Trunk Lid Latch and Actuator Assembly.> | Is trunk lid lock actuator normal? | Replace the body integrated unit. <Ref. to SL-87, Body Integrated Unit.> | Replace the trunk lid latch & actuator assembly. <Ref. to SL-58, Trunk Lid Latch and Actuator Assembly.> |
| 7 | **CHECK ACCESS KEY.**<br>1) Prepare all access keys registered to the vehicle.<br>2) Check that the trunk opens with each access key. | Does it open normally? | Go to step **8**. | Replace the access key. <Ref. to SL-94, REPLACEMENT, Access Key.> |
| 8 | **CHECK WIRING HARNESS.**<br>1) Disconnect the interior rear antenna connector and the keyless access CM connector.<br>2) Using a tester, check continuity between the interior rear antenna connector and keyless access CM connector.<br>***Connector & terminal***<br>***(R297) No. 1 — (B573) No. 9:***<br>***(R297) No. 3 — (B573) No. 8:*** | Is there continuity? | Go to step **9**. | Repair or replace the open circuit of harness. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 9 | **CHECK PASSENGER ROOM REAR ANTENNA.**<br>Replace the passenger room rear antenna with a new or properly functioning part. | Does it operate properly? | Replace the passenger room rear antenna. <Ref. to SL-99, REMOVAL, Keyless Access Indoor Antenna.> | Go to step **10**. |
| 10 | **CHECK RECEIVER.**<br>Replace the receiver with a new or properly functioning part. | Does it operate properly? | Replace the receiver. <Ref. to SL-108, REMOVAL, Receiver.> | Go to step **11**. |
| 11 | **CHECK WIRING HARNESS.**<br>1) Disconnect the receiver connector and the keyless access CM connector.<br>2) Using a tester, check continuity between the receiver connector and keyless access CM connector.<br>***Connector & terminal***<br>***(R296) No. 4 — (B573) No. 5:***<br>***(R296) No. 5 — (B573) No. 17:***<br>***(R296) No. 2 — (B573) No. 19:*** | Is there continuity? | Go to step **12**. | Repair or replace the open circuit of harness. |
| 12 | **CHECK KEYLESS ACCESS SYSTEM CHECK.**<br>1) Using the Subaru Select Monitor, select System check of the keyless access CM «Trunk internal transmitter + interior tuner». <Ref. to KPS(diag)-37, Keyless Access System Check.><br>2) Hold the access key 1 m or more away from the center of inside the trunk, then come closer to within 0.8 m. | Does the outside buzzer sound? | System is normal. | Replace the keyless access CM. <Ref. to SL-110, Keyless Access CM.> |

## 10.THE KEYLESS ACCESS PASSENGER ROOM BUZZER DOES NOT SOUND

**CAUTION:**
**• Inspect LAN system according to the basic diagnostic procedure, and make sure that there is no fault.**
**• Check that the keyless access function is not stopped.**
**• When the access key or keyless access CM is replaced, registration of the immobilizer is required. For the relevant procedures, refer to the "REGISTRATION MANUAL FOR IMMOBILIZER".**

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK COMBINATION METER.**<br>Check the combination meter. | Is combination meter OK? | Replace the keyless access CM. <Ref. to SL-110, Keyless Access CM.> | Replace the combination meter. <Ref. to IDI-20, REMOVAL, Combination Meter.> |

## 11.THE KEYLESS ACCESS EXTERNAL BUZZER DOES NOT BEEP

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK BODY INTEGRATED UNIT SETTING.**<br>Using the Subaru Select Monitor, check the «Ans.-back Buzzer» data of body integrated unit. | Is the setting “ON”? | Go to step **2**. | Change the setting to “ON”. |
| 2 | **CHECK BUZZER OPERATION.**<br>Use the Subaru Select Monitor to perform the body integrated unit function check «Keyless Buzzer Output». <Ref. to BC(diag)-25, OPERATION, Function Check.> | Does the buzzer sound? | Go to step **3**. | Go to step **5**. |
| 3 | **CHECK KEYLESS ACCESS SYSTEM.**<br>1) Turn to IGN ON.<br>2) With all doors closed and the access key carried, touch the touch sensor (lock) on the driver’s door handle. | Does the door lock? | Go to step **4**. | Refer to “CANNOT LOCK WITH KEYLESS ACCESS FROM THE DRIVER’S DOOR” and perform inspection. <Ref. to KPS(diag)-112, CANNOT LOCK WITH KEYLESS ACCESS FROM THE DRIVER’S DOOR, INSPECTION, Diagnostics with Phenomenon.> |
| 4 | **CHECK KEYLESS ACCESS SYSTEM.**<br>1) Open the door glass.<br>2) Place the access key on the driver’s seat, and close the door.<br>3) Touch the touch sensor (lock) on the driver’s door handle. | Does the buzzer sound? (Lock-out protection warning) | System is normal. | Replace the keyless access CM. <Ref. to SL-110, REMOVAL, Keyless Access CM.> |
| 5 | **CHECK HARNESS.**<br>1) Turn to IGN OFF.<br>2) Disconnect the connectors of the body integrated unit and keyless buzzer.<br>3) Measure the resistance between body integrated unit connector and keyless buzzer connector.<br>***Connector & terminal***<br>***(B280) No. 20 — (B164) No. 1:*** | Is the resistance less than 10 Ω? | Go to step **6**. | Repair or replace the open circuit of harness. |
| 6 | **CHECK HARNESS.**<br>Measure the resistance between keyless buzzer connector and chassis ground.<br>***Connector & terminal***<br>***(B164) No. 1 — Chassis ground:*** | Is the resistance 10 kΩ or more? | Go to step **7**. | Repair or replace the short circuit of the harness. |
| 7 | **CHECK HARNESS.**<br>Measure the resistance between keyless buzzer connector and chassis ground.<br>***Connector & terminal***<br>***(B164) No. 2 — Chassis ground:*** | Is the resistance less than 10 Ω? | Go to step **8**. | Repair or replace the open circuit of harness. |

| Step | | Check | Yes | No |
|---|---|---|---|---|
| 8 | **CHECK BODY INTEGRATED UNIT.**<br>1) Connect the connector of body integrated unit.<br>2) Use the Subaru Select Monitor to perform the body integrated unit function check «Keyless Buzzer Output». <Ref. to BC(diag)-25, OPERATION, Function Check.><br>3) Measure the voltage between body integrated unit connector and chassis ground using an oscilloscope.<br>***Connector & terminal***<br>***(B280) No. 20 (+) — Chassis ground (–):*** | Is the frequency 2kHz, voltage 9 V or more? | Replace the keyless buzzer. <Ref. to SL-85, REMOVAL, Keyless Buzzer.> | Replace the body integrated unit. <Ref. to SL-87, Body Integrated Unit.> |

## 12.INTERNAL COLLATION DOES NOT FUNCTION

**CAUTION:**
**When the access key or keyless access CM is replaced, registration of the immobilizer is required. For the relevant procedures, refer to the "REGISTRATION MANUAL FOR IMMOBILIZER".**

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK ACCESS KEY.**<br>Check the access key. <Ref. to SL-94, INSPECTION, Access Key.> | Is the battery OK? | Go to step **2**. | Replace the battery. |
| 2 | **CHECK INTERIOR ANTENNA.**<br>1) Using the Subaru Select Monitor, select System check of the keyless access CM «Front interior transmitter + interior tuner». <Ref. to KPS(diag)-37, Keyless Access System Check.><br>2) Using a tester, check the output between keyless access CM connector terminals while performing the Keyless access system check.<br>***Connector & terminal***<br>***(B574) No. 2 — No. 3:*** | Is a pulse output? | Go to step **3**. | Replace the keyless access CM. <Ref. to SL-110, Keyless Access CM.> |
| 3 | **CHECK INTERIOR ANTENNA.**<br>NOTE:<br>For gasoline engine model (5 door model), go to the next step.<br>1) Using the Subaru Select Monitor, select System check of the keyless access CM «Rear interior transmitter + interior tuner». <Ref. to KPS(diag)-37, Keyless Access System Check.><br>2) Using a tester, check the output between keyless access CM connector terminals while performing the Keyless access system check.<br>***Connector & terminal***<br>***(B573) No. 10 — No. 11:*** | Is a pulse output? | Go to step **4**. | Replace the keyless access CM. <Ref. to SL-110, Keyless Access CM.> |
| 4 | **CHECK INTERIOR ANTENNA.**<br>1) Using the Subaru Select Monitor, select System check of the keyless access CM «Trunk internal transmitter + interior tuner» or «Rear gate internal transmitter + interior tuner». <Ref. to KPS(diag)-37, Keyless Access System Check.><br>2) Using a tester, check the output between keyless access CM connector terminals while performing the Keyless access system check.<br>***Connector & terminal***<br>***(B573) No. 8 — No. 9:*** | Is a pulse output? | Go to step **5**. | Replace the keyless access CM. <Ref. to SL-110, Keyless Access CM.> |
| 5 | **CHECK WIRING HARNESS.**<br>1) Disconnect the front interior antenna connector and the keyless access CM connector.<br>2) Using a tester, check continuity between the front interior antenna connector and the keyless access CM connector.<br>***Connector & terminal***<br>***(B579) No. 1 — (B574) No. 3:***<br>***(B579) No. 2 — (B574) No. 2:*** | Is there continuity? | Go to step **6**. | Repair or replace the open circuit of harness. |

| Step | | Check | Yes | No |
|---|---|---|---|---|
| 6 | **CHECK WIRING HARNESS.**<br>NOTE:<br>For gasoline engine model (5 door model), go to the next step.<br>1) Disconnect the center interior antenna connector and the keyless access CM connector.<br>2) Using a tester, check continuity between the center interior antenna connector and the keyless access CM connector.<br>***Connector & terminal***<br>***(R298) No. 1 — (B573) No. 11:***<br>***(R298) No. 3 — (B573) No. 10:*** | Is there continuity? | Go to step **7**. | Repair or replace the open circuit of harness. |
| 7 | **CHECK WIRING HARNESS.**<br>1) Disconnect the rear interior antenna connector and the keyless access CM connector.<br>2) Using a tester, check continuity between the rear interior antenna connector and the keyless access CM connector.<br>***Connector & terminal***<br>***Gasoline engine model (4 door model)***<br>***(B573) No. 9 — (R297) No. 1:***<br>***(B573) No. 8 — (R297) No. 3:***<br>***Gasoline engine model (5 door model)***<br>***(B573) No. 9 — (R298) No. 1:***<br>***(B573) No. 8 — (R298) No. 3:***<br>***HEV model***<br>***(B573) No. 9 — (R439) No. 1:***<br>***(B573) No. 8 — (R439) No. 3:*** | Is there continuity? | Go to step **8**. | Repair or replace the open circuit of harness. |
| 8 | **CHECK ANTENNA.**<br>Replace the front interior antenna with a new or properly functioning part. | Does it operate properly? | Replace the front interior antenna. <Ref. to SL-99, REMOVAL, Keyless Access Indoor Antenna.> | Go to step **9**. |
| 9 | **CHECK ANTENNA.**<br>NOTE:<br>For gasoline engine model (5 door model), go to the next step.<br>Replace the center interior antenna with a new or properly functioning part. | Does it operate properly? | Replace the center interior antenna. <Ref. to SL-99, REMOVAL, Keyless Access Indoor Antenna.> | Go to step **10**. |
| 10 | **CHECK ANTENNA.**<br>Replace the rear interior antenna with a new or properly functioning part. | Does it operate properly? | Replace the rear interior antenna. <Ref. to SL-99, REMOVAL, Keyless Access Indoor Antenna.> | Go to step **11**. |
| 11 | **CHECK WIRING HARNESS.**<br>1) Disconnect the receiver connector and the keyless access CM connector.<br>2) Using a tester, check continuity between the receiver connector and keyless access CM connector.<br>***Connector & terminal***<br>***(R296) No. 4 — (B573) No. 5:***<br>***(R296) No. 5 — (B573) No. 17:***<br>***(R296) No. 2 — (B573) No. 19:*** | Is there continuity? | Go to step **12**. | Repair or replace the open circuit of harness. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 12 | **CHECK RECEIVER.**<br>Replace the receiver with a new or properly functioning part. | Does it operate properly? | Replace the receiver. <Ref. to SL-108, REMOVAL, Receiver.> | Go to step **13**. |
| 13 | **CHECK KEYLESS ACCESS SYSTEM CHECK.**<br>1) Using the Subaru Select Monitor, select System check of the keyless access CM «Front interior transmitter + interior tuner». <Ref. to KPS(diag)-37, Keyless Access System Check.><br>2) Hold the access key 1 m or more away from the audio panel, then come closer to within 0.8 m. | Does the buzzer sound? | Go to step **14**. | Replace the keyless access CM. <Ref. to SL-110, Keyless Access CM.> |
| 14 | **CHECK KEYLESS ACCESS SYSTEM CHECK.**<br>NOTE:<br>For gasoline engine model (5 door model), go to the next step.<br>1) Using the Subaru Select Monitor, select System check of the keyless access CM «Rear interior transmitter + interior tuner». <Ref. to KPS(diag)-37, Keyless Access System Check.><br>2) Hold the access key 1 m or more away from the center of the second row seats, then come closer to within 0.8 m. | Does the buzzer sound? | Go to step **15**. | Replace the keyless access CM. <Ref. to SL-110, Keyless Access CM.> |
| 15 | **CHECK KEYLESS ACCESS SYSTEM CHECK.**<br>1) Using the Subaru Select Monitor, select System check of the keyless access CM «Trunk internal transmitter + interior tuner» or «Rear gate internal transmitter + interior tuner». <Ref. to KPS(diag)-37, Keyless Access System Check.><br>2) Hold the access key 1 m or more away from the back of the rear seat, then come closer to within 0.8 m. | Does the buzzer sound? | System is normal. | Replace the keyless access CM. <Ref. to SL-110, Keyless Access CM.> |

## 13.CAN NOT UNLOCK WHEN USING THE REAR GATE OPENER BUTTON

**CAUTION:**
- **Check that there are no other registered access keys inside the rear gate.**
- **Inspect LAN system according to the basic diagnostic procedure, and make sure that there is no fault.**
- **Check that the keyless access function is not stopped.**
- **When the access key or keyless access CM is replaced, registration of the immobilizer is required. For the relevant procedures, refer to the "REGISTRATION MANUAL FOR IMMOBILIZER".**

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK KEYLESS OPERATION.**<br>Check that the rear gate unlocks when the trunk open button of the access key is pressed. | Does it operate properly? | Go to step **6**. | Go to step **2**. |
| 2 | **CHECK REAR GATE UNLOCK OPERATION.**<br>1) Using the Subaru Select Monitor, select the function check «R gate/trunk UNLK output» of the body integrated unit.<br>2) Check that the rear gate unlocks when the R gate/trunk UNLK signal is output. | Does it operate properly? | Go to step **6**. | Go to step **3**. |
| 3 | **CHECK HARNESS.**<br>1) Disconnect the body integrated unit connector and rear gate lock actuator connector.<br>2) Check the continuity between body integrated unit connector and rear gate lock actuator connector.<br>***Connector & terminal***<br>***(i171) No. 7 — (D46) No. 1:*** | Is there continuity? | Go to step **4**. | Repair or replace the open circuit of harness. |
| 4 | **CHECK HARNESS.**<br>1) Check the continuity between the rear gate lock actuator connector and chassis ground.<br>***Connector & terminal***<br>***(D47) No. 2 — Chassis ground:*** | Is there continuity? | Go to step **5**. | Repair or replace the open circuit of harness. |
| 5 | **CHECK REAR GATE LOCK ACTUATOR.**<br>1) Check the rear gate lock actuator. <Ref. to SL-57, INSPECTION, Rear Gate Latch and Actuator Assembly.> | Is the rear gate lock actuator normal? | Replace the body integrated unit. <Ref. to SL-87, Body Integrated Unit.> | Replace the rear gate latch and actuator assembly. <Ref. to SL-56, Rear Gate Latch and Actuator Assembly.> |
| 6 | **CHECK ACCESS KEY.**<br>1) Prepare all access keys registered to the vehicle.<br>2) Check that the rear gate lock can be unlocked with each access key. | Does it operate properly? | Go to step **7**. | Replace the access key. <Ref. to SL-94, REPLACEMENT, Access Key.> |
| 7 | **CHECK CURRENT DATA.**<br>1) Display the current data «R Gate Release SW input» of body integrated unit using Subaru Select Monitor.<br>2) Read the data when pressing the rear gate opener button. | Does the data display ON? | Go to step **14**. | Go to step **8**. |
| 8 | **CHECK WIRING HARNESS.**<br>1) Disconnect the rear gate opener button connector and body integrated unit connector.<br>2) Using a tester, check the continuity between the rear gate opener button connector and body integrated unit connector.<br>***Connector & terminal***<br>***(D77) No. 1 — (i84) No. 10:*** | Is there continuity? | Go to step **9**. | Repair or replace the open circuit of harness. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 9 | **CHECK WIRING HARNESS.**<br>1) Using a tester, check the continuity between the rear gate opener button connector and chassis ground.<br>***Connector & terminal***<br>***(D77) No. 2 — Chassis ground:*** | Is there continuity? | Go to step **10**. | Repair or replace the open circuit of harness. |
| 10 | **CHECK REAR GATE OPENER BUTTON.**<br>Using a tester, check the continuity between rear gate opener button switch terminals.<br>***Connector & terminal***<br>***(D77) No. 1 — (D77) No. 2:*** | Is there continuity when pressing the switch? | Go to step **11**. | Replace the rear gate opener button. <Ref. to SL-54, Rear Gate Opener Button.> |
| 11 | **CHECK WIRING HARNESS.**<br>1) Disconnect the exterior rear antenna connector and the keyless access CM connector.<br>2) Using a tester, check continuity between the exterior rear antenna connector and keyless access CM connector.<br>***Connector & terminal***<br>***(R299) No. 1 — (B573) No. 2:***<br>***(R299) No. 2 — (B573) No. 1:*** | Is there continuity? | Go to step **12**. | Repair or replace the open circuit of harness. |
| 12 | **CHECK OUTSIDE REAR ANTENNA.**<br>Replace the outside rear antenna with new or properly working parts. | Does it operate properly? | The outside rear antenna has a failure. | Go to step **13**. |
| 13 | **CHECK CURRENT DATA.**<br>1) Display the current data «R gate lock status SW input» of body integrated unit using Subaru Select Monitor.<br>2) Read the data when locking/unlocking the rear gate lock actuator. | Does the data change from ON ←→ OFF? | Go to step **14**. | Check body integrated unit. <Ref. to SL-87, REMOVAL, Body Integrated Unit.> |
| 14 | **CHECK KEYLESS ACCESS SYSTEM CHECK.**<br>1) Using the Subaru Select Monitor, select System check of the keyless access CM «Rear gate external transmitter + interior tuner». <Ref. to KPS(diag)-37, Keyless Access System Check.><br>2) Hold the access key 1 m or more away from the trunk, then come closer to within 0.8 m. | Does the outside buzzer sound? | System is normal. | Replace the keyless access CM. <Ref. to SL-110, Keyless Access CM.> |

## 14.CAN NOT LOCK WHEN USING THE REAR LOCK BUTTON

**CAUTION:**
- **Check that there are no other registered access keys inside the vehicle.**
- **Check that the keyless access function is not stopped.**
- **Inspect LAN system or keyless access system according to the basic diagnostic procedure, and make sure that DTC is not input.**
- **When the access key or keyless access CM is replaced, registration of the immobilizer is required. For the relevant procedures, refer to the "REGISTRATION MANUAL FOR IMMOBILIZER".**

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK REAR GATE ACTUATOR.**<br>While carrying the access key, operate the touch sensor (lock) and touch sensor (unlock). | When the switch is operated, does the rear gate lock/unlock? | Go to step **2**. | Go to step **10**. |
| 2 | **CHECK REAR LOCK BUTTON.**<br>1) Display the «Rear Gate Request SW» of the keyless access CM using the Subaru Select Monitor.<br>2) Read the data when operating the rear lock button. | Does the data change between ON/OFF? | Go to step **8**. | Go to step **3**. |
| 3 | **CHECK HARNESS.**<br>1) Disconnect the rear lock button connector and the keyless access CM connector.<br>2) Using a tester, measure the resistance between harness.<br>***Connector & terminal***<br>***(D77) No. 3 — (B573) No. 27:*** | Is the resistance less than 10 Ω? | Go to step **4**. | Repair or replace the open circuit of the harness. |
| 4 | **CHECK HARNESS.**<br>Using a tester, measure the resistance between harness and chassis ground.<br>***Connector & terminal***<br>***(D77) No. 3 — Chassis ground:*** | Is the resistance 10 MΩ or more? | Go to step **5**. | Repair or replace the short of harness. |
| 5 | **CHECK HARNESS.**<br>Using a tester, measure the resistance between harness and chassis ground.<br>***Connector & terminal***<br>***(D77) No. 4 — Chassis ground:*** | Is the resistance less than 10 Ω? | Go to step **6**. | Repair or replace the open circuit of the harness. |
| 6 | **CHECK REAR LOCK BUTTON.**<br>Measure the resistance when the rear lock button is operated using the tester.<br>***Connector & terminal***<br>***(D77) No. 3 — No. 4:*** | Did the resistance change from 1 MΩ or more to less than 10 Ω? | Go to step **7**. | Replace the rear lock button. <Ref. to SL-105, REMOVAL, Rear Lock Button.> |
| 7 | **CHECK REAR LOCK BUTTON.**<br>1) Display the «Rear Gate Request SW» of the keyless access CM using the Subaru Select Monitor.<br>2) Read the data when operating the rear lock button. | Does the data change between ON/OFF? | Go to step **8**. | Replace the keyless access CM. <Ref. to SL-110, REMOVAL, Keyless Access CM.> |
| 8 | **CHECK WIRING HARNESS.**<br>1) Disconnect the exterior rear antenna connector and the keyless access CM connector.<br>2) Using a tester, check continuity between the exterior rear antenna connector and keyless access CM connector.<br>***Connector & terminal***<br>***(R299) No. 1 — (B573) No. 2:***<br>***(R299) No. 2 — (B573) No. 1:*** | Is there continuity? | Go to step **9**. | Repair or replace the open circuit of harness. |
| 9 | **CHECK OUTSIDE REAR ANTENNA.**<br>Replace the outside rear antenna with new or properly working parts. <Ref. to SL-103, REMOVAL, Keyless Access Outdoor Antenna.> | Does it operate properly? | The outside rear antenna has a failure. | Go to step **10**. |

| Step | | Check | Yes | No |
|---|---|---|---|---|
| 10 | **CHECK BODY INTEGRATED UNIT.**<br>1) Connect the disconnected connectors.<br>2) Use the Subaru Select Monitor to perform the body integrated unit function check.<br>3) Actuate the door lock actuator LOCK output. | Does the rear gate lock actuator lock? | It is possible that temporary poor communication occurs. | Go to step **11**. |
| 11 | **CHECK HARNESS.**<br>1) Disconnect the body integrated unit connector and rear gate lock actuator connector.<br>2) Check the continuity between body integrated unit connector and rear gate lock actuator connector.<br>***Connector & terminal***<br>***(i171) No. 7 — (D46) No. 1:*** | Is there continuity? | Go to step **12**. | Repair or replace the open circuit of harness. |
| 12 | **CHECK HARNESS.**<br>1) Check the continuity between the rear gate lock actuator connector and chassis ground.<br>***Connector & terminal***<br>***(D46) No. 2 — Chassis ground:*** | Is there continuity? | Go to step **13**. | Repair or replace the open circuit of harness. |
| 13 | **CHECK REAR GATE LOCK ACTUATOR.**<br>1) Check the rear gate lock actuator. <Ref. to SL-57, INSPECTION, Rear Gate Latch and Actuator Assembly.> | Is the rear gate lock actuator normal? | Replace the body integrated unit. <Ref. to SL-87, Body Integrated Unit.> | Replace the rear gate latch and actuator assembly. <Ref. to SL-56, Rear Gate Latch and Actuator Assembly.> |

## 15.THE STEERING LOCK IS NOT RELEASED

**CAUTION:**
**When the steering lock CM is replaced, registration of the immobilizer is required. For the relevant procedures, refer to the "REGISTRATION MANUAL FOR IMMOBILIZER".**

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK OPERATION.**<br>1) Depress the brake pedal.<br>2) While turning the steering wheel lightly to the left and right, press the push button ignition switch.<br>3) Confirm that the steering lock is released and the engine start. | Does the engine fail to start with the steering lock released? | Perform the diagnosis for engine system. <Ref. to EN(H4DO w/o HEV)(diag)-73, Diagnostics for Engine Starting Failure.> <Ref. to EN(H4DO HEV)(diag)-70, Diagnostics for Engine Starting Failure.> | Go to step **2**. |
| 2 | **CHECK DTC.**<br>Read keyless access CM DTCs using the Subaru Select Monitor. | Is a DTC displayed? | Perform the diagnosis according to the corresponding procedures of DTC. | Go to step **3**. |
| 3 | **CHECK CURRENT DATA.**<br>1) Using the Subaru Select Monitor, display the current data of the keyless access CM «Steering lock unlock request reception status» and «Steering lock lock/unlock command reception history».<br>2) Read the data when the push button ignition switch is pressed while in possession of the access key. (Maintain for 10 seconds after switch operation) | Does the data change from «Not yet received» to «Reception», and from «OFF» to «ON»? | Go to step **4**. | Go to step **7**. |
| 4 | **CHECK STEERING LOCK CM.**<br>1) Disconnect the steering lock CM connector.<br>2) Using a tester, measure the voltage between the steering lock CM connector and chassis ground.<br>***Connector & terminal***<br>***(B424) No. 7 (+) — Chassis ground (–):*** | Is the voltage 10 V or more? | Go to step **5**. | Repair or replace the open circuit of harness. |
| 5 | **CHECK STEERING LOCK CM.**<br>Using a tester, check continuity between the steering lock CM connector and chassis ground.<br>***Connector & terminal***<br>***(B424) No. 1 — Chassis ground:*** | Is there continuity? | Go to step **6**. | Repair or replace the open circuit of harness. |
| 6 | **CHECK STEERING LOCK CM.**<br>1) Connect the disconnected connectors.<br>2) Using a tester, measure the voltage between steering lock CM terminals right after the ignition switch is turned to ON.<br>***Connector & terminal***<br>***(B424) No. 3 (+) — (B424) No. 1 (–):*** | Is the voltage 1 V or less right after the ignition ON? | Replace the steering lock CM. <Ref. to SL-113, REMOVAL, Steering Lock CM.> | Repair or replace the open circuit of harness. |
| 7 | **CHECK CURRENT DATA.**<br>Using the Subaru Select Monitor, display the current data of the keyless access CM «Code collation result between smart ECM and ID code box». | Is data displayed as being normal? | Go to step **9**. | Go to step **8**. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 8 | **CHECK CURRENT DATA.**<br>1) Replace with a properly functioning or new ID code box. <Ref. to SL-112, REMOVAL, ID Code Box.><br>2) Using the Subaru Select Monitor, display the current data of the keyless access CM «Code collation result between smart ECM and ID code box». | Is data displayed as being normal? | System is normal. | Replace the keyless access CM. <Ref. to SL-110, Keyless Access CM.> |
| 9 | **CHECK CURRENT DATA.**<br>Using the Subaru Select Monitor, display the current data of the keyless access CM «Code collation result between steering locked ECM and ID code box». | Is data displayed as being normal? | System is normal. | Go to step **10**. |
| 10 | **CHECK ID CODE BOX.**<br>1) Replace with a properly functioning or new ID code box. <Ref. to SL-112, REMOVAL, ID Code Box.><br>2) Using the Subaru Select Monitor, display the current data of the keyless access CM «Code collation result between steering locked ECM and ID code box». | Is data displayed as being normal? | System is normal. | Go to step **11**. |
| 11 | **CHECK STEERING LOCK CM.**<br>1) Replace with a properly functioning or new steering lock CM. <Ref. to SL-113, REMOVAL, Steering Lock CM.><br>2) After registering, the steering lock operates when the ignition is turned to OFF and the driver's door is opened and closed.<br>3) Turn the ignition to ON.<br>4) Operate the steering and check for whether the steering lock is released. | Is the steering lock released, and does the engine start? | Replace the steering lock CM. <Ref. to SL-113, REMOVAL, Steering Lock CM.> | Replace the keyless access CM. <Ref. to SL-110, Keyless Access CM.> |

## 16.THE STEERING LOCK DOES NOT OPERATE

**CAUTION:**
**When the keyless access CM or steering lock CM is replaced, registration of the immobilizer is required. For the relevant procedures, refer to the "REGISTRATION MANUAL FOR IMMOBILIZER".**

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK DTC.**<br>Read keyless access system DTCs using the Subaru Select Monitor. | Is a DTC displayed? | Perform the diagnosis according to the corresponding DTC. | Go to step **2**. |
| 2 | **CHECK CURRENT DATA.**<br>1) Display the current data «Driver's door SW input» of body integrated unit using Subaru Select Monitor.<br>2) Read the data when opening and closing the driver's door. | Does the data change from ON to OFF according to the opening and closing? | Go to step **3**. | Inspect door switch circuit. |
| 3 | **CHECK CURRENT DATA.**<br>Display the current data «Shift P Signal» of keyless access system using Subaru Select Monitor. | Is the status displayed correctly when the shift lever is shifted from P to other than P? | Go to step **4**. | Check the P range switch and harness. |
| 4 | **CHECK CURRENT DATA.**<br>Using the Subaru Select Monitor, display the current data «Code collation result between smart ECM and ID code box» of keyless access system. | Is the status normal? | Go to step **5**. | Replace the keyless access CM. <Ref. to SL-110, REMOVAL, Keyless Access CM.> |
| 5 | **CHECK CURRENT DATA.**<br>Using the Subaru Select Monitor, display the current data «Code collation result between steering locked ECM and ID code box» of keyless access system. | Is the status normal? | Go to step **6**. | Replace the steering lock CM. <Ref. to SL-113, REMOVAL, Steering Lock CM.> |
| 6 | **CHECK CURRENT DATA.**<br>1) Using Subaru Select Monitor, display the current data «Steering lock lock/unlock command reception history» of keyless access system.<br>2) While in possession of the access key, perform engine start operations, and read data within 10 seconds after starting. | Is data displayed as ON? | Go to step **7**. | Replace the keyless access CM. <Ref. to SL-110, REMOVAL, Keyless Access CM.> |
| 7 | **CHECK STEERING LOCK CM.**<br>Using a tester, measure the waveform between steering lock CM terminals immediately after the following operations.<br>Perform ignition ON, driver's side door close → shift lever "P" range, ignition OFF, and close → open the driver's side door.<br>***Connector & terminal***<br>***(B424) No. 3 — (B424) No. 1:*** | Is the waveform immediately after opening the driver's side door abnormal? | Replace the steering lock CM. <Ref. to SL-113, REMOVAL, Steering Lock CM.> | Go to step **8**. |
| 8 | **CHECK WIRING HARNESS.**<br>1) Disconnect the keyless access CM connector and the steering lock CM connector.<br>2) Using a tester, check continuity between the keyless access CM connector and steering lock CM connector.<br>***Connector & terminal***<br>***(B424) No. 3 — (B574) No. 29:*** | Is there continuity? | Go to step **9**. | Repair or replace the open circuit of harness. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 9 | **CHECK WIRING HARNESS.**<br>Using a tester, check continuity between the keyless access CM connector and chassis ground.<br>***Connector & terminal***<br>***(B572) No. 11 — Chassis ground:*** | Is there continuity? | Replace the keyless access CM. <Ref. to SL-110, REMOVAL, Keyless Access CM.> | Repair or replace the open circuit of harness. |

## 17.POWER WILL NOT TURN ON (BOTH ACCESSORY AND IGNITION)

**CAUTION:**
**• When the keyless access CM is replaced with a new unit, and the battery ground terminal is connected, it will become ignition ON. Also, if the battery is disconnected, it will resume to a condition with the battery cut off.**
**• When the keyless access CM is replaced, registration of the immobilizer is required. For the relevant procedures, refer to the "REGISTRATION MANUAL FOR IMMOBILIZER".**

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK FUSE.**<br>Check the fuse. | Is the fuse OK? | Go to step **2**. | Replace the fuse. |
| 2 | **CHECK POWER SUPPLY.**<br>1) Remove IG relay 1 (push button start), IG relay 2 (push button start) and accessory relay (push button start).<br>2) Using a tester, measure the voltage between the relay block connector and chassis ground. | Is the voltage 10 V or more? | Go to step **3**. | Check the DC power supply circuit. |
| 3 | **CHECK CONNECTOR.**<br>Check the engagement of each connector and for any deformation or looseness. | Are the connectors and terminals normal? | Go to step **4**. | Repair the connector, or replace harness. |
| 4 | **CHECK WIRING HARNESS.**<br>1) Disconnect the keyless access CM connector.<br>2) Using a tester, measure the voltage between the keyless access CM connector and chassis ground.<br>***Connector & terminal***<br>***(B572) No. 2 (+) — Chassis ground (–):*** | Is the voltage between 8 V and 16 V? | Go to step **5**. | Repair or replace the open circuit of harness. |
| 5 | **CHECK WIRING HARNESS.**<br>Using a tester, check continuity between the keyless access CM connector and chassis ground.<br>***Connector & terminal***<br>***(B572) No. 11 — Chassis ground:*** | Is there continuity? | Go to step **6**. | Repair or replace the open circuit of harness. |
| 6 | **CHECK DTC.**<br>1) Connect the keyless access CM connector.<br>2) While in possession of the access key, depress the brake pedal, and push the push button ignition switch.<br>3) Read keyless access CM DTCs using the Subaru Select Monitor. | Is a DTC output? | Perform diagnosis according to the DTC. | Go to step **7**. |
| 7 | **CHECK CURRENT DATA.**<br>1) Display the current data «Push start SW 1» and «Push start SW 2» of the keyless access CM using the Subaru Select Monitor.<br>2) Read the data when pressing the push button ignition switch. | Does it change from OFF to ON along with the operation? | Go to step **8**. | Go to step **15**. |
| 8 | **CHECK RELAY (PUSH BUTTON START).**<br>Check IG relay 1 and 2 (push button start), and accessory relay (push button start). <Ref. to SL-120, INSPECTION, IG Relay1 (Push Button Start).> | Is each relay normal? | Go to step **9**. | Replace the faulty relay. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 9 | **CHECK WIRING HARNESS.**<br>1) Disconnect the keyless access CM connector, IG relay 1 (push button start), IG relay 2 (push button start) and accessory relay (push button start).<br>2) Using a tester, check continuity between terminals of keyless access CM connector, IG relay 1 (push button start), IG relay 2 (push button start) and accessory relay (push button start).<br>***Connector & terminal***<br>***(B574) No. 6 — (B225) No. 38:***<br>***(B572) No. 9 — (B225) No. 34:***<br>***(B574) No. 4 — (B426) No. 1:*** | Is there continuity? | Go to step **10**. | Repair or replace the open circuit of harness. |
| 10 | **CHECK WIRING HARNESS.**<br>Using a tester, check continuity between the keyless access CM connector and chassis ground.<br>***Connector & terminal***<br>***(B572) No. 9 — Chassis ground:***<br>***(B574) No. 4 — Chassis ground:***<br>***(B574) No. 6 — Chassis ground:*** | Is there continuity? | Repair or replace the short circuit of the harness. | Go to step **11**. |
| 11 | **CHECK WIRING HARNESS.**<br>Using a tester, check the continuity between the IG relay 2 (push button start) connector and chassis ground.<br>***Connector & terminal***<br>***(B225) No. 39 — Chassis ground:*** | Is there continuity? | Go to step **12**. | Repair or replace the open circuit of harness. |
| 12 | **CHECK WIRING HARNESS.**<br>Using a tester, check the continuity between the IG relay 1 connector and chassis ground.<br>***Connector & terminal***<br>***(B225) No. 35 — Chassis ground:*** | Is there continuity? | Go to step **13**. | Repair or replace the open circuit of harness. |
| 13 | **CHECK WIRING HARNESS.**<br>Using a tester, check the continuity between the accessory relay connector and chassis ground.<br>***Connector & terminal***<br>***(B426) No. 2 — Chassis ground:*** | Is there continuity? | Go to step **14**. | Repair or replace the open circuit of harness. |
| 14 | **CHECK KEYLESS ACCESS CM.**<br>1) Connect all the disconnected connectors.<br>2) Using a tester, measure the voltage between the keyless access CM connector and chassis ground when the ignition is turned from OFF to ON.<br>***Connector & terminal***<br>***(B572) No. 9 (+) — Chassis ground (–):***<br>***(B574) No. 4 (+) — Chassis ground (–):***<br>***(B574) No. 6 (+) — Chassis ground (–):*** | Did the voltage change from 1 V or less to +B-2 V or more? | Go to step **15**. | Replace the keyless access CM. <Ref. to SL-110, Keyless Access CM.> |
| 15 | **CHECK PUSH BUTTON IGNITION SWITCH.**<br>1) Disconnect the push button ignition switch.<br>2) Using a tester, check the continuity between terminals.<br>***Connector & terminal***<br>***(i150) No. 7 — (i150) No. 5:***<br>***(i150) No. 2 — (i150) No. 5:*** | When the button was pressed, did it change to continuity exists? (No continuity when button is released) | Go to step **16**. | Replace the push button ignition switch. <Ref. to SL-114, REMOVAL, Push Button Ignition Switch.> |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 16 | **CHECK WIRING HARNESS.**<br>Using a tester, check the continuity between the push button ignition switch connector and chassis ground.<br>***Connector & terminal***<br>***(i150) No. 4 — Chassis ground:***<br>***(i150) No. 5 — Chassis ground:*** | Is there continuity? | Go to step **17**. | Repair or replace the open circuit of harness. |
| 17 | **CHECK WIRING HARNESS.**<br>1) Disconnect the keyless access CM connector.<br>2) Using a tester, check continuity between the keyless access CM connector and push button ignition switch.<br>***Connector & terminal***<br>***(i150) No. 7 — (B574) No. 28:***<br>***(i150) No. 2 — (B574) No. 30:*** | Is there continuity? | System is normal. | Repair or replace the open circuit of harness. |

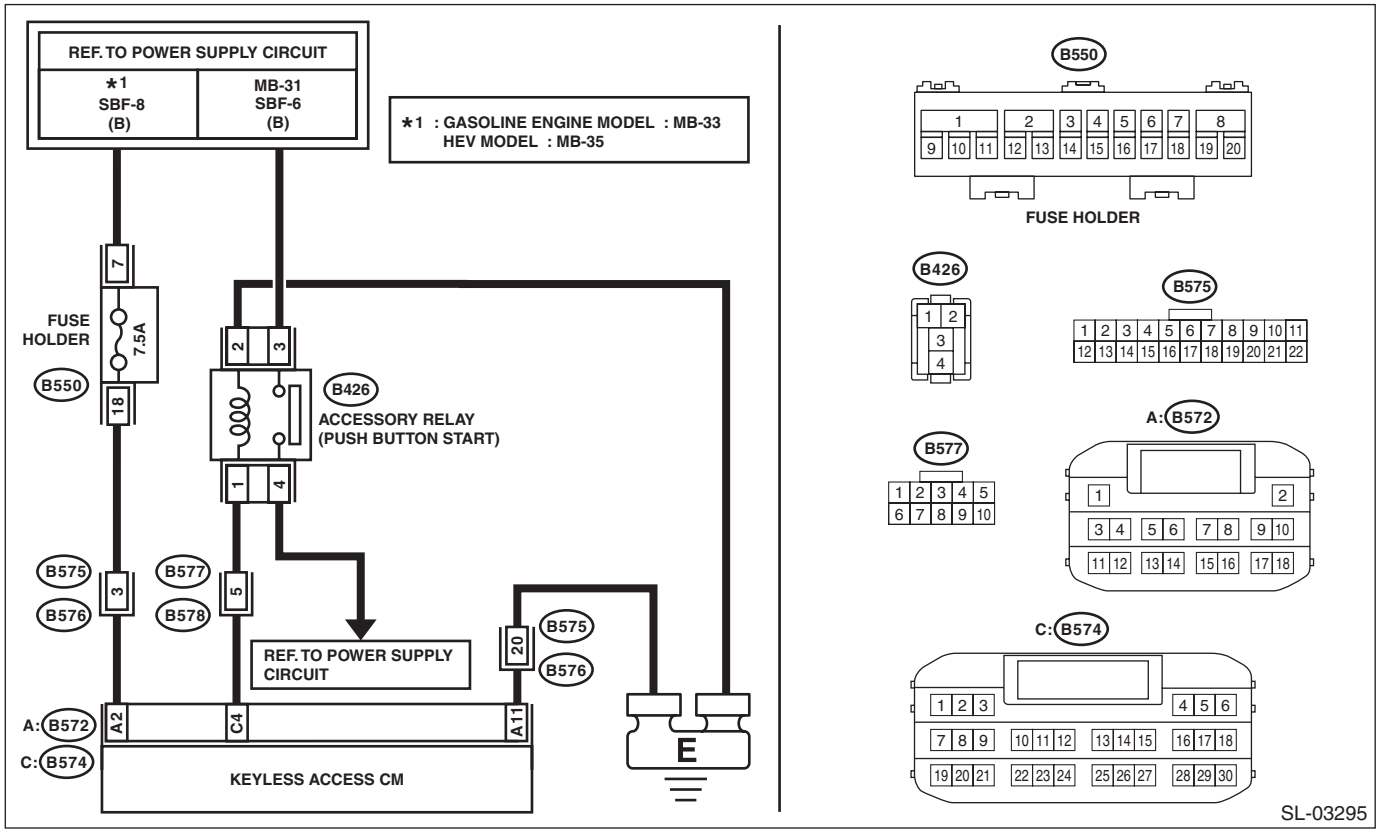
## 18.POWER WILL NOT TURN ON (ACCESSORY DOES NOT TURN ON, BUT IGNITION TURNS ON)

**CAUTION:**

- **When the keyless access CM is replaced with a new unit, and the battery ground terminal is connected, it will become ignition ON. Also, if the battery is disconnected, it will resume to a condition with the battery cut off.**
- **When the keyless access CM is replaced, registration of the immobilizer is required. For the relevant procedures, refer to the "REGISTRATION MANUAL FOR IMMOBILIZER".**

**WIRING DIAGRAM:**

Push button start system <Ref. to WI(w/o HEV)-179, WIRING DIAGRAM, Push Button Start System.> <Ref. to WI(HEV)-181, WIRING DIAGRAM, Push Button Start System.>



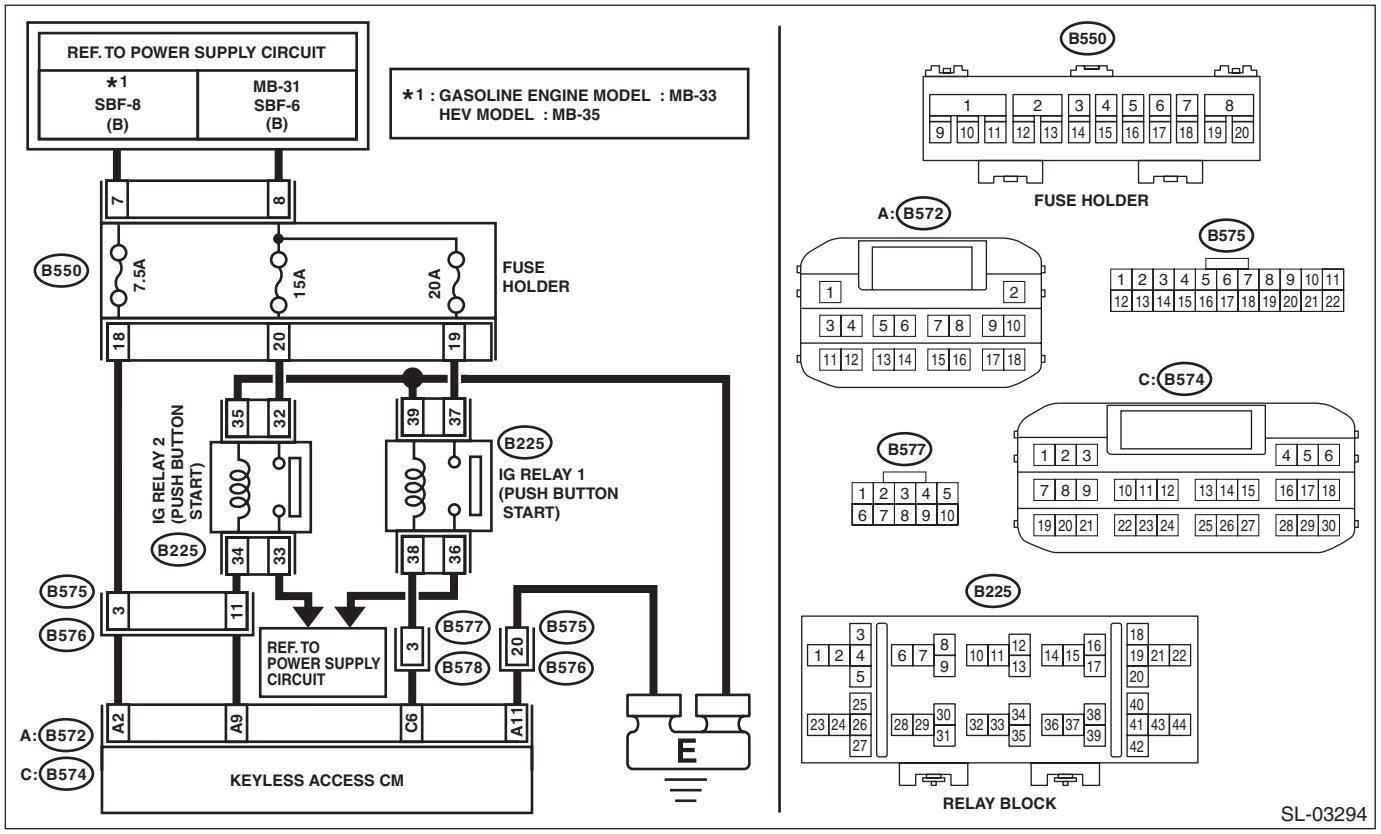

| Step | | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK FUSE.**<br>Check the fuse. | Is the fuse OK? | Go to step **2**. | Replace the fuse. |
| 2 | **CHECK CONNECTOR.**<br>Check the engagement of each connector and for any deformation or looseness. | Are the connectors and terminals normal? | Go to step **3**. | Repair the connector, or replace harness. |
| 3 | **CHECK WIRING HARNESS.**<br>1) Disconnect the keyless access CM connector.<br>2) Using a tester, measure the voltage between the keyless access CM connector and chassis ground.<br>***Connector & terminal***<br>***(B572) No. 2 (+) — Chassis ground (–):*** | Is the voltage between 8 V and 16 V? | Go to step **4**. | Repair or replace the open circuit of harness. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 4 | **CHECK WIRING HARNESS.**<br>Using a tester, check continuity between the keyless access CM connector and chassis ground.<br>***Connector & terminal***<br>***(B572) No. 11 — Chassis ground:*** | Is there continuity? | Go to step **5**. | Repair or replace the open circuit of harness. |
| 5 | **CHECK ACCESSORY RELAY (PUSH BUTTON START).**<br>Check the accessory relay (push button start). <Ref. to SL-123, INSPECTION, Accessory Relay (Push Button Start).> | Is the relay OK? | Go to step **6**. | Replace the relay. |
| 6 | **CHECK WIRING HARNESS.**<br>1) Disconnect the keyless access CM connector and the accessory relay (push button start).<br>2) Using a tester, check continuity between the keyless access CM connector and accessory relay (push button start).<br>***Connector & terminal***<br>***(B574) No. 4 — (B426) No. 1:*** | Is there continuity? | Go to step **7**. | Repair or replace the open circuit of harness. |
| 7 | **CHECK WIRING HARNESS.**<br>Using a tester, check continuity between the keyless access CM connector and chassis ground.<br>***Connector & terminal***<br>***(B574) No. 4 — Chassis ground:*** | Is there continuity? | Repair or replace the short circuit of the harness. | Go to step **8**. |
| 8 | **CHECK KEYLESS ACCESS CM.**<br>1) Connect the keyless access CM connector.<br>2) Using a tester, measure the voltage between the keyless access CM connector and chassis ground when the ignition is turned from OFF to ON.<br>***Connector & terminal***<br>***(B574) No. 4 (+) — Chassis ground (−):*** | Did the voltage change from 1 V or less → +B-2 V or more? | System is normal. | Replace the keyless access CM. <Ref. to SL-110, Keyless Access CM.> |

## 19.POWER WILL NOT TURN ON (ACCESSORY TURNS ON, BUT IGNITION DOES NOT TURN ON)

**CAUTION:**
**When the keyless access CM is replaced with a new unit, and the battery ground terminal is connected, it will become ignition ON. Also, if the battery is disconnected, it will resume to a condition with the battery cut off.**

**WIRING DIAGRAM:**
Push button start system <Ref. to WI(w/o HEV)-179, WIRING DIAGRAM, Push Button Start System.> <Ref. to WI(HEV)-181, WIRING DIAGRAM, Push Button Start System.>




| Step | | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK FUSE.**<br>Check the fuse. | Is the fuse OK? | Go to step **2**. | Replace the fuse. |
| 2 | **CHECK CONNECTOR.**<br>Check the engagement of each connector and for any deformation or looseness. | Are the connectors and terminals normal? | Go to step **3**. | Repair the connector, or replace harness. |
| 3 | **CHECK WIRING HARNESS.**<br>1) Disconnect the keyless access CM connector.<br>2) Using a tester, measure the voltage between the keyless access CM connector and chassis ground.<br>***Connector & terminal***<br>***(B572) No. 2 (+) — Chassis ground (–):*** | Is the voltage between 8 V and 16 V? | Go to step **4**. | Repair or replace the open circuit of harness. |
| 4 | **CHECK WIRING HARNESS.**<br>Using a tester, check continuity between the keyless access CM connector and chassis ground.<br>***Connector & terminal***<br>***(B572) No. 11 — Chassis ground:*** | Is there continuity? | Go to step **5**. | Repair or replace the open circuit of harness. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 5 | **CHECK IG RELAY 1 AND 2 (PUSH BUTTON START).**<br>Check IG relay 1 (push button start) and IG relay 2 (push button start). <Ref. to SL-120, INSPECTION, IG Relay1 (Push Button Start).> | Is the relay OK? | Go to step **6**. | Replace the relay. |
| 6 | **CHECK WIRING HARNESS.**<br>1) Disconnect the keyless access CM connector and the IG relay 1 and 2 (push button start).<br>2) Using a tester, check continuity between keyless access CM connector and IG relay 1 (push button start) or IG relay 2 (push button start).<br>***Connector & terminal***<br>***(B572) No. 9 — (B225) No. 34:***<br>***(B574) No. 6 — (B225) No. 38:*** | Is there continuity? | Go to step **7**. | Repair or replace the open circuit of harness. |
| 7 | **CHECK WIRING HARNESS.**<br>Using a tester, check continuity between the keyless access CM connector and chassis ground.<br>***Connector & terminal***<br>***(B572) No. 9 — Chassis ground:***<br>***(B574) No. 6 — Chassis ground:*** | Is there continuity? | Repair or replace the short circuit of the harness. | Go to step **8**. |
| 8 | **CHECK KEYLESS ACCESS CM.**<br>1) Connect the keyless access CM connector.<br>2) Using a tester, measure the voltage between the keyless access CM connector and chassis ground when the ignition is turned from OFF to ON.<br>***Connector & terminal***<br>***(B572) No. 9 (+) — Chassis ground (–):***<br>***(B574) No. 6 (+) — Chassis ground (–):*** | Did the voltage change from 1 V or less → +B-2 V or more? | System is normal. | Replace the keyless access CM. <Ref. to SL-110, Keyless Access CM.> |

## 20.ENGINE DOES NOT START

**CAUTION:**
**• When the keyless access CM is replaced with a new unit, and the battery ground terminal is connected, it will become ignition ON. Also, if the battery is disconnected, it will resume to a condition with the battery cut off.**
**• When the keyless access CM or ID code box is replaced, registration of the immobilizer is required. For the relevant procedures, refer to the "REGISTRATION MANUAL FOR IMMOBILIZER".**

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **INITIALIZE STEERING LOCK.**<br>1) Place the shift lever in the Parking range.<br>2) Operate the driver's door switch ON/OFF with the ignition switch OFF.<br>3) Wait for 10 seconds.<br>4) Place the access key on the driver's seat.<br>5) Press the push button ignition switch while depressing the brake pedal. | Can the engine start? | System is normal. | Go to step **2**. |
| 2 | **CHECK DTC.**<br>Read the DTC of the keyless access system using Subaru Select Monitor. | Is DTC detected? | Perform the diagnosis according to the DTC. <Ref. to KPS(diag)-39, LIST, List of Diagnostic Trouble Code (DTC).> | Go to step **3**. |
| 3 | **CHECK POWER SUPPLY SWITCHING.**<br>1) Place the access key on the driver's seat.<br>2) Press the push button ignition switch without depressing the brake pedal. | When the switch is operated, does the <IG-OFF> → <ACC-ON> → <IG-ON> → <IG-OFF> change occur? | Go to step **4**. | Perform the diagnostics according to the symptom for power supply switching system in General Diagnostic Table. <Ref. to KPS(diag)-109, POWER SUPPLY SWITCHING SYSTEM, INSPECTION, General Diagnostic Table.> |
| 4 | **CHECK CURRENT DATA.**<br>1) Place the access key on the driver's seat.<br>2) Press the push button ignition switch while depressing the brake pedal.<br>3) Using the Subaru Select Monitor, confirm the keyless access CM, the current data «STSW signal monitor» when pressing the push button ignition switch.<br>NOTE:<br>If it is difficult to confirm, press and hold the push button ignition switch for approximately five seconds. | Does the data change from OFF → ON? | Go to step **10**. | Go to step **5**. |
| 5 | **CHECK CURRENT DATA.**<br>Check the keyless access CM, current data «Shift P Signal» using the Subaru Select Monitor. | Is ON displayed in parking position, and OFF displayed in other positions? | Go to step **6**. | Go to step **11**. |
| 6 | **CHECK CURRENT DATA.**<br>Confirm the keyless access CM, current data «Stop Light Switch» using the Subaru Select Monitor. | Is ON displayed when brake pedal depressed, and OFF displayed when brake pedal not depressed? | Go to step **7**. | Go to step **13**. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 7 | **CHECK CURRENT DATA.**<br>Confirm the keyless access CM, current data «Neutral SW/Clutch SW» using the Subaru Select Monitor. | Is ON displayed in parking and neutral positions, and OFF displayed in other positions? | Go to step **8**. | Go to step **15**. |
| 8 | **CHECK STEERING LOCK.**<br>Operate the push button ignition switch to perform the power supply switching and check steering lock condition during ACC-ON condition. | Is the steering lock in unlocked condition? | Go to step **9**. | Perform the diagnostics according to the symptom for steering lock system in General Diagnostic Table. <Ref. to KPS(diag)-109, STEERING LOCK SYSTEM, INSPECTION, General Diagnostic Table.> |
| 9 | **CHECK KEYLESS ACCESS CM.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the ECM connector.<br>3) Using a tester, measure the battery voltage in following procedures.<br>1. Press the push button ignition switch with the brake pedal depressed. (Measure within 10 seconds.)<br>2. Release the push button ignition switch from the condition of step 1. above.<br>***Connector & terminal***<br>***(B572) No. 13 (+) — Chassis ground (–):*** | Does the value change from 1 V or less to +B-2 V or more in the step 1, and return to 1 V or less in the step 2? | Perform the diagnosis for engine system. <Ref. to EN(H4DO w/o HEV)(diag)-73, Diagnostics for Engine Starting Failure.> <Ref. to EN(H4DO HEV)(diag)-70, Diagnostics for Engine Starting Failure.> | Replace the keyless access CM. <Ref. to SL-110, Keyless Access CM.> |
| 10 | **CHECK CURRENT DATA.**<br>1) Connect the disconnected connectors.<br>2) Confirm the keyless access CM, current data «Engine start permission request reception status» using the Subaru Select Monitor. | Is “Reception” displayed with ignition switch ON, and “Not yet received” displayed in other positions? | Perform the diagnosis for engine system. | Replace the keyless access CM. <Ref. to SL-110, Keyless Access CM.> |
| 11 | **CHECK “P” RANGE SWITCH.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the AT shift lever connector.<br>3) Using a tester, check the continuity of “P” range switch.<br>***Connector & terminal***<br>***(B116) No. 1 — (B116) No. 2:*** | Does it change from Continuity ←→ No continuity according to shift lever operation? | Go to step **12**. | Replace the “P” range switch. <Ref. to CS-59, REMOVAL, AT Shift Lock Solenoid and “P” Range Switch.> |
| 12 | **CHECK HARNESS.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the keyless access CM connector.<br>3) Using a tester, check continuity between the keyless access CM and AT select lever.<br>***Connector & terminal***<br>***(B116) No. 1 — (B574) No. 25:***<br>***(B116) No. 2 — Chassis ground:*** | Is there continuity? | Replace the keyless access CM. <Ref. to SL-110, Keyless Access CM.> | Repair or replace the harness. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 13 | **CHECK STOP LIGHT SWITCH.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the stop light switch connector.<br>3) Using a tester, check the continuity of the stop light switch.<br>***Connector & terminal***<br>***Gasoline engine model***<br>***(B65) No. 3 — No. 4:***<br>***HEV model***<br>***(B65) No. 1 — No. 2:*** | Does it change from Continuity ←→ No continuity according to brake pedal operation? | Go to step **14**. | Replace the stop light switch. <Ref. to BR-74, REMOVAL, Stop Light Switch.> |
| 14 | **CHECK HARNESS.**<br>1) Turn the ignition switch to OFF.<br>2) Using a tester, check continuity between the keyless access CM and stop light switch.<br>***Connector & terminal***<br>***Gasoline engine model***<br>***(B572) No. 18 — (B65) No. 4:***<br>***(B65) No. 3 — F/B fuse No. 8:***<br>***HEV model***<br>***(B572) No. 18 — (B65) No. 2:***<br>***(B65) No. 1 — F/B fuse No. 8:*** | Is there continuity? | Replace the keyless access CM. <Ref. to SL-110, Keyless Access CM.> | Repair or replace the harness. |
| 15 | **CHECK INHIBITOR SWITCH.**<br>Check the inhibitor switch. <Ref. to CVT(TH58A)-97, INSPECTION, Inhibitor Switch.> | Is the inhibitor switch working normal? | Go to step **16**. | Replace the inhibitor switch. <Ref. to CVT(TH58A)-101, REMOVAL, Inhibitor Switch.> |
| 16 | **CHECK HARNESS.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the inhibitor switch connector.<br>3) Using a tester, check continuity between the keyless access CM connector and inhibitor switch connector.<br>***Connector & terminal***<br>***(B572) No. 5 — (B12) No. 16:***<br>***(B12) No. 15 — Starter motor:*** | Is there continuity? | Replace the keyless access CM. <Ref. to SL-110, Keyless Access CM.> | Repair or replace the harness. |

# BODY CONTROL SYSTEM (DIAGNOSTICS)

# *BC(diag)*


Page

1. Basic Diagnostic Procedure .....2
2. Check List for Interview .....3
3. General Description .....4
4. Electrical Component Location .....5
5. Control Module I/O Signal .....6
6. Read Diagnostic Trouble Code (DTC) .....10
7. Clear Memory Mode .....11
8. Read Current Data .....12
9. User Customizing .....18
10. Registration Body Integrated Unit .....21
11. Function Check .....25
12. List of Diagnostic Trouble Code (DTC) .....26
13. Diagnostic Procedure with Diagnostic Trouble Code (DTC) .....27
14. General Diagnostic Table .....45

# 1. Basic Diagnostic Procedure

## A: PROCEDURE

**CAUTION:**
**• Subaru Select Monitor is required for reading DTC, performing diagnosis, reading current data, customizing and active test (compulsory drive).**
**• Remove foreign matter (dust, water, oil, etc.) from each control module connector during removal and installation.**
**• Registration of immobilizer may be needed after the replacement of control modules, etc. For detailed procedure, refer to the "REGISTRATION MANUAL FOR IMMOBILIZER".**

NOTE:
• To check harness for open or short circuits, shake the suspected trouble spot or connector.
• Check List for Interview <Ref. to LAN(HEV)(diag)-4, Check List for Interview.>

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK PRE-INSPECTION.**<br>Ask the customer when and how the trouble occurred using the interview check list. <Ref. to LAN(HEV)(diag)-4, Check List for Interview.> | Did you interview the customer? | Go to step **2**. | Interview the customer. |
| 2 | **BASIC INSPECTION (CAN DIAGNOSTIC IS NOT USED).**<br>Check components which might affect CAN communication problem. <Ref. to LAN(HEV)(diag)-7, INSPECTION WITHOUT USING CAN DIAGNOSTIC, INSPECTION, General Description.> | Is the component that might affect CAN communication problem normal? | Go to step **3**. | Repair or replace each component. |
| 3 | **CHECK COMMUNICATION FOR INITIALIZING.**<br>Communicate with the all systems by connecting the Subaru Select Monitor. | Is the communication for initializing finished for all modules? | Go to step **4**. | Check the error of communication for initializing. <Ref. to LAN(HEV)(diag)-10, COMMUNICATION FOR INITIALIZING IMPOSSIBLE, Subaru Select Monitor.> |
| 4 | **BASIC INSPECTION (CAN DIAGNOSTIC IS USED).**<br>Check components which might affect CAN communication problem. <Ref. to LAN(HEV)(diag)-7, INSPECTION USING CAN DIAGNOSTIC, INSPECTION, General Description.> | Is the component that might affect CAN communication problem normal? | Go to step **5**. | Repair or replace each component. |
| 5 | **CHECK DTC.**<br>1) Start the engine and read all DTCs.<br>NOTE:<br>• When the engine does not start, perform the diagnosis for the engine start malfunction. <Ref. to EN(H4DO HEV)(diag)-70, Diagnostics for Engine Starting Failure.><br>2) Record all DTCs, time stamp and freeze frame data.<br>NOTE:<br>For time stamp, <Ref. to LAN(HEV)(diag)-6, TIME STAMP, CAUTION, General Description.> | Is DTC U**** displayed on Subaru Select Monitor? | Go to step **6**. | Go to step **7**. |

| Step | | Check | Yes | No |
|---|---|---|---|---|
| 6 | **CHECK DTC.**<br>1) Perform the inspection using the DTC check sheet. <Ref. to LAN(HEV)(diag)-90, CHECK USING THE DTC CHECK SHEET, LIST, List of Diagnostic Trouble Code (DTC).><br>2) Using the Subaru Select Monitor, read all DTCs. | Is DTC U**** displayed on Subaru Select Monitor? | Go to step **8**. | Go to step **7**. |
| 7 | **PERFORM GENERAL DIAGNOSTICS.**<br>Inspect using the “General Diagnostic Table”. <Ref. to LAN(HEV)(diag)-153, General Diagnostic Table.> | Is result of inspection OK? | LAN system is normal. | Go to step **8**. |
| 8 | **PERFORM DIAGNOSIS.**<br>1) Correct the cause of trouble.<br>2) Perform the Clear Memory Mode. <Ref. to LAN(HEV)(diag)-28, OPERATION, Clear Memory Mode.><br>3) Read the DTC. <Ref. to LAN(HEV)(diag)-27, OPERATION, Read Diagnostic Trouble Code (DTC).> | Is DTC displayed on Subaru Select Monitor? | Repeat step 8 until DTC is not shown. | Finish the diagnosis. |

# 2. Check List for Interview

## A: CHECK

Inspect the following items regarding the vehicle's state.

### 1. DISPLAY STATUS IN THE COMBINATION METER

| | | |
|---|---|---|
| Display status in the combination meter | Engine coolant temperature gauge display | ❑ OK / ❑ NG |
| | Fuel gauge display | ❑ OK / ❑ NG |
| | Tachometer display | ❑ OK / ❑ NG (0 rpm at idling etc.) |
| Display of other indicators | Malfunction indicator light | ❑ ON / ❑ Blink / ❑ OFF |
| | Sport indicator light (AT warning light) | ❑ ON / ❑ Blink / ❑ OFF |
| | ABS warning light | ❑ ON / ❑ Blink / ❑ OFF |
| | VDC warning light | ❑ ON / ❑ Blink / ❑ OFF |
| | Immobilizer indicator light | ❑ ON / ❑ Blink / ❑ OFF |
| | AT OIL TEMP warning light | ❑ ON / ❑ Blink / ❑ OFF |
| | Engine coolant temperature warning light | ❑ Blue light ON / ❑ Red light ON / ❑ Red light blinks / ❑ Blue and red lights blink |
| | CRUISE indicator | ❑ ON / ❑ Blink / ❑ OFF |
| | Shift indicator | ❑ OK / ❑ NG |
| | Fuel level warning light | ❑ ON / ❑ Blink / ❑ OFF |
| | Airbag warning light | ❑ ON / ❑ OFF |
| | VDC OFF indicator | ❑ ON / ❑ OFF |
| | Brake warning light | ❑ ON / ❑ OFF |
| | Headlight beam leveler indicator | ❑ ON / ❑ OFF |
| | Hybrid READY indicator light | ❑ ON / ❑ OFF |
| | Hybrid fail lamp | ❑ ON / ❑ OFF |

### 2. CONDITIONS UNDER WHICH TROUBLE OCCURS

| | | |
|---|---|---|
| Driving condition | ❑ At standstill (while idling) | |
| | ❑ When the vehicle is running | Vehicle speed km/h (MPH) |
| | ❑ While accelerating | Acceleration km/h (MPH) to km/h (MPH) |
| | ❑ Decelerating (with braking) | Deceleration km/h (MPH) to km/h (MPH) |
| | ❑ Decelerating (without braking) | Deceleration km/h (MPH) to km/h (MPH) |
| | ❑ Flat road<br>❑ Uphill<br>❑ Downhill<br>❑ Gravel road<br>❑ Bumpy road<br>❑ Snowy road | |
| | Does it occur when operating any part?<br>Operated part:<br>**TROUBLE SYMPTOM:** | |
| | Are there any other troubles occurred?<br>From where:<br>**TROUBLE SYMPTOM:** | |

# 3. General Description

## A: CAUTION

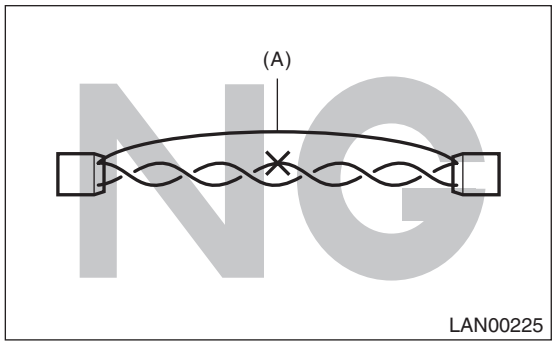
### 1. SRS AIRBAG SYSTEM

Airbag system wiring harness is routed near the body integrated unit and twisted pair line.

**CAUTION:**
- **Do not use the electrical test equipment on all airbag system wiring harnesses and connectors.**
- **Be careful not to damage the airbag system wiring harness when servicing the body integrated unit and LAN system.**

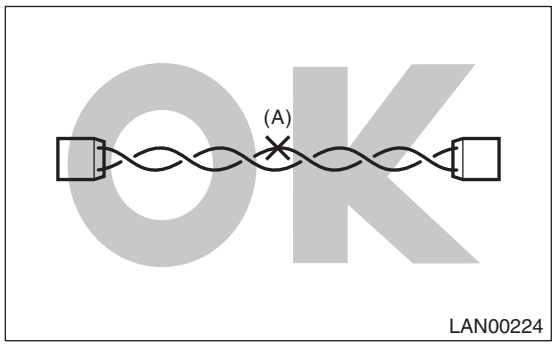
### 2. LAN SYSTEM

- Bus line of LAN system is twisted pair line. Be careful not to by-pass or partly unbind the twisted pair line.
- Do not make clearance between bus lines (CAN High, CAN Low).
- Difference of bus line length should be within 10 cm (3.94 in).
- Fray near the connector should be within 8 cm (3.14 in).




(A) Bypass wire connection

- If the characteristics of the twisted pair line are changed, it may extremely weaken against noise.
- When repairing the harness, connect the wires using soldering and protect it with insulating tape etc.




(A) Soldering and protection with insulating tape

## 3. TIME STAMP

There are three types of record data for the information of time stamp, and they are stored together with diagnostic codes.

NOTE:
Depending on DTCs, time stamp may not be stored.

a. **Trip Count**

This indicates the number of times that the ignition has been turned to ON since the vehicle was manufactured. The ignition ON count of when the diagnostic code is stored is displayed on the diagnostic code check screen.

NOTE:
Subaru Select Monitor screen (A/C system diagnostic code and time stamp)

| Code | Description & trouble position | Trouble occurrence record | **Trip Count** | Time Count | Count |
|---|---|---|---|---|---|
| B14E1 | Air Mix Door Actuator Stepping Motor Circuit Wire Break (Driver's Seat) | Detected on the first time | **983** | 18000 | Common |
| B14E7 | Heater Core Rear Sensor Circuit Wire Break | Detected on the 2nd time | **984** | 117800 | Common |

The current Trip Count can be checked at "Current Data Display & Save" in "Integ. unit mode".
By comparing the current Trip Count and the Trip Count of when the diagnostic code was stored, it is possible to determine that it is how many ignition-ON operations ago that DTC was stored.

b. **Time Count**

The elapsed time from when the ignition is turned to ON to when the diagnostic code is stored is displayed on the diagnostic code check screen. It is possible to determine the length of time that passed between when the user started driving and when the diagnostic code was stored. Therefore, if Trip Count until the vehicle-received-date is determined by interviewing the user, it is possible to estimate where the user was driving when the diagnostic code was stored, using the information such as Trip Count and Time Count. This estimate is useful information to perform diagnosis including checking of repeatability.

NOTE:
Subaru Select Monitor screen (A/C system diagnostic code and time stamp)

| Code | Description & trouble position | Trouble occurrence record | Trip Count | **Time Count** | Count |
|---|---|---|---|---|---|
| B14E1 | Air Mix Door Actuator Stepping Motor Circuit Wire Break (Driver's Seat) | Detected on the first time | 983 | **18000** | Common |
| B14E7 | Heater Core Rear Sensor Circuit Wire Break | Detected on the 2nd time | 984 | **117800** | Common |

When multiple diagnostic codes are recorded for one trouble, it is extremely important to determine the diagnostic code that was stored first. (It is important to perform the diagnosis for the first recorded diagnostic code.) In this case, it is also possible to immediately determine which diagnostic code was recorded first, using the information such as Trip Count and Time Count.

c. **Count**

Each unit individually counts the elapsed time since the ignition is turned to ON. However, these time counts may have some errors, and therefore, the control modules need to be adjusted to the time carried by the master-time unit (the body integrated unit). When the count is set as common, it means that each control module is already adjusted to the master time, and the display for the master integrated unit is always indicated as "Common". When the count is indicated as "Originally", it means that the time is not synchronized with the master time. In this case, check the communication between the corresponding control module and integrated unit. When all controls other than the body integrated unit is indicated as "Originally", perform the basic inspection for the body integrated unit. <Ref. to BC(diag)-2, PROCEDURE, Basic Diagnostic Procedure.>

NOTE:
Subaru Select Monitor screen (A/C system diagnostic code and time stamp)

| Code | Description & trouble position | Trouble occurrence record | Trip Count | Time Count | **Count** |
|---|---|---|---|---|---|
| B14E1 | Air Mix Door Actuator Stepping Motor Circuit Wire Break (Driver's Seat) | Detected on the first time | 983 | 18000 | **Common** |
| B14E7 | Heater Core Rear Sensor Circuit Wire Break | Detected on the 2nd time | 984 | 117800 | **Common** |

Even when multiple diagnostic codes are stored in multiple control modules, it is possible to determine the code stored first through the count function.

NOTE:
Troubleshooting for CAN system U-code occurrence
When the first stored diagnostic code is a U-code for CAN system, perform the troubleshooting as a U code combination, instead of a U code alone. In addition, when CAN open circuit occurs, communication of the diagnostic device itself becomes impossible beyond the particular areas. However, trouble positions can also be determined by the combination of initial communication success/failure. Thus, by performing the basic diagnostic procedure in LAN system, trouble positions can be determined efficiently on the principle above. <Ref. to LAN(HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.>

# B: INSPECTION

## 1. INSPECTION WITHOUT USING CAN DIAGNOSTIC

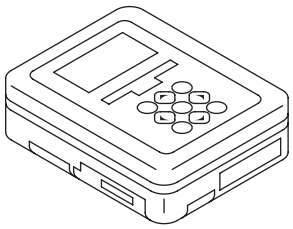
Before performing diagnosis, check the following items that might affect troubles of each module.
1) Check the 12 volt auxiliary battery. <Ref. to SC(H4DO(HEV))-39, Battery.>
2) Check the fuse condition.
Make sure that ampere of the fuse is setting value, and it is not blown out.
3) Check the connecting condition of harness and harness connector.

## 2. INSPECTION USING CAN DIAGNOSTIC

Before performing diagnostics, check the following item which might affect body integrated unit malfunctions.
1) Confirm settings of body integrated unit are corresponded to vehicle equipment. <Ref. to BC(diag)-21, OPERATION, Registration Body Integrated Unit.>
2) Make sure that the User Customizing of the body integrated unit matches the vehicle equipment. <Ref. to BC(diag)-18, OPERATION, User Customizing.>
3) Confirm “Factory initial setting” of body integrated unit registrations is set to “Market”.

# C: PREPARATION TOOL

## 1. SPECIAL TOOL

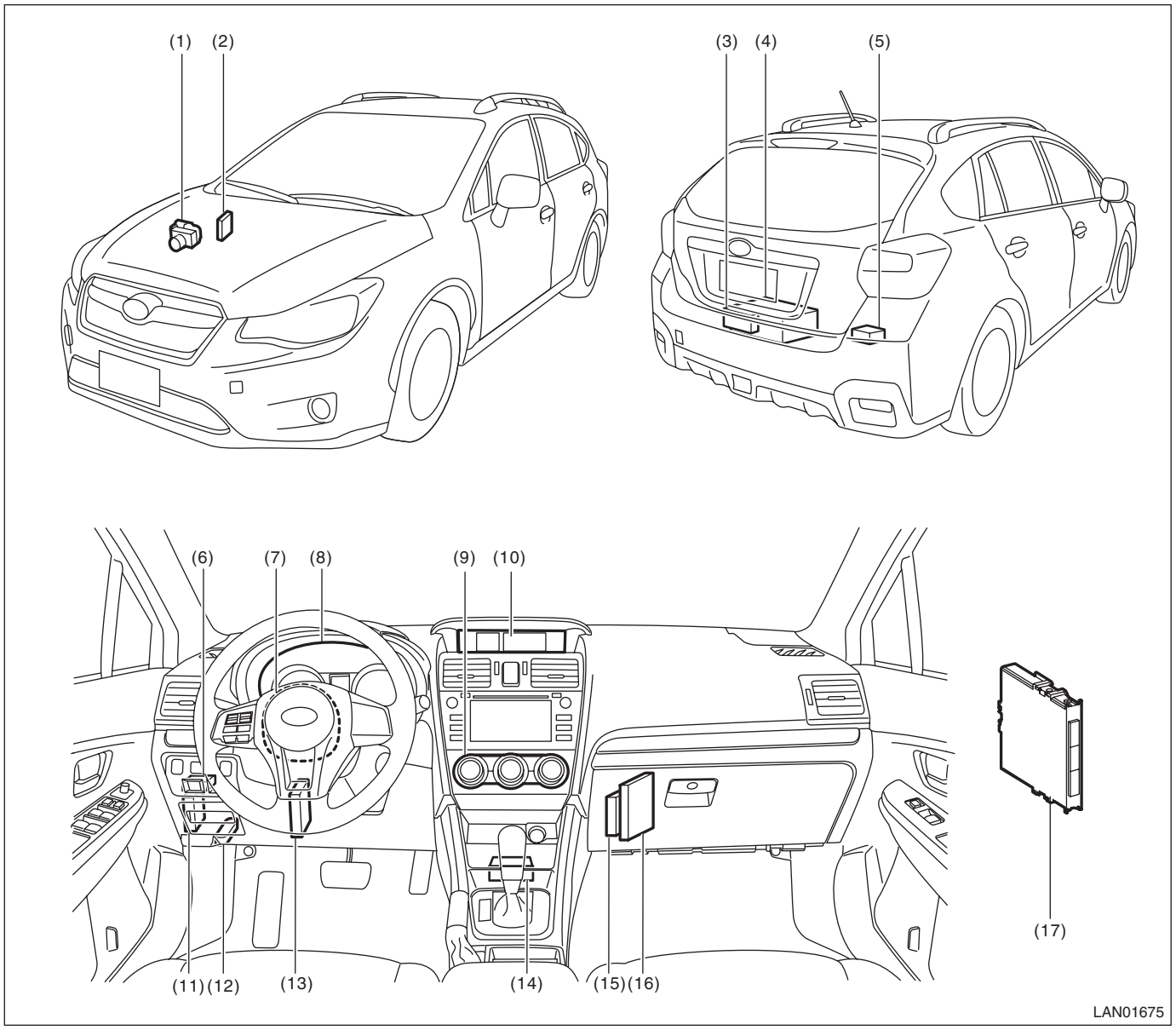
| ILLUSTRATION | TOOL NUMBER | DESCRIPTION | REMARKS |
|---|---|---|---|
|  ST1B022XU0 | 1B022XU0 | SUBARU SELECT MONITOR III KIT | Used for setting of each function and troubleshooting for electrical system.<br>NOTE:<br>For detailed operation procedures of Subaru Select Monitor III, refer to “PC application help for Subaru Select Monitor”. |

## 2. GENERAL TOOL

| TOOL NAME | REMARKS |
|---|---|
| Circuit tester | Used for measuring resistance, voltage and current. |

# 4. Electrical Component Location

## A: LOCATION




| | | | | | |
|---|---|---|---|---|---|
| (1) | VDC CM | (7) | Steering angle sensor | (13) | TCM |
| (2) | Power steering CM | (8) | Combination meter | (14) | Airbag CM |
| (3) | Drive motor CM | (9) | A/C control panel | (15) | Hybrid powertrain CM |
| (4) | High voltage battery (battery energy CM) | (10) | MFD | (16) | ECM |
| (5) | Electric oil pump inverter | (11) | Body integrated unit | (17) | Keyless access CM |
| (6) | Auto headlight beam leveler CM | (12) | Data link connector | | |

# 5. Control Module I/O Signal

## A: ELECTRICAL SPECIFICATION

- Body integrated unit

For I/O signals of the body integrated unit, refer to BODY CONTROL SYSTEM (DIAGNOSTICS). <Ref. to BC(diag)-6, Control Module I/O Signal.>

- Engine control module

For I/O signals of ECM, refer to ENGINE (DIAGNOSTICS). <Ref. to EN(H4DO HEV)(diag)-19, ENGINE CONTROL MODULE (ECM), ELECTRICAL SPECIFICATION, Control Module I/O Signal.>

- Transmission control module

For I/O signals of TCM, refer to AUTOMATIC TRANSMISSION (DIAGNOSTICS). <Ref. to CVT(HEV)(diag)-11, Transmission Control Module (TCM) I/O Signal.>

- VDC control module, steering angle sensor, yaw rate & G sensor

For the module I/O signals of VDC CM, steering angle sensor, and yaw rate & G sensor, refer to VEHICLE DYNAMICS CONTROL (VDC) (DIAGNOSTICS). <Ref. to VDC(diag)-12, Control Module I/O Signal.>

- Power steering CM

For unit I/O signals of power steering CM, refer to POWER ASSISTED SYSTEM (POWER STEERING) (DIAGNOSTICS). <Ref. to PS(diag)-10, Control Module I/O Signal.>

- A/C control panel

For unit I/O signals of A/C control panel, refer to HVAC SYSTEM (DIAGNOSTICS). <Ref. to AC(diag)-6, Auto A/C Control Module I/O Signal.>

- Combination meter

For I/O signals of combination meter, refer to INSTRUMENTATION/DRIVER INFO (DIAGNOSTICS). <Ref. to IDI(diag)-7, Control Module I/O Signal.>

- Airbag control module

For I/O signals of the airbag control module, refer to AIRBAG SYSTEM (DIAGNOSTICS). <Ref. to AB(diag)-20, Airbag Control Module I/O Signal.>

- High grade MFD

For I/O signals of high grade MFD, refer to INSTRUMENTATION/DRIVER INFO (DIAGNOSTICS). <Ref. to IDI(diag)-7, Control Module I/O Signal.>

- Keyless access CM

For I/O signals of keyless access CM, refer to KEYLESS ACCESS WITH PUSH BUTTON START SYSTEM (DIAGNOSTICS). <Ref. to KPS(diag)-16, Control Module I/O Signal.>

- Auto headlight beam leveler CM

For I/O signals of auto headlight beam leveler CM, refer to AUTO HEADLIGHT BEAM LEVELER SYSTEM (DIAGNOSTICS). <Ref. to AL(diag)-6, AUTO HEADLIGHT BEAM LEVELER CM, ELECTRICAL SPECIFICATION, Control Module I/O Signal.>

- Hybrid powertrain control module (HPCM)

For I/O signals of HPCM, refer to HEV (DIAGNOSTICS). <Ref. to HEV(diag)-10, HYBRID POWERTRAIN CONTROL MODULE (HPCM), ELECTRICAL SPECIFICATION, Control Module I/O Signal.>

- Drive motor control module (DMCM)

For I/O signals of DMCM, refer to HEV (DIAGNOSTICS). <Ref. to HEV(diag)-12, DRIVE MOTOR CONTROL MODULE (DMCM), ELECTRICAL SPECIFICATION, Control Module I/O Signal.>

- High voltage battery (battery energy control module (BECM))

For I/O signals of BECM, refer to HEV (DIAGNOSTICS). <Ref. to HEV(diag)-14, HIGH VOLTAGE BATTERY, ELECTRICAL SPECIFICATION, Control Module I/O Signal.>

- Data link connector

For I/O signals of data link connector, refer to ENGINE (DIAGNOSTICS). <Ref. to EN(H4DO HEV)(diag)-30, Data Link Connector.>

* CAN sleep state:

Hold on for approx. one minute with ignition OFF and the doors, trunk, rear gate all closed.

## B: WIRING DIAGRAM

Refer to “CAN Communication System” in the wiring diagram. <Ref. to WI(HEV)-65, WIRING DIAGRAM, CAN Communication System.>

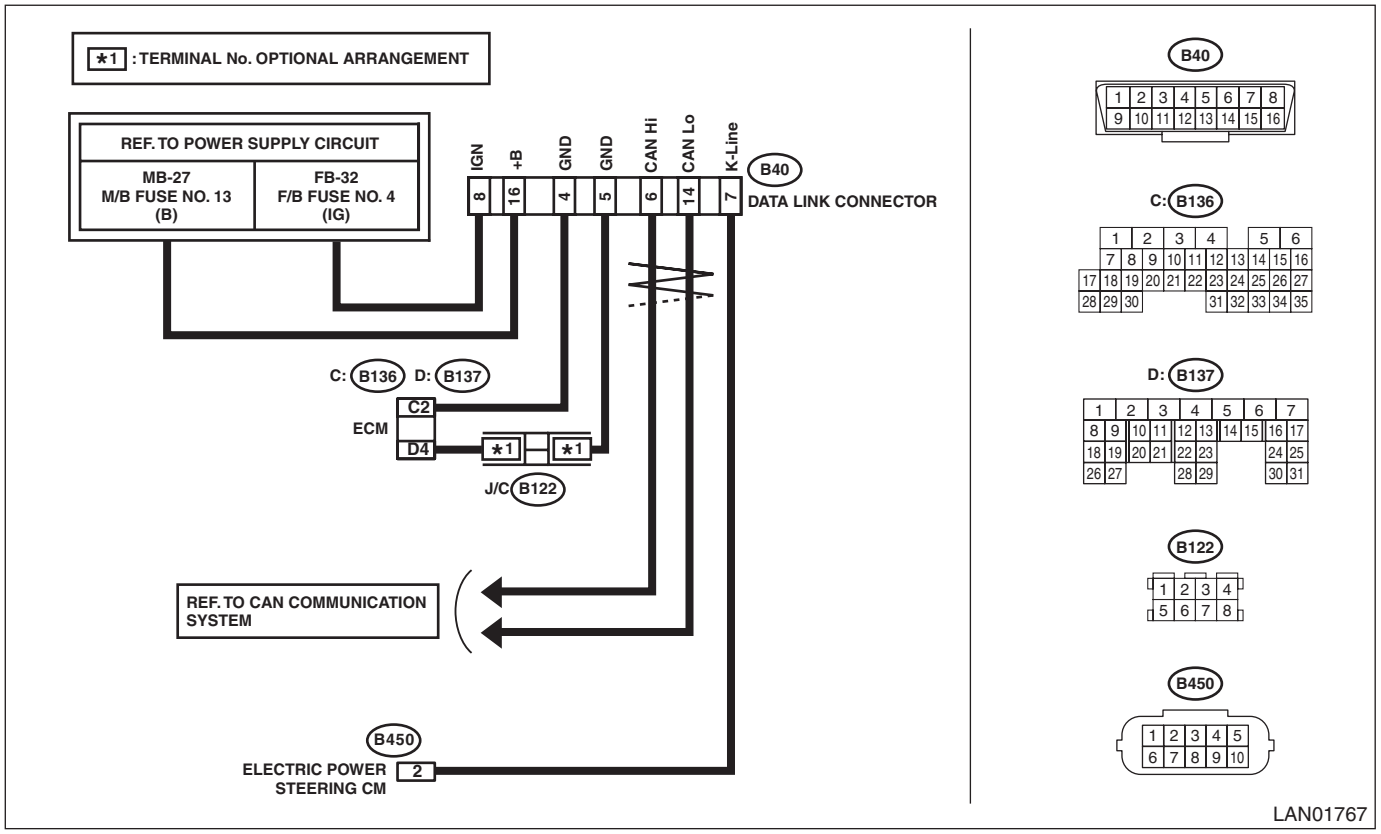
# 6. Subaru Select Monitor

## A: OPERATION

For details of basic operations, refer to “PC application help for Subaru Select Monitor”.

## B: COMMUNICATION FOR INITIALIZING IMPOSSIBLE

**DIAGNOSIS:**
Subaru Select Monitor communication line is open or shorted.
**TROUBLE SYMPTOM:**
Not communicable with Subaru Select Monitor.
**WIRING DIAGRAM:**
CAN communication system <Ref. to WI(HEV)-65, WIRING DIAGRAM, CAN Communication System.>

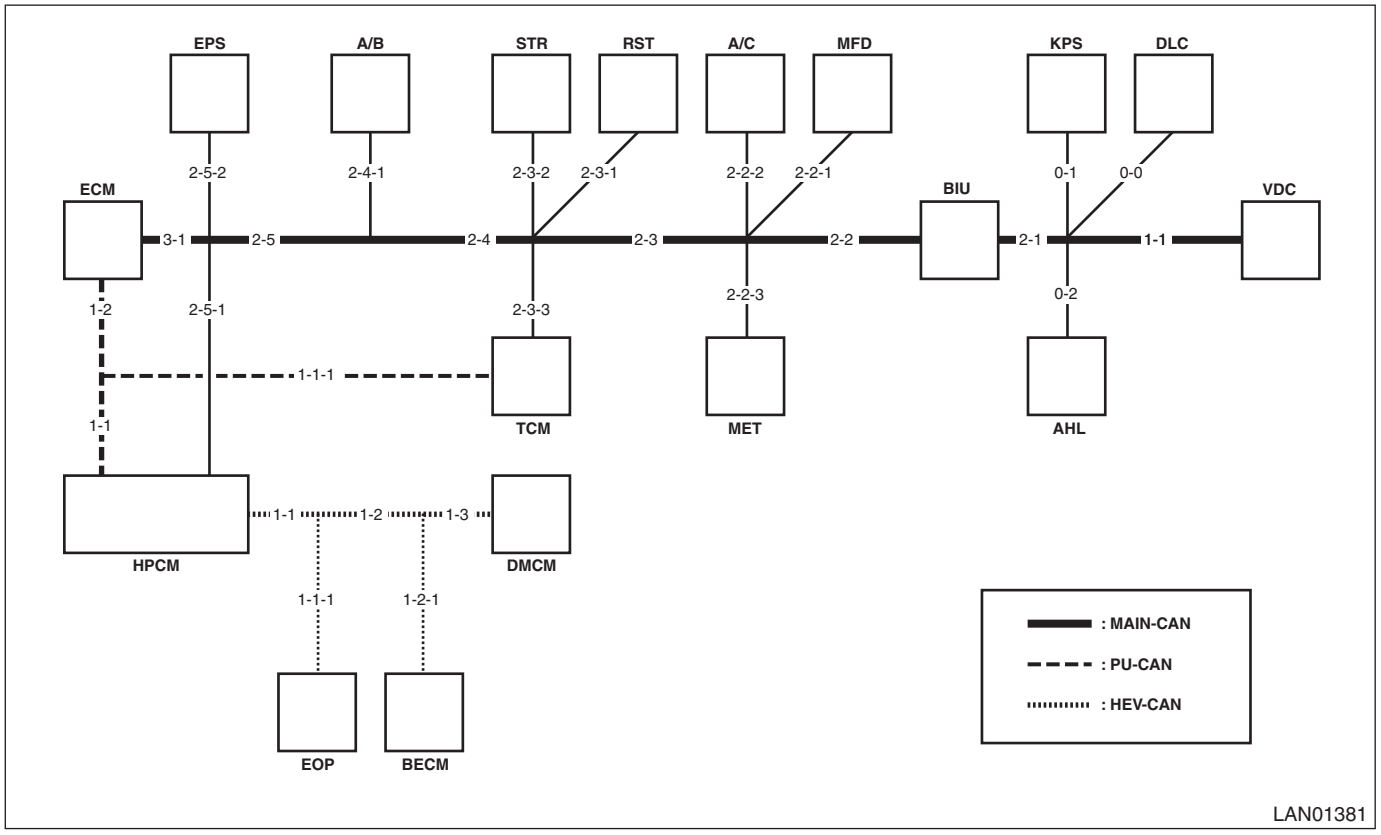



| Step | | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK SUBARU SELECT MONITOR.**<br>1) Connect the Subaru Select Monitor to another vehicle.<br>2) Check communication condition between Subaru Select Monitor and vehicle. | Is communication performed normally? | Go to step **2**. | Subaru Select Monitor unit or diagnosis cable is faulty. Or check the fuse on the vehicle side. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 2 | **CHECK COMMUNICATION FOR INITIALIZING ERROR.**<br>Perform the communication for initializing with each module by connecting the Subaru Select Monitor. (For systems whose module can communicate with diagnostic devices) | Is the communication possible with all modules? | Go to step **3**. | Perform the inspection using the check sheet of communication for initializing. <Ref. to LAN(HEV)(diag)-12, CHECK USING THE CHECK SHEET OF COMMUNICATION FOR INITIALIZING, COMMUNICATION FOR INITIALIZING IMPOSSIBLE, Subaru Select Monitor.> |
| 3 | **CHECK K-LINE.**<br>1) Establish the communication between Select Monitor and K-Line communication module.<br>2) Using a tester, check continuity between the modules that did not communicate with Select Monitor.<br>***Connector & terminal***<br>***(B40) No. 7 — (B450) No. 2 (electric power steering):*** | Is there continuity? | Go to step **4**. | Repair or replace the open circuit. |
| 4 | **CHECK K-LINE.**<br>Using a tester, check continuity between K-line and chassis ground.<br>***Connector & terminal***<br>***(B40) No. 7 — Chassis ground:*** | Is there continuity? | Repair or replace the short circuit portion. | Go to step **5**. |
| 5 | **CHECK K-LINE.**<br>Using a tester, check voltage between K-line and chassis ground.<br>***Connector & terminal***<br>***(B40) No. 7 (+) — Chassis ground (–):*** | Is the voltage 5 V or more with IG ON? | Repair or replace the short circuit portion. | Go to step **6**. |
| 6 | **CHECK K-LINE.**<br>Use a tester to check for continuity in the ground circuit.<br>***Connector & terminal***<br>***(B40) No. 4 — (B136) No. 2:***<br>***(B40) No. 5 — (B137) No. 4:*** | Is there continuity? | Go to step **8**. | Go to step **7**. |
| 7 | **CHECK K-LINE.**<br>1) Disconnect the ECM connector.<br>2) Use a tester to check for continuity in the ground circuit.<br>***Connector & terminal***<br>***(B40) No. 4 — (B136) No. 2:*** | Is there continuity? | Check ECM ground. | Repair or replace the open circuit. |
| 8 | **CHECK K-LINE.**<br>1) Turn the ignition switch to ON.<br>2) Using a tester, check the power supply of data link connector.<br>***Connector & terminal***<br>***(B40) No. 8 (+) — Chassis ground (–):***<br>***(B40) No. 16 (+) — Chassis ground (–):*** | Is the voltage 10 V or more? | K-Line is normal. Check the power supply circuit of each module. | Check the power supply circuits to the data link connector. |

## 1. CHECK USING THE CHECK SHEET OF COMMUNICATION FOR INITIALIZING

- **Network diagram**




LAN01381

- **Check sheet of communication for initializing**

| | (A) | (B) | (C) | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | MAIN-CAN | | | | | | | | | | | | | | | | | | | | | PU-CAN | | | HEV-CAN | | | | |
| | | | 1 | 2 | | | | | 3 | 0 | | | 2 | | | | | | | | | 1 | 1 | 1 | | | 1 | | |
| | | | 1 | 1 | 2 | 3 | 4 | 5 | 1 | | | | 2 | | | 3 | | | 4 | 5 | | 1 | 2 | 1 | 1 | 2 | 3 | 1 | 2 |
| | | | - | - | - | - | - | - | - | 0 | 1 | 2 | 1 | 2 | 3 | 1 | 2 | 3 | 1 | 1 | 2 | - | - | 1 | - | - | - | 1 | 1 |
| | | | | | | | | | | | | | | | | - | - | | | | | - | - | - | | | | | |
| VDC | | | | - | - | - | - | - | - | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BIU | | | - | | - | - | - | - | - | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| MFD | | | - | | | - | - | - | - | | - | - | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| A/C | | | - | | | - | - | - | - | | - | - | - | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| MET | | | - | | | - | - | - | - | | - | - | - | - | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| RST | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| STR | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| TCM | | | - | | | | - | - | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | - | - | - | - | - |
| A/B | | | - | | | | | - | - | | - | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | - | - | - | - |
| HPCM | | | - | | | | | | - | | - | - | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | - | - | - |
| EPS | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ECM | | | - | | | | | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| KPS | | | - | - | - | - | - | - | - | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| AHL | | | - | - | - | - | - | - | - | | - | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| EOP | | | - | | | | | | - | | - | - | - | - | - | - | - | - | - | | - | - | - | - | | - | - | | | - |
| BECM | | | - | | | | | | - | | - | - | - | - | - | - | - | - | - | | - | - | - | - | | | - | - | | |
| DMCM | | | - | | | | | | - | | - | - | - | - | - | - | - | - | - | | - | - | - | - | | | | - | - | |

LAN01768

(A) Installation check
(B) Communication initialization
(C) Wiring location

VDC: VDC CM
BIU: Body integrated unit
MFD: High grade MFD
A/C: A/C control panel
MET: Combination meter
RST: Remote engine starter CM
STR: Steering angle sensor
TCM: Transmission CM
A/B: Airbag CM

HPCM: Hybrid powertrain CM
EPS: Power steering CM
ECM: Engine CM
KPS: Keyless access CM
AHL: Auto headlight beam leveler CM
EOP: Electric oil pump
BECM: Battery energy CM (high voltage battery)
DMCM: Drive motor CM
DLC: Data link connector

1) Module installation check
(1) Write "-" marks in the field for installation check if the vehicle to be inspected does not have relevant module.
(2) Write "-" marks in all blank fields on the same row that the "-" mark has filled in.

NOTE:
Example of writing <Ref. to LAN(HEV)(diag)-14, EXAMPLE OF WRITING FOR THE CHECK SHEET OF COMMUNICATION FOR INITIALIZING, COMMUNICATION FOR INITIALIZING IMPOSSIBLE, Subaru Select Monitor.>

2) SSM communication initialization check
(1) Write "○" marks in the field for communication initialization if the module succeeded in the communication for initializing with Select Monitor.
If the communication with all modules is not possible, go to 3).
(2) Write "○" marks in all blank fields on the same row that the "○" mark has filled in.
(3) When at least one field in a column of wiring location is filled with the "○" mark, then the wiring for that location is normal. Write "○" marks in all blank fields on the same column that the "○" mark has filled in under the circled number.
(4) Check the open circuit of the modules which have no "○" mark in their columns of the wiring location in ascending order (closest to the data link connector first). (only for installed modules)
(5) If the communication is not possible after checking all harnesses, check the module power supply line.
(6) Perform the basic diagnostic procedure of the system if the power supply line is normal.
(7) Replace the module if the communication is not possible even after performing the basic diagnostic procedure.

NOTE:
• Example of writing <Ref. to LAN(HEV)(diag)-14, EXAMPLE OF WRITING FOR THE CHECK SHEET OF COMMUNICATION FOR INITIALIZING, COMMUNICATION FOR INITIALIZING IMPOSSIBLE, Subaru Select Monitor.>
• Inspection using the communication for initializing of Subaru Select Monitor cannot be used to diagnose the wiring location marked with "-". Example of DTC data not received <Ref. to LAN(HEV)(diag)-92, EXAMPLE OF DTC DATA NOT RECEIVED, LIST, List of Diagnostic Trouble Code (DTC).> and DTC matrix <Ref. to LAN(HEV)(diag)-95, DTC MATRIX, LIST, List of Diagnostic Trouble Code (DTC).> should be used to identify the faulty portion.

3) SSM communication initialization check (impossible to communicate with all modules)

NOTE:
Perform inspection regarding the trouble mode indicating that all CAN modules do not communicate. If at least one module becomes possible to communicate, return to 2).
(1) Check for the short circuit to ground. <Ref. to LAN(HEV)(diag)-39, GROUND SHORT INSPECTION (MAIN-CAN), INSPECTION, CAN Communication Circuit Check.> If it is normal, go to the next.
(2) Check for the short circuit to battery. <Ref. to LAN(HEV)(diag)-41, BATTERY SHORT INSPECTION (MAIN-CAN), INSPECTION, CAN Communication Circuit Check.> If it is normal, go to the next.
(3) Perform the inspection for the resistance of 52 Ω or less (short between wires). <Ref. to LAN(HEV)(diag)-45, 52 Ω OR LESS, INSPECTION, CAN Communication Circuit Check.> If it is normal, go to the next.
(4) Check for the open circuit of data link connector (No. 0 — 0) in network diagram.

## 2. EXAMPLE OF WRITING FOR THE CHECK SHEET OF COMMUNICATION FOR INITIALIZING

- When MAIN-CAN 0-0 is open

NOTE:
Perform inspection by referring to the SSM communication initialization check (impossible to communicate with all modules).

| | (A) | (B) | (C) | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | MAIN-CAN | | | | | | | | | | | | | | | | | | | | PU-CAN | | | HEV-CAN | | | | |
| | | | 1 | 2 | | | | | 3 | 0 | | | 2 | | | | | | | | | | 1 | 1 | | 1 | | | 1 | |
| | | | 1 | 1 | 2 | 3 | 4 | 5 | 1 | | | | 2 | | | 3 | | | 4 | 5 | | | 1 | 2 | 1 | 1 | 2 | 3 | 1 | 2 |
| | | | - | - | - | - | - | - | - | 0 | 1 | 2 | 1 | 2 | 3 | 1 | 2 | 3 | 1 | 1 | 2 | - | - | 1 | - | - | - | 1 | 1 |
| | | | | | | | | | | | | | | | | - | - | | | | | - | - | - | | | | | |
| VDC | ○ | × | | - | - | - | - | - | - | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BIU | ○ | × | - | | - | - | - | - | - | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| MFD | ○ | × | - | | | - | - | - | - | | - | - | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| A/C | ○ | × | - | | | - | - | - | - | | - | - | - | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| MET | ○ | × | - | | | - | - | - | - | | - | - | - | - | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| RST | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| STR | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| TCM | ○ | × | - | | | | - | - | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | - | - | - | - | - |
| A/B | ○ | × | - | | | | | - | - | | - | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | - | - | - | - |
| HPCM | ○ | × | - | | | | | | - | | - | - | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | - | - | - |
| EPS | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ECM | ○ | × | - | | | | | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| KPS | ○ | × | - | - | - | - | - | - | - | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| AHL | ○ | × | - | - | - | - | - | - | - | | - | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| EOP | ○ | × | - | | | | | | - | | - | - | - | - | - | - | - | - | - | | - | - | - | - | | - | - | | - | |
| BECM | ○ | × | - | | | | | | - | | - | - | - | - | - | - | - | - | - | | - | - | - | - | | | - | - | | |
| DMCM | ○ | × | - | | | | | | - | | - | - | - | - | - | - | - | - | - | | - | - | - | - | | | | - | - | |

LAN01769

- When MAIN-CAN 0-1 is open

| | (A) | (B) | (C) | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | MAIN-CAN | | | | | | | | | | | | | | | | | | | | | PU-CAN | | | HEV-CAN | | | | |
| | | | 1 | 2 | | | | | 3 | 0 | | | 2 | | | | | | | | | | | 1 | 1 | 1 | | | 1 | | |
| | | | 1 | 1 | 2 | 3 | 4 | 5 | 1 | | | | 2 | | | 3 | | | 4 | 5 | | | | 1 | 2 | 1 | 1 | 2 | 3 | 1 | 2 |
| | | | - | - | - | - | - | - | - | 0 | 1 | 2 | 1 | 2 | 3 | 1 | 2 | 3 | 1 | 1 | 2 | - | - | 1 | - | - | - | 1 | 1 |
| | | | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | | ○ | ○ | ○ | ○ | - | - | ○ | ○ | ○ | ○ | - | - | - | ○ | ○ | ○ | ○ | ○ |
| VDC | ○ | ○ | ○ | - | - | - | - | - | - | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BIU | ○ | ○ | - | ○ | - | - | - | - | - | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| MFD | ○ | ○ | - | ○ | ○ | - | - | - | - | ○ | - | - | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| A/C | ○ | ○ | - | ○ | ○ | - | - | - | - | ○ | - | - | - | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| MET | ○ | ○ | - | ○ | ○ | - | - | - | - | ○ | - | - | - | - | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| RST | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| STR | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| TCM | ○ | ○ | - | ○ | ○ | ○ | - | - | - | ○ | - | - | - | - | - | - | - | ○ | - | - | - | - | - | - | - | - | - | - | - | - |
| A/B | ○ | ○ | - | ○ | ○ | ○ | ○ | - | - | ○ | - | - | - | - | - | - | - | - | ○ | - | - | - | - | - | - | - | - | - | - | - |
| HPCM | ○ | ○ | - | ○ | ○ | ○ | ○ | ○ | - | ○ | - | - | - | - | - | - | - | - | - | ○ | - | - | - | - | - | - | - | - | - | - |
| EPS | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ECM | ○ | ○ | - | ○ | ○ | ○ | ○ | ○ | ○ | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| KPS | ○ | × | - | - | - | - | - | - | - | ○ | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| AHL | ○ | ○ | - | - | - | - | - | - | - | ○ | - | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| EOP | ○ | ○ | - | ○ | ○ | ○ | ○ | ○ | - | ○ | - | - | - | - | - | - | - | - | - | ○ | - | - | - | - | ○ | - | - | ○ | - | - |
| BECM | ○ | ○ | - | ○ | ○ | ○ | ○ | ○ | - | ○ | - | - | - | - | - | - | - | - | - | ○ | - | - | - | - | ○ | ○ | - | - | - | ○ |
| DMCM | ○ | ○ | - | ○ | ○ | ○ | ○ | ○ | - | ○ | - | - | - | - | - | - | - | - | - | ○ | - | - | - | - | ○ | ○ | ○ | - | - | - |

LAN01770

- When MAIN-CAN 0-2 is open

| | (A) | (B) | (C) | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | MAIN-CAN | | | | | | | | | | | | | | | | | | | | | PU-CAN | | | HEV-CAN | | | | |
| | | | 1 | 2 | | | | | 3 | 0 | | | 2 | | | | | | | | | | | 1 | 1 | 1 | | | 1 | | |
| | | | 1 | 1 | 2 | 3 | 4 | 5 | 1 | | | | 2 | | | 3 | | | 4 | 5 | | | | 1 | 2 | 1 | 1 | 2 | 3 | 1 | 2 |
| | | | - | - | - | - | - | - | - | 0 | 1 | 2 | 1 | 2 | 3 | 1 | 2 | 3 | 1 | 1 | 2 | - | - | 1 | - | - | - | 1 | 1 |
| | | | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | | ○ | ○ | ○ | - | - | ○ | ○ | ○ | ○ | - | - | - | ○ | ○ | ○ | ○ | ○ |
| VDC | ○ | ○ | ○ | - | - | - | - | - | - | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BIU | ○ | ○ | - | ○ | - | - | - | - | - | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| MFD | ○ | ○ | - | ○ | ○ | - | - | - | - | ○ | - | - | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| A/C | ○ | ○ | - | ○ | ○ | - | - | - | - | ○ | - | - | - | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| MET | ○ | ○ | - | ○ | ○ | - | - | - | - | ○ | - | - | - | - | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| RST | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| STR | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| TCM | ○ | ○ | - | ○ | ○ | ○ | - | - | - | ○ | - | - | - | - | - | - | - | ○ | - | - | - | - | - | - | - | - | - | - | - | - |
| A/B | ○ | ○ | - | ○ | ○ | ○ | ○ | - | - | ○ | - | - | - | - | - | - | - | - | ○ | - | - | - | - | - | - | - | - | - | - | - |
| HPCM | ○ | ○ | - | ○ | ○ | ○ | ○ | ○ | - | ○ | - | - | - | - | - | - | - | - | - | ○ | - | - | - | - | - | - | - | - | - | - |
| EPS | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ECM | ○ | ○ | - | ○ | ○ | ○ | ○ | ○ | ○ | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| KPS | ○ | ○ | - | - | - | - | - | - | - | ○ | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| AHL | ○ | × | - | - | - | - | - | - | - | ○ | - | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| EOP | ○ | ○ | - | ○ | ○ | ○ | ○ | ○ | - | ○ | - | - | - | - | - | - | - | - | - | ○ | - | - | - | - | ○ | - | - | ○ | - | - |
| BECM | ○ | ○ | - | ○ | ○ | ○ | ○ | ○ | - | ○ | - | - | - | - | - | - | - | - | - | ○ | - | - | - | - | ○ | ○ | - | - | - | ○ |
| DMCM | ○ | ○ | - | ○ | ○ | ○ | ○ | ○ | - | ○ | - | - | - | - | - | - | - | - | - | ○ | - | - | - | - | ○ | ○ | ○ | - | - | - |

LAN01771

- When MAIN-CAN 1-1 is open

| | (A) | (B) | (C) | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | MAIN-CAN | | | | | | | | | | | | | | | | | | | | | PU-CAN | | | HEV-CAN | | | | |
| | | | 1 | 2 | | | | | 3 | 0 | | | 2 | | | | | | | | | | | 1 | 1 | 1 | | | 1 | | |
| | | | 1 | 1 | 2 | 3 | 4 | 5 | 1 | | | | 2 | | | 3 | | | 4 | 5 | | | | 1 | 2 | 1 | 1 | 2 | 3 | 1 | 2 |
| | | | - | - | - | - | - | - | - | 0 | 1 | 2 | 1 | 2 | 3 | 1 | 2 | 3 | 1 | 1 | 2 | - | - | 1 | - | - | - | 1 | 1 |
| | | | | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | - | - | ○ | ○ | ○ | ○ | - | - | - | ○ | ○ | ○ | ○ | ○ |
| VDC | ○ | ╳ | | - | - | - | - | - | - | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BIU | ○ | ○ | - | ○ | - | - | - | - | - | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| MFD | ○ | ○ | - | ○ | ○ | - | - | - | - | ○ | - | - | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| A/C | ○ | ○ | - | ○ | ○ | - | - | - | - | ○ | - | - | - | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| MET | ○ | ○ | - | ○ | ○ | - | - | - | - | ○ | - | - | - | - | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| RST | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| STR | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| TCM | ○ | ○ | - | ○ | ○ | ○ | - | - | - | ○ | - | - | - | - | - | - | - | ○ | - | - | - | - | - | - | - | - | - | - | - | - |
| A/B | ○ | ○ | - | ○ | ○ | ○ | ○ | - | - | ○ | - | - | - | - | - | - | - | - | ○ | - | - | - | - | - | - | - | - | - | - | - |
| HPCM | ○ | ○ | - | ○ | ○ | ○ | ○ | ○ | - | ○ | - | - | - | - | - | - | - | - | - | ○ | - | - | - | - | - | - | - | - | - | - |
| EPS | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ECM | ○ | ○ | - | ○ | ○ | ○ | ○ | ○ | ○ | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| KPS | ○ | ○ | - | - | - | - | - | - | - | ○ | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| AHL | ○ | ○ | - | - | - | - | - | - | - | ○ | - | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| EOP | ○ | ○ | - | ○ | ○ | ○ | ○ | ○ | - | ○ | - | - | - | - | - | - | - | - | - | ○ | - | - | - | - | ○ | - | - | ○ | - | - |
| BECM | ○ | ○ | - | ○ | ○ | ○ | ○ | ○ | - | ○ | - | - | - | - | - | - | - | - | - | ○ | - | - | - | - | ○ | ○ | - | - | ○ | - |
| DMCM | ○ | ○ | - | ○ | ○ | ○ | ○ | ○ | - | ○ | - | - | - | - | - | - | - | - | - | ○ | - | - | - | - | ○ | ○ | ○ | - | - | - |

LAN01772

- When MAIN-CAN 2-1 is open

| | (A) | (B) | (C) | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | MAIN-CAN | | | | | | | | | | | | | | | | | | | | | PU-CAN | | | HEV-CAN | | | | |
| | | | 1 | 2 | | | | | 3 | 0 | | | 2 | | | | | | | | | | | 1 | 1 | 1 | | | 1 | | |
| | | | 1 | 1 | 2 | 3 | 4 | 5 | 1 | | | | 2 | | | 3 | | | 4 | 5 | | | | 1 | 2 | 1 | 1 | 2 | 3 | 1 | 2 |
| | | | - | - | - | - | - | - | - | 0 | 1 | 2 | 1 | 2 | 3 | 1 | 2 | 3 | 1 | 1 | 2 | - | - | 1 | - | - | - | 1 | 1 |
| | | | ○ | | | | | | | ○ | ○ | ○ | | | | - | - | | | | | - | - | - | | | | | |
| VDC | ○ | ○ | ○ | - | - | - | - | - | - | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BIU | ○ | ╳ | - | | - | - | - | - | - | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| MFD | ○ | ╳ | - | | | - | - | - | - | ○ | - | - | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| A/C | ○ | ╳ | - | | | - | - | - | - | ○ | - | - | - | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| MET | ○ | ╳ | - | | | - | - | - | - | ○ | - | - | - | - | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| RST | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| STR | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| TCM | ○ | ╳ | - | | | | - | - | - | ○ | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | - | - | - | - | - |
| A/B | ○ | ╳ | - | | | | | - | - | ○ | - | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | - | - | - | - |
| HPCM | ○ | ╳ | - | | | | | | - | ○ | - | - | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | - | - | - |
| EPS | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ECM | ○ | ╳ | - | | | | | | | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| KPS | ○ | ╳ | - | - | - | - | - | - | - | ○ | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| AHL | ○ | ╳ | - | - | - | - | - | - | - | ○ | - | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| EOP | ○ | ╳ | - | | | | | | - | ○ | - | - | - | - | - | - | - | - | - | | - | - | - | - | | - | - | | - | - |
| BECM | ○ | ╳ | - | | | | | | - | ○ | - | - | - | - | - | - | - | - | - | | - | - | - | - | | | - | - | | |
| DMCM | ○ | ╳ | - | | | | | | - | ○ | - | - | - | - | - | - | - | - | - | | - | - | - | - | | | | - | - | - |

LAN01773

- When MAIN-CAN 2-2 is open

| | (A) | (B) | (C) | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | MAIN-CAN | | | | | | | | | | | | | | | | | | | | PU-CAN | | | HEV-CAN | | | | | |
| | | | 1 | 2 | | | | | 3 | 0 | | | 2 | | | | | | | | | | 1 | 1 | | 1 | | | 1 | | |
| | | | 1 | 1 | 2 | 3 | 4 | 5 | 1 | | | | 2 | | | 3 | | | 4 | 5 | | | 1 | 2 | 1 | 1 | 2 | 3 | 1 | 2 | |
| | | | - | - | - | - | - | - | - | 0 | 1 | 2 | 1 | 2 | 3 | 1 | 2 | 3 | 1 | 1 | 2 | | - | - | 1 | - | - | - | 1 | 1 | |
| | | | ○ | ○ | | | | | | ○ | ○ | ○ | | | | - | - | | | | | | - | - | - | | | | | | |
| VDC | ○ | ○ | ○ | - | - | - | - | - | - | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BIU | ○ | ○ | - | ○ | - | - | - | - | - | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| MFD | ○ | × | - | ○ | | - | - | - | - | ○ | - | - | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| A/C | ○ | × | - | ○ | | - | - | - | - | ○ | - | - | - | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| MET | ○ | × | - | ○ | | - | - | - | - | ○ | - | - | - | - | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| RST | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| STR | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| TCM | ○ | × | - | ○ | | | - | - | - | ○ | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| A/B | ○ | × | - | ○ | | | | - | - | ○ | - | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | - | - | - | - | - | - |
| HPCM | ○ | × | - | ○ | | | | | - | ○ | - | - | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | - | - | - | - | - |
| EPS | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ECM | ○ | × | - | ○ | | | | | | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| KPS | ○ | × | - | - | - | - | - | - | - | ○ | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| AHL | ○ | × | - | - | - | - | - | - | - | ○ | - | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| EOP | ○ | × | - | ○ | | | | | - | ○ | - | - | - | - | - | - | - | - | - | | - | - | - | - | | - | - | | - | - | - | - |
| BECM | ○ | × | - | ○ | | | | | - | ○ | - | - | - | - | - | - | - | - | - | | - | - | - | - | | | - | - | | - | - | |
| DMCM | ○ | × | - | ○ | | | | | - | ○ | - | - | - | - | - | - | - | - | - | | - | - | - | - | | | | - | - | | - | - |

LAN01774

- When MAIN-CAN 2-2-1 is open

| | (A) | (B) | (C) | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | MAIN-CAN | | | | | | | | | | | | | | | | | | | | PU-CAN | | | HEV-CAN | | | | | |
| | | | 1 | 2 | | | | | 3 | 0 | | | 2 | | | | | | | | | | 1 | 1 | | 1 | | | 1 | | |
| | | | 1 | 1 | 2 | 3 | 4 | 5 | 1 | | | | 2 | | | 3 | | | 4 | 5 | | | 1 | 2 | 1 | 1 | 2 | 3 | 1 | 2 | |
| | | | - | - | - | - | - | - | - | 0 | 1 | 2 | 1 | 2 | 3 | 1 | 2 | 3 | 1 | 1 | 2 | | - | - | 1 | - | - | - | 1 | 1 | |
| | | | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | | ○ | ○ | - | - | ○ | ○ | ○ | ○ | | - | - | - | ○ | ○ | ○ | ○ | ○ | |
| VDC | ○ | ○ | ○ | - | - | - | - | - | - | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BIU | ○ | ○ | - | ○ | - | - | - | - | - | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| MFD | ○ | × | - | ○ | ○ | - | - | - | - | ○ | - | - | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| A/C | ○ | ○ | - | ○ | ○ | - | - | - | - | ○ | - | - | - | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| MET | ○ | ○ | - | ○ | ○ | - | - | - | - | ○ | - | - | - | - | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| RST | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| STR | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| TCM | ○ | ○ | - | ○ | ○ | ○ | - | - | - | ○ | - | - | - | - | - | - | - | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| A/B | ○ | ○ | - | ○ | ○ | ○ | ○ | - | - | ○ | - | - | - | - | - | - | - | - | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - |
| HPCM | ○ | ○ | - | ○ | ○ | ○ | ○ | ○ | - | ○ | - | - | - | - | - | - | - | - | - | ○ | - | - | - | - | - | - | - | - | - | - | - | - |
| EPS | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ECM | ○ | ○ | - | ○ | ○ | ○ | ○ | ○ | ○ | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| KPS | ○ | ○ | - | - | - | - | - | - | - | ○ | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| AHL | ○ | ○ | - | - | - | - | - | - | - | ○ | - | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| EOP | ○ | ○ | - | ○ | ○ | ○ | ○ | ○ | - | ○ | - | - | - | - | - | - | - | - | - | ○ | - | - | - | - | ○ | - | - | ○ | - | - | ○ | - |
| BECM | ○ | ○ | - | ○ | ○ | ○ | ○ | ○ | - | ○ | - | - | - | - | - | - | - | - | - | ○ | - | - | - | - | ○ | ○ | - | - | - | - | ○ | |
| DMCM | ○ | ○ | - | ○ | ○ | ○ | ○ | ○ | - | ○ | - | - | - | - | - | - | - | - | - | ○ | - | - | - | - | ○ | ○ | ○ | - | - | - | - | |

LAN01775

- When MAIN-CAN 2-2-2 is open

| | (A) | (B) | (C) | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| | | | MAIN-CAN | | | | | | | | | | | | | | | | | | | | | PU-CAN | | | HEV-CAN | | | | |
| | | | 1 | 2 | | | | | 3 | 0 | | | 2 | | | | | | | | | | | 1 | 1 | 1 | | | 1 | | |
| | | | 1 | 1 | 2 | 3 | 4 | 5 | 1 | | | | 2 | | | 3 | | | 4 | 5 | | | | 1 | 2 | 1 | 1 | 2 | 3 | 1 | 2 |
| | | | - | - | - | - | - | - | - | 0 | 1 | 2 | 1 | 2 | 3 | 1 | 2 | 3 | 1 | 1 | 2 | - | - | 1 | - | - | - | 1 | 1 |
| | | | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | | ○ | - | - | ○ | ○ | ○ | ○ | - | - | - | ○ | ○ | ○ | ○ | ○ |
| VDC | ○ | ○ | ○ | - | - | - | - | - | - | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BIU | ○ | ○ | - | ○ | - | - | - | - | - | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| MFD | ○ | ○ | - | ○ | ○ | - | - | - | - | ○ | - | - | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| A/C | ○ | × | - | ○ | ○ | - | - | - | - | ○ | - | - | - | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| MET | ○ | ○ | - | ○ | ○ | - | - | - | - | ○ | - | - | - | - | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| RST | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| STR | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| TCM | ○ | ○ | - | ○ | ○ | ○ | - | - | - | ○ | - | - | - | - | - | - | - | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - |
| A/B | ○ | ○ | - | ○ | ○ | ○ | ○ | - | - | ○ | - | - | - | - | - | - | - | - | ○ | - | - | - | - | - | - | - | - | - | - | - | - |
| HPCM | ○ | ○ | - | ○ | ○ | ○ | ○ | ○ | - | ○ | - | - | - | - | - | - | - | - | - | ○ | - | - | - | - | - | - | - | - | - | - | - |
| EPS | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ECM | ○ | ○ | - | ○ | ○ | ○ | ○ | ○ | ○ | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| KPS | ○ | ○ | - | - | - | - | - | - | - | ○ | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| AHL | ○ | ○ | - | - | - | - | - | - | - | ○ | - | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| EOP | ○ | ○ | - | ○ | ○ | ○ | ○ | ○ | - | ○ | - | - | - | - | - | - | - | - | - | ○ | - | - | - | - | ○ | - | - | ○ | - | - | - |
| BECM | ○ | ○ | - | ○ | ○ | ○ | ○ | ○ | - | ○ | - | - | - | - | - | - | - | - | - | ○ | - | - | - | - | ○ | ○ | - | - | - | - | ○ |
| DMCM | ○ | ○ | - | ○ | ○ | ○ | ○ | ○ | - | ○ | - | - | - | - | - | - | - | - | - | ○ | - | - | - | - | ○ | ○ | ○ | - | - | - | - |

LAN01776

- When MAIN-CAN 2-2-3 is open

| | (A) | (B) | (C) | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| | | | MAIN-CAN | | | | | | | | | | | | | | | | | | | | | PU-CAN | | | HEV-CAN | | | | |
| | | | 1 | 2 | | | | | 3 | 0 | | | 2 | | | | | | | | | | | 1 | 1 | 1 | | | 1 | | |
| | | | 1 | 1 | 2 | 3 | 4 | 5 | 1 | | | | 2 | | | 3 | | | 4 | 5 | | | | 1 | 2 | 1 | 1 | 2 | 3 | 1 | 2 |
| | | | - | - | - | - | - | - | - | 0 | 1 | 2 | 1 | 2 | 3 | 1 | 2 | 3 | 1 | 1 | 2 | - | - | 1 | - | - | - | 1 | 1 |
| | | | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | | - | - | ○ | ○ | ○ | ○ | - | - | - | ○ | ○ | ○ | ○ | ○ |
| VDC | ○ | ○ | ○ | - | - | - | - | - | - | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BIU | ○ | ○ | - | ○ | - | - | - | - | - | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| MFD | ○ | ○ | - | ○ | ○ | - | - | - | - | ○ | - | - | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| A/C | ○ | ○ | - | ○ | ○ | - | - | - | - | ○ | - | - | - | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| MET | ○ | × | - | ○ | ○ | - | - | - | - | ○ | - | - | - | - | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| RST | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| STR | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| TCM | ○ | ○ | - | ○ | ○ | ○ | - | - | - | ○ | - | - | - | - | - | - | - | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - |
| A/B | ○ | ○ | - | ○ | ○ | ○ | ○ | - | - | ○ | - | - | - | - | - | - | - | - | ○ | - | - | - | - | - | - | - | - | - | - | - | - |
| HPCM | ○ | ○ | - | ○ | ○ | ○ | ○ | ○ | - | ○ | - | - | - | - | - | - | - | - | - | ○ | - | - | - | - | - | - | - | - | - | - | - |
| EPS | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ECM | ○ | ○ | - | ○ | ○ | ○ | ○ | ○ | ○ | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| KPS | ○ | ○ | - | - | - | - | - | - | - | ○ | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| AHL | ○ | ○ | - | - | - | - | - | - | - | ○ | - | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| EOP | ○ | ○ | - | ○ | ○ | ○ | ○ | ○ | - | ○ | - | - | - | - | - | - | - | - | - | ○ | - | - | - | - | ○ | - | - | ○ | - | - | - |
| BECM | ○ | ○ | - | ○ | ○ | ○ | ○ | ○ | - | ○ | - | - | - | - | - | - | - | - | - | ○ | - | - | - | - | ○ | ○ | - | - | - | - | ○ |
| DMCM | ○ | ○ | - | ○ | ○ | ○ | ○ | ○ | - | ○ | - | - | - | - | - | - | - | - | - | ○ | - | - | - | - | ○ | ○ | ○ | - | - | - | - |

LAN01777

- When MAIN-CAN 2-3 is open

| | (A) | (B) | (C) | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | MAIN-CAN | | | | | | | | | | | | | | | | | | | | | PU-CAN | | | HEV-CAN | | | | |
| | | | 1 | 2 | | | | | 3 | 0 | | | 2 | | | | | | | | | | | 1 | 1 | 1 | | | 1 | | |
| | | | 1 | 1 | 2 | 3 | 4 | 5 | 1 | | | | 2 | | | 3 | | | 4 | 5 | | | 1 | 2 | 1 | 1 | 2 | 3 | 1 | 2 |
| | | | - | - | - | - | - | - | - | 0 | 1 | 2 | 1 | 2 | 3 | 1 | 2 | 3 | 1 | 1 | 2 | | - | - | 1 | - | - | - | 1 | 1 |
| | | | ○ | ○ | ○ | | | | | ○ | ○ | ○ | ○ | ○ | ○ | - | - | | | | | | - | - | - | | | | | |
| VDC | ○ | ○ | ○ | - | - | - | - | - | - | ○ | - | - | - | - | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | - |
| BIU | ○ | ○ | - | ○ | - | - | - | - | - | ○ | - | - | - | - | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | - |
| MFD | ○ | ○ | - | ○ | ○ | - | - | - | - | ○ | - | - | ○ | - | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | - |
| A/C | ○ | ○ | - | ○ | ○ | - | - | - | - | ○ | - | - | - | ○ | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | - |
| MET | ○ | ○ | - | ○ | ○ | - | - | - | - | ○ | - | - | - | - | ○ | - | - | - | - | - | - | | - | - | - | - | - | - | - | - |
| RST | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | - |
| STR | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | - |
| TCM | ○ | × | - | ○ | ○ | | - | - | - | ○ | - | - | - | - | - | - | - | | - | - | - | | - | - | - | - | - | - | - | - |
| A/B | ○ | × | - | ○ | ○ | | | - | - | ○ | - | - | - | - | - | - | - | - | | - | - | | - | - | - | - | - | - | - | - |
| HPCM | ○ | × | - | ○ | ○ | | | | - | ○ | - | - | - | - | - | - | - | - | - | | - | | - | - | - | - | - | - | - | - |
| EPS | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | - |
| ECM | ○ | × | - | ○ | ○ | | | | | ○ | - | - | - | - | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | - |
| KPS | ○ | ○ | - | - | - | - | - | - | - | ○ | ○ | - | - | - | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | - |
| AHL | ○ | ○ | - | - | - | - | - | - | - | ○ | - | ○ | - | - | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | - |
| EOP | ○ | × | - | ○ | ○ | | | | - | ○ | - | - | - | - | - | - | - | - | - | | - | | - | - | - | | - | - | | - |
| BECM | ○ | × | - | ○ | ○ | | | | - | ○ | - | - | - | - | - | - | - | - | - | | - | | - | - | - | | | - | - | |
| DMCM | ○ | × | - | ○ | ○ | | | | - | ○ | - | - | - | - | - | - | - | - | - | | - | | - | - | - | | | | - | - |

LAN01778

- When MAIN-CAN 2-3-1/2-3-2/2-5-2 is open

NOTE:

- Locations can be identified by the difference of data no-receive conditions between modules. <Ref. to LAN(HEV)(diag)-92, EXAMPLE OF DTC DATA NOT RECEIVED, LIST, List of Diagnostic Trouble Code (DTC).>
- If the remote engine starter does not operate even though no DTC has been detected, check the lines of the remote engine starter.

| | (A) | (B) | (C) | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| | | | MAIN-CAN | | | | | | | | | | | | | | | | | | | | PU-CAN | | | HEV-CAN | | | | | |
| | | | 1 | 2 | | | | | 3 | 0 | | | 2 | | | | | | | | | | 1 | | 1 | 1 | | | 1 | | 1 | |
| | | | 1 | 1 | 2 | 3 | 4 | 5 | 1 | | | | 2 | | | 3 | | | 4 | 5 | | | 1 | 2 | 1 | 1 | 2 | 3 | 1 | 2 |
| | | | - | - | - | - | - | - | - | 0 | 1 | 2 | 1 | 2 | 3 | 1 | 2 | 3 | 1 | 1 | 2 | - | - | 1 | - | - | - | 1 | 1 |
| | | | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | - | - | ○ | ○ | ○ | ○ | - | - | - | ○ | ○ | ○ | ○ | ○ |
| VDC | ○ | ○ | ○ | - | - | - | - | - | - | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BIU | ○ | ○ | - | ○ | - | - | - | - | - | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| MFD | ○ | ○ | - | ○ | ○ | - | - | - | - | ○ | - | - | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| A/C | ○ | ○ | - | ○ | ○ | - | - | - | - | ○ | - | - | - | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| MET | ○ | ○ | - | ○ | ○ | - | - | - | - | ○ | - | - | - | - | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| RST | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| STR | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| TCM | ○ | ○ | - | ○ | ○ | ○ | - | - | - | ○ | - | - | - | - | - | - | - | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - |
| A/B | ○ | ○ | - | ○ | ○ | ○ | ○ | - | - | ○ | - | - | - | - | - | - | - | - | ○ | - | - | - | - | - | - | - | - | - | - | - | - |
| HPCM | ○ | ○ | - | ○ | ○ | ○ | ○ | ○ | - | ○ | - | - | - | - | - | - | - | - | - | ○ | - | - | - | - | - | - | - | - | - | - | - |
| EPS | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ECM | ○ | ○ | - | ○ | ○ | ○ | ○ | ○ | ○ | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| KPS | ○ | ○ | - | - | - | - | - | - | - | ○ | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| AHL | ○ | ○ | - | - | - | - | - | - | - | ○ | - | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| EOP | ○ | ○ | - | ○ | ○ | ○ | ○ | ○ | - | ○ | - | - | - | - | - | - | - | - | - | ○ | - | - | - | - | - | ○ | - | - | ○ | - | - |
| BECM | ○ | ○ | - | ○ | ○ | ○ | ○ | ○ | - | ○ | - | - | - | - | - | - | - | - | - | ○ | - | - | - | - | - | ○ | ○ | - | - | - | ○ |
| DMCM | ○ | ○ | - | ○ | ○ | ○ | ○ | ○ | - | ○ | - | - | - | - | - | - | - | - | - | ○ | - | - | - | - | - | ○ | ○ | ○ | - | - | - |

LAN01779

- When MAIN-CAN 2-3-3 is open

| | (A) | (B) | (C) | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | MAIN-CAN | | | | | | | | | | | | | | | | | | | | | PU-CAN | | | HEV-CAN | | | | |
| | | | 1 | 2 | | | | | 3 | 0 | | | 2 | | | | | | | | | | | 1 | 1 | 1 | | | 1 | | |
| | | | 1 | 1 | 2 | 3 | 4 | 5 | 1 | | | | 2 | | | 3 | | | 4 | 5 | | | | 1 | 2 | 1 | 1 | 2 | 3 | 1 | 2 |
| | | | - | - | - | - | - | - | - | 0 | 1 | 2 | 1 | 2 | 3 | 1 | 2 | 3 | 1 | 1 | 2 | - | - | 1 | - | - | - | 1 | 1 |
| | | | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | - | - | | ○ | ○ | ○ | - | - | - | ○ | ○ | ○ | ○ | ○ |
| VDC | ○ | ○ | ○ | - | - | - | - | - | - | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BIU | ○ | ○ | - | ○ | - | - | - | - | - | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| MFD | ○ | ○ | - | ○ | ○ | - | - | - | - | ○ | - | - | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| A/C | ○ | ○ | - | ○ | ○ | - | - | - | - | ○ | - | - | - | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| MET | ○ | ○ | - | ○ | ○ | - | - | - | - | ○ | - | - | - | - | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| RST | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| STR | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| TCM | ○ | × | - | ○ | ○ | ○ | - | - | - | ○ | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | - | - | - | - | - | - |
| A/B | ○ | ○ | - | ○ | ○ | ○ | ○ | - | - | ○ | - | - | - | - | - | - | - | - | ○ | - | - | - | - | - | - | - | - | - | - | - | - |
| HPCM | ○ | ○ | - | ○ | ○ | ○ | ○ | ○ | - | ○ | - | - | - | - | - | - | - | - | - | ○ | - | - | - | - | - | - | - | - | - | - | - |
| EPS | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ECM | ○ | ○ | - | ○ | ○ | ○ | ○ | ○ | ○ | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| KPS | ○ | ○ | - | - | - | - | - | - | - | ○ | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| AHL | ○ | ○ | - | - | - | - | - | - | - | ○ | - | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| EOP | ○ | ○ | - | ○ | ○ | ○ | ○ | ○ | - | ○ | - | - | - | - | - | - | - | - | - | ○ | - | - | - | - | ○ | - | - | ○ | - | - | - |
| BECM | ○ | ○ | - | ○ | ○ | ○ | ○ | ○ | - | ○ | - | - | - | - | - | - | - | - | - | ○ | - | - | - | - | ○ | ○ | - | - | - | - | ○ |
| DMCM | ○ | ○ | - | ○ | ○ | ○ | ○ | ○ | - | ○ | - | - | - | - | - | - | - | - | - | ○ | - | - | - | - | ○ | ○ | ○ | - | - | - | - |

LAN01780

- When MAIN-CAN 2-4 is open

| | (A) | (B) | (C) | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | MAIN-CAN | | | | | | | | | | | | | | | | | | | | | PU-CAN | | | HEV-CAN | | | | |
| | | | 1 | 2 | | | | | 3 | 0 | | | 2 | | | | | | | | | | | 1 | 1 | 1 | | | 1 | | |
| | | | 1 | 1 | 2 | 3 | 4 | 5 | 1 | | | | 2 | | | 3 | | | 4 | 5 | | | | 1 | 2 | 1 | 1 | 2 | 3 | 1 | 2 |
| | | | - | - | - | - | - | - | - | 0 | 1 | 2 | 1 | 2 | 3 | 1 | 2 | 3 | 1 | 1 | 2 | - | - | 1 | - | - | - | 1 | 1 |
| | | | ○ | ○ | ○ | ○ | | | | ○ | ○ | ○ | ○ | ○ | ○ | - | - | ○ | | | | - | - | - | | | | | |
| VDC | ○ | ○ | ○ | - | - | - | - | - | - | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BIU | ○ | ○ | - | ○ | - | - | - | - | - | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| MFD | ○ | ○ | - | ○ | ○ | - | - | - | - | ○ | - | - | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| A/C | ○ | ○ | - | ○ | ○ | - | - | - | - | ○ | - | - | - | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| MET | ○ | ○ | - | ○ | ○ | - | - | - | - | ○ | - | - | - | - | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| RST | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| STR | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| TCM | ○ | ○ | - | ○ | ○ | ○ | - | - | - | ○ | - | - | - | - | - | - | - | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - |
| A/B | ○ | × | - | ○ | ○ | ○ | | - | - | ○ | - | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | - | - | - | - | - |
| HPCM | ○ | × | - | ○ | ○ | ○ | | | - | ○ | - | - | - | - | - | - | - | - | | | - | - | - | - | - | - | - | - | - | - | - |
| EPS | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ECM | ○ | × | - | ○ | ○ | ○ | | | | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| KPS | ○ | ○ | - | - | - | - | - | - | - | ○ | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| AHL | ○ | ○ | - | - | - | - | - | - | - | ○ | - | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| EOP | ○ | × | - | ○ | ○ | ○ | | | - | ○ | - | - | - | - | - | - | - | - | - | | - | - | - | - | | - | - | | | - | - |
| BECM | ○ | × | - | ○ | ○ | ○ | | | - | ○ | - | - | - | - | - | - | - | - | - | | - | - | - | - | | | - | - | | | |
| DMCM | ○ | × | - | ○ | ○ | ○ | | | - | ○ | - | - | - | - | - | - | - | - | - | | - | - | - | - | | | | - | - | | |

LAN01781

- When MAIN-CAN 2-4-1 is open

| | (A) | (B) | (C) | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| | | | MAIN-CAN | | | | | | | | | | | | | | | | | | | | | PU-CAN | | | HEV-CAN | | | | |
| | | | 1 | 2 | | | | | 3 | 0 | | | 2 | | | | | | | | | | | 1 | 1 | 1 | | | 1 | | |
| | | | 1 | 1 | 2 | 3 | 4 | 5 | 1 | | | | 2 | | | 3 | | | 4 | 5 | | | | 1 | 2 | 1 | 1 | 2 | 3 | 1 | 2 |
| | | | - | - | - | - | - | - | - | 0 | 1 | 2 | 1 | 2 | 3 | 1 | 2 | 3 | 1 | 1 | 2 | - | - | 1 | - | - | - | 1 | 1 |
| | | | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | - | - | ○ | | ○ | ○ | - | - | - | ○ | ○ | ○ | ○ | ○ |
| VDC | ○ | ○ | ○ | - | - | - | - | - | - | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BIU | ○ | ○ | - | ○ | - | - | - | - | - | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| MFD | ○ | ○ | - | ○ | ○ | - | - | - | - | ○ | - | - | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| A/C | ○ | ○ | - | ○ | ○ | - | - | - | - | ○ | - | - | - | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| MET | ○ | ○ | - | ○ | ○ | - | - | - | - | ○ | - | - | - | - | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| RST | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| STR | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| TCM | ○ | ○ | - | ○ | ○ | ○ | - | - | - | ○ | - | - | - | - | - | - | - | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - |
| A/B | ○ | × | - | ○ | ○ | ○ | ○ | - | - | ○ | - | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | - | - | - | - | - |
| HPCM | ○ | ○ | - | ○ | ○ | ○ | ○ | ○ | - | ○ | - | - | - | - | - | - | - | - | - | ○ | - | - | - | - | - | - | - | - | - | - | - |
| EPS | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ECM | ○ | ○ | - | ○ | ○ | ○ | ○ | ○ | ○ | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| KPS | ○ | ○ | - | - | - | - | - | - | - | ○ | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| AHL | ○ | ○ | - | - | - | - | - | - | - | ○ | - | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| EOP | ○ | ○ | - | ○ | ○ | ○ | ○ | ○ | - | ○ | - | - | - | - | - | - | - | - | - | ○ | - | - | - | - | ○ | - | - | ○ | - | - | - |
| BECM | ○ | ○ | - | ○ | ○ | ○ | ○ | ○ | - | ○ | - | - | - | - | - | - | - | - | - | ○ | - | - | - | - | ○ | ○ | - | - | ○ | - | - |
| DMCM | ○ | ○ | - | ○ | ○ | ○ | ○ | ○ | - | ○ | - | - | - | - | - | - | - | - | - | ○ | - | - | - | - | ○ | ○ | ○ | - | - | - | - |

LAN01782

- When MAIN-CAN 2-5 is open

| | (A) | (B) | (C) | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | MAIN-CAN | | | | | | | | | | | | | | | | | | | | | PU-CAN | | | HEV-CAN | | | | |
| | | | 1 | 2 | | | | | 3 | 0 | | | 2 | | | | | | | | | | | 1 | 1 | 1 | | | 1 | | |
| | | | 1 | 1 | 2 | 3 | 4 | 5 | 1 | | | | 2 | | | 3 | | | 4 | 5 | | | | 1 | 2 | 1 | 1 | 2 | 3 | 1 | 2 |
| | | | - | - | - | - | - | - | - | 0 | 1 | 2 | 1 | 2 | 3 | 1 | 2 | 3 | 1 | 1 | 2 | - | - | 1 | - | - | - | 1 | 1 |
| | | | ○ | ○ | ○ | ○ | ○ | | | ○ | ○ | ○ | ○ | ○ | ○ | - | - | ○ | ○ | | | - | - | - | | | | | |
| VDC | ○ | ○ | ○ | - | - | - | - | - | - | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BIU | ○ | ○ | - | ○ | - | - | - | - | - | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| MFD | ○ | ○ | - | ○ | ○ | - | - | - | - | ○ | - | - | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| A/C | ○ | ○ | - | ○ | ○ | - | - | - | - | ○ | - | - | - | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| MET | ○ | ○ | - | ○ | ○ | - | - | - | - | ○ | - | - | - | - | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| RST | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| STR | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| TCM | ○ | ○ | - | ○ | ○ | ○ | - | - | - | ○ | - | - | - | - | - | - | - | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - |
| A/B | ○ | ○ | - | ○ | ○ | ○ | ○ | - | - | ○ | - | - | - | - | - | - | - | - | ○ | - | - | - | - | - | - | - | - | - | - | - | - |
| HPCM | ○ | × | - | ○ | ○ | ○ | ○ | | - | ○ | - | - | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | - | - | - | - |
| EPS | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ECM | ○ | × | - | ○ | ○ | ○ | ○ | | | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| KPS | ○ | ○ | - | - | - | - | - | - | - | ○ | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| AHL | ○ | ○ | - | - | - | - | - | - | - | ○ | - | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| EOP | ○ | × | - | ○ | ○ | ○ | ○ | | - | ○ | - | - | - | - | - | - | - | - | - | | - | - | - | - | | - | - | | - | - | - |
| BECM | ○ | × | - | ○ | ○ | ○ | ○ | | - | ○ | - | - | - | - | - | - | - | - | - | | - | - | - | - | | | - | - | | - | |
| DMCM | ○ | × | - | ○ | ○ | ○ | ○ | | - | ○ | - | - | - | - | - | - | - | - | - | | - | - | - | - | | | | - | - | - | - |

LAN01783

- When MAIN-CAN 2-5-1 is open

| | (A) | (B) | (C) | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | MAIN-CAN | | | | | | | | | | | | | | | | | | | | PU-CAN | | | HEV-CAN | | | | | |
| | | | 1 | 2 | | | | | 3 | 0 | | | 2 | | | | | | | | | | 1 | 1 | | 1 | | | 1 | | |
| | | | 1 | 1 | 2 | 3 | 4 | 5 | 1 | | | | 2 | | | 3 | | | 4 | 5 | | | 1 | 2 | 1 | 1 | 2 | 3 | 1 | 2 | |
| | | | - | - | - | - | - | - | - | 0 | 1 | 2 | 1 | 2 | 3 | 1 | 2 | 3 | 1 | 1 | 2 | - | - | 1 | - | - | - | 1 | 1 | |
| | | | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | - | - | ○ | ○ | | ○ | - | - | - | | | | | | |
| VDC | ○ | ○ | ○ | - | - | - | - | - | - | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BIU | ○ | ○ | - | ○ | - | - | - | - | - | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| MFD | ○ | ○ | - | ○ | ○ | - | - | - | - | ○ | - | - | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| A/C | ○ | ○ | - | ○ | ○ | - | - | - | - | ○ | - | - | - | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| MET | ○ | ○ | - | ○ | ○ | - | - | - | - | ○ | - | - | - | - | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| RST | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| STR | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| TCM | ○ | ○ | - | ○ | ○ | ○ | - | - | - | ○ | - | - | - | - | - | - | - | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - |
| A/B | ○ | ○ | - | ○ | ○ | ○ | ○ | - | - | ○ | - | - | - | - | - | - | - | - | ○ | - | - | - | - | - | - | - | - | - | - | - | - |
| HPCM | ○ | × | - | ○ | ○ | ○ | ○ | ○ | - | ○ | - | - | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | - | - | - | - |
| EPS | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ECM | ○ | ○ | - | ○ | ○ | ○ | ○ | ○ | ○ | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| KPS | ○ | ○ | - | - | - | - | - | - | - | ○ | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| AHL | ○ | ○ | - | - | - | - | - | - | - | ○ | - | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| EOP | ○ | × | - | ○ | ○ | ○ | ○ | ○ | - | ○ | - | - | - | - | - | - | - | - | - | | - | - | - | - | | - | - | | - | - | - |
| BECM | ○ | × | - | ○ | ○ | ○ | ○ | ○ | - | ○ | - | - | - | - | - | - | - | - | - | | - | - | - | - | | | - | - | | - | |
| DMCM | ○ | × | - | ○ | ○ | ○ | ○ | ○ | - | ○ | - | - | - | - | - | - | - | - | - | | - | - | - | - | | | | - | - | - | - |

LAN01784

- When MAIN-CAN 3-1 is open

| | (A) | (B) | (C) | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| | | | MAIN-CAN | | | | | | | | | | | | | | | | | | | | PU-CAN | | | HEV-CAN | | | | | |
| | | | 1 | 2 | | | | | 3 | 0 | | | 2 | | | | | | | | | | 1 | 1 | | 1 | | | 1 | | |
| | | | 1 | 1 | 2 | 3 | 4 | 5 | 1 | | | | 2 | | | 3 | | | 4 | 5 | | | 1 | 2 | 1 | 1 | 2 | 3 | 1 | 2 | |
| | | | - | - | - | - | - | - | - | 0 | 1 | 2 | 1 | 2 | 3 | 1 | 2 | 3 | 1 | 1 | 2 | - | - | 1 | - | - | - | 1 | 1 | |
| | | | ○ | ○ | ○ | ○ | ○ | ○ | | ○ | ○ | ○ | ○ | ○ | ○ | - | - | ○ | ○ | ○ | ○ | - | - | - | ○ | ○ | ○ | ○ | ○ | |
| VDC | ○ | ○ | ○ | - | - | - | - | - | - | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BIU | ○ | ○ | - | ○ | - | - | - | - | - | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| MFD | ○ | ○ | - | ○ | ○ | - | - | - | - | ○ | - | - | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| A/C | ○ | ○ | - | ○ | ○ | - | - | - | - | ○ | - | - | - | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| MET | ○ | ○ | - | ○ | ○ | - | - | - | - | ○ | - | - | - | - | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| RST | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| STR | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| TCM | ○ | ○ | - | ○ | ○ | ○ | - | - | - | ○ | - | - | - | - | - | - | - | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - |
| A/B | ○ | ○ | - | ○ | ○ | ○ | ○ | - | - | ○ | - | - | - | - | - | - | - | - | ○ | - | - | - | - | - | - | - | - | - | - | - | - |
| HPCM | ○ | ○ | - | ○ | ○ | ○ | ○ | ○ | - | ○ | - | - | - | - | - | - | - | - | - | ○ | - | - | - | - | - | - | - | - | - | - | - |
| EPS | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ECM | ○ | × | - | ○ | ○ | ○ | ○ | ○ | | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| KPS | ○ | ○ | - | - | - | - | - | - | - | ○ | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| AHL | ○ | ○ | - | - | - | - | - | - | - | ○ | - | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| EOP | ○ | ○ | - | ○ | ○ | ○ | ○ | ○ | - | ○ | - | - | - | - | - | - | - | - | - | ○ | - | - | - | - | ○ | - | - | ○ | - | - | - |
| BECM | ○ | ○ | - | ○ | ○ | ○ | ○ | ○ | - | ○ | - | - | - | - | - | - | - | - | - | ○ | - | - | - | - | ○ | ○ | - | - | - | - | ○ |
| DMCM | ○ | ○ | - | ○ | ○ | ○ | ○ | ○ | - | ○ | - | - | - | - | - | - | - | - | - | ○ | - | - | - | - | ○ | ○ | ○ | - | - | - | - |

LAN01785

- When HEV-CAN 1-1 is open

| | (A) | (B) | (C) | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| | | | MAIN-CAN | | | | | | | | | | | | | | | | | | | | | PU-CAN | | | HEV-CAN | | | | |
| | | | 1 | 2 | | | | | 3 | 0 | | | 2 | | | | | | | | | | | 1 | 1 | 1 | | | 1 | | |
| | | | 1 | 1 | 2 | 3 | 4 | 5 | 1 | | | | 2 | | | 3 | | | 4 | 5 | | | | 1 | 2 | 1 | 1 | 2 | 3 | 1 | 2 |
| | | | - | - | - | - | - | - | - | 0 | 1 | 2 | 1 | 2 | 3 | 1 | 2 | 3 | 1 | 1 | 2 | - | - | 1 | - | - | - | 1 | 1 | | |
| | | | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | - | - | ○ | ○ | ○ | ○ | - | - | - | | | | | | | |
| VDC | ○ | ○ | ○ | - | - | - | - | - | - | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BIU | ○ | ○ | - | ○ | - | - | - | - | - | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| MFD | ○ | ○ | - | ○ | ○ | - | - | - | - | ○ | - | - | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| A/C | ○ | ○ | - | ○ | ○ | - | - | - | - | ○ | - | - | - | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| MET | ○ | ○ | - | ○ | ○ | - | - | - | - | ○ | - | - | - | - | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| RST | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| STR | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| TCM | ○ | ○ | - | ○ | ○ | ○ | - | - | - | ○ | - | - | - | - | - | - | - | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| A/B | ○ | ○ | - | ○ | ○ | ○ | ○ | - | - | ○ | - | - | - | - | - | - | - | - | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - |
| HPCM | ○ | ○ | - | ○ | ○ | ○ | ○ | ○ | - | ○ | - | - | - | - | - | - | - | - | - | ○ | - | - | - | - | - | - | - | - | - | - | - | - |
| EPS | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ECM | ○ | ○ | - | ○ | ○ | ○ | ○ | ○ | ○ | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| KPS | ○ | ○ | - | - | - | - | - | - | - | ○ | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| AHL | ○ | ○ | - | - | - | - | - | - | - | ○ | - | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| EOP | ○ | × | - | ○ | ○ | ○ | ○ | ○ | - | ○ | - | - | - | - | - | - | - | - | - | ○ | - | - | - | - | | - | - | | | - | | - |
| BECM | ○ | × | - | ○ | ○ | ○ | ○ | ○ | - | ○ | - | - | - | - | - | - | - | - | - | ○ | - | - | - | - | | | - | - | | | - | |
| DMCM | ○ | × | - | ○ | ○ | ○ | ○ | ○ | - | ○ | - | - | - | - | - | - | - | - | - | ○ | - | - | - | - | | | | - | - | | | - |

LAN01786

- When HEV-CAN 1-1-1 is open

| | (A) | (B) | (C) | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | MAIN-CAN | | | | | | | | | | | | | | | | | | | | | PU-CAN | | | HEV-CAN | | | | |
| | | | 1 | 2 | | | | | 3 | 0 | | | 2 | | | | | | | | | | | 1 | 1 | 1 | | | 1 | | |
| | | | 1 | 1 | 2 | 3 | 4 | 5 | 1 | | | | 2 | | | 3 | | | 4 | 5 | | | | 1 | 2 | 1 | 1 | 2 | 3 | 1 | 2 |
| | | | - | - | - | - | - | - | - | 0 | 1 | 2 | 1 | 2 | 3 | 1 | 2 | 3 | 1 | 1 | 2 | - | - | 1 | - | - | - | 1 | 1 | | |
| | | | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | - | - | ○ | ○ | ○ | ○ | - | - | - | ○ | ○ | ○ | | ○ | | |
| VDC | ○ | ○ | ○ | - | - | - | - | - | - | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BIU | ○ | ○ | - | ○ | - | - | - | - | - | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| MFD | ○ | ○ | - | ○ | ○ | - | - | - | - | ○ | - | - | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| A/C | ○ | ○ | - | ○ | ○ | - | - | - | - | ○ | - | - | - | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| MET | ○ | ○ | - | ○ | ○ | - | - | - | - | ○ | - | - | - | - | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| RST | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| STR | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| TCM | ○ | ○ | - | ○ | ○ | ○ | - | - | - | ○ | - | - | - | - | - | - | - | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| A/B | ○ | ○ | - | ○ | ○ | ○ | ○ | - | - | ○ | - | - | - | - | - | - | - | - | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - |
| HPCM | ○ | ○ | - | ○ | ○ | ○ | ○ | ○ | - | ○ | - | - | - | - | - | - | - | - | - | ○ | - | - | - | - | - | - | - | - | - | - | - | - |
| EPS | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ECM | ○ | ○ | - | ○ | ○ | ○ | ○ | ○ | ○ | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| KPS | ○ | ○ | - | - | - | - | - | - | - | ○ | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| AHL | ○ | ○ | - | - | - | - | - | - | - | ○ | - | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| EOP | ○ | × | - | ○ | ○ | ○ | ○ | ○ | - | ○ | - | - | - | - | - | - | - | - | - | ○ | - | - | - | - | ○ | - | - | | | - | | - |
| BECM | ○ | ○ | - | ○ | ○ | ○ | ○ | ○ | - | ○ | - | - | - | - | - | - | - | - | - | ○ | - | - | - | - | ○ | ○ | - | - | ○ | | - | ○ |
| DMCM | ○ | ○ | - | ○ | ○ | ○ | ○ | ○ | - | ○ | - | - | - | - | - | - | - | - | - | ○ | - | - | - | - | ○ | ○ | ○ | - | - | | | - |

LAN01787

- When HEV-CAN 1-2 is open

| | (A) | (B) | (C) | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| | | | MAIN-CAN | | | | | | | | | | | | | | | | | | | | PU-CAN | | | HEV-CAN | | | | |
| | | | 1 | 2 | | | | | 3 | 0 | | | 2 | | | | | | | | | | 1 | 1 | 1 | | | 1 | | |
| | | | 1 | 1 | 2 | 3 | 4 | 5 | 1 | | | | 2 | | | 3 | | | 4 | 5 | | | 1 | 2 | 1 | 1 | 2 | 3 | 1 | 2 |
| | | | - | - | - | - | - | - | - | 0 | 1 | 2 | 1 | 2 | 3 | 1 | 2 | 3 | 1 | 1 | 2 | - | - | 1 | - | - | - | 1 | 1 |
| | | | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | - | - | ○ | ○ | ○ | ○ | - | - | - | ○ | | | ○ | |
| VDC | ○ | ○ | ○ | - | - | - | - | - | - | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BIU | ○ | ○ | - | ○ | - | - | - | - | - | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| MFD | ○ | ○ | - | ○ | ○ | - | - | - | - | ○ | - | - | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| A/C | ○ | ○ | - | ○ | ○ | - | - | - | - | ○ | - | - | - | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| MET | ○ | ○ | - | ○ | ○ | - | - | - | - | ○ | - | - | - | - | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| RST | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| STR | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| TCM | ○ | ○ | - | ○ | ○ | ○ | - | - | - | ○ | - | - | - | - | - | - | - | ○ | - | - | - | - | - | - | - | - | - | - | - | - |
| A/B | ○ | ○ | - | ○ | ○ | ○ | ○ | - | - | ○ | - | - | - | - | - | - | - | - | ○ | - | - | - | - | - | - | - | - | - | - | - |
| HPCM | ○ | ○ | - | ○ | ○ | ○ | ○ | ○ | - | ○ | - | - | - | - | - | - | - | - | - | ○ | - | - | - | - | - | - | - | - | - | - |
| EPS | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ECM | ○ | ○ | - | ○ | ○ | ○ | ○ | ○ | ○ | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| KPS | ○ | ○ | - | - | - | - | - | - | - | ○ | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| AHL | ○ | ○ | - | - | - | - | - | - | - | ○ | - | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| EOP | ○ | ○ | - | ○ | ○ | ○ | ○ | ○ | - | ○ | - | - | - | - | - | - | - | - | - | ○ | - | - | - | - | ○ | - | - | ○ | - | - |
| BECM | ○ | × | - | ○ | ○ | ○ | ○ | ○ | - | ○ | - | - | - | - | - | - | - | - | - | ○ | - | - | - | - | ○ | | - | - | | |
| DMCM | ○ | × | - | ○ | ○ | ○ | ○ | ○ | - | ○ | - | - | - | - | - | - | - | - | - | ○ | - | - | - | - | ○ | | | - | - | |

LAN01788

- When HEV-CAN 1-2-1 is open

| | (A) | (B) | (C) | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | MAIN-CAN | | | | | | | | | | | | | | | | | | | | PU-CAN | | | HEV-CAN | | | | |
| | | | 1 | 2 | | | | | 3 | 0 | | | 2 | | | | | | | | | | 1 | 1 | 1 | | | 1 | | |
| | | | 1 | 1 | 2 | 3 | 4 | 5 | 1 | | | | 2 | | | 3 | | | 4 | 5 | | | 1 | 2 | 1 | 1 | 2 | 3 | 1 | 2 |
| | | | - | - | - | - | - | - | - | 0 | 1 | 2 | 1 | 2 | 3 | 1 | 2 | 3 | 1 | 1 | 2 | - | - | 1 | - | - | - | 1 | 1 |
| | | | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | - | - | ○ | ○ | ○ | ○ | - | - | - | ○ | ○ | ○ | ○ | |
| VDC | ○ | ○ | ○ | - | - | - | - | - | - | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BIU | ○ | ○ | - | ○ | - | - | - | - | - | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| MFD | ○ | ○ | - | ○ | ○ | - | - | - | - | ○ | - | - | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| A/C | ○ | ○ | - | ○ | ○ | - | - | - | - | ○ | - | - | - | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| MET | ○ | ○ | - | ○ | ○ | - | - | - | - | ○ | - | - | - | - | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| RST | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| STR | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| TCM | ○ | ○ | - | ○ | ○ | ○ | - | - | - | ○ | - | - | - | - | - | - | - | ○ | - | - | - | - | - | - | - | - | - | - | - | - |
| A/B | ○ | ○ | - | ○ | ○ | ○ | ○ | - | - | ○ | - | - | - | - | - | - | - | - | ○ | - | - | - | - | - | - | - | - | - | - | - |
| HPCM | ○ | ○ | - | ○ | ○ | ○ | ○ | ○ | - | ○ | - | - | - | - | - | - | - | - | - | ○ | - | - | - | - | - | - | - | - | - | - |
| EPS | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ECM | ○ | ○ | - | ○ | ○ | ○ | ○ | ○ | ○ | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| KPS | ○ | ○ | - | - | - | - | - | - | - | ○ | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| AHL | ○ | ○ | - | - | - | - | - | - | - | ○ | - | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| EOP | ○ | ○ | - | ○ | ○ | ○ | ○ | ○ | - | ○ | - | - | - | - | - | - | - | - | - | ○ | - | - | - | - | ○ | - | - | ○ | - | - |
| BECM | ○ | × | - | ○ | ○ | ○ | ○ | ○ | - | ○ | - | - | - | - | - | - | - | - | - | ○ | - | - | - | - | ○ | ○ | - | - | | |
| DMCM | ○ | ○ | - | ○ | ○ | ○ | ○ | ○ | - | ○ | - | - | - | - | - | - | - | - | - | ○ | - | - | - | - | ○ | ○ | ○ | - | - | |

LAN01789

- When HEV-CAN 1-3 is open

| | (A) | (B) | (C) | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | MAIN-CAN | | | | | | | | | | | | | | | | | | | | | PU-CAN | | | HEV-CAN | | | | |
| | | | 1 | 2 | | | | | 3 | 0 | | | 2 | | | | | | | | | | | 1 | 1 | 1 | | | 1 | | |
| | | | 1 | 1 | 2 | 3 | 4 | 5 | 1 | | | | 2 | | | 3 | | | 4 | 5 | | | 1 | 2 | 1 | 1 | 2 | 3 | 1 | 2 |
| | | | - | - | - | - | - | - | - | 0 | 1 | 2 | 1 | 2 | 3 | 1 | 2 | 3 | 1 | 1 | 2 | | - | - | 1 | - | - | - | 1 | 1 |
| | | | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | - | - | ○ | ○ | ○ | ○ | | - | - | - | ○ | ○ | | ○ | ○ |
| VDC | ○ | ○ | ○ | - | - | - | - | - | - | ○ | - | - | - | - | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | - |
| BIU | ○ | ○ | - | ○ | - | - | - | - | - | ○ | - | - | - | - | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | - |
| MFD | ○ | ○ | - | ○ | ○ | - | - | - | - | ○ | - | - | ○ | - | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | - |
| A/C | ○ | ○ | - | ○ | ○ | - | - | - | - | ○ | - | - | - | ○ | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | - |
| MET | ○ | ○ | - | ○ | ○ | - | - | - | - | ○ | - | - | - | - | ○ | - | - | - | - | - | - | | - | - | - | - | - | - | - | - |
| RST | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | - |
| STR | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | - |
| TCM | ○ | ○ | - | ○ | ○ | ○ | - | - | - | ○ | - | - | - | - | - | - | - | ○ | - | - | - | | - | - | - | - | - | - | - | - |
| A/B | ○ | ○ | - | ○ | ○ | ○ | ○ | - | - | ○ | - | - | - | - | - | - | - | - | ○ | - | - | | - | - | - | - | - | - | - | - |
| HPCM | ○ | ○ | - | ○ | ○ | ○ | ○ | ○ | - | ○ | - | - | - | - | - | - | - | - | - | ○ | - | | - | - | - | - | - | - | - | - |
| EPS | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | - |
| ECM | ○ | ○ | - | ○ | ○ | ○ | ○ | ○ | ○ | ○ | - | - | - | - | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | - |
| KPS | ○ | ○ | - | - | - | - | - | - | - | ○ | ○ | - | - | - | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | - |
| AHL | ○ | ○ | - | - | - | - | - | - | - | ○ | - | ○ | - | - | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | - |
| EOP | ○ | ○ | - | ○ | ○ | ○ | ○ | ○ | - | ○ | - | - | - | - | - | - | - | - | - | ○ | - | | - | - | - | ○ | - | - | ○ | - |
| BECM | ○ | ○ | - | ○ | ○ | ○ | ○ | ○ | - | ○ | - | - | - | - | - | - | - | - | - | ○ | - | | - | - | - | ○ | ○ | - | - | ○ |
| DMCM | ○ | × | - | ○ | ○ | ○ | ○ | ○ | - | ○ | - | - | - | - | - | - | - | - | - | ○ | - | | - | - | - | ○ | ○ | | - | - |

LAN01790

# 7. Read Diagnostic Trouble Code (DTC)

## A: OPERATION

For detailed operation procedures, refer to “PC application help for Subaru Select Monitor”.

# 8. Clear Memory Mode

## A: OPERATION

For detailed operation procedures, refer to “PC application help for Subaru Select Monitor”.

# 9. CAN Communication Circuit Check

## A: PROCEDURE

### 1. MAIN-CAN

NOTE:
- When measuring the resistance of CAN communication circuit, measure it in sleep status.

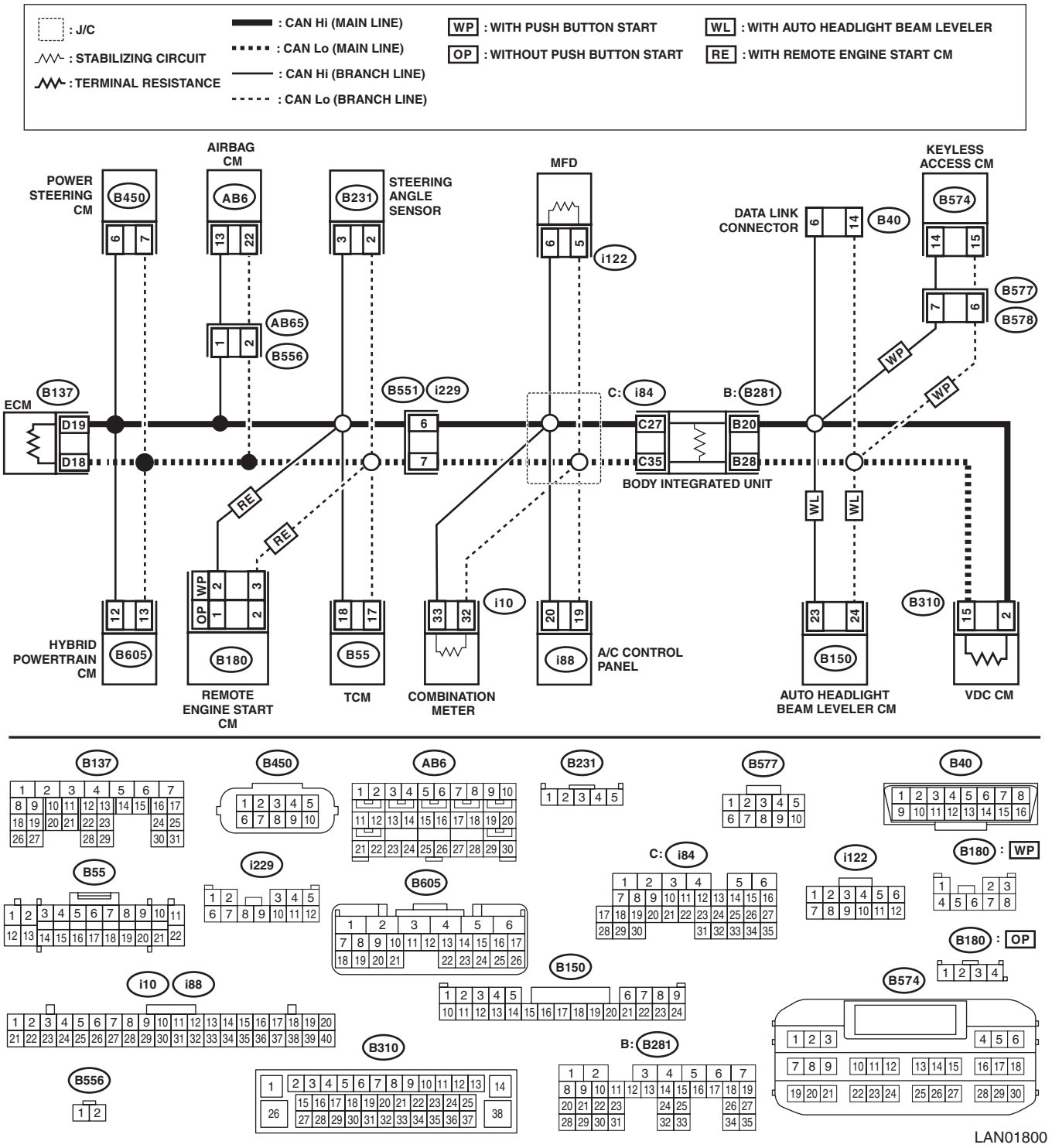
To enter sleep status
  – With ignition switch OFF and key or switch operation stopped, keep the doors, trunk, and rear gate all closed for one minute or more.
  – On models with keyless access function, keep the access key 2 m or more away from the vehicle.

- When the bus line is measured, combined resistance of the end resistance (120 Ω) in ECM and the end resistance (120 Ω) in VDC CM can be measured. The combined resistance is supposed to be approximately 53 — 61 Ω with the stabilizing circuit included. If the measured resistance value becomes 52 Ω or less, main wiring harness or related lines may be shorted. Or, the combined resistance may have changed because of a resistance other than the end resistance created on the circuit. If the measured value is 62 Ω or more, there may be a malfunction such as open circuit in one of the end resistances, in the stabilizing circuit, or in the main wiring harness.

Also, even when the resistance value falls within approx. 53 — 61 Ω, related lines may be open if an error of communication for initializing or a CAN system U-code has occurred. (The resistance won't be between approx. 53 — 61 Ω if the main wiring harness is open.)

**WIRING DIAGRAM:**

CAN communication system <Ref. to WI(HEV)-65, WIRING DIAGRAM, CAN Communication System.>



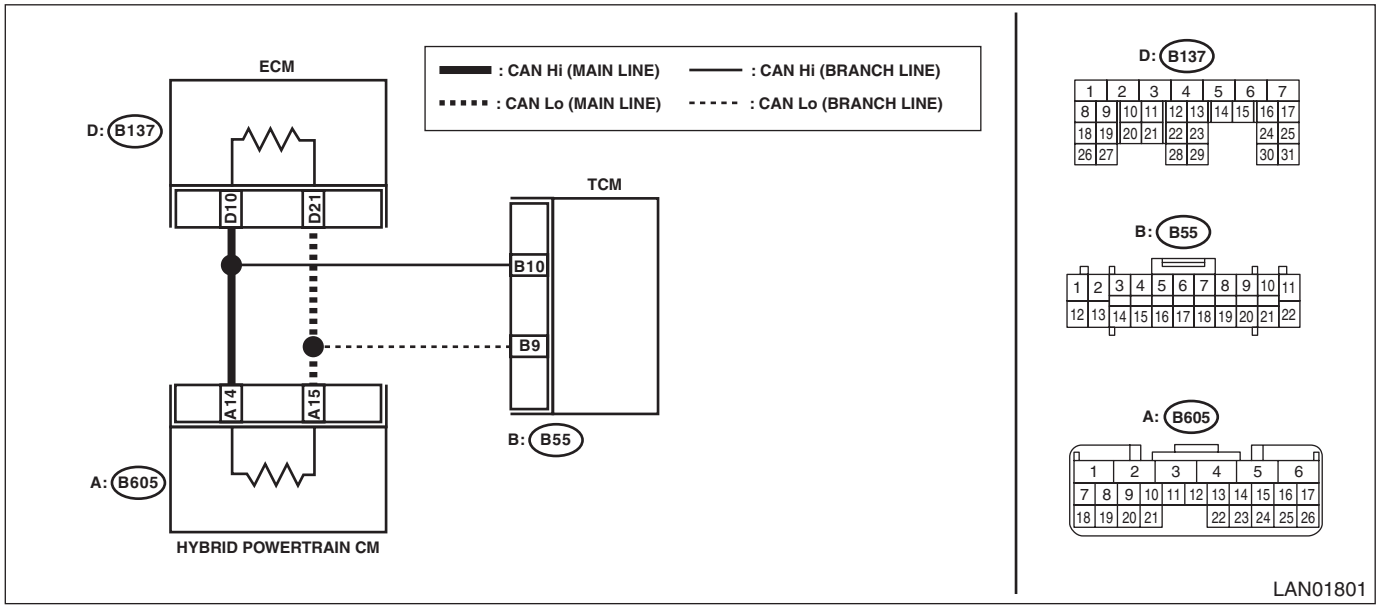

LAN01800

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK BASIC DIAGNOSTIC PROCEDURE.**<br>Confirm that the basic diagnostic procedure was performed up to STEP 3.<br>NOTE:<br>Inspection using Subaru Select Monitor helps to find faulty portion easily before "CAN Communication Circuit Check" using the tester. | Was the basic diagnostic procedure performed? | Go to step **2**. | Perform the basic diagnostic procedure. <Ref. to LAN(HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.> |
| 2 | **CHECK FROM DATA LINK CONNECTOR.**<br>Using the tester, measure the resistance between terminals.<br>***Connector & terminal***<br>***(B40) No. 6 — Chassis ground:***<br>***(B40) No. 14 — Chassis ground:*** | Is the resistance 10 Ω or less? | Check for ground short. <Ref. to LAN(HEV)(diag)-39, GROUND SHORT INSPECTION (MAIN-CAN), INSPECTION, CAN Communication Circuit Check.> | Go to step **3**. |
| 3 | **CHECK FROM DATA LINK CONNECTOR.**<br>1) Turn the ignition switch to ON.<br>2) Using the tester, measure the voltage between terminals.<br>***Connector & terminal***<br>***(B40) No. 6 — Chassis ground:***<br>***(B40) No. 14 — Chassis ground:*** | Is the voltage 5 V or less? | Go to step **4**. | Check for battery short. <Ref. to LAN(HEV)(diag)-41, BATTERY SHORT INSPECTION (MAIN-CAN), INSPECTION, CAN Communication Circuit Check.> |
| 4 | **CHECK FROM DATA LINK CONNECTOR.**<br>1) Turn the ignition switch to OFF.<br>2) Using the tester, measure the resistance between terminals.<br>***Connector & terminal***<br>***(B40) No. 6 — No. 14:*** | Is the resistance 52 Ω or less? | Perform the inspection for the resistance of 52 Ω or less. <Ref. to LAN(HEV)(diag)-45, 52 Ω OR LESS, INSPECTION, CAN Communication Circuit Check.> | Go to step **5**. |
| 5 | **CHECK FROM DATA LINK CONNECTOR.**<br>Using the tester, measure the resistance between terminals.<br>***Connector & terminal***<br>***(B40) No. 6 — No. 14:*** | Is the resistance 62 Ω or more? | Perform the inspection for the resistance of 62 Ω or more. <Ref. to LAN(HEV)(diag)-48, 62 Ω OR MORE, INSPECTION, CAN Communication Circuit Check.> | If the display of CAN system U-code disappears from the current malfunction, the CAN network is currently normal. If the U-code has detected as current malfunction, related lines may be open. Perform the inspection for the related line corresponding to the detected DTC. <Ref. to LAN(HEV)(diag)-36, MAIN-CAN, LIST, CAN Communication Circuit Check.> |

## 2. PU-CAN

NOTE:
• When measuring the resistance of CAN communication circuit, measure it in sleep status.
To enter sleep status
– With ignition switch OFF and key or switch operation stopped, keep the doors, trunk, and rear gate all closed for one minute or more.
– On models with keyless access function, keep the access key 2 m or more away from the vehicle.
• When the bus line is measured, combined resistance of the end resistance (120 Ω) in ECM and the end resistance (120 Ω) in HPCM can be measured. The combined resistance is approximately 57 — 63 Ω. If the measured resistance value becomes 56 Ω or less, main wiring harness or related lines may be shorted. Or, the combined resistance may have changed because of a resistance other than the end resistance created on the circuit. If the measured value is 64 Ω or more, there may be a malfunction such as open circuit in one of the end resistances, in the stabilizing circuit, or in the main wiring harness.
Also, even when the resistance value falls within approx. 57 — 63 Ω, related lines may be open if an error of communication for initializing or a CAN system U-code has occurred. (The resistance won't be between approx. 57 — 63 Ω if the main wiring harness is open.)

**WIRING DIAGRAM:**
CAN communication system <Ref. to WI(HEV)-65, WIRING DIAGRAM, CAN Communication System.>




| Step | | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK BASIC DIAGNOSTIC PROCEDURE.**<br>Confirm that the basic diagnostic procedure was performed up to STEP 3.<br>NOTE:<br>Inspection using Subaru Select Monitor helps to find faulty portion easily before “CAN Communication Circuit Check” using the tester. | Was the basic diagnostic procedure performed? | Go to step **2**. | Perform the basic diagnostic procedure. <Ref. to LAN(HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.> |
| 2 | **CHECK FROM ECM CONNECTOR.**<br>1) Disconnect the ECM connector.<br>2) Using the tester, measure the resistance between terminals.<br>***Connector & terminal***<br>***(B137) No. 21 — Chassis ground:***<br>***(B137) No. 10 — Chassis ground:*** | Is the resistance 10 Ω or less? | Check for ground short. <Ref. to LAN(HEV)(diag)-72, GROUND SHORT INSPECTION (PU-CAN), INSPECTION, CAN Communication Circuit Check.> | Go to step **3**. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 3 | **CHECK FROM ECM CONNECTOR.**<br>1) Turn the ignition switch to ON.<br>2) Using the tester, measure the voltage between terminals.<br>***Connector & terminal***<br>***(B137) No. 21 (+) — Chassis ground (–):***<br>***(B137) No. 10 (+) — Chassis ground (–):*** | Is the voltage 5 V or less? | Go to step **4**. | Check for battery short. <Ref. to LAN(HEV)(diag)-73, BATTERY SHORT INSPECTION (PU-CAN), INSPECTION, CAN Communication Circuit Check.> |
| 4 | **CHECK FROM ECM CONNECTOR.**<br>1) Turn the ignition switch to OFF.<br>2) Using the tester, measure the resistance between terminals.<br>***Connector & terminal***<br>***(B137) No. 21 — No. 10:*** | Is the resistance 56 Ω or less? | Perform the inspection for the resistance of 56 Ω or less. <Ref. to LAN(HEV)(diag)-75, 56 Ω OR LESS (PU-CAN), INSPECTION, CAN Communication Circuit Check.> | Go to step **5**. |
| 5 | **CHECK FROM ECM CONNECTOR.**<br>Using the tester, measure the resistance between terminals.<br>***Connector & terminal***<br>***(B137) No. 21 — No. 10:*** | Is the resistance 64 Ω or more? | Perform the inspection for the resistance of 64 Ω or more. <Ref. to LAN(HEV)(diag)-76, 64 Ω OR MORE (PU-CAN), INSPECTION, CAN Communication Circuit Check.> | If the display of CAN system U-code disappears from the current malfunction, the CAN network is currently normal. If the U-code has detected as current malfunction, related lines may be open. Perform the inspection for the related line corresponding to the detected DTC. <Ref. to LAN(HEV)(diag)-37, PU-CAN, LIST, CAN Communication Circuit Check.> |

## 3. HEV-CAN

NOTE:
- When measuring the resistance of CAN communication circuit, measure it in sleep status.

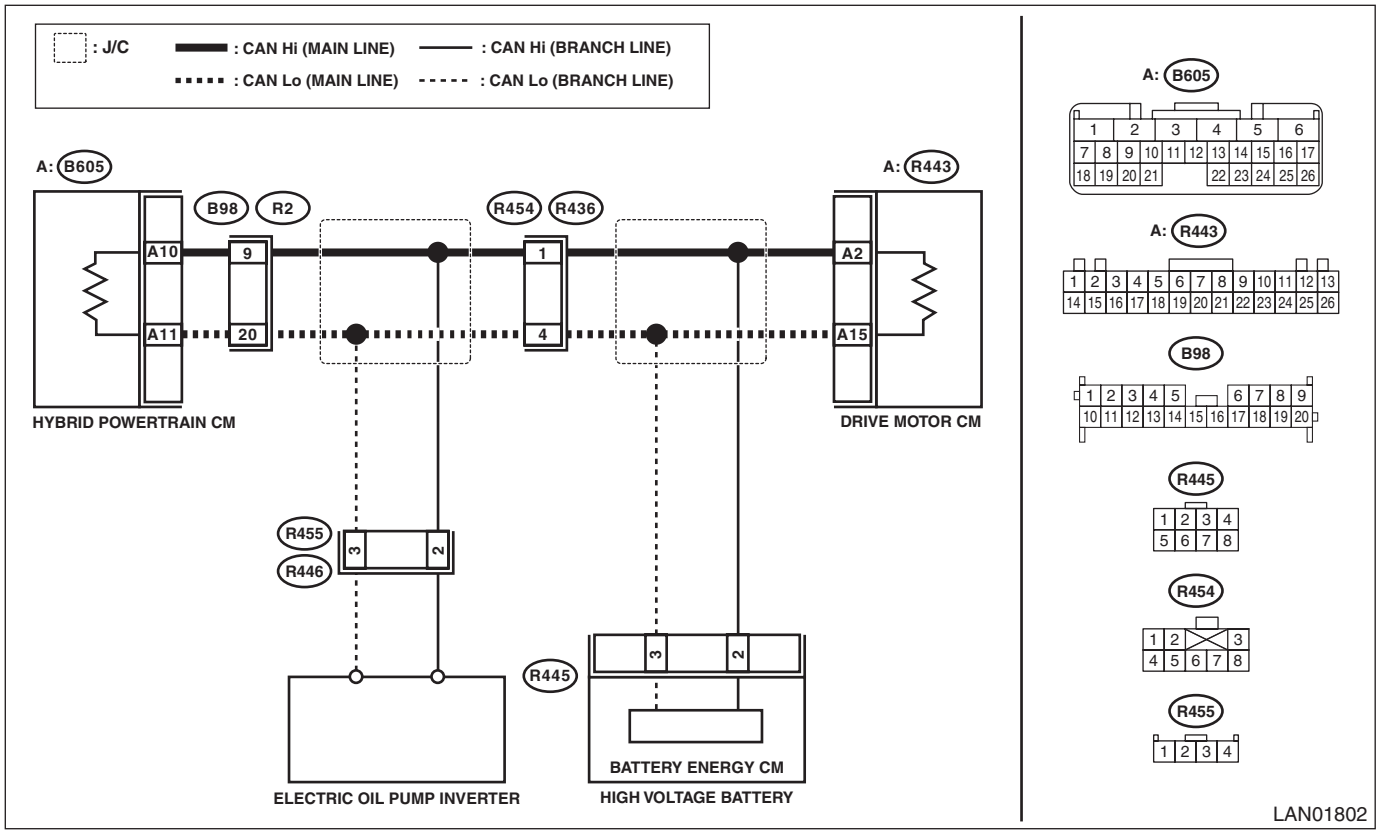
To enter sleep status
- – With ignition switch OFF and key or switch operation stopped, keep the doors, trunk, and rear gate all closed for one minute or more.
- – On models with keyless access function, keep the access key 2 m or more away from the vehicle.

- When the bus line is measured, combined resistance of the end resistance (120 Ω) in HPCM and the end resistance (120 Ω) in DMCM can be measured. The combined resistance is approximately 57 — 63 Ω. If the measured resistance value becomes 56 Ω or less, main wiring harness or related lines may be shorted. Or, the combined resistance may have changed because of a resistance other than the end resistance created on the circuit. If the measured value is 64 Ω or more, there may be a malfunction such as open circuit in one of the end resistances, in the stabilizing circuit, or in the main wiring harness.

Also, even when the resistance value falls within approx. 57 — 63 Ω, related lines may be open if an error of communication for initializing or a CAN system U-code has occurred. (The resistance won't be between approx. 57 — 63 Ω if the main wiring harness is open.)

**WIRING DIAGRAM:**

CAN communication system <Ref. to WI(HEV)-65, WIRING DIAGRAM, CAN Communication System.>




| Step | | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK BASIC DIAGNOSTIC PROCEDURE.**<br>Confirm that the basic diagnostic procedure was performed up to STEP 3.<br>NOTE:<br>Inspection using Subaru Select Monitor helps to find faulty portion easily before “CAN Communication Circuit Check” using the tester. | Was the basic diagnostic procedure performed? | Go to step **2**. | Perform the basic diagnostic procedure. <Ref. to LAN(HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.> |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 2 | **CHECK FROM HPCM CONNECTOR.**<br>1) Disconnect the HPCM connector.<br>2) Using the tester, measure the resistance between terminals.<br>***Connector & terminal***<br>***(B605) No. 10 — Chassis ground:***<br>***(B605) No. 11 — Chassis ground:*** | Is the resistance 10 Ω or less? | Check for ground short. <Ref. to LAN(HEV)(diag)-78, GROUND SHORT INSPECTION (HEV-CAN), INSPECTION, CAN Communication Circuit Check.> | Go to step **3**. |
| 3 | **CHECK FROM HPCM CONNECTOR.**<br>1) Turn the ignition switch to ON.<br>2) Using the tester, measure the voltage between terminals.<br>***Connector & terminal***<br>***(B605) No. 10 (+) — Chassis ground (–):***<br>***(B605) No. 11 (+) — Chassis ground (–):*** | Is the voltage 5 V or less? | Go to step **4**. | Check for battery short. <Ref. to LAN(HEV)(diag)-79, BATTERY SHORT INSPECTION (HEV-CAN), INSPECTION, CAN Communication Circuit Check.> |
| 4 | **CHECK FROM HPCM CONNECTOR.**<br>1) Turn the ignition switch to OFF.<br>2) Using the tester, measure the resistance between terminals.<br>***Connector & terminal***<br>***(B605) No. 10 — No. 11:*** | Is the resistance 56 Ω or less? | Perform the inspection for the resistance of 56 Ω or less. <Ref. to LAN(HEV)(diag)-82, 56 Ω OR LESS (HEV-CAN), INSPECTION, CAN Communication Circuit Check.> | Go to step **5**. |
| 5 | **CHECK FROM HPCM CONNECTOR.**<br>Using the tester, measure the resistance between terminals.<br>***Connector & terminal***<br>***(B605) No. 10 — No. 11:*** | Is the resistance 64 Ω or more? | Perform the inspection for the resistance of 64 Ω or more. <Ref. to LAN(HEV)(diag)-84, 64 Ω OR MORE (HEV-CAN), INSPECTION, CAN Communication Circuit Check.> | If the display of CAN system U-code disappears from the current malfunction, the CAN network is currently normal. If the U-code has detected as current malfunction, related lines may be open. Perform the inspection for the related line corresponding to the detected DTC. <Ref. to LAN(HEV)(diag)-38, HEV-CAN, LIST, CAN Communication Circuit Check.> |

# B: LIST

## 1. MAIN-CAN

| Resistance value between CAN Hi and Lo | Contents of inspection | Remarks |
|---|---|---|
| Ground short inspection | <Ref. to LAN(HEV)(diag)-39, GROUND SHORT INSPECTION (MAIN-CAN), INSPECTION, CAN Communication Circuit Check.> | Shorted to ground in the communication circuit or control module. |
| Battery short inspection | <Ref. to LAN(HEV)(diag)-41, BATTERY SHORT INSPECTION (MAIN-CAN), INSPECTION, CAN Communication Circuit Check.> | Shorted to battery power supply in the communication circuit or control module. |
| 53 — 61 Ω | <Ref. to LAN(HEV)(diag)-43, 53 — 61 Ω, INSPECTION, CAN Communication Circuit Check.> | Combined resistance of end resistance does not have malfunction; short to ground or +B short of the CAN communication circuit is possible, however. |
| 52 Ω or less | <Ref. to LAN(HEV)(diag)-45, 52 Ω OR LESS, INSPECTION, CAN Communication Circuit Check.> | Resistance is lower than combined resistance of end resistance. Short to CAN Hi and CAN Lo on the CAN communication circuit is possible. |
| 62 Ω or more | <Ref. to LAN(HEV)(diag)-48, 62 Ω OR MORE, INSPECTION, CAN Communication Circuit Check.> | Resistance is higher than combined resistance of end resistance. Open circuit of CAN communication circuit is possible. |
| Related lines 53 — 61 Ω (TCM) | <Ref. to LAN(HEV)(diag)-50, RELATED LINES 53 — 61 Ω (TCM), INSPECTION, CAN Communication Circuit Check.> | No TCM data is received. Perform inspection when faulty is detected. |
| Related lines 53 — 61 Ω (steering angle sensor) | <Ref. to LAN(HEV)(diag)-52, RELATED LINES 53 — 61 Ω (STEERING ANGLE SENSOR), INSPECTION, CAN Communication Circuit Check.> | No steering angle sensor data is received. Perform inspection when faulty is detected. |
| Related line 53 — 61 Ω (A/C control panel) | <Ref. to LAN(HEV)(diag)-54, RELATED LINE 53 — 61 Ω (A/C CONTROL PANEL), INSPECTION, CAN Communication Circuit Check.> | No A/C data is received. Perform inspection when faulty is detected. |
| Related lines 53 — 61 Ω (electric power steering CM) | <Ref. to LAN(HEV)(diag)-56, RELATED LINES 53 — 61 Ω (ELECTRIC POWER STEERING CM), INSPECTION, CAN Communication Circuit Check.> | No electric power steering data is received. Perform inspection when faulty is detected. |
| Related lines 53 — 61 Ω (combination meter) | <Ref. to LAN(HEV)(diag)-58, RELATED LINES 53 — 61 Ω (COMBINATION METER), INSPECTION, CAN Communication Circuit Check.> | No meter data is received. Perform inspection when faulty is detected. |
| Related lines 53 — 61 Ω (MFD) | <Ref. to LAN(HEV)(diag)-60, RELATED LINES 53 — 61 Ω (MFD), INSPECTION, CAN Communication Circuit Check.> | No MFD data is received. Perform inspection when faulty is detected. |
| Related lines 53 — 61 Ω (A/B CM) | <Ref. to LAN(HEV)(diag)-62, RELATED LINES 53 — 61 Ω (A/B CM), INSPECTION, CAN Communication Circuit Check.> | No airbag data is received. Perform inspection when faulty is detected. |
| Related lines 53 — 61 Ω (keyless access system) | <Ref. to LAN(HEV)(diag)-64, RELATED LINES 53 — 61 Ω (KEYLESS ACCESS SYSTEM), INSPECTION, CAN Communication Circuit Check.> | No keyless access CM data is received. Perform inspection when faulty is detected. |
| Related lines 53 — 61 Ω (remote engine starter) | <Ref. to LAN(HEV)(diag)-66, RELATED LINES 53 — 61 Ω (REMOTE ENGINE STARTER), INSPECTION, CAN Communication Circuit Check.> | Perform inspection when the remote engine starter does not operate, while the mobile key side operates normally. |

| Resistance value between CAN Hi and Lo | Contents of inspection | Remarks |
|---|---|---|
| Related line 53 — 61 Ω (headlight beam leveler) | <Ref. to LAN(HEV)(diag)-68, RELATED LINES 53 — 61 Ω (HEADLIGHT BEAM LEVELER), INSPECTION, CAN Communication Circuit Check.> | No headlight beam leveler data is received. Perform inspection when faulty is detected. |
| Related lines 53 — 61 Ω (HPCM) | <Ref. to LAN(HEV)(diag)-70, RELATED LINES 53 — 61 Ω (HPCM), INSPECTION, CAN Communication Circuit Check.> | No hybrid data is received. Perform inspection when faulty is detected. |

## 2. PU-CAN

| Resistance value between CAN Hi and Lo | Contents of inspection | Remarks |
|---|---|---|
| Ground short inspection | <Ref. to LAN(HEV)(diag)-72, GROUND SHORT INSPECTION (PU-CAN), INSPECTION, CAN Communication Circuit Check.> | Shorted to ground in the communication circuit or control module. |
| Battery short inspection | <Ref. to LAN(HEV)(diag)-73, BATTERY SHORT INSPECTION (PU-CAN), INSPECTION, CAN Communication Circuit Check.> | Shorted to battery power supply in the communication circuit or control module. |
| 57 — 63 Ω | <Ref. to LAN(HEV)(diag)-74, 57 — 63 Ω (PU-CAN), INSPECTION, CAN Communication Circuit Check.> | Combined resistance of end resistance does not have malfunction; short to ground or +B short of the CAN communication circuit is possible, however. |
| 56 Ω or less | <Ref. to LAN(HEV)(diag)-75, 56 Ω OR LESS (PU-CAN), INSPECTION, CAN Communication Circuit Check.> | Resistance is lower than combined resistance of end resistance. Short to CAN Hi and CAN Lo on the CAN communication circuit is possible. |
| 64 Ω or more | <Ref. to LAN(HEV)(diag)-76, 64 Ω OR MORE (PU-CAN), INSPECTION, CAN Communication Circuit Check.> | Resistance is higher than combined resistance of end resistance. Open circuit of CAN communication circuit is possible. |
| Related lines 57 — 63 Ω (TCM) | <Ref. to LAN(HEV)(diag)-77, 57 — 63 Ω (PU-CAN_TCM), INSPECTION, CAN Communication Circuit Check.> | No TCM data is received. Perform inspection when faulty is detected. |

## 3. HEV-CAN

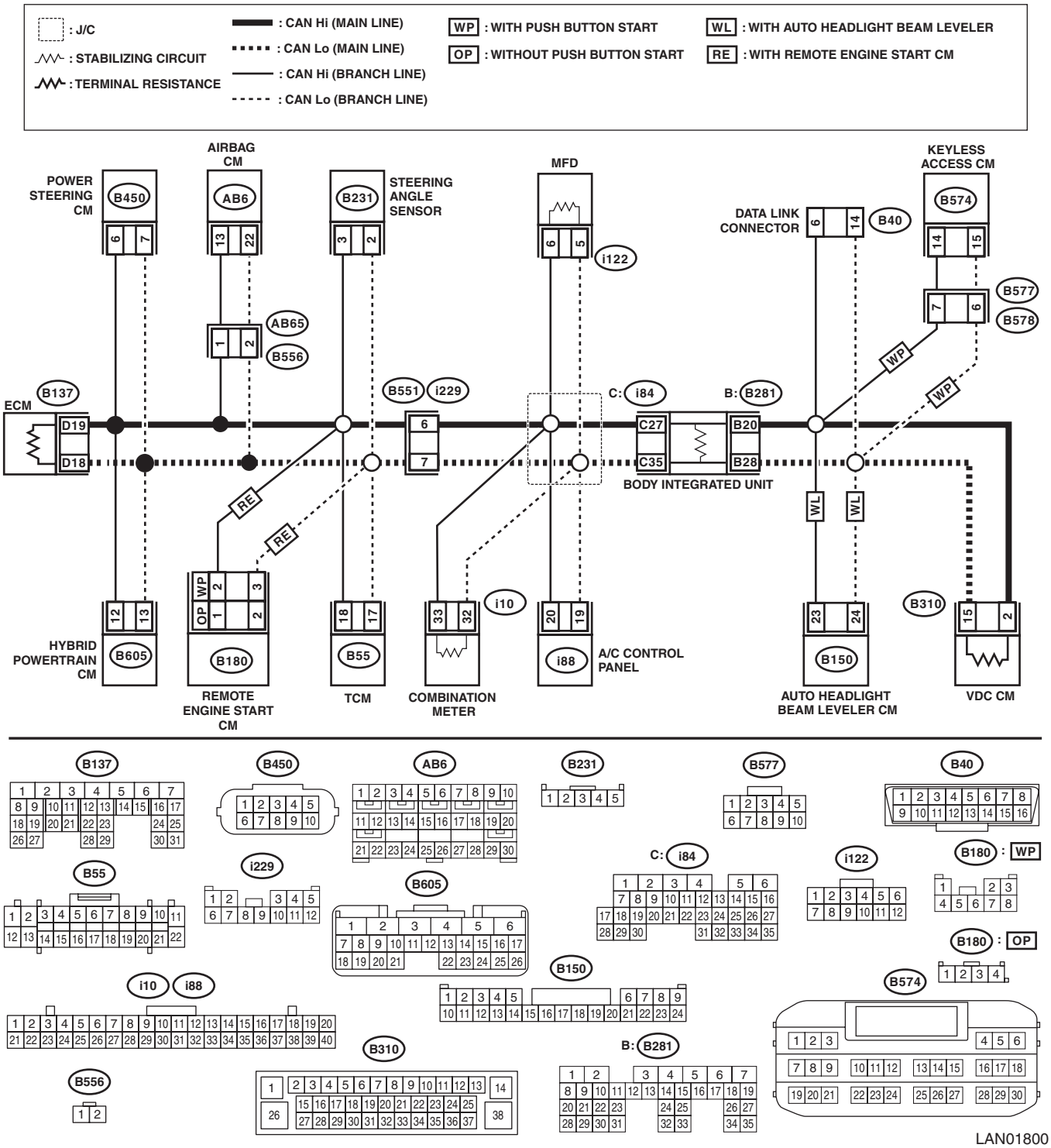
| Resistance value between CAN Hi and Lo | Contents of inspection | Remarks |
|---|---|---|
| Ground short inspection | <Ref. to LAN(HEV)(diag)-78, GROUND SHORT INSPECTION (HEV-CAN), INSPECTION, CAN Communication Circuit Check.> | Shorted to ground in the communication circuit or control module. |
| Battery short inspection | <Ref. to LAN(HEV)(diag)-79, BATTERY SHORT INSPECTION (HEV-CAN), INSPECTION, CAN Communication Circuit Check.> | Shorted to battery power supply in the communication circuit or control module. |
| 57 — 63 Ω | <Ref. to LAN(HEV)(diag)-80, 57 — 63 Ω (HEV-CAN), INSPECTION, CAN Communication Circuit Check.> | Combined resistance of end resistance does not have malfunction; short to ground or +B short of the CAN communication circuit is possible, however. |
| 56 Ω or less | <Ref. to LAN(HEV)(diag)-82, 56 Ω OR LESS (HEV-CAN), INSPECTION, CAN Communication Circuit Check.> | Resistance is lower than combined resistance of end resistance. Short to CAN Hi and CAN Lo on the CAN communication circuit is possible. |
| 64 Ω or more | <Ref. to LAN(HEV)(diag)-84, 64 Ω OR MORE (HEV-CAN), INSPECTION, CAN Communication Circuit Check.> | Resistance is higher than combined resistance of end resistance. Open circuit of CAN communication circuit is possible. |
| Related lines 57 — 63 Ω (BECM) | <Ref. to LAN(HEV)(diag)-85, 57 — 63 Ω (HEV-CAN_BECM), INSPECTION, CAN Communication Circuit Check.> | No BECM data is received. Perform inspection when faulty is detected. |
| Related lines 57 — 63 Ω (electric oil pump) | <Ref. to LAN(HEV)(diag)-86, 57 — 63 Ω (HEV-CAN_ELECTRIC OIL PUMP), INSPECTION, CAN Communication Circuit Check.> | No electric oil pump data is received. Perform inspection when faulty is detected. |

# C: INSPECTION

## 1. GROUND SHORT INSPECTION (MAIN-CAN)

### WIRING DIAGRAM:

CAN communication system <Ref. to WI(HEV)-65, WIRING DIAGRAM, CAN Communication System.>



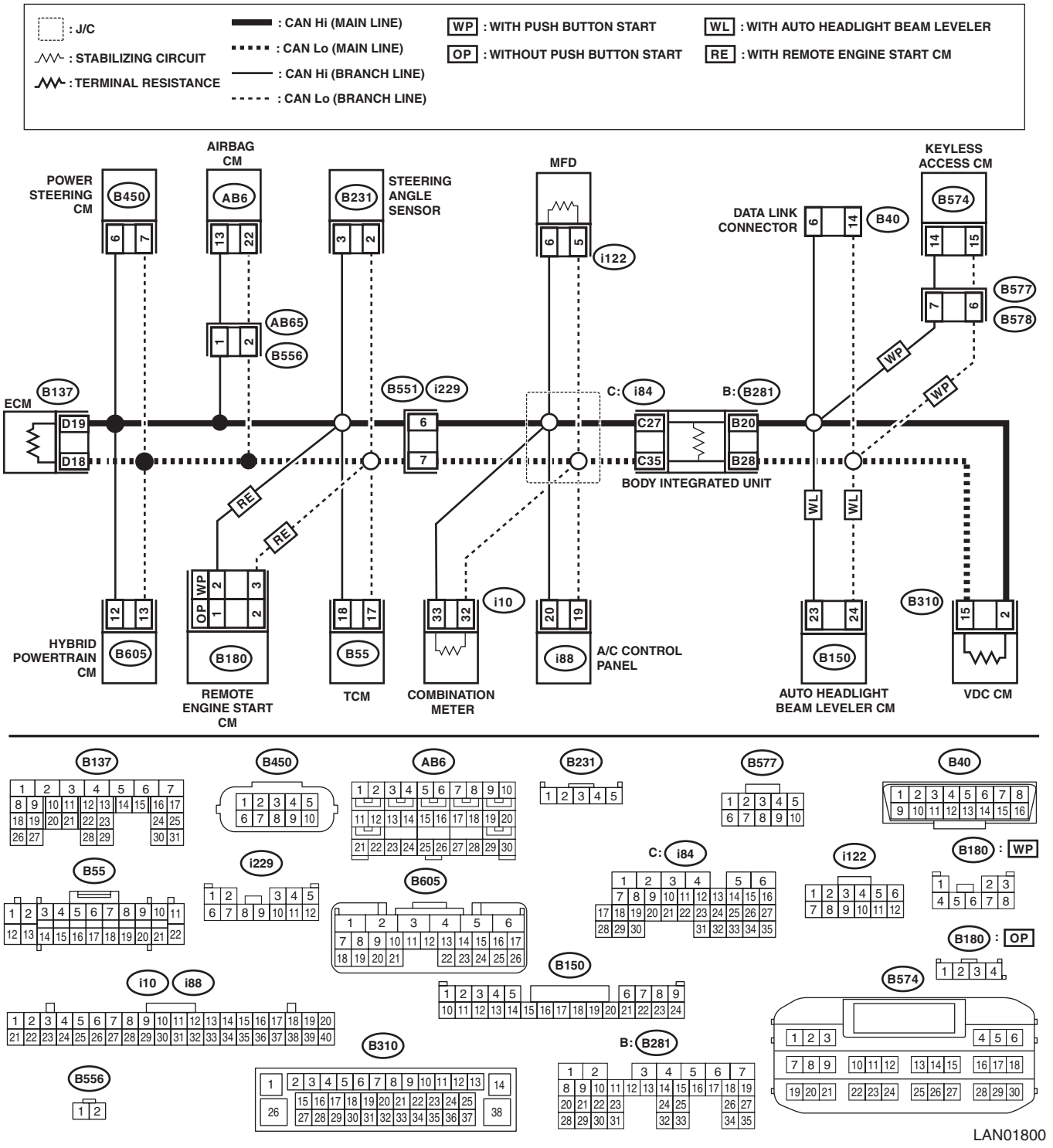

NOTE:
Main wiring harness or related lines may be shorted to ground, or shorted to ground in one of the control modules.

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK BETWEEN RELATED LINES AND MAIN WIRING HARNESS.**<br>Using the tester, measure the resistance between terminals.<br>***Connector & terminal***<br>***(B40) No. 6 — Chassis ground:***<br>***(B40) No. 14 — Chassis ground:*** | Is the resistance 10 Ω or less? | Go to step **2**. | Currently, it is normal. |
| 2 | **CHECK CONTROL MODULE.**<br>With the tester connected, disconnect control module.<br>NOTE:<br>Disconnect the body integrated unit at the end.<br>***Connector & terminal***<br>***(B40) No. 6 — Chassis ground:***<br>***(B40) No. 14 — Chassis ground:*** | Did the resistance change to 10 Ω or more? | Replace the control module whose resistance has changed. When the value changed at disconnecting the body integrated unit,<br>Go to step **3**. | Repair or replace the short circuit of the main wiring harness and related lines between body integrated unit and VDC CM. |
| 3 | **CHECK BETWEEN MAIN WIRING HARNESSES.**<br>Using the tester, measure the resistance between terminals.<br>***Connector & terminal***<br>***(i84) No. 27 — Chassis ground:***<br>***(i84) No. 35 — Chassis ground:*** | Is the resistance 10 Ω or less? | Repair or replace the short circuit of the main wiring harness and related lines between ECM and body integrated unit. | Replace the body integrated unit. <Ref. to SL-87, REMOVAL, Body Integrated Unit.> |

## 2. BATTERY SHORT INSPECTION (MAIN-CAN)

### WIRING DIAGRAM:

CAN communication system <Ref. to WI(HEV)-65, WIRING DIAGRAM, CAN Communication System.>



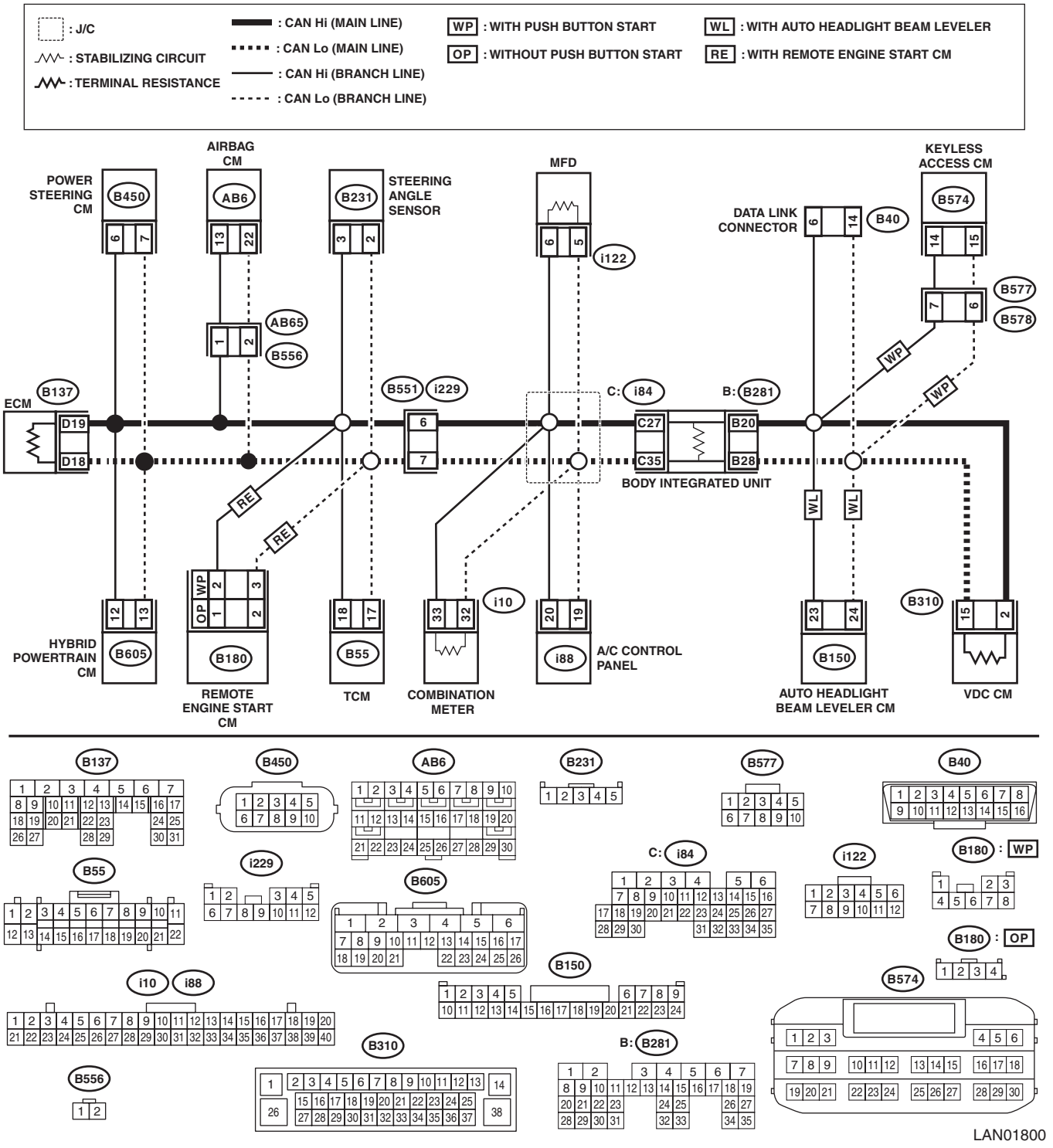

NOTE:
Main wiring harness or related lines may be shorted to battery circuit, or shorted to battery circuit in one of the control modules.

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK BETWEEN RELATED LINES AND MAIN WIRING HARNESS.**<br>1) Turn the ignition switch to ON.<br>2) Using the tester, measure the voltage between terminals.<br>***Connector & terminal***<br>***(B40) No. 6 — Chassis ground:***<br>***(B40) No. 14 — Chassis ground:*** | Is the voltage 5 V or less? | Currently, it is normal. | Go to step **2**. |
| 2 | **CHECK CONTROL MODULE.**<br>With the tester connected, disconnect control module.<br>NOTE:<br>Disconnect the body integrated unit at the end.<br>***Connector & terminal***<br>***(B40) No. 6 — Chassis ground:***<br>***(B40) No. 14 — Chassis ground:*** | Did the voltage change to 5 V or less? | Replace the control module whose voltage has changed. When the value changed at disconnecting the body integrated unit,<br>Go to step **3**. | Repair or replace the short circuit of the harness between body integrated unit and VDC CM. |
| 3 | **CHECK BETWEEN MAIN WIRING HARNESSES.**<br>Using the tester, measure the voltage between terminals.<br>***Connector & terminal***<br>***(i84) No. 27 — Chassis ground:***<br>***(i84) No. 35 — Chassis ground:*** | Is the voltage 5 V or less? | Replace the body integrated unit. <Ref. to SL-87, REMOVAL, Body Integrated Unit.> | Repair or replace the short circuit of the harness between ECM and body integrated unit. |

### 3. 53 — 61 Ω

**WIRING DIAGRAM:**

CAN communication system <Ref. to WI(HEV)-65, WIRING DIAGRAM, CAN Communication System.>



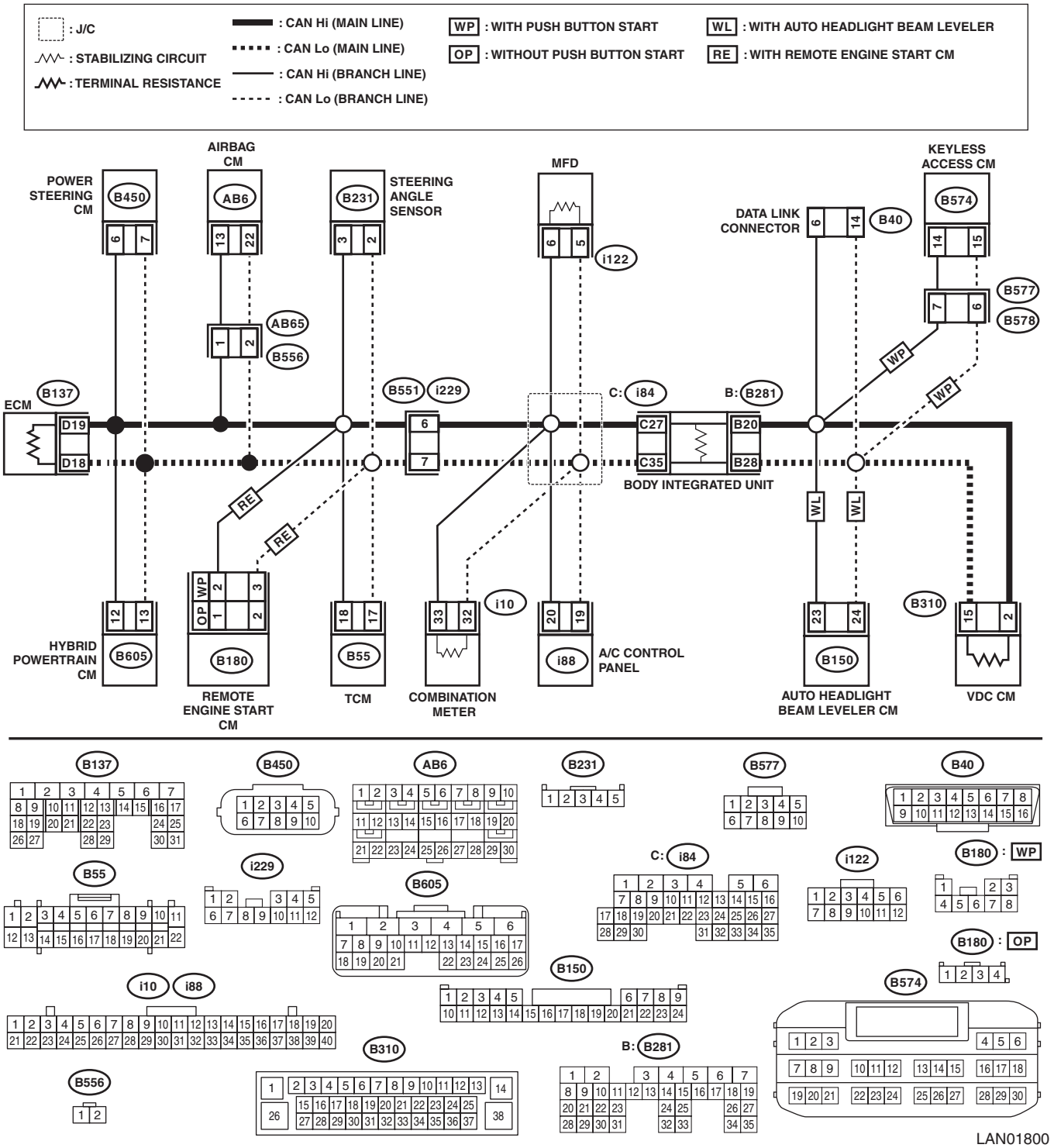

NOTE:
When the measured resistance value is 53 — 61 Ω, main wiring harness or related lines may be shorted to ground, or shorted to power supply line, or related line may be open.

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK BETWEEN RELATED LINES AND MAIN WIRING HARNESS.**<br>Using the tester, measure the resistance between terminals.<br>***Connector & terminal***<br>***(B40) No. 6 — Chassis ground:***<br>***(B40) No. 14 — Chassis ground:*** | Is the resistance 10 Ω or less? | Go to step **2**. | Go to step **4**. |
| 2 | **CHECK CONTROL MODULE.**<br>With the tester connected, disconnect control module.<br>NOTE:<br>Disconnect the body integrated unit at the end.<br>***Connector & terminal***<br>***(B40) No. 6 — Chassis ground:***<br>***(B40) No. 14 — Chassis ground:*** | Did the resistance change to 10 Ω or more? | Replace the control module whose resistance has changed. When the value changed at disconnecting the body integrated unit,<br>Go to step **3**. | Repair or replace the short circuit of the harness between body integrated unit and VDC CM. |
| 3 | **CHECK MAIN WIRING HARNESS AND RELATED LINES.**<br>Using the tester, measure the resistance between terminals.<br>***Connector & terminal***<br>***(i84) No. 27 — Chassis ground:***<br>***(i84) No. 35 — Chassis ground:*** | Is the resistance 10 Ω or less? | Repair or replace the short circuit of the harness between ECM and body integrated unit. | Replace the body integrated unit. <Ref. to SL-87, REMOVAL, Body Integrated Unit.> |
| 4 | **CHECK BETWEEN RELATED LINES AND MAIN WIRING HARNESS.**<br>1) Turn the ignition switch to ON.<br>2) Using the tester, measure the voltage between terminals.<br>***Connector & terminal***<br>***(B40) No. 6 — Chassis ground:***<br>***(B40) No. 14 — Chassis ground:*** | Is the voltage 5 V or less? | CAN communication circuit is normal. | Go to step **5**. |
| 5 | **CHECK CONTROL MODULE.**<br>With the tester connected, disconnect control module.<br>NOTE:<br>Disconnect the body integrated unit at the end.<br>***Connector & terminal***<br>***(B40) No. 6 — Chassis ground:***<br>***(B40) No. 14 — Chassis ground:*** | Did the voltage change to 5 V or less? | Replace the control module whose voltage has changed. When the value changed at disconnecting the body integrated unit,<br>Go to step **6**. | Repair or replace the short circuit of the harness between body integrated unit and VDC CM. |
| 6 | **CHECK HARNESS.**<br>Using a tester, measure the voltage between terminals and chassis ground.<br>***Connector & terminal***<br>***(i84) No. 27 — Chassis ground:***<br>***(i84) No. 35 — Chassis ground:*** | Is the voltage 5 V or less? | Replace the body integrated unit. <Ref. to SL-87, REMOVAL, Body Integrated Unit.> | Repair or replace the short circuit of the harness between ECM and body integrated unit. |

## 4. 52 Ω OR LESS

**WIRING DIAGRAM:**

CAN communication system <Ref. to WI(HEV)-65, WIRING DIAGRAM, CAN Communication System.>




NOTE:

When the bus line is measured, combined resistance of end resistance (120 Ω) in ECM and end resistance (120 Ω) in VDC CM can be measured. The combined resistance is approximately 53 — 61 Ω with the stabilizing circuit included. When the measured resistance value is 52 Ω or less, main wiring harness or related lines may be shorted, or combined resistance may have changed because resistance other than end resistance is created on the circuit.

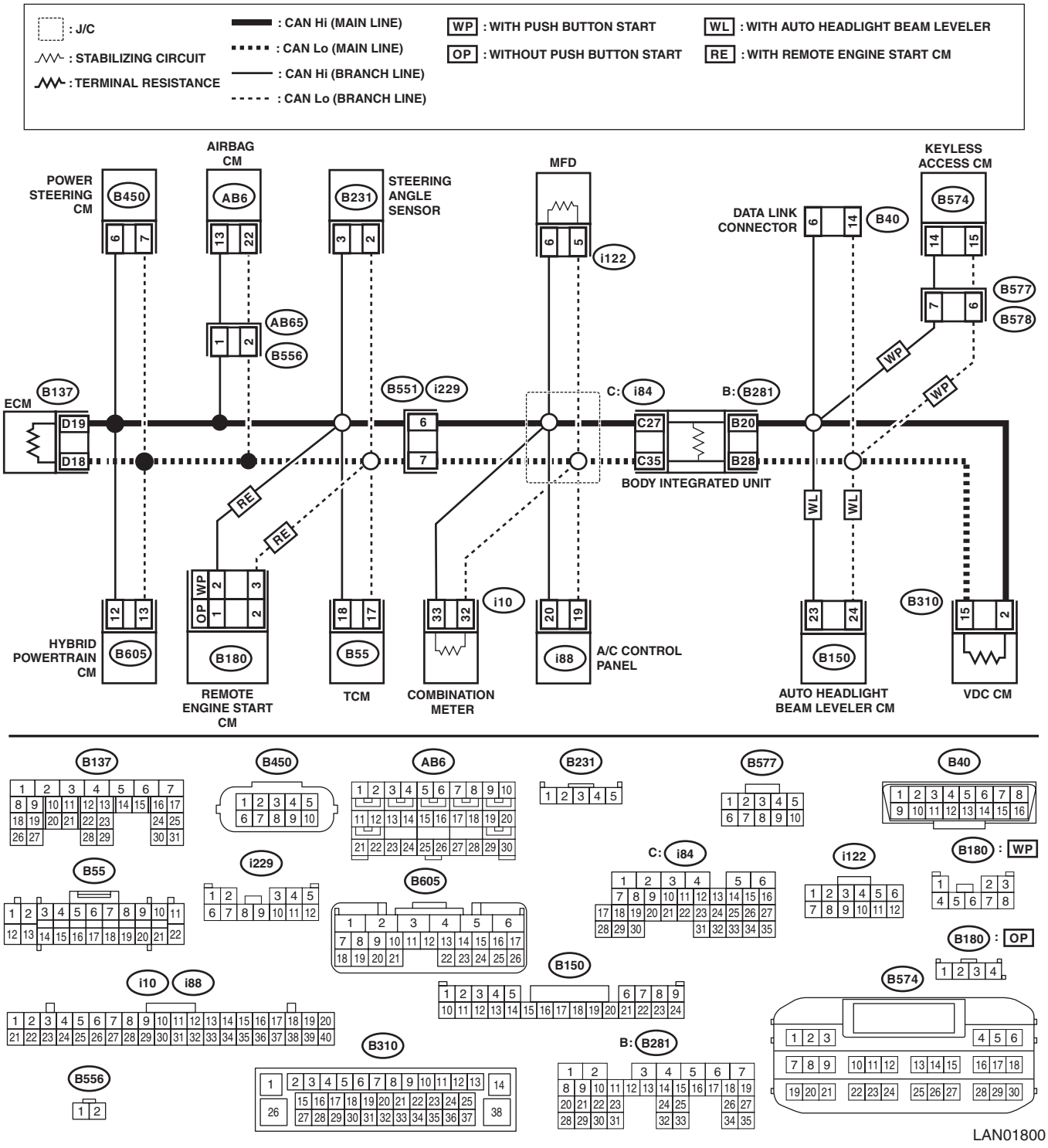
| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK BETWEEN RELATED LINES AND MAIN WIRING HARNESS.**<br>Using the tester, measure the resistance between terminals.<br>***Connector & terminal***<br>***(B40) No. 6 — No. 14:*** | Is the resistance 10 Ω or less? | Go to step **2**. | Go to step **4**. |
| 2 | **CHECK MAIN WIRING HARNESS AND RELATED LINES.**<br>With a tester connected, disconnect control module connectors in order.<br>NOTE:<br>Disconnect the body integrated unit at the end.<br>***Connector & terminal***<br>***(B40) No. 6 — No. 14:*** | Is there any control module whose condition has changed from short state? | Replace the control module whose resistance has changed. When the value changed at disconnecting the body integrated unit,<br>Go to step **3**. | Repair or replace the short circuit of the harness between body integrated unit and VDC CM. |
| 3 | **CHECK BETWEEN MAIN WIRING HARNESSES.**<br>Using the tester, measure the resistance between terminals.<br>***Connector & terminal***<br>***(i84) No. 27 — No. 35:*** | Is the resistance 10 Ω or less? | Repair or replace the short circuit of the harness between ECM and body integrated unit. | Replace the body integrated unit. <Ref. to SL-87, REMOVAL, Body Integrated Unit.> |
| 4 | **CHECK CONTROL MODULE.**<br>1) Disconnect ECM and VDC CM connectors.<br>2) Using a tester, measure the resistance between control module terminals.<br>***Connector & terminal***<br>***(B137) No. 19 — No. 18:***<br>***(B310) No. 2 — No. 15:*** | Is the resistance 114 — 126 Ω? | Go to step **5**. | Replace the control module whose end resistance value is out of the specified range. |
| 5 | **CHECK CONTROL MODULE.**<br>1) Disconnect the connector of body integrated unit.<br>2) Using a tester, measure the resistance between control module terminals.<br>***Connector & terminal***<br>***(B281) No. 28 — (i84) No. 27:***<br>***(B281) No. 20 — (i84) No. 35:*** | Is the resistance 2850 — 3150 Ω? | Go to step **6**. | Replace the body integrated unit. <Ref. to SL-87, REMOVAL, Body Integrated Unit.> |
| 6 | **CHECK CONTROL MODULE.**<br>Using a tester, measure the resistance between control module terminals.<br>***Connector & terminal***<br>***(B281) No. 28 — (i84) No. 35:***<br>***(B281) No. 20 — (i84) No. 27:*** | Is the resistance less than 1 Ω? | Go to step **7**. | Replace the body integrated unit. <Ref. to SL-87, REMOVAL, Body Integrated Unit.> |
| 7 | **CHECK CONTROL MODULE.**<br>1) Disconnect the combination meter connector.<br>2) Using a tester, measure the resistance between control module terminals.<br>***Connector & terminal***<br>***(i10) No. 32 — No. 33:*** | Is the resistance 2850 — 3150 Ω? | Go to step **8**. | Replace the combination meter. <Ref. to IDI-20, REMOVAL, Combination Meter.> |
| 8 | **CHECK CONTROL MODULE.**<br>1) Disconnect the MFD connector.<br>2) Using a tester, measure the resistance between control module terminals.<br>***Connector & terminal***<br>***(i122) No. 5 — No. 6:*** | Is the resistance 2850 — 3150 Ω? | Go to step **9**. | Replace the MFD. <Ref. to IDI-27, REMOVAL, Multi-function Display (MFD).> |

| Step | | Check | Yes | No |
|---|---|---|---|---|
| 9 | **CHECK HARNESS.**<br>Using the tester, check the short circuit portion of each harness.<br>***Connector & terminal (B281) No. 28 — No. 20:*** | Is the resistance 1 MΩ or more? | Go to step **11**. | Go to step **10**. |
| 10 | **CHECK CONTROL MODULE.**<br>With a tester connected, disconnect control modules in order.<br>***Connector & terminal (B281) No. 28 — No. 20:*** | Is there any control module whose resistance has changed to 1 MΩ or more? | Replace the control module that has changed. | Repair or replace the harness part which has resistance component. |
| 11 | **CHECK CONTROL MODULE.**<br>With a tester connected, disconnect control modules in order.<br>***Connector & terminal (i84) No. 27 — No. 35:*** | Is there any control module whose resistance has changed to 1 MΩ or more? | Replace the control module that has changed. | Repair or replace the harness part which has resistance component. |

## 5. 62 Ω OR MORE

**WIRING DIAGRAM:**

CAN communication system <Ref. to WI(HEV)-65, WIRING DIAGRAM, CAN Communication System.>




NOTE:

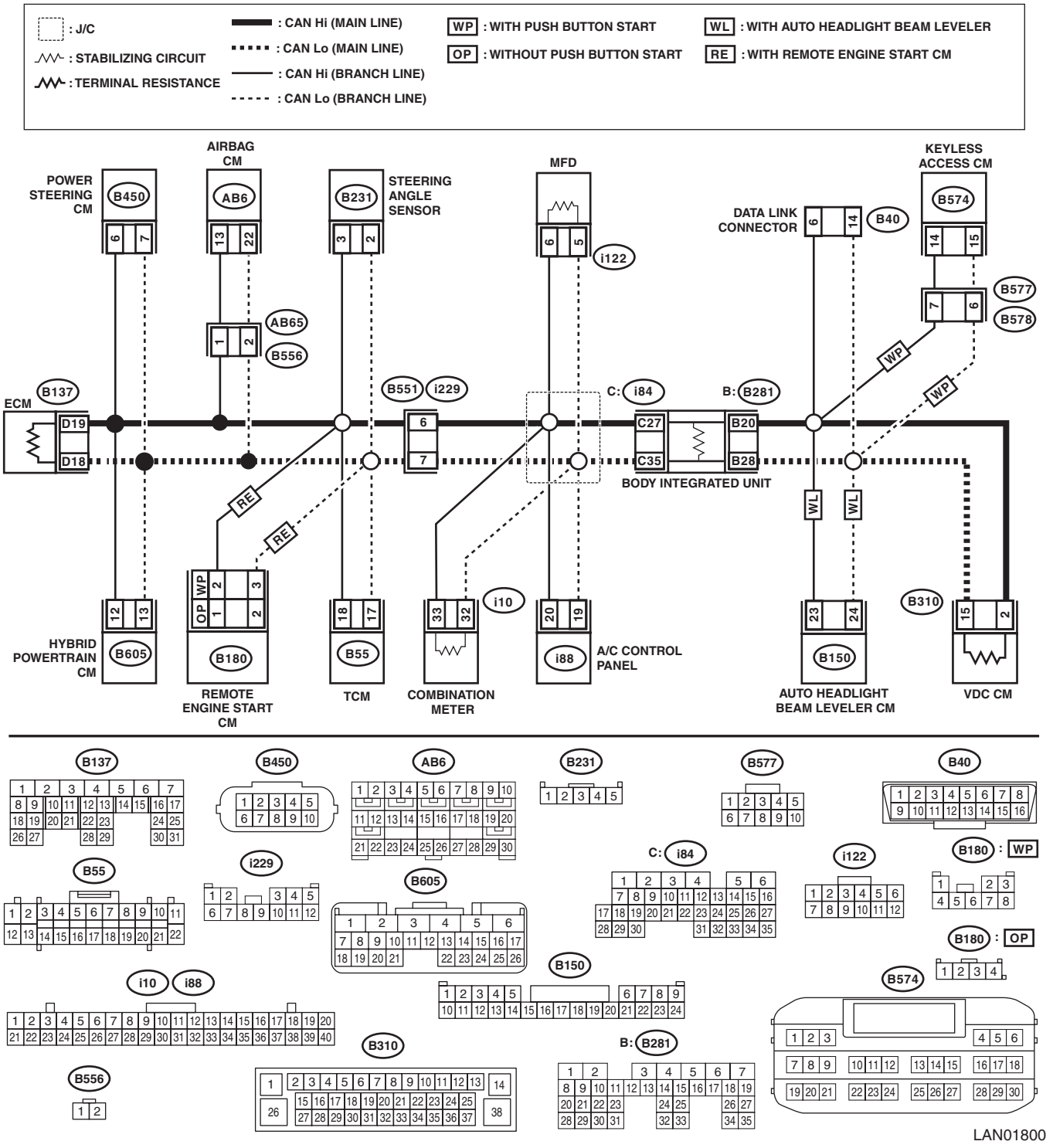
When CAN communication circuit is measured, combined resistance of end resistance (120 Ω) in ECM and end resistance (120 Ω) in VDC CM can be measured. The combined resistance is approximately 53 — 61 Ω with the stabilizing circuit included. When the measured resistance value is 62 Ω or more, either one of the end resistances, or stabilizing circuit, or main wiring harness may have malfunction such as open circuit.

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK CONTROL MODULE.**<br>1) Disconnect ECM and VDC CM connectors.<br>2) Using a tester, measure the resistance between control module terminals.<br>***Connector & terminal***<br>***(B137) No. 19 — No. 18:***<br>***(B310) No. 2 — No. 15:*** | Is the resistance 114 — 126 Ω? | Go to step **2**. | Replace the control module whose value is out of the specification. |
| 2 | **CHECK CONTROL MODULE.**<br>1) Disconnect the connector of body control module.<br>2) Using a tester, measure the resistance between control module terminals.<br>***Connector & terminal***<br>***(B281) No. 28 — (i84) No. 27:***<br>***(B281) No. 20 — (i84) No. 35:*** | Is the resistance 2850 — 3150 Ω? | Go to step **3**. | Replace the body integrated unit. <Ref. to SL-87, REMOVAL, Body Integrated Unit.> |
| 3 | **CHECK CONTROL MODULE.**<br>Using the tester, measure the resistance between terminals.<br>***Connector & terminal***<br>***(B281) No. 28 — (i84) No. 35:***<br>***(B281) No. 20 — (i84) No. 27:*** | Is the resistance less than 1 Ω? | Go to step **4**. | Replace the body integrated unit. <Ref. to SL-87, REMOVAL, Body Integrated Unit.> |
| 4 | **CHECK CONTROL MODULE.**<br>1) Disconnect the combination meter connector.<br>2) Using a tester, measure the resistance between control module terminals.<br>***Connector & terminal***<br>***(i10) No. 32 — No. 33:*** | Is the resistance 2850 — 3150 Ω? | Go to step **5**. | Replace the combination meter. <Ref. to IDI-20, REMOVAL, Combination Meter.> |
| 5 | **CHECK CONTROL MODULE.**<br>1) Disconnect the MFD connector.<br>2) Using a tester, measure the resistance between control module terminals.<br>***Connector & terminal***<br>***(i122) No. 5 — No. 6:*** | Is the resistance 2850 — 3150 Ω? | Go to step **6**. | Replace the MFD. <Ref. to IDI-27, REMOVAL, Multi-function Display (MFD).> |
| 6 | **CHECK HARNESS.**<br>Using a tester, check continuity between terminals.<br>***Connector & terminal***<br>***(B40) No. 6 — (B137) No. 19:***<br>***(B40) No. 14 — (B137) No. 18:***<br>***(B40) No. 6 — (i84) No. 27:***<br>***(B40) No. 14 — (i84) No. 35:*** | Is there continuity? | Go to step **7**. | Repair or replace the open circuit of harness. |
| 7 | **CHECK HARNESS.**<br>Using a tester, check continuity between terminals.<br>***Connector & terminal***<br>***(B281) No. 20 — (B310) No. 2:***<br>***(B281) No. 28 — (B310) No. 15:*** | Is there continuity? | It is possible that temporary poor communication occurs. | Repair or replace the open circuit of harness. |

## 6. RELATED LINES 53 — 61 Ω (TCM)

**WIRING DIAGRAM:**

CAN communication system <Ref. to WI(HEV)-65, WIRING DIAGRAM, CAN Communication System.>



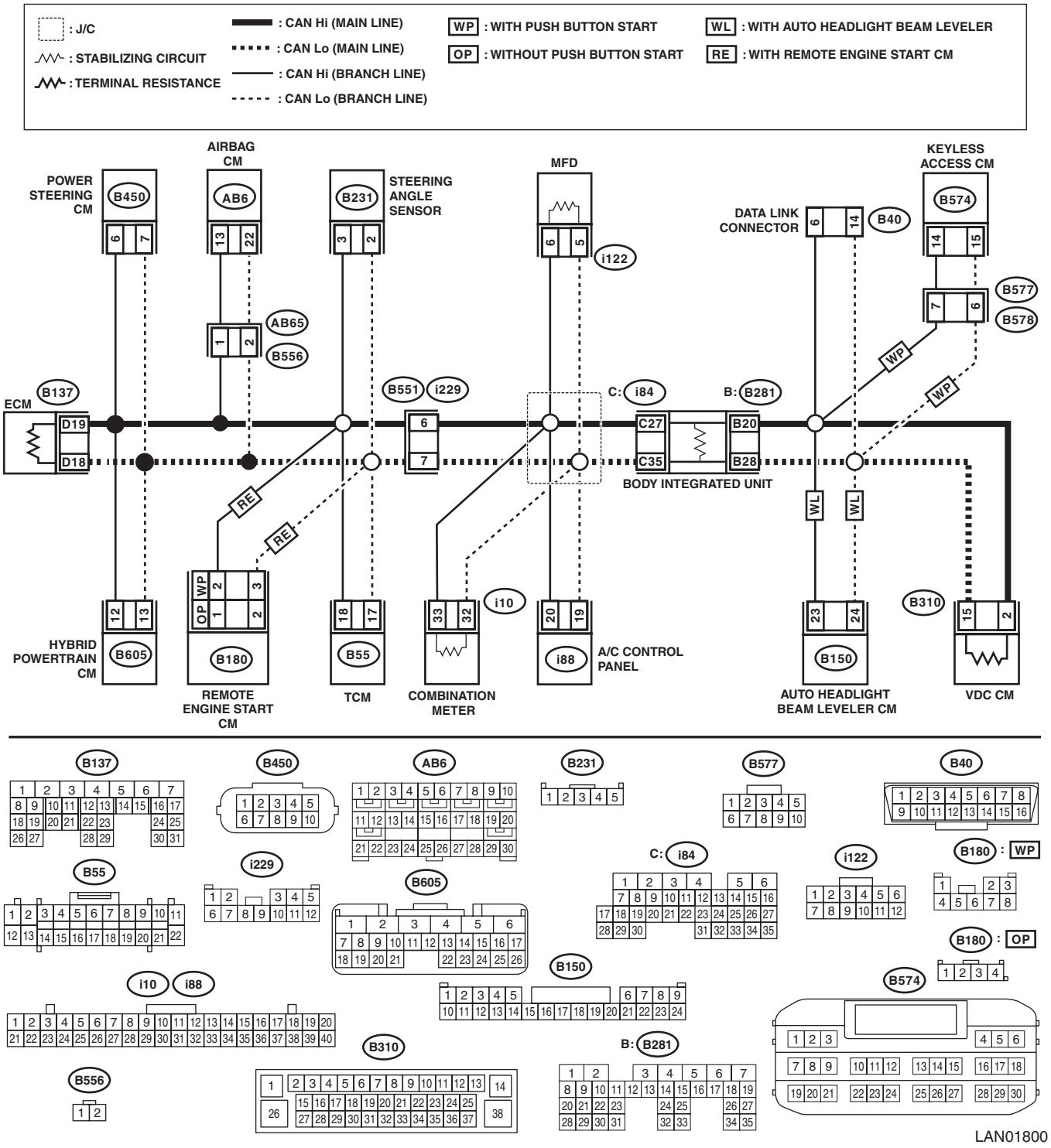

NOTE:
Perform inspection when no data is received, or faulty is detected. This is different from power supply shorted or ground shorted.

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK BETWEEN RELATED LINES AND MAIN WIRING HARNESS.**<br>1) Disconnect the TCM connector.<br>2) Using the tester, measure the resistance between terminals.<br>***Connector & terminal***<br>***(B55) No. 17 — No. 18:*** | Is the resistance 400 Ω or more? | Related lines between TCM and main wiring harness is open, or main wiring harness is open at two places or more. | Go to step **2**. |
| 2 | **CHECK RELATED LINES.**<br>Using the tester, measure the resistance between terminals.<br>***Connector & terminal***<br>***(B55) No. 17 — (B40) No. 14:***<br>***(B55) No. 18 — (B40) No. 6:*** | Is the resistance 10 Ω or more? | Repair or replace the open circuit portion of TCM related lines. | Check DTC of TCM. <Ref. to CVT(HEV)(diag)-19, OPERATION, Read Diagnostic Trouble Code (DTC).> |

## 7. RELATED LINES 53 — 61 Ω (STEERING ANGLE SENSOR)

### WIRING DIAGRAM:

CAN communication system <Ref. to WI(HEV)-65, WIRING DIAGRAM, CAN Communication System.>







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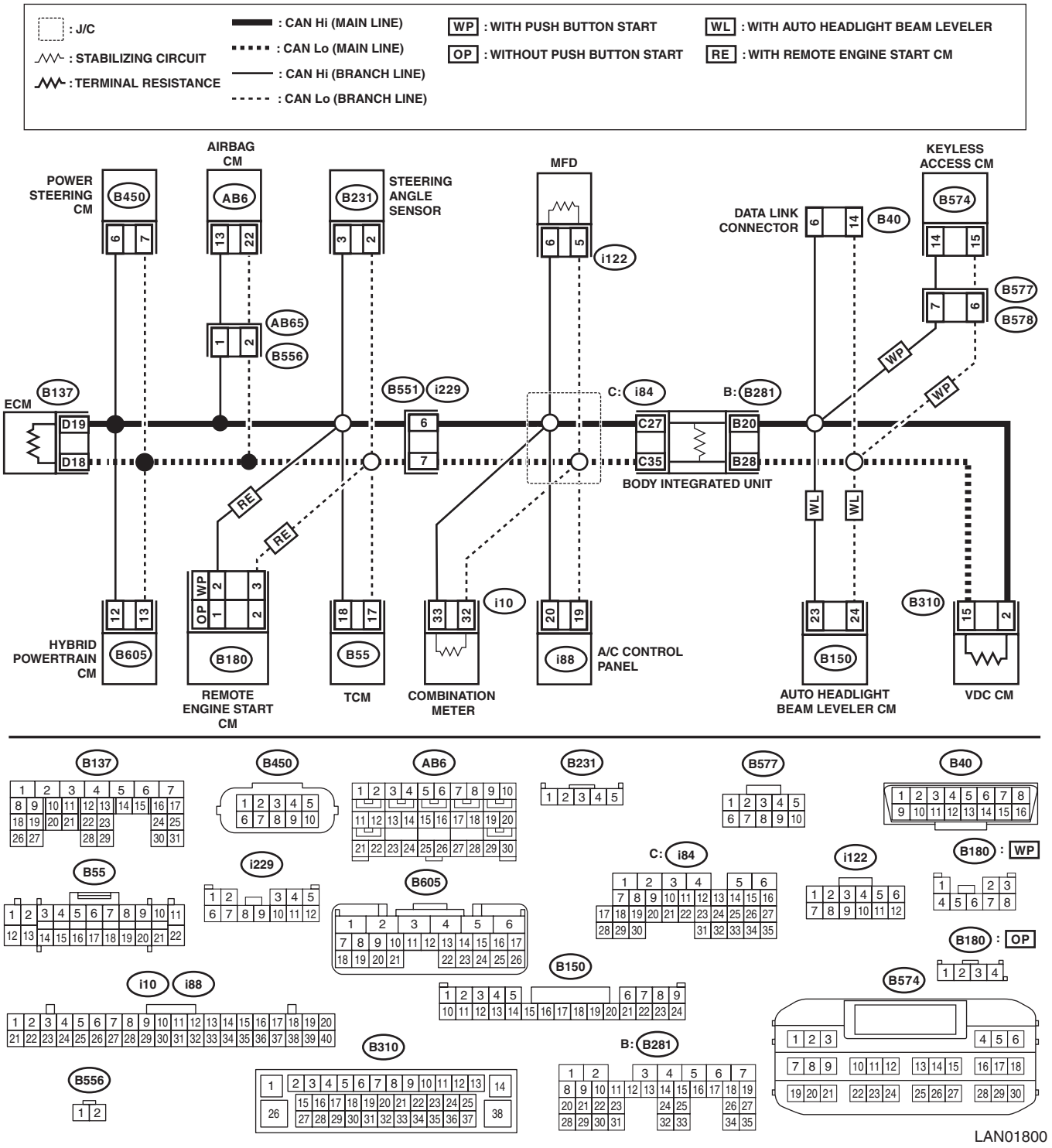
| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK BETWEEN RELATED LINES AND MAIN WIRING HARNESS.**<br>1) Disconnect the steering angle sensor connector.<br>2) Using the tester, measure the resistance between terminals.<br>***Connector & terminal***<br>***(B231) No. 2 — No. 3:*** | Is the resistance 400 Ω or more? | Related lines between steering angle sensor and main wiring harness is open, or main wiring harness is open at two places or more. | Go to step **2**. |
| 2 | **CHECK RELATED LINES.**<br>Using the tester, measure the resistance between terminals.<br>***Connector & terminal***<br>***(B231) No. 2 — (B40) No. 14:***<br>***(B231) No. 3 — (B40) No. 6:*** | Is the resistance 10 Ω or more? | Repair or replace the open circuit portion of steering angle sensor related lines. | Check DTC of VDC CM. <Ref. to VDC(diag)-23, OPERATION, Read Diagnostic Trouble Code (DTC).> |

## 8. RELATED LINE 53 — 61 Ω (A/C CONTROL PANEL)

### WIRING DIAGRAM:

CAN communication system <Ref. to WI(HEV)-65, WIRING DIAGRAM, CAN Communication System.>







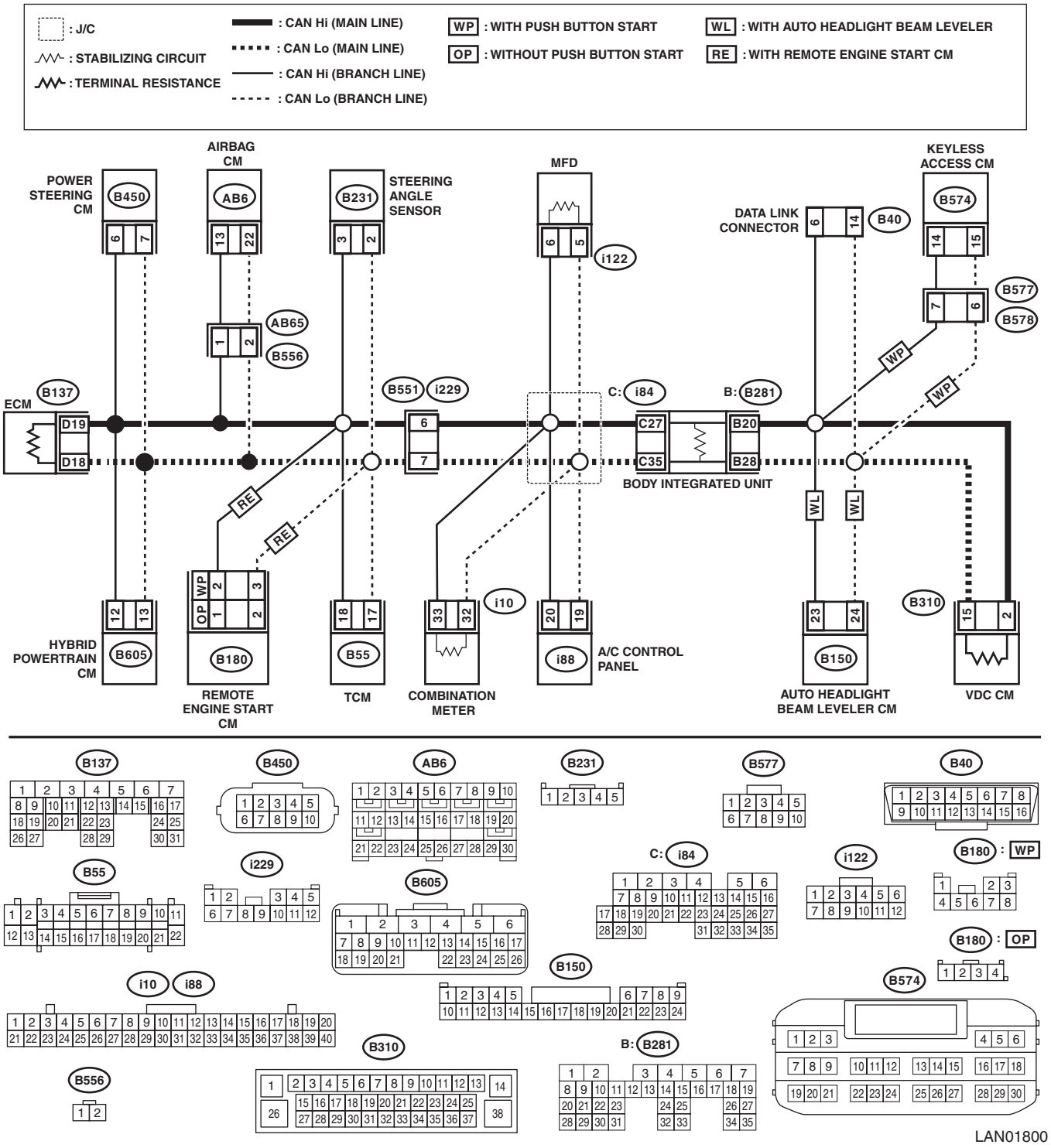
LAN01800

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK BETWEEN RELATED LINES AND MAIN WIRING HARNESS.**<br>1) Disconnect the A/C control panel connector.<br>2) Using the tester, measure the resistance between terminals.<br>***Connector & terminal***<br>***(i88) No. 19 — No. 20:*** | Is the resistance 400 Ω or more? | Related lines between A/C control panel and main wiring harness is open, or main wiring harness is open at two places or more. | Go to step **2**. |
| 2 | **CHECK RELATED LINES.**<br>Using the tester, measure the resistance between terminals.<br>***Connector & terminal***<br>***(i88) No. 19 — (B40) No. 14:***<br>***(i88) No. 20 — (B40) No. 6:*** | Is the resistance 10 Ω or more? | Repair or replace the open circuit of A/C control panel related lines. | Check the DTC of A/C control panel. <Ref. to AC(diag)-41, Read Diagnostic Trouble Code (DTC).> |

## 9. RELATED LINES 53 — 61 Ω (ELECTRIC POWER STEERING CM)

### WIRING DIAGRAM:

CAN communication system <Ref. to WI(HEV)-65, WIRING DIAGRAM, CAN Communication System.>







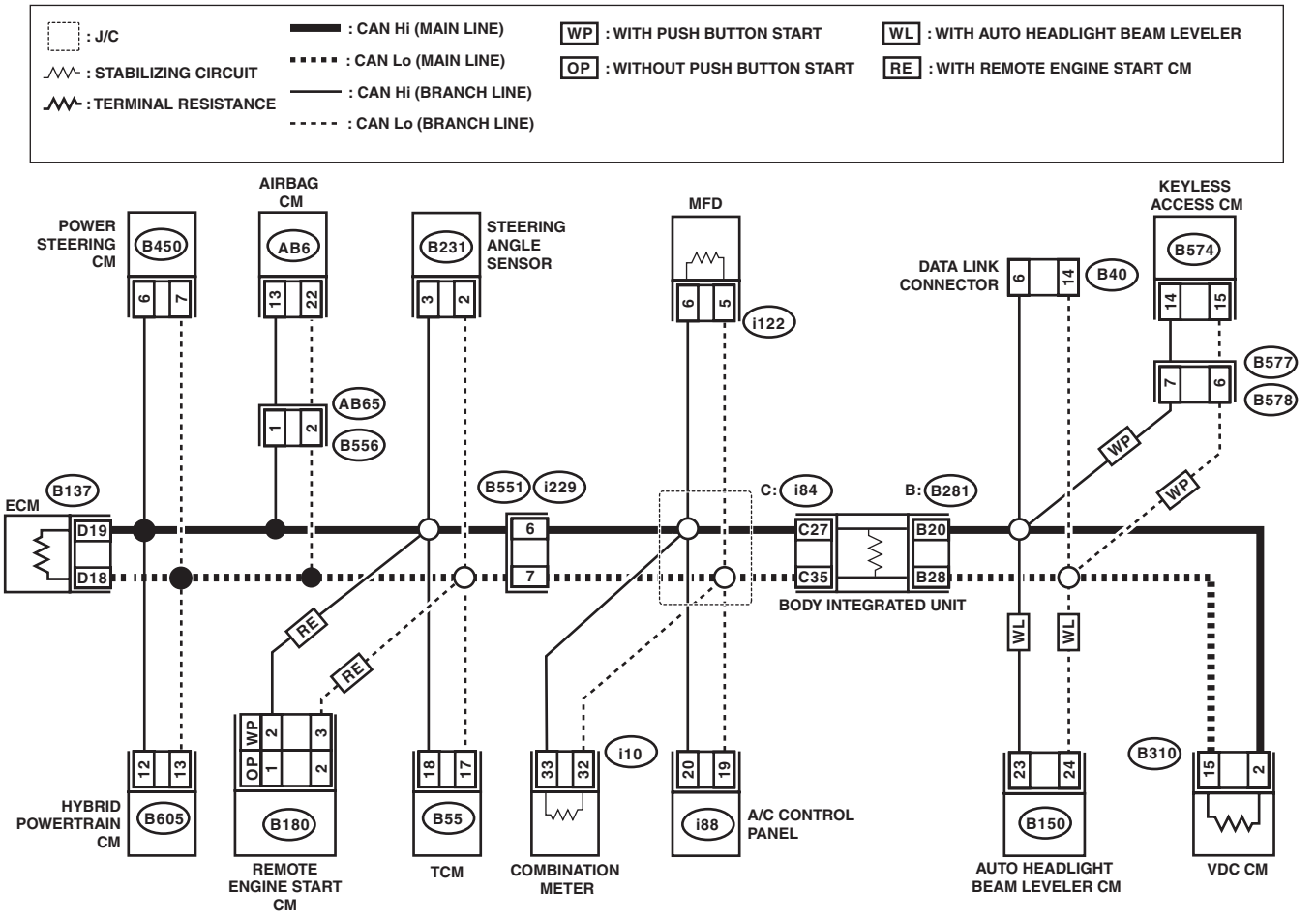
LAN01800

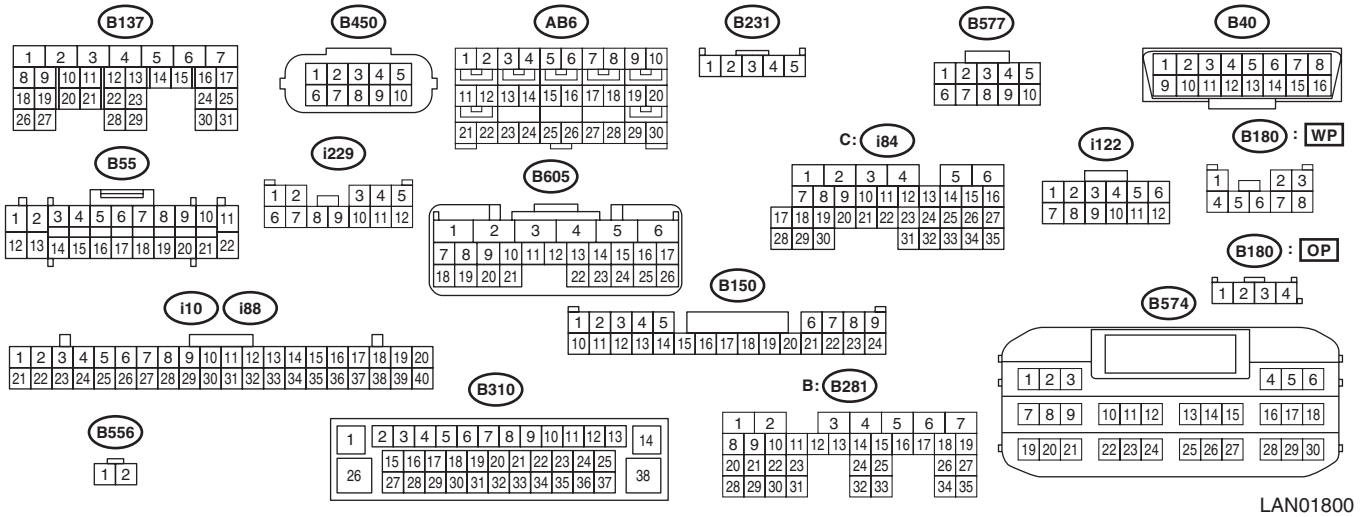
| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK BETWEEN RELATED LINES AND MAIN WIRING HARNESS.**<br>1) Disconnect the electric power steering CM connector.<br>2) Using the tester, measure the resistance between terminals.<br>***Connector & terminal***<br>***(B450) No. 6 — No. 7:*** | Is the resistance 400 Ω or more? | Related lines between electric power steering CM and main wiring harness, or main wiring harness is open at two places or more. | Go to step **2**. |
| 2 | **CHECK RELATED LINES.**<br>Using the tester, measure the resistance between terminals.<br>***Connector & terminal***<br>***(B450) No. 6 — (B40) No. 6:***<br>***(B450) No. 7 — (B40) No. 14:*** | Is the resistance 10 Ω or more? | Repair or replace the open circuit portion of electric power steering CM related lines. | Check DTC of electric power steering CM. <Ref. to PS(diag)-19, OPERATION, Read Diagnostic Trouble Code (DTC).> |

## 10.RELATED LINES 53 — 61 Ω (COMBINATION METER)

### WIRING DIAGRAM:

CAN communication system <Ref. to WI(HEV)-65, WIRING DIAGRAM, CAN Communication System.>

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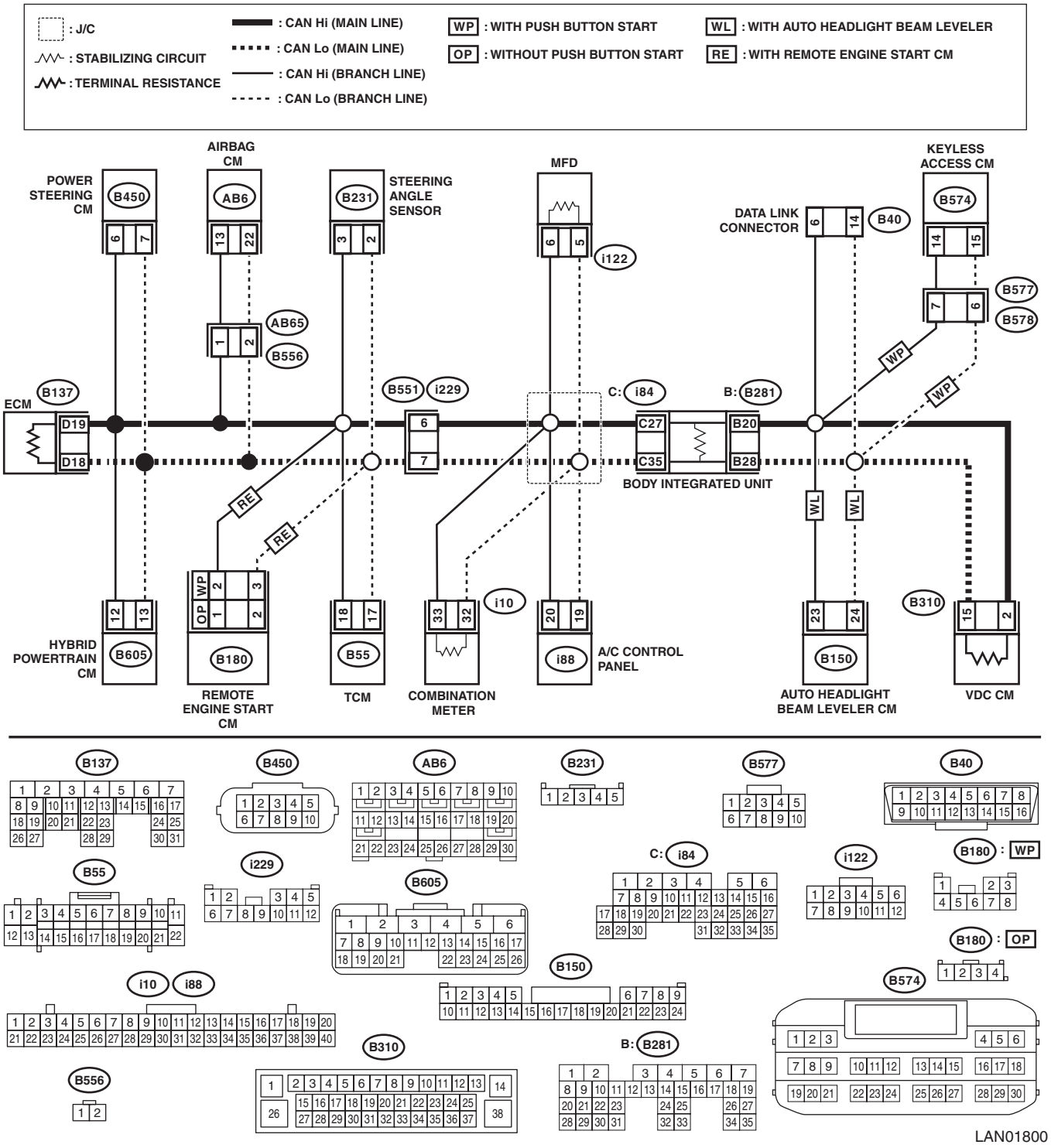
| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK BETWEEN RELATED LINES AND MAIN WIRING HARNESS.**<br>1) Disconnect the combination meter connector.<br>2) Using the tester, measure the resistance between terminals.<br>***Connector & terminal***<br>***(i10) No. 32 — No. 33:*** | Is the resistance 400 Ω or more? | Related lines between combination meter and main wiring harness is open, or main wiring harness is open at two places or more. | Go to step **2**. |
| 2 | **CHECK RELATED LINES.**<br>Using the tester, measure the resistance between terminals.<br>***Connector & terminal***<br>***(i10) No. 32 — (B40) No. 14:***<br>***(i10) No. 33 — (B40) No. 6:*** | Is the resistance 10 Ω or more? | Repair or replace the open circuit portion of combination meter related lines. | Check DTC of combination meter. <Ref. to IDI(diag)-15, OPERATION, Read Diagnostic Trouble Code (DTC).> |

## 11.RELATED LINES 53 — 61 Ω (MFD)

### WIRING DIAGRAM:

CAN communication system <Ref. to WI(HEV)-65, WIRING DIAGRAM, CAN Communication System.>

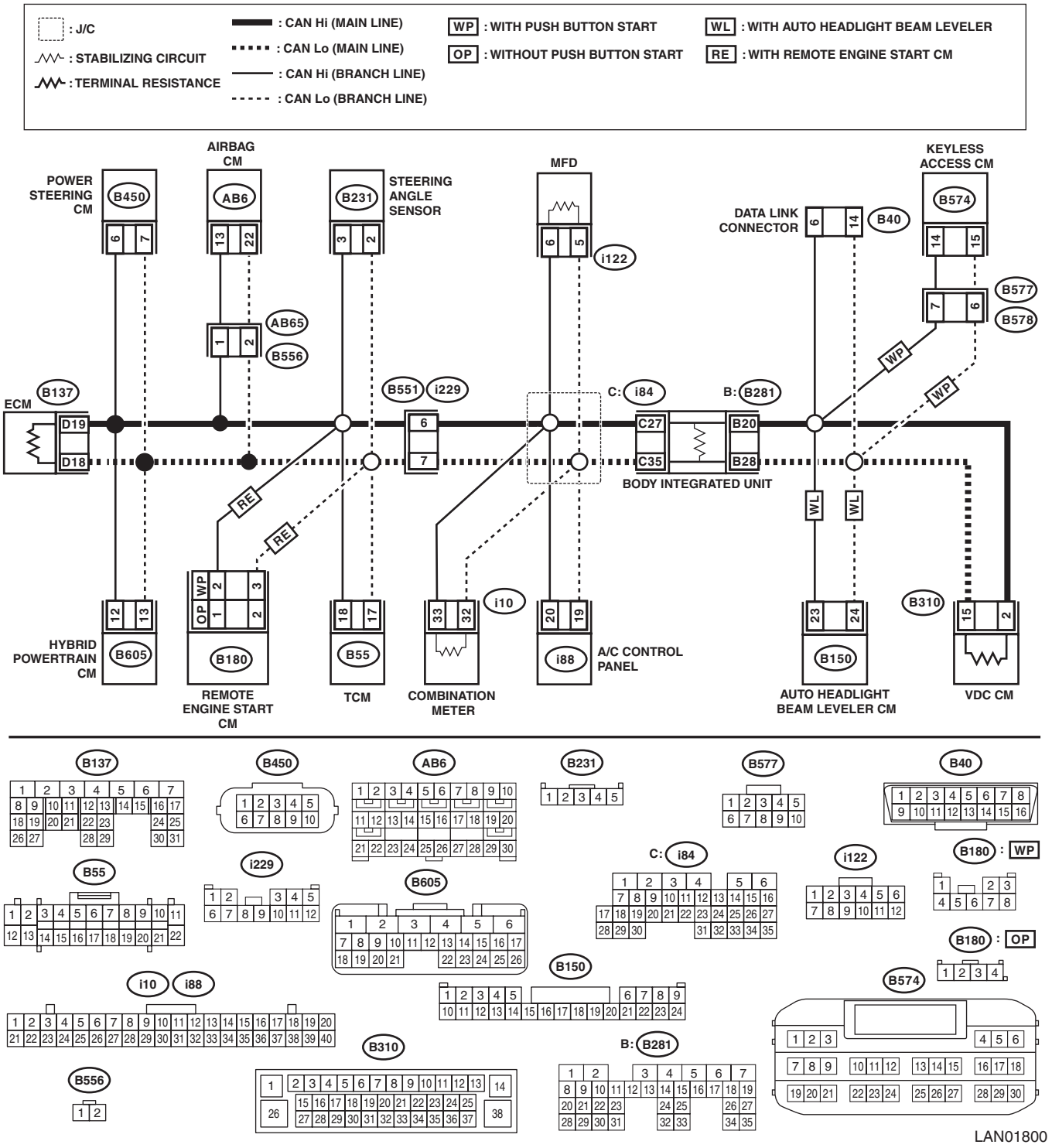


| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK BETWEEN RELATED LINES AND MAIN WIRING HARNESS.**<br>1) Disconnect the MFD connector.<br>2) Using the tester, measure the resistance between terminals.<br>***Connector & terminal***<br>***(i122) No. 5 — No. 6:*** | Is the resistance 400 Ω or more? | Related lines between MFD and main wiring harness is open, or main wiring harness is open at two places or more. | Go to step **2**. |
| 2 | **CHECK RELATED LINES.**<br>Using the tester, measure the resistance between terminals.<br>***Connector & terminal***<br>***(i122) No. 5 — (B40) No. 14:***<br>***(i122) No. 6 — (B40) No. 6:*** | Is the resistance 10 Ω or more? | Repair or replace the open circuit of MFD related lines. | Check DTC of MFD. <Ref. to IDI(diag)-15, OPERATION, Read Diagnostic Trouble Code (DTC).> |

## 12.RELATED LINES 53 — 61 Ω (A/B CM)

### WIRING DIAGRAM:

CAN communication system <Ref. to WI(HEV)-65, WIRING DIAGRAM, CAN Communication System.>

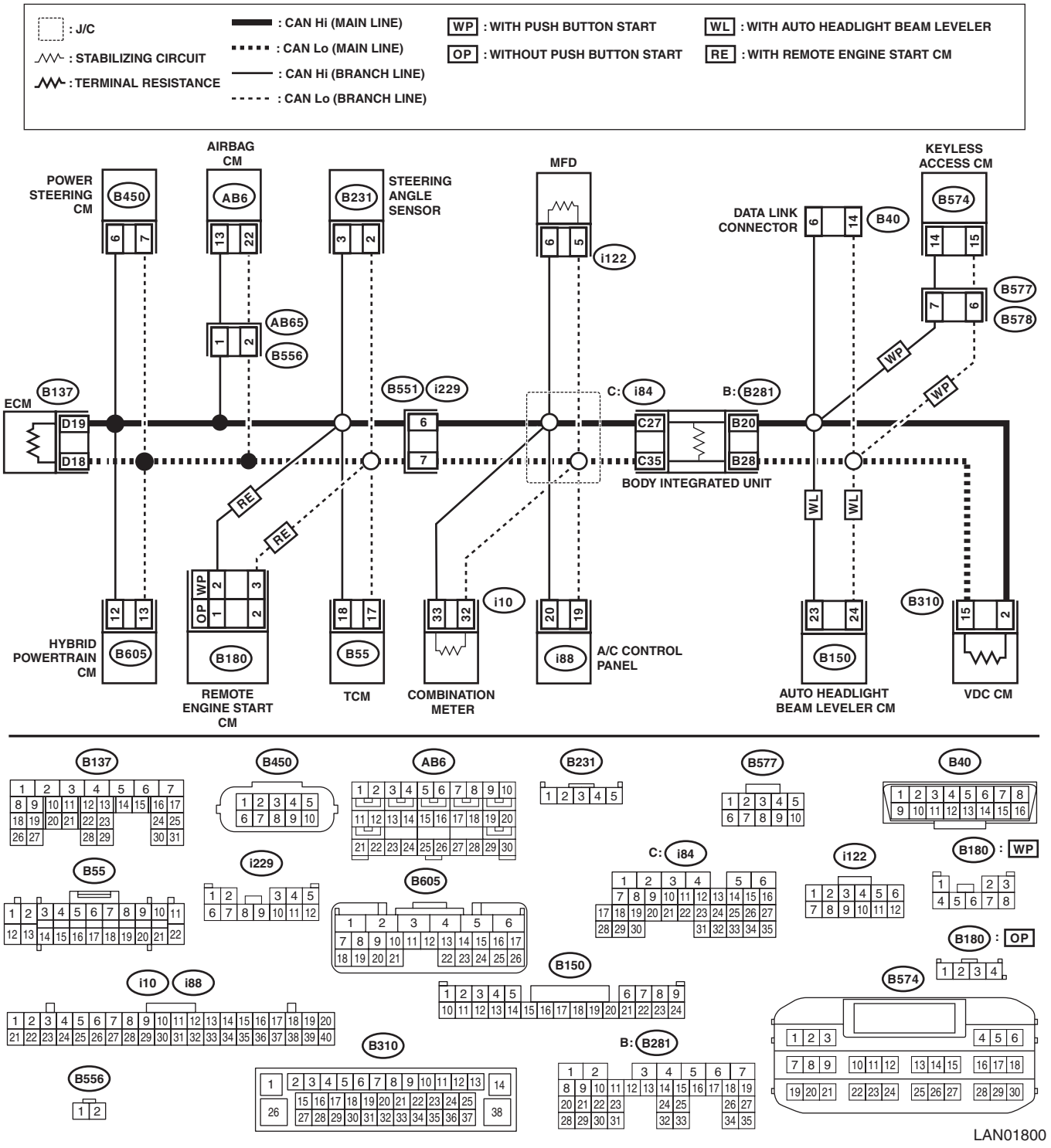


| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK BETWEEN RELATED LINES AND MAIN WIRING HARNESS.**<br>NOTE:<br>For test harness, refer to AIRBAG SYSTEM (DIAGNOSTICS). <Ref. to AB(diag)-5, PREPARATION TOOL, General Description.><br>1) Turn the ignition switch to OFF. Disconnect the ground cable from the 12 volt auxiliary battery and disconnect the ground cable from the 12V engine restart battery sensor of the 12 volt engine restart battery, and then wait for 60 seconds or more. <Ref. to NT-5, BATTERY, NOTE, Note.><br>2) Remove the instrument panel lower cover and column cover, and disconnect the connectors (AB7) and (AB2).<br>3) Remove the console front panel and disconnect the connector (AB9).<br>4) Disconnect the connectors (AB6, AB17, AB18) from airbag control module.<br>5) Connect the connector (1AH) in the test harness AH to the connectors (AB6, AB17, AB18).<br>6) Connect the connector (2AH) in the test harness AH and the connector (1AG) in the test harness AG.<br>7) Using the tester, measure the resistance between terminals.<br>***Connector & terminal***<br>***(2AG) No. 2 — (4AG) No. 2:*** | Is the resistance 400 Ω or more? | Related lines between A/B CM and main wiring harness is open, or main wiring harness is open at two places or more. | Go to step **2**. |
| 2 | **CHECK RELATED LINES.**<br>Using the tester, measure the resistance between terminals.<br>***Connector & terminal***<br>***(2AG) No. 2 — (B40) No. 14:***<br>***(4AG) No. 2 — (B40) No. 6:*** | Is the resistance 10 Ω or more? | Repair or replace the open circuit of A/B CM related lines. | Check DTC of A/B CM. <Ref. to AB(diag)-27, OPERATION, Read Diagnostic Trouble Code (DTC).> |

## 13.RELATED LINES 53 — 61 Ω (KEYLESS ACCESS SYSTEM)

### WIRING DIAGRAM:

CAN communication system <Ref. to WI(HEV)-65, WIRING DIAGRAM, CAN Communication System.>

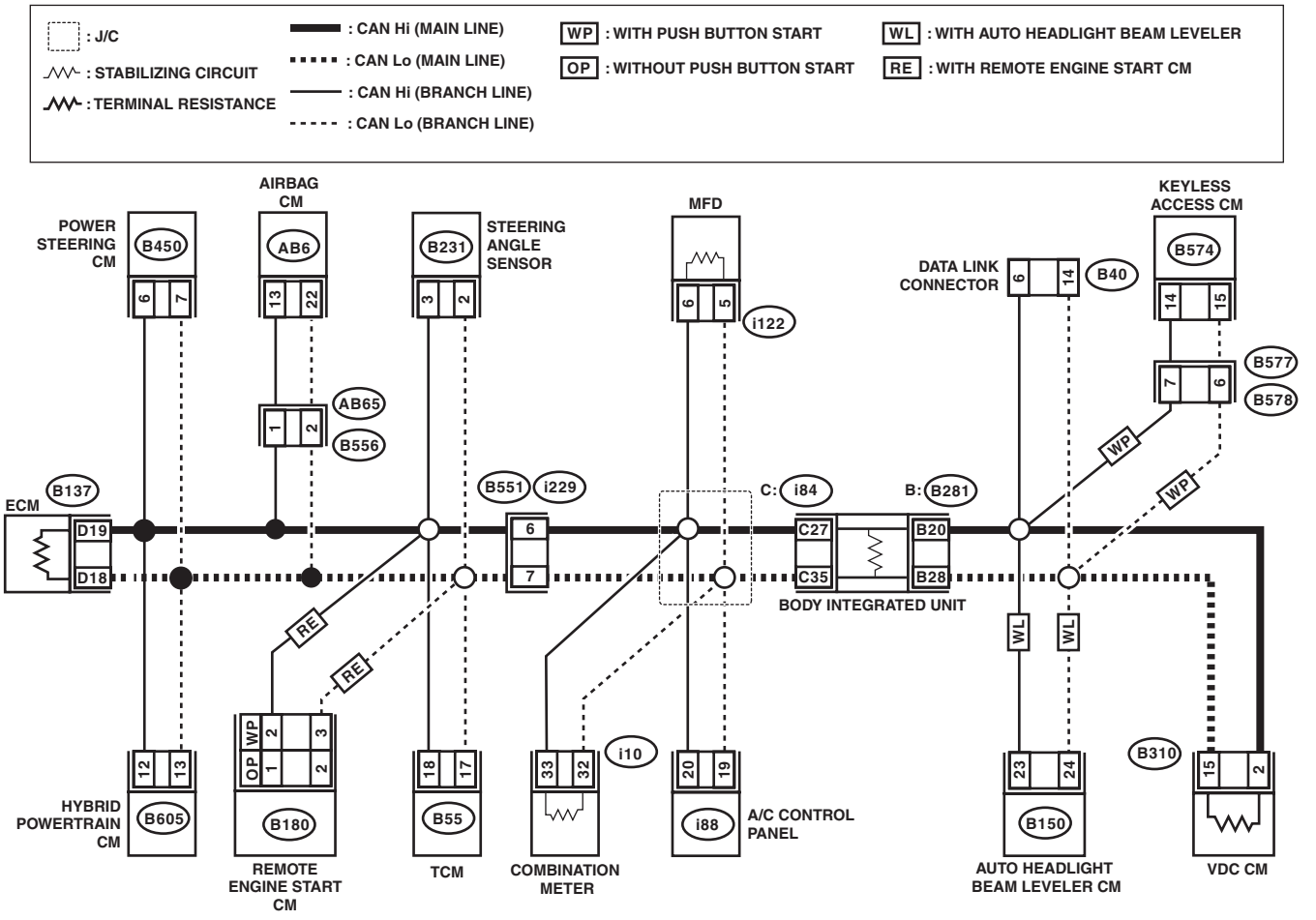


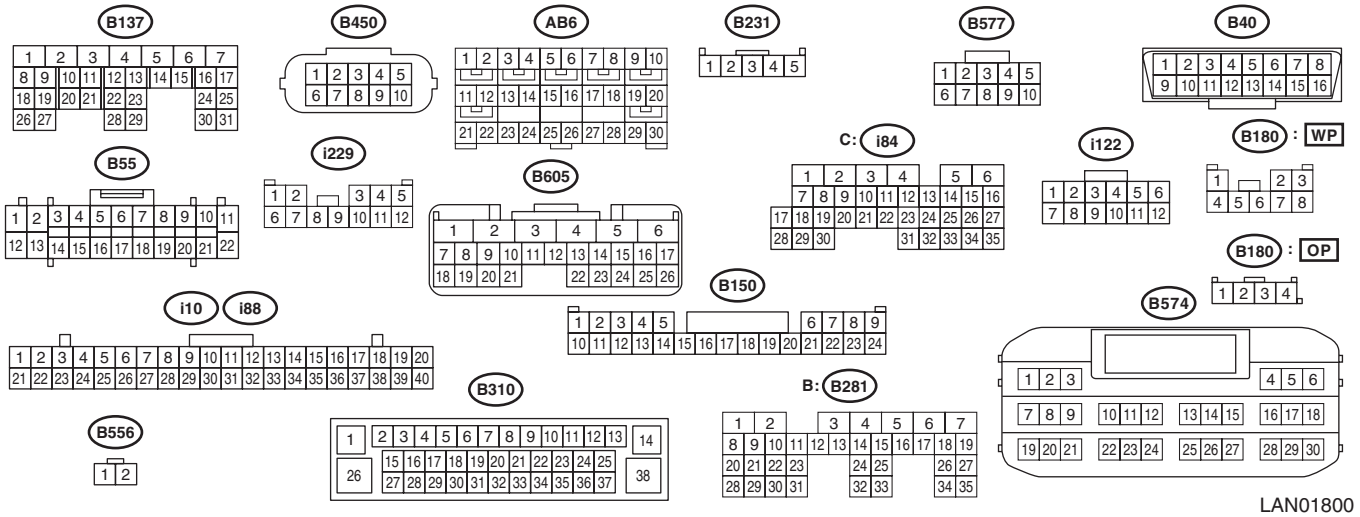
| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK BETWEEN RELATED LINES AND MAIN WIRING HARNESS.**<br>1) Disconnect the keyless access CM connector.<br>2) Using the tester, measure the resistance between terminals.<br>***Connector & terminal***<br>***(B574) No. 14 — No. 15:*** | Is the resistance 400 Ω or more? | Related lines between keyless access CM and main wiring harness is open, or main wiring harness is open at two places or more. | Go to step **2**. |
| 2 | **CHECK RELATED LINES.**<br>Using the tester, measure the resistance between terminals.<br>***Connector & terminal***<br>***(B574) No. 15 — (B40) No. 14:***<br>***(B574) No. 14 — (B40) No. 6:*** | Is the resistance 10 Ω or more? | Repair or replace the open circuit portion of keyless access CM related lines. | Check DTC of keyless access CM. <Ref. to KPS(diag)-29, OPERATION, Read Diagnostic Trouble Code (DTC).> |

## 14.RELATED LINES 53 — 61 Ω (REMOTE ENGINE STARTER)

### WIRING DIAGRAM:

CAN communication system <Ref. to WI(HEV)-65, WIRING DIAGRAM, CAN Communication System.>



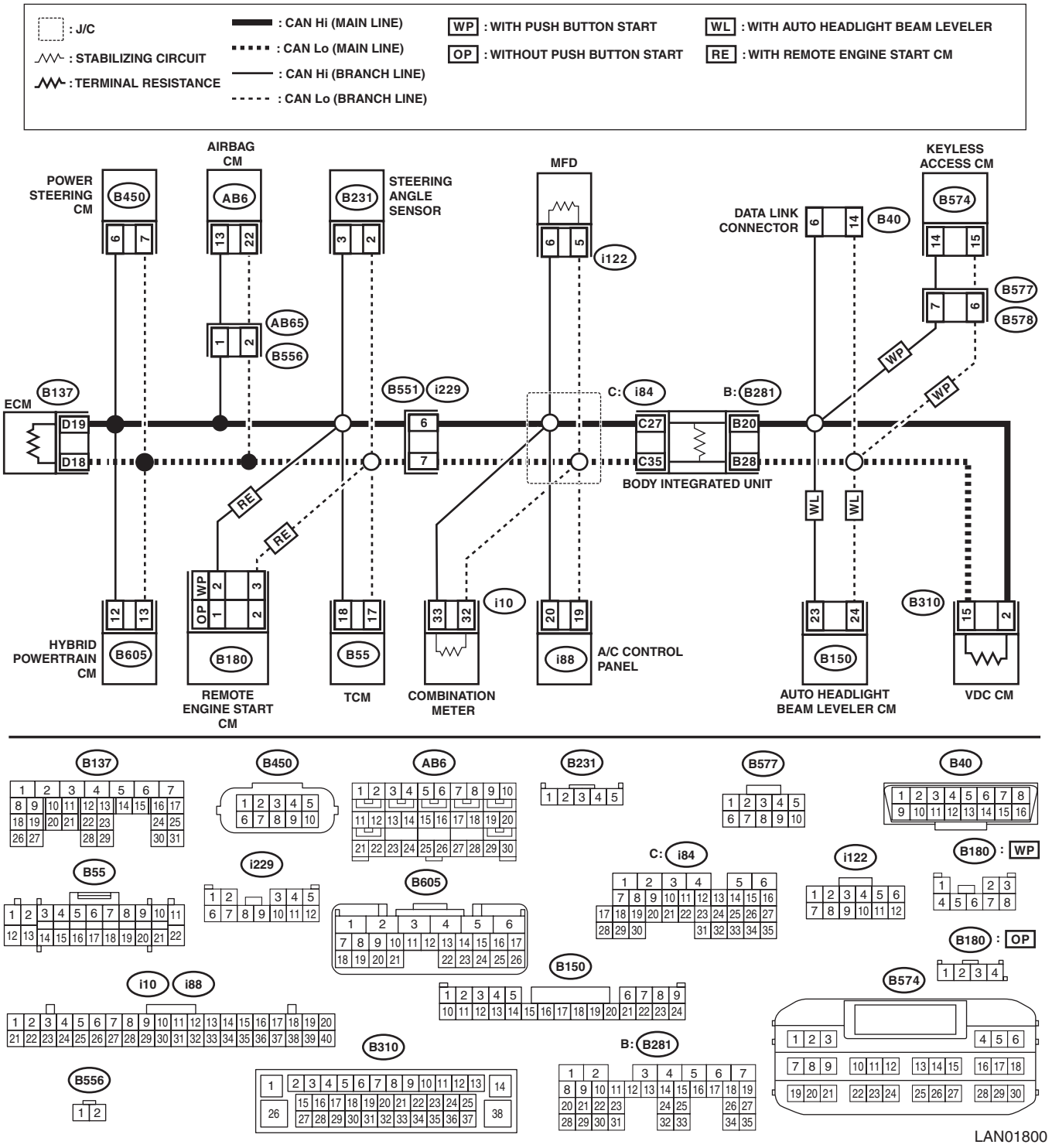

LAN01800

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK BETWEEN RELATED LINES AND MAIN WIRING HARNESS.**<br>1) Disconnect the remote engine start CM connector.<br>2) Using the tester, measure the resistance between terminals.<br>***Connector & terminal***<br>***Without push button start***<br>***(B180) No. 1 — (B180) No. 2:***<br>***With push button start***<br>***(B180) No. 2 — (B180) No. 3:*** | Is the resistance 400 Ω or more? | Related lines between remote engine start CM and main wiring harness is open, or main wiring harness is open at two places or more. | Go to step **2**. |
| 2 | **CHECK RELATED LINES.**<br>Using the tester, measure the resistance between terminals.<br>***Connector & terminal***<br>***Without push button start***<br>***(B180) No. 1 — (B40) No. 6:***<br>***(B180) No. 2 — (B40) No. 14:***<br>***With push button start***<br>***(B180) No. 2 — (B40) No. 6:***<br>***(B180) No. 3 — (B40) No. 14:*** | Is the resistance 10 Ω or more? | Repair or replace the open circuit portion of remote engine start CM related lines. | The communication harness is normal. Check the remote engine starter CM or the mobile key. |

## 15.RELATED LINES 53 — 61 Ω (HEADLIGHT BEAM LEVELER)

### WIRING DIAGRAM:

CAN communication system <Ref. to WI(HEV)-65, WIRING DIAGRAM, CAN Communication System.>







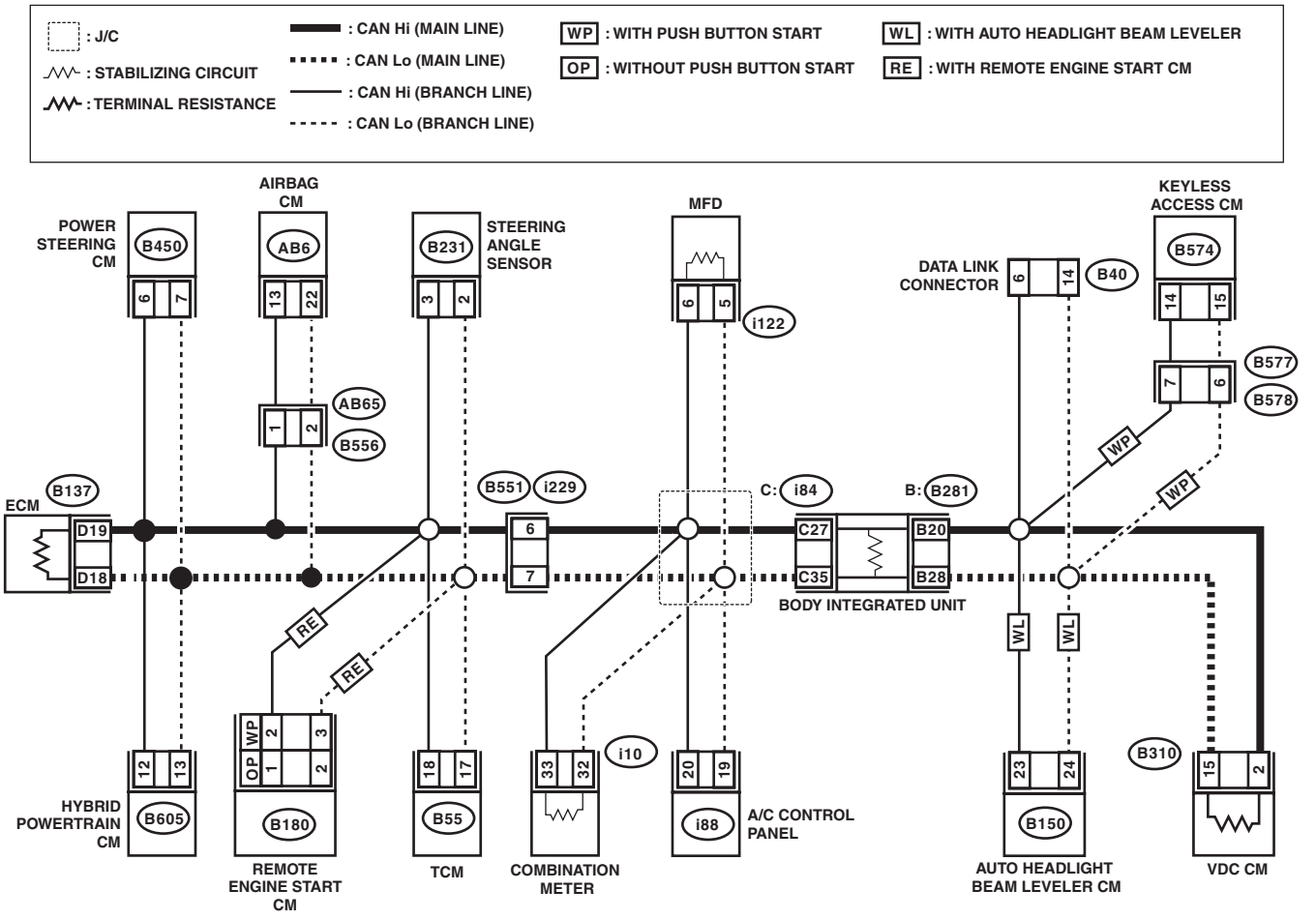
LAN01800

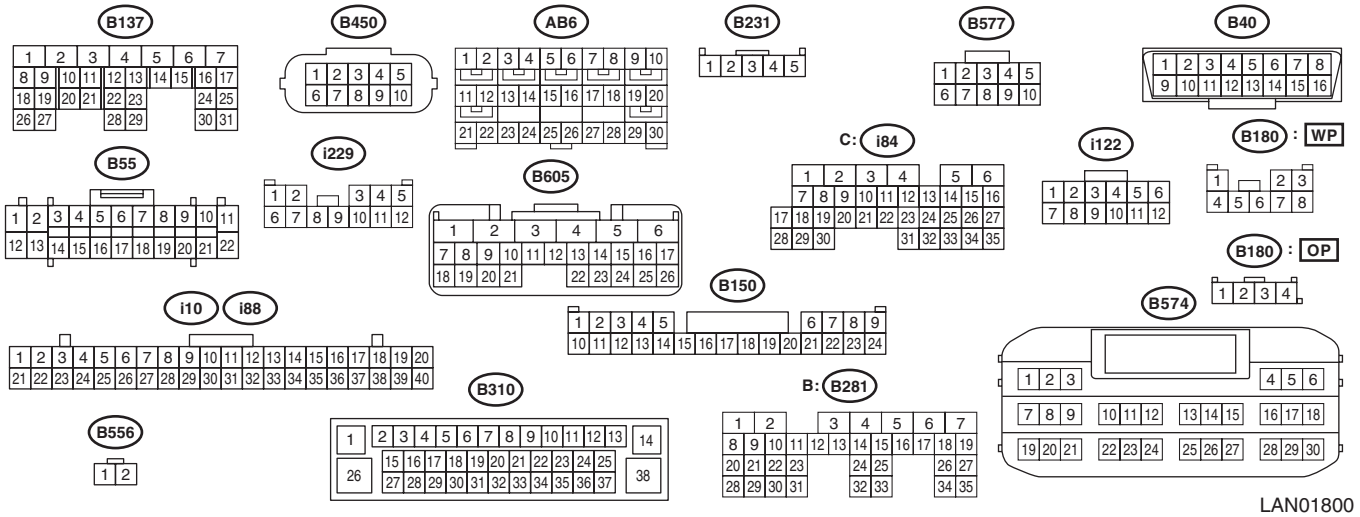
| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK BETWEEN RELATED LINES AND MAIN WIRING HARNESS.**<br>1) Disconnect the headlight beam leveler CM connector.<br>2) Using the tester, measure the resistance between terminals.<br>***Connector & terminal***<br>***(B150) No. 23 — No. 24:*** | Is the resistance 400 Ω or more? | Related lines between headlight beam leveler CM and main wiring harness is open, or main wiring harness is open at two places or more. | Go to step **2**. |
| 2 | **CHECK RELATED LINES.**<br>Using the tester, measure the resistance between terminals.<br>***Connector & terminal***<br>***(B150) No. 24 — (B40) No. 14:***<br>***(B150) No. 23 — (B40) No. 6:*** | Is the resistance 10 Ω or more? | Repair or replace the open circuit portion of headlight beam leveler CM related lines. | Check DTC of headlight beam leveler system. <Ref. to AL(diag)-10, OPERATION, Read Diagnostic Trouble Code (DTC).> |

## 16.RELATED LINES 53 — 61 Ω (HPCM)

### WIRING DIAGRAM:

CAN communication system <Ref. to WI(HEV)-65, WIRING DIAGRAM, CAN Communication System.>



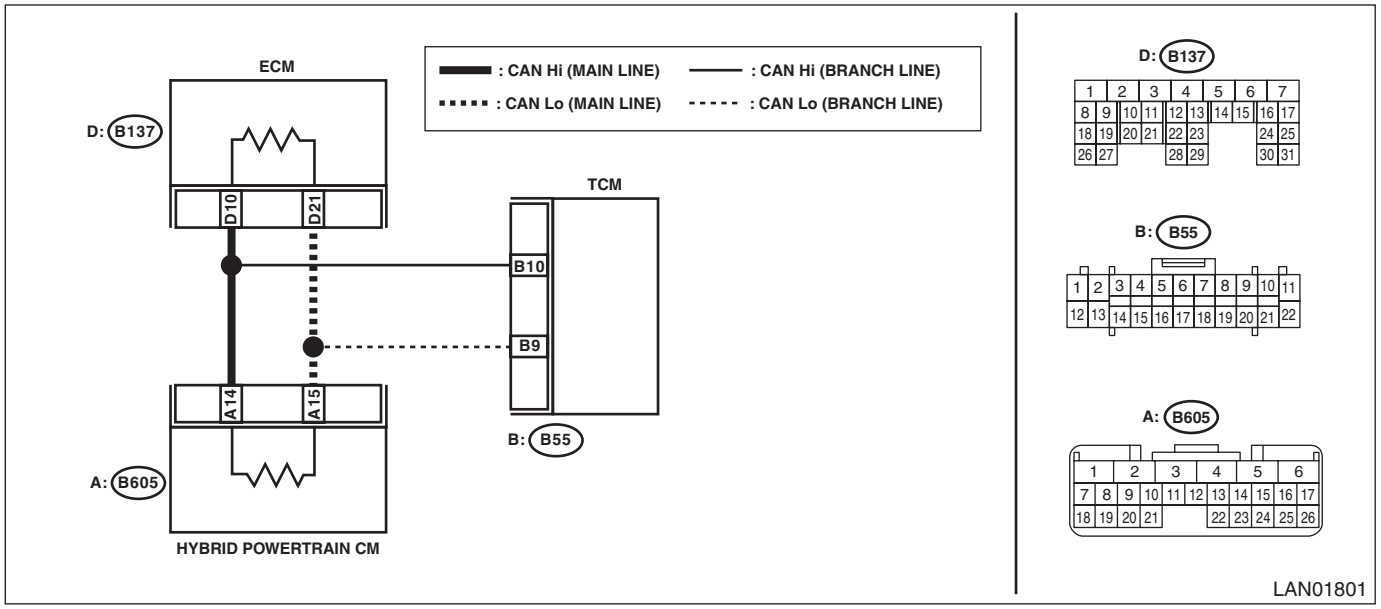

LAN01800

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK BETWEEN RELATED LINES AND MAIN WIRING HARNESS.**<br>1) Disconnect the HPCM connector.<br>2) Using the tester, measure the resistance between terminals.<br>***Connector & terminal***<br>***(B605) No. 12 — No. 13:*** | Is the resistance 400 Ω or more? | Related lines between HPCM and main wiring harness is open, or main wiring harness is open at two places or more. | Go to step **2**. |
| 2 | **CHECK RELATED LINES.**<br>Using the tester, measure the resistance between terminals.<br>***Connector & terminal***<br>***(B605) No. 13 — (B40) No. 14:***<br>***(B605) No. 12 — (B40) No. 6:*** | Is the resistance 10 Ω or more? | Repair or replace the open circuit of HPCM related lines. | The communication harness is normal. Check the impact sensor. |

## 17.GROUND SHORT INSPECTION (PU-CAN)

**WIRING DIAGRAM:**

CAN communication system <Ref. to WI(HEV)-65, WIRING DIAGRAM, CAN Communication System.>



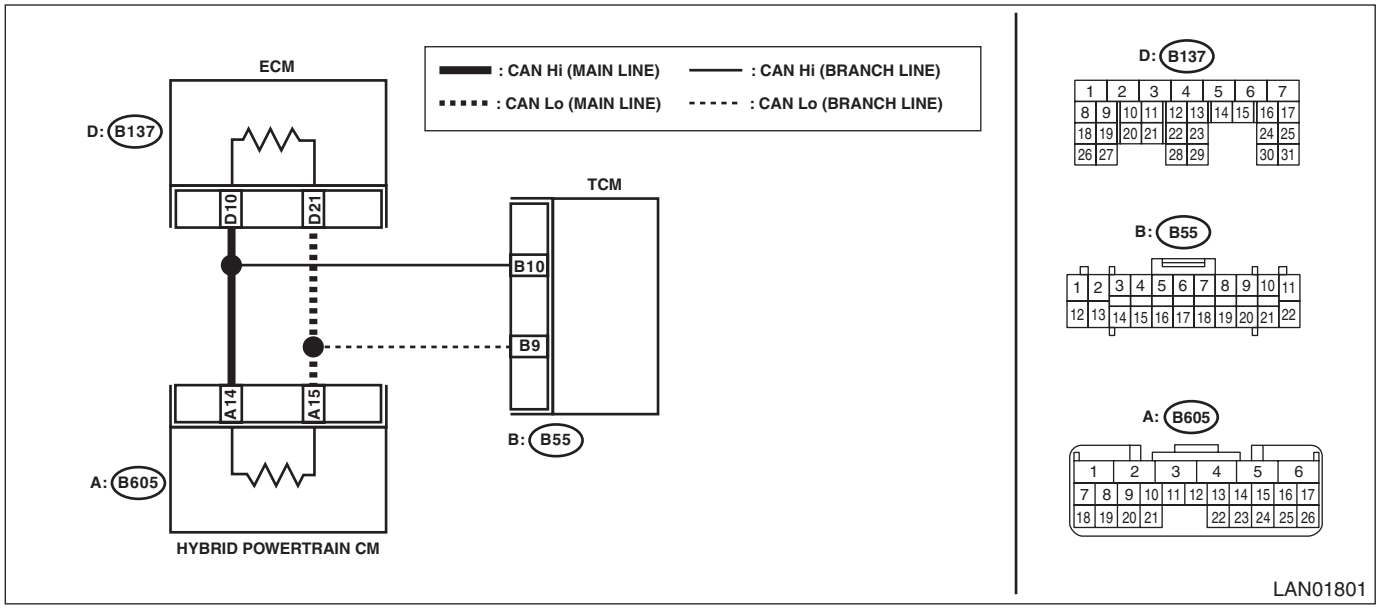

NOTE:
Main wiring harness or related lines may be shorted to ground, or shorted to ground in one of the control modules.

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK BETWEEN RELATED LINES AND MAIN WIRING HARNESS.**<br>1) Disconnect the ECM connector.<br>2) Using the tester, measure the resistance between terminals.<br>***Connector & terminal***<br>***(B137) No. 21 — Chassis ground:***<br>***(B137) No. 10 — Chassis ground:*** | Is the resistance 10 Ω or less? | Go to step **2**. | Currently, it is normal. |
| 2 | **CHECK CONTROL MODULE.**<br>1) With the tester connected, disconnect control module.<br>2) Using the tester, measure the resistance between terminals.<br>***Connector & terminal***<br>***(B137) No. 21 — Chassis ground:***<br>***(B137) No. 10 — Chassis ground:*** | Did the resistance change to 10 Ω or more? | Replace the control module whose resistance has changed. | Repair or replace the short circuit of the main wiring harness and related lines between ECM and HPCM. |

## 18.BATTERY SHORT INSPECTION (PU-CAN)

**WIRING DIAGRAM:**

CAN communication system <Ref. to WI(HEV)-65, WIRING DIAGRAM, CAN Communication System.>



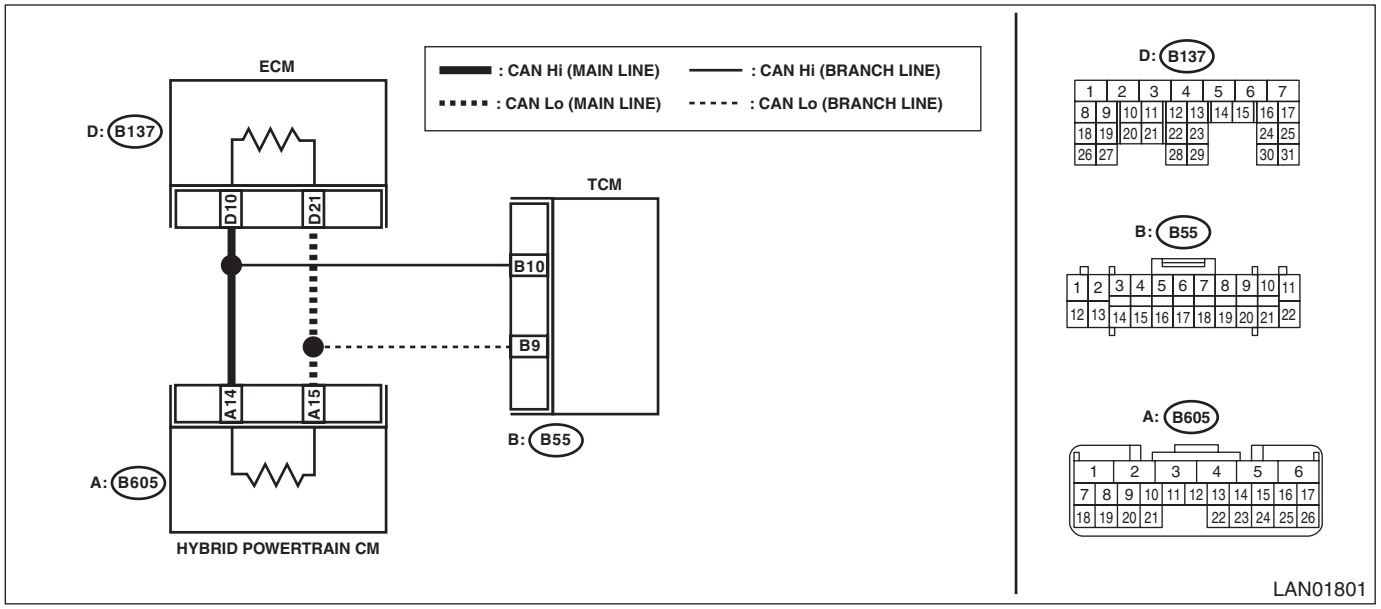

NOTE:
Main wiring harness or related lines may be shorted to battery circuit, or shorted to battery circuit in one of the control modules.

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK BETWEEN RELATED LINES AND MAIN WIRING HARNESS.**<br>1) Turn the ignition switch to ON.<br>2) Using the tester, measure the voltage between terminals.<br>***Connector & terminal***<br>***(B137) No. 21 (+) — Chassis ground (–):***<br>***(B137) No. 10 (+) — Chassis ground (–):*** | Is the voltage 5 V or less? | Currently, it is normal. | Go to step **2**. |
| 2 | **CHECK CONTROL MODULE.**<br>1) With the tester connected, disconnect control module.<br>2) Using the tester, measure the voltage between terminals.<br>***Connector & terminal***<br>***(B137) No. 21 (+) — Chassis ground (–):***<br>***(B137) No. 10 (+) — Chassis ground (–):*** | Did the voltage change to 5 V or less? | Replace the control module whose voltage has changed. | Repair or replace the short circuit of the main wiring harness and related lines between ECM and HPCM. |

## 19.57 — 63 Ω (PU-CAN)

**WIRING DIAGRAM:**

CAN communication system <Ref. to WI(HEV)-65, WIRING DIAGRAM, CAN Communication System.>



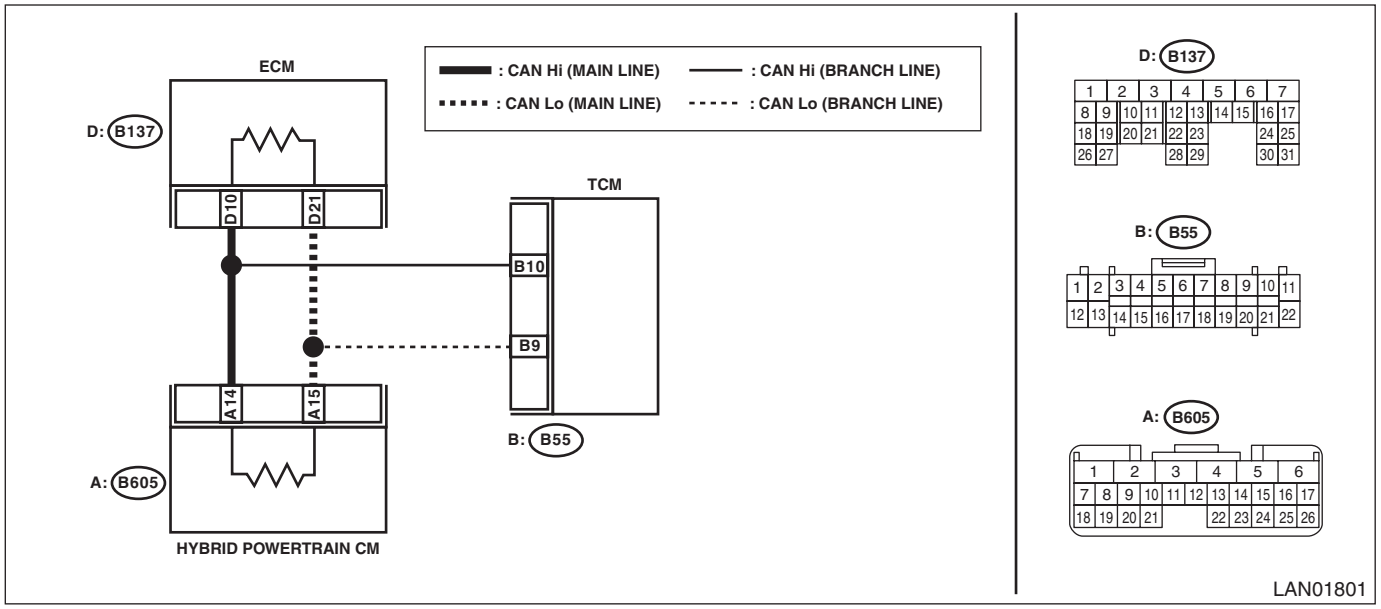

NOTE:
When the measured resistance value is 57 — 63 Ω, main wiring harness or related lines may be shorted to ground, or shorted to power supply line, or related line may be open.

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK BETWEEN RELATED LINES AND MAIN WIRING HARNESS.**<br>Using the tester, measure the resistance between terminals.<br>***Connector & terminal***<br>***(B137) No. 21 — Chassis ground:***<br>***(B137) No. 10 — Chassis ground:*** | Is the resistance 10 Ω or less? | Go to step **2**. | Go to step **4**. |
| 2 | **CHECK CONTROL MODULE.**<br>With the tester connected, disconnect control module.<br>***Connector & terminal***<br>***(B137) No. 21 — Chassis ground:***<br>***(B137) No. 10 — Chassis ground:*** | Did the resistance change to 10 Ω or more? | Replace the control module whose resistance has changed. | Repair or replace the short circuit of the main wiring harness and related lines between ECM and HPCM. |
| 3 | **CHECK MAIN WIRING HARNESS AND RELATED LINES.**<br>1) Turn the ignition switch to ON.<br>2) Using the tester, measure the voltage between terminals.<br>***Connector & terminal***<br>***(B137) No. 21 (+) — Chassis ground (–):***<br>***(B137) No. 10 (+) — Chassis ground (–):*** | Is the voltage 5 V or less? | Currently, it is normal. | Go to step **4**. |
| 4 | **CHECK BETWEEN RELATED LINES AND MAIN WIRING HARNESS.**<br>1) With the tester connected, disconnect control module.<br>2) Using the tester, measure the voltage between terminals.<br>***Connector & terminal***<br>***(B137) No. 21 (+) — Chassis ground (–):***<br>***(B137) No. 10 (+) — Chassis ground (–):*** | Did the voltage change to 5 V or less? | Replace the control module whose voltage has changed. | Repair or replace the short circuit of the main wiring harness and related lines between ECM and HPCM. |

## 20.56 Ω OR LESS (PU-CAN)

**WIRING DIAGRAM:**

CAN communication system <Ref. to WI(HEV)-65, WIRING DIAGRAM, CAN Communication System.>



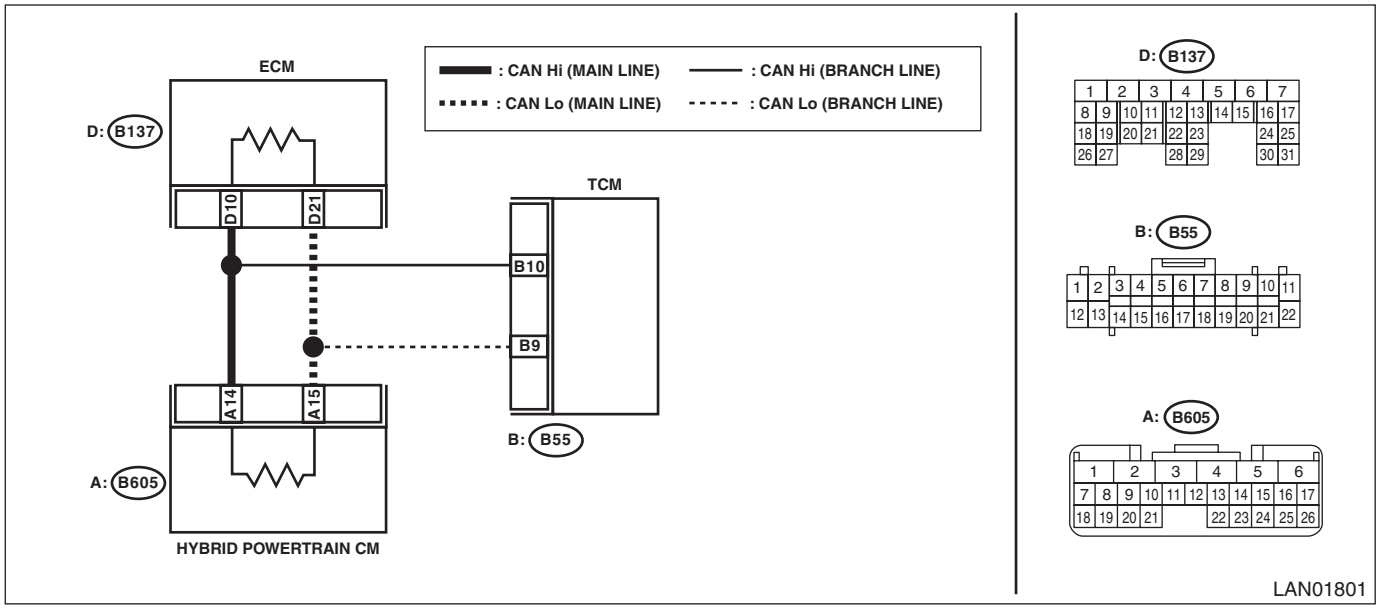

NOTE:
When the bus line is measured, combined resistance of the end resistance (120 Ω) in ECM and the end resistance (120 Ω) in HPCM can be measured. The combined resistance is approximately 57 — 63 Ω. When the measured resistance value is 56 Ω or less, main wiring harness or related lines may be shorted, or combined resistance may have changed because resistance other than end resistance is created on the circuit.

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK BETWEEN RELATED LINES AND MAIN WIRING HARNESS.**<br>1) Disconnect the ECM connector.<br>2) Using the tester, measure the resistance between terminals.<br>***Connector & terminal***<br>***(B137) No. 21 — (B137) No. 10:*** | Is the resistance 10 Ω or less? | Go to step **2**. | Go to step **3**. |
| 2 | **CHECK MAIN WIRING HARNESS AND RELATED LINES.**<br>With a tester connected, disconnect control module connectors in order.<br>***Connector & terminal***<br>***(B137) No. 21 — (B137) No. 10:*** | Is there any control module whose condition has changed from short state? | Replace the control module whose resistance has changed. | Repair or replace the short circuit of the main wiring harness and related lines between ECM and HPCM. |
| 3 | **CHECK CONTROL MODULE.**<br>1) Disconnect the ECM and HPCM connectors.<br>2) Using a tester, measure the resistance between control module terminals.<br>***Connector & terminal***<br>***(B137) No. 21 — (B137) No. 10:***<br>***(B605) No. 15 — (B605) No. 14:*** | Is the resistance 114 — 126 Ω? | Go to step **4**. | Replace the control module whose end resistance value is out of the specified range. |
| 4 | **CHECK CONTROL MODULE.**<br>With the tester connected, disconnect TCM.<br>***Connector & terminal***<br>***(B137) No. 21 — (B137) No. 10:*** | Is there any control module whose resistance has changed to 1 MΩ or more? | Replace the TCM. <Ref. to CVT(TH58A)-158, Transmission Control Module (TCM).> | Repair or replace the harness due to resistance component. |

## 21.64 Ω OR MORE (PU-CAN)

**WIRING DIAGRAM:**

CAN communication system <Ref. to WI(HEV)-65, WIRING DIAGRAM, CAN Communication System.>



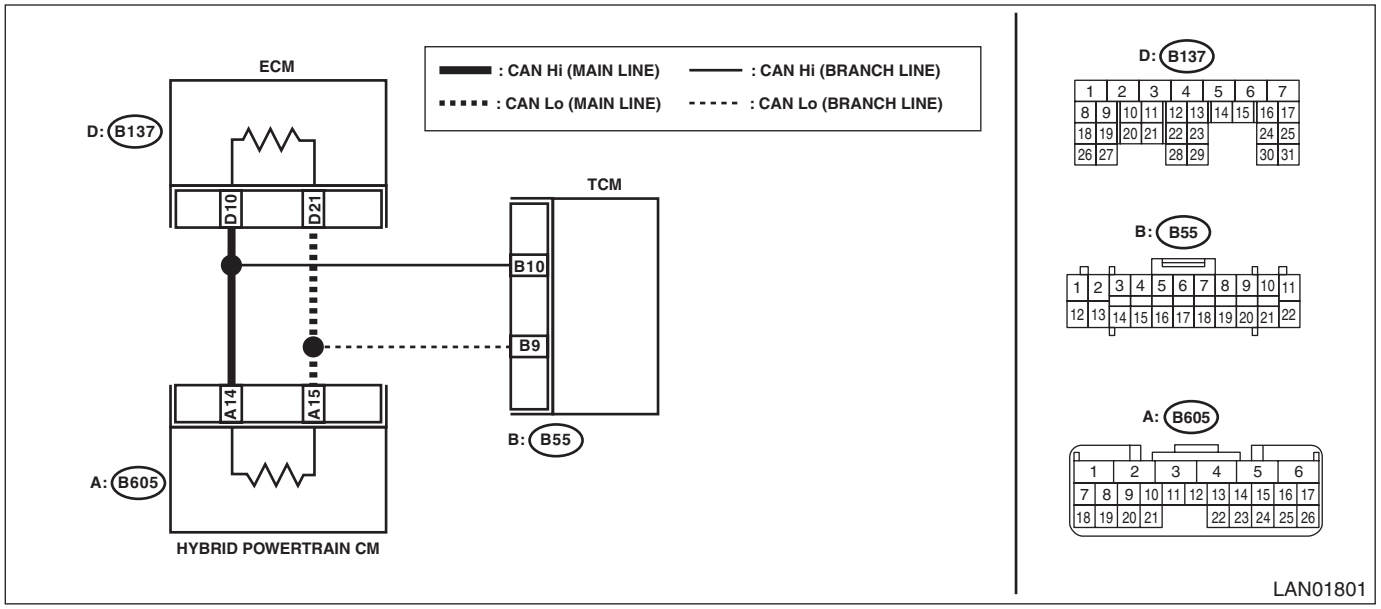

NOTE:
When the bus line is measured, combined resistance of the end resistance (120 Ω) in ECM and the end resistance (120 Ω) in HPCM can be measured. The combined resistance is approximately 57 — 63 Ω. When the measured resistance value is 64 Ω or more, either of end resistance or main wiring harness may have malfunction such as open circuit.

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK CONTROL MODULE.**<br>1) Disconnect the ECM and HPCM connectors.<br>2) Using a tester, measure the resistance between control module terminals.<br>***Connector & terminal***<br>***(B137) No. 21 — (B137) No. 10:***<br>***(B605) No. 15 — (B605) No. 14:*** | Is the resistance 114 — 126 Ω? | Go to step **2**. | Replace the control module whose value is out of the specification. |
| 2 | **CHECK HARNESS.**<br>Using a tester, check continuity between terminals.<br>***Connector & terminal***<br>***(B137) No. 21 — (B605) No. 15:***<br>***(B137) No. 10 — (B605) No. 14:*** | Is there continuity? | It is possible that temporary poor communication occurs. | Repair or replace the open circuit of harness. |

## 22.57 — 63 Ω (PU-CAN_TCM)

**WIRING DIAGRAM:**

CAN communication system <Ref. to WI(HEV)-65, WIRING DIAGRAM, CAN Communication System.>



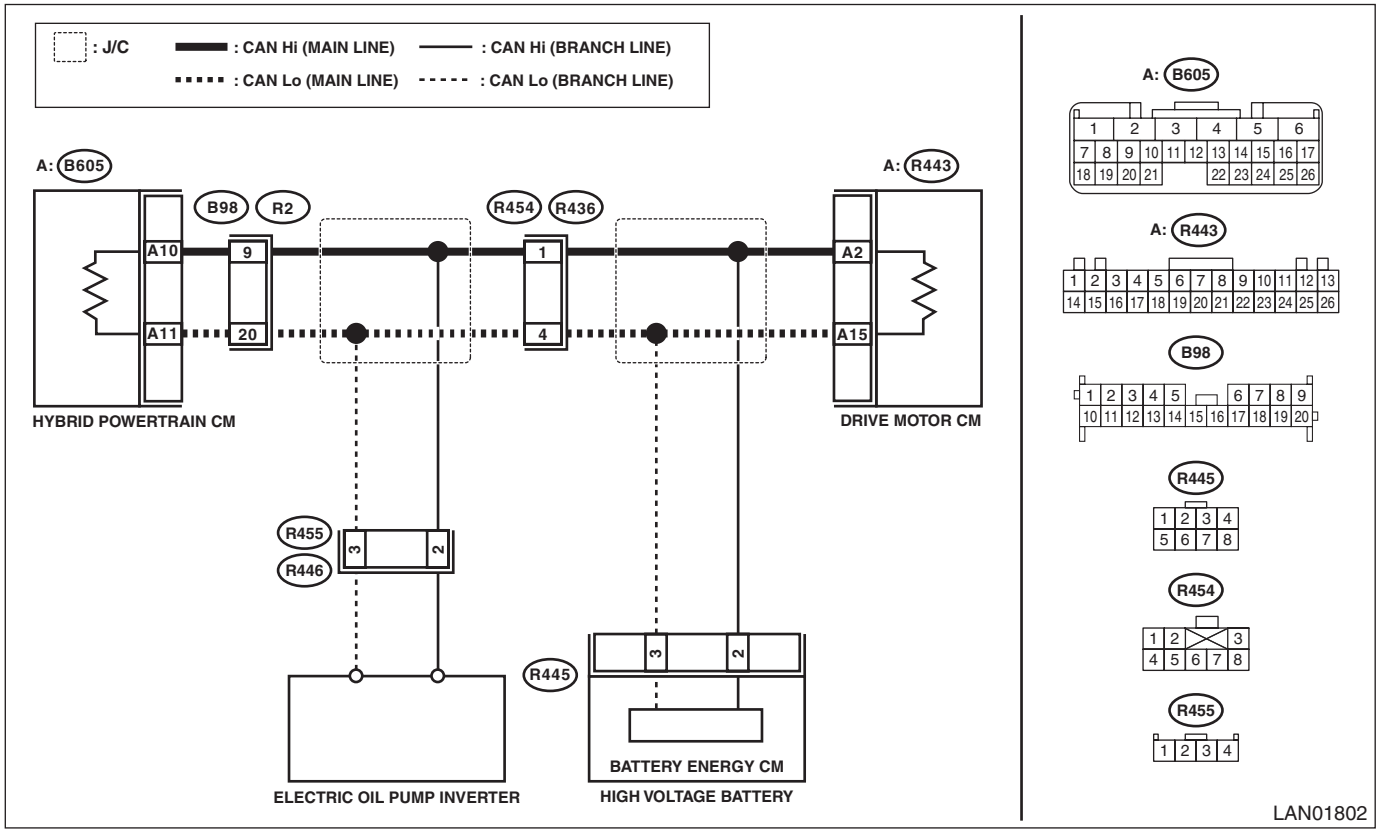

NOTE:
When the measured resistance value is 57 — 63 Ω, main wiring harness or related lines may be shorted to ground, or shorted to power supply line, or related line may be open.

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK BETWEEN RELATED LINES AND MAIN WIRING HARNESS.**<br>1) Disconnect the TCM connector.<br>2) Using a tester, measure the resistance between control module terminals.<br>***Connector & terminal***<br>***(B55) No. 9 — No. 10:*** | Is the resistance 400 Ω or more? | Related lines between TCM and main wiring harness is open, or main wiring harness is open at two places or more. | Go to step **2**. |
| 2 | **CHECK RELATED LINES.**<br>1) Disconnect the ECM connector.<br>2) Using a tester, check continuity between terminals.<br>***Connector & terminal***<br>***(B55) No. 9 — (B137) No. 21:***<br>***(B55) No. 10 — (B137) No. 10:*** | Is the resistance 10 Ω or more? | Repair or replace the open circuit portion of TCM related lines. | Check the TCM. <Ref. to CVT(HEV)(diag)-19, OPERATION, Read Diagnostic Trouble Code (DTC).> |

## 23.GROUND SHORT INSPECTION (HEV-CAN)

**WIRING DIAGRAM:**

CAN communication system <Ref. to WI(HEV)-65, WIRING DIAGRAM, CAN Communication System.>



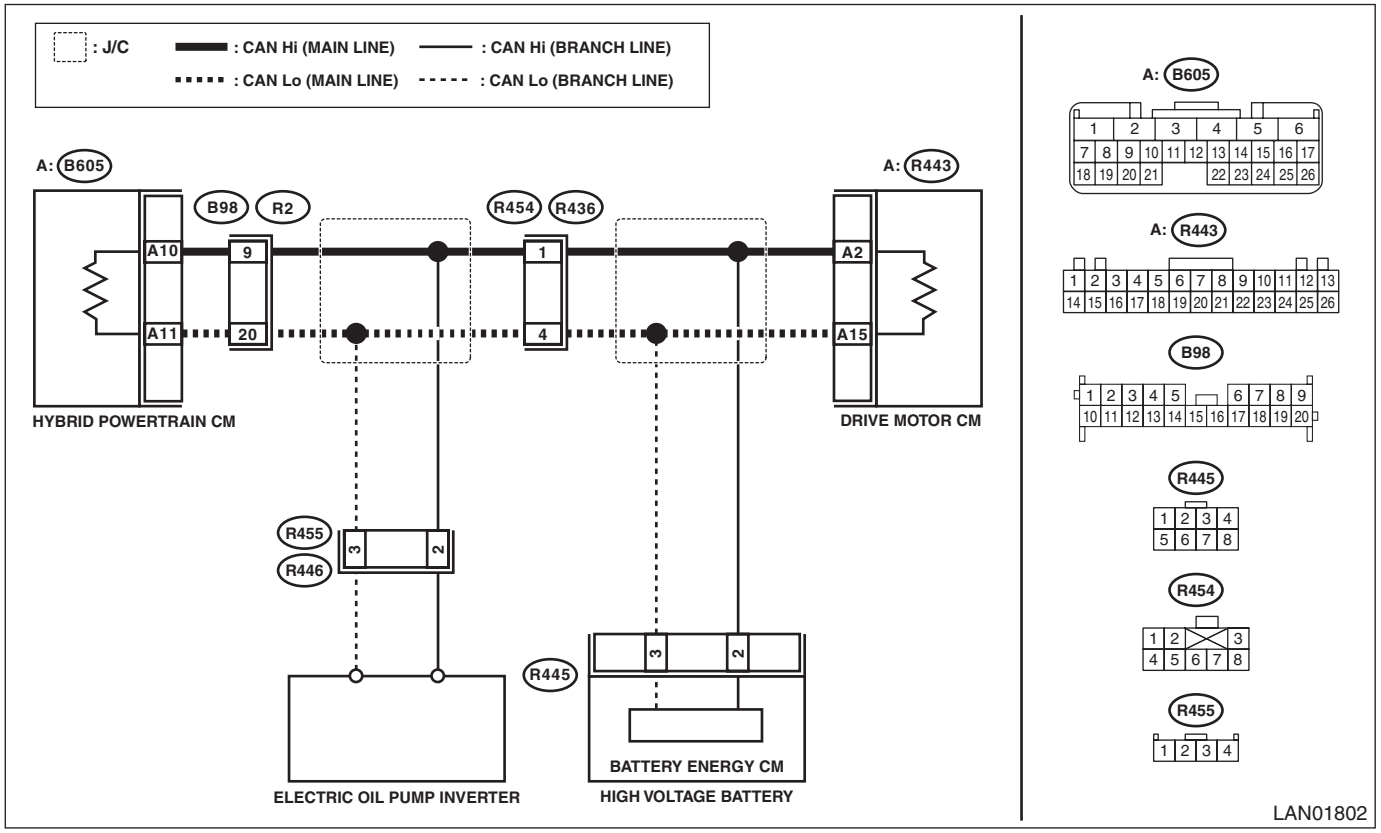

NOTE:
Main wiring harness or related lines may be shorted to ground, or shorted to ground in one of the control modules.

| Step | | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK BETWEEN RELATED LINES AND MAIN WIRING HARNESS.**<br>1) Disconnect the HPCM connector.<br>2) Using the tester, measure the resistance between terminals.<br>***Connector & terminal***<br>***(B605) No. 10 — Chassis ground:***<br>***(B605) No. 11 — Chassis ground:*** | Is the resistance 10 Ω or less? | Go to step **2**. | Currently, it is normal. |
| 2 | **CHECK CONTROL MODULE.**<br>1) With the tester connected, disconnect control module.<br>2) Using the tester, measure the resistance between terminals.<br>***Connector & terminal***<br>***(B605) No. 10 — Chassis ground:***<br>***(B605) No. 11 — Chassis ground:*** | Did the resistance change to 10 Ω or more? | Replace the control module whose resistance has changed. | Repair or replace the short circuit of the main wiring harness and related lines between HPCM and DMCM. |

## 24.BATTERY SHORT INSPECTION (HEV-CAN)

**WIRING DIAGRAM:**

CAN communication system <Ref. to WI(HEV)-65, WIRING DIAGRAM, CAN Communication System.>



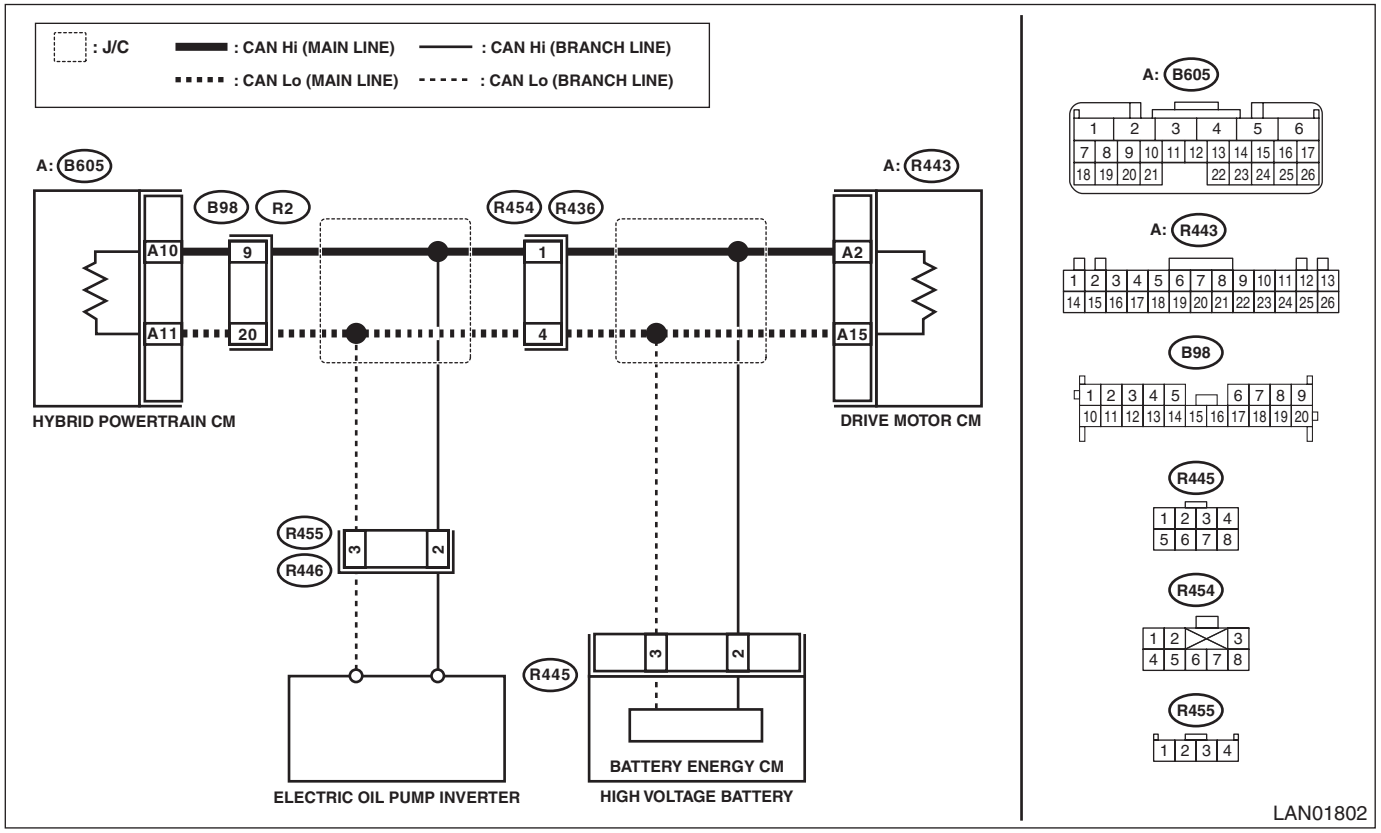

NOTE:
Main wiring harness or related lines may be shorted to battery circuit, or shorted to battery circuit in one of the control modules.

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK BETWEEN RELATED LINES AND MAIN WIRING HARNESS.**<br>1) Turn the ignition switch to ON.<br>2) Using the tester, measure the voltage between terminals.<br>***Connector & terminal***<br>***(B605) No. 10 (+) — Chassis ground (–):***<br>***(B605) No. 11 (+) — Chassis ground (–):*** | Is the voltage 5 V or less? | Currently, it is normal. | Go to step **2**. |
| 2 | **CHECK CONTROL MODULE.**<br>1) With the tester connected, disconnect control module.<br>2) Using the tester, measure the voltage between terminals.<br>***Connector & terminal***<br>***(B605) No. 10 (+) — Chassis ground (–):***<br>***(B605) No. 11 (+) — Chassis ground (–):*** | Did the voltage change to 5 V or less? | Replace the control module whose voltage has changed. | Repair or replace the short circuit of the main wiring harness and related lines between HPCM and DMCM. |

## 25.57 — 63 Ω (HEV-CAN)

**WIRING DIAGRAM:**

CAN communication system <Ref. to WI(HEV)-65, WIRING DIAGRAM, CAN Communication System.>




NOTE:
When the measured resistance value is 57 — 63 Ω, main wiring harness or related lines may be shorted to ground, or shorted to power supply line, or related line may be open.

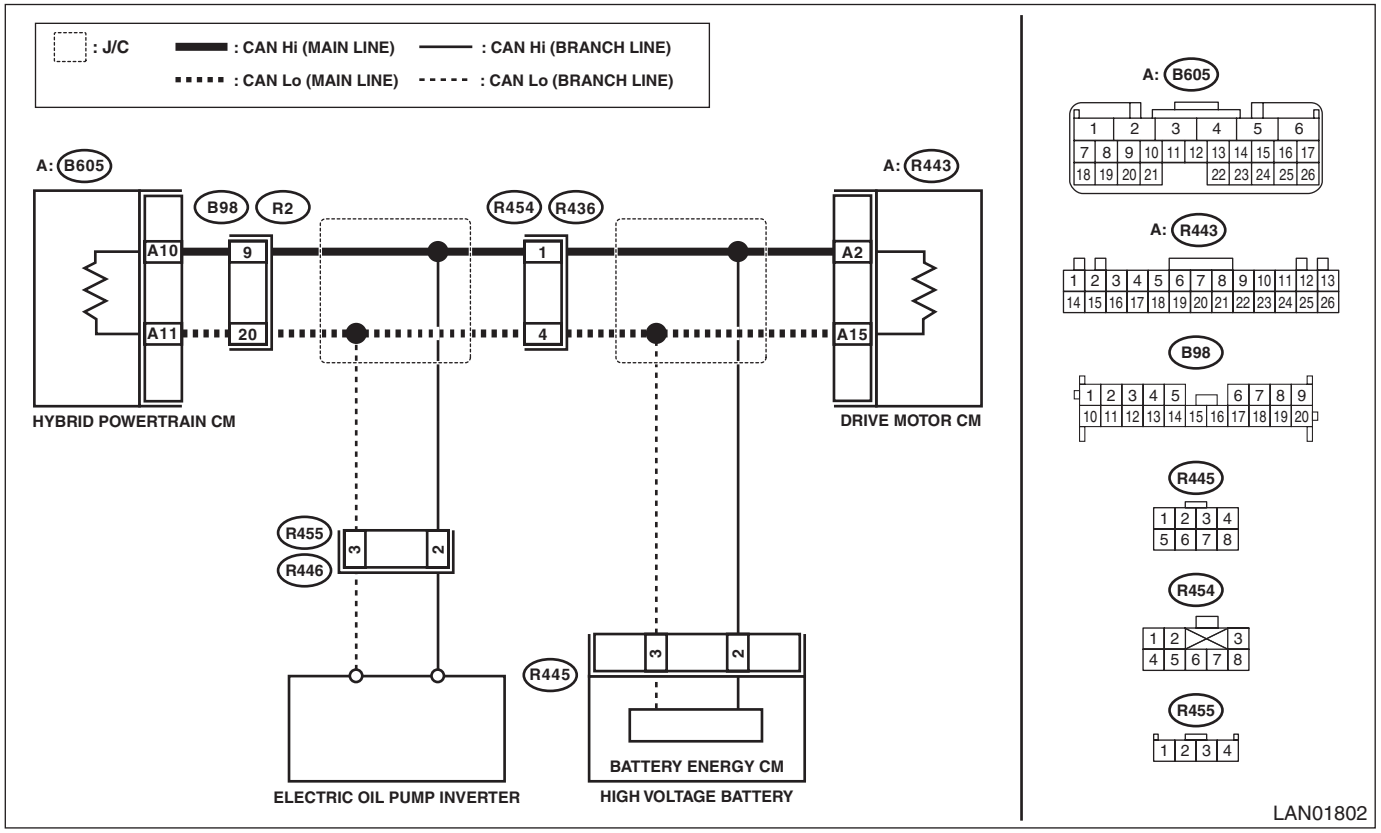
| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK BETWEEN RELATED LINES AND MAIN WIRING HARNESS.**<br>Using the tester, measure the resistance between terminals.<br>***Connector & terminal***<br>***(B605) No. 10 — Chassis ground:***<br>***(B605) No. 11 — Chassis ground:*** | Is the resistance 10 Ω or less? | Go to step **2**. | Go to step **4**. |
| 2 | **CHECK CONTROL MODULE.**<br>1) With the tester connected, disconnect control module.<br>2) Using the tester, measure the resistance between terminals.<br>***Connector & terminal***<br>***(B605) No. 10 — Chassis ground:***<br>***(B605) No. 11 — Chassis ground:*** | Did the resistance change to 10 Ω or more? | Replace the control module whose resistance has changed. | Repair or replace the short circuit of the main wiring harness and related lines between HPCM and DMCM. |
| 3 | **CHECK MAIN WIRING HARNESS AND RELATED LINES.**<br>1) Turn the ignition switch to ON.<br>2) Using the tester, measure the voltage between terminals.<br>***Connector & terminal***<br>***(B605) No. 10 (+) — Chassis ground (–):***<br>***(B605) No. 11 (+) — Chassis ground (–):*** | Is the voltage 5 V or less? | Currently, it is normal. | Go to step **4**. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 4 | **CHECK BETWEEN RELATED LINES AND MAIN WIRING HARNESS.**<br>1) With the tester connected, disconnect control module.<br>2) Using the tester, measure the voltage between terminals.<br>***Connector & terminal***<br>***(B605) No. 10 (+) — Chassis ground (–):***<br>***(B605) No. 11 (+) — Chassis ground (–):*** | Did the voltage change to 5 V or less? | Replace the control module whose voltage has changed. | Repair or replace the short circuit of the main wiring harness and related lines between HPCM and DMCM. |

## 26.56 Ω OR LESS (HEV-CAN)

**WIRING DIAGRAM:**

CAN communication system <Ref. to WI(HEV)-65, WIRING DIAGRAM, CAN Communication System.>




NOTE:
When the bus line is measured, combined resistance of the end resistance (120 Ω) in HPCM and the end resistance (120 Ω) in DMCM can be measured. The combined resistance is approximately 57 — 63 Ω. When the measured resistance value is 56 Ω or less, main wiring harness or related lines may be shorted, or combined resistance may have changed because resistance other than end resistance is created on the circuit.

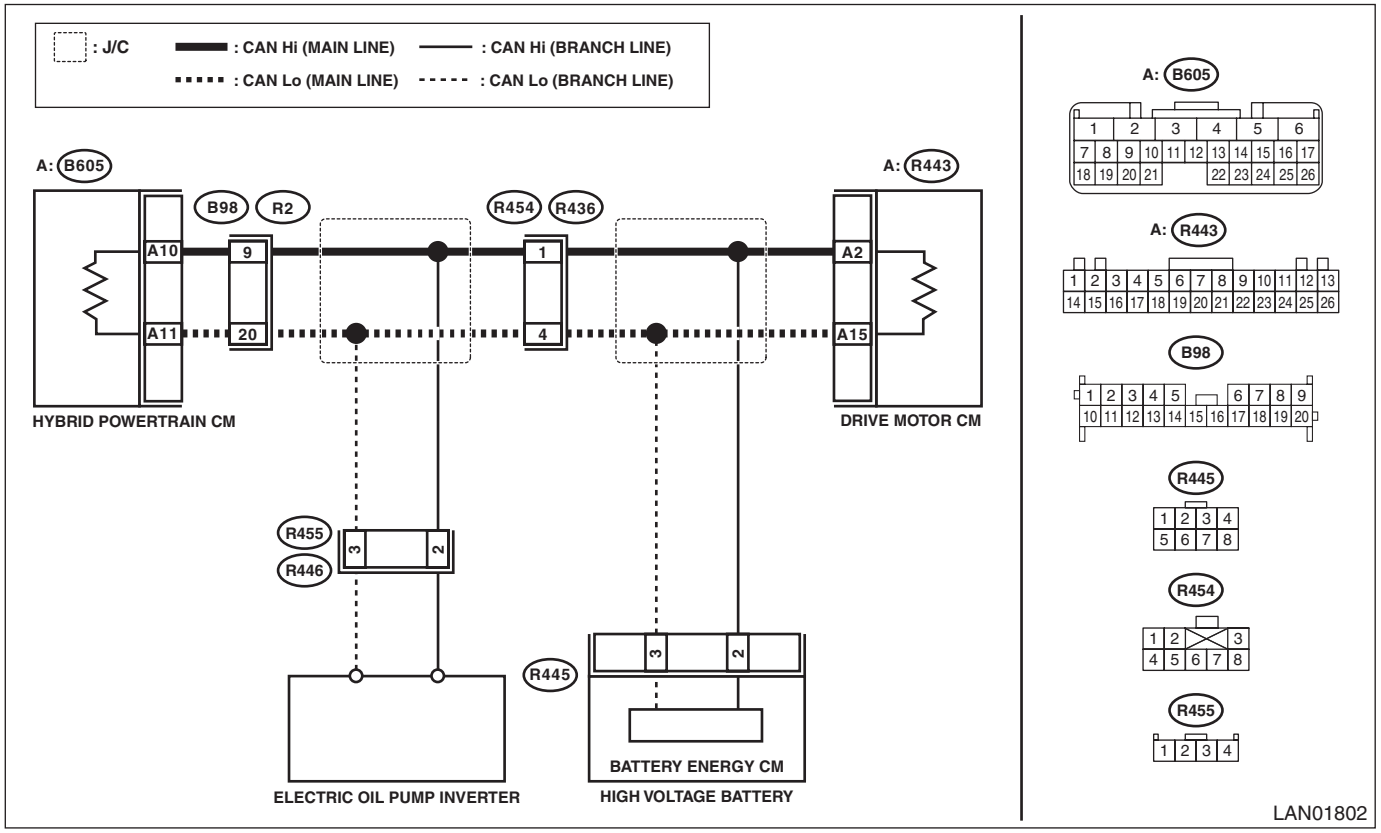
| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK BETWEEN RELATED LINES AND MAIN WIRING HARNESS.**<br>1) Disconnect the HPCM connector.<br>2) Using the tester, measure the resistance between terminals.<br>***Connector & terminal***<br>***(B605) No. 10 — (B605) No. 11:*** | Is the resistance 10 Ω or less? | Go to step **2**. | Go to step **3**. |
| 2 | **CHECK MAIN WIRING HARNESS AND RELATED LINES.**<br>With a tester connected, disconnect control module connectors in order.<br>***Connector & terminal***<br>***(B605) No. 10 — (B605) No. 11:*** | Is there any control module whose condition has changed from short state? | Replace the control module whose resistance has changed. | Repair or replace the short circuit of the main wiring harness and related lines between HPCM and DMCM. |
| 3 | **CHECK CONTROL MODULE.**<br>1) Disconnect the ECM and DMCM connectors.<br>2) Using a tester, measure the resistance between control module terminals.<br>***Connector & terminal***<br>***(B605) No. 10 — (B605) No. 11:***<br>***(R443) No. 2 — (R443) No. 15:*** | Is the resistance 114 — 126 Ω? | Go to step **4**. | Replace the control module whose end resistance value is out of the specified range. |

| Step | | Check | Yes | No |
|---|---|---|---|---|
| 4 | **CHECK CONTROL MODULE.**<br>With a tester connected, disconnect control modules in order.<br>***Connector & terminal***<br>***(B605) No. 10 — (B605) No. 11:*** | Are there any control modules whose resistance changed to 1 MΩ or more? | Replace the control module that has changed. | Repair or replace the harness due to resistance component. |

## 27.64 Ω OR MORE (HEV-CAN)

**WIRING DIAGRAM:**

CAN communication system <Ref. to WI(HEV)-65, WIRING DIAGRAM, CAN Communication System.>



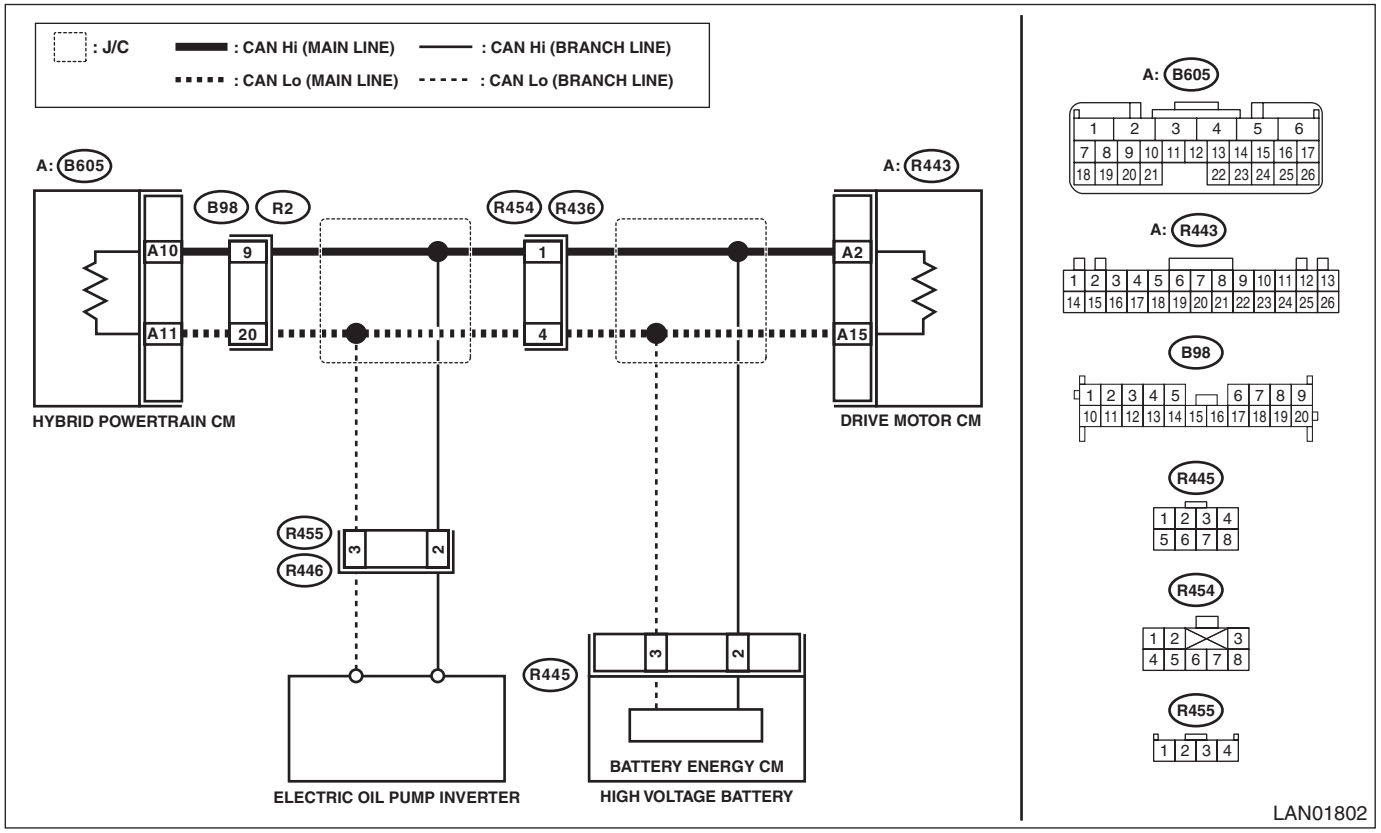

NOTE:
When the bus line is measured, combined resistance of the end resistance (120 Ω) in HPCM and the end resistance (120 Ω) in DMCM can be measured. The combined resistance is approximately 57 — 63 Ω. When the measured resistance value is 64 Ω or more, either of end resistance or main wiring harness may have malfunction such as open circuit.

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK CONTROL MODULE.**<br>1) Disconnect the DMCM and HPCM connectors.<br>2) Using a tester, measure the resistance between control module terminals.<br>***Connector & terminal***<br>***(B605) No. 10 — (B605) No. 11:***<br>***(R443) No. 2 — (R443) No. 15:*** | Is the resistance 114 — 126 Ω? | Go to step **2**. | Replace the control module whose value is out of the specification. |
| 2 | **CHECK HARNESS.**<br>Using a tester, check continuity between terminals.<br>***Connector & terminal***<br>***(B605) No. 10 — (R443) No. 2:***<br>***(B605) No. 11 — (R443) No. 15:*** | Is there continuity? | It is possible that temporary poor communication occurs. | Repair or replace the open circuit of harness. |

## 28.57 — 63 Ω (HEV-CAN_BECM)

**WIRING DIAGRAM:**

CAN communication system <Ref. to WI(HEV)-65, WIRING DIAGRAM, CAN Communication System.>



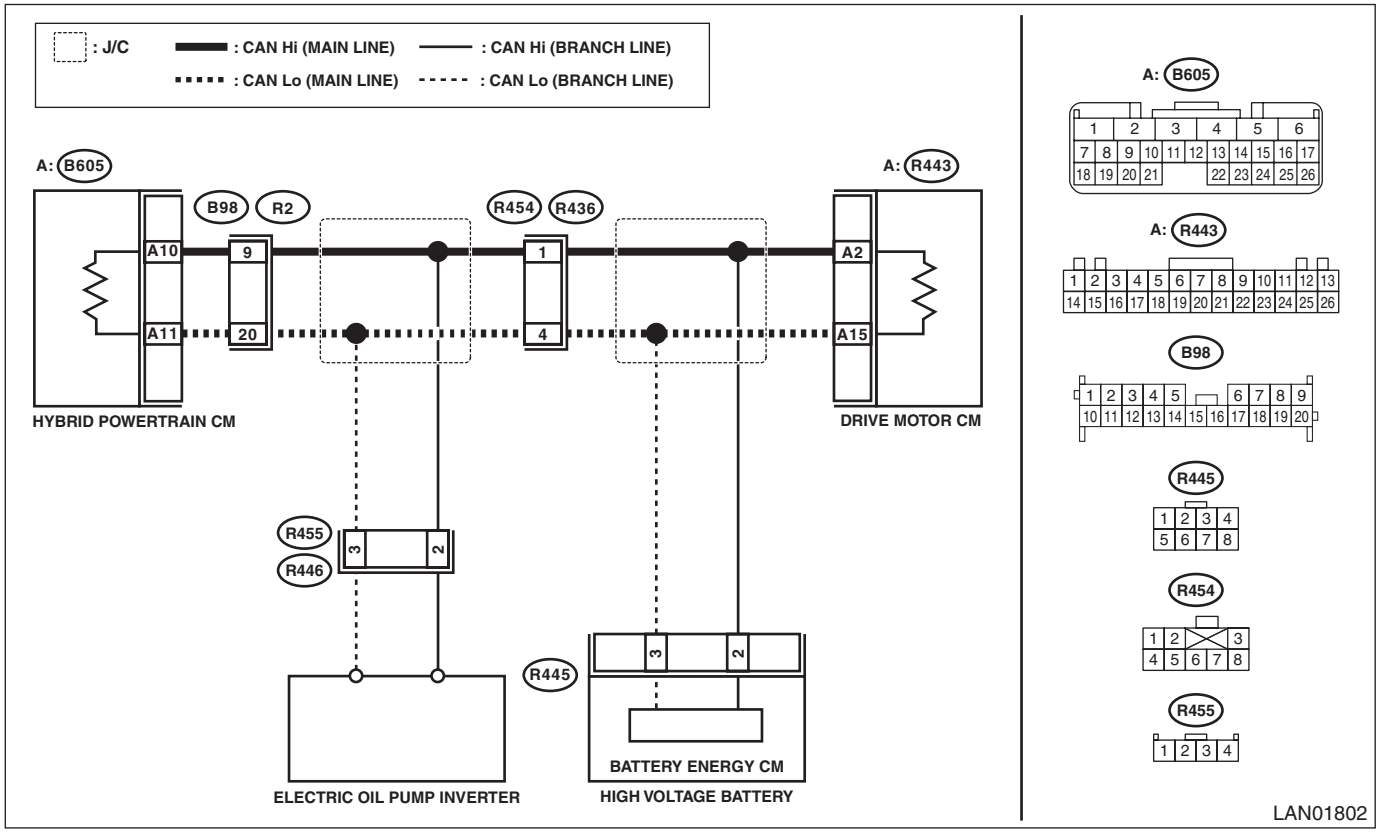

NOTE:
When the measured resistance value is 57 — 63 Ω, main wiring harness or related lines may be shorted to ground, or shorted to power supply line, or related line may be open.

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK BETWEEN RELATED LINES AND MAIN WIRING HARNESS.**<br>1) Disconnect the high voltage battery connector.<br>2) Using the tester, measure the resistance between high voltage battery terminals.<br>***Connector & terminal***<br>***(R445) No. 2 — No. 3:*** | Is the resistance 400 Ω or more? | Related lines between high voltage battery and main wiring harness is open, or main wiring harness is open at two places or more. | Go to step **2**. |
| 2 | **CHECK RELATED LINES.**<br>1) Disconnect the HPCM connector.<br>2) Using a tester, check continuity between terminals.<br>***Connector & terminal***<br>***(R445) No. 2 — (B605) No. 10:***<br>***(R445) No. 3 — (B605) No. 11:*** | Is the resistance 10 Ω or more? | Repair or replace the open circuit portion of high voltage battery related lines. | Check the BECM (high voltage battery). <Ref. to HEV(diag)-24, BATTERY ENERGY CONTROL SYSTEM, OPERATION, Read Diagnostic Trouble Code (DTC).> |

## 29.57 — 63 Ω (HEV-CAN_ELECTRIC OIL PUMP)

**WIRING DIAGRAM:**

CAN communication system <Ref. to WI(HEV)-65, WIRING DIAGRAM, CAN Communication System.>




NOTE:
When the measured resistance value is 57 — 63 Ω, main wiring harness or related lines may be shorted to ground, or shorted to power supply line, or related line may be open.

| Step | | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK BETWEEN RELATED LINES AND MAIN WIRING HARNESS.**<br>1) Disconnect the electric oil pump inverter connector.<br>2) Using the tester, measure the resistance between electric oil pump inverter terminals.<br>***Connector & terminal***<br>***(R455) No. 2 — No. 3:*** | Is the resistance 400 Ω or more? | Related lines between electric oil pump inverter and main wiring harness is open, or main wiring harness is open at two places or more. | Go to step **2**. |
| 2 | **CHECK RELATED LINES.**<br>1) Disconnect the HPCM connector.<br>2) Using a tester, check continuity between terminals.<br>***Connector & terminal***<br>***(R455) No. 2 — (B605) No. 10:***<br>***(R455) No. 3 — (B605) No. 11:*** | Is the resistance 10 Ω or more? | Repair or replace the open circuit of electric oil pump inverter related lines. | Check the HPCM. <Ref. to HEV(diag)-24, HYBRID POWERTRAIN CONTROL SYSTEM, OPERATION, Read Diagnostic Trouble Code (DTC).> |

# 10.List of Diagnostic Trouble Code (DTC)

## A: LIST

| DTC | Item | Content of diagnosis | Note |
|---|---|---|---|
| U0073 | Control Module Communication Bus Off | Communication of some module is shut down. | <Ref. to LAN(HEV)(diag)-112, DTC U0073 CONTROL MODULE COMMUNICATION BUS OFF, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| U0075 | Control Module Communication Bus "PU-CAN" Off | Communication of some module is shut down. | <Ref. to LAN(HEV)(diag)-113, DTC U0075 CONTROL MODULE COMMUNICATION BUS "PU-CAN" OFF, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| U0076 | Control Module Communication Bus "HEV-CAN" Off | Communication of some module is shut down. | <Ref. to LAN(HEV)(diag)-114, DTC U0076 CONTROL MODULE COMMUNICATION BUS "HEV-CAN" OFF, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| U0100 | Lost Communication With ECM/PCM “A” | Data does not arrive from ECM. | <Ref. to LAN(HEV)(diag)-134, DTC U0100 LOST COMMUNICATION WITH ECM/PCM “A”, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| U0101 | Lost Communication With TCM | Data does not arrive from TCM. | <Ref. to LAN(HEV)(diag)-135, DTC U0101 LOST COMMUNICATION WITH TCM, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| U0110 | Lost Communication With Drive Motor Control Module "A" | Data does not arrive from DMCM. | <Ref. to LAN(HEV)(diag)-136, DTC U0110 LOST COMMUNICATION WITH DRIVE MOTOR CONTROL MODULE "A", Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| U0111 | Lost Communication With Battery Energy Control Module | Data does not arrive from BECM (high voltage battery). | <Ref. to LAN(HEV)(diag)-137, DTC U0111 LOST COMMUNICATION WITH BATTERY ENERGY CONTROL MODULE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| U0122 | Lost Communication With Vehicle Dynamics Control Module | Data does not arrive from VDC module. | <Ref. to LAN(HEV)(diag)-138, DTC U0122 LOST COMMUNICATION WITH VEHICLE DYNAMICS CONTROL MODULE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| U0126 | Lost Communication With Steering Angle Sensor Module | Data does not arrive from steering angle sensor. | <Ref. to LAN(HEV)(diag)-139, DTC U0126 LOST COMMUNICATION WITH STEERING ANGLE SENSOR MODULE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| U0131 | Lost Communication With Power Steering Control Module | Data does not arrive from EPS module. | <Ref. to LAN(HEV)(diag)-140, DTC U0131 LOST COMMUNICATION WITH POWER STEERING CONTROL MODULE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| U0140 | Lost Communication With Body Control Module | Data does not arrive from body integrated unit. | <Ref. to LAN(HEV)(diag)-141, DTC U0140 LOST COMMUNICATION WITH BODY CONTROL MODULE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| U0151 | Lost Communication With Restraints Control Module | Data does not arrive from airbag module. | <Ref. to LAN(HEV)(diag)-142, DTC U0151 LOST COMMUNICATION WITH RESTRAINTS CONTROL MODULE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| U0155 | Lost Communication With Instrument Panel Cluster (IPC) Control Module | Data does not arrive from meter. | <Ref. to LAN(HEV)(diag)-143, DTC U0155 LOST COMMUNICATION WITH INSTRUMENT PANEL CLUSTER (IPC) CONTROL MODULE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| U0164 | Lost Communication With HVAC Control Module | Data does not arrive from A/C control panel. | <Ref. to LAN(HEV)(diag)-144, DTC U0164 LOST COMMUNICATION WITH HVAC CONTROL MODULE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |

| DTC | Item | Content of diagnosis | Note |
|---|---|---|---|
| U0287 | Lost Communication With Transmission Fluid Pump Module | Data does not arrive from electric oil pump. | <Ref. to LAN(HEV)(diag)-145, DTC U0287 LOST COMMUNICATION WITH TRANSMISSION FLUID PUMP MODULE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| U0293 | Lost Communication With Hybrid Powertrain Control Module | Data does not arrive from HPCM. | <Ref. to LAN(HEV)(diag)-146, DTC U0293 LOST COMMUNICATION WITH HYBRID POWERTRAIN CONTROL MODULE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| U0327 | Software Incompatibility With Vehicle Security Control Module | Data does not arrive from keyless access CM. | <Ref. to LAN(HEV)(diag)-147, DTC U0327 SOFTWARE INCOMPATIBILITY WITH VEHICLE SECURITY CONTROL MODULE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| U0401 | Invalid Data Received From ECM/PCM “A” | Error data is received from ECM. | <Ref. to LAN(HEV)(diag)-115, DTC U0401 INVALID DATA RECEIVED FROM ECM/PCM “A”, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| U0402 | Invalid Data Received From TCM | Error data is received from TCM. | <Ref. to LAN(HEV)(diag)-116, DTC U0402 INVALID DATA RECEIVED FROM TCM, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| U0411 | Invalid Data Received From Drive Motor Control Module "A" | Error data is received from DMCM. | <Ref. to LAN(HEV)(diag)-117, DTC U0411 INVALID DATA RECEIVED FROM DRIVE MOTOR CONTROL MODULE "A", Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| U0412 | Invalid Data Received From Battery Energy Control Module | Error data is received from BECM (high voltage battery). | <Ref. to LAN(HEV)(diag)-118, DTC U0412 INVALID DATA RECEIVED FROM BATTERY ENERGY CONTROL MODULE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| U0416 | Invalid Data Received From Vehicle Dynamics Control Module | Error data is received from VDC module. | <Ref. to LAN(HEV)(diag)-119, DTC U0416 INVALID DATA RECEIVED FROM VEHICLE DYNAMICS CONTROL MODULE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| U0420 | Invalid Data Received From Power Steering Control Module | Error data is received from EPS module. | <Ref. to LAN(HEV)(diag)-120, DTC U0420 INVALID DATA RECEIVED FROM POWER STEERING CONTROL MODULE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| U0422 | Invalid Data Received From Body Control Module | Error data is received from body integrated unit. | <Ref. to LAN(HEV)(diag)-121, DTC U0422 INVALID DATA RECEIVED FROM BODY CONTROL MODULE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| U0423 | Invalid Data Received From Instrument Panel Cluster Control Module | Error data is received from combination meter. | <Ref. to LAN(HEV)(diag)-122, DTC U0423 INVALID DATA RECEIVED FROM INSTRUMENT PANEL CLUSTER CONTROL MODULE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| U0424 | Invalid Data Received From HVAC Control Module | Error data is received from A/C control panel. | <Ref. to LAN(HEV)(diag)-123, DTC U0424 INVALID DATA RECEIVED FROM HVAC CONTROL MODULE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| U0427 | Invalid Data Received From Vehicle Security Control Module | Error data is received from keyless access CM. | <Ref. to LAN(HEV)(diag)-124, DTC U0427 INVALID DATA RECEIVED FROM VEHICLE SECURITY CONTROL MODULE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| U0428 | Invalid Data Received From Steering Angle Sensor Module | Error data is received from steering angle sensor. | <Ref. to LAN(HEV)(diag)-125, DTC U0428 INVALID DATA RECEIVED FROM STEERING ANGLE SENSOR MODULE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| U0452 | Invalid Data Received From Restraints Control Module | Error data is received from airbag module. | <Ref. to LAN(HEV)(diag)-126, DTC U0452 INVALID DATA RECEIVED FROM RESTRAINTS CONTROL MODULE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |

| DTC | Item | Content of diagnosis | Note |
|---|---|---|---|
| U0588 | Invalid Data Received From Transmission Fluid Pump Module | Error data is received from electric oil pump. | <Ref. to LAN(HEV)(diag)-127, DTC U0588 INVALID DATA RECEIVED FROM TRANSMISSION FLUID PUMP MODULE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| U0594 | Invalid Data Received From Hybrid Powertrain Control Module | Error data is received from HPCM. | <Ref. to LAN(HEV)(diag)-128, DTC U0594 INVALID DATA RECEIVED FROM HYBRID POWERTRAIN CONTROL MODULE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| U1100 | Lost Communication With ECM/PCM PU-CAN | Data does not arrive from ECM. | <Ref. to LAN(HEV)(diag)-148, DTC U1100 LOST COMMUNICATION WITH ECM/PCM PU-CAN, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| U1101 | Lost Communication With TCM PU-CAN | Data does not arrive from TCM. | <Ref. to LAN(HEV)(diag)-149, DTC U1101 LOST COMMUNICATION WITH TCM PU-CAN, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| U1120 | Lost Communication With Autostart Stop Control Module | Data does not arrive from HPCM. | <Ref. to LAN(HEV)(diag)-150, DTC U1120 LOST COMMUNICATION WITH AUTOSTART STOP CONTROL MODULE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| U1201 | CAN-HS Counter Abnormal | CAN communication error | <Ref. to LAN(HEV)(diag)-111, DTC U1201 CAN-HS COUNTER ABNORMAL, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| U1290 | Lost Communication With Hybrid Powertrain Control Module HEV-CAN | Data does not arrive from HPCM. | <Ref. to LAN(HEV)(diag)-151, DTC U1290 LOST COMMUNICATION WITH HYBRID POWERTRAIN CONTROL MODULE HEV-CAN, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| U1293 | Lost Communication With Hybrid Powertrain Control Module PU-CAN | Data does not arrive from HPCM. | <Ref. to LAN(HEV)(diag)-152, DTC U1293 LOST COMMUNICATION WITH HYBRID POWERTRAIN CONTROL MODULE PU-CAN, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| U1401 | Invalid Data Received From ECM/PCM PU-CAN | Error data is received from ECM. | <Ref. to LAN(HEV)(diag)-129, DTC U1401 INVALID DATA RECEIVED FROM ECM/PCM PU-CAN, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| U1402 | Invalid Data Received From TCM PU-CAN | Error data is received from TCM. | <Ref. to LAN(HEV)(diag)-130, DTC U1402 INVALID DATA RECEIVED FROM TCM PU-CAN, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| U1469 | Invalid Data Received From Autostart Stop Control Module | Error data is received from HPCM. | <Ref. to LAN(HEV)(diag)-131, DTC U1469 INVALID DATA RECEIVED FROM AUTOSTART STOP CONTROL MODULE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| U1591 | Invalid Data Received From Hybrid Powertrain Control Module HEV-CAN | Error data is received from HPCM. | <Ref. to LAN(HEV)(diag)-132, DTC U1591 INVALID DATA RECEIVED FROM HYBRID POWERTRAIN CONTROL MODULE HEV-CAN, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| U1594 | Invalid Data Received From Hybrid Powertrain Control Module PU-CAN | Error data is received from HPCM. | <Ref. to LAN(HEV)(diag)-133, DTC U1594 INVALID DATA RECEIVED FROM HYBRID POWERTRAIN CONTROL MODULE PU-CAN, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |

## 1. CHECK USING THE DTC CHECK SHEET

### DTC check sheet

- Bus off detection / data not received

| | (A) | (B) | | | (C) | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | MAIN-CAN | PU-CAN | HEV-CAN | ECM | | TCM | | DMCM | BECM | VDC | STR | EPS | BIU | A/B | MET | MFD | A/C | EOP | HPCM | | | KPS |
| | | | | | MAIN | PU | MAIN | PU | | | | | | | | | | | | MAIN | HEV | PU | |
| | | U0073 | U0075 | U0076 | U0100 | U1100 | U0101 | U1101 | U0110 | U0111 | U0122 | U0126 | U0131 | U0140 | U0151 | U0155 | U0156 | U0164 | U0287 | U0293 U1120 | U1290 | U1293 | U0327 |
| VDC | | | - | - | | - | | - | - | - | - | | - | | - | - | - | - | - | | - | - | - |
| BIU | | | - | - | | - | | - | - | - | | - | - | - | - | | - | | - | - | - | - | |
| MFD | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| A/C | | | - | - | | - | | - | - | - | | - | - | | - | | - | - | - | | - | - | - |
| MET | | | - | - | | - | | - | - | - | | - | | | | - | - | | - | | - | - | |
| RST | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| STR | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| TCM | | | | - | | | - | - | | - | | - | - | | - | | - | - | | | - | | - |
| A/B | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| HPCM | | | | | | | | | | | | - | | | | | - | | | - | - | - | - |
| EPS | | | - | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | - | - | - | - | - |
| ECM | | | | - | - | - | | | - | - | | - | - | - | - | | - | - | - | | - | | - |
| KPS | | | - | - | | - | | - | - | - | | - | - | | - | | - | - | - | | - | - | - |
| AHL | | | - | - | - | - | - | - | - | - | | - | - | | - | - | - | - | - | - | - | - | - |
| EOP | | - | - | | - | - | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BECM | | - | - | | - | - | - | - | | - | - | - | - | - | - | - | - | - | - | - | | - | - |
| DMCM | | - | - | | - | - | - | - | - | | - | - | - | - | - | - | - | - | - | - | | - | - |

LAN01791

- Data abnormal detection

| | (D) | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ECM | | TCM | | DMCM | BECM | VDC | STR | EPS | BIU | A/B | MET | MFD | A/C | EOP | HPCM | | | KPS |
| | MAIN | PU | MAIN | PU | | | | | | | | | | | | MAIN | HEV | PU | |
| | U0401 | U1401 | U0402 | U1402 | U0411 | U0412 | U0416 | U0428 | U0420 | U0422 | U0452 | U0423 | U0457 | U0424 | U0588 | U0594 U1469 | U1591 | U1594 | U0427 |
| VDC | | - | | - | - | - | - | | - | | - | - | - | - | - | | - | - | - |
| BIU | | - | | - | - | - | | - | - | - | - | | - | | - | - | - | - | |
| MFD | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| A/C | | - | | - | - | - | | - | - | | - | | - | - | - | | - | - | - |
| MET | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| RST | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| STR | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| TCM | | | - | - | | - | | - | - | | - | | - | - | | | - | | - |
| A/B | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| HPCM | | | | | | | | - | | | | | - | | | - | - | - | - |
| EPS | - | - | - | - | - | - | | - | - | - | - | - | - | - | - | - | - | - | - |
| ECM | - | - | | | - | - | | - | - | - | - | | - | - | - | | - | | - |
| KPS | | - | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | - | - |
| AHL | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| EOP | - | - | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BECM | - | - | - | - | | - | - | - | - | - | - | - | - | - | - | - | | - | - |
| DMCM | - | - | - | - | - | | - | - | - | - | - | - | - | - | - | - | | - | - |

LAN01409

(A) Installation check
(B) Bus off detection
(C) Data no-receive detection
(D) Data abnormal detection

VDC: VDC CM
BIU: Body integrated unit
MFD: High grade MFD
A/C: A/C control panel
MET: Combination meter
RST: Remote engine starter CM
STR: Steering angle sensor
TCM: Transmission CM
A/B: Airbag CM

HPCM: Hybrid powertrain CM
EPS: Power steering CM
ECM: Engine CM
KPS: Keyless access CM
AHL: Auto headlight beam leveler CM
EOP: Electric oil pump
BECM: Battery energy CM (high voltage battery)
DMCM: Drive motor CM

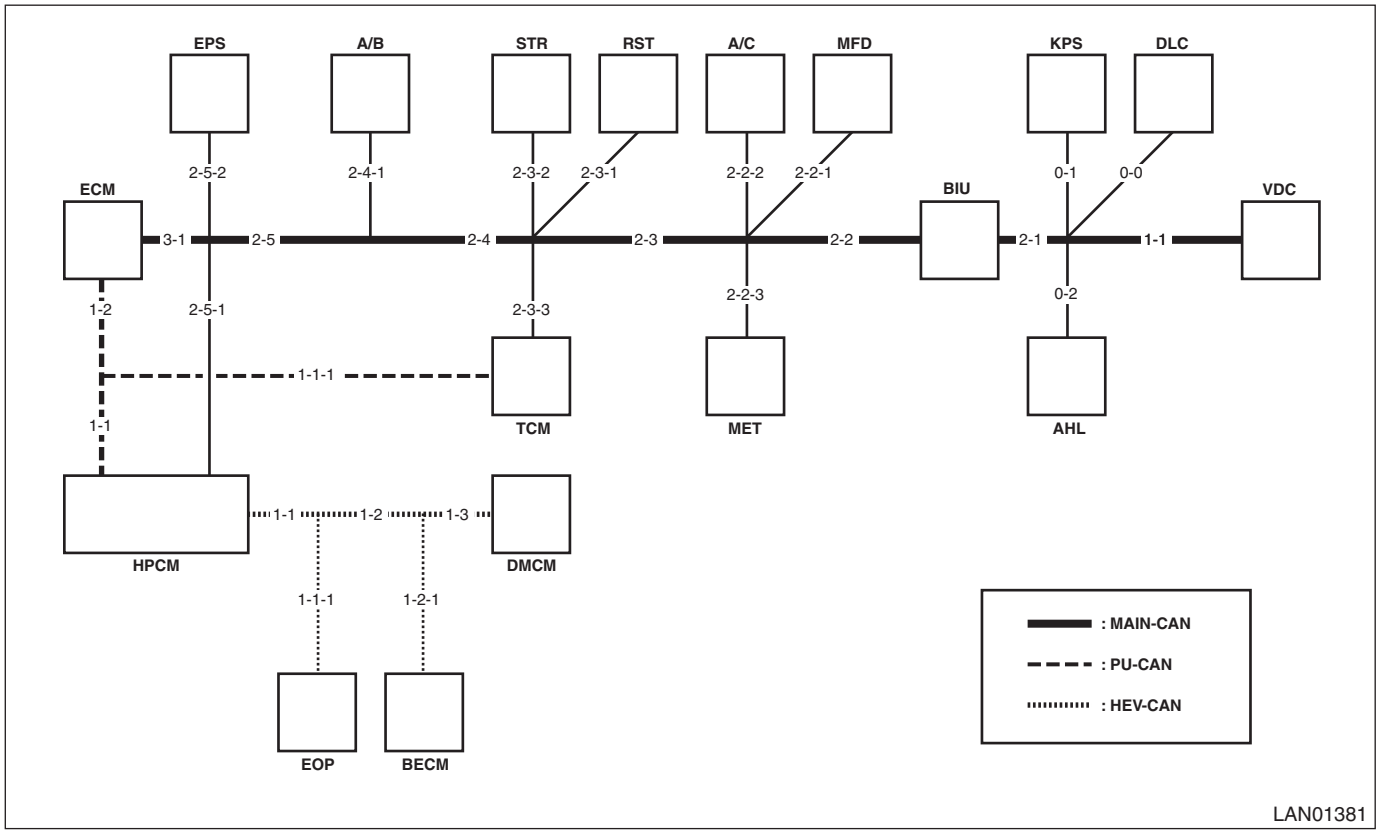
1) Module installation check
   (1) Write “-” marks in the field for installation check if the vehicle to be inspected does not have relevant module.
   (2) Write “-” marks in all blank fields on the same row that the “-” mark has filled in.
2) Bus off detection / data not received

NOTE:
It becomes impossible for CAN diagnostic module to read DTC, if there is a current malfunction of open harness (data not received). If this occurs, perform the “Check using the check sheet of communication for initializing” <Ref. to LAN(HEV)(diag)-12, CHECK USING THE CHECK SHEET OF COMMUNICATION FOR INITIALIZING, COMMUNICATION FOR INITIALIZING IMPOSSIBLE, Subaru Select Monitor.>, and use this sheet to confirm that the corresponding part becomes the past malfunction.
   (1) Mark “X” in the field corresponding to the DTCs that has been detected by each module in the check sheet.
   (2) Identify and repair the faulty part by referring to the example of DTC data not received and the DTC matrix. <Ref. to LAN(HEV)(diag)-92, EXAMPLE OF DTC DATA NOT RECEIVED, LIST, List of Diagnostic Trouble Code (DTC).> <Ref. to LAN(HEV)(diag)-95, DTC MATRIX, LIST, List of Diagnostic Trouble Code (DTC).>
3) Data abnormal detection

NOTE:
If any DTC code that starts with P, B or C is detected after restarting the engine, perform the diagnosis for that code first. If any “BUS OFF” or “NO-RECEIVE DATA” condition is detected, perform the diagnosis for these problems first.
   (1) If several modules detect the DTC for the same module, replace the detected module.
   (2) If one module detects the DTC, replace the module of the detected side.
   (3) If it does not return to the normal operation, re-install the module which has been replaced, and replace the module of the detected side.
   (4) If it does not return to the normal operation, replace both modules.

## 2. EXAMPLE OF DTC DATA NOT RECEIVED

NOTE:
Only the sheet for bus off, data no-receive entry is shown.
(This is because, when data error occurs at the bus off, data no-receive condition, the diagnosis for these problems is performed first.)



When 2-3-1 (remote engine start CM vicinity) is open

NOTE:
The remote engine starter does not operate while no DTC is detected.

| | (A) | (B) | | | (C) | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | MAIN-CAN | PU-CAN | HEV-CAN | ECM | | TCM | | DMCM | BECM | VDC | STR | EPS | BIU | A/B | MET | MFD | A/C | EOP | HPCM | | | KPS |
| | | | | | MAIN | PU | MAIN | PU | | | | | | | | | | | | MAIN | HEV | PU | |
| | | U0073 | U0075 | U0076 | U0100 | U1100 | U0101 | U1101 | U0110 | U0111 | U0122 | U0126 | U0131 | U0140 | U0151 | U0155 | U0156 | U0164 | U0287 | U0293 U1120 | U1290 | U1293 | U0327 |
| VDC | | | - | - | | - | | - | - | - | - | | - | | - | - | - | - | - | | - | - | - |
| BIU | | | - | - | | - | | - | - | - | | - | - | - | - | | - | | - | - | - | - | |
| MFD | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| A/C | | | - | - | | - | | - | - | - | | - | - | | - | | - | - | - | | - | - | - |
| MET | | | - | - | | - | | - | - | - | | - | | | | - | - | | - | | - | - | |
| RST | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| STR | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| TCM | | | | - | | | - | - | | - | | - | - | | - | | - | - | | | - | | - |
| A/B | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| HPCM | | | | | | | | | | | | - | | | | | - | | | - | - | - | - |
| EPS | | | - | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | - | - | - | - | - |
| ECM | | | | - | - | - | | | - | - | | - | - | - | - | | - | - | - | | - | | - |
| KPS | | | - | - | | - | | - | - | - | | - | - | | - | | - | - | - | | - | - | - |
| AHL | | | - | - | - | - | - | - | - | - | | - | - | | - | - | - | - | - | - | - | - | - |
| EOP | | - | - | | - | - | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BECM | | - | - | | - | - | - | - | | - | - | - | - | - | - | - | - | - | - | - | | - | - |
| DMCM | | - | - | | - | - | - | - | - | | - | - | - | - | - | - | - | - | - | - | | - | - |

LAN01791

When 2-3-2 (steering angle sensor vicinity) is open

| | (A) | (B) | | | (C) | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | MAIN-CAN | PU-CAN | HEV-CAN | ECM | | TCM | | DMCM | BECM | VDC | STR | EPS | BIU | A/B | MET | MFD | A/C | EOP | HPCM | | | KPS |
| | | | | | MAIN | PU | MAIN | PU | | | | | | | | | | | | MAIN | HEV | PU | |
| | | U0073 | U0075 | U0076 | U0100 | U1100 | U0101 | U1101 | U0110 | U0111 | U0122 | U0126 | U0131 | U0140 | U0151 | U0155 | U0156 | U0164 | U0287 | U0293 U1120 | U1290 | U1293 | U0327 |
| VDC | | | - | - | | - | | - | - | - | - | X | - | | - | - | - | - | - | | - | - | - |
| BIU | | | - | - | | - | | - | - | - | | - | - | - | - | | - | | - | - | - | - | |
| MFD | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| A/C | | | - | - | | - | | - | - | - | | - | - | | - | | - | - | - | | - | - | - |
| MET | | | - | - | | - | | - | - | - | | - | | | | - | - | | - | | - | - | |
| RST | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| STR | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| TCM | | | | - | | | - | - | | - | | - | - | | - | | - | - | | | - | | - |
| A/B | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| HPCM | | | | | | | | | | | | - | | | | | - | | | - | - | - | - |
| EPS | | | - | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | - | - | - | - | - |
| ECM | | | | - | - | - | | | - | - | | - | - | - | - | | - | - | - | | - | | - |
| KPS | | | - | - | | - | | - | - | - | | - | - | | - | | - | - | - | | - | - | - |
| AHL | | | - | - | - | - | - | - | - | - | | - | - | | - | - | - | - | - | - | - | - | - |
| EOP | | - | - | | - | - | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BECM | | - | - | | - | - | - | - | | - | - | - | - | - | - | - | - | - | - | - | | - | - |
| DMCM | | - | - | | - | - | - | - | - | | - | - | - | - | - | - | - | - | - | - | | - | - |

LAN01792

When 2-5-2 (electric power steering CM vicinity) is open

| | (A) | (B) | | | (C) | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | MAIN-CAN | PU-CAN | HEV-CAN | ECM | | TCM | | DMCM | BECM | VDC | STR | EPS | BIU | A/B | MET | MFD | A/C | EOP | HPCM | | | KPS |
| | | | | | MAIN | PU | MAIN | PU | | | | | | | | | | | | MAIN | HEV | PU | |
| | | U0073 | U0075 | U0076 | U0100 | U1100 | U0101 | U1101 | U0110 | U0111 | U0122 | U0126 | U0131 | U0140 | U0151 | U0155 | U0156 | U0164 | U0287 | U0293 U1120 | U1290 | U1293 | U0327 |
| VDC | | | - | - | | - | | - | - | - | - | | - | | - | - | - | - | - | | - | - | - |
| BIU | | | - | - | | - | | - | - | - | | - | - | - | - | | - | | - | - | - | - | |
| MFD | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| A/C | | | - | - | | - | | - | - | - | | - | - | | - | | - | - | - | | - | - | - |
| MET | | | - | - | | - | | - | - | - | | - | X | | | - | - | | - | | - | - | |
| RST | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| STR | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| TCM | | | | - | | | - | - | | - | | - | - | | - | | - | - | | | - | | - |
| A/B | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| HPCM | | | | | | | | | | | | - | X | | | | - | | | - | - | - | - |
| EPS | | | - | - | - | - | - | - | - | - | X | - | - | - | - | - | - | - | - | - | - | - | - |
| ECM | | | | - | - | - | | | - | - | | - | - | - | - | | - | - | - | | - | | - |
| KPS | | | - | - | | - | | - | - | - | | - | - | | - | | - | - | - | | - | - | - |
| AHL | | | - | - | - | - | - | - | - | - | | - | - | | - | - | - | - | - | - | - | - | - |
| EOP | | - | - | | - | - | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BECM | | - | - | | - | - | - | - | | - | - | - | - | - | - | - | - | - | - | - | | - | - |
| DMCM | | - | - | | - | - | - | - | - | | - | - | - | - | - | - | - | - | - | - | | - | - |

LAN01793

## 3. DTC MATRIX

NOTE:
Perform the following procedure when using this chart in which the detailed trouble mode corresponds to the trouble status.
1. Search the trouble mode that corresponds to the vehicle status from the chart.
2. Perform the repair that corresponds to the trouble mode.

| Condition | | | | DTC reading result from each module using Subaru Select Monitor | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Modules (Which module vicinity) | Detailed location (Which location) | Trouble mode (What kind) | Vehicle status (Current status) | ECM | TCM | · · · | · · · | · · · | · · · | AHL |
| Trouble mode 1 | | | | Vehicle status 1 | | | | | | |
| Trouble mode 2 | | | | Vehicle status 2 | | | | | | |
| · · · | | | | · · · | | | | | | |
| · · · | | | | | | | | | | |
| Trouble mode n | | | | Vehicle status n | | | | | | |

| Condition | | | | Indicator | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Modules (Which module vicinity) | Detailed location (Which location) | Trouble mode (What kind) | Vehicle status (Current status) | READY | HYBRID | · · · | · · · | · · · | · · · | OTHER WARNING INDICATIONS |
| Trouble mode 1 | | | | Vehicle status 1 | | | | | | |
| Trouble mode 2 | | | | Vehicle status 2 | | | | | | |
| · · · | | | | · · · | | | | | | |
| · · · | | | | · · · | | | | | | |
| Trouble mode n | | | | Vehicle status n | | | | | | |

LAN01336

1. CAN communication circuit is open (DTC)

NOTE:

- If the module has a limit of DTC memory and the number of DTC occurrence exceeds the limit, older DTCs are preferentially stored.
- When there is no description in Current, it is referred to as “None”.
- When DTC is in parentheses, it is referred to as “Not always occur”.
- “Trouble exists” is referred to as the status before performing inspection and repair. “Trouble existed” is referred to as the status before performing DTC clear after repair.

*1: When U0073 occurs, other U-codes are not stored. (Judge timing affects the storing order.)
*2: The number of DTC memory is limited to 8 items.
*3: All types of DTCs can be simultaneously stored.
*4: All types of DTCs can be simultaneously stored. When U0073 occurs, other U-codes are not stored.
*5: The number of DTC memory is limited to 4 items. (when the 5 or more DTC occurs, these will be memorized on memory areas from 2nd to 4th.)
*6: The number of DTC memory is limited to 5 items. (Older items are preferentially stored.)
*7: The number of DTC memory is limited to 2 items. (Older items are preferentially stored.)

| Condition | | | | DTC reading result from each module using Subaru Select Monitor | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Control module | Detailed location | Trouble mode | Vehicle status | ECM (*1) | TCM (*1) | VDC (*1) | BIU (*2) | A/B (*3) | A/C (*4) | EPS (*1) (*5) | KPS (*3) | MET (*6) | MFD (*7) | DMCM (*3) | HPCM (*3) | BECM (*3) | AHL (*3) |
| VDC Vicinity | Hi side<br>Lo side<br>Both sides | Open circuit | Trouble exists | Current<br>U0122<br>Past<br>Same as above | Current<br>U0122<br>Past<br>Same as above | Communication failure | Current<br>U0122<br>Past<br>Same as above | Current<br>None<br>Past<br>None | Current<br>U0122<br>Past<br>Same as above | Current<br>U0122<br>Latest<br>Same as above | Current<br>U0122<br>Past<br>Same as above | Current<br>U0122<br>Past<br>Same as above | Current<br>None<br>Past<br>None | Current<br>None<br>Past<br>None | Current<br>U0122<br>Past<br>Same as above | Current<br>None<br>Past<br>None | Current<br>U0122<br>Past<br>Same as above |
| VDC Vicinity | Hi side<br>Lo side<br>Both sides | Open circuit | Trouble existed | Past<br>U0122 | Past<br>U0122 | Current<br>C1424<br>(C1431)<br>Past<br>C1424<br>(C1431)<br>U0073<br>U0100<br>U0101<br>U0126<br>U0140<br>U0293 | Past<br>U0122 | Current<br>None<br>Past<br>None | Past<br>U0122 | Current<br>U0122<br>Latest<br>None | Past<br>U0122 | Past<br>U0122 | Current<br>None<br>Past<br>None | Current<br>None<br>Past<br>None | Past<br>U0122 | Current<br>None<br>Past<br>None | Past<br>U0122 |
| KPS Vicinity | Hi side<br>Lo side<br>Both sides | Open circuit | Trouble exists | Current<br>None<br>Past<br>None | Current<br>None<br>Past<br>None | Current<br>None<br>Past<br>None | Current<br>U0327<br>Past<br>Same as above | Current<br>None<br>Past<br>None | Current<br>None<br>Past<br>None | Current<br>None<br>Latest<br>None | Communication failure | Current<br>U0327<br>Past<br>Same as above | Current<br>None<br>Past<br>None | Current<br>None<br>Past<br>None | Current<br>None<br>Past<br>None | Current<br>None<br>Past<br>None | Current<br>None<br>Past<br>None |
| KPS Vicinity | Hi side<br>Lo side<br>Both sides | Open circuit | Trouble existed | Current<br>None<br>Past<br>None | Current<br>None<br>Past<br>None | Current<br>None<br>Past<br>None | Past<br>U0327 | Current<br>None<br>Past<br>None | Current<br>None<br>Past<br>None | Current<br>None<br>Latest<br>None | Past<br>U0100<br>U0101<br>U0122<br>U0140<br>U0155<br>U1120 | Past<br>U0327 | Current<br>None<br>Past<br>None | Current<br>None<br>Past<br>None | Current<br>None<br>Past<br>None | Current<br>None<br>Past<br>None | Current<br>None<br>Past<br>None |
| AHL Vicinity | Hi side<br>Lo side<br>Both sides | Open circuit | Trouble exists | Current<br>None<br>Past<br>None | Current<br>None<br>Past<br>None | Current<br>None<br>Past<br>None | Current<br>None<br>Past<br>None | Current<br>None<br>Past<br>None | Current<br>None<br>Past<br>None | Current<br>None<br>Latest<br>None | Current<br>None<br>Past<br>None | Current<br>None<br>Past<br>None | Current<br>None<br>Past<br>None | Current<br>None<br>Past<br>None | Current<br>None<br>Past<br>None | Current<br>None<br>Past<br>None | Communication failure |
| AHL Vicinity | Hi side<br>Lo side<br>Both sides | Open circuit | Trouble existed | Current<br>None<br>Past<br>None | Current<br>None<br>Past<br>None | Current<br>None<br>Past<br>None | Current<br>None<br>Past<br>None | Current<br>None<br>Past<br>None | Current<br>None<br>Past<br>None | Current<br>None<br>Latest<br>None | Current<br>None<br>Past<br>None | Current<br>None<br>Past<br>None | Current<br>None<br>Past<br>None | Current<br>None<br>Past<br>None | Current<br>None<br>Past<br>None | Current<br>None<br>Past<br>None | Past<br>U0122<br>U0140 |

LAN01412

| Condition | | | | DTC reading result from each module using Subaru Select Monitor | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Control module | Detailed location | Trouble mode | Vehicle status | ECM (*1) | TCM (*1) | VDC (*1) | BIU (*2) | A/B (*3) | A/C (*4) | EPS (*1) (*5) | KPS (*3) | MET (*6) | MFD (*7) | DMCM (*3) | HPCM (*3) | BECM (*3) | AHL (*3) |
| BIU (VDC side) Vicinity | Hi side Lo side Both sides | Open circuit | Trouble exists | Communication failure | Communication failure | Current U0100 U0101 U0126 U0140 U0293 Past Same as above | Communication failure | Communication failure | Communication failure | Current U0122 Latest Same as above | Current U0100 U0101 U0140 U0155 U1120 Past Same as above | Communication failure | Communication failure | Communication failure | Communication failure | Communication failure | Current U0140 Past Same as above |
| BIU (VDC side) Vicinity | Hi side Lo side Both sides | Open circuit | Trouble existed | Past U0122 | Past U0122 | Current C1424 C1431 Past C1424 C1431 U0100 U0101 U0126 U0140 U0293 | Past U0122 U0327 | Current None Past None | Past U0122 | Latest U0122 | Past U0100 U0101 U0140 U0155 U1120 | Past U0122 U0327 | Current None Past None | Current None Past None | Past U0122 | Current None Past None | Past U0140 |
| BIU (ECM side) Vicinity | Hi side Lo side Both sides | Open circuit | Trouble exists | Communication failure | Communication failure | Current U0100 U0101 U0126 U0293 Past Same as above | Current U0100 U0101 U0155 U0164 Past Same as above | Communication failure | Communication failure | Current U0122 Latest Same as above | Current U0100 U0101 U0155 U1120 Past Same as above | Communication failure | Communication failure | Communication failure | Communication failure | Communication failure | Current None Past None |
| BIU (ECM side) Vicinity | Hi side Lo side Both sides | Open circuit | Trouble existed | Past U0122 | Past U0122 U0140 | Current C1424 C1431 Past C1424 C1431 U0100 U0101 U0126 U0293 | Past U0100 U0101 U0155 U0164 | Current None Past None | Past U0122 U0140 | Latest U0122 | Past U0100 U0101 U0155 U1120 | Past U0122 U0140 U0327 | Past U1650 | Current None Past None | Past U0122 U0140 | Current None Past None | Current None Past None |
| MFD Vicinity | Hi side Lo side Both sides | Open circuit | Trouble exists | Current None Past None | Current None Past None | Current None Past None | Current None Past None | Current None Past None | Current None Past None | Current None Latest None | Current None Past None | Current None Past None | Communication failure | Current None Past None | Current None Past None | Current None Past None | Current None Past None |
| MFD Vicinity | Hi side Lo side Both sides | Open circuit | Trouble existed | Current None Past None | Current None Past None | Current None Past None | Current None Past None | Current None Past None | Current None Past None | Current None Latest None | Current None Past None | Current None Past None | Past (U0073) | Current None Past None | Current None Past None | Current None Past None | Current None Past None |

LAN01413

| Condition | | | | DTC reading result from each module using Subaru Select Monitor | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Control module | Detailed location | Trouble mode | Vehicle status | ECM (*1) | TCM (*1) | VDC (*1) | BIU (*2) | A/B (*3) | A/C (*4) | EPS (*1) (*5) | KPS (*3) | MET (*6) | MFD (*7) | DMCM (*3) | HPCM (*3) | BECM (*3) | AHL (*3) |
| A/C Vicinity | Hi side Lo side Both sides | Open circuit | Trouble exists | Current None Past None | Current None Past None | Current None Past None | Current U0164 Past Same as above | Current None Past None | Communication failure | Current None Latest None | Current None Past None | Current U0164 Past Same as above | Current None Past None | Current None Past None | Current U0164 Past Same as above | Current None Past None | Current None Past None |
| A/C Vicinity | Hi side Lo side Both sides | Open circuit | Trouble existed | Current None Past None | Current None Past None | Current None Past None | Past U0164 | Current None Past None | Past U0100 U0101 U0122 U0140 U0155 U1120 | Current None Latest None | Current None Past None | Past U0164 | Current None Past None | Current None Past None | Past U0164 | Current None Past None | Current None Past None |
| MET Vicinity | Hi side Lo side | Open circuit | Trouble exists | Current U0155 Past Same as above | Current U0155 Past Same as above | Current C1424 Past Same as above | Current U0155 Past Same as above | Current None Past None | Current U0155 Past Same as above | Latest None Current None | Current U0155 Past Same as above | Communication failure | Current (U1650) Past (U1650) | Current None Past None | Current U0155 Past U0155 | Current None Past None | Current None Past None |
| MET Vicinity | Both sides | Open circuit | Trouble exists | Current U0155 Past Same as above | Current U0155 Past Same as above | Current C1424 Past Same as above | Current U0155 Past Same as above | Current None Past None | Current U0155 Past Same as above | Latest None Current None | Current U0155 Past Same as above | Communication failure | Current (U1650) Past (U1650) | Current None Past None | Current U0155 Past U0155 | Current None Past None | Current None Past None |
| MET Vicinity | Hi side | Open circuit | Trouble existed | Past U0155 | Past U0155 | Current C1424 Past Same as above | Past U0155 | Current None Past None | Past U0155 | Latest None Current None | Past U0155 | Past U0073 U0100 U0101 U0122 U0131 U0140 U0151 U0164 U0293 U0327 U1120 Any 5 items from above | Past (U1650) | Current None Past None | Past U0155 | Current None Past None | Current None Past None |
| STR Vicinity | Hi side Lo side Both sides | Open circuit | Trouble exists | Current None Past None | Current None Past None | Current U0126 Past Same as above | Current None Past None | Current None Past None | Current None Past None | Current None Latest None | Current None Past None | Current None Past None | Current None Past None | Current None Past None | Current None Past None | Current None Past None | Current None Past None |
| STR Vicinity | Hi side Lo side Both sides | Open circuit | Trouble existed | Current None Past None | Current None Past None | Past U0126 | Current None Past None | Current None Past None | Current None Past None | Current None Latest None | Current None Past None | Current None Past None | Current None Past None | Current None Past None | Current None Past None | Current None Past None | Current None Past None |

LAN01414

| Condition | | | | DTC reading result from each module using Subaru Select Monitor | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Control module | Detailed location | Trouble mode | Vehicle status | ECM (*1) | TCM (*1) | VDC (*1) | BIU (*2) | A/B (*3) | A/C (*4) | EPS (*1) (*5) | KPS (*3) | MET (*6) | MFD (*7) | DMCM (*3) | HPCM (*3) | BECM (*3) | AHL (*3) |
| TCM (MAIN) Vicinity | Hi side Lo side Both sides | Open circuit | Trouble exists | Current U0101 Past Same as above | Communi-cation failure | Current C1424 U0101 Past Same as above | Current U0101 Past Same as above | Current None Past None | Current U0101 Past Same as above | Current None Latest None | Current U0101 Past Same as above | Current U0101 Past Same as above | Current None Past None | Current None Past None | Current U0101 Past Same as above | Current None Past None | Current None Past None |
| TCM (MAIN) Vicinity | Hi side Lo side Both sides | Open circuit | Trouble existed | Past U0101 | Past U0100 U0122 U0140 U0155 U0293 | Current C1424 C1431 Past C1424 C1431 U0101 | Past U0101 | Current None Past None | Past U0101 | Current None Latest None | Past U0101 | Past U0101 | Current None Past None | Current None Past None | Past U0101 | Current None Past None | Current None Past None |
| A/B Vicinity | Hi side Lo side Both sides | Open circuit | Trouble exists | Current None Past None | Current None Past None | Current None Past None | Current None Past None | Communi-cation failure | Current None Past None | Current None Latest None | Current None Past None | Current U0151 Past Same as above | Current None Past None | Current None Past None | Current U0151 Past Same as above | Current None Past None | Current None Past None |
| A/B Vicinity | Hi side Lo side Both sides | Open circuit | Trouble existed | Current None Past None | Current None Past None | Current None Past None | Current None Past None | Current None Past None | Current None Past None | Current None Latest None | Current None Past None | Past U0151 | Current None Past None | Current None Past None | Past U0151 | Current None Past None | Current None Past None |
| HPCM (MAIN) Vicinity | Hi side Lo side Both sides | Open circuit | Trouble exists | Current U0293 Past Same as above | Current U0293 Past Same as above | Current C1424 C1431 U0293 Past Same as above | Current None Past None | Current None Past None | Current U1120 Past Same as above | Current None Latest None | Current U1120 Past Same as above | Current U0293 U1120 Past Same as above | Current None Past None | Communi-cation failure | Communi-cation failure | Communi-cation failure | Current None Past None |
| HPCM (MAIN) Vicinity | Hi side Lo side Both sides | Open circuit | Trouble existed | Past U0293 | Past U0293 | Current C1424 C1431 Past C1424 C1431 U0293 | Current None Past None | Current None Past None | Past U1120 | Current None Latest None | Past U1120 | Past U0293 U1120 | Current None Past None | Current None Past None | Past U0100 U0101 U0122 U0131 U0140 U0151 U0155 U0164 | Current None Past None | Current None Past None |

LAN01794

# List of Diagnostic Trouble Code (DTC)

| Condition | | | | DTC reading result from each module using Subaru Select Monitor | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Control module | Detailed location | Trouble mode | Vehicle status | ECM (*1) | TCM (*1) | VDC (*1) | BIU (*2) | A/B (*3) | A/C (*4) | EPS (*1) (*5) | KPS (*3) | MET (*6) | MFD (*7) | DMCM (*3) | HPCM (*3) | BECM (*3) | AHL (*3) |
| EPS Vicinity | Hi side<br>Lo side<br>Both sides | Open circuit | Trouble exists | Current<br>None<br>Past<br>None | Current<br>U0131<br>Past<br>Same as above | Current<br>None<br>Past<br>None | Current<br>None<br>Past<br>None | Current<br>None<br>Past<br>None | Current<br>None<br>Past<br>None | Current<br>U0122<br>Latest<br>C2543<br>U0122 | Current<br>None<br>Past<br>None | Current<br>U0131<br>Past<br>Same as above | Current<br>None<br>Past<br>None | Current<br>None<br>Past<br>None | Current<br>U0131<br>Past<br>Same as above | Current<br>None<br>Past<br>None | Current<br>None<br>Past<br>None |
| EPS Vicinity | Hi side<br>Lo side<br>Both sides | Open circuit | Trouble existed | Current<br>None<br>Past<br>None | Past<br>U0131 | Current<br>None<br>Past<br>None | Current<br>None<br>Past<br>None | Current<br>None<br>Past<br>None | Current<br>None<br>Past<br>None | Latest<br>C2543<br>U0122 | Current<br>None<br>Past<br>None | Past<br>U0131 | Current<br>None<br>Past<br>None | Current<br>None<br>Past<br>None | Past<br>U0131 | Current<br>None<br>Past<br>None | Current<br>None<br>Past<br>None |
| ECM (MAIN) Vicinity | Hi side<br>Lo side<br>Both sides | Open circuit | Trouble exists | Communication failure | Current<br>U0100<br>Past<br>Same as above | Current<br>C1431<br>U0100<br>Past<br>Same as above | Current<br>U0100<br>Past<br>Same as above | Current<br>None<br>Past<br>None | Current<br>U0100<br>Past<br>Same as above | Current<br>None<br>Latest<br>None | Current<br>U0100<br>Past<br>Same as above | Current<br>U0100<br>Past<br>Same as above | Current<br>None<br>Past<br>None | Current<br>None<br>Past<br>None | Current<br>U0100<br>Past<br>Same as above | Current<br>None<br>Past<br>None | Current<br>None<br>Past<br>None |
| ECM (MAIN) Vicinity | Hi side<br>Lo side<br>Both sides | Open circuit | Trouble existed | Past<br>U0073 | Past<br>U0100 | Current<br>C1424<br>C1431<br>Past<br>C1424<br>C1431<br>U0100 | Past<br>U0100 | Current<br>None<br>Past<br>None | Past<br>U0100 | Current<br>None<br>Latest<br>None | Past<br>U0100 | Past<br>U0100 | Current<br>None<br>Past<br>None | Current<br>None<br>Past<br>None | Past<br>U0100 | Current<br>None<br>Past<br>None | Current<br>None<br>Past<br>None |
| ECM (PU) Vicinity | Hi side<br>Lo side<br>Both sides | Open circuit | Trouble exists | Current<br>U0075<br>Past<br>Same as above | Current<br>U1100<br>Past<br>Same as above | Current<br>C1424<br>C1431<br>Past<br>Same as above | Current<br>None<br>Past<br>None | Current<br>None<br>Past<br>None | Current<br>None<br>Past<br>None | Current<br>None<br>Latest<br>None | Current<br>None<br>Past<br>None | Current<br>None<br>Past<br>None | Current<br>None<br>Past<br>None | Current<br>None<br>Past<br>None | Current<br>U1100<br>Past<br>Same as above | Current<br>None<br>Past<br>None | Current<br>None<br>Past<br>None |
| ECM (PU) Vicinity | Hi side<br>Lo side<br>Both sides | Open circuit | Trouble existed | Past<br>U0075 | Past<br>U1100 | Current<br>C1424<br>C1431<br>Past<br>Same as above | Current<br>None<br>Past<br>None | Current<br>None<br>Past<br>None | Current<br>None<br>Past<br>None | Current<br>None<br>Latest<br>None | Current<br>None<br>Past<br>None | Current<br>None<br>Past<br>None | Current<br>None<br>Past<br>None | Current<br>None<br>Past<br>None | Past<br>U1100 | Current<br>None<br>Past<br>None | Current<br>None<br>Past<br>None |

LAN01416

| Condition | | | | DTC reading result from each module using Subaru Select Monitor | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Control module | Detailed location | Trouble mode | Vehicle status | ECM (*1) | TCM (*1) | VDC (*1) | BIU (*2) | A/B (*3) | A/C (*4) | EPS (*1) (*5) | KPS (*3) | MET (*6) | MFD (*7) | DMCM (*3) | HPCM (*3) | BECM (*3) | AHL (*3) |
| TCM (PU) Vicinity | Hi side Lo side Both sides | Open circuit | Trouble exists | Current U1101 Past Same as above | Current U0110 U0287 U1100 U1293 Past Same as above | Current C1424 C1431 Past Same as above | Current None Past None | Current None Past None | Current None Past None | Current None Latest None | Current None Past None | Current None Past None | Current None Past None | Current None Past None | Current U1101 Past Same as above | Current None Past None | Current None Past None |
| TCM (PU) Vicinity | Hi side Lo side Both sides | Open circuit | Trouble existed | Past U1101 | Past U0110 U0287 U1100 U1293 | Current C1424 C1431 Past Same as above | Current None Past None | Current None Past None | Current None Past None | Current None Latest None | Current None Past None | Current None Past None | Current None Past None | Current None Past None | Past U1101 | Current None Past None | Current None Past None |
| HPCM (PU) Vicinity | Hi side Lo side Both sides | Open circuit | Trouble exists | Current U1293 Past Same as above | Current U0110 U0287 U1293 Past Same as above | Current C1424 C1431 Past Same as above | Current None Past None | Current None Past None | Current None Past None | Current None Latest None | Current None Past None | Current None Past None | Current None Past None | Current None Past None | Current U1100 U1101 Past Same as above | Current None Past None | Current None Past None |
| HPCM (PU) Vicinity | Hi side Lo side Both sides | Open circuit | Trouble existed | Past U1293 | Past U0110 U0287 U1293 | Current C1424 C1431 Past Same as above | Current None Past None | Current None Past None | Current None Past None | Current None Latest None | Current None Past None | Current None Past None | Current None Past None | Current None Past None | Past U1100 U1101 | Current None Past None | Current None Past None |
| HPCM (HPCM) Vicinity | Hi side Lo side Both sides | Open circuit | Trouble exists | Current None Past None | Current U0110 U0287 Past Same as above | Current C1431 Past Same as above | Current None Past None | Current None Past None | Current None Past None | Current None Latest None | Current None Past None | Current None Past None | Current None Past None | Commu-nication failure | Current U0110 U0111 U0287 Past Same as above | Commu-nication failure | Current None Past None |
| HPCM (HPCM) Vicinity | Hi side Lo side Both sides | Open circuit | Trouble existed | Current None Past None | Past U0110 U0287 | Current C1431 Past Same as above | Current None Past None | Current None Past None | Current None Past None | Current None Latest None | Current None Past None | Current None Past None | Current None Past None | Current U1290 Past Same as above | Past U0110 U0111 U0287 | Current U1290 Past Same as above | Current None Past None |

LAN01417

| Condition | | | | DTC reading result from each module using Subaru Select Monitor | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Control module | Detailed location | Trouble mode | Vehicle status | ECM (*1) | TCM (*1) | VDC (*1) | BIU (*2) | A/B (*3) | A/C (*4) | EPS (*1) (*5) | KPS (*3) | MET (*6) | MFD (*7) | DMCM (*3) | HPCM (*3) | BECM (*3) | AHL (*3) |
| EOP Vicinity | Hi side Lo side Both sides | Open circuit | Trouble exists | Current None<br>Past None | Current U0287<br>Past Same as above | Current C1431<br>Past Same as above | Current None<br>Past None | Current None<br>Past None | Current None<br>Past None | Current None<br>Latest None | Current None<br>Past None | Current None<br>Past None | Current None<br>Past None | Current None<br>Past None | Current U0287<br>Past Same as above | Current None<br>Past None | Current None<br>Past None |
| EOP Vicinity | Hi side Lo side Both sides | Open circuit | Trouble existed | Current None<br>Past None | Past U0287 | Current C1431<br>Past Same as above | Current None<br>Past None | Current None<br>Past None | Current None<br>Past None | Current None<br>Latest None | Current None<br>Past None | Current None<br>Past None | Current None<br>Past None | Current None<br>Past None | Past U0287 | Current None<br>Past None | Current None<br>Past None |
| BECM Vicinity | Hi side Lo side Both sides | Open circuit | Trouble exists | Current None<br>Past None | Current None<br>Past None | Current None<br>Past None | Current None<br>Past None | Current None<br>Past None | Current None<br>Past None | Current None<br>Latest None | Current None<br>Past None | Current None<br>Past None | Current None<br>Past None | Current U0111<br>Past Same as above | Current U0111<br>Past Same as above | Communication failure | Current None<br>Past None |
| BECM Vicinity | Hi side Lo side Both sides | Open circuit | Trouble existed | Current None<br>Past None | Current None<br>Past None | Current None<br>Past None | Current None<br>Past None | Current None<br>Past None | Current None<br>Past None | Current None<br>Latest None | Current None<br>Past None | Current None<br>Past None | Current None<br>Past None | Past U0111 | Past U0111 | Past U0110<br>U1290 | Current None<br>Past None |
| DMCM Vicinity | Hi side Lo side Both sides | Open circuit | Trouble exists | Current None<br>Past None | Current U0110<br>Past Same as above | Current C1431<br>Past Same as above | Current None<br>Past None | Current None<br>Past None | Current None<br>Past None | Current None<br>Latest None | Current None<br>Past None | Current None<br>Past None | Current None<br>Past None | Communication failure | Current U0110<br>Past Same as above | Current U0110<br>Past Same as above | Current None<br>Past None |
| DMCM Vicinity | Hi side Lo side Both sides | Open circuit | Trouble existed | Current None<br>Past None | Past U0110 | Current C1431<br>Past Same as above | Current None<br>Past None | Current None<br>Past None | Current None<br>Past None | Current None<br>Latest None | Current None<br>Past None | Current None<br>Past None | Current None<br>Past None | Past U0111<br>U1290 | Past U0110 | Past U0110 | Current None<br>Past None |

LAN01418

2. CAN communication circuit is open (indicator)

NOTE:
“Trouble exists” is referred to as the status before performing inspection and repair. “Trouble existed” is referred to as the status before performing DTC clear after repair.
*1: When Hi is open/illuminates sometimes. When Lo is open/goes off sometimes.
*2: When Hi is open/red illuminates sometimes, orange goes off sometimes. When Lo is open/red illuminates sometimes, orange illuminates sometimes.
*3: When Hi is open/red and blue blink, and goes off sometimes. When Lo is open/red and blue blink, and illuminates sometimes.
*4: Hard to illuminate when Lo is open.
*5: Red and orange illuminate.
*6: When C1431 does not occur, VDC and ABS warning lights do not illuminate.
*7: Security warning light illuminates once in approximately 10 seconds when the rear defogger does not respond/when not reflected to door open MFD/and when door is open.
*8: MFD does not display OPEN status when the door is open.
*9: Air conditioner operation does not reflected to MFD. Rear defogger does not respond.
*10: Symptom displayed in the MFD but not reflected in the meter occurs intermittently when the door is open. MFD itself might be reset. Meter dims sometimes.
*11: Displayed in the MFD but not reflected in the meter when the door is open.
*12: MFD orange frame is disappeared.
*13: Engine, motor and BATT icon in MFD is disappeared. (wallpaper is only displayed)
*14: Engine orange frame in MFD is disappeared.
*15: Remaining battery capacity in MFD is 0 (0 is displayed in normal condition). Engine orange frame is disappeared.
*16: Remaining battery capacity in MFD is 0 (0 is displayed in normal condition).

# List of Diagnostic Trouble Code (DTC)

○: Illuminate △: Blink X: Off

| Condition | | | | Indicator | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Control module | Detailed location | Trouble mode | Vehicle status | READY | HYBRID | CHECK ENGINE | AT OIL TEMP | AUTO HEADLIGHT BEAM LEVELER | AIRBAG | BRAKE | VDC | AUTO START STOP | EMPTY | CHARGE WARNING | VDC OFF | OIL PRESSURE | ABS | EPS | AWD | HILL HOLD | ACCESS KEY WARNING | SECURITY INDICATOR | AUTO START STOP INDICATOR | ENGINE COOLANT TEMPERATURE GAUGE | CRUISE | SI DRIVE [i] INDICATOR | SHIFT INDICATOR | REMAINING FUEL GAUGE | TACHOMETER | DOOR | SEAT BELT | OTHER WARNING INDICATIONS |
| VDC Vicinity | Hi side Lo side Both sides | Open circuit | Trouble exists | ○ | ○ | ○ | △ | ○ | | ○ | ○ | | | | ○ | | ○ | | | ○ | | | | | | △ | | | | | | |
| VDC Vicinity | Hi side Lo side Both sides | Open circuit | Trouble existed | ○ | ○ | ○ | △ | | | | (*6) | | | | | | (*6) | | | ○ | | | | | | △ | | | | | | |
| KPS Vicinity | Hi side Lo side Both sides | Open circuit | Trouble exists | ○ | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| KPS Vicinity | Hi side Lo side Both sides | Open circuit | Trouble existed | ○ | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| AHL Vicinity | Hi side Lo side Both sides | Open circuit | Trouble exists | ○ | | | | ○ | | | | | | | | | | | | | | | | | | | | | | | | |
| AHL Vicinity | Hi side Lo side Both sides | Open circuit | Trouble existed | ○ | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| BIU (VDC side) Vicinity | Hi side Lo side Both sides | Open circuit | Trouble exists | ○ | ○ | ○ | △ | ○ | | ○ | ○ | | | | ○ | | ○ | | | ○ | | | | | | △ | | | | | | |
| BIU (VDC side) Vicinity | Hi side Lo side Both sides | Open circuit | Trouble existed | ○ | | ○ | | | | | ○ | | | | | | ○ | | | ○ | | | | | | △ | | | | | | |
| BIU (ECM side) Vicinity | Hi side Lo side Both sides | Open circuit | Trouble exists | ○ | ○ | ○ | △ | | | ○ | ○ | | | | ○ | | ○ | | | ○ | | | | | | △ | | | | × | | (*7) |
| BIU (ECM side) Vicinity | Hi side Lo side Both sides | Open circuit | Trouble existed | ○ | | ○ | | | | | ○ | | | | | | ○ | | | ○ | | | | | | △ | | | | | | |
| MFD Vicinity | Hi side Lo side Both sides | Open circuit | Trouble exists | ○ | | | | | | | | | | | | | | | | | | | | | | | | | | | | (*8) |
| MFD Vicinity | Hi side Lo side Both sides | Open circuit | Trouble existed | ○ | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| A/C Vicinity | Hi side Lo side Both sides | Open circuit | Trouble exists | ○ | ○ | | | | | | | | | | | | | | | | | | | | | | | | | | | (*9) |
| A/C Vicinity | Hi side Lo side Both sides | Open circuit | Trouble existed | ○ | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| MET Vicinity | Hi side Lo side | Open circuit | Trouble exists | (*1) | Inter-mittent ○ (*4) | Inter-mittent ○ (*4) | Inter-mittent △ | | Sometimes occurs ○ | (*2) | Inter-mittent ○ (*4) | | Inter-mittent ○ (*4) | Inter-mittent ○ (*4) | Inter-mittent ○ (*4) | | Inter-mittent ○ (*4) | Inter-mittent ○ (*4) | | Inter-mittent ○ (*4) | | | | (*3) | | △ Sometimes occurs × | Some-times occurs ○ | Some-times occurs × | Some-times occurs 0rpm | | | (*10) |
| MET Vicinity | Both sides | Open circuit | Trouble exists | × | ○ | ○ | | | ○ | (*5) | ○ | | ○ | ○ | ○ | | ○ | | | ○ | | | | Red/ Blue △ | | △ | × | × | × | | | (*11) |
| MET Vicinity | Hi side | Open circuit | Trouble existed | ○ | | ○ | | | | | | | | | | | | | | ○ | | | | | | △ | | | | | | |
| STR Vicinity | Hi side Lo side Both sides | Open circuit | Trouble exists | ○ | | | | | | | ○ | | | | | | ○ | | | △ (○) | | | | | | | | | | | | |
| STR Vicinity | Hi side Lo side Both sides | Open circuit | Trouble existed | ○ | | | | | | | ○ | | | | | | | | | ○ | | | | | | | | | | | | |
| TCM (MAIN) Vicinity | Hi side Lo side Both sides | Open circuit | Trouble exists | × | ○ | ○ | | | | | ○ | | | | | | ○ | | | ○ | | | | | | △ | × | | | | | (*12) |
| TCM (MAIN) Vicinity | Hi side Lo side Both sides | Open circuit | Trouble existed | ○ | | ○ | | | | | ○ | | | | | | ○ | | | ○ | | | | | | △ | | | | | | |

LAN01419

○: Illuminate △: Blink ×: Off

| Condition | | | | Indicator | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Control module | Detailed location | Trouble mode | Vehicle status | READY | HYBRID | CHECK ENGINE | AT OIL TEMP | AUTO HEADLIGHT BEAM LEVELER | AIRBAG | BRAKE | VDC | AUTO START STOP | EMPTY | CHARGE WARNING | VDC OFF | OIL PRESSURE | ABS | EPS | AWD | HILL HOLD | ACCESS KEY WARNING | SECURITY INDICATOR | AUTO START STOP INDICATOR | ENGINE COOLANT TEMPERATURE GAUGE | CRUISE | SI DRIVE [I] INDICATOR | SHIFT INDICATOR | REMAINING FUEL GAUGE | TACHOMETER | DOOR | SEAT BELT | OTHER WARNING INDICATIONS |
| A/B Vicinity | Hi side Lo side Both sides | Open circuit | Trouble exists | ○ | ○ | | | | ○ | | | | | | | | | | | | | | | | | | | | | | | | |
| A/B Vicinity | Hi side Lo side Both sides | Open circuit | Trouble existed | ○ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| HPCM (MAIN) Vicinity | Hi side Lo side Both sides | Open circuit | Trouble exists | × | ○ | ○ | △ | | | ○ | ○ | | | ○ | | | ○ | | | ○ | | | | | | △ | | | | | | | (*13) |
| HPCM (MAIN) Vicinity | Hi side Lo side Both sides | Open circuit | Trouble existed | × | ○ | ○ | | | | | ○ | | | | | | ○ | | | ○ | | | | | | △ | | | | | | | (*14) |
| EPS Vicinity | Hi side Lo side Both sides | Open circuit | Trouble exists | ○ | ○ | | | | | | | | | | | | | ○ | | | | | | | | | | | | | | |
| EPS Vicinity | Hi side Lo side Both sides | Open circuit | Trouble existed | ○ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ECM (MAIN) Vicinity | Hi side Lo side Both sides | Open circuit | Trouble exists | × | ○ | ○ | ○ (△) | | | | ○ | | ○ | | | | ○ | ○ | ○ | ○ | | △ | | Red/ Blue △ | | △ | | × | 0rpm | | | (*14) |
| ECM (MAIN) Vicinity | Hi side Lo side Both sides | Open circuit | Trouble existed | ○ | ○ | ○ | | | | | ○ | | | | | | ○ | | | ○ | | △ | | | | △ | | | | | | |
| ECM (PU) Vicinity | Hi side Lo side Both sides | Open circuit | Trouble exists | × | ○ | ○ | △ | | | | ○ | | | | | | ○ | | | ○ | | | | | | △ | | | | | | (*14) |
| ECM (PU) Vicinity | Hi side Lo side Both sides | Open circuit | Trouble existed | ○ | | ○ | | | | | ○ | | | | | | ○ | | | ○ | | | | | | △ | | | | | | |
| TCM (PU) Vicinity | Hi side Lo side Both sides | Open circuit | Trouble exists | × | ○ | ○ | △ | | | | ○ | | | | | | ○ | | | ○ | | | | | | △ | | | | | | (*14) |
| TCM (PU) Vicinity | Hi side Lo side Both sides | Open circuit | Trouble existed | × | ○ | ○ | | | | | ○ | | | | | | ○ | | | ○ | | | | | | △ | | | | | | (*14) |
| HPCM (PU) Vicinity | Hi side Lo side Both sides | Open circuit | Trouble exists | × | ○ | ○ | △ | | | | ○ | | | | | | ○ | | | ○ | | | | | | △ | | | | | | (*14) |
| HPCM (PU) Vicinity | Hi side Lo side Both sides | Open circuit | Trouble existed | × | ○ | ○ | | | | | ○ | | | | | | ○ | | | ○ | | | | | | △ | | | | | | (*14) |
| HPCM (HPCM) Vicinity | Hi side Lo side Both sides | Open circuit | Trouble exists | × | ○ | ○ | △ | | | | ○ | | | ○ | | | ○ | | | ○ | | | | | | | | | | | | (*15) |
| HPCM (HPCM) Vicinity | Hi side Lo side Both sides | Open circuit | Trouble existed | × | ○ | ○ | | | | | ○ | | | | | | ○ | | | ○ | | | | | | | | | | | | |
| EOP Vicinity | Hi side Lo side Both sides | Open circuit | Trouble exists | ○ | ○ | | △ | | | | ○ | | | | | | ○ | | | ○ | | | | | | | | | | | | |
| EOP Vicinity | Hi side Lo side Both sides | Open circuit | Trouble existed | ○ | ○ | | | | | | ○ | | | | | | ○ | | | ○ | | | | | | | | | | | | |
| BECM Vicinity | Hi side Lo side Both sides | Open circuit | Trouble exists | × | ○ | | | | | | | | | | | | | | | | | | | | | | | | | | | (*16) |
| BECM Vicinity | Hi side Lo side Both sides | Open circuit | Trouble existed | × | ○ | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| DMCM Vicinity | Hi side Lo side Both sides | Open circuit | Trouble exists | × | ○ | | △ | | | | ○ | | | | | | ○ | | | ○ | | | | | | | | | | | | (*14) |
| DMCM Vicinity | Hi side Lo side Both sides | Open circuit | Trouble existed | × | ○ | | △ | | | | ○ | | | | | | ○ | | | ○ | | | | | | | | | | | | |

LAN01420

3. CAN communication circuit is shorted (DTC)

NOTE:

- If the module has a limit of DTC memory and the number of DTC occurrence exceeds the limit, older DTCs are preferentially stored.
- When there is no description in Current, it is referred to as “None”.
- When DTC is in parentheses, it is referred to as “Not always occur”.
- “Trouble exists” is referred to as the status before performing inspection and repair. “Trouble existed” is referred to as the status before performing DTC clear after repair.

*1: When U0073 occurs, other U-codes are not stored. (Judge timing affects the storing order.)
*2: The number of DTC memory is limited to 8 items.
*3: All types of DTCs can be simultaneously stored.
*4: All types of DTCs can be simultaneously stored. When U0073 occurs, other U-codes are not stored.
*5: The number of DTC memory is limited to 4 items. (when the 5 or more DTC occurs, these will be memorized on memory areas from 2nd to 4th.)
*6: The number of DTC memory is limited to 5 items. (Older items are preferentially stored.)
*7: The number of DTC memory is limited to 2 items. (Older items are preferentially stored.)

| Condition | | | | DTC reading result from each module using Subaru Select Monitor | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Control module | Detailed location | Trouble mode | Vehicle status | ECM (*1) | TCM (*1) | VDC (*1) | BIU (*2) | A/B (*3) | A/C (*4) | EPS (*1) (*5) | KPS (*3) | MET (*6) | MFD (*7) | DMCM (*3) | HPCM (*3) | BECM (*3) | AHL (*3) |
| MAIN-CAN Option Vicinity | Hi side | GND-output short | Trouble exists | Communication failure | Communication failure | Communication failure | Communication failure | Communication failure | Communication failure | Current C2543 Latest C2543 U0073 | Communication failure | Communication failure | Communication failure | Communication failure | Communication failure | Communication failure | Communication failure |
| | Hi side Lo side | Power supply-output short | | | | | | | | | | | | | | | |
| | Between wire | Short circuit | | | | | | | | | | | | | | | |
| MAIN-CAN Option Vicinity | Hi side | GND-output short | Trouble existed | Past U0073 | Past U0073 U0100 U0122 U0131 U0140 U0155 U1235 U0293 | Current C1424 (C1431) Past C1424 (C1431) U0073 | Past U0073 U0100 U0101 U0122 U0155 U0164 U0327 U1201 | Past U0073 | Past U0073 | Latest C2543 U0073 | Past U0073 | Past U0073 U0100 U0101 U0122 U0131 U0140 U0151 U0164 U0293 U0327 U1120 Any 5 items from above | Past U1201 U1650 | Current None Past None | Past U0073 U0100 U0101 U0122 U0131 U0140 U0151 U0155 U0164 U1235 | Current None Past None | Past U0122 U0140 |
| | Hi side Lo side | Power supply-output short | | | | | | | | | | | | | | | |
| | Between wire | Short circuit | | | | | | | | | | | | | | | |
| PU-CAN Option Vicinity | Hi side | GND-output short | Trouble exists | Current U0075 Past Same as above | Current U0075 U0110 U0287 U1100 U1293 Past Same as above | Current C1424 C1431 Past Same as above | Current None Past None | Current None Past None | Current None Past None | Current None Past None | Current None Past None | Current None Past None | Current None Past None | Current None Past None | Current U0075 U1100 U1101 Past Same as above | Current None Past None | Current None Past None |
| | Hi side Lo side | Power supply-output short | | | | | | | | | | | | | | | |
| | Between wire | Short circuit | | | | | | | | | | | | | | | |
| PU-CAN Option Vicinity | Hi side | GND-output short | Trouble existed | Past U0075 | Past U0075 U0110 U0287 U1100 U1293 | Current C1424 C1431 Past Same as above | Current None Past None | Current None Past None | Current None Past None | Current None Past None | Current None Past None | Current None Past None | Current None Past None | Current None Past None | Past U0075 U1100 U1101 | Current None Past None | Current None Past None |
| | Hi side Lo side | Power supply-output short | | | | | | | | | | | | | | | |
| | Between wire | Short circuit | | | | | | | | | | | | | | | |
| HEV-CAN Option Vicinity | Hi side | GND-output short | Trouble exists | Current None Past None | Current U0110 U0287 Past Same as above | Current C1431 Past Same as above | Current None Past None | Current None Past None | Current None Past None | Current None Past None | Current None Past None | Current None Past None | Current None Past None | Communication failure | Current U0076 U0110 U0111 U0287 Past Same as above | Communication failure | Current None Past None |
| | Hi side Lo side | Power supply-output short | | | | | | | | | | | | | | | |
| | Between wire | Short circuit | | | | | | | | | | | | | | | |
| HEV-CAN Option Vicinity | Hi side | GND-output short | Trouble existed | Current None Past None | Past U0110 U0287 | Current C1431 Past Same as above | Current None Past None | Current None Past None | Current None Past None | Current None Past None | Current None Past None | Current None Past None | Current None Past None | Past U0076 U0111 U1290 | Past U0076 U0110 U0111 U0287 | Past U0076 U0110 U1290 | Current None Past None |
| | Hi side Lo side | Power supply-output short | | | | | | | | | | | | | | | |
| | Between wire | Short circuit | | | | | | | | | | | | | | | |
| Option Vicinity | Lo side | GND-output short | Trouble exists/ Trouble existed | Current None Past None | Current None Past None | Current None Past None | Current None Past None | Current None Past None | Current None Past None | Current None Past None | Current None Past None | Current None Past None | Current None Past None | Current None Past None | Current None Past None | Current None Past None | Current None Past None |

LAN01421

4. CAN communication circuit is shorted (indicator)

NOTE:
“Trouble exists” is referred to as the status before performing inspection and repair. “Trouble existed” is referred to as the status before performing DTC clear after repair.
*1: Only when C1431 remains in VDC.
*2: Although some U codes or warning light illumination related to these code may occur, because the noise resistance are weakened, identifying the faulty portion is impossible if the tester check are not used.
*3: Engine, motor and BATT icon in MFD is disappeared. (wallpaper is only displayed)
*4: Engine orange frame is disappeared.
*5: Remaining battery capacity in MFD is 0 (0 is displayed in normal condition).

| Control module | Detailed location | Trouble mode | Vehicle status | READY | HYBRID | CHECK ENGINE | AT OIL TEMP | AUTO HEADLIGHT BEAM LEVELER | AIRBAG | BRAKE | VDC | AUTO START STOP | EMPTY | CHARGE WARNING | VDC OFF | OIL PRESSURE | ABS | EPS | AWD | HILL HOLD | ACCESS KEY WARNING | SECURITY INDICATOR | AUTO START STOP INDICATOR | ENGINE COOLANT TEMPERATURE GAUGE | CRUISE | SI DRIVE | SHIFT INDICATOR | REMAINING FUEL GAUGE | TACHOMETER | DOOR | SEAT BELT | OTHER WARNING INDICATIONS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MAIN-CAN Option Vicinity | Hi side | GND-output short | Trouble exists | Off | Illuminate | Illuminate | | Illuminate | Illuminate | Red and orange illuminate | Illuminate | | Illuminate | Illuminate | Illuminate | | Illuminate | Illuminate | | Illuminate | | | | Red/ Blue blinks | | i blink | Off | Off | 0rpm | Off | | (*3) |
| | Hi side Lo side | Power supply-output short | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Between wire | Short circuit | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| MAIN-CAN Option Vicinity | Hi side | GND-output short | Trouble existed | Illuminate | Illuminate (*1) | Illuminate | Blink | | | | Illuminate (*1) | | | | | | | | | Illuminate | | | | | | i blink | | | | | | |
| | Hi side Lo side | Power supply-output short | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Between wire | Short circuit | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PU-CAN Option Vicinity | Hi side | GND-output short | Trouble exists | Off | Illuminate | Illuminate | Blink | | | | Illuminate | | | | | | Illuminate | | | Illuminate | | | | | | i blink | | | | | | (*4) |
| | Hi side Lo side | Power supply-output short | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Between wire | Short circuit | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PU-CAN Option Vicinity | Hi side | GND-output short | Trouble existed | Illuminate | Illuminate | Illuminate | | | | | Illuminate | | | | | | Illuminate | | | Illuminate | | | | | | i blink | | | | | | |
| | Hi side Lo side | Power supply-output short | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Between wire | Short circuit | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| HEV-CAN Option Vicinity | Hi side | GND-output short | Trouble exists | Off | Illuminate | | Blink | | | | Illuminate | | | | | | Illuminate | | | Illuminate | | | | | | | | | | | | (*4) (*5) |
| | Hi side Lo side | Power supply-output short | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Between wire | Short circuit | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| HEV-CAN Option Vicinity | Hi side | GND-output short | Trouble existed | Off | Illuminate | | | | | | Illuminate | | | | | | Illuminate | | | Illuminate | | | | | | | | | | | | |
| | Hi side Lo side | Power supply-output short | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Between wire | Short circuit | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Option Vicinity | Lo side | GND-output short (*2) | Trouble exists/ Trouble existed | Illuminate | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

LAN01422

# 11.Diagnostic Procedure with Diagnostic Trouble Code (DTC)

## A: DTC U1201 CAN-HS COUNTER ABNORMAL

**DTC DETECTING CONDITION:**

Communication is unstable because of high speed CAN communication error.

**TROUBLE SYMPTOM:**

- Display of combination meter indicates faulty.
- Control faulty may occur due to CAN communication error.

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK PERFORMING OF BASIC DIAGNOSTIC PROCEDURE.** | Was the basic diagnostic procedure performed up to STEP 3? | Go to step **2**. | Perform the basic diagnostic procedure. <Ref. to LAN(HEV)(diag)-2, Basic Diagnostic Procedure.> |
| 2 | **CHECK DTC.**<br>1) Start the engine.<br>2) Using the Subaru Select Monitor, read DTC of CAN system. | Is U0073 a current malfunction? | Perform the diagnosis of U0073. <Ref. to LAN(HEV)(diag)-112, DTC U0073 CONTROL MODULE COMMUNICATION BUS OFF, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> | Go to step **3**. |
| 3 | **CHECK DTC.**<br>Check the displayed DTC. | Is U1201 a current malfunction? | Go to step **4**. | It is possible that temporary poor communication occurs. Perform the clear memory. |
| 4 | **CHECK DTC.**<br>1) Turn the ignition switch to ON.<br>2) Using the Subaru Select Monitor, read DTC of CAN system. | Is U1201 a current malfunction? | Go to step **5**. | It is possible that temporary poor communication occurs. Perform the clear memory. |
| 5 | **CHECK CONTROL MODULE.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the control modules other than body integrated unit in order.<br>NOTE:<br>When disconnecting ECM or VDC CM, connect resistance of 120 Ω between CAN Hi and CAN Lo as an alternative of end resistance.<br>3) Turn the ignition switch to ON.<br>4) Using the Subaru Select Monitor, read DTC of CAN system. | Is there any control module that U1201 is not detected as current malfunction? | Replace the control module. | Repeat 1) to 4) in step 5 until U1201 is not detected. |

## B: DTC U0073 CONTROL MODULE COMMUNICATION BUS OFF

**DTC DETECTING CONDITION:**
Integrated unit communication is shut down because of high speed CAN error.
**TROUBLE SYMPTOM:**
CAN communication is not normal.

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK PERFORMING OF BASIC DIAGNOSTIC PROCEDURE.** | Was the basic diagnostic procedure performed up to STEP 3? | Go to step **2**. | Perform the basic diagnostic procedure. <Ref. to LAN(HEV)(diag)-2, Basic Diagnostic Procedure.> |
| 2 | **CHECK DTC.**<br>1) Start the engine.<br>2) Using the Subaru Select Monitor, read DTC of CAN system. | Is U0073 a current malfunction? | Go to step **3**. | It may be a temporary poor contact. Perform the clear memory. |
| 3 | **CHECK CAN COMMUNICATION CIRCUIT.**<br>Check CAN communication circuit. <Ref. to LAN(HEV)(diag)-29, PROCEDURE, CAN Communication Circuit Check.> | Is CAN communication circuit faulty? | Repair the faulty portion, following the diagnosis procedure. | Go to step **4**. |
| 4 | **CHECK DTC.**<br>1) Perform the inspection using the DTC check sheet. <Ref. to LAN(HEV)(diag)-90, CHECK USING THE DTC CHECK SHEET, LIST, List of Diagnostic Trouble Code (DTC).><br>2) Using the Subaru Select Monitor, read DTC of CAN system. | Is U0073 a current malfunction? | Go to step **5**. | System is normal. |
| 5 | **CHECK CONTROL MODULE.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the control modules other than body integrated unit in order.<br>NOTE:<br>When disconnecting ECM or VDC CM, connect resistance of 120 Ω between CAN Hi and CAN Lo as an alternative of end resistance.<br>3) Turn the ignition switch to ON.<br>4) Using the Subaru Select Monitor, read DTC of CAN system. | Is there any control module that U0073 is not detected as current malfunction? | Replace the control module. | Repeat 1) to 4) in step 5 until U0073 is not detected. |

## C: DTC U0075 CONTROL MODULE COMMUNICATION BUS "PU-CAN" OFF

**DTC DETECTING CONDITION:**
PU-CAN communication is shut down.
**TROUBLE SYMPTOM:**
PU-CAN communication is not normal.

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK PERFORMING OF BASIC DIAGNOSTIC PROCEDURE.** | Was the basic diagnostic procedure performed up to STEP 3? | Go to step **2**. | Perform the basic diagnostic procedure. <Ref. to LAN(HEV)(diag)-2, Basic Diagnostic Procedure.> |
| 2 | **CHECK DTC.**<br>1) Start the engine.<br>2) Using the Subaru Select Monitor, read DTC of CAN system. | Is U0075 a current malfunction? | Go to step **3**. | It may be a temporary poor contact. Perform the clear memory. |
| 3 | **CHECK CAN COMMUNICATION CIRCUIT.**<br>Check CAN communication circuit. <Ref. to LAN(HEV)(diag)-29, PROCEDURE, CAN Communication Circuit Check.> | Is CAN communication circuit faulty? | Repair the faulty portion, following the diagnosis procedure. | Go to step **4**. |
| 4 | **CHECK DTC.**<br>1) Perform the inspection using the DTC check sheet. <Ref. to LAN(HEV)(diag)-90, CHECK USING THE DTC CHECK SHEET, LIST, List of Diagnostic Trouble Code (DTC).><br>2) Using the Subaru Select Monitor, read DTC of CAN system. | Is U0075 a current malfunction? | Go to step **5**. | System is normal. |
| 5 | **CHECK CONTROL MODULE.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect HPCM, TCM, ECM in order.<br>NOTE:<br>When disconnecting ECM or HPCM, connect resistance of 120 Ω between CAN Hi and CAN Lo as an alternative of end resistance.<br>3) Turn the ignition switch to ON.<br>4) Using the Subaru Select Monitor, read DTC of CAN system. | Is there any control module that U0075 is not detected as current malfunction? | Replace the control module. | Repeat 1) to 4) in step 5 until U0075 is not detected. |

## D: DTC U0076 CONTROL MODULE COMMUNICATION BUS "HEV-CAN" OFF

**DTC DETECTING CONDITION:**
HEV-CAN communication is shut down.
**TROUBLE SYMPTOM:**
HEV-CAN communication is not normal.

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK PERFORMING OF BASIC DIAGNOSTIC PROCEDURE.** | Was the basic diagnostic procedure performed up to STEP 3? | Go to step **2**. | Perform the basic diagnostic procedure. <Ref. to LAN(HEV)(diag)-2, Basic Diagnostic Procedure.> |
| 2 | **CHECK DTC.**<br>1) Start the engine.<br>2) Using the Subaru Select Monitor, read DTC of CAN system. | Is U0076 a current malfunction? | Go to step **3**. | It may be a temporary poor contact. Perform the clear memory. |
| 3 | **CHECK CAN COMMUNICATION CIRCUIT.**<br>Check CAN communication circuit. <Ref. to LAN(HEV)(diag)-29, PROCEDURE, CAN Communication Circuit Check.> | Is CAN communication circuit faulty? | Repair the faulty portion, following the diagnosis procedure. | Go to step **4**. |
| 4 | **CHECK DTC.**<br>1) Perform the inspection using the DTC check sheet. <Ref. to LAN(HEV)(diag)-90, CHECK USING THE DTC CHECK SHEET, LIST, List of Diagnostic Trouble Code (DTC).><br>2) Using the Subaru Select Monitor, read DTC of CAN system. | Is U0076 a current malfunction? | Go to step **5**. | System is normal. |
| 5 | **CHECK CONTROL MODULE.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect HPCM, DMCM, electric oil pump, BECM (high voltage battery) in order.<br>NOTE:<br>When disconnecting HPCM or DMCM, connect resistance of 120 Ω between CAN Hi and CAN Lo as an alternative of end resistance.<br>3) Turn the ignition switch to ON.<br>4) Using the Subaru Select Monitor, read DTC of CAN system. | Is there any control module that U0076 is not detected as current malfunction? | Replace the control module. | Repeat 1) to 4) in step 5 until U0076 is not detected. |

## E: DTC U0401 INVALID DATA RECEIVED FROM ECM/PCM "A"

**DTC DETECTING CONDITION:**
Defective data from ECM.
**TROUBLE SYMPTOM:**
Defective data on CAN communication occurs.

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK PERFORMING OF BASIC DIAGNOSTIC PROCEDURE.** | Was the basic diagnostic procedure performed up to STEP 3? | Go to step **2**. | Perform the basic diagnostic procedure. <Ref. to LAN(HEV)(diag)-2, Basic Diagnostic Procedure.> |
| 2 | **CHECK DTC.**<br>Check the displayed DTC. | Are DTCs other than U*** displayed? | Perform the diagnosis according to DTC. | Go to step **3**. |
| 3 | **CHECK DTC.**<br>Check the displayed DTC. | Is DTC for the bus off or the data no-receive displayed? | Perform the diagnosis according to DTC. | Go to step **4**. |
| 4 | **CHECK DTC.**<br>Check the displayed DTC. | Is U0401 a current malfunction? | Go to step **5**. | Go to step **9**. |
| 5 | **CHECK DTC.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the ECM connector.<br>3) Connect the disconnected connectors.<br>4) Read the DTC using Subaru Select Monitor. | Is U0401 a current malfunction? | Go to step **6**. | Go to step **9**. |
| 6 | **CHECK DTC.**<br>Using the Subaru Select Monitor, read DTC of all the systems. | Is the engine data abnormal detected in several modules? | Replace the ECM. <Ref. to FU(H4DO(HEV))-85, Engine Control Module (ECM).> | Go to step **7**. |
| 7 | **REPLACE MODULE.**<br>1) Replace the ECM.<br>2) Read the DTC using Subaru Select Monitor. | Is U0401 a current malfunction? | Go to step **8**. | System is normal. |
| 8 | **CHECK MODULE.**<br>1) Reinstall the ECM.<br>2) Replace the module that the DTC has been detected.<br>3) Read the DTC using Subaru Select Monitor. | Is U0401 a current malfunction? | Replace the ECM. <Ref. to FU(H4DO(HEV))-85, Engine Control Module (ECM).> | System is normal. |
| 9 | **CHECK HARNESS.**<br>1) Shake the harness, and check for poor contact.<br>2) Using the Subaru Select Monitor, read DTC of CAN system. | Is U0401 a current malfunction? | Repair the poor contact of harness, or replace the harness. | Go to step **10**. |
| 10 | **CHECK CONNECTOR.**<br>Check the connector used for high speed CAN for poor contact. | Is there poor contact of connector? | Repair the connector that has poor contact, or replace harness. | It is possible that temporary poor communication occurs. Delete the DTC. |

## F: DTC U0402 INVALID DATA RECEIVED FROM TCM

**DTC DETECTING CONDITION:**
Received error data from TCM.
**TROUBLE SYMPTOM:**
Sport indicator light blinks.

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK PERFORMING OF BASIC DIAGNOSTIC PROCEDURE.** | Was the basic diagnostic procedure performed up to STEP 3? | Go to step **2**. | Perform the basic diagnostic procedure. <Ref. to LAN(HEV)(diag)-2, Basic Diagnostic Procedure.> |
| 2 | **CHECK DTC.**<br>Check the displayed DTC. | Are DTCs other than U*** displayed? | Perform the diagnosis according to DTC. | Go to step **3**. |
| 3 | **CHECK DTC.**<br>Check the displayed DTC. | Is DTC for the bus off or the data no-receive displayed? | Perform the diagnosis according to DTC. | Go to step **4**. |
| 4 | **CHECK DTC.**<br>Check the displayed DTC. | Is U0402 a current malfunction? | Go to step **5**. | Go to step **9**. |
| 5 | **CHECK DTC.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the TCM connector.<br>3) Connect the disconnected connectors.<br>4) Read the DTC using Subaru Select Monitor. | Is U0402 a current malfunction? | Go to step **6**. | Go to step **9**. |
| 6 | **CHECK DTC.**<br>Using the Subaru Select Monitor, read DTC of all the systems. | Is the transmission data abnormal detected in several modules? | Replace the TCM. <Ref. to CVT(TH58A)-158, Transmission Control Module (TCM).> | Go to step **7**. |
| 7 | **REPLACE MODULE.**<br>1) Replace the TCM. <Ref. to CVT(TH58A)-158, Transmission Control Module (TCM).><br>2) Read the DTC using Subaru Select Monitor. | Is U0402 a current malfunction? | Go to step **8**. | System is normal. |
| 8 | **CHECK MODULE.**<br>1) Reinstall the TCM.<br>2) Replace the module that the DTC has been detected.<br>3) Read the DTC using Subaru Select Monitor. | Is U0402 a current malfunction? | Replace the TCM. <Ref. to CVT(TH58A)-158, Transmission Control Module (TCM).> | System is normal. |
| 9 | **CHECK HARNESS.**<br>1) Shake the harness, and check for poor contact.<br>2) Using the Subaru Select Monitor, read DTC of CAN system. | Is U0402 a current malfunction? | Repair the poor contact of harness, or replace the harness. | Go to step **10**. |
| 10 | **CHECK CONNECTOR.**<br>Check the connector used for high speed CAN for poor contact. | Is there poor contact of connector? | Repair the connector that has poor contact, or replace harness. | It is possible that temporary poor communication occurs. Delete the DTC. |

## G: DTC U0411 INVALID DATA RECEIVED FROM DRIVE MOTOR CONTROL MODULE "A"

**DTC DETECTING CONDITION:**
Received error data from drive motor control module.
**TROUBLE SYMPTOM:**
Hybrid fail lamp illuminates.

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK PERFORMING OF BASIC DIAGNOSTIC PROCEDURE.** | Was the basic diagnostic procedure performed up to STEP 3? | Go to step **2**. | Perform the basic diagnostic procedure. <Ref. to LAN(HEV)(diag)-2, Basic Diagnostic Procedure.> |
| 2 | **CHECK DTC.**<br>Check the displayed DTC. | Are DTCs other than U*** displayed? | Perform the diagnosis according to DTC. | Go to step **3**. |
| 3 | **CHECK DTC.**<br>Check the displayed DTC. | Is DTC for the bus off or the data no-receive displayed? | Perform the diagnosis according to DTC. | Go to step **4**. |
| 4 | **CHECK DTC.**<br>Check the displayed DTC. | Is U0411 a current malfunction? | Go to step **5**. | Go to step **9**. |
| 5 | **CHECK DTC.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the drive motor control module connector.<br>3) Connect the disconnected connectors.<br>4) Read the DTC using Subaru Select Monitor. | Is U0411 a current malfunction? | Go to step **6**. | Go to step **9**. |
| 6 | **CHECK DTC.**<br>Using the Subaru Select Monitor, read DTC of all the systems. | Is the motor control module data abnormal detected in several modules? | Replace the drive motor control module. <Ref. to CVT(TH58A)-157, Drive Motor Control Module.> | Go to step **7**. |
| 7 | **REPLACE MODULE.**<br>1) Replace the drive motor control module. <Ref. to CVT(TH58A)-157, Drive Motor Control Module.><br>2) Read the DTC using Subaru Select Monitor. | Is U0411 a current malfunction? | Go to step **8**. | System is normal. |
| 8 | **CHECK MODULE.**<br>1) Reinstall the drive motor control module.<br>2) Replace the module that the DTC has been detected.<br>3) Read the DTC using Subaru Select Monitor. | Is U0411 a current malfunction? | Replace the drive motor control module. <Ref. to CVT(TH58A)-157, Drive Motor Control Module.> | System is normal. |
| 9 | **CHECK HARNESS.**<br>1) Shake the harness, and check for poor contact.<br>2) Using the Subaru Select Monitor, read DTC of CAN system. | Is U0411 a current malfunction? | Repair the poor contact of harness, or replace the harness. | Go to step **10**. |
| 10 | **CHECK CONNECTOR.**<br>Check the connector used for high speed CAN for poor contact. | Is there poor contact of connector? | Repair the connector that has poor contact, or replace harness. | It is possible that temporary poor communication occurs. Delete the DTC. |

## H: DTC U0412 INVALID DATA RECEIVED FROM BATTERY ENERGY CONTROL MODULE

**DTC DETECTING CONDITION:**
Received error data from battery energy control module.
**TROUBLE SYMPTOM:**
Hybrid fail lamp illuminates.

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK PERFORMING OF BASIC DIAGNOSTIC PROCEDURE.** | Was the basic diagnostic procedure performed up to STEP 3? | Go to step **2**. | Perform the basic diagnostic procedure. <Ref. to LAN(HEV)(diag)-2, Basic Diagnostic Procedure.> |
| 2 | **CHECK DTC.**<br>Check the displayed DTC. | Are DTCs other than U*** displayed? | Perform the diagnosis according to DTC. | Go to step **3**. |
| 3 | **CHECK DTC.**<br>Check the displayed DTC. | Is DTC for the bus off or the data no-receive displayed? | Perform the diagnosis according to DTC. | Go to step **4**. |
| 4 | **CHECK DTC.**<br>Check the displayed DTC. | Is U0412 a current malfunction? | Go to step **5**. | Go to step **9**. |
| 5 | **CHECK DTC.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the high voltage battery connector.<br>3) Connect the disconnected connectors.<br>4) Read the DTC using Subaru Select Monitor. | Is U0412 a current malfunction? | Go to step **6**. | Go to step **9**. |
| 6 | **CHECK DTC.**<br>Using the Subaru Select Monitor, read DTC of all the systems. | Is the battery energy control module data abnormal detected in several modules? | Replace the high voltage battery. <Ref. to HEV-17, High Voltage Battery.> | Go to step **7**. |
| 7 | **REPLACE MODULE.**<br>1) Replace the high voltage battery. <Ref. to HEV-17, High Voltage Battery.><br>2) Read the DTC using Subaru Select Monitor. | Is U0412 a current malfunction? | Go to step **8**. | System is normal. |
| 8 | **CHECK MODULE.**<br>1) Reinstall the high voltage battery.<br>2) Replace the module that the DTC has been detected.<br>3) Read the DTC using Subaru Select Monitor. | Is U0412 a current malfunction? | Replace the high voltage battery. <Ref. to HEV-17, High Voltage Battery.> | System is normal. |
| 9 | **CHECK HARNESS.**<br>1) Shake the harness, and check for poor contact.<br>2) Using the Subaru Select Monitor, read DTC of CAN system. | Is U0412 a current malfunction? | Repair the poor contact of harness, or replace the harness. | Go to step **10**. |
| 10 | **CHECK CONNECTOR.**<br>Check the connector used for high speed CAN for poor contact. | Is there poor contact of connector? | Repair the connector that has poor contact, or replace harness. | It is possible that temporary poor communication occurs. Delete the DTC. |

# I: DTC U0416 INVALID DATA RECEIVED FROM VEHICLE DYNAMICS CONTROL MODULE

**DTC DETECTING CONDITION:**
Data from VDCCM is faulty.
**TROUBLE SYMPTOM:**
ABS warning light and VDC warning light illuminate.

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK PERFORMING OF BASIC DIAGNOSTIC PROCEDURE.** | Was the basic diagnostic procedure performed up to STEP 3? | Go to step **2**. | Perform the basic diagnostic procedure. <Ref. to LAN(HEV)(diag)-2, Basic Diagnostic Procedure.> |
| 2 | **CHECK DTC.**<br>Check the displayed DTC. | Are DTCs other than U*** displayed? | Perform the diagnosis according to DTC. | Go to step **3**. |
| 3 | **CHECK DTC.**<br>Check the displayed DTC. | Is DTC for the bus off or the data no-receive displayed? | Perform the diagnosis according to DTC. | Go to step **4**. |
| 4 | **CHECK DTC.**<br>Check the displayed DTC. | Is U0416 a current malfunction? | Go to step **5**. | Go to step **9**. |
| 5 | **CHECK DTC.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the VDC CM connector.<br>3) Connect the disconnected connectors.<br>4) Read the DTC using Subaru Select Monitor. | Is U0416 a current malfunction? | Go to step **6**. | Go to step **9**. |
| 6 | **CHECK DTC.**<br>Using the Subaru Select Monitor, read DTC of all the systems. | Is the VDC data abnormal detected in several modules? | Replace the VDC CM. <Ref. to VDC-10, VDC Control Module and Hydraulic Control Unit (VDCCM&H/U).> | Go to step **7**. |
| 7 | **REPLACE MODULE.**<br>1) Replace the VDC CM.<br>2) Read the DTC using Subaru Select Monitor. | Is U0416 a current malfunction? | Go to step **8**. | System is normal. |
| 8 | **CHECK MODULE.**<br>1) Reinstall the VDC CM.<br>2) Replace the module that the DTC has been detected.<br>3) Read the DTC using Subaru Select Monitor. | Is U0416 a current malfunction? | Replace the VDC CM. <Ref. to VDC-10, VDC Control Module and Hydraulic Control Unit (VDCCM&H/U).> | System is normal. |
| 9 | **CHECK HARNESS.**<br>1) Shake the harness, and check for poor contact.<br>2) Using the Subaru Select Monitor, read DTC of CAN system. | Is U0416 a current malfunction? | Repair the poor contact of harness, or replace the harness. | Go to step **10**. |
| 10 | **CHECK CONNECTOR.**<br>Check the connector used for high speed CAN for poor contact. | Is there poor contact of connector? | Repair the connector that has poor contact, or replace harness. | It is possible that temporary poor communication occurs. Delete the DTC. |

## J: DTC U0420 INVALID DATA RECEIVED FROM POWER STEERING CONTROL MODULE

**DTC DETECTING CONDITION:**
Defective data was transmitted from EPS CM.
**TROUBLE SYMPTOM:**
Cooperation control with EPS CM does not operate properly.

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK PERFORMING OF BASIC DIAGNOSTIC PROCEDURE.** | Was the basic diagnostic procedure performed up to STEP 3? | Go to step **2**. | Perform the basic diagnostic procedure. <Ref. to LAN(HEV)(diag)-2, Basic Diagnostic Procedure.> |
| 2 | **CHECK DTC.**<br>Check the displayed DTC. | Are DTCs other than U*** displayed? | Perform the diagnosis according to DTC. | Go to step **3**. |
| 3 | **CHECK DTC.**<br>Check the displayed DTC. | Is DTC for the bus off or the data no-receive displayed? | Perform the diagnosis according to DTC. | Go to step **4**. |
| 4 | **CHECK DTC.**<br>Check the displayed DTC. | Is U0420 a current malfunction? | Go to step **5**. | Go to step **9**. |
| 5 | **CHECK DTC.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the power steering CM connector.<br>3) Connect the disconnected connectors.<br>4) Read the DTC using Subaru Select Monitor. | Is U0420 a current malfunction? | Go to step **6**. | Go to step **9**. |
| 6 | **CHECK DTC.**<br>Using the Subaru Select Monitor, read DTC of all the systems. | Is the electric power steering data abnormal detected in several modules? | Replace the power steering CM. <Ref. to PS-44, Power Steering Control Module.> | Go to step **7**. |
| 7 | **REPLACE MODULE.**<br>1) Replace the power steering CM.<br>2) Read the DTC using Subaru Select Monitor. | Is U0420 a current malfunction? | Go to step **8**. | System is normal. |
| 8 | **CHECK MODULE.**<br>1) Reinstall the power steering CM.<br>2) Replace the module that the DTC has been detected.<br>3) Read the DTC using Subaru Select Monitor. | Is U0420 a current malfunction? | Replace the power steering CM. <Ref. to PS-44, Power Steering Control Module.> | System is normal. |
| 9 | **CHECK HARNESS.**<br>1) Shake the harness, and check for poor contact.<br>2) Using the Subaru Select Monitor, read DTC of CAN system. | Is U0420 a current malfunction? | Repair the poor contact of harness, or replace the harness. | Go to step **10**. |
| 10 | **CHECK CONNECTOR.**<br>Check the connector used for high speed CAN for poor contact. | Is there poor contact of connector? | Repair the connector that has poor contact, or replace harness. | It is possible that temporary poor communication occurs. Delete the DTC. |

## K: DTC U0422 INVALID DATA RECEIVED FROM BODY CONTROL MODULE

**DTC DETECTING CONDITION:**
Defective data was transmitted from body integrated unit.
**TROUBLE SYMPTOM:**
Cooperation control with body integrated unit does not operate properly.

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK PERFORMING OF BASIC DIAGNOSTIC PROCEDURE.** | Was the basic diagnostic procedure performed up to STEP 3? | Go to step **2**. | Perform the basic diagnostic procedure. <Ref. to LAN(HEV)(diag)-2, Basic Diagnostic Procedure.> |
| 2 | **CHECK DTC.**<br>Check the displayed DTC. | Are DTCs other than U*** displayed? | Perform the diagnosis according to DTC. | Go to step **3**. |
| 3 | **CHECK DTC.**<br>Check the displayed DTC. | Is DTC for the bus off or the data no-receive displayed? | Perform the diagnosis according to DTC. | Go to step **4**. |
| 4 | **CHECK DTC.**<br>Check the displayed DTC. | Is U0422 a current malfunction? | Go to step **5**. | Go to step **9**. |
| 5 | **CHECK DTC.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the body integrated unit connector.<br>3) Connect the disconnected connectors.<br>4) Read the DTC using Subaru Select Monitor. | Is U0422 a current malfunction? | Go to step **6**. | Go to step **9**. |
| 6 | **CHECK DTC.**<br>Using the Subaru Select Monitor, read DTC of all the systems. | Is the body integrated data abnormal detected in several modules? | Replace the body integrated unit. <Ref. to SL-87, Body Integrated Unit.> | Go to step **7**. |
| 7 | **REPLACE MODULE.**<br>1) Replace the body integrated unit.<br>2) Read the DTC using Subaru Select Monitor. | Is U0422 a current malfunction? | Go to step **8**. | System is normal. |
| 8 | **CHECK MODULE.**<br>1) Reinstall the body integrated unit.<br>2) Replace the module that the DTC has been detected.<br>3) Read the DTC using Subaru Select Monitor. | Is U0422 a current malfunction? | Replace the body integrated unit. <Ref. to SL-87, Body Integrated Unit.> | System is normal. |
| 9 | **CHECK HARNESS.**<br>1) Shake the harness, and check for poor contact.<br>2) Using the Subaru Select Monitor, read DTC of CAN system. | Is U0422 a current malfunction? | Repair the poor contact of harness, or replace the harness. | Go to step **10**. |
| 10 | **CHECK CONNECTOR.**<br>Check the connector used for high speed CAN for poor contact. | Is there poor contact of connector? | Repair the connector that has poor contact, or replace harness. | It is possible that temporary poor communication occurs. Delete the DTC. |

## L: DTC U0423 INVALID DATA RECEIVED FROM INSTRUMENT PANEL CLUSTER CONTROL MODULE

**DTC DETECTING CONDITION:**
Defective data was transmitted from combination meter.
**TROUBLE SYMPTOM:**
Display of combination meter does not operate properly.

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK PERFORMING OF BASIC DIAGNOSTIC PROCEDURE.** | Was the basic diagnostic procedure performed up to STEP 3? | Go to step **2**. | Perform the basic diagnostic procedure. <Ref. to LAN(HEV)(diag)-2, Basic Diagnostic Procedure.> |
| 2 | **CHECK DTC.**<br>Check the displayed DTC. | Are DTCs other than U*** displayed? | Perform the diagnosis according to DTC. | Go to step **3**. |
| 3 | **CHECK DTC.**<br>Check the displayed DTC. | Is DTC for the bus off or the data no-receive displayed? | Perform the diagnosis according to DTC. | Go to step **4**. |
| 4 | **CHECK DTC.**<br>Check the displayed DTC. | Is U0423 a current malfunction? | Go to step **5**. | Go to step **9**. |
| 5 | **CHECK DTC.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the combination meter connector.<br>3) Connect the disconnected connectors.<br>4) Read the DTC using Subaru Select Monitor. | Is U0423 a current malfunction? | Go to step **6**. | Go to step **9**. |
| 6 | **CHECK DTC.**<br>Using the Subaru Select Monitor, read DTC of all the systems. | Is the meter data abnormal detected in several modules? | Replace the combination meter. <Ref. to IDI-20, Combination Meter.> | Go to step **7**. |
| 7 | **REPLACE MODULE.**<br>1) Replace the combination meter.<br>2) Read the DTC using Subaru Select Monitor. | Is U0423 a current malfunction? | Go to step **8**. | System is normal. |
| 8 | **CHECK MODULE.**<br>1) Replace the current combination meter with the original combination meter.<br>2) Replace the module that the DTC has been detected.<br>3) Read the DTC using Subaru Select Monitor. | Is U0423 a current malfunction? | Replace the combination meter. <Ref. to IDI-20, Combination Meter.> | System is normal. |
| 9 | **CHECK HARNESS.**<br>1) Shake the harness, and check for poor contact.<br>2) Using the Subaru Select Monitor, read DTC of CAN system. | Is U0423 a current malfunction? | Repair the poor contact of harness, or replace the harness. | Go to step **10**. |
| 10 | **CHECK CONNECTOR.**<br>Check the connector used for high speed CAN for poor contact. | Is there poor contact of connector? | Repair the connector that has poor contact, or replace harness. | It is possible that temporary poor communication occurs. Delete the DTC. |

## M: DTC U0424 INVALID DATA RECEIVED FROM HVAC CONTROL MODULE

**DTC DETECTING CONDITION:**
Defective data was transmitted from A/C control panel.
**TROUBLE SYMPTOM:**
Cooperation control of air conditioner does not operate properly.

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK PERFORMING OF BASIC DIAGNOSTIC PROCEDURE.** | Was the basic diagnostic procedure performed up to STEP 3? | Go to step **2**. | Perform the basic diagnostic procedure. <Ref. to LAN(HEV)(diag)-2, Basic Diagnostic Procedure.> |
| 2 | **CHECK DTC.**<br>Check the displayed DTC. | Are DTCs other than U*** displayed? | Perform the diagnosis according to DTC. | Go to step **3**. |
| 3 | **CHECK DTC.**<br>Check the displayed DTC. | Is DTC for the bus off or the data no-receive displayed? | Perform the diagnosis according to DTC. | Go to step **4**. |
| 4 | **CHECK DTC.**<br>Check the displayed DTC. | Is U0424 a current malfunction? | Go to step **5**. | Go to step **9**. |
| 5 | **CHECK DTC.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the A/C control panel connector.<br>3) Connect the disconnected connectors.<br>4) Read the DTC using Subaru Select Monitor. | Is U0424 a current malfunction? | Go to step **6**. | Go to step **9**. |
| 6 | **CHECK DTC.**<br>Using the Subaru Select Monitor, read DTC of all the systems. | Is the air conditioner data abnormal detected in several modules? | Replace the A/C control panel. <Ref. to AC-50, Control Panel.> | Go to step **7**. |
| 7 | **REPLACE MODULE.**<br>1) Replace the A/C control panel.<br>2) Read the DTC using Subaru Select Monitor. | Is U0424 a current malfunction? | Go to step **8**. | System is normal. |
| 8 | **CHECK MODULE.**<br>1) Restore the A/C control panel.<br>2) Replace the module that the DTC has been detected.<br>3) Read the DTC using Subaru Select Monitor. | Is U0424 a current malfunction? | Replace the A/C control panel. <Ref. to AC-50, Control Panel.> | System is normal. |
| 9 | **CHECK HARNESS.**<br>1) Shake the harness, and check for poor contact.<br>2) Read the DTC using Subaru Select Monitor. | Is U0424 a current malfunction? | Repair the poor contact of harness, or replace the harness. | Go to step **10**. |
| 10 | **CHECK CONNECTOR.**<br>Check the connector used for high speed CAN for poor contact. | Is there poor contact of connector? | Repair the connector that has poor contact, or replace harness. | It is possible that temporary poor communication occurs. Delete the DTC. |

## N: DTC U0427 INVALID DATA RECEIVED FROM VEHICLE SECURITY CONTROL MODULE

**DTC DETECTING CONDITION:**
Defective data was transmitted from keyless access CM.
**TROUBLE SYMPTOM:**
Cooperation control of keyless access does not operate properly.

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK PERFORMING OF BASIC DIAGNOSTIC PROCEDURE.** | Was the basic diagnostic procedure performed up to STEP 3? | Go to step **2**. | Perform the basic diagnostic procedure. <Ref. to LAN(HEV)(diag)-2, Basic Diagnostic Procedure.> |
| 2 | **CHECK DTC.**<br>Check the displayed DTC. | Are DTCs other than U*** displayed? | Perform the diagnosis according to DTC. | Go to step **3**. |
| 3 | **CHECK DTC.**<br>Check the displayed DTC. | Is DTC for the bus off or the data no-receive displayed? | Perform the diagnosis according to DTC. | Go to step **4**. |
| 4 | **CHECK DTC.**<br>Check the displayed DTC. | Is U0427 a current malfunction? | Go to step **5**. | Go to step **9**. |
| 5 | **CHECK DTC.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the keyless access CM connector.<br>3) Connect the disconnected connectors.<br>4) Read the DTC using Subaru Select Monitor. | Is U0427 a current malfunction? | Go to step **6**. | Go to step **9**. |
| 6 | **CHECK DTC.**<br>Using the Subaru Select Monitor, read DTC of all the systems. | Is the smart data abnormal detected in several modules? | Replace the keyless access CM. <Ref. to SL-110, Keyless Access CM.> | Go to step **7**. |
| 7 | **REPLACE MODULE.**<br>1) Replace the keyless access CM.<br>NOTE:<br>Do not perform keyless access CM registration.<br>2) Read the DTC using Subaru Select Monitor. | Is U0427 a current malfunction? | Go to step **8**. | System is normal.<br>NOTE:<br>Be sure to perform keyless access CM registration. |
| 8 | **CHECK MODULE.**<br>1) Reinstall the keyless access CM.<br>2) Replace the body integrated unit. <Ref. to SL-87, Body Integrated Unit.><br>3) Read the DTC using Subaru Select Monitor. | Is U0427 a current malfunction? | Replace the keyless access CM. <Ref. to SL-110, Keyless Access CM.> | System is normal. |
| 9 | **CHECK HARNESS.**<br>1) Shake the harness, and check for poor contact.<br>2) Read the DTC using Subaru Select Monitor. | Is U0427 a current malfunction? | Repair the poor contact of harness, or replace the harness. | Go to step **10**. |
| 10 | **CHECK CONNECTOR.**<br>Check the connector used for high speed CAN for poor contact. | Is there poor contact of connector? | Repair the connector that has poor contact, or replace harness. | It is possible that temporary poor communication occurs. Delete the DTC. |

## O: DTC U0428 INVALID DATA RECEIVED FROM STEERING ANGLE SENSOR MODULE

**DTC DETECTING CONDITION:**
Defective data was transmitted from steering angle sensor.
**TROUBLE SYMPTOM:**
VDC CM does not operate normally.

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK PERFORMING OF BASIC DIAGNOSTIC PROCEDURE.** | Was the basic diagnostic procedure performed up to STEP 3? | Go to step **2**. | Perform the basic diagnostic procedure. <Ref. to LAN(HEV)(diag)-2, Basic Diagnostic Procedure.> |
| 2 | **CHECK DTC.**<br>Check the displayed DTC. | Are DTCs other than U*** displayed? | Perform the diagnosis according to DTC. | Go to step **3**. |
| 3 | **CHECK DTC.**<br>Check the displayed DTC. | Is DTC for the bus off or the data no-receive displayed? | Perform the diagnosis according to DTC. | Go to step **4**. |
| 4 | **CHECK DTC.**<br>Check the displayed DTC. | Is U0428 a current malfunction? | Go to step **5**. | Go to step **9**. |
| 5 | **CHECK DTC.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the steering angle sensor connector.<br>3) Connect the disconnected connectors.<br>4) Read the DTC using Subaru Select Monitor. | Is U0428 a current malfunction? | Go to step **6**. | Go to step **9**. |
| 6 | **CHECK DTC.**<br>Using the Subaru Select Monitor, read DTC of all the systems. | Is the steering angle sensor data abnormal detected in several modules? | Replace the steering angle sensor. <Ref. to VDC-35, Steering Angle Sensor.> | Go to step **7**. |
| 7 | **REPLACE MODULE.**<br>1) Replace the steering angle sensor.<br>2) Read the DTC using Subaru Select Monitor. | Is U0428 a current malfunction? | Go to step **8**. | System is normal. |
| 8 | **CHECK MODULE.**<br>1) Reinstall the steering angle sensor.<br>2) Replace the module that the DTC has been detected.<br>3) Read the DTC using Subaru Select Monitor. | Is U0428 a current malfunction? | Replace the steering angle sensor. <Ref. to VDC-35, Steering Angle Sensor.> | System is normal. |
| 9 | **CHECK HARNESS.**<br>1) Shake the harness, and check for poor contact.<br>2) Using the Subaru Select Monitor, read DTC of CAN system. | Is U0428 a current malfunction? | Repair the poor contact of harness, or replace the harness. | Go to step **10**. |
| 10 | **CHECK CONNECTOR.**<br>Check the connector used for high speed CAN for poor contact. | Is there poor contact of connector? | Repair the connector that has poor contact, or replace harness. | It is possible that temporary poor communication occurs. Delete the DTC. |

## P: DTC U0452 INVALID DATA RECEIVED FROM RESTRAINTS CONTROL MODULE

**DTC DETECTING CONDITION:**
Defective data was transmitted from A/B CM.
**TROUBLE SYMPTOM:**
Cooperation control with airbag does not operate properly.

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK PERFORMING OF BASIC DIAGNOSTIC PROCEDURE.** | Was the basic diagnostic procedure performed up to STEP 3? | Go to step **2**. | Perform the basic diagnostic procedure. <Ref. to LAN(HEV)(diag)-2, Basic Diagnostic Procedure.> |
| 2 | **CHECK DTC.**<br>Check the displayed DTC. | Are DTCs other than U*** displayed? | Perform the diagnosis according to DTC. | Go to step **3**. |
| 3 | **CHECK DTC.**<br>Check the displayed DTC. | Is DTC for the bus off or the data no-receive displayed? | Perform the diagnosis according to DTC. | Go to step **4**. |
| 4 | **CHECK DTC.**<br>Check the displayed DTC. | Is U0452 a current malfunction? | Go to step **5**. | Go to step **9**. |
| 5 | **CHECK DTC.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the A/B CM connector.<br>3) Connect the disconnected connectors.<br>4) Read the DTC using Subaru Select Monitor. | Is U0452 a current malfunction? | Go to step **6**. | Go to step **9**. |
| 6 | **CHECK DTC.**<br>Using the Subaru Select Monitor, read DTC of all the systems. | Is the airbag data abnormal detected in several modules? | Replace the A/B CM. <Ref. to AB-66, Airbag Control Module.> | Go to step **7**. |
| 7 | **REPLACE MODULE.**<br>1) Replace the A/B CM.<br>2) Read the DTC using Subaru Select Monitor. | Is U0452 a current malfunction? | Go to step **8**. | System is normal. |
| 8 | **CHECK MODULE.**<br>1) Reinstall the A/B CM.<br>2) Replace the module that the DTC has been detected.<br>3) Read the DTC using Subaru Select Monitor. | Is U0452 a current malfunction? | Replace the A/B CM. <Ref. to AB-66, Airbag Control Module.> | System is normal. |
| 9 | **CHECK HARNESS.**<br>1) Shake the harness, and check for poor contact.<br>2) Using the Subaru Select Monitor, read DTC of CAN system. | Is U0452 a current malfunction? | Repair the poor contact of harness, or replace the harness. | Go to step **10**. |
| 10 | **CHECK CONNECTOR.**<br>Check the connector used for high speed CAN for poor contact. | Is there poor contact of connector? | Repair the connector that has poor contact, or replace harness. | It is possible that temporary poor communication occurs. Delete the DTC. |

## Q: DTC U0588 INVALID DATA RECEIVED FROM TRANSMISSION FLUID PUMP MODULE

**DTC DETECTING CONDITION:**
Received error data from electric oil pump inverter.
**TROUBLE SYMPTOM:**
Hybrid fail lamp illuminates.

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK PERFORMING OF BASIC DIAGNOSTIC PROCEDURE.** | Was the basic diagnostic procedure performed up to STEP 3? | Go to step **2**. | Perform the basic diagnostic procedure. <Ref. to LAN(HEV)(diag)-2, Basic Diagnostic Procedure.> |
| 2 | **CHECK DTC.**<br>Check the displayed DTC. | Are DTCs other than U*** displayed? | Perform the diagnosis according to DTC. | Go to step **3**. |
| 3 | **CHECK DTC.**<br>Check the displayed DTC. | Is DTC for the bus off or the data no-receive displayed? | Perform the diagnosis according to DTC. | Go to step **4**. |
| 4 | **CHECK DTC.**<br>Check the displayed DTC. | Is U0588 a current malfunction? | Go to step **5**. | Go to step **9**. |
| 5 | **CHECK DTC.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the electric oil pump inverter connector.<br>3) Connect the disconnected connectors.<br>4) Read the DTC using Subaru Select Monitor. | Is U0588 a current malfunction? | Go to step **6**. | Go to step **9**. |
| 6 | **CHECK DTC.**<br>Using the Subaru Select Monitor, read DTC of all the systems. | Is the electric oil pump data abnormal detected in several modules? | Replace the electric oil pump inverter. <Ref. to HEV-42, Inverter.> | Go to step **7**. |
| 7 | **REPLACE MODULE.**<br>1) Replace the electric oil pump inverter. <Ref. to HEV-42, Inverter.><br>2) Read the DTC using Subaru Select Monitor. | Is U0588 a current malfunction? | Go to step **8**. | System is normal. |
| 8 | **CHECK MODULE.**<br>1) Reinstall the electric oil pump inverter.<br>2) Replace the module that the DTC has been detected.<br>3) Read the DTC using Subaru Select Monitor. | Is U0588 a current malfunction? | Replace the electric oil pump inverter. <Ref. to HEV-42, Inverter.> | System is normal. |
| 9 | **CHECK HARNESS.**<br>1) Shake the harness, and check for poor contact.<br>2) Using the Subaru Select Monitor, read DTC of CAN system. | Is U0588 a current malfunction? | Repair the poor contact of harness, or replace the harness. | Go to step **10**. |
| 10 | **CHECK CONNECTOR.**<br>Check the connector used for high speed CAN for poor contact. | Is there poor contact of connector? | Repair the connector that has poor contact, or replace harness. | It is possible that temporary poor communication occurs. Delete the DTC. |

## R: DTC U0594 INVALID DATA RECEIVED FROM HYBRID POWERTRAIN CONTROL MODULE

**DTC DETECTING CONDITION:**
Received error data from hybrid powertrain CM.
**TROUBLE SYMPTOM:**
Hybrid fail lamp illuminates.

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK PERFORMING OF BASIC DIAGNOSTIC PROCEDURE.** | Was the basic diagnostic procedure performed up to STEP 3? | Go to step **2**. | Perform the basic diagnostic procedure. <Ref. to LAN(HEV)(diag)-2, Basic Diagnostic Procedure.> |
| 2 | **CHECK DTC.**<br>Check the displayed DTC. | Are DTCs other than U*** displayed? | Perform the diagnosis according to DTC. | Go to step **3**. |
| 3 | **CHECK DTC.**<br>Check the displayed DTC. | Is DTC for the bus off or the data no-receive displayed? | Perform the diagnosis according to DTC. | Go to step **4**. |
| 4 | **CHECK DTC.**<br>Check the displayed DTC. | Is U0594 a current malfunction? | Go to step **5**. | Go to step **9**. |
| 5 | **CHECK DTC.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the hybrid powertrain CM connector.<br>3) Connect the disconnected connectors.<br>4) Read the DTC using Subaru Select Monitor. | Is U0594 a current malfunction? | Go to step **6**. | Go to step **9**. |
| 6 | **CHECK DTC.**<br>Using the Subaru Select Monitor, read DTC of all the systems. | Is the hybrid data abnormal or Auto Start Stop data abnormal detected in several modules? | Replace the hybrid powertrain CM. <Ref. to HEV-37, Hybrid Powertrain Control Module.> | Go to step **7**. |
| 7 | **REPLACE MODULE.**<br>1) Replace the hybrid powertrain CM. <Ref. to HEV-37, Hybrid Powertrain Control Module.><br>2) Read the DTC using Subaru Select Monitor. | Is U0594 a current malfunction? | Go to step **8**. | System is normal. |
| 8 | **CHECK MODULE.**<br>1) Reinstall the hybrid powertrain CM.<br>2) Replace the module that the DTC has been detected.<br>3) Read the DTC using Subaru Select Monitor. | Is U0594 a current malfunction? | Replace the hybrid powertrain CM. <Ref. to HEV-37, Hybrid Powertrain Control Module.> | System is normal. |
| 9 | **CHECK HARNESS.**<br>1) Shake the harness, and check for poor contact.<br>2) Using the Subaru Select Monitor, read DTC of CAN system. | Is U0594 a current malfunction? | Repair the poor contact of harness, or replace the harness. | Go to step **10**. |
| 10 | **CHECK CONNECTOR.**<br>Check the connector used for high speed CAN for poor contact. | Is there poor contact of connector? | Repair the connector that has poor contact, or replace harness. | It is possible that temporary poor communication occurs. Delete the DTC. |

## S: DTC U1401 INVALID DATA RECEIVED FROM ECM/PCM PU-CAN

**DTC DETECTING CONDITION:**
Received error data from ECM.
**TROUBLE SYMPTOM:**
Hybrid fail lamp illuminates.

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK PERFORMING OF BASIC DIAGNOSTIC PROCEDURE.** | Was the basic diagnostic procedure performed up to STEP 3? | Go to step **2**. | Perform the basic diagnostic procedure. <Ref. to LAN(HEV)(diag)-2, Basic Diagnostic Procedure.> |
| 2 | **CHECK DTC.**<br>Check the displayed DTC. | Are DTCs other than U*** displayed? | Perform the diagnosis according to DTC. | Go to step **3**. |
| 3 | **CHECK DTC.**<br>Check the displayed DTC. | Is DTC for the bus off or the data no-receive displayed? | Perform the diagnosis according to DTC. | Go to step **4**. |
| 4 | **CHECK DTC.**<br>Check the displayed DTC. | Is U1401 a current malfunction? | Go to step **5**. | Go to step **9**. |
| 5 | **CHECK DTC.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the ECM connector.<br>3) Connect the disconnected connectors.<br>4) Read the DTC using Subaru Select Monitor. | Is U1401 a current malfunction? | Go to step **6**. | Go to step **9**. |
| 6 | **CHECK DTC.**<br>Using the Subaru Select Monitor, read DTC of all the systems. | Is the engine PU-CAN data abnormal detected in several modules? | Replace the ECM. <Ref. to FU(H4DO(HEV))-85, Engine Control Module (ECM).> | Go to step **7**. |
| 7 | **REPLACE MODULE.**<br>1) Replace the ECM. <Ref. to FU(H4DO(HEV))-85, Engine Control Module (ECM).><br>2) Read the DTC using Subaru Select Monitor. | Is U1401 a current malfunction? | Go to step **8**. | System is normal. |
| 8 | **CHECK MODULE.**<br>1) Reinstall the ECM.<br>2) Replace the module that the DTC has been detected.<br>3) Read the DTC using Subaru Select Monitor. | Is U1401 a current malfunction? | Replace the ECM. <Ref. to FU(H4DO(HEV))-85, Engine Control Module (ECM).> | System is normal. |
| 9 | **CHECK HARNESS.**<br>1) Shake the harness, and check for poor contact.<br>2) Using the Subaru Select Monitor, read DTC of CAN system. | Is U1401 a current malfunction? | Repair the poor contact of harness, or replace the harness. | Go to step **10**. |
| 10 | **CHECK CONNECTOR.**<br>Check the connector used for high speed CAN for poor contact. | Is there poor contact of connector? | Repair the connector that has poor contact, or replace harness. | It is possible that temporary poor communication occurs. Delete the DTC. |

# T: DTC U1402 INVALID DATA RECEIVED FROM TCM PU-CAN

**DTC DETECTING CONDITION:**
Received error data from TCM.
**TROUBLE SYMPTOM:**
Hybrid fail lamp illuminates.

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK PERFORMING OF BASIC DIAGNOSTIC PROCEDURE.** | Was the basic diagnostic procedure performed up to STEP 3? | Go to step **2**. | Perform the basic diagnostic procedure. <Ref. to LAN(HEV)(diag)-2, Basic Diagnostic Procedure.> |
| 2 | **CHECK DTC.**<br>Check the displayed DTC. | Are DTCs other than U*** displayed? | Perform the diagnosis according to DTC. | Go to step **3**. |
| 3 | **CHECK DTC.**<br>Check the displayed DTC. | Is DTC for the bus off or the data no-receive displayed? | Perform the diagnosis according to DTC. | Go to step **4**. |
| 4 | **CHECK DTC.**<br>Check the displayed DTC. | Is U1402 a current malfunction? | Go to step **5**. | Go to step **9**. |
| 5 | **CHECK DTC.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the TCM connector.<br>3) Connect the disconnected connectors.<br>4) Read the DTC using Subaru Select Monitor. | Is U1402 a current malfunction? | Go to step **6**. | Go to step **9**. |
| 6 | **CHECK DTC.**<br>Using the Subaru Select Monitor, read DTC of all the systems. | Is the transmission PU-CAN data abnormal detected in several modules? | Replace the TCM. <Ref. to CVT(TH58A)-158, Transmission Control Module (TCM).> | Go to step **7**. |
| 7 | **REPLACE MODULE.**<br>1) Replace the TCM. <Ref. to CVT(TH58A)-158, Transmission Control Module (TCM).><br>2) Read the DTC using Subaru Select Monitor. | Is U1402 a current malfunction? | Go to step **8**. | System is normal. |
| 8 | **CHECK MODULE.**<br>1) Reinstall the TCM.<br>2) Replace the module that the DTC has been detected.<br>3) Read the DTC using Subaru Select Monitor. | Is U1402 a current malfunction? | Replace the TCM. <Ref. to CVT(TH58A)-158, Transmission Control Module (TCM).> | System is normal. |
| 9 | **CHECK HARNESS.**<br>1) Shake the harness, and check for poor contact.<br>2) Using the Subaru Select Monitor, read DTC of CAN system. | Is U1402 a current malfunction? | Repair the poor contact of harness, or replace the harness. | Go to step **10**. |
| 10 | **CHECK CONNECTOR.**<br>Check the connector used for high speed CAN for poor contact. | Is there poor contact of connector? | Repair the connector that has poor contact, or replace harness. | It is possible that temporary poor communication occurs. Delete the DTC. |

# U: DTC U1469 INVALID DATA RECEIVED FROM AUTOSTART STOP CONTROL MODULE

**DTC DETECTING CONDITION:**
Received error data from hybrid powertrain CM.
**TROUBLE SYMPTOM:**
Hybrid fail lamp illuminates.

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK PERFORMING OF BASIC DIAGNOSTIC PROCEDURE.** | Was the basic diagnostic procedure performed up to STEP 3? | Go to step **2**. | Perform the basic diagnostic procedure. <Ref. to LAN(HEV)(diag)-2, Basic Diagnostic Procedure.> |
| 2 | **CHECK DTC.**<br>Check the displayed DTC. | Are DTCs other than U*** displayed? | Perform the diagnosis according to DTC. | Go to step **3**. |
| 3 | **CHECK DTC.**<br>Check the displayed DTC. | Is DTC for the bus off or the data no-receive displayed? | Perform the diagnosis according to DTC. | Go to step **4**. |
| 4 | **CHECK DTC.**<br>Check the displayed DTC. | Is U1469 a current malfunction? | Go to step **5**. | Go to step **9**. |
| 5 | **CHECK DTC.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the hybrid powertrain CM connector.<br>3) Connect the disconnected connectors.<br>4) Read the DTC using Subaru Select Monitor. | Is U1469 a current malfunction? | Go to step **6**. | Go to step **9**. |
| 6 | **CHECK DTC.**<br>Using the Subaru Select Monitor, read DTC of all the systems. | Is the hybrid data abnormal or Auto Start Stop data abnormal detected in several modules? | Replace the hybrid powertrain CM. <Ref. to HEV-37, Hybrid Powertrain Control Module.> | Go to step **7**. |
| 7 | **REPLACE MODULE.**<br>1) Replace the hybrid powertrain CM. <Ref. to HEV-37, Hybrid Powertrain Control Module.><br>2) Read the DTC using Subaru Select Monitor. | Is U1469 a current malfunction? | Go to step **8**. | System is normal. |
| 8 | **CHECK MODULE.**<br>1) Reinstall the hybrid powertrain CM.<br>2) Replace the module that the DTC has been detected.<br>3) Read the DTC using Subaru Select Monitor. | Is U1469 a current malfunction? | Replace the hybrid powertrain CM. <Ref. to HEV-37, Hybrid Powertrain Control Module.> | System is normal. |
| 9 | **CHECK HARNESS.**<br>1) Shake the harness, and check for poor contact.<br>2) Using the Subaru Select Monitor, read DTC of CAN system. | Is U1469 a current malfunction? | Repair the poor contact of harness, or replace the harness. | Go to step **10**. |
| 10 | **CHECK CONNECTOR.**<br>Check the connector used for high speed CAN for poor contact. | Is there poor contact of connector? | Repair the connector that has poor contact, or replace harness. | It is possible that temporary poor communication occurs. Delete the DTC. |

## V: DTC U1591 INVALID DATA RECEIVED FROM HYBRID POWERTRAIN CONTROL MODULE HEV-CAN

**DTC DETECTING CONDITION:**
Received error data from hybrid powertrain CM.
**TROUBLE SYMPTOM:**
Hybrid fail lamp illuminates.

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK PERFORMING OF BASIC DIAGNOSTIC PROCEDURE.** | Was the basic diagnostic procedure performed up to STEP 3? | Go to step **2**. | Perform the basic diagnostic procedure. <Ref. to LAN(HEV)(diag)-2, Basic Diagnostic Procedure.> |
| 2 | **CHECK DTC.**<br>Check the displayed DTC. | Are DTCs other than U*** displayed? | Perform the diagnosis according to DTC. | Go to step **3**. |
| 3 | **CHECK DTC.**<br>Check the displayed DTC. | Is DTC for the bus off or the data no-receive displayed? | Perform the diagnosis according to DTC. | Go to step **4**. |
| 4 | **CHECK DTC.**<br>Check the displayed DTC. | Is U1591 a current malfunction? | Go to step **5**. | Go to step **9**. |
| 5 | **CHECK DTC.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the hybrid powertrain CM connector.<br>3) Connect the disconnected connectors.<br>4) Read the DTC using Subaru Select Monitor. | Is U1591 a current malfunction? | Go to step **6**. | Go to step **9**. |
| 6 | **CHECK DTC.**<br>Using the Subaru Select Monitor, read DTC of all the systems. | Is the hybrid powertrain control module HEV-CAN data abnormal detected in several modules? | Replace the hybrid powertrain CM. <Ref. to HEV-37, Hybrid Powertrain Control Module.> | Go to step **7**. |
| 7 | **REPLACE MODULE.**<br>1) Replace the hybrid powertrain CM. <Ref. to HEV-37, Hybrid Powertrain Control Module.><br>2) Read the DTC using Subaru Select Monitor. | Is U1591 a current malfunction? | Go to step **8**. | System is normal. |
| 8 | **CHECK MODULE.**<br>1) Reinstall the hybrid powertrain CM.<br>2) Replace the module that the DTC has been detected.<br>3) Read the DTC using Subaru Select Monitor. | Is U1591 a current malfunction? | Replace the hybrid powertrain CM. <Ref. to HEV-37, Hybrid Powertrain Control Module.> | System is normal. |
| 9 | **CHECK HARNESS.**<br>1) Shake the harness, and check for poor contact.<br>2) Using the Subaru Select Monitor, read DTC of CAN system. | Is U1591 a current malfunction? | Repair the poor contact of harness, or replace the harness. | Go to step **10**. |
| 10 | **CHECK CONNECTOR.**<br>Check the connector used for high speed CAN for poor contact. | Is there poor contact of connector? | Repair the connector that has poor contact, or replace harness. | It is possible that temporary poor communication occurs. Delete the DTC. |

## W: DTC U1594 INVALID DATA RECEIVED FROM HYBRID POWERTRAIN CONTROL MODULE PU-CAN

**DTC DETECTING CONDITION:**
Received error data from hybrid powertrain CM.
**TROUBLE SYMPTOM:**
Hybrid fail lamp illuminates.

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK PERFORMING OF BASIC DIAGNOSTIC PROCEDURE.** | Was the basic diagnostic procedure performed up to STEP 3? | Go to step **2**. | Perform the basic diagnostic procedure. <Ref. to LAN(HEV)(diag)-2, Basic Diagnostic Procedure.> |
| 2 | **CHECK DTC.**<br>Check the displayed DTC. | Are DTCs other than U*** displayed? | Perform the diagnosis according to DTC. | Go to step **3**. |
| 3 | **CHECK DTC.**<br>Check the displayed DTC. | Is DTC for the bus off or the data no-receive displayed? | Perform the diagnosis according to DTC. | Go to step **4**. |
| 4 | **CHECK DTC.**<br>Check the displayed DTC. | Is U1594 a current malfunction? | Go to step **5**. | Go to step **9**. |
| 5 | **CHECK DTC.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the hybrid powertrain CM connector.<br>3) Connect the disconnected connectors.<br>4) Read the DTC using Subaru Select Monitor. | Is U1594 a current malfunction? | Go to step **6**. | Go to step **9**. |
| 6 | **CHECK DTC.**<br>Using the Subaru Select Monitor, read DTC of all the systems. | Is the hybrid powertrain control module PU-CAN data abnormal detected in several modules? | Replace the hybrid powertrain CM. <Ref. to HEV-37, Hybrid Powertrain Control Module.> | Go to step **7**. |
| 7 | **REPLACE MODULE.**<br>1) Replace the hybrid powertrain CM. <Ref. to HEV-37, Hybrid Powertrain Control Module.><br>2) Read the DTC using Subaru Select Monitor. | Is U1594 a current malfunction? | Go to step **8**. | System is normal. |
| 8 | **CHECK MODULE.**<br>1) Reinstall the hybrid powertrain CM.<br>2) Replace the module that the DTC has been detected.<br>3) Read the DTC using Subaru Select Monitor. | Is U1594 a current malfunction? | Replace the hybrid powertrain CM. <Ref. to HEV-37, Hybrid Powertrain Control Module.> | System is normal. |
| 9 | **CHECK HARNESS.**<br>1) Shake the harness, and check for poor contact.<br>2) Using the Subaru Select Monitor, read DTC of CAN system. | Is U1594 a current malfunction? | Repair the poor contact of harness, or replace the harness. | Go to step **10**. |
| 10 | **CHECK CONNECTOR.**<br>Check the connector used for high speed CAN for poor contact. | Is there poor contact of connector? | Repair the connector that has poor contact, or replace harness. | It is possible that temporary poor communication occurs. Delete the DTC. |

## X: DTC U0100 LOST COMMUNICATION WITH ECM/PCM "A"

**DTC DETECTING CONDITION:**
Not received data from ECM.
**TROUBLE SYMPTOM:**
Cooperation control of transmission may not operate properly.

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK PERFORMING OF BASIC DIAGNOSTIC PROCEDURE.** | Was the basic diagnostic procedure performed up to STEP 3? | Go to step **2**. | Perform the basic diagnostic procedure. <Ref. to LAN(HEV)(diag)-2, Basic Diagnostic Procedure.> |
| 2 | **CHECK DTC.**<br>Check the displayed DTC. | Is U0100 a current malfunction? | Go to step **3**. | Go to step **6**. |
| 3 | **CHECK DTC.**<br>Using the Subaru Select Monitor, read DTC of all the systems. | Is the engine data no-receive detected in several modules? | Replace the ECM. <Ref. to FU(H4DO(HEV))-85, Engine Control Module (ECM).> | Go to step **4**. |
| 4 | **REPLACE MODULE.**<br>1) Replace the ECM. <Ref. to FU(H4DO(HEV))-85, Engine Control Module (ECM).><br>2) Read the DTC using Subaru Select Monitor. | Is U0100 a current malfunction? | Go to step **5**. | System is normal. |
| 5 | **CHECK MODULE.**<br>1) Reinstall the ECM.<br>2) Replace the module that the DTC has been detected.<br>3) Read the DTC using Subaru Select Monitor. | Is U0100 a current malfunction? | Replace the ECM. <Ref. to FU(H4DO(HEV))-85, Engine Control Module (ECM).> | System is normal. |
| 6 | **CHECK HARNESS.**<br>1) Shake the harness, and check for poor contact.<br>2) Read the DTC using Subaru Select Monitor. | Is U0100 a current malfunction? | Repair the poor contact of harness, or replace the harness. | Go to step **7**. |
| 7 | **CHECK CONNECTOR.**<br>Check the connector used for high speed CAN for poor contact. | Is there poor contact of connector? | Repair the connector that has poor contact, or replace harness. | It is possible that temporary poor communication occurs. Delete the DTC. |

## Y: DTC U0101 LOST COMMUNICATION WITH TCM

**DTC DETECTING CONDITION:**
Not received data from TCM.
**TROUBLE SYMPTOM:**
Cooperation control with transmission is not performed.

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK PERFORMING OF BASIC DIAGNOSTIC PROCEDURE.** | Was the basic diagnostic procedure performed up to STEP 3? | Go to step **2**. | Perform the basic diagnostic procedure. <Ref. to LAN(HEV)(diag)-2, Basic Diagnostic Procedure.> |
| 2 | **CHECK DTC.**<br>Check the displayed DTC. | Is U0101 a current malfunction? | Go to step **3**. | Go to step **6**. |
| 3 | **CHECK DTC.**<br>Using the Subaru Select Monitor, read DTC of all the systems. | Is the transmission data no-receive detected in several modules? | Replace the TCM. <Ref. to CVT(TH58A)-158, Transmission Control Module (TCM).> | Go to step **4**. |
| 4 | **REPLACE MODULE.**<br>1) Replace the TCM. <Ref. to CVT(TH58A)-158, Transmission Control Module (TCM).><br>2) Read the DTC using Subaru Select Monitor. | Is U0101 a current malfunction? | Go to step **5**. | System is normal. |
| 5 | **CHECK MODULE.**<br>1) Reinstall the TCM.<br>2) Replace the module that the DTC has been detected.<br>3) Read the DTC using Subaru Select Monitor. | Is U0101 a current malfunction? | Replace the TCM. <Ref. to CVT(TH58A)-158, Transmission Control Module (TCM).> | System is normal. |
| 6 | **CHECK HARNESS.**<br>1) Shake the harness, and check for poor contact.<br>2) Read the DTC using Subaru Select Monitor. | Is U0101 a current malfunction? | Repair the poor contact of harness, or replace the harness. | Go to step **7**. |
| 7 | **CHECK CONNECTOR.**<br>Check the connector used for high speed CAN for poor contact. | Is there poor contact of connector? | Repair the connector that has poor contact, or replace harness. | It is possible that temporary poor communication occurs. Delete the DTC. |

## Z: DTC U0110 LOST COMMUNICATION WITH DRIVE MOTOR CONTROL MODULE "A"

**DTC DETECTING CONDITION:**
Not received data from drive motor CM.
**TROUBLE SYMPTOM:**
Cooperation control with hybrid system is not performed.

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK PERFORMING OF BASIC DIAGNOSTIC PROCEDURE.** | Was the basic diagnostic procedure performed up to STEP 3? | Go to step **2**. | Perform the basic diagnostic procedure. <Ref. to LAN(HEV)(diag)-2, Basic Diagnostic Procedure.> |
| 2 | **CHECK DTC.**<br>Check the displayed DTC. | Is U0110 a current malfunction? | Go to step **3**. | Go to step **6**. |
| 3 | **CHECK DTC.**<br>Using the Subaru Select Monitor, read DTC of all the systems. | Is the motor control module data no-receive detected in several modules? | Replace the drive motor CM. <Ref. to CVT(TH58A)-157, Drive Motor Control Module.> | Go to step **4**. |
| 4 | **REPLACE MODULE.**<br>1) Replace the drive motor CM. <Ref. to CVT(TH58A)-157, Drive Motor Control Module.><br>2) Read the DTC using Subaru Select Monitor. | Is U0110 a current malfunction? | Go to step **5**. | System is normal. |
| 5 | **CHECK MODULE.**<br>1) Reinstall the drive motor CM.<br>2) Replace the module that the DTC has been detected.<br>3) Read the DTC using Subaru Select Monitor. | Is U0110 a current malfunction? | Replace the drive motor CM. <Ref. to CVT(TH58A)-157, Drive Motor Control Module.> | System is normal. |
| 6 | **CHECK HARNESS.**<br>1) Shake the harness, and check for poor contact.<br>2) Read the DTC using Subaru Select Monitor. | Is U0110 a current malfunction? | Repair the poor contact of harness, or replace the harness. | Go to step **7**. |
| 7 | **CHECK CONNECTOR.**<br>Check the connector used for high speed CAN for poor contact. | Is there poor contact of connector? | Repair the connector that has poor contact, or replace harness. | It is possible that temporary poor communication occurs. Delete the DTC. |

## AA:DTC U0111 LOST COMMUNICATION WITH BATTERY ENERGY CONTROL MODULE

**DTC DETECTING CONDITION:**
Not received data from battery energy CM (high voltage battery).
**TROUBLE SYMPTOM:**
Cooperation control with hybrid system is not performed.

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK PERFORMING OF BASIC DIAGNOSTIC PROCEDURE.** | Was the basic diagnostic procedure performed up to STEP 3? | Go to step **2**. | Perform the basic diagnostic procedure. <Ref. to LAN(HEV)(diag)-2, Basic Diagnostic Procedure.> |
| 2 | **CHECK DTC.**<br>Check the displayed DTC. | Is U0111 a current malfunction? | Go to step **3**. | Go to step **6**. |
| 3 | **CHECK DTC.**<br>Using the Subaru Select Monitor, read DTC of all the systems. | Is the battery energy control module data no-receive detected in several modules? | Replace the high voltage battery. <Ref. to HEV-17, High Voltage Battery.> | Go to step **4**. |
| 4 | **REPLACE MODULE.**<br>1) Replace the high voltage battery. <Ref. to HEV-17, High Voltage Battery.><br>2) Read the DTC using Subaru Select Monitor. | Is U0111 a current malfunction? | Go to step **5**. | System is normal. |
| 5 | **CHECK MODULE.**<br>1) Reinstall the high voltage battery.<br>2) Replace the module that the DTC has been detected.<br>3) Read the DTC using Subaru Select Monitor. | Is U0111 a current malfunction? | Replace the high voltage battery. <Ref. to HEV-17, High Voltage Battery.> | System is normal. |
| 6 | **CHECK HARNESS.**<br>1) Shake the harness, and check for poor contact.<br>2) Read the DTC using Subaru Select Monitor. | Is U0111 a current malfunction? | Repair the poor contact of harness, or replace the harness. | Go to step **7**. |
| 7 | **CHECK CONNECTOR.**<br>Check the connector used for high speed CAN for poor contact. | Is there poor contact of connector? | Repair the connector that has poor contact, or replace harness. | It is possible that temporary poor communication occurs. Delete the DTC. |

## AB:DTC U0122 LOST COMMUNICATION WITH VEHICLE DYNAMICS CONTROL MODULE

**DTC DETECTING CONDITION:**
No data from VDCCM is received.
**TROUBLE SYMPTOM:**
ABS warning light and VDC warning light illuminate.

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK PERFORMING OF BASIC DIAGNOSTIC PROCEDURE.** | Was the basic diagnostic procedure performed up to STEP 3? | Go to step **2**. | Perform the basic diagnostic procedure. <Ref. to LAN(HEV)(diag)-2, Basic Diagnostic Procedure.> |
| 2 | **CHECK DTC.**<br>Check the displayed DTC. | Is U0122 a current malfunction? | Go to step **3**. | Go to step **6**. |
| 3 | **CHECK DTC.**<br>Using the Subaru Select Monitor, read DTC of all the systems. | Is the VDC data no-receive detected in several modules? | Replace the VDC CM. <Ref. to VDC-10, VDC Control Module and Hydraulic Control Unit (VDCCM&H/U).> | Go to step **4**. |
| 4 | **REPLACE MODULE.**<br>1) Replace the VDC CM.<br>2) Read the DTC using Subaru Select Monitor. | Is U0122 a current malfunction? | Go to step **5**. | System is normal. |
| 5 | **CHECK MODULE.**<br>1) Reinstall the VDC CM.<br>2) Replace the module that the DTC has been detected.<br>3) Read the DTC using Subaru Select Monitor. | Is U0122 a current malfunction? | Replace the VDC CM. <Ref. to VDC-10, VDC Control Module and Hydraulic Control Unit (VDCCM&H/U).> | System is normal. |
| 6 | **CHECK HARNESS.**<br>1) Shake the harness, and check for poor contact.<br>2) Read the DTC using Subaru Select Monitor. | Is U0122 a current malfunction? | Repair the poor contact of harness, or replace the harness. | Go to step **7**. |
| 7 | **CHECK CONNECTOR.**<br>Check the connector used for high speed CAN for poor contact. | Is there poor contact of connector? | Repair the connector that has poor contact, or replace harness. | It is possible that temporary poor communication occurs. Delete the DTC. |

## AC:DTC U0126 LOST COMMUNICATION WITH STEERING ANGLE SENSOR MODULE

**DTC DETECTING CONDITION:**
No data is received from steering angle sensor.
**TROUBLE SYMPTOM:**
VDC CM does not operate normally.

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK PERFORMING OF BASIC DIAGNOSTIC PROCEDURE.** | Was the basic diagnostic procedure performed up to STEP 3? | Go to step **2**. | Perform the basic diagnostic procedure. <Ref. to LAN(HEV)(diag)-2, Basic Diagnostic Procedure.> |
| 2 | **CHECK DTC.**<br>Check the displayed DTC. | Is U0126 a current malfunction? | Go to step **3**. | Go to step **6**. |
| 3 | **CHECK DTC.**<br>Using the Subaru Select Monitor, read DTC of all the systems. | Is the steering angle sensor data no-receive detected in several modules? | Replace the steering angle sensor. <Ref. to VDC-35, Steering Angle Sensor.> | Go to step **4**. |
| 4 | **REPLACE MODULE.**<br>1) Replace the steering angle sensor.<br>2) Read the DTC using Subaru Select Monitor. | Is U0126 a current malfunction? | Go to step **5**. | System is normal. |
| 5 | **CHECK MODULE.**<br>1) Reinstall the steering angle sensor.<br>2) Replace the module that the DTC has been detected.<br>3) Read the DTC using Subaru Select Monitor. | Is U0126 a current malfunction? | Replace the steering angle sensor. <Ref. to VDC-35, Steering Angle Sensor.> | System is normal. |
| 6 | **CHECK HARNESS.**<br>1) Shake the harness, and check for poor contact.<br>2) Read the DTC using Subaru Select Monitor. | Is U0126 a current malfunction? | Repair the poor contact of harness, or replace the harness. | Go to step **7**. |
| 7 | **CHECK CONNECTOR.**<br>Check the connector used for high speed CAN for poor contact. | Is there poor contact of connector? | Repair the connector that has poor contact, or replace harness. | It is possible that temporary poor communication occurs. Delete the DTC. |

## AD:DTC U0131 LOST COMMUNICATION WITH POWER STEERING CONTROL MODULE

**DTC DETECTING CONDITION:**
No data is received from power steering CM.
**TROUBLE SYMPTOM:**
Cooperation control with power steering CM does not operate properly.

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK PERFORMING OF BASIC DIAGNOSTIC PROCEDURE.** | Was the basic diagnostic procedure performed up to STEP 3? | Go to step **2**. | Perform the basic diagnostic procedure. <Ref. to LAN(HEV)(diag)-2, Basic Diagnostic Procedure.> |
| 2 | **CHECK DTC.**<br>Check the displayed DTC. | Is U0131 a current malfunction? | Go to step **3**. | Go to step **6**. |
| 3 | **CHECK DTC.**<br>Using the Subaru Select Monitor, read DTC of all the systems. | Is the electric power steering data no-receive detected in several modules? | Replace the power steering CM. <Ref. to PS-44, Power Steering Control Module.> | Go to step **4**. |
| 4 | **REPLACE MODULE.**<br>1) Replace the power steering CM.<br>2) Read the DTC using Subaru Select Monitor. | Is U0131 a current malfunction? | Go to step **5**. | System is normal. |
| 5 | **CHECK MODULE.**<br>1) Reinstall the power steering CM.<br>2) Replace the module that the DTC has been detected.<br>3) Read the DTC using Subaru Select Monitor. | Is U0131 a current malfunction? | Replace the power steering CM. <Ref. to PS-44, Power Steering Control Module.> | System is normal. |
| 6 | **CHECK HARNESS.**<br>1) Shake the harness, and check for poor contact.<br>2) Read the DTC using Subaru Select Monitor. | Is U0131 a current malfunction? | Repair the poor contact of harness, or replace the harness. | Go to step **7**. |
| 7 | **CHECK CONNECTOR.**<br>Check the connector used for high speed CAN for poor contact. | Is there poor contact of connector? | Repair the connector that has poor contact, or replace harness. | It is possible that temporary poor communication occurs. Delete the DTC. |

# AE:DTC U0140 LOST COMMUNICATION WITH BODY CONTROL MODULE

**DTC DETECTING CONDITION:**
No data is received from body integrated unit.
**TROUBLE SYMPTOM:**
Cooperation control with body integrated unit does not operate properly.

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK PERFORMING OF BASIC DIAGNOSTIC PROCEDURE.** | Was the basic diagnostic procedure performed up to STEP 3? | Go to step **2**. | Perform the basic diagnostic procedure. <Ref. to LAN(HEV)(diag)-2, Basic Diagnostic Procedure.> |
| 2 | **CHECK DTC.**<br>Check the displayed DTC. | Is U0140 a current malfunction? | Go to step **3**. | Go to step **6**. |
| 3 | **CHECK DTC.**<br>Using the Subaru Select Monitor, read DTC of all the systems. | Is the body integrated data no-receive detected in several modules? | Replace the body integrated unit. <Ref. to SL-87, Body Integrated Unit.> | Go to step **4**. |
| 4 | **REPLACE MODULE.**<br>1) Replace the body integrated unit.<br>2) Read the DTC using Subaru Select Monitor. | Is U0140 a current malfunction? | Go to step **5**. | System is normal. |
| 5 | **CHECK MODULE.**<br>1) Reinstall the body integrated unit.<br>2) Replace the module that the DTC has been detected.<br>3) Read the DTC using Subaru Select Monitor. | Is U0140 a current malfunction? | Replace the body integrated unit. <Ref. to SL-87, Body Integrated Unit.> | System is normal. |
| 6 | **CHECK HARNESS.**<br>1) Shake the harness, and check for poor contact.<br>2) Read the DTC using Subaru Select Monitor. | Is U0140 a current malfunction? | Repair the poor contact of harness, or replace the harness. | Go to step **7**. |
| 7 | **CHECK CONNECTOR.**<br>Check the connector used for high speed CAN for poor contact. | Is there poor contact of connector? | Repair the connector that has poor contact, or replace harness. | It is possible that temporary poor communication occurs. Delete the DTC. |

## AF:DTC U0151 LOST COMMUNICATION WITH RESTRAINTS CONTROL MODULE

**DTC DETECTING CONDITION:**
No data is received from A/B CM.
**TROUBLE SYMPTOM:**
Cooperation control with A/B CM does not operate properly.

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK PERFORMING OF BASIC DIAGNOSTIC PROCEDURE.** | Was the basic diagnostic procedure performed up to STEP 3? | Go to step **2**. | Perform the basic diagnostic procedure. <Ref. to LAN(HEV)(diag)-2, Basic Diagnostic Procedure.> |
| 2 | **CHECK DTC.**<br>Check the displayed DTC. | Is U0151 a current malfunction? | Go to step **3**. | Go to step **6**. |
| 3 | **CHECK DTC.**<br>Using the Subaru Select Monitor, read DTC of all the systems. | Is the airbag data no-receive detected in several modules? | Replace the A/B CM. <Ref. to AB-66, Airbag Control Module.> | Go to step **4**. |
| 4 | **REPLACE MODULE.**<br>1) Replace the A/B CM.<br>2) Read the DTC using Subaru Select Monitor. | Is U0151 a current malfunction? | Go to step **5**. | System is normal. |
| 5 | **CHECK MODULE.**<br>1) Reinstall the A/B CM.<br>2) Replace the module that the DTC has been detected.<br>3) Read the DTC using Subaru Select Monitor. | Is U0151 a current malfunction? | Replace the A/B CM. <Ref. to AB-66, Airbag Control Module.> | System is normal. |
| 6 | **CHECK HARNESS.**<br>1) Shake the harness, and check for poor contact.<br>2) Read the DTC using Subaru Select Monitor. | Is U0151 a current malfunction? | Repair the poor contact of harness, or replace the harness. | Go to step **7**. |
| 7 | **CHECK CONNECTOR.**<br>Check the connector used for high speed CAN for poor contact. | Is there poor contact of connector? | Repair the connector that has poor contact, or replace harness. | It is possible that temporary poor communication occurs. Delete the DTC. |

## AG:DTC U0155 LOST COMMUNICATION WITH INSTRUMENT PANEL CLUSTER (IPC) CONTROL MODULE

**DTC DETECTING CONDITION:**
No data received from combination meter.
**TROUBLE SYMPTOM:**
Display of combination meter does not operate properly.

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK PERFORMING OF BASIC DIAGNOSTIC PROCEDURE.** | Was the basic diagnostic procedure performed up to STEP 3? | Go to step **2**. | Perform the basic diagnostic procedure. <Ref. to LAN(HEV)(diag)-2, Basic Diagnostic Procedure.> |
| 2 | **CHECK DTC.**<br>Check the displayed DTC. | Is U0155 a current malfunction? | Go to step **3**. | Go to step **6**. |
| 3 | **CHECK DTC.**<br>Using the Subaru Select Monitor, read DTC of all the systems. | Is the meter data no-receive detected in several modules? | Replace the meter. <Ref. to IDI-20, Combination Meter.> | Go to step **4**. |
| 4 | **REPLACE MODULE.**<br>1) Replace the combination meter.<br>2) Read the DTC using Subaru Select Monitor. | Is U0155 a current malfunction? | Go to step **5**. | System is normal. |
| 5 | **CHECK MODULE.**<br>1) Replace the current combination meter with the original combination meter.<br>2) Replace the module that the DTC has been detected.<br>3) Read the DTC using Subaru Select Monitor. | Is U0155 a current malfunction? | Replace the combination meter. <Ref. to IDI-20, Combination Meter.> | System is normal. |
| 6 | **CHECK HARNESS.**<br>1) Shake the harness, and check for poor contact.<br>2) Read the DTC using Subaru Select Monitor. | Is U0155 a current malfunction? | Repair the poor contact of harness, or replace the harness. | Go to step **7**. |
| 7 | **CHECK CONNECTOR.**<br>Check the connector used for high speed CAN for poor contact. | Is there poor contact of connector? | Repair the connector that has poor contact, or replace harness. | It is possible that temporary poor communication occurs. Delete the DTC. |

## AH:DTC U0164 LOST COMMUNICATION WITH HVAC CONTROL MODULE

**DTC DETECTING CONDITION:**
No data is received from A/C control panel.
**TROUBLE SYMPTOM:**
Cooperation control of air conditioner does not operate properly.

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK PERFORMING OF BASIC DIAGNOSTIC PROCEDURE.** | Was the basic diagnostic procedure performed up to STEP 3? | Go to step **2**. | Perform the basic diagnostic procedure. <Ref. to LAN(HEV)(diag)-2, Basic Diagnostic Procedure.> |
| 2 | **CHECK DTC.**<br>Check the displayed DTC. | Is U0164 a current malfunction? | Go to step **3**. | Go to step **6**. |
| 3 | **CHECK DTC.**<br>Using the Subaru Select Monitor, read DTC of all the systems. | Is the air conditioner data no-receive detected in several modules? | Replace the A/C control panel. <Ref. to AC-50, Control Panel.> | Go to step **4**. |
| 4 | **REPLACE MODULE.**<br>1) Replace the A/C control panel.<br>2) Read the DTC using Subaru Select Monitor. | Is U0164 a current malfunction? | Go to step **5**. | System is normal. |
| 5 | **CHECK MODULE.**<br>1) Restore the A/C control panel.<br>2) Replace the module that the DTC has been detected.<br>3) Read the DTC using Subaru Select Monitor. | Is U0164 a current malfunction? | Replace the A/C control panel. <Ref. to AC-50, Control Panel.> | System is normal. |
| 6 | **CHECK HARNESS.**<br>1) Shake the harness, and check for poor contact.<br>2) Read the DTC using Subaru Select Monitor. | Is U0164 a current malfunction? | Repair the poor contact of harness, or replace the harness. | Go to step **7**. |
| 7 | **CHECK CONNECTOR.**<br>Check the connector used for high speed CAN for poor contact. | Is there poor contact of connector? | Repair the connector that has poor contact, or replace harness. | It is possible that temporary poor communication occurs. Delete the DTC. |

## AI: DTC U0287 LOST COMMUNICATION WITH TRANSMISSION FLUID PUMP MODULE

**DTC DETECTING CONDITION:**
No data is received from electric oil pump inverter.
**TROUBLE SYMPTOM:**
Electric oil pump does not operate properly.

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK PERFORMING OF BASIC DIAGNOSTIC PROCEDURE.** | Was the basic diagnostic procedure performed up to STEP 3? | Go to step **2**. | Perform the basic diagnostic procedure. <Ref. to LAN(HEV)(diag)-2, Basic Diagnostic Procedure.> |
| 2 | **CHECK DTC.**<br>Check the displayed DTC. | Is U0287 a current malfunction? | Go to step **3**. | Go to step **6**. |
| 3 | **CHECK DTC.**<br>Using the Subaru Select Monitor, read DTC of all the systems. | Is the electric oil pump data no-receive detected in several modules? | Replace the electric oil pump inverter. <Ref. to HEV-42, Inverter.> | Go to step **4**. |
| 4 | **REPLACE MODULE.**<br>1) Replace the electric oil pump inverter. <Ref. to HEV-42, Inverter.><br>2) Read the DTC using Subaru Select Monitor. | Is U0287 a current malfunction? | Go to step **5**. | System is normal. |
| 5 | **CHECK MODULE.**<br>1) Reinstall the electric oil pump inverter.<br>2) Replace the module that the DTC has been detected.<br>3) Read the DTC using Subaru Select Monitor. | Is U0287 a current malfunction? | Replace the electric oil pump inverter. <Ref. to HEV-42, Inverter.> | System is normal. |
| 6 | **CHECK HARNESS.**<br>1) Shake the harness, and check for poor contact.<br>2) Read the DTC using Subaru Select Monitor. | Is U0287 a current malfunction? | Repair the poor contact of harness, or replace the harness. | Go to step **7**. |
| 7 | **CHECK CONNECTOR.**<br>Check the connector used for high speed CAN for poor contact. | Is there poor contact of connector? | Repair the connector that has poor contact, or replace harness. | It is possible that temporary poor communication occurs. Delete the DTC. |

## AJ:DTC U0293 LOST COMMUNICATION WITH HYBRID POWERTRAIN CONTROL MODULE

**DTC DETECTING CONDITION:**
No data is received from hybrid powertrain CM.
**TROUBLE SYMPTOM:**
Cooperation control of hybrid system does not operate properly.

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK PERFORMING OF BASIC DIAGNOSTIC PROCEDURE.** | Was the basic diagnostic procedure performed up to STEP 3? | Go to step **2**. | Perform the basic diagnostic procedure. <Ref. to LAN(HEV)(diag)-2, Basic Diagnostic Procedure.> |
| 2 | **CHECK DTC.**<br>Check the displayed DTC. | Is U0293 a current malfunction? | Go to step **3**. | Go to step **6**. |
| 3 | **CHECK DTC.**<br>Using the Subaru Select Monitor, read DTC of all the systems. | Is the hybrid data no-receive or Auto Start Stop data no-receive detected in several modules? | Replace the hybrid powertrain CM. <Ref. to HEV-37, Hybrid Powertrain Control Module.> | Go to step **4**. |
| 4 | **REPLACE MODULE.**<br>1) Replace the hybrid powertrain CM. <Ref. to HEV-37, Hybrid Powertrain Control Module.><br>2) Read the DTC using Subaru Select Monitor. | Is U0293 a current malfunction? | Go to step **5**. | System is normal. |
| 5 | **CHECK MODULE.**<br>1) Reinstall the hybrid powertrain CM.<br>2) Replace the module that the DTC has been detected.<br>3) Read the DTC using Subaru Select Monitor. | Is U0293 a current malfunction? | Replace the hybrid powertrain CM. <Ref. to HEV-37, Hybrid Powertrain Control Module.> | System is normal. |
| 6 | **CHECK HARNESS.**<br>1) Shake the harness, and check for poor contact.<br>2) Read the DTC using Subaru Select Monitor. | Is U0293 a current malfunction? | Repair the poor contact of harness, or replace the harness. | Go to step **7**. |
| 7 | **CHECK CONNECTOR.**<br>Check the connector used for high speed CAN for poor contact. | Is there poor contact of connector? | Repair the connector that has poor contact, or replace harness. | It is possible that temporary poor communication occurs. Delete the DTC. |

## AK:DTC U0327 SOFTWARE INCOMPATIBILITY WITH VEHICLE SECURITY CONTROL MODULE

**DTC DETECTING CONDITION:**
No data is received from keyless access CM.
**TROUBLE SYMPTOM:**
Cooperation control of keyless access does not operate properly.

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK PERFORMING OF BASIC DIAGNOSTIC PROCEDURE.** | Was the basic diagnostic procedure performed up to STEP 3? | Go to step **2**. | Perform the basic diagnostic procedure. <Ref. to LAN(HEV)(diag)-2, Basic Diagnostic Procedure.> |
| 2 | **CHECK DTC.**<br>Check the displayed DTC. | Is U0327 a current malfunction? | Go to step **3**. | Go to step **6**. |
| 3 | **CHECK DTC.**<br>Using the Subaru Select Monitor, read DTC of all the systems. | Is the smart data no-receive detected in several modules? | Replace the keyless access CM. <Ref. to SL-110, Keyless Access CM.> | Go to step **4**. |
| 4 | **REPLACE MODULE.**<br>1) Replace the keyless access CM.<br>NOTE:<br>Do not perform keyless access CM registration.<br>2) Read the DTC using Subaru Select Monitor. | Is U0327 a current malfunction? | Go to step **5**. | System is normal.<br>NOTE:<br>Be sure to perform keyless access CM registration. |
| 5 | **CHECK MODULE.**<br>1) Reinstall the keyless access CM.<br>2) Replace the module that the DTC has been detected.<br>3) Read the DTC using Subaru Select Monitor. | Is U0327 a current malfunction? | Replace the keyless access CM. <Ref. to SL-110, Keyless Access CM.> | System is normal. |
| 6 | **CHECK HARNESS.**<br>1) Shake the harness, and check for poor contact.<br>2) Read the DTC using Subaru Select Monitor. | Is U0327 a current malfunction? | Repair the poor contact of harness, or replace the harness. | Go to step **7**. |
| 7 | **CHECK CONNECTOR.**<br>Check the connector used for high speed CAN for poor contact. | Is there poor contact of connector? | Repair the connector that has poor contact, or replace harness. | It is possible that temporary poor communication occurs. Delete the DTC. |

# AL:DTC U1100 LOST COMMUNICATION WITH ECM/PCM PU-CAN

**DTC DETECTING CONDITION:**
Not received data from ECM.
**TROUBLE SYMPTOM:**
Cooperation control of hybrid system does not operate properly.

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK PERFORMING OF BASIC DIAGNOSTIC PROCEDURE.** | Was the basic diagnostic procedure performed up to STEP 3? | Go to step **2**. | Perform the basic diagnostic procedure. <Ref. to LAN(HEV)(diag)-2, Basic Diagnostic Procedure.> |
| 2 | **CHECK DTC.**<br>Check the displayed DTC. | Is U1100 a current malfunction? | Go to step **3**. | Go to step **6**. |
| 3 | **CHECK DTC.**<br>Using the Subaru Select Monitor, read DTC of all the systems. | Is the engine PU-CAN data no-receive detected in several modules? | Replace the ECM. <Ref. to FU(H4DO(HEV))-85, Engine Control Module (ECM).> | Go to step **4**. |
| 4 | **REPLACE MODULE.**<br>1) Replace the ECM. <Ref. to FU(H4DO(HEV))-85, Engine Control Module (ECM).><br>2) Read the DTC using Subaru Select Monitor. | Is U1100 a current malfunction? | Go to step **5**. | System is normal. |
| 5 | **CHECK MODULE.**<br>1) Reinstall the ECM.<br>2) Replace the module that the DTC has been detected.<br>3) Read the DTC using Subaru Select Monitor. | Is U1100 a current malfunction? | Replace the ECM. <Ref. to FU(H4DO(HEV))-85, Engine Control Module (ECM).> | System is normal. |
| 6 | **CHECK HARNESS.**<br>1) Shake the harness, and check for poor contact.<br>2) Read the DTC using Subaru Select Monitor. | Is U1100 a current malfunction? | Repair the poor contact of harness, or replace the harness. | Go to step **7**. |
| 7 | **CHECK CONNECTOR.**<br>Check the connector used for high speed CAN for poor contact. | Is there poor contact of connector? | Repair the connector that has poor contact, or replace harness. | It is possible that temporary poor communication occurs. Delete the DTC. |

## AM:DTC U1101 LOST COMMUNICATION WITH TCM PU-CAN

**DTC DETECTING CONDITION:**
Not received data from TCM.
**TROUBLE SYMPTOM:**
Cooperation control of hybrid system does not operate properly.

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK PERFORMING OF BASIC DIAGNOSTIC PROCEDURE.** | Was the basic diagnostic procedure performed up to STEP 3? | Go to step **2**. | Perform the basic diagnostic procedure. <Ref. to LAN(HEV)(diag)-2, Basic Diagnostic Procedure.> |
| 2 | **CHECK DTC.**<br>Check the displayed DTC. | Is U1101 a current malfunction? | Go to step **3**. | Go to step **6**. |
| 3 | **CHECK DTC.**<br>Using the Subaru Select Monitor, read DTC of all the systems. | Is the transmission PU-CAN data no-receive detected in several modules? | Replace the TCM. <Ref. to CVT(TH58A)-158, Transmission Control Module (TCM).> | Go to step **4**. |
| 4 | **REPLACE MODULE.**<br>1) Replace the TCM. <Ref. to CVT(TH58A)-158, Transmission Control Module (TCM).><br>2) Read the DTC using Subaru Select Monitor. | Is U1101 a current malfunction? | Go to step **5**. | System is normal. |
| 5 | **CHECK MODULE.**<br>1) Reinstall the TCM.<br>2) Replace the module that the DTC has been detected.<br>3) Read the DTC using Subaru Select Monitor. | Is U1101 a current malfunction? | Replace the TCM. <Ref. to CVT(TH58A)-158, Transmission Control Module (TCM).> | System is normal. |
| 6 | **CHECK HARNESS.**<br>1) Shake the harness, and check for poor contact.<br>2) Read the DTC using Subaru Select Monitor. | Is U1101 a current malfunction? | Repair the poor contact of harness, or replace the harness. | Go to step **7**. |
| 7 | **CHECK CONNECTOR.**<br>Check the connector used for high speed CAN for poor contact. | Is there poor contact of connector? | Repair the connector that has poor contact, or replace harness. | It is possible that temporary poor communication occurs. Delete the DTC. |

# AN:DTC U1120 LOST COMMUNICATION WITH AUTOSTART STOP CONTROL MODULE

**DTC DETECTING CONDITION:**
No data is received from hybrid powertrain CM.
**TROUBLE SYMPTOM:**
Cooperation control of hybrid system does not operate properly.

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK PERFORMING OF BASIC DIAGNOSTIC PROCEDURE.** | Was the basic diagnostic procedure performed up to STEP 3? | Go to step **2**. | Perform the basic diagnostic procedure. <Ref. to LAN(HEV)(diag)-2, Basic Diagnostic Procedure.> |
| 2 | **CHECK DTC.**<br>Check the displayed DTC. | Is U1120 a current malfunction? | Go to step **3**. | Go to step **6**. |
| 3 | **CHECK DTC.**<br>Using the Subaru Select Monitor, read DTC of all the systems. | Is the hybrid data no-receive or Auto Start Stop data no-receive detected in several modules? | Replace the hybrid powertrain CM. <Ref. to HEV-37, Hybrid Powertrain Control Module.> | Go to step **4**. |
| 4 | **REPLACE MODULE.**<br>1) Replace the hybrid powertrain CM. <Ref. to HEV-37, Hybrid Powertrain Control Module.><br>2) Read the DTC using Subaru Select Monitor. | Is U1120 a current malfunction? | Go to step **5**. | System is normal. |
| 5 | **CHECK MODULE.**<br>1) Reinstall the hybrid powertrain CM.<br>2) Replace the module that the DTC has been detected.<br>3) Read the DTC using Subaru Select Monitor. | Is U1120 a current malfunction? | Replace the hybrid powertrain CM. <Ref. to HEV-37, Hybrid Powertrain Control Module.> | System is normal. |
| 6 | **CHECK HARNESS.**<br>1) Shake the harness, and check for poor contact.<br>2) Read the DTC using Subaru Select Monitor. | Is U1120 a current malfunction? | Repair the poor contact of harness, or replace the harness. | Go to step **7**. |
| 7 | **CHECK CONNECTOR.**<br>Check the connector used for high speed CAN for poor contact. | Is there poor contact of connector? | Repair the connector that has poor contact, or replace harness. | It is possible that temporary poor communication occurs. Delete the DTC. |

## AO:DTC U1290 LOST COMMUNICATION WITH HYBRID POWERTRAIN CONTROL MODULE HEV-CAN

**DTC DETECTING CONDITION:**
No data is received from hybrid powertrain CM.
**TROUBLE SYMPTOM:**
Cooperation control of hybrid system does not operate properly.

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK PERFORMING OF BASIC DIAGNOSTIC PROCEDURE.** | Was the basic diagnostic procedure performed up to STEP 3? | Go to step **2**. | Perform the basic diagnostic procedure. <Ref. to LAN(HEV)(diag)-2, Basic Diagnostic Procedure.> |
| 2 | **CHECK DTC.**<br>Check the displayed DTC. | Is U1290 a current malfunction? | Go to step **3**. | Go to step **6**. |
| 3 | **CHECK DTC.**<br>Using the Subaru Select Monitor, read DTC of all the systems. | Is the hybrid powertrain control module HEV-CAN data no-receive detected in several modules? | Replace the hybrid powertrain CM. <Ref. to HEV-37, Hybrid Powertrain Control Module.> | Go to step **4**. |
| 4 | **REPLACE MODULE.**<br>1) Replace the hybrid powertrain CM. <Ref. to HEV-37, Hybrid Powertrain Control Module.><br>2) Read the DTC using Subaru Select Monitor. | Is U1290 a current malfunction? | Go to step **5**. | System is normal. |
| 5 | **CHECK MODULE.**<br>1) Reinstall the hybrid powertrain CM.<br>2) Replace the module that the DTC has been detected.<br>3) Read the DTC using Subaru Select Monitor. | Is U1290 a current malfunction? | Replace the hybrid powertrain CM. <Ref. to HEV-37, Hybrid Powertrain Control Module.> | System is normal. |
| 6 | **CHECK HARNESS.**<br>1) Shake the harness, and check for poor contact.<br>2) Read the DTC using Subaru Select Monitor. | Is U1290 a current malfunction? | Repair the poor contact of harness, or replace the harness. | Go to step **7**. |
| 7 | **CHECK CONNECTOR.**<br>Check the connector used for high speed CAN for poor contact. | Is there poor contact of connector? | Repair the connector that has poor contact, or replace harness. | It is possible that temporary poor communication occurs. Delete the DTC. |

# AP:DTC U1293 LOST COMMUNICATION WITH HYBRID POWERTRAIN CONTROL MODULE PU-CAN

**DTC DETECTING CONDITION:**
No data is received from hybrid powertrain CM.
**TROUBLE SYMPTOM:**
Cooperation control of hybrid system does not operate properly.

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK PERFORMING OF BASIC DIAGNOSTIC PROCEDURE.** | Was the basic diagnostic procedure performed up to STEP 3? | Go to step **2**. | Perform the basic diagnostic procedure. <Ref. to LAN(HEV)(diag)-2, Basic Diagnostic Procedure.> |
| 2 | **CHECK DTC.**<br>Check the displayed DTC. | Is U1293 a current malfunction? | Go to step **3**. | Go to step **6**. |
| 3 | **CHECK DTC.**<br>Using the Subaru Select Monitor, read DTC of all the systems. | Is the hybrid powertrain control module PU-CAN data no-receive detected in several modules? | Replace the hybrid powertrain CM. <Ref. to HEV-37, Hybrid Powertrain Control Module.> | Go to step **4**. |
| 4 | **REPLACE MODULE.**<br>1) Replace the hybrid powertrain CM. <Ref. to HEV-37, Hybrid Powertrain Control Module.><br>2) Read the DTC using Subaru Select Monitor. | Is U1293 a current malfunction? | Go to step **5**. | System is normal. |
| 5 | **CHECK MODULE.**<br>1) Reinstall the hybrid powertrain CM.<br>2) Replace the module that the DTC has been detected.<br>3) Read the DTC using Subaru Select Monitor. | Is U1293 a current malfunction? | Replace the hybrid powertrain CM. <Ref. to HEV-37, Hybrid Powertrain Control Module.> | System is normal. |
| 6 | **CHECK HARNESS.**<br>1) Shake the harness, and check for poor contact.<br>2) Read the DTC using Subaru Select Monitor. | Is U1293 a current malfunction? | Repair the poor contact of harness, or replace the harness. | Go to step **7**. |
| 7 | **CHECK CONNECTOR.**<br>Check the connector used for high speed CAN for poor contact. | Is there poor contact of connector? | Repair the connector that has poor contact, or replace harness. | It is possible that temporary poor communication occurs. Delete the DTC. |

# 12.General Diagnostic Table

## A: INSPECTION

| Item | Operation | Specifications | | Note |
|---|---|---|---|---|
| | | YES | NO | |
| Diagnostic code | DTC is displayed when inspecting all DTCs. | Perform the diagnosis according to DTC. | System is normal. | — |
| Speedometer | Faster vehicle speed than the actual speed is displayed. | VDC CM data may not be received. | System is normal. | Also, check vehicle speed pulse circuit. |
| Fuel gauge | Fuel is present, but displayed less than actual amount. | Communication error may be present. | System is normal. | Also, check the fuel gauge. |
| Fuel level warning light | Fuel is present, but the light illuminates. | Communication error may be present. | System is normal. | Also, check the fuel gauge. |
| Engine coolant temperature light | Engine coolant temperature light blinks in red and blue alternately. | Communication error may be present. | System is normal. | Check the engine coolant light related items. |
| [S], [I] or [S#] indicator | Blinking. | Communication error may be present. | System is normal. | Check the intelligent switch. |
| VDC indicator | Illuminating. | Communication error may be present. | System is normal. | Check that VDC is not operating. |
| VDC OFF indicator | Illuminating. | Communication error may be present. | System is normal. | Check that VDC is not OFF. |
| Brake warning, etc. | Illuminating. | Brake fluid may be low in amount, or communication error may be present. | System is normal. | Check brake related items. |
| Shift position | Not displayed. | Communication error may be present. | System is normal. | Also, check AT system. |
| AT temperature light | Blinking. | Communication error may be present. | System is normal. | Also, check AT system. |
| Door indicator | Not displayed when the door is opened. Otherwise, not turn off when the door is closed. | Communication error may be present. | System is normal. | Check the door switch. |
| Clearance indicator | Not illuminating. | Communication error may be present. | System is normal. | Check the combination switch. |
| Hi beam indicator | Not illuminating. | Communication error may be present. | System is normal. | Check the combination switch. |
| Front fog indicator | Not illuminating. | Communication error may be present. | System is normal. | Check the combination switch. |
| Illumination | Illuminating at the maximum brightness. | Communication error may be present. | System is normal. | Also, check the illumination switch. |
| Cruise control indicator | Not illuminating. | Communication error may be present. | System is normal. | Check the cruise control system. |
| AWD indicator | Not illuminating. | Communication error may be present. | System is normal. | Check TCM. |
| Hill hold indicator | Not illuminating. | Communication error may be present. | System is normal. | Also, check VDC CM. |

# HYBRID ELECTRIC VEHICLE

# HEV


| | | Page |
|---|---|---|
| 1. | General Description | 2 |
| 2. | Relay and Fuse | 12 |
| 3. | Hybrid Electric Vehicle System | 14 |
| 4. | Service Plug | 15 |
| 5. | High Voltage Battery | 17 |
| 6. | Battery Energy Control Module | 26 |
| 7. | Drive Motor Inverter Current Sensor | 27 |
| 8. | Noise Filter | 31 |
| 9. | Hybrid Powertrain Control Module | 37 |
| 10. | DC/DC Converter | 38 |
| 11. | Inverter | 42 |
| 12. | Power Cable | 52 |
| 13. | High Voltage Battery Cooling System | 60 |
| 14. | Drive Motor Control Module | 74 |
| 15. | Drive Motor Assembly | 76 |
| 16. | Active Grille Shutter | 77 |
| 17. | Diagnostics with Phenomenon | 79 |

# 1. Basic Diagnostic Procedure

## A: PROCEDURE

**CAUTION:**
**• Subaru Select Monitor is required for reading DTC, performing diagnosis, reading current data, customizing and active test (compulsory drive).**
**• Remove foreign matter (dust, water, oil, etc.) from each control module connector during removal and installation.**
**• Registration of immobilizer may be needed after the replacement of controller units, etc. For detailed procedure, refer to the "REGISTRATION MANUAL FOR IMMOBILIZER".**

NOTE:
• To check harness for open or short circuits, shake the suspected trouble spot or connector.
• Check List for Interview <Ref. to LAN(w/o HEV)(diag)-4, Check List for Interview.>

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK PRE-INSPECTION.**<br>Ask the customer when and how the trouble occurred using the interview check list. <Ref. to LAN(w/o HEV)(diag)-4, Check List for Interview.> | Did you interview the customer? | Go to step **2**. | Interview the customer. |
| 2 | **BASIC INSPECTION (CAN DIAGNOSTIC IS NOT USED).**<br>Check components which might affect CAN communication problem. <Ref. to LAN(w/o HEV)(diag)-7, INSPECTION WITHOUT USING CAN DIAGNOSTIC, INSPECTION, General Description.> | Is the component that might affect CAN communication problem normal? | Go to step **3**. | Repair or replace each component. |
| 3 | **CHECK COMMUNICATION FOR INITIALIZING.**<br>Communicate with the all systems by connecting the Subaru Select Monitor. | Is the communication for initializing finished for all modules? | Go to step **4**. | Check the error of communication for initializing. <Ref. to LAN(w/o HEV)(diag)-10, COMMUNICATION FOR INITIALIZING IMPOSSIBLE, Subaru Select Monitor.> |
| 4 | **BASIC INSPECTION (CAN DIAGNOSTIC IS USED).**<br>Check components which might affect CAN communication problem. <Ref. to LAN(w/o HEV)(diag)-7, INSPECTION USING CAN DIAGNOSTIC, INSPECTION, General Description.> | Is the component that might affect CAN communication problem normal? | Go to step **5**. | Repair or replace each component. |
| 5 | **CHECK DTC.**<br>1) Start the engine and read all DTCs.<br>NOTE:<br>When the engine does not start, perform the diagnosis for the engine start malfunction. <Ref. to EN(H4DO w/o HEV)(diag)-73, Diagnostics for Engine Starting Failure.><br>2) Record all DTCs, time stamp and freeze frame data.<br>NOTE:<br>For time stamp, refer to "TIME STAMP" of General Description. <Ref. to LAN(w/o HEV)(diag)-6, TIME STAMP, CAUTION, General Description.> | Is DTC U**** displayed on Subaru Select Monitor? | Go to step **6**. | Go to step **7**. |

| Step | | Check | Yes | No |
|---|---|---|---|---|
| 6 | **CHECK DTC.**<br>1) Perform the inspection using the DTC check sheet. <Ref. to LAN(w/o HEV)(diag)-66, CHECK USING THE DTC CHECK SHEET, LIST, List of Diagnostic Trouble Code (DTC).><br>2) Using the Subaru Select Monitor, read all DTCs. | Is DTC U**** displayed on Subaru Select Monitor? | Go to step **8**. | Go to step **7**. |
| 7 | **PERFORM GENERAL DIAGNOSTICS.**<br>Inspect using the “General Diagnostic Table”. <Ref. to LAN(w/o HEV)(diag)-120, General Diagnostic Table.> | Is result of inspection OK? | LAN system is normal. | Go to step **8**. |
| 8 | **PERFORM DIAGNOSIS.**<br>1) Correct the cause of trouble.<br>2) Perform the Clear Memory Mode. <Ref. to LAN(w/o HEV)(diag)-26, OPERATION, Clear Memory Mode.><br>3) Read the DTC. <Ref. to LAN(w/o HEV)(diag)-25, OPERATION, Read Diagnostic Trouble Code (DTC).> | Is DTC displayed on Subaru Select Monitor? | Repeat step 8 until DTC is not shown. | Finish the diagnosis. |

# 2. Check List for Interview

## A: CHECK

Inspect the following item about the vehicle's state.

### 1. DISPLAY STATUS IN THE COMBINATION METER

| | | |
|---|---|---|
| Display status in the combination meter | Engine coolant temperature gauge display | ❑ OK / ❑ NG |
| | Fuel gauge display | ❑ OK / ❑ NG |
| | Tachometer display | ❑ OK / ❑ NG (0 rpm at idling etc.) |
| Display of other indicators | Malfunction indicator light | ❑ ON / ❑ Blink / ❑ OFF |
| | Sport indicator light (AT warning light) | ❑ ON / ❑ Blink / ❑ OFF |
| | ABS warning light | ❑ ON / ❑ Blink / ❑ OFF |
| | VDC warning light | ❑ ON / ❑ Blink / ❑ OFF |
| | Immobilizer indicator light | ❑ ON / ❑ Blink / ❑ OFF |
| | AT OIL TEMP warning light | ❑ ON / ❑ Blink / ❑ OFF |
| | Tire pressure warning light | ❑ ON / ❑ Blink / ❑ OFF |
| | Engine coolant temperature warning light | ❑ Blue light ON / ❑ Red light ON / ❑ Red light blinks / ❑ Blue and red lights blink |
| | CRUISE indicator | ❑ ON / ❑ Blink / ❑ OFF |
| | Shift indicator | ❑ OK / ❑ NG |
| | Fuel level warning light | ❑ ON / ❑ Blink / ❑ OFF |
| | Airbag warning light | ❑ ON / ❑ OFF |
| | VDC OFF indicator | ❑ ON / ❑ OFF |
| | Brake warning light | ❑ ON / ❑ OFF |
| | Headlight beam leveler indicator | ❑ ON / ❑ OFF |

### 2. CONDITIONS UNDER WHICH TROUBLE OCCURS

| | | |
|---|---|---|
| Driving condition | ❑ At standstill (While idling) | |
| | ❑ When the vehicle is running | Vehicle speed km/h (MPH) |
| | ❑ While accelerating | Acceleration km/h (MPH) to km/h (MPH) |
| | ❑ Decelerating (With braking) | Deceleration km/h (MPH) to km/h (MPH) |
| | ❑ Decelerating (Without braking) | Deceleration km/h (MPH) to km/h (MPH) |
| | ❑ Flat road<br>❑ Uphill<br>❑ Downhill<br>❑ Gravel road<br>❑ Bumpy road<br>❑ Snowy road | |
| | Does it occur when operating any part?<br>Operated part:<br>**TROUBLE SYMPTOM:** | |
| | Are there any other troubles occurred?<br>From where:<br>**TROUBLE SYMPTOM:** | |

# 3. General Description

## A: CAUTION

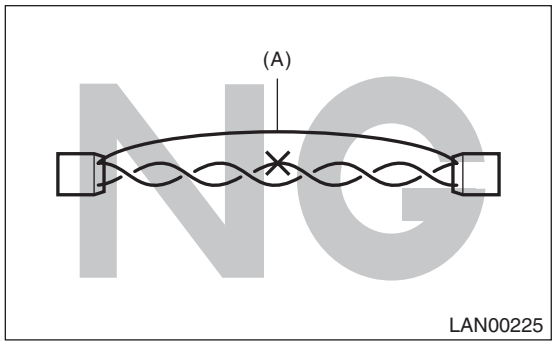
### 1. SUPPLEMENTAL RESTRAINT SYSTEM "AIRBAG"

Airbag system wiring harness is routed near the body integrated unit and twisted pair line.

**CAUTION:**
- **Do not use the electrical test equipment on all airbag system wiring harnesses and connectors.**
- **Be careful not to damage the airbag system wiring harness when servicing the body integrated unit and LAN system.**

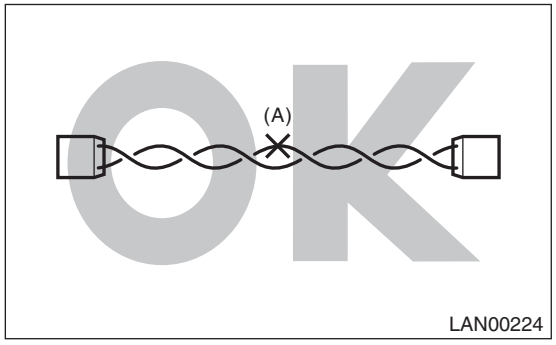
### 2. LAN SYSTEM

- Bus line of LAN system is twisted pair line. Be careful not to by-pass or partly unbind the twisted pair line.
- Do not make clearance between bus lines (CAN High, CAN Low).
- Difference of bus line length should be within 10 cm (3.94 in).
- Fray near the connector should be within 8 cm (3.14 in).




(A) Bypass wire connection

- If the characteristics of the twisted pair line are changed, it may extremely weaken against noise.
- When repairing the harness, connect the wires using soldering and protect it with insulating tape etc.




(A) Soldering and protection with insulating tape

## 3. TIME STAMP

There are three types of record data for the information of time stamp, and they are stored together with diagnostic codes.

NOTE:
Depending on DTCs, time stamp may not be stored.

a. **Trip Count**

This indicates the number of times that the ignition has been turned to ON since the vehicle was manufactured. The ignition ON count of when the diagnostic code is stored is displayed on the diagnostic code check screen.

NOTE:
Subaru Select Monitor screen (A/C system diagnostic code and time stamp)

| Code | Description & trouble position | Trouble occurrence record | **Trip Count** | Time Count | Count |
|---|---|---|---|---|---|
| B14E1 | Air Mix Door Actuator Stepping Motor Circuit Wire Break (Driver's Seat) | Detected on the first time | **983** | 18000 | Common |
| B14E7 | Heater Core Rear Sensor Circuit Wire Break | Detected on the 2nd time | **984** | 117800 | Common |

The current Trip Count can be checked at "Current Data Display & Save" in "Integ. unit mode".
By comparing the current Trip Count and the Trip Count of when the diagnostic code was stored, it is possible to determine that it is how many ignition-ON operations ago that DTC was stored.

b. **Time Count**

The elapsed time from when the ignition is turned to ON to when the diagnostic code is stored is displayed on the diagnostic code check screen. It is possible to determine the length of time that passed between when the user started driving and when the diagnostic code was stored. Therefore, if Trip Count until the vehicle-received-date is determined by interviewing the user, it is possible to estimate where the user was driving when the diagnostic code was stored, using the information such as Trip Count and Time Count. This estimate is useful information to perform diagnosis including checking of repeatability.

NOTE:
Subaru Select Monitor screen (A/C system diagnostic code and time stamp)

| Code | Description & trouble position | Trouble occurrence record | Trip Count | **Time Count** | Count |
|---|---|---|---|---|---|
| B14E1 | Air Mix Door Actuator Stepping Motor Circuit Wire Break (Driver's Seat) | Detected on the first time | 983 | **18000** | Common |
| B14E7 | Heater Core Rear Sensor Circuit Wire Break | Detected on the 2nd time | 984 | **117800** | Common |

When multiple diagnostic codes are recorded for one trouble, it is extremely important to determine the diagnostic code that was stored first. (It is important to perform the diagnosis for the first recorded diagnostic code.) In this case, it is also possible to immediately determine which diagnostic code was recorded first, using the information such as Trip Count and Time Count.

c. **Count**

Each unit individually counts the elapsed time since the ignition is turned to ON. However, these time counts may have some errors, and therefore, the control modules need to be adjusted to the time carried by the master-time unit (the body integrated unit). When the count is set as common, it means that each control module is already adjusted to the master time, and the display for the master integrated unit is always indicated as "Common". When the count is indicated as "Originally", it means that the time is not synchronized with the master time. In this case, check the communication between the corresponding control module and integrated unit. When all controls other than the body integrated unit is indicated as "Originally", perform the basic inspection for the body integrated unit. <Ref. to BC(diag)-2, PROCEDURE, Basic Diagnostic Procedure.>

NOTE:
Subaru Select Monitor screen (A/C system diagnostic code and time stamp)

| Code | Description & trouble position | Trouble occurrence record | Trip Count | Time Count | **Count** |
|---|---|---|---|---|---|
| B14E1 | Air Mix Door Actuator Stepping Motor Circuit Wire Break (Driver's Seat) | Detected on the first time | 983 | 18000 | **Common** |
| B14E7 | Heater Core Rear Sensor Circuit Wire Break | Detected on the 2nd time | 984 | 117800 | **Common** |

Even when multiple diagnostic codes are stored in multiple control modules, it is possible to determine the code stored first through the count function.

NOTE:
Troubleshooting for CAN system U-code occurrence
When the first stored diagnostic code is a U-code for CAN system, perform the troubleshooting as a U code combination, instead of a U code alone. In addition, when CAN open circuit occurs, communication of the diagnostic device itself becomes impossible beyond the particular areas. However, trouble positions can also be determined by the combination of initial communication success/failure. Thus, by performing the basic diagnostic procedure in LAN system, trouble positions can be determined efficiently on the principle above. <Ref. to LAN(w/o HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.>

# B: INSPECTION

## 1. INSPECTION WITHOUT USING CAN DIAGNOSTIC

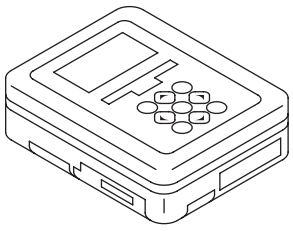
Before performing diagnosis, check the following items that might affect troubles of each module.
1) Check the battery. <Ref. to SC(H4DO(w/o HEV))-53, INSPECTION, Battery.>
2) Check the fuse condition.
Make sure that ampere of the fuse is setting value, and it is not blown out.
3) Check the connecting condition of harness and harness connector.

## 2. INSPECTION USING CAN DIAGNOSTIC

Before performing diagnostics, check the following item which might affect body integrated unit malfunctions.
1) Confirm settings of body integrated unit are corresponded to vehicle equipment. <Ref. to BC(diag)-21, OPERATION, Registration Body Integrated Unit.>
2) Make sure that the User Customizing of the body integrated unit matches the vehicle equipment. <Ref. to BC(diag)-18, OPERATION, User Customizing.>
3) Confirm “Factory initial setting” of body integrated unit registrations is set to “Market”.

# C: PREPARATION TOOL

## 1. SPECIAL TOOL

| ILLUSTRATION | TOOL NUMBER | DESCRIPTION | REMARKS |
|---|---|---|---|
|  ST1B022XU0 | 1B022XU0 | SUBARU SELECT MONITOR III KIT | Used for setting of each function and troubleshooting for electrical system.<br>NOTE:<br>For detailed operation procedures of SUBARU SELECT MONITOR III, refer to “PC application help for Subaru Select Monitor”. |

## 2. GENERAL TOOL

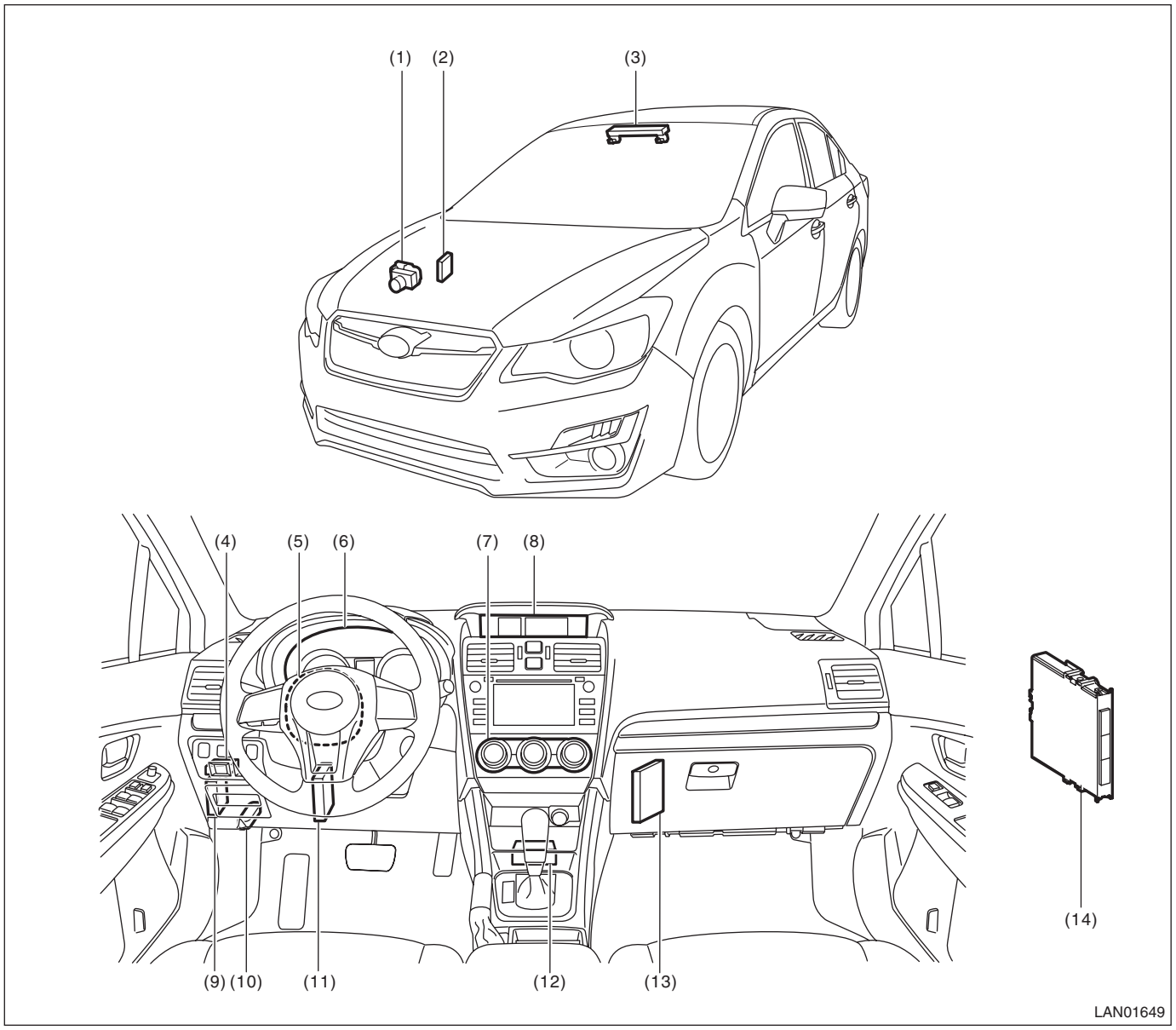
| TOOL NAME | REMARKS |
|---|---|
| Circuit tester | Used for measuring resistance, voltage and current. |

## 3. PREPARATION ITEMS

| ITEM NAME | REMARKS |
|---|---|
| 120 Ω resistance element (1/4 W or more) | Used as an alternative to end resistance. |

# 4. Electrical Component Location

## A: LOCATION




(1) VDC CM
(2) Power steering CM
(3) Stereo camera
(4) Auto headlight beam leveler CM
(5) Steering angle sensor
(6) Combination meter
(7) A/C control panel
(8) MFD
(9) Body integrated unit
(10) Data link connector
(11) TCM
(12) Airbag CM
(13) ECM
(14) Keyless access CM

# 5. Control Module I/O Signal

## A: ELECTRICAL SPECIFICATION

- Body integrated unit

For I/O signals of the body integrated unit, refer to BODY CONTROL SYSTEM (DIAGNOSTICS). <Ref. to BC(diag)-6, Control Module I/O Signal.>

- Engine control module

For I/O signals of ECM, refer to ENGINE (DIAGNOSTICS). <Ref. to EN(H4DO w/o HEV)(diag)-19, Engine Control Module (ECM) I/O Signal.>

- Transmission control module

For I/O signals of TCM, refer to AUTOMATIC TRANSMISSION (DIAGNOSTICS). <Ref. to CVT(w/o HEV)(diag)-10, Transmission Control Module (TCM) I/O Signal.>

- VDC control module, steering angle sensor

For I/O signals of VDC CM and steering angle sensor, refer to VEHICLE DYNAMICS CONTROL (VDC) (DIAGNOSTICS). <Ref. to VDC(diag)-12, Control Module I/O Signal.>

- Power steering CM

For unit I/O signals of power steering CM, refer to POWER ASSISTED SYSTEM (POWER STEERING) (DIAGNOSTICS). <Ref. to PS(diag)-10, Control Module I/O Signal.>

- A/C control panel

For unit I/O signals of A/C control panel, refer to HVAC SYSTEM (DIAGNOSTICS). <Ref. to AC(diag)-6, Auto A/C Control Module I/O Signal.>

- Combination meter

For I/O signals of combination meter, refer to INSTRUMENTATION/DRIVER INFO (DIAGNOSTICS). <Ref. to IDI(diag)-7, Control Module I/O Signal.>

- Airbag control module

For I/O signals of the airbag control module, refer to AIRBAG SYSTEM (DIAGNOSTICS). <Ref. to AB(diag)-20, Airbag Control Module I/O Signal.>

- High grade MFD

For I/O signals of high grade MFD, refer to INSTRUMENTATION/DRIVER INFO (DIAGNOSTICS). <Ref. to IDI(diag)-7, Control Module I/O Signal.>

- Auto headlight beam leveler CM

For I/O signals of auto headlight beam leveler CM, refer to INSTRUMENTATION/DRIVER INFO (DIAGNOSTICS). <Ref. to AL(diag)-6, Control Module I/O Signal.>

- Keyless access CM

For I/O signals of keyless access CM, refer to KEYLESS ACCESS WITH PUSH BUTTON START SYSTEM (DIAGNOSTICS). <Ref. to KPS(diag)-16, Control Module I/O Signal.>

- Stereo camera

For I/O signals of stereo camera, refer to EyeSight (DIAGNOSTICS). <Ref. to ES(diag)-17, Control Module I/O Signal.>

- Data link connector

For I/O signals of data link connector, refer to ENGINE (DIAGNOSTICS). <Ref. to EN(H4DO w/o HEV)(diag)-31, Data Link Connector.>

* CAN sleep state:

Hold on for approx. one minute with ignition OFF and the doors, trunk, rear gate all closed.

## B: WIRING DIAGRAM

Refer to “CAN Communication System” in the wiring diagram. <Ref. to WI(w/o HEV)-65, WIRING DIAGRAM, CAN Communication System.>

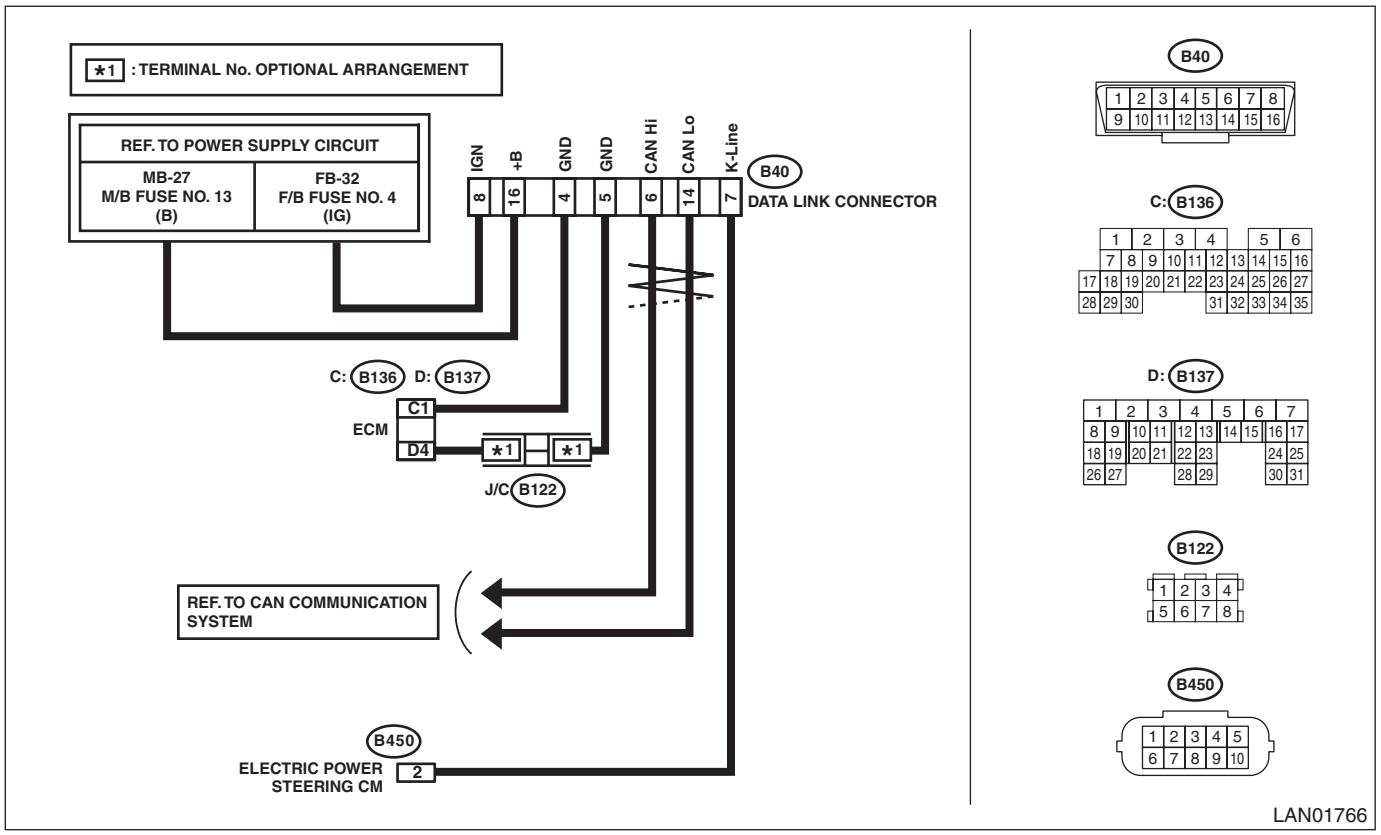
# 6. Subaru Select Monitor

## A: OPERATION

For details of basic operations, refer to “PC application help for Subaru Select Monitor”.

## B: COMMUNICATION FOR INITIALIZING IMPOSSIBLE

**DIAGNOSIS:**
Subaru Select Monitor communication line is open or shorted.
**TROUBLE SYMPTOM:**
Not communicable with Subaru Select Monitor.
**WIRING DIAGRAM:**
CAN communication system <Ref. to WI(w/o HEV)-65, WIRING DIAGRAM, CAN Communication System.>

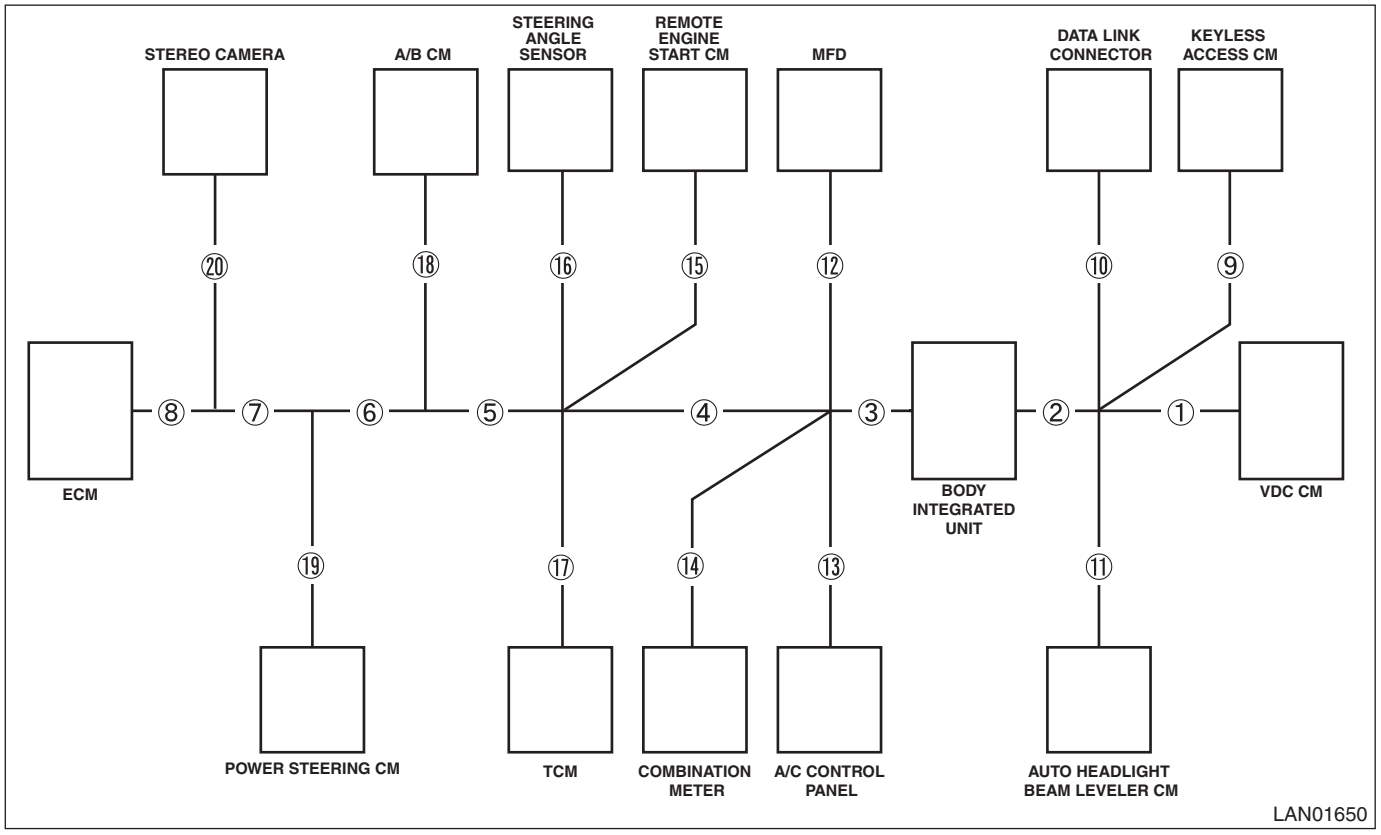



| Step | | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK SUBARU SELECT MONITOR.**<br>1) Connect the Subaru Select Monitor to another vehicle.<br>2) Check communication condition between Subaru Select Monitor and vehicle. | Is communication performed normally? | Go to step **2**. | Subaru Select Monitor unit or diagnosis cable is faulty. Or check the fuse on the vehicle side. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 2 | **CHECK COMMUNICATION FOR INITIALIZING ERROR.**<br>Perform the communication for initializing with each module by connecting the Subaru Select Monitor. (For systems whose module can communicate with diagnostic devices) | Is the communication possible with all modules? | Go to step **3**. | Perform the inspection using the check sheet of communication for initializing. <Ref. to LAN(w/o HEV)(diag)-12, CHECK USING THE CHECK SHEET OF COMMUNICATION FOR INITIALIZING, COMMUNICATION FOR INITIALIZING IMPOSSIBLE, Subaru Select Monitor.> |
| 3 | **CHECK K-LINE.**<br>1) Establish the communication between Select Monitor and K-Line communication module.<br>2) Using a tester, check continuity between the modules that did not communicate with Select Monitor.<br>***Connector & terminal***<br>***(B40) No. 7 — (B450) No. 2 (electric power steering):*** | Is there continuity? | Go to step **4**. | Repair or replace the open circuit. |
| 4 | **CHECK K-LINE.**<br>Using a tester, check continuity between K-line and chassis ground.<br>***Connector & terminal***<br>***(B40) No. 7 — Chassis ground:*** | Is there continuity? | Repair or replace the short circuit portion. | Go to step **5**. |
| 5 | **CHECK K-LINE.**<br>Using a tester, check voltage between K-line and chassis ground.<br>***Connector & terminal***<br>***(B40) No. 7 (+) — Chassis ground (–):*** | Is the voltage 5 V or more with IG ON? | Repair or replace the short circuit portion. | Go to step **6**. |
| 6 | **CHECK K-LINE.**<br>Use a tester to check for continuity in the ground circuit.<br>***Connector & terminal***<br>***(B40) No. 4 — Chassis ground:***<br>***(B40) No. 5 — Chassis ground:*** | Is there continuity? | Go to step **8**. | Go to step **7**. |
| 7 | **CHECK K-LINE.**<br>1) Disconnect the ECM connector.<br>2) Use a tester to check for continuity in the ground circuit.<br>***Connector & terminal***<br>***(B40) No. 4 — (B136) No. 1:***<br>***(B40) No. 5 — (B137) No. 4:*** | Is there continuity? | Check ECM ground. | Repair or replace the open circuit. |
| 8 | **CHECK K-LINE.**<br>1) Turn the ignition switch to ON.<br>2) Using a tester, check the power supply of data link connector.<br>***Connector & terminal***<br>***(B40) No. 8 (+) — Chassis ground (–):***<br>***(B40) No. 16 (+) — Chassis ground (–):*** | Is the voltage 10 V or more? | K-Line is normal. Check the power supply circuit of each module. | Check the power supply circuits to the data link connector. |

## 1. CHECK USING THE CHECK SHEET OF COMMUNICATION FOR INITIALIZING

- **Network diagram**




- **Check sheet of communication for initializing**

| | (A) | (B) | | (E) | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | (C) | (D) | ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ | ⑧ | ⑨ | ⑩ | ⑪ | ⑫ | ⑬ | ⑭ | ⑮ | ⑯ | ⑰ | ⑱ | ⑲ | ⑳ |
| VDC | | — | | | — | — | — | — | — | — | — | — | | — | — | — | — | — | — | — | — | — | — |
| KPS | | — | | — | — | — | — | — | — | — | — | | | — | — | — | — | — | — | — | — | — | — |
| HL | | — | | — | — | — | — | — | — | — | — | — | | | — | — | — | — | — | — | — | — | — |
| BIU | | — | | — | | — | — | — | — | — | — | — | | — | — | — | — | — | — | — | — | — | — |
| MFD | | — | | — | | | — | — | — | — | — | — | | — | | — | — | — | — | — | — | — | — |
| A/C | | — | | — | | | — | — | — | — | — | — | | — | — | | — | — | — | — | — | — | — |
| MET | | — | | — | | | — | — | — | — | — | — | | — | — | — | | — | — | — | — | — | — |
| RST | | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| STR | | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| TCM | | — | | — | | | | — | — | — | — | — | | — | — | — | — | — | — | | — | — | — |
| A/B | | — | | — | | | | | — | — | — | — | | — | — | — | — | — | — | — | | — | — |
| EPS | | | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| ES | | — | | — | | | | | | — | — | — | | — | — | — | — | — | — | — | — | — | |
| ECM | | — | | — | | | | | | | | — | | — | — | — | — | — | — | — | — | — | — |

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| | | | | |
|---|---|---|---|---|
| (A) | Installation check | VDC: VDC CM | RST: Remote engine starter CM |
| (B) | Communication initialization | KPS: Keyless access CM | STR: Steering angle sensor |
| (C) | K-Line | HL: Auto headlight beam leveler CM | TCM: TCM |
| (D) | CAN | BIU: Body integrated unit | A/B: AB CM |
| (E) | Wiring location | MFD: High grade MFD | EPS: Power steering CM |
| | | A/C: A/C control panel | ES: Stereo camera |
| | | MET: Combination meter | ECM: ECM |

1) Module installation check
   (1) Write "-" marks in the field for installation check if the vehicle to be inspected does not have relevant module.
   (2) Write "-" marks in all blank fields on the same row that the "-" mark has filled in.

NOTE:
Example of writing <Ref. to LAN(w/o HEV)(diag)-14, EXAMPLE OF WRITING FOR THE CHECK SHEET OF COMMUNICATION FOR INITIALIZING, COMMUNICATION FOR INITIALIZING IMPOSSIBLE, Subaru Select Monitor.>

2) SSM communication initialization check
   (1) Write "○" marks in the field for communication initialization if the module succeeded in the communication for initializing with Select Monitor.
   If the communication with all modules is not possible, go to 3).
   (2) Write "○" marks in all blank fields on the same row that the "○" mark has filled in.
   (3) When at least one field in a column of wiring location is filled with the "○" mark, then the wiring for that location is normal. Write "○" marks in all blank fields on the same column that the "○" mark has filled in under the circled number.
   (4) Check the open circuit of the modules which have no "○" mark in their columns of the wiring location in ascending order. (only for installed modules)
   (5) If the communication is not possible after checking all harnesses, check the module power supply line.
   (6) Replace the module if the power supply line is normal.

NOTE:
• Example of writing <Ref. to LAN(w/o HEV)(diag)-14, EXAMPLE OF WRITING FOR THE CHECK SHEET OF COMMUNICATION FOR INITIALIZING, COMMUNICATION FOR INITIALIZING IMPOSSIBLE, Subaru Select Monitor.>
• Inspection using the communication for initializing of Subaru Select Monitor cannot be used to diagnose the wiring location marked with "-". Example of DTC data not received <Ref. to LAN(w/o HEV)(diag)-67, EXAMPLE OF DTC DATA NOT RECEIVED, LIST, List of Diagnostic Trouble Code (DTC).> and DTC matrix <Ref. to LAN(w/o HEV)(diag)-70, DTC MATRIX, LIST, List of Diagnostic Trouble Code (DTC).> should be used to identify the faulty portion.

3) SSM communication initialization check (impossible to communicate with all modules)

NOTE:
If at least one module becomes possible to communicate, return to 2).
   (1) Check for the short circuit to ground. <Ref. to LAN(w/o HEV)(diag)-31, GROUND SHORT INSPECTION, INSPECTION, CAN Communication Circuit Check.> If it is normal, go to the next.
   (2) Check for the short circuit to battery. <Ref. to LAN(w/o HEV)(diag)-33, BATTERY SHORT INSPECTION, INSPECTION, CAN Communication Circuit Check.> If it is normal, go to the next.
   (3) Perform the inspection for the resistance of 52 Ω or less (short between wires). <Ref. to LAN(w/o HEV)(diag)-37, 52 Ω OR LESS, INSPECTION, CAN Communication Circuit Check.> If it is normal, go to the next.
   (4) Check for the open circuit of network diagram No. 10 (data link connector).

## 2. EXAMPLE OF WRITING FOR THE CHECK SHEET OF COMMUNICATION FOR INITIALIZING

When ① is open

| | (A) | (B) | | (E) | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ | ⑧ | ⑨ | ⑩ | ⑪ | ⑫ | ⑬ | ⑭ | ⑮ | ⑯ | ⑰ | ⑱ | ⑲ | ⑳ |
| | | (C) | (D) | | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | — | — | ○ | ○ | — | ○ |
| VDC | ○ | — | × | | — | — | — | — | — | — | — | — | ○ | — | — | — | — | — | — | — | — | — | — |
| KPS | ○ | — | ○ | — | — | — | — | — | — | — | — | ○ | ○ | — | — | — | — | — | — | — | — | — | — |
| HL | ○ | — | ○ | — | — | — | — | — | — | — | — | — | ○ | ○ | — | — | — | — | — | — | — | — | — |
| BIU | ○ | — | ○ | — | ○ | — | — | — | — | — | — | — | ○ | — | — | — | — | — | — | — | — | — | — |
| MFD | ○ | — | ○ | — | ○ | ○ | — | — | — | — | — | — | ○ | — | ○ | — | — | — | — | — | — | — | — |
| A/C | ○ | — | ○ | — | ○ | ○ | — | — | — | — | — | — | ○ | — | — | ○ | — | — | — | — | — | — | — |
| MET | ○ | — | ○ | — | ○ | ○ | — | — | — | — | — | — | ○ | — | — | — | ○ | — | — | — | — | — | — |
| RST | ○ | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| STR | ○ | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| TCM | ○ | — | ○ | — | ○ | ○ | ○ | — | — | — | — | — | ○ | — | — | — | — | — | — | ○ | — | — | — |
| A/B | ○ | — | ○ | — | ○ | ○ | ○ | ○ | — | — | — | — | ○ | — | — | — | — | — | — | — | ○ | — | — |
| EPS | ○ | ○ | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| ES | ○ | — | ○ | — | ○ | ○ | ○ | ○ | ○ | — | — | — | ○ | — | — | — | — | — | — | — | — | — | ○ |
| ECM | ○ | — | ○ | — | ○ | ○ | ○ | ○ | ○ | ○ | ○ | — | ○ | — | — | — | — | — | — | — | — | — | — |

LAN01653

When ② is open

| | (A) | (B) | | (E) | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ | ⑧ | ⑨ | ⑩ | ⑪ | ⑫ | ⑬ | ⑭ | ⑮ | ⑯ | ⑰ | ⑱ | ⑲ | ⑳ |
| | | (C) | (D) | ○ | | | | | | | | ○ | ○ | ○ | | | | — | — | | | — | |
| VDC | ○ | — | ○ | ○ | — | — | — | — | — | — | — | — | ○ | — | — | — | — | — | — | — | — | — | — |
| KPS | ○ | — | ○ | — | — | — | — | — | — | — | — | ○ | ○ | — | — | — | — | — | — | — | — | — | — |
| HL | ○ | — | ○ | — | — | — | — | — | — | — | — | — | ○ | ○ | — | — | — | — | — | — | — | — | — |
| BIU | ○ | — | × | — | | — | — | — | — | — | — | — | ○ | — | — | — | — | — | — | — | — | — | — |
| MFD | ○ | — | × | — | | | — | — | — | — | — | — | ○ | — | | — | — | — | — | — | — | — | — |
| A/C | ○ | — | × | — | | | — | — | — | — | — | — | ○ | — | — | | — | — | — | — | — | — | — |
| MET | ○ | — | × | — | | | — | — | — | — | — | — | ○ | — | — | — | | — | — | — | — | — | — |
| RST | ○ | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| STR | ○ | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| TCM | ○ | — | × | — | | | | — | — | — | — | — | ○ | — | — | — | — | — | — | | — | — | — |
| A/B | ○ | — | × | — | | | | | — | — | — | — | ○ | — | — | — | — | — | — | — | | — | — |
| EPS | ○ | ○ | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| ES | ○ | — | × | — | | | | | | — | — | — | ○ | — | — | — | — | — | — | — | — | — | |
| ECM | ○ | — | × | — | | | | | | | | — | ○ | — | — | — | — | — | — | — | — | — | — |

LAN01654

When ③ is open

| | (A) | (B) | | (E) | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ | ⑧ | ⑨ | ⑩ | ⑪ | ⑫ | ⑬ | ⑭ | ⑮ | ⑯ | ⑰ | ⑱ | ⑲ | ⑳ |
| | | (C) | (D) | ○ | ○ | | | | | | | ○ | ○ | ○ | | | | — | — | | | — | |
| VDC | ○ | — | ○ | ○ | — | — | — | — | — | — | — | — | ○ | — | — | — | — | — | — | — | — | — | — |
| KPS | ○ | — | ○ | — | — | — | — | — | — | — | — | ○ | ○ | — | — | — | — | — | — | — | — | — | — |
| HL | ○ | — | ○ | — | — | — | — | — | — | — | — | — | ○ | ○ | — | — | — | — | — | — | — | — | — |
| BIU | ○ | — | ○ | — | ○ | — | — | — | — | — | — | — | ○ | — | — | — | — | — | — | — | — | — | — |
| MFD | ○ | — | × | — | ○ | | — | — | — | — | — | — | ○ | — | | — | — | — | — | — | — | — | — |
| A/C | ○ | — | × | — | ○ | | — | — | — | — | — | — | ○ | — | — | | — | — | — | — | — | — | — |
| MET | ○ | — | × | — | ○ | | — | — | — | — | — | — | ○ | — | — | — | | — | — | — | — | — | — |
| RST | ○ | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| STR | ○ | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| TCM | ○ | — | × | — | ○ | | | — | — | — | — | — | ○ | — | — | — | — | — | — | | — | — | — |
| A/B | ○ | — | × | — | ○ | | | | — | — | — | — | ○ | — | — | — | — | — | — | — | | — | — |
| EPS | ○ | ○ | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| ES | ○ | — | × | — | ○ | | | | | — | — | — | ○ | — | — | — | — | — | — | — | — | — | |
| ECM | ○ | — | × | — | ○ | | | | | | | — | ○ | — | — | — | — | — | — | — | — | — | — |

LAN01655

When ④ is open

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| | | | | ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ | ⑧ | ⑨ | ⑩ | ⑪ | ⑫ | ⑬ | ⑭ | ⑮ | ⑯ | ⑰ | ⑱ | ⑲ | ⑳ |
| | | (C) | (D) | ○ | ○ | ○ | | | | | | ○ | ○ | ○ | ○ | ○ | ○ | — | — | | | — | |
| VDC | ○ | — | ○ | ○ | — | — | — | — | — | — | — | — | ○ | — | — | — | — | — | — | — | — | — | — |
| KPS | ○ | — | ○ | — | — | — | — | — | — | — | — | ○ | ○ | — | — | — | — | — | — | — | — | — | — |
| HL | ○ | — | ○ | — | — | — | — | — | — | — | — | — | ○ | ○ | — | — | — | — | — | — | — | — | — |
| BIU | ○ | — | ○ | — | ○ | — | — | — | — | — | — | — | ○ | — | — | — | — | — | — | — | — | — | — |
| MFD | ○ | — | ○ | — | ○ | ○ | — | — | — | — | — | — | ○ | — | ○ | — | — | — | — | — | — | — | — |
| A/C | ○ | — | ○ | — | ○ | ○ | — | — | — | — | — | — | ○ | — | — | ○ | — | — | — | — | — | — | — |
| MET | ○ | — | ○ | — | ○ | ○ | — | — | — | — | — | — | ○ | — | — | — | ○ | — | — | — | — | — | — |
| RST | ○ | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| STR | ○ | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| TCM | ○ | — | × | — | ○ | ○ | | — | — | — | — | — | ○ | — | — | — | — | — | — | | — | — | — |
| A/B | ○ | — | × | — | ○ | ○ | | | — | — | — | — | ○ | — | — | — | — | — | — | — | | — | — |
| EPS | ○ | ○ | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| ES | ○ | — | × | — | ○ | ○ | | | | — | — | — | ○ | — | — | — | — | — | — | — | — | — | |
| ECM | ○ | — | × | — | ○ | ○ | | | | | | — | ○ | — | — | — | — | — | — | — | — | — | — |

LAN01656

When ⑤ is open

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| | | | | ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ | ⑧ | ⑨ | ⑩ | ⑪ | ⑫ | ⑬ | ⑭ | ⑮ | ⑯ | ⑰ | ⑱ | ⑲ | ⑳ |
| | | (C) | (D) | ○ | ○ | ○ | ○ | | | | | ○ | ○ | ○ | ○ | ○ | ○ | — | — | ○ | | — | |
| VDC | ○ | — | ○ | ○ | — | — | — | — | — | — | — | — | ○ | — | — | — | — | — | — | — | — | — | — |
| KPS | ○ | — | ○ | — | — | — | — | — | — | — | — | ○ | ○ | — | — | — | — | — | — | — | — | — | — |
| HL | ○ | — | ○ | — | — | — | — | — | — | — | — | — | ○ | ○ | — | — | — | — | — | — | — | — | — |
| BIU | ○ | — | ○ | — | ○ | — | — | — | — | — | — | — | ○ | — | — | — | — | — | — | — | — | — | — |
| MFD | ○ | — | ○ | — | ○ | ○ | — | — | — | — | — | — | ○ | — | ○ | — | — | — | — | — | — | — | — |
| A/C | ○ | — | ○ | — | ○ | ○ | — | — | — | — | — | — | ○ | — | — | ○ | — | — | — | — | — | — | — |
| MET | ○ | — | ○ | — | ○ | ○ | — | — | — | — | — | — | ○ | — | — | — | ○ | — | — | — | — | — | — |
| RST | ○ | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| STR | ○ | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| TCM | ○ | — | ○ | — | ○ | ○ | ○ | — | — | — | — | — | ○ | — | — | — | — | — | — | ○ | — | — | — |
| A/B | ○ | — | × | — | ○ | ○ | ○ | | — | — | — | — | ○ | — | — | — | — | — | — | — | | — | — |
| EPS | ○ | ○ | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| ES | ○ | — | × | — | ○ | ○ | ○ | | | — | — | — | ○ | — | — | — | — | — | — | — | — | — | |
| ECM | ○ | — | × | — | ○ | ○ | ○ | | | | | — | ○ | — | — | — | — | — | — | — | — | — | — |

LAN01657

When ⑥ is open

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| | | (C) | (D) | ○ | ○ | ○ | ○ | ○ | | | | ○ | ○ | ○ | ○ | ○ | ○ | — | — | ○ | ○ | — | |
| VDC | ○ | — | ○ | ○ | — | — | — | — | — | — | — | — | ○ | — | — | — | — | — | — | — | — | — | — |
| KPS | ○ | — | ○ | — | — | — | — | — | — | — | — | ○ | ○ | — | — | — | — | — | — | — | — | — | — |
| HL | ○ | — | ○ | — | — | — | — | — | — | — | — | — | ○ | ○ | — | — | — | — | — | — | — | — | — |
| BIU | ○ | — | ○ | — | ○ | — | — | — | — | — | — | — | ○ | — | — | — | — | — | — | — | — | — | — |
| MFD | ○ | — | ○ | — | ○ | ○ | — | — | — | — | — | — | ○ | — | ○ | — | — | — | — | — | — | — | — |
| A/C | ○ | — | ○ | — | ○ | ○ | — | — | — | — | — | — | ○ | — | — | ○ | — | — | — | — | — | — | — |
| MET | ○ | — | ○ | — | ○ | ○ | — | — | — | — | — | — | ○ | — | — | — | ○ | — | — | — | — | — | — |
| RST | ○ | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| STR | ○ | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| TCM | ○ | — | ○ | — | ○ | ○ | ○ | — | — | — | — | — | ○ | — | — | — | — | — | — | ○ | — | — | — |
| A/B | ○ | — | ○ | — | ○ | ○ | ○ | ○ | — | — | — | — | ○ | — | — | — | — | — | — | — | ○ | — | — |
| EPS | ○ | ○ | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| ES | ○ | — | × | — | ○ | ○ | ○ | ○ | | — | — | — | ○ | — | — | — | — | — | — | — | — | — | |
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LAN01658

When ⑦ is open

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| | | | | ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ | ⑧ | ⑨ | ⑩ | ⑪ | ⑫ | ⑬ | ⑭ | ⑮ | ⑯ | ⑰ | ⑱ | ⑲ | ⑳ |
| | | (C) | (D) | ○ | ○ | ○ | ○ | ○ | ○ | | | ○ | ○ | ○ | ○ | ○ | ○ | — | — | ○ | ○ | — | ○ |
| VDC | ○ | — | ○ | ○ | — | — | — | — | — | — | — | — | ○ | — | — | — | — | — | — | — | — | — | — |
| KPS | ○ | — | ○ | — | — | — | — | — | — | — | — | ○ | ○ | — | — | — | — | — | — | — | — | — | — |
| HL | ○ | — | ○ | — | — | — | — | — | — | — | — | — | ○ | ○ | — | — | — | — | — | — | — | — | — |
| BIU | ○ | — | ○ | — | ○ | — | — | — | — | — | — | — | ○ | — | — | — | — | — | — | — | — | — | — |
| MFD | ○ | — | ○ | — | ○ | ○ | — | — | — | — | — | — | ○ | — | ○ | — | — | — | — | — | — | — | — |
| A/C | ○ | — | ○ | — | ○ | ○ | — | — | — | — | — | — | ○ | — | — | ○ | — | — | — | — | — | — | — |
| MET | ○ | — | ○ | — | ○ | ○ | — | — | — | — | — | — | ○ | — | — | — | ○ | — | — | — | — | — | — |
| RST | ○ | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| STR | ○ | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| TCM | ○ | — | ○ | — | ○ | ○ | ○ | — | — | — | — | — | ○ | — | — | — | — | — | — | ○ | — | — | — |
| A/B | ○ | — | ○ | — | ○ | ○ | ○ | ○ | — | — | — | — | ○ | — | — | — | — | — | — | — | ○ | — | — |
| EPS | ○ | ○ | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| ES | ○ | — | ○ | — | ○ | ○ | ○ | ○ | ○ | — | — | — | ○ | — | — | — | — | — | — | — | — | — | ○ |
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LAN01659

When ⑧ is open

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| | | | | ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ | ⑧ | ⑨ | ⑩ | ⑪ | ⑫ | ⑬ | ⑭ | ⑮ | ⑯ | ⑰ | ⑱ | ⑲ | ⑳ |
| | | (C) | (D) | ○ | ○ | ○ | ○ | ○ | ○ | ○ | | ○ | ○ | ○ | ○ | ○ | ○ | — | — | ○ | ○ | — | ○ |
| VDC | ○ | — | ○ | ○ | — | — | — | — | — | — | — | — | ○ | — | — | — | — | — | — | — | — | — | — |
| KPS | ○ | — | ○ | — | — | — | — | — | — | — | — | ○ | ○ | — | — | — | — | — | — | — | — | — | — |
| HL | ○ | — | ○ | — | — | — | — | — | — | — | — | — | ○ | ○ | — | — | — | — | — | — | — | — | — |
| BIU | ○ | — | ○ | — | ○ | — | — | — | — | — | — | — | ○ | — | — | — | — | — | — | — | — | — | — |
| MFD | ○ | — | ○ | — | ○ | ○ | — | — | — | — | — | — | ○ | — | ○ | — | — | — | — | — | — | — | — |
| A/C | ○ | — | ○ | — | ○ | ○ | — | — | — | — | — | — | ○ | — | — | ○ | — | — | — | — | — | — | — |
| MET | ○ | — | ○ | — | ○ | ○ | — | — | — | — | — | — | ○ | — | — | — | ○ | — | — | — | — | — | — |
| RST | ○ | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| STR | ○ | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| TCM | ○ | — | ○ | — | ○ | ○ | ○ | — | — | — | — | — | ○ | — | — | — | — | — | — | ○ | — | — | — |
| A/B | ○ | — | ○ | — | ○ | ○ | ○ | ○ | — | — | — | — | ○ | — | — | — | — | — | — | — | ○ | — | — |
| EPS | ○ | ○ | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| ES | ○ | — | ○ | — | ○ | ○ | ○ | ○ | ○ | — | — | — | ○ | — | — | — | — | — | — | — | — | — | ○ |
| ECM | ○ | — | × | — | ○ | ○ | ○ | ○ | ○ | ○ | | — | ○ | — | — | — | — | — | — | — | — | — | — |

LAN01660

When ⑨ is open

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| | | | | ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ | ⑧ | ⑨ | ⑩ | ⑪ | ⑫ | ⑬ | ⑭ | ⑮ | ⑯ | ⑰ | ⑱ | ⑲ | ⑳ |
| | | (C) | (D) | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | | ○ | ○ | ○ | ○ | ○ | — | — | ○ | ○ | — | ○ |
| VDC | ○ | — | ○ | ○ | — | — | — | — | — | — | — | — | ○ | — | — | — | — | — | — | — | — | — | — |
| KPS | ○ | — | × | — | — | — | — | — | — | — | — | | ○ | — | — | — | — | — | — | — | — | — | — |
| HL | ○ | — | ○ | — | — | — | — | — | — | — | — | — | ○ | ○ | — | — | — | — | — | — | — | — | — |
| BIU | ○ | — | ○ | — | ○ | — | — | — | — | — | — | — | ○ | — | — | — | — | — | — | — | — | — | — |
| MFD | ○ | — | ○ | — | ○ | ○ | — | — | — | — | — | — | ○ | — | ○ | — | — | — | — | — | — | — | — |
| A/C | ○ | — | ○ | — | ○ | ○ | — | — | — | — | — | — | ○ | — | — | ○ | — | — | — | — | — | — | — |
| MET | ○ | — | ○ | — | ○ | ○ | — | — | — | — | — | — | ○ | — | — | — | ○ | — | — | — | — | — | — |
| RST | ○ | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| STR | ○ | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| TCM | ○ | — | ○ | — | ○ | ○ | ○ | — | — | — | — | — | ○ | — | — | — | — | — | — | ○ | — | — | — |
| A/B | ○ | — | ○ | — | ○ | ○ | ○ | ○ | — | — | — | — | ○ | — | — | — | — | — | — | — | ○ | — | — |
| EPS | ○ | ○ | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| ES | ○ | — | ○ | — | ○ | ○ | ○ | ○ | ○ | — | — | — | ○ | — | — | — | — | — | — | — | — | — | ○ |
| ECM | ○ | — | ○ | — | ○ | ○ | ○ | ○ | ○ | ○ | ○ | — | ○ | — | — | — | — | — | — | — | — | — | — |

LAN01661

When ⑩ is open

NOTE:
3) Perform inspection by referring to the communication initialization check (impossible to communicate with all modules). (⑩There may be a malfunction other than open circuit)

| | (A) | (B) | | (E) | | | | | | | | | | | | | | | | | | | |
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| | | | | ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ | ⑧ | ⑨ | ⑩ | ⑪ | ⑫ | ⑬ | ⑭ | ⑮ | ⑯ | ⑰ | ⑱ | ⑲ | ⑳ |
| | | (C) | (D) | | | | | | | | | | | | | | | — | — | | | — | |
| VDC | ○ | — | × | | — | — | — | — | — | — | — | — | | — | — | — | — | — | — | — | — | — | — |
| KPS | ○ | — | × | — | — | — | — | — | — | — | — | | | — | — | — | — | — | — | — | — | — | — |
| HL | ○ | — | × | — | — | — | — | — | — | — | — | — | | | — | — | — | — | — | — | — | — | — |
| BIU | ○ | — | × | — | | — | — | — | — | — | — | — | | — | — | — | — | — | — | — | — | — | — |
| MFD | ○ | — | × | — | | | — | — | — | — | — | — | | — | | — | — | — | — | — | — | — | — |
| A/C | ○ | — | × | — | | | — | — | — | — | — | — | | — | — | | — | — | — | — | — | — | — |
| MET | ○ | — | × | — | | | — | — | — | — | — | — | | — | — | — | | — | — | — | — | — | — |
| RST | ○ | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| STR | ○ | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| TCM | ○ | — | × | — | | | | — | — | — | — | — | | — | — | — | — | — | — | | — | — | — |
| A/B | ○ | — | × | — | | | | | — | — | — | — | | — | — | — | — | — | — | — | | — | — |
| EPS | ○ | ○ | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
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NOTE:
Locations can be identified by the difference of data no-receive conditions between modules. <Ref. to LAN(w/o HEV)(diag)-67, EXAMPLE OF DTC DATA NOT RECEIVED, LIST, List of Diagnostic Trouble Code (DTC).> <Ref. to LAN(w/o HEV)(diag)-70, DTC MATRIX, LIST, List of Diagnostic Trouble Code (DTC).>

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| | | | | ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ | ⑧ | ⑨ | ⑩ | ⑪ | ⑫ | ⑬ | ⑭ | ⑮ | ⑯ | ⑰ | ⑱ | ⑲ | ⑳ |
| | | (C) | (D) | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | — | — | ○ | ○ | — | |
| VDC | ○ | — | ○ | ○ | — | — | — | — | — | — | — | — | ○ | — | — | — | — | — | — | — | — | — | — |
| KPS | ○ | — | ○ | — | — | — | — | — | — | — | — | ○ | ○ | — | — | — | — | — | — | — | — | — | — |
| HL | ○ | — | ○ | — | — | — | — | — | — | — | — | — | ○ | ○ | — | — | — | — | — | — | — | — | — |
| BIU | ○ | — | ○ | — | ○ | — | — | — | — | — | — | — | ○ | — | — | — | — | — | — | — | — | — | — |
| MFD | ○ | — | ○ | — | ○ | ○ | — | — | — | — | — | — | ○ | — | ○ | — | — | — | — | — | — | — | — |
| A/C | ○ | — | ○ | — | ○ | ○ | — | — | — | — | — | — | ○ | — | — | ○ | — | — | — | — | — | — | — |
| MET | ○ | — | ○ | — | ○ | ○ | — | — | — | — | — | — | ○ | — | — | — | ○ | — | — | — | — | — | — |
| RST | ○ | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| STR | ○ | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| TCM | ○ | — | ○ | — | ○ | ○ | ○ | — | — | — | — | — | ○ | — | — | — | — | — | — | ○ | — | — | — |
| A/B | ○ | — | ○ | — | ○ | ○ | ○ | ○ | — | — | — | — | ○ | — | — | — | — | — | — | — | ○ | — | — |
| EPS | ○ | ○ | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| ES | ○ | — | × | — | ○ | ○ | ○ | ○ | ○ | — | — | — | ○ | — | — | — | — | — | — | — | — | — | |
| ECM | ○ | — | ○ | — | ○ | ○ | ○ | ○ | ○ | ○ | ○ | — | ○ | — | — | — | — | — | — | — | — | — | — |

LAN01674

# 7. Read Diagnostic Trouble Code (DTC)

## A: OPERATION

For details of operation procedures, refer to “PC application help for Subaru Select Monitor”.

# 8. Clear Memory Mode

## A: OPERATION

For details of operation procedures, refer to “PC application help for Subaru Select Monitor”.

# 9. CAN Communication Circuit Check

## A: PROCEDURE

NOTE:
- When measuring the resistance of CAN communication circuit, measure it in sleep status.

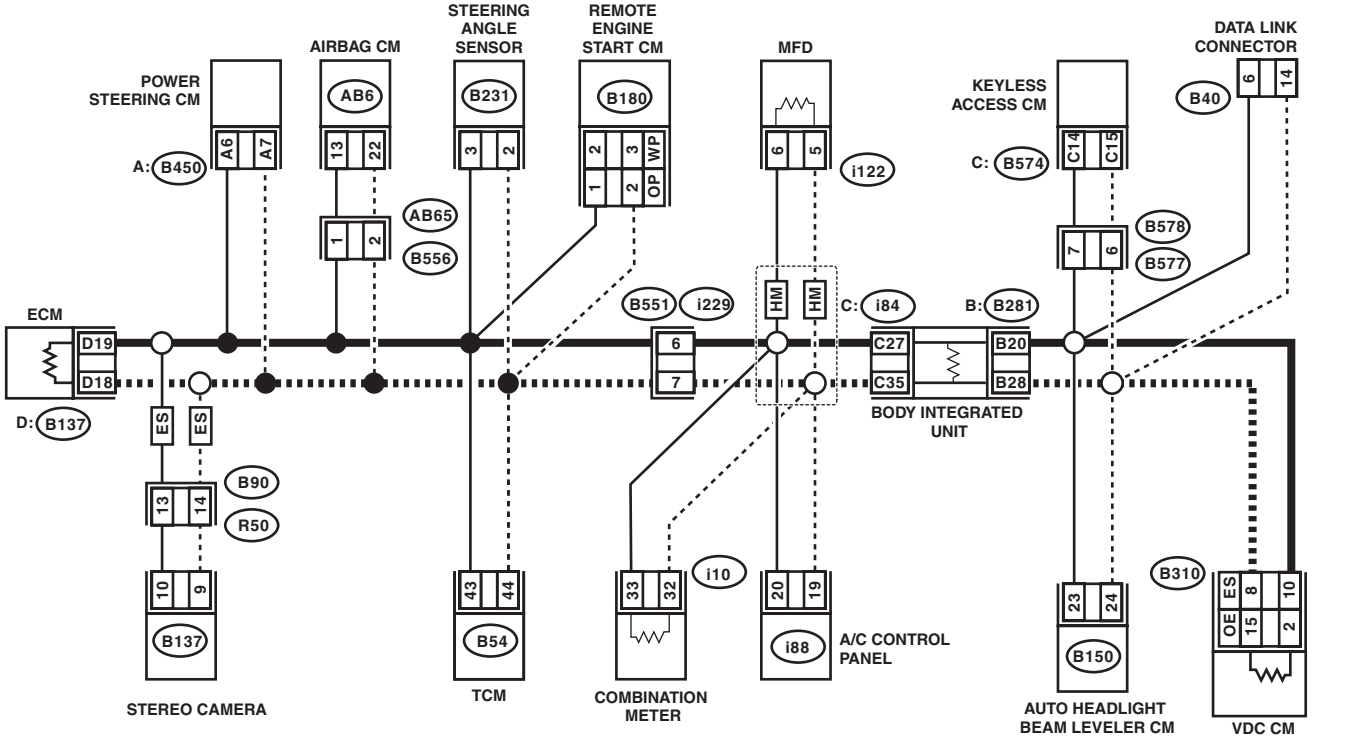
To enter sleep status
  – With ignition switch OFF and key or switch operation stopped, keep the doors, trunk, and rear gate all closed for one minute or more.
  – On models with keyless access function, keep the access key 2 m or more away from the vehicle.

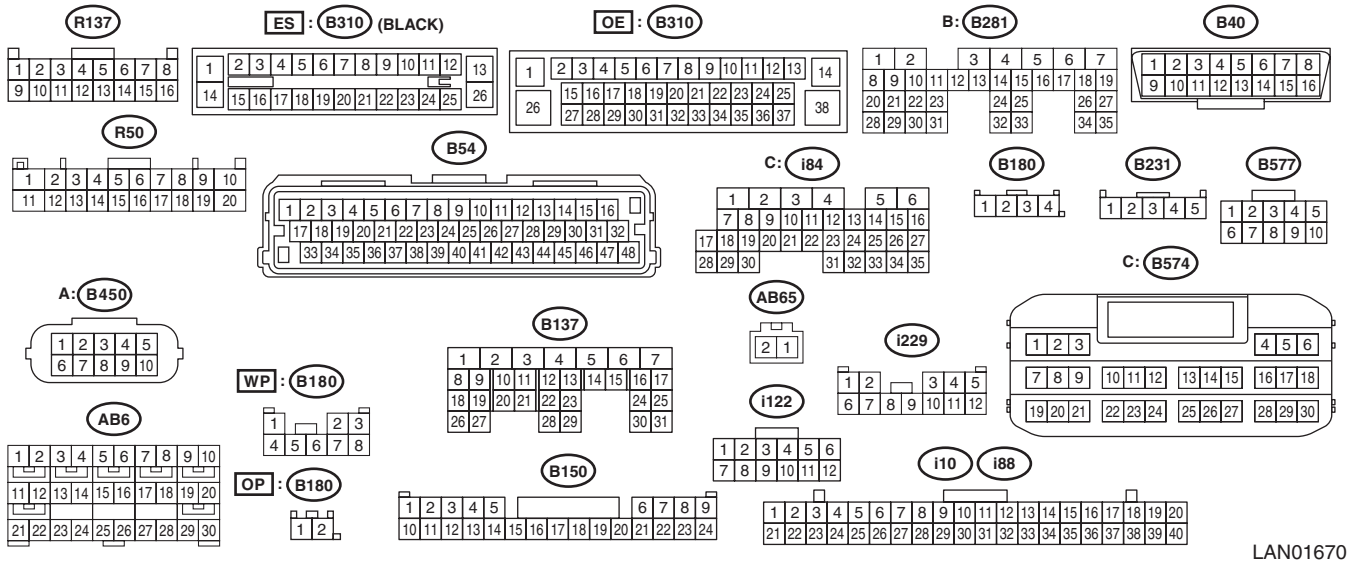
- When the bus line is measured, combined resistance of the end resistance (120 Ω) in ECM and the end resistance (120 Ω) in VDC CM can be measured. The combined resistance is supposed to be approximately 53 — 61 Ω with the stabilizing circuit included. If the measured resistance value becomes 52 Ω or less, main wiring harness or related lines may be shorted. Or, the combined resistance may have changed because of a resistance other than the end resistance created on the circuit. If the measured value is 62 Ω or more, there may be a malfunction such as open circuit in one of the end resistances, in the stabilizing circuit, or in the main wiring harness.

Also, even when the resistance value falls within approx. 53 — 61 Ω, related lines may be open if an error of communication for initializing or a CAN system U-code has occurred. (The resistance won't be between approx. 53 — 61 Ω if the main wiring harness is open.)

**WIRING DIAGRAM:**

CAN communication system <Ref. to WI(w/o HEV)-65, WIRING DIAGRAM, CAN Communication System.>



| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK BASIC DIAGNOSTIC PROCEDURE.**<br>Confirm that the basic diagnostic procedure was performed up to STEP 3.<br>NOTE:<br>Inspection using Subaru Select Monitor helps to find faulty portion easily before "CAN Communication Circuit Check" using the tester. | Was the basic diagnostic procedure performed? | Go to step **2**. | Perform the basic diagnostic procedure. <Ref. to LAN(w/o HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.> |
| 2 | **CHECK FROM DATA LINK CONNECTOR.**<br>Using the tester, measure the resistance between terminals.<br>***Connector & terminal***<br>***(B40) No. 6 — Chassis ground:***<br>***(B40) No. 14 — Chassis ground:*** | Is the resistance 10 Ω or less? | Check for ground short. <Ref. to LAN(w/o HEV)(diag)-31, GROUND SHORT INSPECTION, INSPECTION, CAN Communication Circuit Check.> | Go to step **3**. |
| 3 | **CHECK FROM DATA LINK CONNECTOR.**<br>1) Turn the ignition switch to ON.<br>2) Using the tester, measure the voltage between terminals.<br>***Connector & terminal***<br>***(B40) No. 6 — Chassis ground:***<br>***(B40) No. 14 — Chassis ground:*** | Is the voltage 5 V or less? | Go to step **4**. | Check for battery short. <Ref. to LAN(w/o HEV)(diag)-33, BATTERY SHORT INSPECTION, INSPECTION, CAN Communication Circuit Check.> |
| 4 | **CHECK FROM DATA LINK CONNECTOR.**<br>1) Turn the ignition switch to OFF.<br>2) Using the tester, measure the resistance between terminals.<br>***Connector & terminal***<br>***(B40) No. 6 — No. 14:*** | Is the resistance 52 Ω or less? | Perform the inspection for the resistance of 52 Ω or less. <Ref. to LAN(w/o HEV)(diag)-37, 52 Ω OR LESS, INSPECTION, CAN Communication Circuit Check.> | Go to step **5**. |
| 5 | **CHECK FROM DATA LINK CONNECTOR.**<br>Using the tester, measure the resistance between terminals.<br>***Connector & terminal***<br>***(B40) No. 6 — No. 14:*** | Is the resistance 62 Ω or more? | Perform the inspection for the resistance of 62 Ω or more. <Ref. to LAN(w/o HEV)(diag)-40, 62 Ω OR MORE, INSPECTION, CAN Communication Circuit Check.> | If the display of CAN system U-code disappears from the current malfunction, the CAN network is currently normal. If the U-code has detected as current malfunction, related lines may be open. Perform the inspection for the related line corresponding to the detected DTC. <Ref. to LAN(w/o HEV)(diag)-30, LIST, CAN Communication Circuit Check.> |

## B: LIST

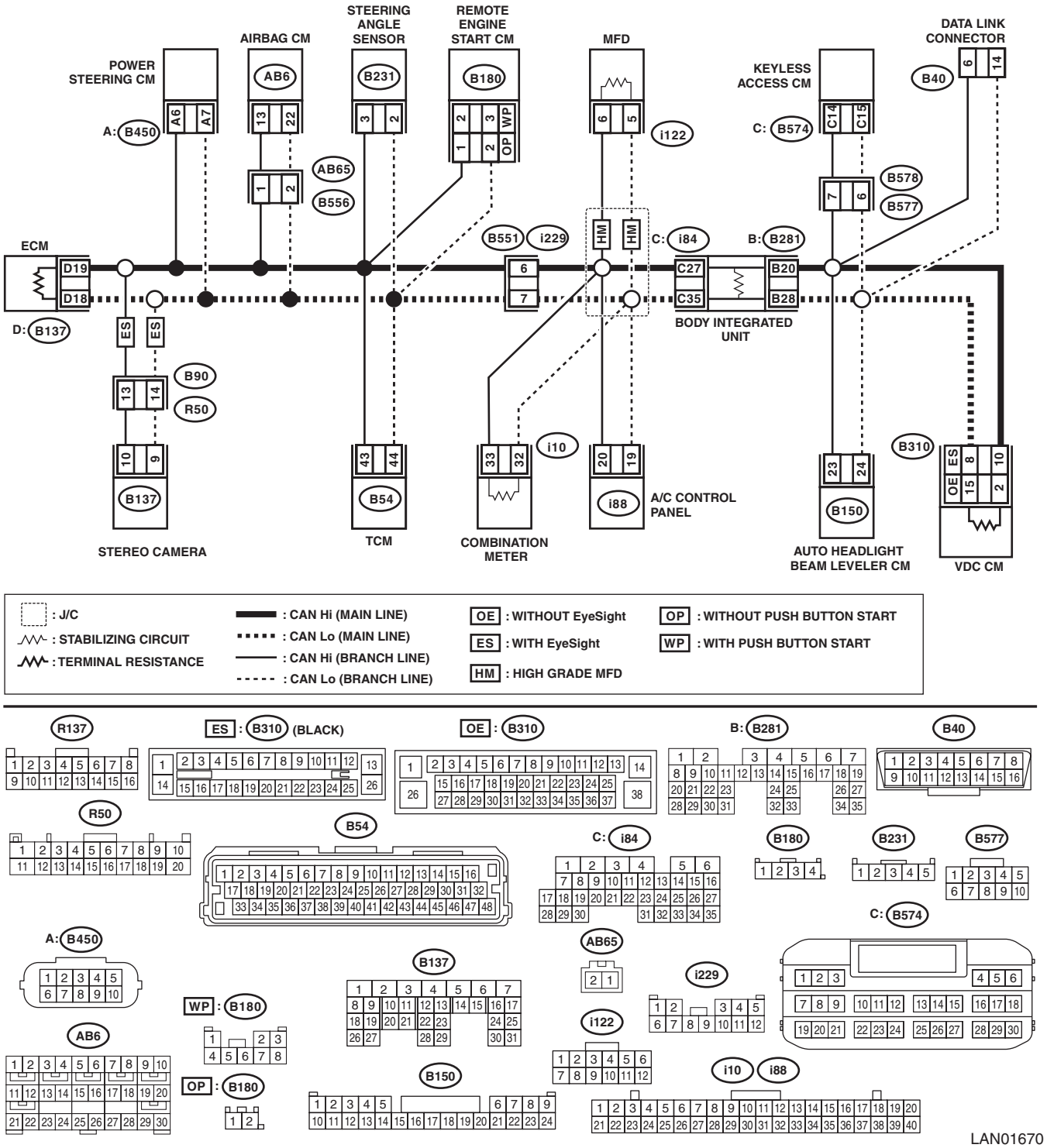
| Resistance value between CAN Hi and Lo | Contents of inspection | Remarks |
|---|---|---|
| Ground short inspection | <Ref. to LAN(w/o HEV)(diag)-31, GROUND SHORT INSPECTION, INSPECTION, CAN Communication Circuit Check.> | Shorted to ground in the communication circuit or control module. |
| Battery short inspection | <Ref. to LAN(w/o HEV)(diag)-33, BATTERY SHORT INSPECTION, INSPECTION, CAN Communication Circuit Check.> | Shorted to battery power supply in the communication circuit or control module. |
| 53 — 61 Ω | <Ref. to LAN(w/o HEV)(diag)-35, 53 — 61 Ω, INSPECTION, CAN Communication Circuit Check.> | Combined resistance of end resistance does not have malfunction; short to ground or +B short of the CAN communication circuit is possible, however. |
| 52 Ω or less | <Ref. to LAN(w/o HEV)(diag)-37, 52 Ω OR LESS, INSPECTION, CAN Communication Circuit Check.> | Resistance is lower than combined resistance of end resistance. Short to CAN Hi and CAN Lo on the CAN communication circuit is possible. |
| 62 Ω or more | <Ref. to LAN(w/o HEV)(diag)-40, 62 Ω OR MORE, INSPECTION, CAN Communication Circuit Check.> | Resistance is higher than combined resistance of end resistance. Open circuit of CAN communication circuit is possible. |
| Related lines 53 — 61 Ω (TCM) | <Ref. to LAN(w/o HEV)(diag)-42, RELATED LINES 53 — 61 Ω (TCM), INSPECTION, CAN Communication Circuit Check.> | No TCM data is received. Perform inspection when faulty is detected. |
| Related lines 53 — 61 Ω (steering angle sensor) | <Ref. to LAN(w/o HEV)(diag)-44, RELATED LINES 53 — 61 Ω (STEERING ANGLE SENSOR), INSPECTION, CAN Communication Circuit Check.> | No steering angle sensor data is received. Perform inspection when faulty is detected. |
| Related line 53 — 61 Ω (A/C control panel) | <Ref. to LAN(w/o HEV)(diag)-46, RELATED LINE 53 — 61 Ω (A/C CONTROL PANEL), INSPECTION, CAN Communication Circuit Check.> | No A/C data is received. Perform inspection when faulty is detected. |
| Related lines 53 — 61 Ω (electric power steering CM) | <Ref. to LAN(w/o HEV)(diag)-48, RELATED LINES 53 — 61 Ω (ELECTRIC POWER STEERING CM), INSPECTION, CAN Communication Circuit Check.> | No electric power steering data is received. Perform inspection when faulty is detected. |
| Related lines 53 — 61 Ω (combination meter) | <Ref. to LAN(w/o HEV)(diag)-50, RELATED LINES 53 — 61 Ω (COMBINATION METER), INSPECTION, CAN Communication Circuit Check.> | No meter data is received. Perform inspection when faulty is detected. |
| Related lines 53 — 61 Ω (MFD) | <Ref. to LAN(w/o HEV)(diag)-52, RELATED LINES 53 — 61 Ω (MFD), INSPECTION, CAN Communication Circuit Check.> | No MFD data is received. Perform inspection when faulty is detected. |
| Related lines 53 — 61 Ω (airbags) | <Ref. to LAN(w/o HEV)(diag)-54, RELATED LINES 53 — 61 Ω (A/B CM), INSPECTION, CAN Communication Circuit Check.> | No airbag data is received. Perform inspection when faulty is detected. |
| Related lines 53 — 61 Ω (headlight beam leveler) | <Ref. to LAN(w/o HEV)(diag)-60, RELATED LINES 53 — 61 Ω (HEADLIGHT BEAM LEVELER), INSPECTION, CAN Communication Circuit Check.> | No headlight beam leveler data is received. Perform inspection when faulty is detected. |
| Related lines 53 — 61 Ω (remote engine starter) | <Ref. to LAN(w/o HEV)(diag)-62, RELATED LINES 53 — 61 Ω (REMOTE ENGINE STARTER), INSPECTION, CAN Communication Circuit Check.> | Perform inspection when the remote engine starter does not operate, while the mobile key side operates normally. |
| Related lines 53 — 61 Ω (keyless access system) | <Ref. to LAN(w/o HEV)(diag)-56, RELATED LINES 53 — 61 Ω (KEYLESS ACCESS SYSTEM), INSPECTION, CAN Communication Circuit Check.> | No keyless access CM data is received. Perform inspection when faulty is detected. |
| Related lines 53 — 61 Ω (stereo camera) | <Ref. to LAN(w/o HEV)(diag)-58, RELATED LINES 53 — 61 Ω (STEREO CAMERA), INSPECTION, CAN Communication Circuit Check.> | No stereo camera data is received. Perform inspection when faulty is detected. |

# C: INSPECTION

## 1. GROUND SHORT INSPECTION

### WIRING DIAGRAM:

CAN communication system <Ref. to WI(w/o HEV)-65, WIRING DIAGRAM, CAN Communication System.>



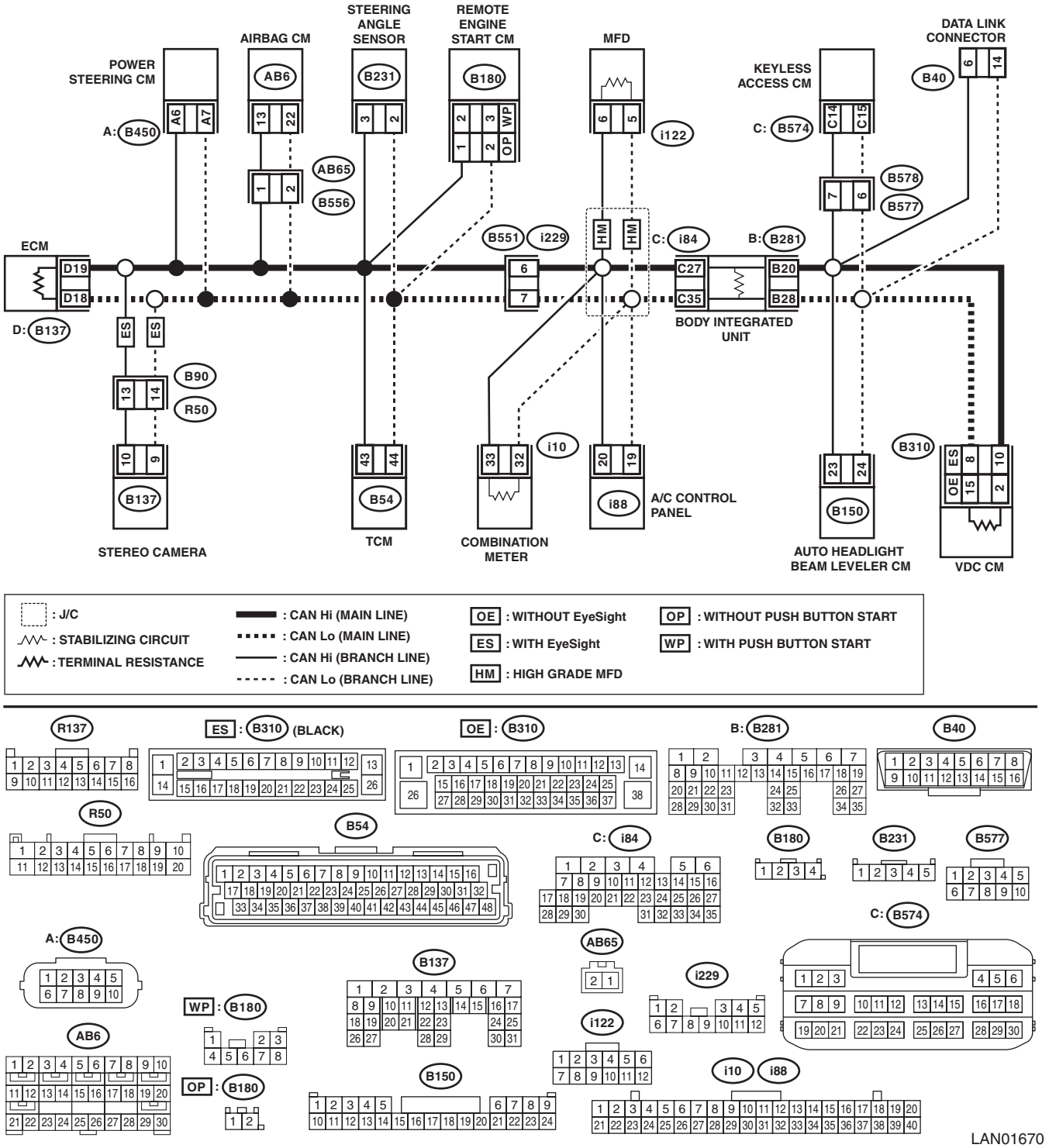

NOTE:
Main wiring harness or related lines may be shorted to ground, or shorted to ground in one of the control modules.

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK BETWEEN RELATED LINES AND MAIN WIRING HARNESS.**<br>Using the tester, measure the resistance between terminals.<br>***Connector & terminal***<br>***(B40) No. 6 — Chassis ground:***<br>***(B40) No. 14 — Chassis ground:*** | Is the resistance 10 Ω or less? | Go to step **2**. | Currently, it is normal. |
| 2 | **CHECK CONTROL MODULE.**<br>With the tester connected, disconnect control module.<br>NOTE:<br>Disconnect the body integrated unit at the end.<br>***Connector & terminal***<br>***(B40) No. 6 — Chassis ground:***<br>***(B40) No. 14 — Chassis ground:*** | Did the resistance change to 10 Ω or more? | Replace the control module whose resistance has changed. When the value changed at disconnecting the body integrated unit,<br>Go to step **3**. | Repair or replace the short circuit of the main wiring harness and related lines between body integrated unit and VDC CM. |
| 3 | **CHECK BETWEEN MAIN WIRING HARNESSES.**<br>Using the tester, measure the resistance between terminals.<br>***Connector & terminal***<br>***(i84) No. 27 — Chassis ground:***<br>***(i84) No. 35 — Chassis ground:*** | Is the resistance 10 Ω or less? | Repair or replace the short circuit of the main wiring harness and related lines between ECM and body integrated unit. | Replace the body integrated unit. <Ref. to SL-87, REMOVAL, Body Integrated Unit.> |

## 2. BATTERY SHORT INSPECTION

**WIRING DIAGRAM:**

CAN communication system <Ref. to WI(w/o HEV)-65, WIRING DIAGRAM, CAN Communication System.>



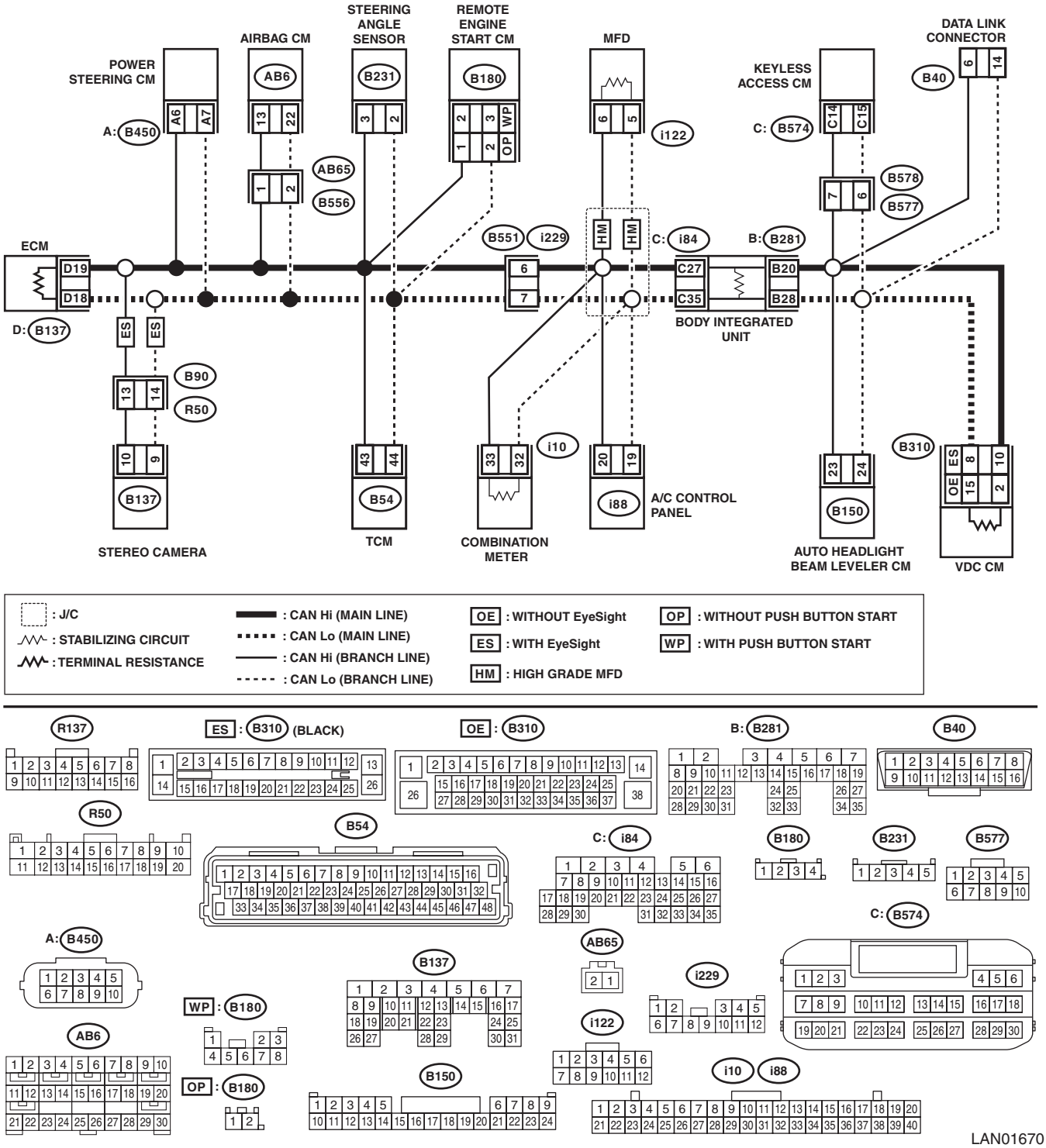

NOTE:
Main wiring harness or related lines may be shorted to battery circuit, or shorted to battery circuit in one of the control modules.

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK BETWEEN RELATED LINES AND MAIN WIRING HARNESS.**<br>1) Turn the ignition switch to ON.<br>2) Using the tester, measure the voltage between terminals.<br>***Connector & terminal***<br>***(B40) No. 6 — Chassis ground:***<br>***(B40) No. 14 — Chassis ground:*** | Is the voltage 5 V or less? | Currently, it is normal. | Go to step **2**. |
| 2 | **CHECK CONTROL MODULE.**<br>With the tester connected, disconnect control module.<br>NOTE:<br>Disconnect the body integrated unit at the end.<br>***Connector & terminal***<br>***(B40) No. 6 — Chassis ground:***<br>***(B40) No. 14 — Chassis ground:*** | Did the voltage change to 5 V or less? | Replace the control module whose voltage has changed. When the value changed at disconnecting the body integrated unit,<br>Go to step **3**. | Repair or replace the short circuit of the harness between body integrated unit and VDC CM. |
| 3 | **CHECK BETWEEN MAIN WIRING HARNESSES.**<br>Using the tester, measure the voltage between terminals.<br>***Connector & terminal***<br>***(i84) No. 27 — Chassis ground:***<br>***(i84) No. 35 — Chassis ground:*** | Is the voltage 5 V or less? | Replace the body integrated unit. <Ref. to SL-87, REMOVAL, Body Integrated Unit.> | Repair or replace the short circuit of the harness between ECM and body integrated unit. |

### 3. 53 — 61 Ω

**WIRING DIAGRAM:**

CAN communication system <Ref. to WI(w/o HEV)-65, WIRING DIAGRAM, CAN Communication System.>




NOTE:

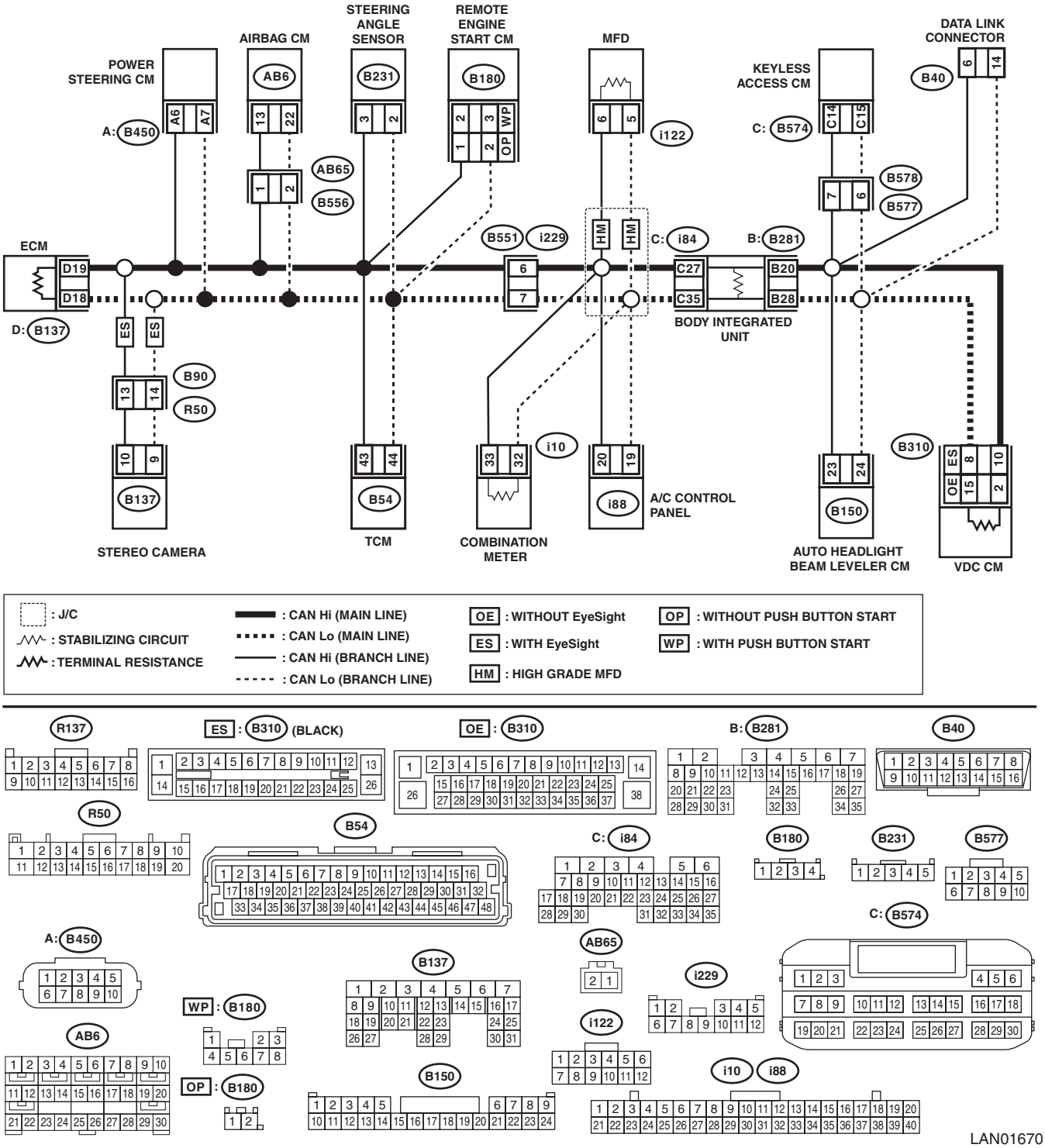
When the measured resistance value is 53 — 61 Ω, main wiring harness or related lines may be shorted to ground, or shorted to power supply line, or related line may be open.

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK BETWEEN RELATED LINES AND MAIN WIRING HARNESS.**<br>Using the tester, measure the resistance between terminals.<br>***Connector & terminal***<br>***(B40) No. 6 — Chassis ground:***<br>***(B40) No. 14 — Chassis ground:*** | Is the resistance 10 Ω or less? | Go to step **2**. | Go to step **4**. |
| 2 | **CHECK CONTROL MODULE.**<br>With the tester connected, disconnect control module.<br>NOTE:<br>Disconnect the body integrated unit at the end.<br>***Connector & terminal***<br>***(B40) No. 6 — Chassis ground:***<br>***(B40) No. 14 — Chassis ground:*** | Did the resistance change to 10 Ω or more? | Replace the control module whose resistance has changed. When the value changed at disconnecting the body integrated unit,<br>Go to step **3**. | Repair or replace the short circuit of the harness between body integrated unit and VDC CM. |
| 3 | **CHECK MAIN WIRING HARNESS AND RELATED LINES.**<br>Using the tester, measure the resistance between terminals.<br>***Connector & terminal***<br>***(i84) No. 27 — Chassis ground:***<br>***(i84) No. 35 — Chassis ground:*** | Is the resistance 10 Ω or less? | Repair or replace the short circuit of the harness between ECM and body integrated unit. | Replace the body integrated unit. <Ref. to SL-87, REMOVAL, Body Integrated Unit.> |
| 4 | **CHECK BETWEEN RELATED LINES AND MAIN WIRING HARNESS.**<br>1) Turn the ignition switch to ON.<br>2) Using the tester, measure the voltage between terminals.<br>***Connector & terminal***<br>***(B40) No. 6 — Chassis ground:***<br>***(B40) No. 14 — Chassis ground:*** | Is the voltage 5 V or less? | CAN communication circuit is normal. | Go to step **5**. |
| 5 | **CHECK CONTROL MODULE.**<br>With the tester connected, disconnect control module.<br>NOTE:<br>Disconnect the body integrated unit at the end.<br>***Connector & terminal***<br>***(B40) No. 6 — Chassis ground:***<br>***(B40) No. 14 — Chassis ground:*** | Did the voltage change to 5 V or less? | Replace the control module whose voltage has changed. When the value changed at disconnecting the body integrated unit,<br>Go to step **6**. | Repair or replace the short circuit of the harness between body integrated unit and VDC CM. |
| 6 | **CHECK HARNESS.**<br>Using a tester, measure the voltage between terminals and chassis ground.<br>***Connector & terminal***<br>***(i84) No. 27 — Chassis ground:***<br>***(i84) No. 35 — Chassis ground:*** | Is the voltage 5 V or less? | Replace the body integrated unit. <Ref. to SL-87, REMOVAL, Body Integrated Unit.> | Repair or replace the short circuit of the harness between ECM and body integrated unit. |

## 4. 52 Ω OR LESS

**WIRING DIAGRAM:**

CAN communication system <Ref. to WI(w/o HEV)-65, WIRING DIAGRAM, CAN Communication System.>




NOTE:

When the bus line is measured, combined resistance of end resistance (120 Ω) in ECM and end resistance (120 Ω) in VDC CM can be measured. The combined resistance is approximately 53 — 61 Ω with the stabilizing circuit included. When the measured resistance value is 52 Ω or less, main wiring harness or related lines may be shorted, or combined resistance may have changed because resistance other than end resistance is created on the circuit.

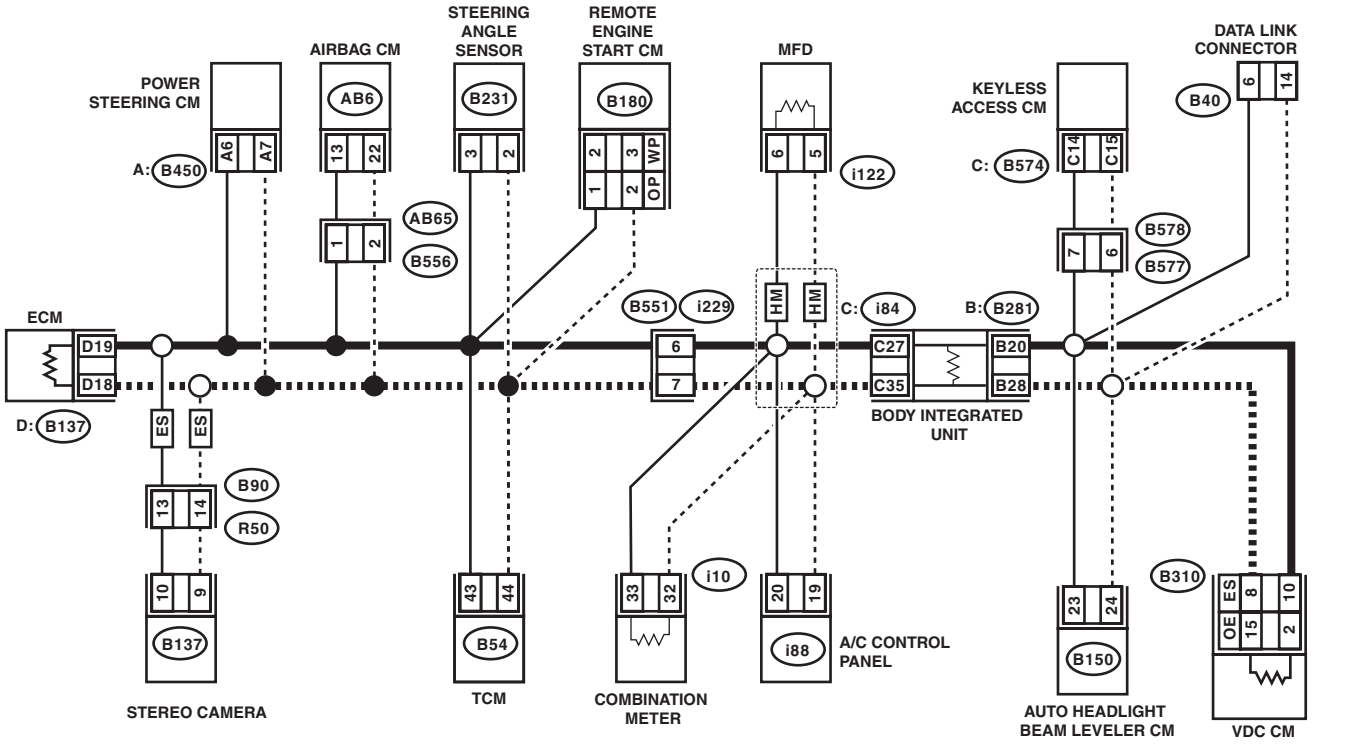
| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK BETWEEN RELATED LINES AND MAIN WIRING HARNESS.**<br>Using the tester, measure the resistance between terminals.<br>***Connector & terminal***<br>***(B40) No. 6 — No. 14:*** | Is the resistance 10 Ω or less? | Go to step **2**. | Go to step **4**. |
| 2 | **CHECK MAIN WIRING HARNESS AND RELATED LINES.**<br>With a tester connected, disconnect control module connectors in order.<br>NOTE:<br>Disconnect the body integrated unit at the end.<br>***Connector & terminal***<br>***(B40) No. 6 — No. 14:*** | Is there any control module whose condition has changed from short state? | Replace the control module whose resistance has changed. When the value changed at disconnecting the body integrated unit,<br>Go to step **3**. | Repair or replace the short circuit of the harness between body integrated unit and VDC CM. |
| 3 | **CHECK BETWEEN MAIN WIRING HARNESSES.**<br>Using the tester, measure the resistance between terminals.<br>***Connector & terminal***<br>***(i84) No. 27 — No. 35:*** | Is the resistance 10 Ω or less? | Repair or replace the short circuit of the harness between ECM and body integrated unit. | Replace the body integrated unit. <Ref. to SL-87, REMOVAL, Body Integrated Unit.> |
| 4 | **CHECK CONTROL MODULE.**<br>1) Disconnect ECM and VDC CM connectors.<br>2) Using a tester, measure the resistance between control module terminals.<br>***Connector & terminal***<br>***(B137) No. 18 — No. 19:***<br>***(B310) No. 2 — No. 15 (without EyeSight):***<br>***(B310) No. 10 — No. 8 (with EyeSight):*** | Is the resistance 114 — 126 Ω? | Go to step **5**. | Replace the control module whose end resistance value is out of the specified range. |
| 5 | **CHECK CONTROL MODULE.**<br>1) Disconnect the connector of body integrated unit.<br>2) Using a tester, measure the resistance between control module terminals.<br>***Connector & terminal***<br>***(B281) No. 28 — (i84) No. 27:***<br>***(B281) No. 20 — (i84) No. 35:*** | Is the resistance 2850 — 3150 Ω? | Go to step **6**. | Replace the body integrated unit. <Ref. to SL-87, REMOVAL, Body Integrated Unit.> |
| 6 | **CHECK CONTROL MODULE.**<br>Using a tester, measure the resistance between control module terminals.<br>***Connector & terminal***<br>***(B281) No. 28 — (i84) No. 35:***<br>***(B281) No. 20 — (i84) No. 27:*** | Is the resistance less than 1 Ω? | Go to step **7**. | Replace the body integrated unit. <Ref. to SL-87, REMOVAL, Body Integrated Unit.> |
| 7 | **CHECK CONTROL MODULE.**<br>1) Disconnect the combination meter connector.<br>2) Using a tester, measure the resistance between control module terminals.<br>***Connector & terminal***<br>***(i10) No. 32 — No. 33:*** | Is the resistance 2850 — 3150 Ω? | Go to step **8**. | Replace the combination meter. <Ref. to IDI-20, Combination Meter.> |
| 8 | **CHECK CONTROL MODULE (ONLY FOR MODELS WITH HIGH GRADE MFD).**<br>1) Disconnect the MFD connector.<br>2) Using a tester, measure the resistance between control module terminals.<br>***Connector & terminal***<br>***(i122) No. 5 — No. 6:*** | Is the resistance 2850 — 3150 Ω? | Go to step **9**. | Replace the MFD. <Ref. to IDI-27, Multi-function Display (MFD).> |

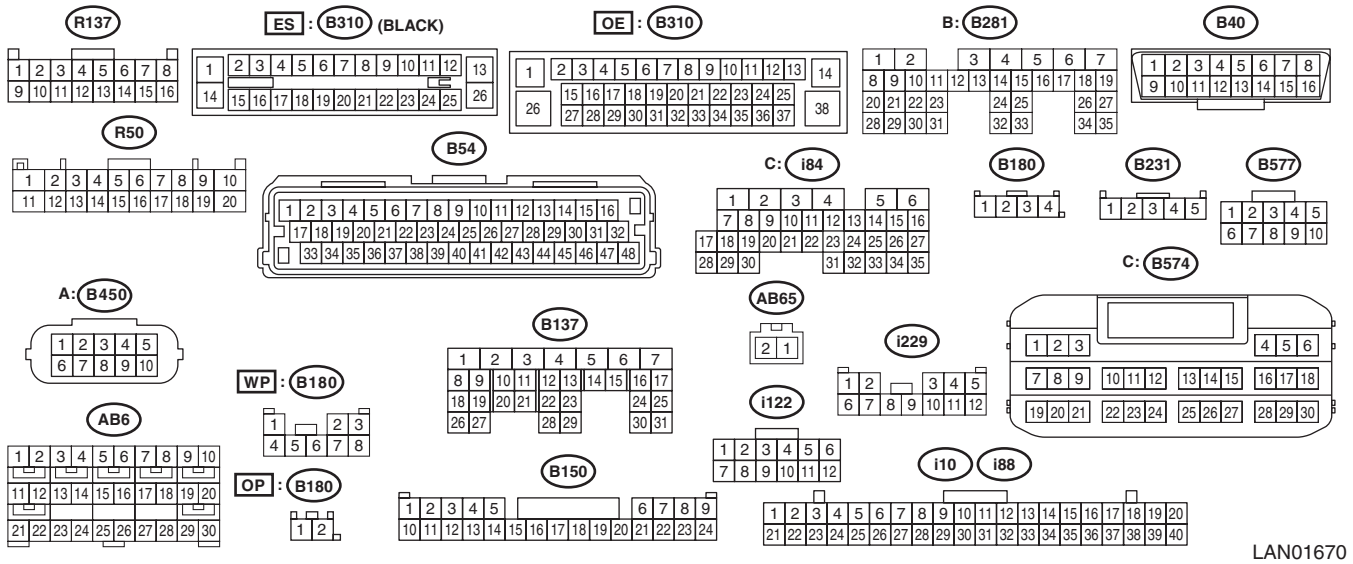
| Step | | Check | Yes | No |
|---|---|---|---|---|
| 9 | **CHECK HARNESS.**<br>Using the tester, check the short circuit portion of each harness.<br>***Connector & terminal***<br>***(B281) No. 28 — No. 20:*** | Is the resistance 1 MΩ or more? | Go to step **11**. | Go to step **10**. |
| 10 | **CHECK CONTROL MODULE.**<br>With a tester connected, disconnect control modules in order.<br>***Connector & terminal***<br>***(B281) No. 28 — No. 20:*** | Are there any control modules whose resistance changed to 1 MΩ or more? | Replace the control module that has changed. | Repair or replace the harness part which has resistance component. |
| 11 | **CHECK CONTROL MODULE.**<br>With a tester connected, disconnect control modules in order.<br>***Connector & terminal***<br>***(i84) No. 27 — No. 35:*** | Is there any control module whose resistance has changed to 1 MΩ or more? | Replace the control module that has changed. | Repair or replace the harness part which has resistance component. |

## 5. 62 Ω OR MORE

**WIRING DIAGRAM:**

CAN communication system <Ref. to WI(w/o HEV)-65, WIRING DIAGRAM, CAN Communication System.>




NOTE:

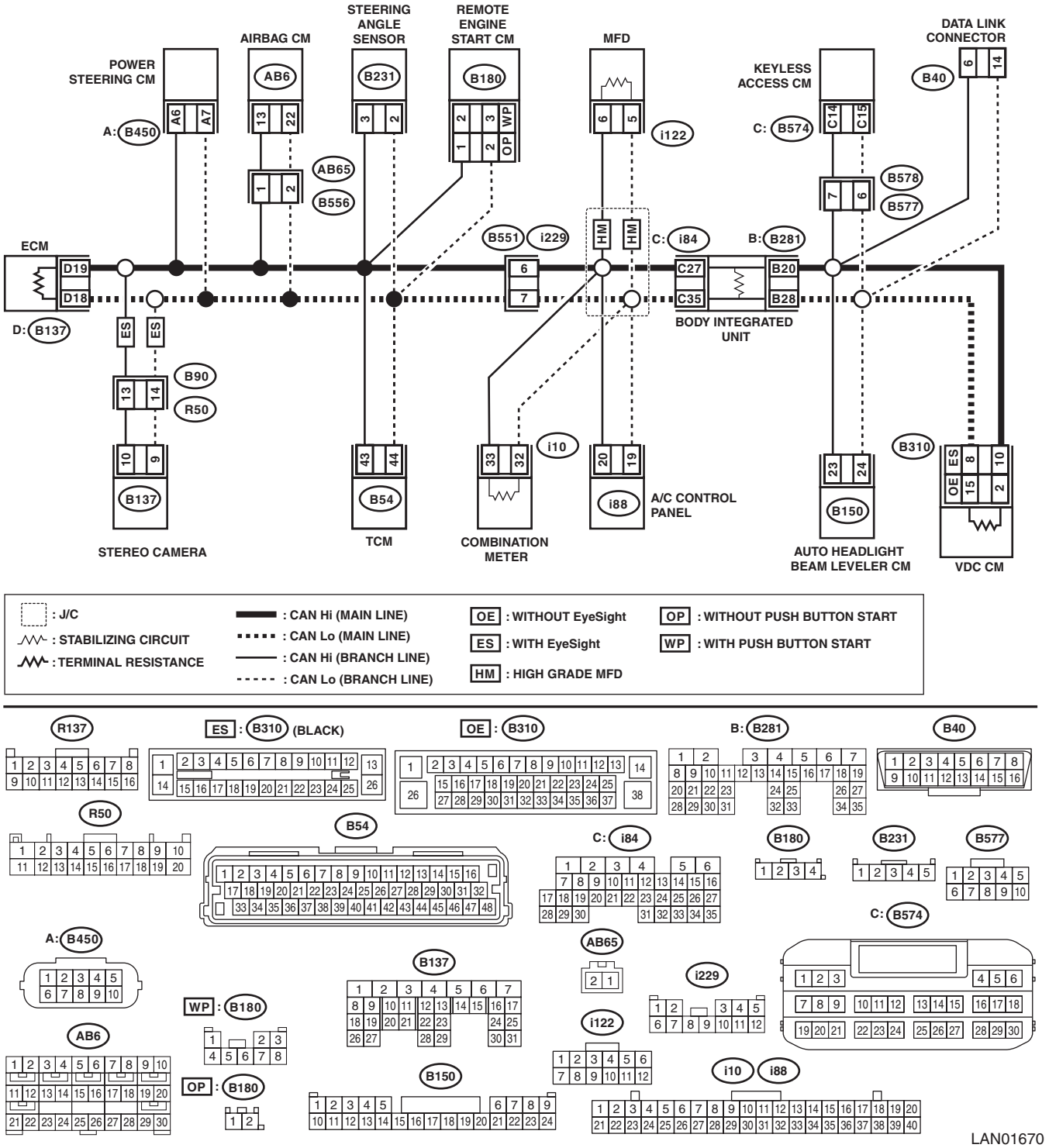
When CAN communication circuit is measured, combined resistance of end resistance (120 Ω) in ECM and end resistance (120 Ω) in VDC CM can be measured. The combined resistance is approximately 53 — 61 Ω with the stabilizing circuit included. When the measured resistance value is 62 Ω or more, either one of the end resistances, or stabilizing circuit, or main wiring harness may have malfunction such as open circuit.

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK CONTROL MODULE.**<br>1) Disconnect ECM and VDC CM connectors.<br>2) Using a tester, measure the resistance between control module terminals.<br>***Connector & terminal***<br>***(B137) No. 18 — No. 19:***<br>***(B310) No. 2 — No. 15 (without EyeSight):***<br>***(B310) No. 10 — No. 8 (with EyeSight):*** | Is the resistance 114 — 126 Ω? | Go to step **2**. | Replace the control module whose value is out of the specification. |
| 2 | **CHECK CONTROL MODULE.**<br>1) Disconnect the connector of body control module.<br>2) Using a tester, measure the resistance between control module terminals.<br>***Connector & terminal***<br>***(B281) No. 28 — (i84) No. 27:***<br>***(B281) No. 20 — (i84) No. 35:*** | Is the resistance 2850 — 3150 Ω? | Go to step **3**. | Replace the body integrated unit. <Ref. to SL-87, REMOVAL, Body Integrated Unit.> |
| 3 | **CHECK CONTROL MODULE.**<br>Using the tester, measure the resistance between terminals.<br>***Connector & terminal***<br>***(B281) No. 28 — (i84) No. 35:***<br>***(B281) No. 20 — (i84) No. 27:*** | Is the resistance less than 1 Ω? | Go to step **4**. | Replace the body integrated unit. <Ref. to SL-87, REMOVAL, Body Integrated Unit.> |
| 4 | **CHECK CONTROL MODULE.**<br>1) Disconnect the combination meter connector.<br>2) Using a tester, measure the resistance between control module terminals.<br>***Connector & terminal***<br>***(i10) No. 32 — No. 33:*** | Is the resistance 2850 — 3150 Ω? | Go to step **5**. | Replace the combination meter. <Ref. to IDI-20, REMOVAL, Combination Meter.> |
| 5 | **CHECK CONTROL MODULE (ONLY FOR MODELS WITH HIGH GRADE MFD).**<br>1) Disconnect the MFD connector.<br>2) Using a tester, measure the resistance between control module terminals.<br>***Connector & terminal***<br>***(i122) No. 5 — No. 6:*** | Is the resistance 2850 — 3150 Ω? | Go to step **6**. | Replace the MFD. <Ref. to IDI-27, REMOVAL, Multi-function Display (MFD).> |
| 6 | **CHECK HARNESS.**<br>Using a tester, check continuity between terminals.<br>***Connector & terminal***<br>***(B40) No. 6 — (B310) No. 2 (without EyeSight):***<br>***(B40) No. 14 — (B310) No. 15 (without EyeSight):***<br>***(B40) No. 6 — (B310) No. 10 (with EyeSight):***<br>***(B40) No. 14 — (B310) No. 8 (with EyeSight):***<br>***(B40) No. 6 — (B281) No. 20:***<br>***(B40) No. 14 — (B281) No. 28:*** | Is there continuity? | Go to step **7**. | Repair or replace the open circuit of harness. |
| 7 | **CHECK HARNESS.**<br>1) Disconnect the ECM connector.<br>2) Using a tester, check continuity between terminals.<br>***Connector & terminal***<br>***(i84) No. 27 — (B137) No. 19:***<br>***(i84) No. 35 — (B137) No. 18:*** | Is there continuity? | It is possible that temporary poor communication occurs. | Repair or replace the open circuit of harness. |

## 6. RELATED LINES 53 — 61 Ω (TCM)

**WIRING DIAGRAM:**

CAN communication system <Ref. to WI(w/o HEV)-65, WIRING DIAGRAM, CAN Communication System.>



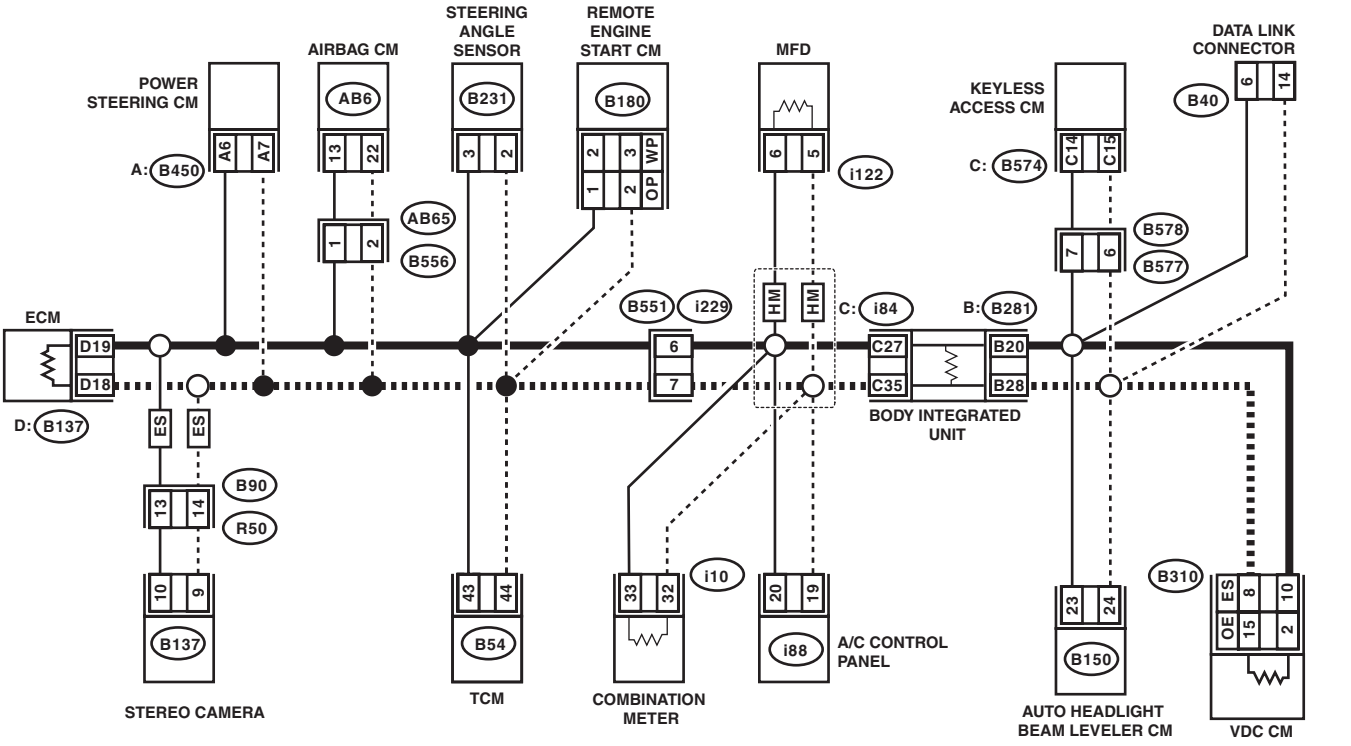

NOTE:
Perform inspection when no data is received, or faulty is detected. This is different from power supply shorted or ground shorted.

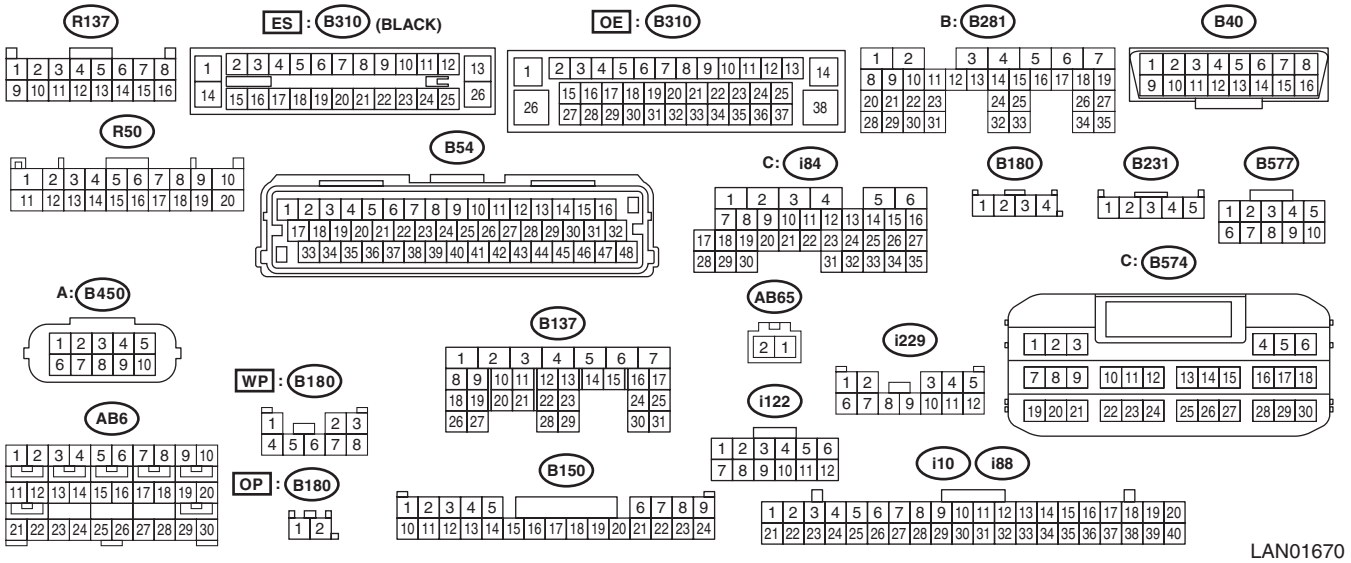
| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK BETWEEN RELATED LINES AND MAIN WIRING HARNESS.**<br>1) Disconnect the TCM connector.<br>2) Using the tester, measure the resistance between terminals.<br>***Connector & terminal***<br>***(B54) No. 43 — No. 44:*** | Is the resistance 400 Ω or more? | Related lines between TCM and main wiring harness is open, or main wiring harness is open at two places or more. | Go to step **2**. |
| 2 | **CHECK RELATED LINES.**<br>Using the tester, measure the resistance between terminals.<br>***Connector & terminal***<br>***(B54) No. 44 — (B40) No. 14:***<br>***(B54) No. 43 — (B40) No. 6:*** | Is the resistance 10 Ω or more? | Repair or replace the open circuit portion of TCM related lines. | Check DTC of TCM. <Ref. to CVT(w/o HEV)(diag)-17, OPERATION, Read Diagnostic Trouble Code (DTC).> |

## 7. RELATED LINES 53 — 61 Ω (STEERING ANGLE SENSOR)

### WIRING DIAGRAM:

CAN communication system <Ref. to WI(w/o HEV)-65, WIRING DIAGRAM, CAN Communication System.>



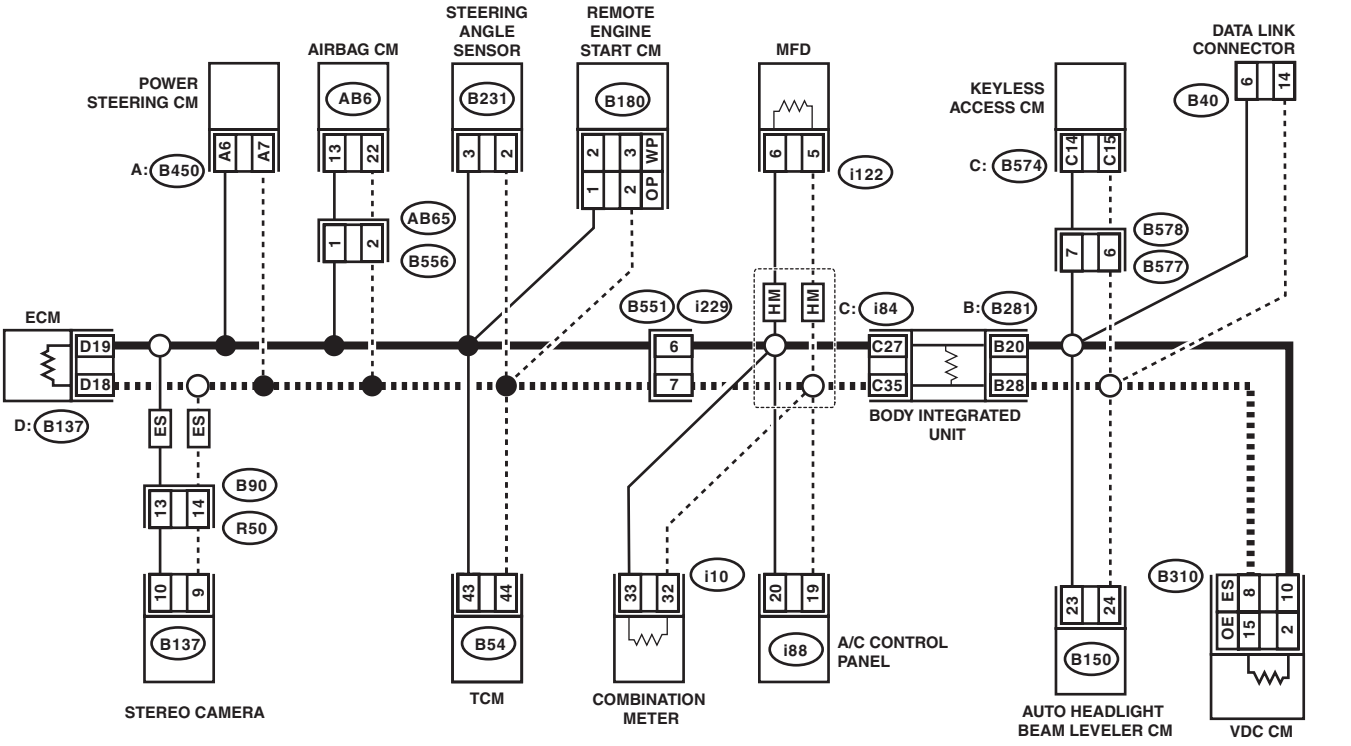



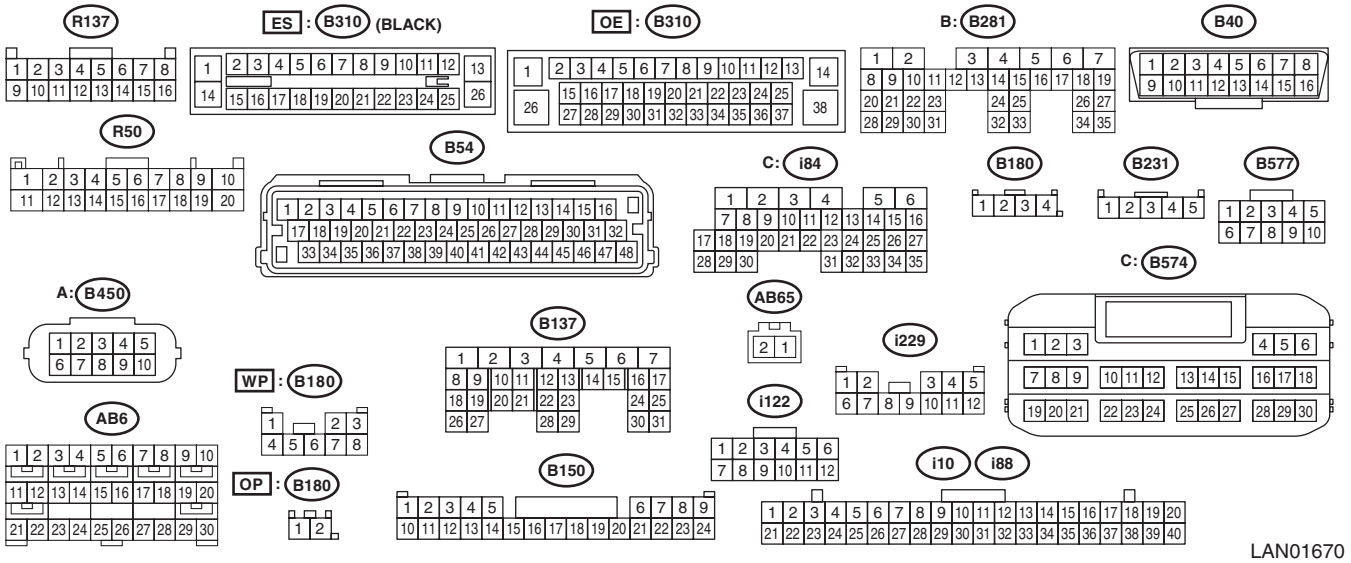
| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK BETWEEN RELATED LINES AND MAIN WIRING HARNESS.**<br>1) Disconnect the steering angle sensor connector.<br>2) Using the tester, measure the resistance between terminals.<br>***Connector & terminal***<br>***(B231) No. 2 — No. 3:*** | Is the resistance 400 Ω or more? | Related lines between steering angle sensor and main wiring harness is open, or main wiring harness is open at two places or more. | Go to step **2**. |
| 2 | **CHECK RELATED LINES.**<br>Using the tester, measure the resistance between terminals.<br>***Connector & terminal***<br>***(B231) No. 2 — (B40) No. 14:***<br>***(B231) No. 3 — (B40) No. 6:*** | Is the resistance 10 Ω or more? | Repair or replace the open circuit portion of steering angle sensor related lines. | Check DTC of VDC CM. <Ref. to VDC(diag)-23, OPERATION, Read Diagnostic Trouble Code (DTC).> |

## 8. RELATED LINE 53 — 61 Ω (A/C CONTROL PANEL)

### WIRING DIAGRAM:

CAN communication system <Ref. to WI(w/o HEV)-65, WIRING DIAGRAM, CAN Communication System.>



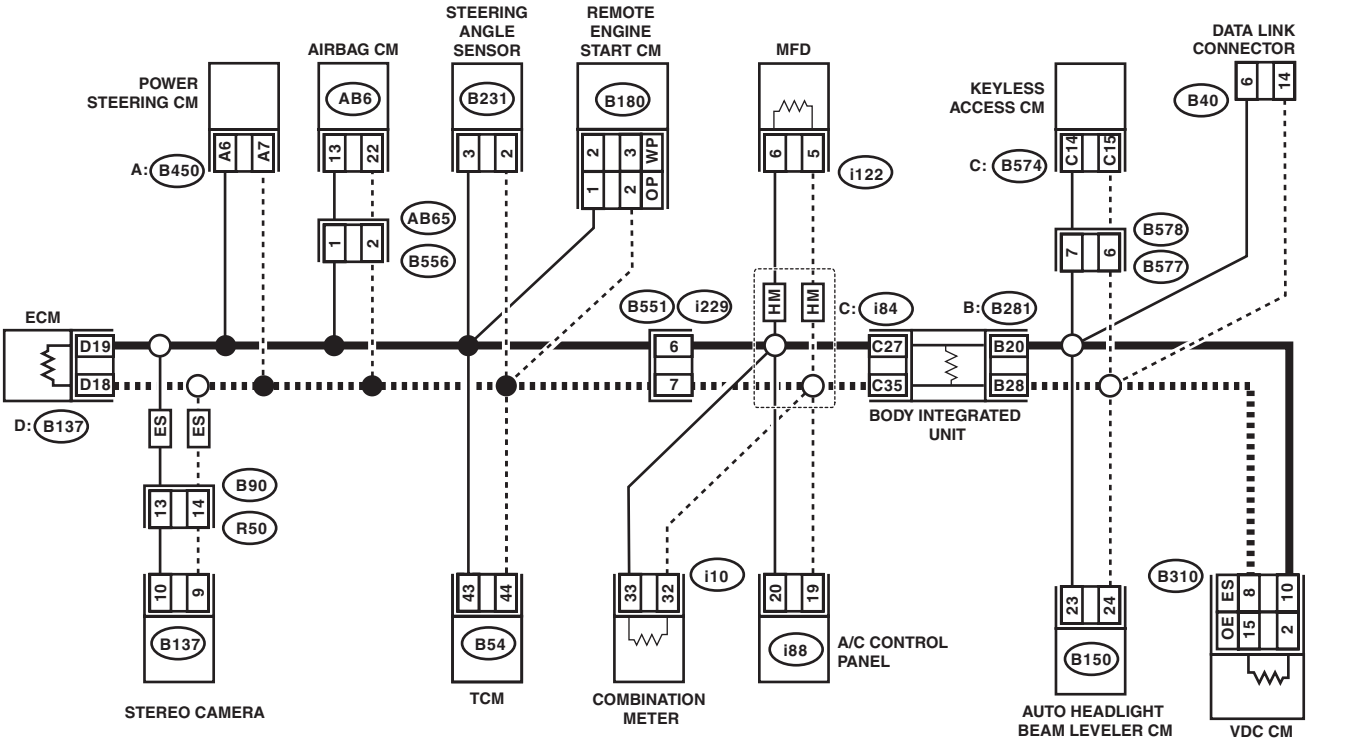



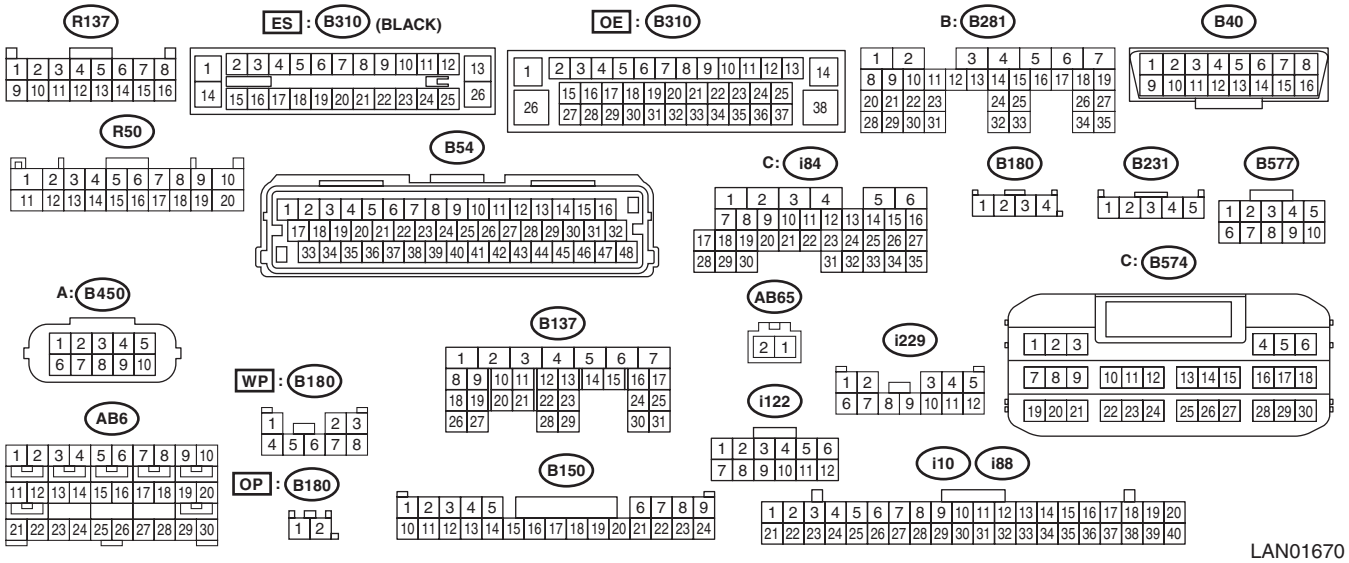
| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK BETWEEN RELATED LINES AND MAIN WIRING HARNESS.**<br>1) Disconnect the A/C control panel connector.<br>2) Using the tester, measure the resistance between terminals.<br>***Connector & terminal***<br>***(i88) No. 19 — No. 20:*** | Is the resistance 400 Ω or more? | Related lines between A/C control panel and main wiring harness is open, or main wiring harness is open at two places or more. | Go to step **2**. |
| 2 | **CHECK RELATED LINES.**<br>Using the tester, measure the resistance between terminals.<br>***Connector & terminal***<br>***(i88) No. 19 — (B40) No. 14:***<br>***(i88) No. 20 — (B40) No. 6:*** | Is the resistance 10 Ω or more? | Repair or replace the open circuit of A/C control panel related lines. | Check the DTC of A/C control panel. <Ref. to AC(diag)-41, Read Diagnostic Trouble Code (DTC).> |

## 9. RELATED LINES 53 — 61 Ω (ELECTRIC POWER STEERING CM)

### WIRING DIAGRAM:

CAN communication system <Ref. to WI(w/o HEV)-65, WIRING DIAGRAM, CAN Communication System.>



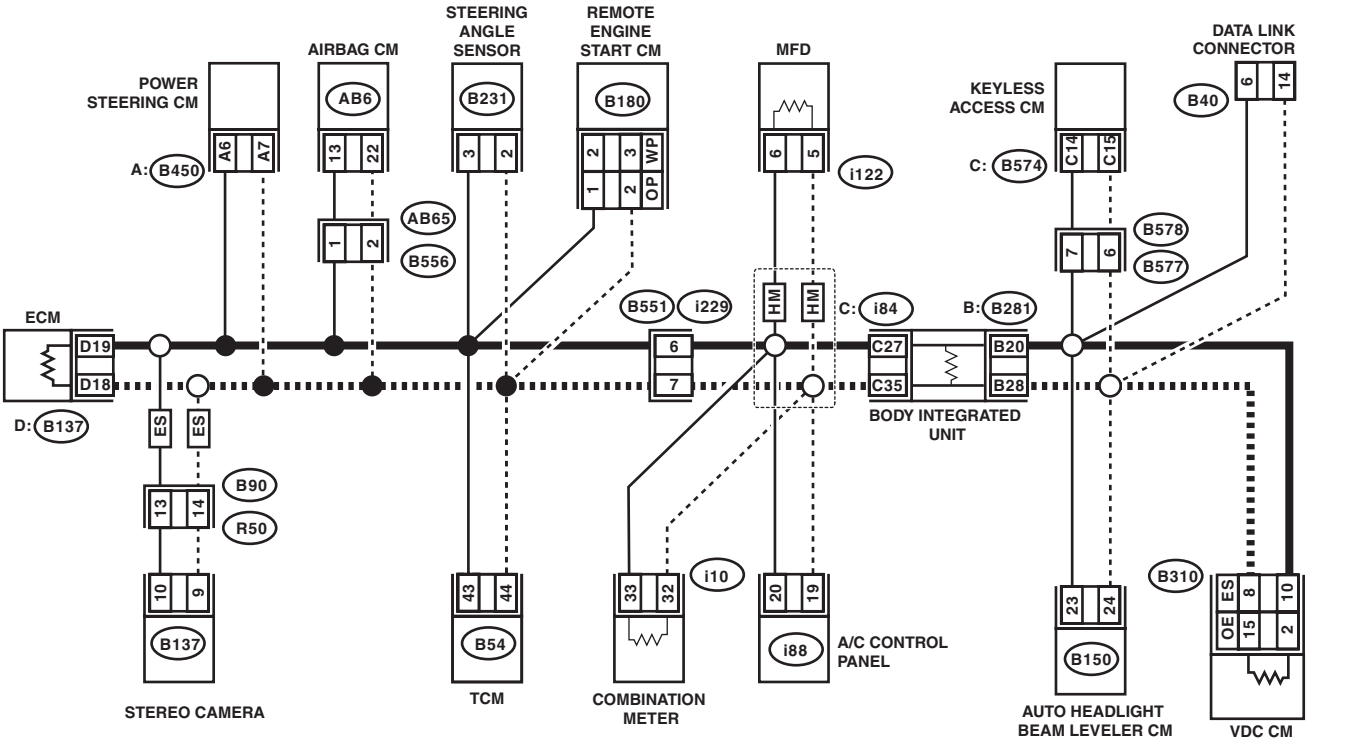



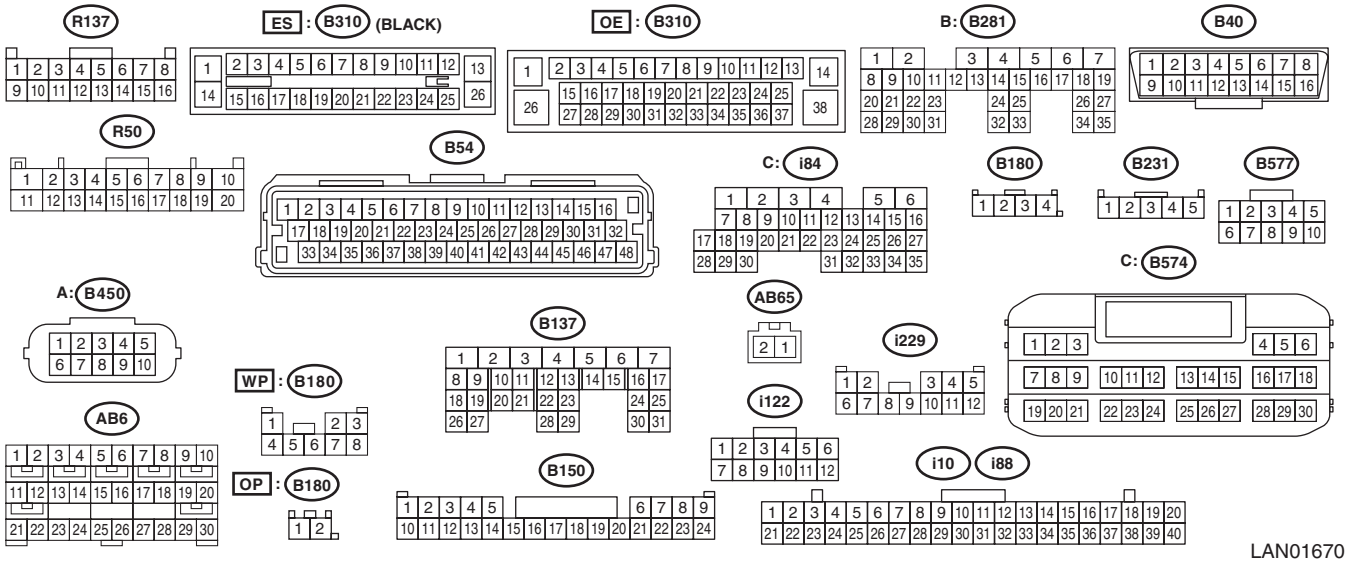
| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK BETWEEN RELATED LINES AND MAIN WIRING HARNESS.**<br>1) Disconnect the electric power steering CM connector.<br>2) Using the tester, measure the resistance between terminals.<br>***Connector & terminal***<br>***(B450) No. 6 — No. 7:*** | Is the resistance 400 Ω or more? | Related lines or main wiring harness between electric power steering CM and main wiring harness is open at two places or more. | Go to step **2**. |
| 2 | **CHECK RELATED LINES.**<br>Using the tester, measure the resistance between terminals.<br>***Connector & terminal***<br>***(B450) No. 6 — (B40) No. 6:***<br>***(B450) No. 7 — (B40) No. 14:*** | Is the resistance 10 Ω or more? | Repair or replace the open circuit portion of electric power steering CM related lines. | Check DTC of electric power steering CM. <Ref. to PS(diag)-19, OPERATION, Read Diagnostic Trouble Code (DTC).> |

## 10.RELATED LINES 53 — 61 Ω (COMBINATION METER)

### WIRING DIAGRAM:

CAN communication system <Ref. to WI(w/o HEV)-65, WIRING DIAGRAM, CAN Communication System.>



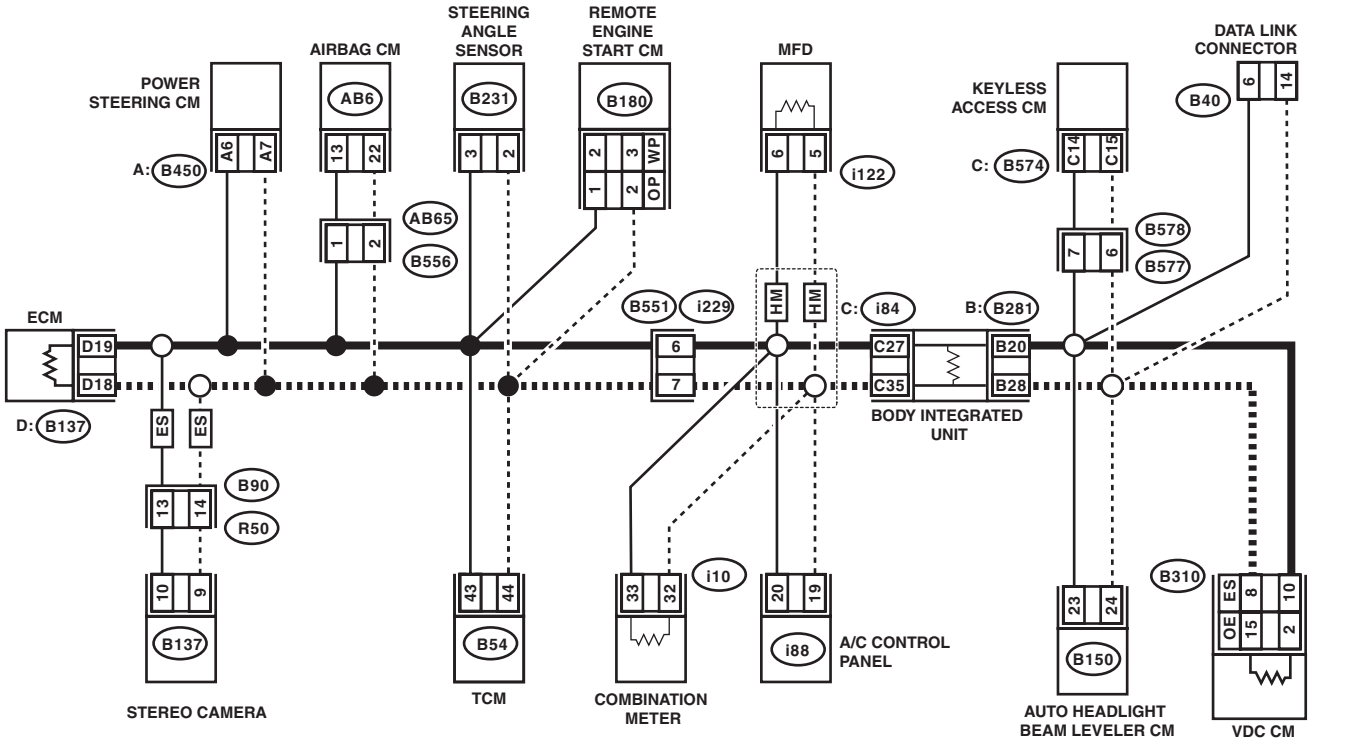



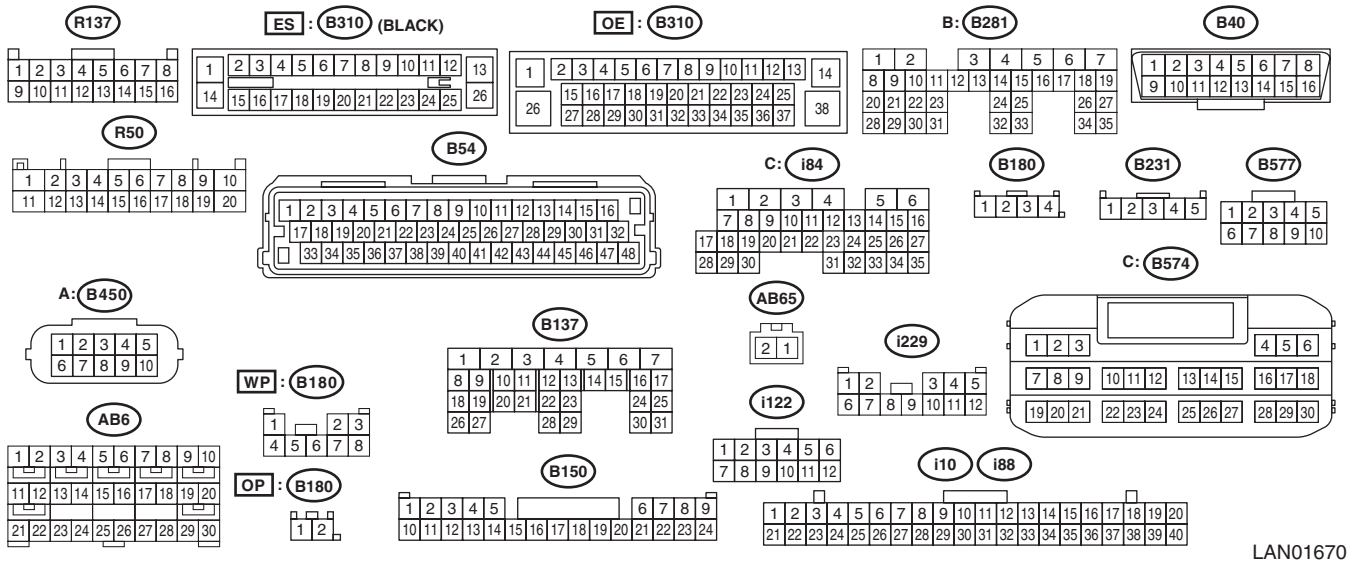
| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK BETWEEN RELATED LINES AND MAIN WIRING HARNESS.**<br>1) Disconnect the combination meter connector.<br>2) Using the tester, measure the resistance between terminals.<br>***Connector & terminal***<br>***(i10) No. 32 — No. 33:*** | Is the resistance 400 Ω or more? | Related lines between combination meter and main wiring harness is open, or main wiring harness is open at two places or more. | Go to step **2**. |
| 2 | **CHECK RELATED LINES.**<br>Using the tester, measure the resistance between terminals.<br>***Connector & terminal***<br>***(i10) No. 32 — (B40) No. 14:***<br>***(i10) No. 33 — (B40) No. 6:*** | Is the resistance 10 Ω or more? | Repair or replace the open circuit portion of combination meter related lines. | Check DTC of combination meter. <Ref. to IDI(diag)-15, OPERATION, Read Diagnostic Trouble Code (DTC).> |

## 11.RELATED LINES 53 — 61 Ω (MFD)

### WIRING DIAGRAM:

CAN communication system <Ref. to WI(w/o HEV)-65, WIRING DIAGRAM, CAN Communication System.>



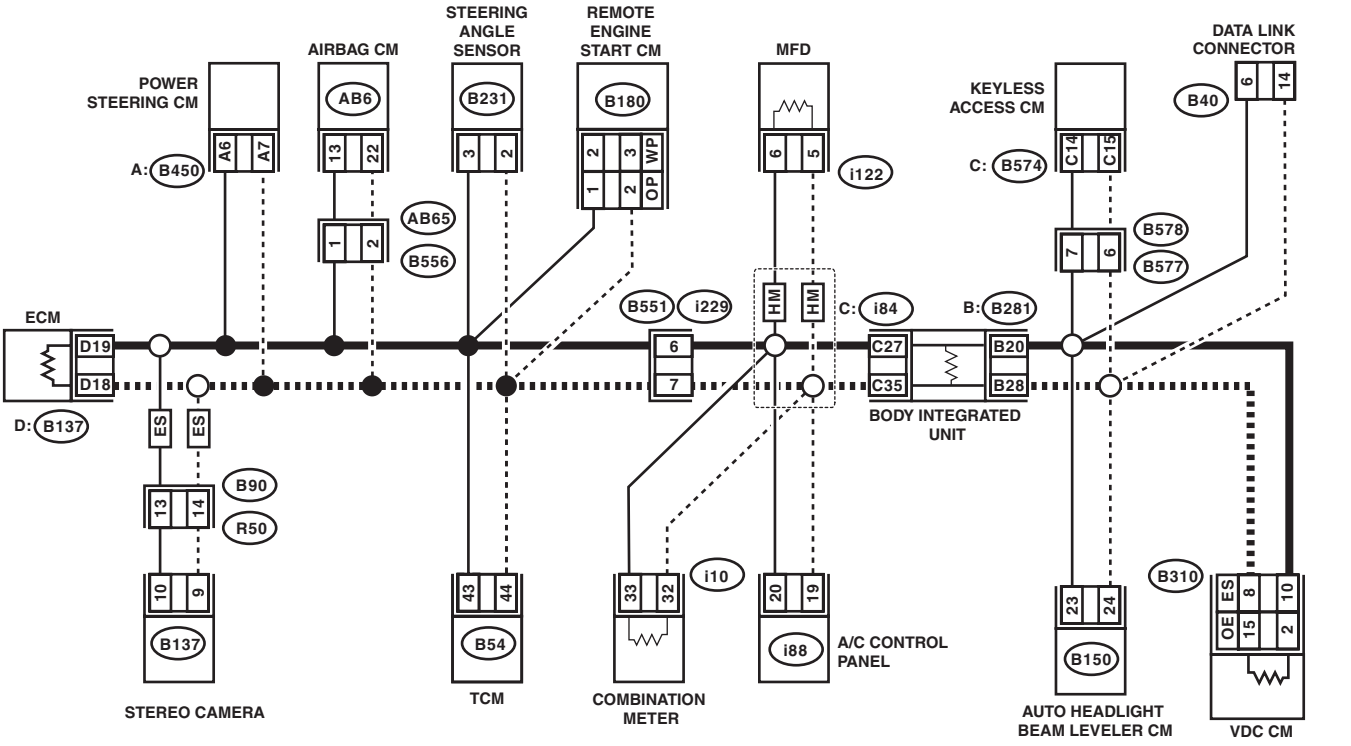



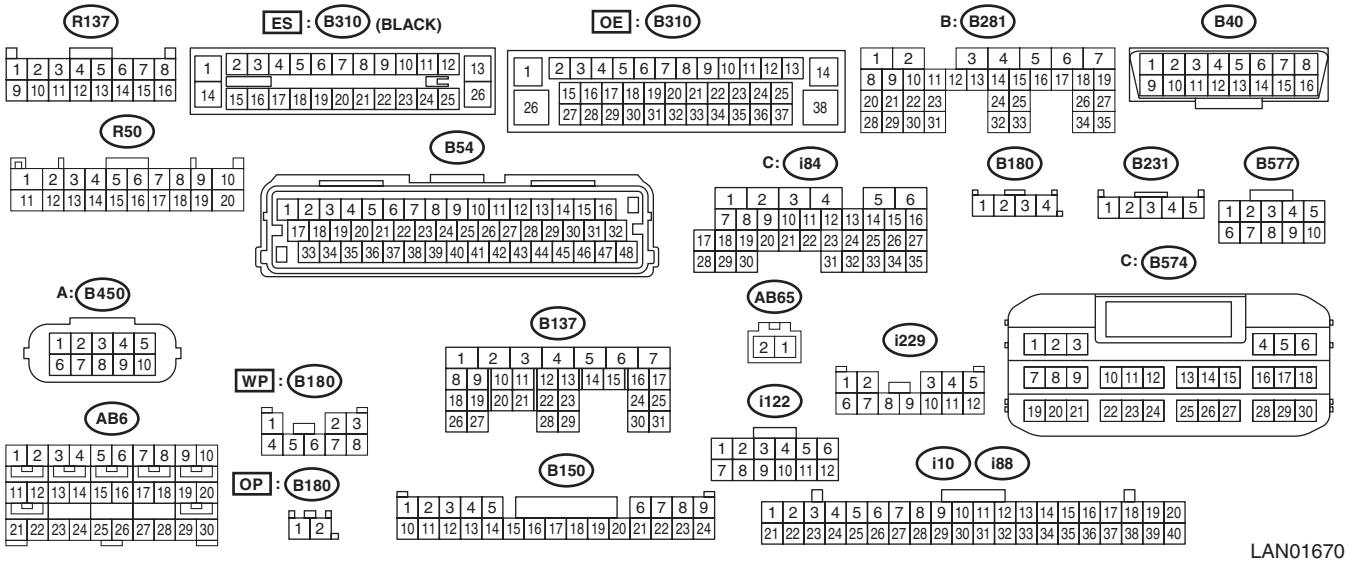
| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK BETWEEN RELATED LINES AND MAIN WIRING HARNESS.**<br>1) Disconnect the MFD connector.<br>2) Using the tester, measure the resistance between terminals.<br>***Connector & terminal***<br>***(i122) No. 5 — No. 6:*** | Is the resistance 400 Ω or more? | Related lines between MFD and main wiring harness is open, or main wiring harness is open at two places or more. | Go to step **2**. |
| 2 | **CHECK RELATED LINES.**<br>Using the tester, measure the resistance between terminals.<br>***Connector & terminal***<br>***(i122) No. 5 — (B40) No. 14:***<br>***(i122) No. 6 — (B40) No. 6:*** | Is the resistance 10 Ω or more? | Repair or replace the open circuit of MFD related lines. | Check DTC of MFD. <Ref. to IDI(diag)-15, OPERATION, Read Diagnostic Trouble Code (DTC).> |

## 12.RELATED LINES 53 — 61 Ω (A/B CM)

### WIRING DIAGRAM:

CAN communication system <Ref. to WI(w/o HEV)-65, WIRING DIAGRAM, CAN Communication System.>



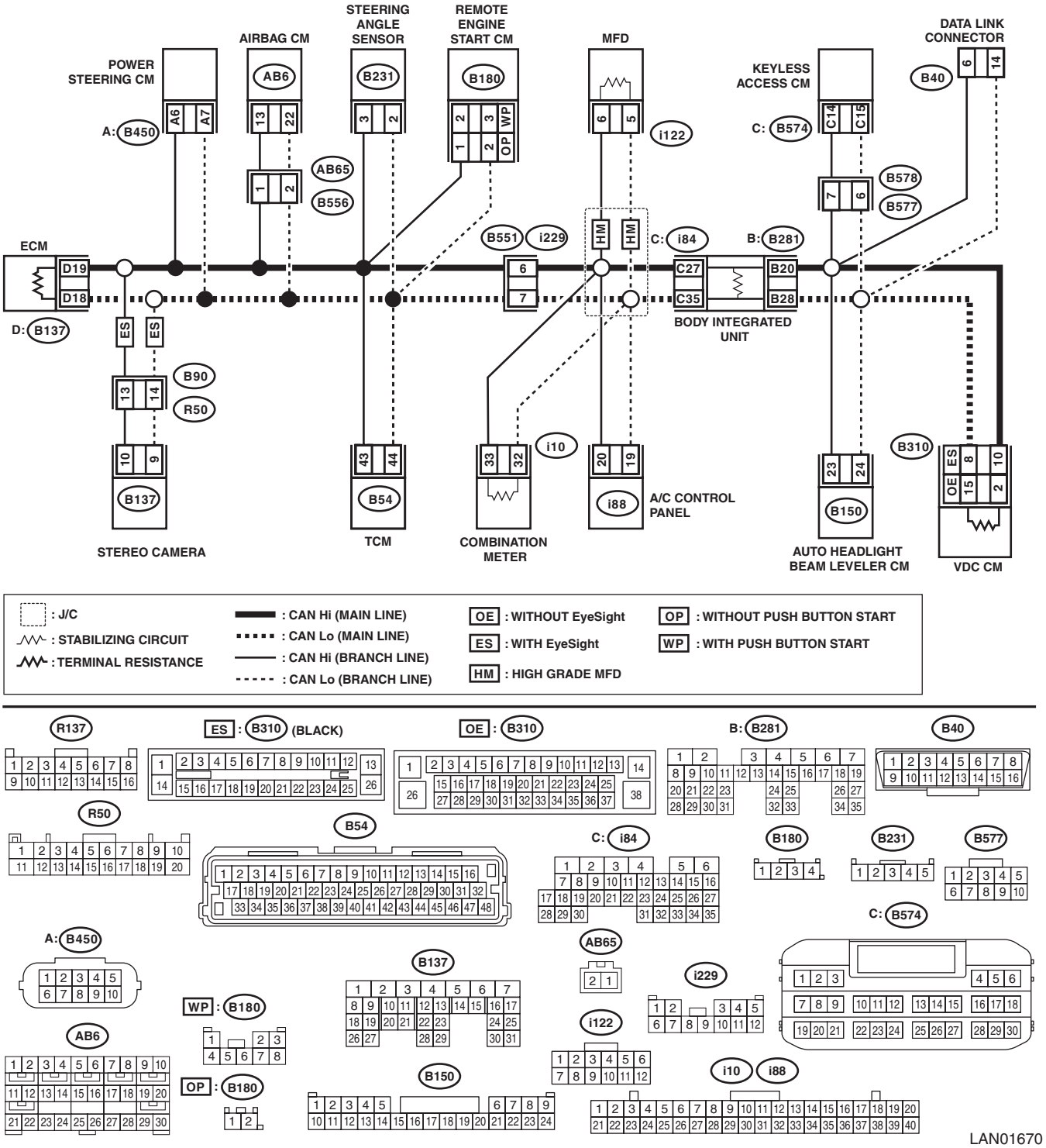



| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK BETWEEN RELATED LINES AND MAIN WIRING HARNESS.**<br>1) Disconnect the A/B CM connector.<br>2) Using the tester, measure the resistance between terminals.<br>***Connector & terminal***<br>***(AB6) No. 13 — No. 22:*** | Is the resistance 400 Ω or more? | Related lines between A/B CM and main wiring harness is open, or main wiring harness is open at two places or more. | Go to step **2**. |
| 2 | **CHECK RELATED LINES.**<br>Using the tester, measure the resistance between terminals.<br>***Connector & terminal***<br>***(AB6) No. 22 — (B40) No. 14:***<br>***(AB6) No. 13 — (B40) No. 6:*** | Is the resistance 10 Ω or more? | Repair or replace the open circuit of A/B CM related lines. | Check DTC of A/B CM. <Ref. to AB(diag)-27, OPERATION, Read Diagnostic Trouble Code (DTC).> |

## 13.RELATED LINES 53 — 61 Ω (KEYLESS ACCESS SYSTEM)

### WIRING DIAGRAM:

CAN communication system <Ref. to WI(w/o HEV)-65, WIRING DIAGRAM, CAN Communication System.>

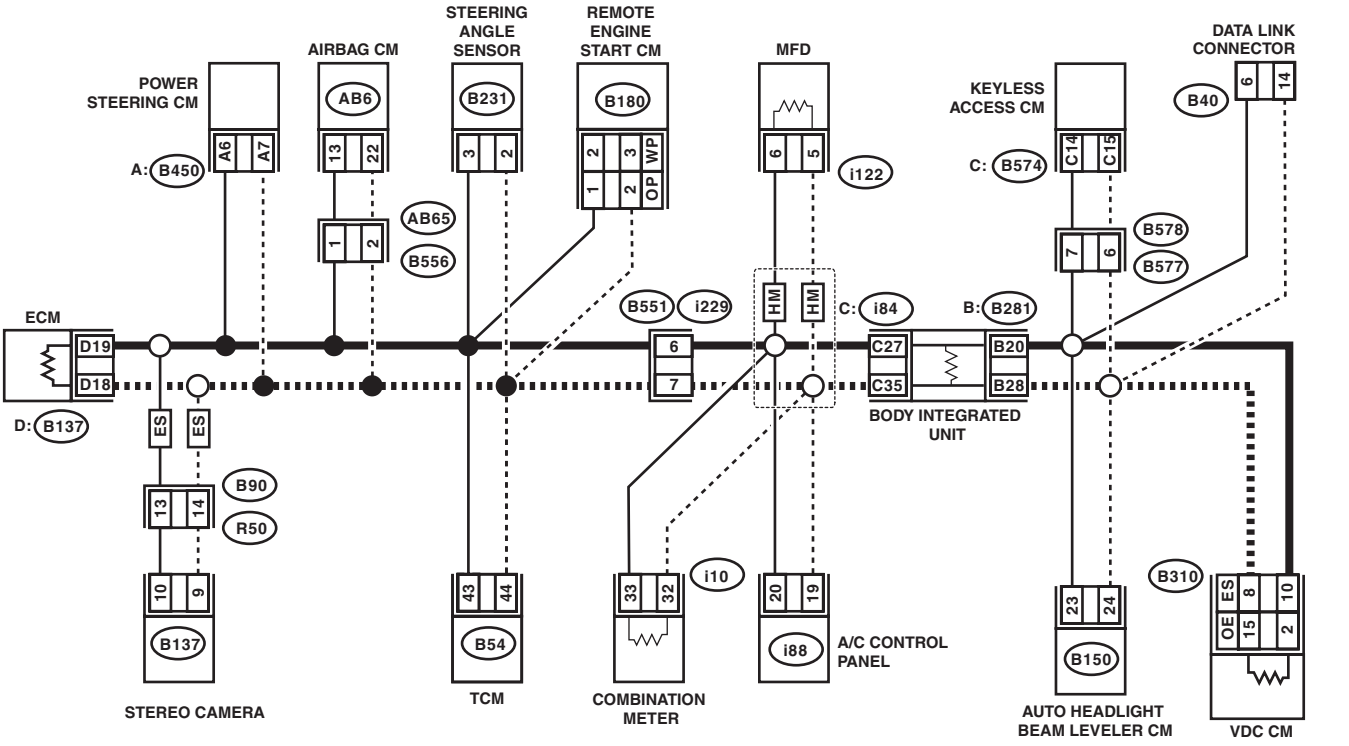


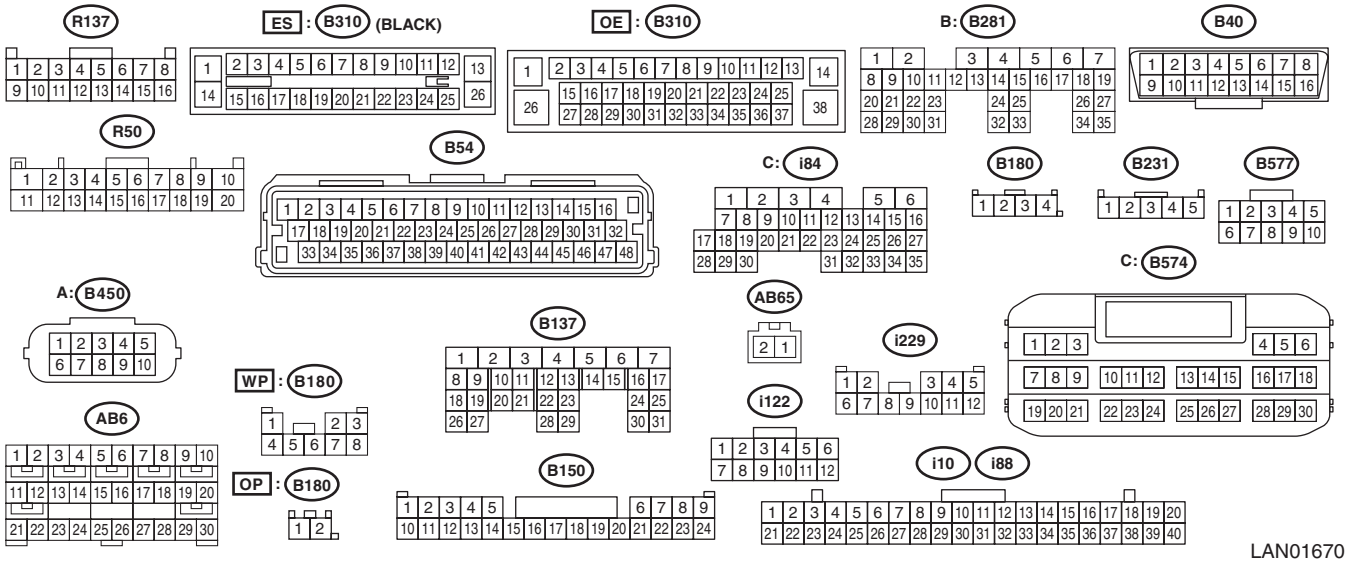
| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK BETWEEN RELATED LINES AND MAIN WIRING HARNESS.**<br>1) Disconnect the keyless access CM connector.<br>2) Using the tester, measure the resistance between terminals.<br>***Connector & terminal***<br>***(B574) No. 14 — No. 15:*** | Is the resistance 400 Ω or more? | Related lines between keyless access CM and main wiring harness is open, or main wiring harness is open at two places or more. | Go to step **2**. |
| 2 | **CHECK RELATED LINES.**<br>Using the tester, measure the resistance between terminals.<br>***Connector & terminal***<br>***(B574) No. 15 — (B40) No. 14:***<br>***(B574) No. 14 — (B40) No. 6:*** | Is the resistance 10 Ω or more? | Repair or replace the open circuit portion of keyless access CM related lines. | Check DTC of keyless access CM. <Ref. to KPS(diag)-29, OPERATION, Read Diagnostic Trouble Code (DTC).> |

## 14.RELATED LINES 53 — 61 Ω (STEREO CAMERA)

### WIRING DIAGRAM:

CAN communication system <Ref. to WI(w/o HEV)-65, WIRING DIAGRAM, CAN Communication System.>



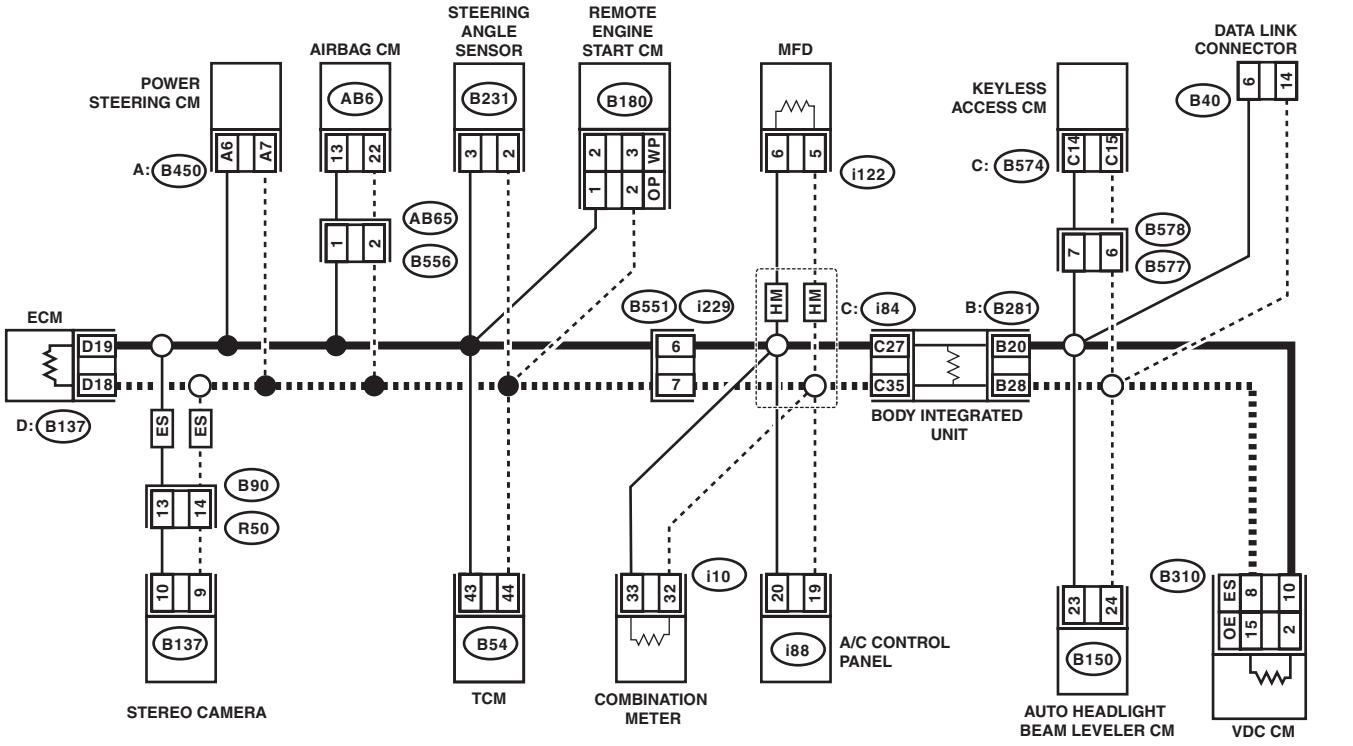



| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK BETWEEN RELATED LINES AND MAIN WIRING HARNESS.**<br>1) Disconnect the stereo camera connector.<br>2) Using the tester, measure the resistance between terminals.<br>***Connector & terminal***<br>***(R137) No. 10 — No. 9:*** | Is the resistance 400 Ω or more? | Related lines between stereo camera and main wiring harness is open, or main wiring harness is open at two places or more. | Go to step **2**. |
| 2 | **CHECK RELATED LINES.**<br>Using the tester, measure the resistance between terminals.<br>***Connector & terminal***<br>***(R137) No. 9 — (B40) No. 14:***<br>***(R137) No. 10 — (B40) No. 6:*** | Is the resistance 10 Ω or more? | Repair or replace the open circuit of stereo camera related lines. | Check DTC of stereo camera. <Ref. to ES(diag)-39, Diagnostic Code(s) Display.> |

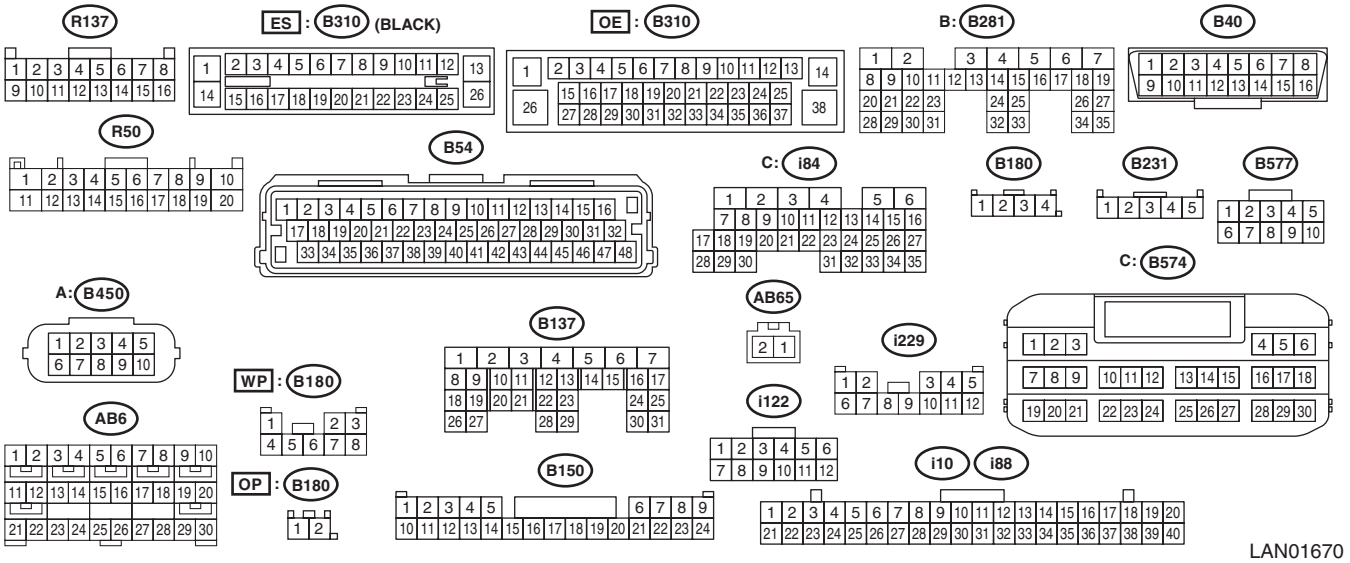
## 15.RELATED LINES 53 — 61 Ω (HEADLIGHT BEAM LEVELER)

### WIRING DIAGRAM:

CAN communication system <Ref. to WI(w/o HEV)-65, WIRING DIAGRAM, CAN Communication System.>




: J/C
: STABILIZING CIRCUIT
: TERMINAL RESISTANCE
: CAN Hi (MAIN LINE)
: CAN Lo (MAIN LINE)
: CAN Hi (BRANCH LINE)
: CAN Lo (BRANCH LINE)
OE : WITHOUT EyeSight
ES : WITH EyeSight
HM : HIGH GRADE MFD
OP : WITHOUT PUSH BUTTON START
WP : WITH PUSH BUTTON START



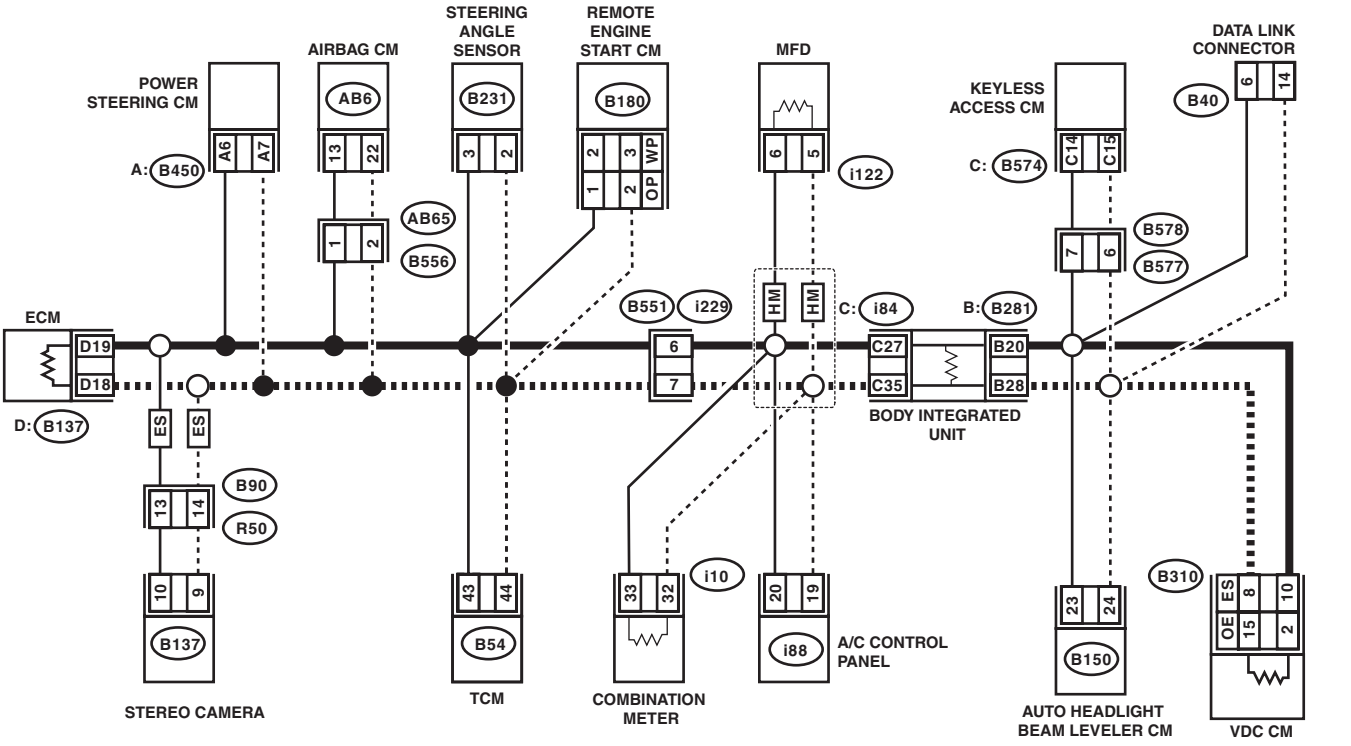

LAN01670

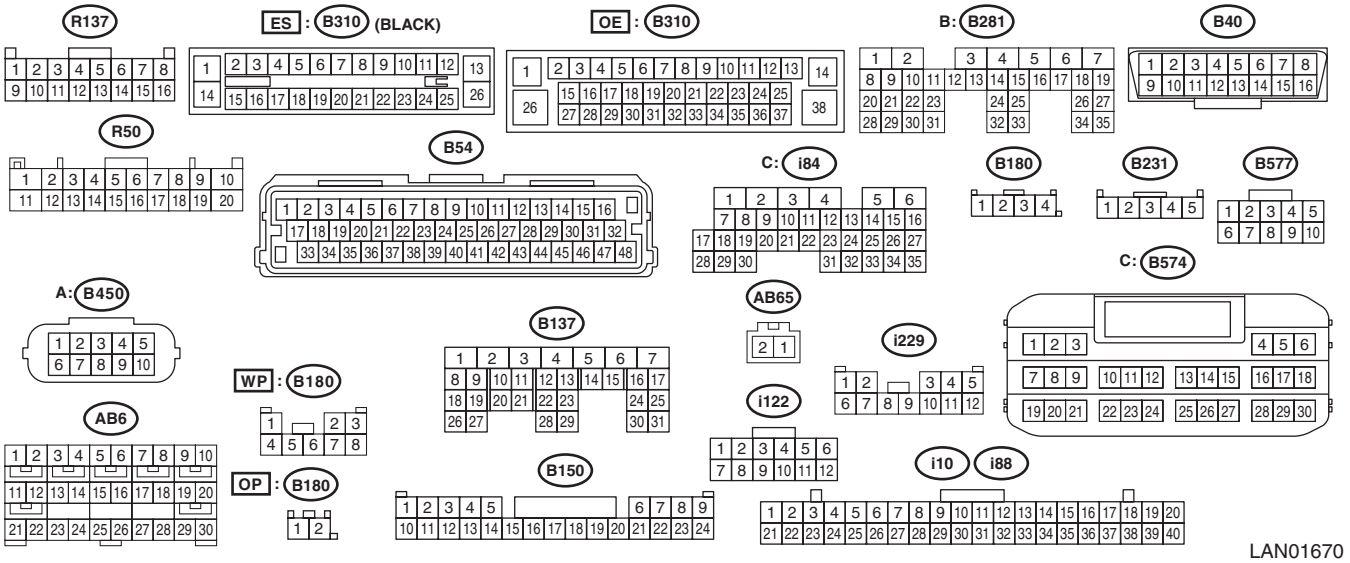
| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK BETWEEN RELATED LINES AND MAIN WIRING HARNESS.**<br>1) Disconnect the headlight beam leveler CM connector.<br>2) Using the tester, measure the resistance between terminals.<br>***Connector & terminal***<br>***(B150) No. 23 — No. 24:*** | Is the resistance 400 Ω or more? | Related lines between headlight beam leveler CM and main wiring harness is open, or main wiring harness is open at two places or more. | Go to step **2**. |
| 2 | **CHECK RELATED LINES.**<br>Using the tester, measure the resistance between terminals.<br>***Connector & terminal***<br>***(B150) No. 24 — (B40) No. 14:***<br>***(B150) No. 23 — (B40) No. 6:*** | Is the resistance 10 Ω or more? | Repair or replace the open circuit portion of headlight beam leveler CM related lines. | Check DTC of headlight beam leveler system. |

## 16.RELATED LINES 53 — 61 Ω (REMOTE ENGINE STARTER)

### WIRING DIAGRAM:

CAN communication system <Ref. to WI(w/o HEV)-65, WIRING DIAGRAM, CAN Communication System.>



| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK BETWEEN RELATED LINES AND MAIN WIRING HARNESS.**<br>1) Disconnect the remote engine start CM connector.<br>2) Using the tester, measure the resistance between terminals.<br>***Connector & terminal***<br>***Without push button start***<br>***(B180) No. 1 — No. 2:***<br>***With push button start***<br>***(B180) No. 2 — No. 3:*** | Is the resistance 400 Ω or more? | Related lines between remote engine start CM and main wiring harness is open, or main wiring harness is open at two places or more. | Go to step **2**. |
| 2 | **CHECK RELATED LINES.**<br>Using the tester, measure the resistance between terminals.<br>***Connector & terminal***<br>***Without push button start***<br>***(B180) No. 1 — (B40) No. 6:***<br>***(B180) No. 2 — (B40) No. 14:***<br>***With push button start***<br>***(B180) No. 2 — (B40) No. 6:***<br>***(B180) No. 3 — (B40) No. 14:*** | Is the resistance 10 Ω or more? | Repair or replace the open circuit portion of remote engine start CM related lines. | The communication harness is normal. Check the remote engine starter CM or the mobile key. |

# 10.List of Diagnostic Trouble Code (DTC)

## A: LIST

| DTC | Item | Content of diagnosis | Note |
|---|---|---|---|
| U1201 | CAN-HS Counter Abnormal | High speed CAN communication error | <Ref. to LAN(w/o HEV)(diag)-95, DTC U1201 CAN-HS COUNTER ABNORMAL, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| U0073 | Control Module Communication Bus Off | Communication of some module is shut down. | <Ref. to LAN(w/o HEV)(diag)-96, DTC U0073 CONTROL MODULE COMMUNICATION BUS OFF, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| U0401 | Invalid Data Received From ECM/PCM “A” | Error data is received from ECM. | <Ref. to LAN(w/o HEV)(diag)-97, DTC U0401 INVALID DATA RECEIVED FROM ECM/PCM “A”, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| U0402 | Invalid Data Received From TCM | Error data is received from TCM. | <Ref. to LAN(w/o HEV)(diag)-98, DTC U0402 INVALID DATA RECEIVED FROM TCM, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| U0416 | Invalid Data Received From Vehicle Dynamics Control Module | Error data is received from VDC module. | <Ref. to LAN(w/o HEV)(diag)-99, DTC U0416 INVALID DATA RECEIVED FROM VEHICLE DYNAMICS CONTROL MODULE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| U0420 | Invalid Data Received From Power Steering Control Module | Error data is received from EPS module. | <Ref. to LAN(w/o HEV)(diag)-100, DTC U0420 INVALID DATA RECEIVED FROM POWER STEERING CONTROL MODULE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| U0422 | Invalid Data Received From Body Control Module | Error data is received from body integrated unit. | <Ref. to LAN(w/o HEV)(diag)-101, DTC U0422 INVALID DATA RECEIVED FROM BODY CONTROL MODULE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| U0423 | Invalid Data Received From Instrument Panel Cluster Control Module | Error data is received from meter. | <Ref. to LAN(w/o HEV)(diag)-102, DTC U0423 INVALID DATA RECEIVED FROM INSTRUMENT PANEL CLUSTER CONTROL MODULE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| U0424 | Invalid Data Received From HVAC Control Module | Error data is received from A/C control panel. | <Ref. to LAN(w/o HEV)(diag)-103, DTC U0424 INVALID DATA RECEIVED FROM HVAC CONTROL MODULE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| U0427 | Invalid Data Received From Vehicle Security Control Module | Error data is received from keyless access CM. | <Ref. to LAN(w/o HEV)(diag)-104, DTC U0427 INVALID DATA RECEIVED FROM VEHICLE SECURITY CONTROL MODULE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| U0428 | Invalid Data Received From Steering Angle Sensor Module | Error data is received from steering angle sensor. | <Ref. to LAN(w/o HEV)(diag)-105, DTC U0428 INVALID DATA RECEIVED FROM STEERING ANGLE SENSOR MODULE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| U0452 | Invalid Data Received From Restraints Control Module | Error data is received from airbag module. | <Ref. to LAN(w/o HEV)(diag)-106, DTC U0452 INVALID DATA RECEIVED FROM RESTRAINTS CONTROL MODULE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |

| DTC | Item | Content of diagnosis | Note |
|---|---|---|---|
| U0100 | Lost Communication With ECM/PCM “A” | Data does not arrive from ECM. | <Ref. to LAN(w/o HEV)(diag)-108, DTC U0100 LOST COMMUNICATION WITH ECM/PCM “A”, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| U0101 | Lost Communication With TCM | Data does not arrive from TCM. | <Ref. to LAN(w/o HEV)(diag)-109, DTC U0101 LOST COMMUNICATION WITH TCM, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| U0122 | Lost Communication With Vehicle Dynamics Control Module | Data does not arrive from VDC module. | <Ref. to LAN(w/o HEV)(diag)-110, DTC U0122 LOST COMMUNICATION WITH VEHICLE DYNAMICS CONTROL MODULE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| U0126 | Lost Communication With Steering Angle Sensor Module | Data does not arrive from steering angle sensor. | <Ref. to LAN(w/o HEV)(diag)-111, DTC U0126 LOST COMMUNICATION WITH STEERING ANGLE SENSOR MODULE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| U0131 | Lost Communication With Power Steering Control Module | Data does not arrive from EPS module. | <Ref. to LAN(w/o HEV)(diag)-112, DTC U0131 LOST COMMUNICATION WITH POWER STEERING CONTROL MODULE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| U0140 | Lost Communication With Body Control Module | Data does not arrive from body integrated unit. | <Ref. to LAN(w/o HEV)(diag)-113, DTC U0140 LOST COMMUNICATION WITH BODY CONTROL MODULE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| U0151 | Lost Communication With Restraints Control Module | Data does not arrive from airbag module. | <Ref. to LAN(w/o HEV)(diag)-114, DTC U0151 LOST COMMUNICATION WITH RESTRAINTS CONTROL MODULE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| U0155 | Lost Communication With Instrument Panel Cluster (IPC) Control Module | Data does not arrive from meter. | <Ref. to LAN(w/o HEV)(diag)-115, DTC U0155 LOST COMMUNICATION WITH INSTRUMENT PANEL CLUSTER (IPC) CONTROL MODULE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| U0164 | Lost Communication With HVAC Control Module | Data does not arrive from A/C control panel. | <Ref. to LAN(w/o HEV)(diag)-116, DTC U0164 LOST COMMUNICATION WITH HVAC CONTROL MODULE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| U0327 | Software Incompatibility With Vehicle Security Control Module | Data does not arrive from keyless access CM. | <Ref. to LAN(w/o HEV)(diag)-117, DTC U0327 SOFTWARE INCOMPATIBILITY WITH VEHICLE SECURITY CONTROL MODULE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| U1120 | Lost Communication With Autostart Stop Control Module | Data does not arrive from combination meter. | <Ref. to LAN(w/o HEV)(diag)-118, DTC U1120 LOST COMMUNICATION WITH AUTOSTART STOP CONTROL MODULE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| U1235 | Lost Communication With EyeSight | Data does not arrive from stereo camera. | <Ref. to LAN(w/o HEV)(diag)-119, DTC U1235 LOST COMMUNICATION WITH EyeSight, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| U1433 | Invalid Data Received From EyeSight | Error data is received from stereo camera. | <Ref. to LAN(w/o HEV)(diag)-107, DTC U1433 INVALID DATA RECEIVED FROM EyeSight, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |

## 1. CHECK USING THE DTC CHECK SHEET

### DTC check sheet

| | (A) | (B) | (C) | | | | | | | | | | | | | | | (D) | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | VDC | KPS | HL | BIU | MFD | A/C | MET | RST | STR | TCM | ES | A/B | EPS | ECM | | VDC | KPS | HL | BIU | MFD | A/C | MET | RST | STR | TCM | ES | A/B | EPS | ECM |
| | | U0073 | U0122 | U0327 | — | U0140 | U0156 | U0164 | U0155 | — | U0126 | U0101 | U1235 | U0151 | U0131 | U0100 | | U0416 | U0427 | — | U0422 | U0457 | U0424 | U0423 | — | U0428 | U0402 | U1433 | U0452 | U0420 | U0401 |
| VDC | | | — | — | — | | — | — | — | — | | | | — | — | | | — | — | — | | — | — | — | — | | | | — | — | |
| KPS | | | | — | — | | — | — | | — | — | | — | — | — | | | — | — | — | | — | — | — | — | — | — | — | — | — | |
| HL | | | | — | — | | — | — | — | — | — | — | — | — | — | — | | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| BIU | | | | | — | — | — | | | — | — | | — | — | — | | | | | — | — | — | | | — | — | | — | — | — | |
| MFD | | | — | — | — | — | — | — | — | — | — | — | — | — | — | — | | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| A/C | | | | — | — | | — | — | | — | — | | — | — | — | | | | — | — | | — | — | | — | — | | — | — | — | |
| MET | | | | | — | | — | | — | — | — | | — | | | | | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| RST | | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| STR | | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| TCM | | | | — | — | | — | — | | — | — | — | | — | — | | | | — | — | | — | — | | — | — | — | | — | — | |
| ES | | | | — | — | | — | — | | — | — | | — | — | — | | | | — | — | | — | — | | — | — | | — | — | — | |
| A/B | | | — | — | — | — | — | — | — | — | — | — | — | — | — | — | | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| EPS | | | | — | — | — | — | — | — | — | — | — | — | — | — | — | | | — | — | — | — | — | — | — | — | — | — | — | — | — |
| ECM | | | | — | — | — | — | — | | — | — | | — | — | — | — | | | — | — | — | — | — | — | | — | — | | — | — | — |

LAN01671

(A) Installation check
(B) Bus off detection
(C) Data no-receive detection
(D) Data abnormal detection

VDC: VDC CM
KPS: Keyless access CM
HL: Auto headlight beam leveler CM
BIU: Body integrated unit
MFD: High grade MFD
A/C: A/C control panel
MET: Combination meter
RST: Remote engine starter CM
STR: Steering angle sensor
TCM: TCM
ES: Stereo camera
A/B: AB CM
EPS: Power steering CM
ECM: ECM

1) Module installation check
   (1) Write “-” marks in the field for installation check if the vehicle to be inspected does not have relevant module.
   (2) Write “-” marks in all blank fields on the same row that the “-” mark has filled in.
2) Bus off detection / data not received

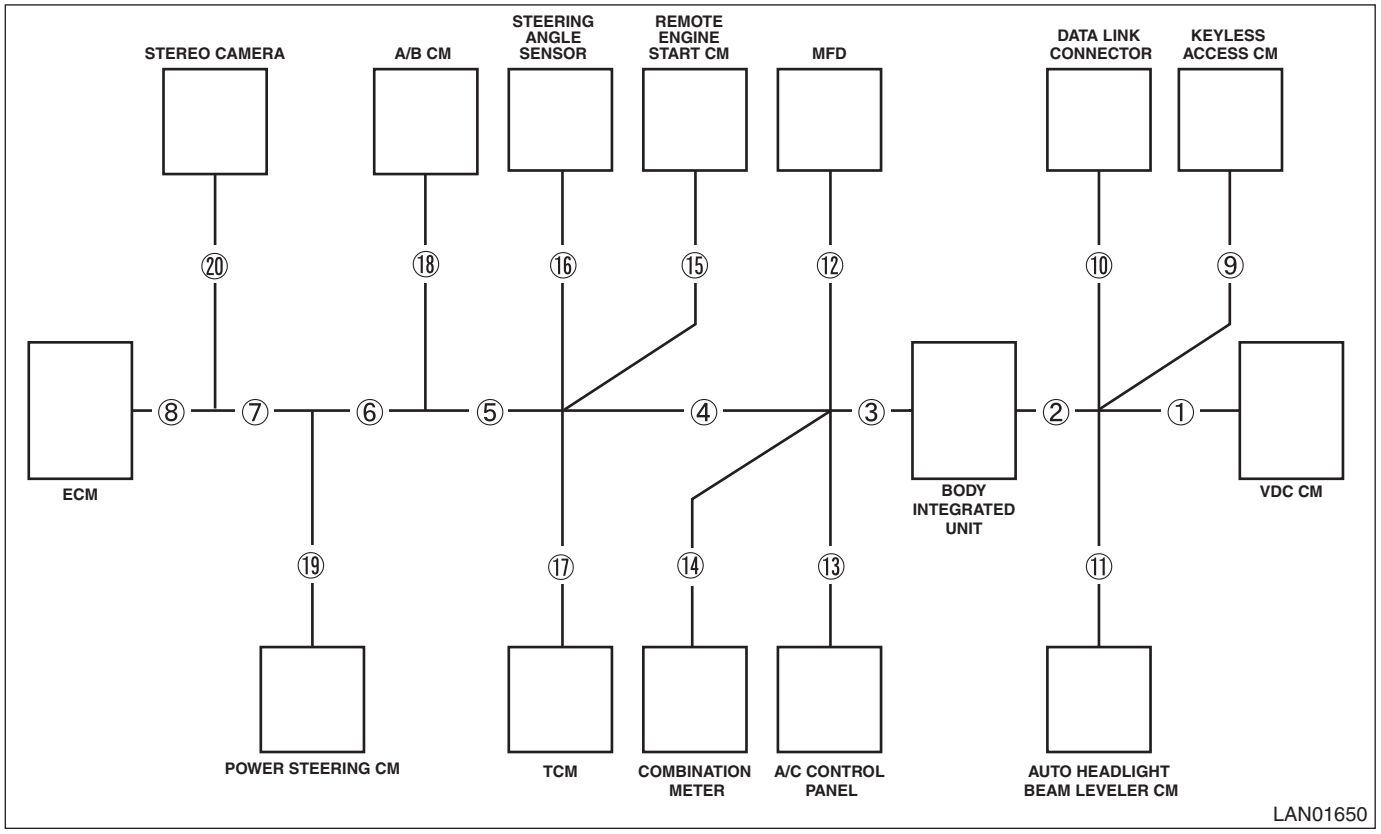
NOTE:
It becomes impossible for CAN diagnostic module to read DTC, if there is a current malfunction of open harness (data not received). If this occurs, perform the “Check using the check sheet of communication for initializing” <Ref. to LAN(w/o HEV)(diag)-12, CHECK USING THE CHECK SHEET OF COMMUNICATION FOR INITIALIZING, COMMUNICATION FOR INITIALIZING IMPOSSIBLE, Subaru Select Monitor.>, and use this sheet to confirm that the corresponding part becomes the past malfunction.
   (1) Mark “X” in the field corresponding to the DTCs that has been detected by each module in the check sheet.
   (2) Identify and repair the faulty part by referring to the example of DTC data not received and the DTC matrix. <Ref. to LAN(w/o HEV)(diag)-67, EXAMPLE OF DTC DATA NOT RECEIVED, LIST, List of Diagnostic Trouble Code (DTC).> <Ref. to LAN(w/o HEV)(diag)-70, DTC MATRIX, LIST, List of Diagnostic Trouble Code (DTC).>

3) Data abnormal detection

NOTE:
If any “BUS OFF” or “NO-RECEIVE DATA” condition is detected, perform the diagnosis for these problems first.

(1) If several modules detect the DTC for the same module, replace the detected module.
(2) If one module detects the DTC, replace the module of the detected side.
(3) If it does not return to the normal operation, re-install the module which has been replaced, and replace the module of the detected side.
(4) If it does not return to the normal operation, replace both modules.

## 2. EXAMPLE OF DTC DATA NOT RECEIVED



When ⑮ (remote engine start CM vicinity) is open

NOTE:
No DTC remains, and the remote engine starter does not function.

| | (A) | (B) | (C) | | | | | | | | | | | | | | | (D) | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | VDC | KPS | HL | BIU | MFD | A/C | MET | RST | STR | TCM | ES | A/B | EPS | ECM | | VDC | KPS | HL | BIU | MFD | A/C | MET | RST | STR | TCM | ES | A/B | EPS | ECM | |
| | | U0073 | U0122 | U0327 | — | U0140 | U0156 | U0164 | U0155 | — | U0126 | U0101 | U1235 | U0151 | U0131 | U0100 | | U0416 | U0427 | — | U0422 | U0457 | U0424 | U0423 | — | U0428 | U0402 | U1433 | U0452 | U0420 | U0401 | |
| VDC | | | — | — | — | | — | — | — | — | | | | — | — | | | — | — | — | | — | — | — | — | | | | — | — | | |
| KPS | | | | — | — | | — | — | | — | — | | — | — | — | | | — | — | — | | — | — | — | — | — | — | — | — | — | | |
| HL | | | | — | — | | — | — | — | — | — | — | — | — | — | — | | — | — | — | — | — | — | — | — | — | — | — | — | — | — | |
| BIU | | | | | — | — | — | | | — | — | | — | — | — | | | | | — | — | — | | | — | — | | — | — | — | |
| MFD | | | — | — | — | — | — | — | — | — | — | — | — | — | — | — | | — | — | — | — | — | — | — | — | — | — | — | — | — | — | |
| A/C | | | | — | — | | — | — | | — | — | | — | — | — | | | | — | — | | — | — | | — | — | | — | — | — | |
| MET | | | | | — | | — | | — | — | — | | — | | | | | — | — | — | — | — | — | — | — | — | — | — | — | — | |
| RST | | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | | — | — | — | — | — | — | — | — | — | — | — | — | — | — | |
| STR | | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | | — | — | — | — | — | — | — | — | — | — | — | — | — | — | |
| TCM | | | | — | — | | — | — | | — | — | — | | — | — | | | | — | — | | — | — | | — | — | — | | — | — | |
| ES | | | | — | — | | — | — | | — | — | | — | — | — | | | | — | — | | — | — | | — | — | | — | — | — | |
| A/B | | | — | — | — | — | — | — | — | — | — | — | — | — | — | — | | — | — | — | — | — | — | — | — | — | — | — | — | — | — | |
| EPS | | | | — | — | — | — | — | — | — | — | — | — | — | — | — | | | — | — | — | — | — | — | — | — | — | — | — | — | — | |
| ECM | | | | — | — | — | — | — | | — | — | | — | — | — | — | | | — | — | — | — | — | — | | — | — | | — | — | — | |

LAN01671

When ⑯ (steering angle sensor vicinity) is open

| | (A) | (B) | (C) | | | | | | | | | | | | | | | (D) | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | VDC | KPS | HL | BIU | MFD | A/C | MET | RST | STR | TCM | ES | A/B | EPS | ECM | | VDC | KPS | HL | BIU | MFD | A/C | MET | RST | STR | TCM | ES | A/B | EPS | ECM | |
| | | U0073 | U0122 | U0327 | — | U0140 | U0156 | U0164 | U0155 | — | U0126 | U0101 | U1235 | U0151 | U0131 | U0100 | | U0416 | U0427 | — | U0422 | U0457 | U0424 | U0423 | — | U0428 | U0402 | U1433 | U0452 | U0420 | U0401 | |
| VDC | | | — | — | — | | — | — | — | — | × | | | — | — | | | — | — | — | | — | — | — | — | | | | — | — | | |
| KPS | | | | — | — | | — | — | | — | — | | — | — | — | | | — | — | — | | — | — | — | — | — | — | — | — | — | | |
| HL | | | | — | — | | — | — | — | — | — | — | — | — | — | — | | — | — | — | — | — | — | — | — | — | — | — | — | — | — | |
| BIU | | | | | — | — | — | | | — | — | | — | — | — | | | | | — | — | — | | | — | — | | — | — | — | |
| MFD | | | — | — | — | — | — | — | — | — | — | — | — | — | — | — | | — | — | — | — | — | — | — | — | — | — | — | — | — | — | |
| A/C | | | | — | — | | — | — | | — | — | | — | — | — | | | | — | — | | — | — | | — | — | | — | — | — | |
| MET | | | | | — | | — | | — | — | — | | — | | | | | — | — | — | — | — | — | — | — | — | — | — | — | — | |
| RST | | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | | — | — | — | — | — | — | — | — | — | — | — | — | — | — | |
| STR | | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | | — | — | — | — | — | — | — | — | — | — | — | — | — | — | |
| TCM | | | | — | — | | — | — | | — | — | — | | — | — | | | | — | — | | — | — | | — | — | — | | — | — | |
| ES | | | | — | — | | — | — | | — | — | | — | — | — | | | | — | — | | — | — | | — | — | | — | — | — | |
| A/B | | | — | — | — | — | — | — | — | — | — | — | — | — | — | — | | — | — | — | — | — | — | — | — | — | — | — | — | — | — | |
| EPS | | | | — | — | — | — | — | — | — | — | — | — | — | — | — | | | — | — | — | — | — | — | — | — | — | — | — | — | — | |
| ECM | | | | — | — | — | — | — | | — | — | | — | — | — | — | | | — | — | — | — | — | — | | — | — | | — | — | — | |

LAN01672

# List of Diagnostic Trouble Code (DTC)

When ⑲ (power steering CM vicinity) is open

NOTE:
Power steering CM may display U1120 (Auto Start Stop COMMUNICATION LOST).

| | (A) | (B) | (C) | | | | | | | | | | | | | | | (D) | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | VDC | KPS | HL | BIU | MFD | A/C | MET | RST | STR | TCM | ES | A/B | EPS | ECM | VDC | KPS | HL | BIU | MFD | A/C | MET | RST | STR | TCM | ES | A/B | EPS | ECM |
| | | U0073 | U0122 | U0327 | — | U0140 | U0156 | U0164 | U0155 | — | U0126 | U0101 | U1235 | U0151 | U0131 | U0100 | U0416 | U0427 | — | U0422 | U0457 | U0424 | U0423 | — | U0428 | U0402 | U1433 | U0452 | U0420 | U0401 |
| VDC | | | — | — | — | | — | — | — | — | | | | — | — | | — | — | — | | — | — | — | — | | | | — | — | |
| KPS | | | | — | — | | — | — | | — | — | | — | — | — | | — | — | — | | — | — | — | — | — | — | — | — | — | |
| HL | | | | — | — | | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| BIU | | | | | — | — | — | | | — | — | | — | — | — | | | | — | — | — | | | — | — | | — | — | — | |
| MFD | | | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| A/C | | | | — | — | | — | — | | — | — | | — | — | — | | | — | — | | — | — | | — | — | | — | — | — | |
| MET | | | | | — | | — | | — | — | — | | — | | X | | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| RST | | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| STR | | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| TCM | | | | — | — | | — | — | | — | — | — | | — | — | | | — | — | | — | — | | — | — | — | | — | — | |
| ES | | | | — | — | | — | — | | — | — | | — | — | — | | | — | — | | — | — | | — | — | | — | — | — | |
| A/B | | | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| EPS | | | X | — | — | — | — | — | — | — | — | — | — | — | — | — | | — | — | — | — | — | — | — | — | — | — | — | — | — |
| ECM | | | | — | — | — | — | — | | — | — | | — | — | — | — | | — | — | — | — | — | — | | — | — | | — | — | — | — |

LAN01673

## 3. DTC MATRIX

NOTE:
Perform the following procedure when using this chart in which the detailed trouble mode corresponds to the trouble status.
1. Search the trouble mode that corresponds to the vehicle status from the chart.
2. Perform the repair that corresponds to the trouble mode.

<table>
<tr><td colspan="2">Control module<br>(which module vicinity)</td><td rowspan="4">Trouble mode 1</td><td rowspan="4">Trouble mode 2</td><td rowspan="4">Trouble mode 3</td><td rowspan="4">Trouble mode 4</td><td rowspan="4">Trouble mode 5</td><td rowspan="4">...</td><td rowspan="4">...</td><td rowspan="4">Trouble mode n</td></tr>
<tr><td colspan="2">Detailed location<br>(which location)</td></tr>
<tr><td colspan="2">Detailed trouble mode<br>(what kind)</td></tr>
<tr><td colspan="2">Trouble status<br>(trouble exists/trouble existed)</td></tr>
<tr><td rowspan="10">DTC reading result from each module using Subaru Select Monitor</td><td>VDC CM</td><td rowspan="11">Vehicle status 1</td><td rowspan="11">Vehicle status 2</td><td rowspan="11">Vehicle status 3</td><td rowspan="11">Vehicle status 4</td><td rowspan="11">Vehicle status 5</td><td rowspan="11">...</td><td rowspan="11">...</td><td rowspan="11">Vehicle status n</td></tr>
<tr><td>Body integrated unit</td></tr>
<tr><td>Combination meter</td></tr>
<tr><td>MFD</td></tr>
<tr><td>A/C control panel</td></tr>
<tr><td>TCM</td></tr>
<tr><td>...</td></tr>
<tr><td>...</td></tr>
<tr><td>ECM</td></tr>
<tr><td colspan="2">Indicators illuminate/blink.</td></tr>
</table>

1. Hi-side circuit of CAN communication circuit is open.

NOTE:
- If the module has a limit of DTC memory and the number of DTC occurrence exceeds the limit, older DTCs are preferentially stored.
- When there is no description in Current, it is referred to as “None”.
- When DTC is in parentheses, it is referred to as “Not always occur”.
- “Trouble exists” is referred to as the status before performing inspection and repair. “Trouble existed” is referred to as the status before performing DTC clear after repair.

| Control module | | VDC CM vicinity | VDC CM vicinity | Body integrated unit (VDC side) vicinity | Body integrated unit (VDC side) vicinity | Body integrated unit (EGI side) vicinity | Body integrated unit (EGI side) vicinity | Combination meter vicinity | Combination meter vicinity |
|---|---|---|---|---|---|---|---|---|---|
| Detailed location | | Hi side | Hi side | Hi side | Hi side | Hi side | Hi side | Hi side | Hi side |
| Detailed trouble mode | | Open | Open | Open | Open | Open | Open | Open | Open |
| Trouble status | | Trouble exists | Trouble existed | Trouble exists | Trouble existed | Trouble exists | Trouble existed | Trouble exists | Trouble existed |
| DTC reading result from each module using Subaru Select Monitor | VDC CM[*1*8] | Communication failure | Current<br>C1431<br><br>Past<br>C1431<br>U0073<br>U0100<br>U0101<br>U0126<br>U0140 | Current<br>U0073<br>U0100<br>U0101<br>U0126<br>U0140<br><br>Past<br>Same as above | Current<br>C1431<br><br>Past<br>C1431<br>U0073<br>U0100<br>U0101<br>U0126<br>U0140 | Current<br>U0100<br>U0101<br>U0126<br><br>Past<br>Same as above | Current<br>C1431<br><br>Past<br>C1431<br>U0100<br>U0101<br>U0126 | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None |
| | Body integrated unit[*2] | Current<br>U0122<br><br>Past<br>Same as above | Past<br>U0122 | Communication failure | Past<br>U0122 | Current<br>U0100<br>U0101<br>U0155<br>U0164<br>U1201<br><br>Past<br>Same as above | Past<br>U0100<br>U0101<br>U0155<br>U0164<br>U1201 | Current<br>U0155<br><br>Past<br>Same as above | Past<br>U0155 |
| | Combination meter[*3] | Current<br>U0122<br><br>Past<br>Same as above | Past<br>U0122 | Communication failure | Past<br>U0122 | Communication failure | Past<br>U0122<br>U0140 | Communication failure | Past<br>U0073<br>U0100<br>U0101<br>U0122<br>U0131<br>U0140<br>U0151<br>U0164<br>Any 5 items from above |
| | MFD[*4] | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Communication failure | Current<br>None<br><br>Past<br>None | Communication failure | Past<br>U1650 | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None |
| | A/C control panel[*5] | Current<br>U0122<br><br>Past<br>Same as above | Past<br>U0122 | Communication failure | Past<br>U0122 | Communication failure | Past<br>U0122<br>U0140 | Current<br>U0155<br><br>Past<br>Same as above | Past<br>U0155 |

| Control module | | VDC CM vicinity | VDC CM vicinity | Body integrated unit (VDC side) vicinity | Body integrated unit (VDC side) vicinity | Body integrated unit (EGI side) vicinity | Body integrated unit (EGI side) vicinity | Combination meter vicinity | Combination meter vicinity |
|---|---|---|---|---|---|---|---|---|---|
| Detailed location | | Hi side | Hi side | Hi side | Hi side | Hi side | Hi side | Hi side | Hi side |
| Detailed trouble mode | | Open | Open | Open | Open | Open | Open | Open | Open |
| Trouble status | | Trouble exists | Trouble existed | Trouble exists | Trouble existed | Trouble exists | Trouble existed | Trouble exists | Trouble existed |
| DTC reading result from each module using Subaru Select Monitor | TCM[*1] | Current<br>U0122<br><br>Past<br>Same as above | Past<br>U0122 | Communication failure | Past<br>U0122 | Communication failure | Past<br>U0122<br>U0140 | Current<br>U0155<br><br>Past<br>Same as above | Past<br>U0155 |
| | A/B CM[*6] | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Communication failure | Current<br>None<br><br>Past<br>None | Communication failure | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None |
| | Electric power steering CM[*7] | Current<br>U0122<br><br>Latest<br>Same as above | Current<br>None<br><br>Latest<br>U0122 | Current<br>U0122<br><br>Latest<br>Same as above | Latest<br>U0122 | Current<br>U0122<br><br>Latest<br>Same as above | Latest<br>U0122 | Current<br>None<br><br>Latest<br>None | Current<br>None<br><br>Latest<br>None |
| | ECM[*1] | Current<br>P0700<br>U0122<br><br>Past<br>Same as above | Past<br>P0700<br>U0122 | Current<br>P0700<br>U0122<br><br>Past<br>Same as above | Past<br>P0700<br>U0122 | Current<br>U0122<br><br>Past<br>Same as above | Past<br>U0122 | Current<br>U0155<br><br>Past<br>Same as above | Past<br>U0155 |
| | Auto headlight beam leveler CM[*6] | Current<br>U0122<br><br>Past<br>Same as above | Past<br>U0122 | Current<br>U0140<br><br>Past<br>Same as above | Past<br>U0140 | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None |

| Control module | VDC CM vicinity | VDC CM vicinity | Body integrated unit (VDC side) vicinity | Body integrated unit (VDC side) vicinity | Body integrated unit (EGI side) vicinity | Body integrated unit (EGI side) vicinity | Combination meter vicinity | Combination meter vicinity |
|---|---|---|---|---|---|---|---|---|
| Detailed location | Hi side | Hi side | Hi side | Hi side | Hi side | Hi side | Hi side | Hi side |
| Detailed trouble mode | Open | Open | Open | Open | Open | Open | Open | Open |
| Trouble status | Trouble exists | Trouble existed | Trouble exists | Trouble existed | Trouble exists | Trouble existed | Trouble exists | Trouble existed |
| Indicators illuminate/blink. | CHECK ENGINE, VDC, VDC off, ABS, BRAKE illuminate.<br><br>AT OIL TEMP, CRUISE blink.<br><br>Headlight beam leveler indicator illuminates. | CHECK ENGINE, VDC, ABS illuminate.<br><br>CRUISE blink | CHECK ENGINE, VDC, ABS, VDC off, BRAKE illuminate.<br><br>AT OIL TEMP, CRUISE blink.<br><br>Headlight beam leveler indicator illuminates. | CHECK ENGINE, VDC, ABS illuminate.<br><br>CRUISE blink | CHECK ENGINE, VDC, VDC off, ABS, BRAKE illuminate.<br><br>SPORTS illuminates.<br><br>TPMS blinks → illuminates.<br><br>AT OIL TEMP, CRUISE blink. | CHECK ENGINE, VDC, ABS illuminate.<br><br>CRUISE blink | CHECK ENGINE, VDC, A/B illuminate.<br><br>Below are the items that illuminate intermittently. (Cycles are erratic.)<br>VDC Off, ABS, EMPTY, BRAKE<br><br>Below are the items that blink intermittently.<br>Engine coolant temperature gauge (blue/red) blinks, AT OIL TEMP, CRUISE, Fuel gauge | CHECK ENGINE, VDC illuminate.<br><br>CRUISE blink |

*1: When U0073 occurs, other U-codes are not stored. (Judge timing affects the storing order.)
*2: The number of DTC memory is limited to 8 items.
*3: The number of DTC memory is limited to 5 items. (Older items are preferentially stored.)
*4: The number of DTC memory is limited to 2 items. (Older items are preferentially stored.)
*5: All types of DTCs can be simultaneously stored. When U0073 occurs, other U-codes are not displayed.
*6: All types of DTCs can be simultaneously stored.
*7: The number of DTC memory is limited to 1 item for Current and 3 items for Latest.
*8: If C1431 contains a current malfunction after repair, perform IGN OFF → ON. (It remains immediately after repair.)

| Control module | | MFD vicinity | MFD vicinity | A/C control panel vicinity | A/C control panel vicinity | Steering angle sensor vicinity | Steering angle sensor vicinity | AT CM vicinity | AT CM vicinity |
|---|---|---|---|---|---|---|---|---|---|
| Detailed location | | Hi side | Hi side | Hi side | Hi side | Hi side | Hi side | Hi side | Hi side |
| Detailed trouble mode | | Open | Open | Open | Open | Open | Open | Open | Open |
| Trouble status | | Trouble exists | Trouble existed | Trouble exists | Trouble existed | Trouble exists | Trouble existed | Trouble exists | Trouble existed |
| DTC reading result from each module using Subaru Select Monitor | VDC CM[*1*8] | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>U0126<br><br>Past<br>Same as above | Past<br>U0126 | Current<br>U0101<br><br>Past<br>Same as above | Current<br>C1431<br><br>Past<br>C1431<br>U0101 |
| | Body integrated unit[*2] | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>U0164<br><br>Past<br>Same as above | Past<br>U0164 | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>U0101<br><br>Past<br>Same as above | Past<br>U0101 |
| | Combination meter[*3] | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>U0164<br><br>Past<br>None | Past<br>U0164 | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>U0101<br><br>Past<br>Same as above | Past<br>U0101 |
| | MFD[*4] | Communication failure | Past<br>U1201<br>U0073 | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None |
| | A/C control panel[*5] | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Communication failure | Past<br>U0100<br>U0155 | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>U0101<br><br>Past<br>Same as above | Past<br>U0101 |
| | TCM[*1] | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Communication failure | Past<br>U0100<br>U0122<br>U0140<br>U0155 |
| | A/B CM[*6] | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None |
| | Electric power steering CM[*7] | Current<br>None<br><br>Latest<br>None | Current<br>None<br><br>Latest<br>None | Current<br>None<br><br>Latest<br>None | Current<br>None<br><br>Latest<br>None | Current<br>None<br><br>Latest<br>None | Current<br>None<br><br>Latest<br>None | Current<br>None<br><br>Latest<br>None | Current<br>None<br><br>Latest<br>None |

| Control module | | MFD vicinity | MFD vicinity | A/C control panel vicinity | A/C control panel vicinity | Steering angle sensor vicinity | Steering angle sensor vicinity | AT CM vicinity | AT CM vicinity |
|---|---|---|---|---|---|---|---|---|---|
| Detailed location | | Hi side | Hi side | Hi side | Hi side | Hi side | Hi side | Hi side | Hi side |
| Detailed trouble mode | | Open | Open | Open | Open | Open | Open | Open | Open |
| Trouble status | | Trouble exists | Trouble existed | Trouble exists | Trouble existed | Trouble exists | Trouble existed | Trouble exists | Trouble existed |
| DTC reading result from each module using Subaru Select Monitor | ECM[*1] | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>U0101<br><br>Past<br>Same as above | Past<br>U0101 |
| | Auto headlight beam leveler CM[*6] | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None |
| Indicators illuminate/blink. | | No change<br><br>No change in MFD | No change<br><br>No change in MFD | No change | No change | VDC, ABS illuminate. | No change | CHECK ENGINE, VDC, ABS illuminate.<br><br>CRUISE blink<br><br>Shift indicator goes off. | CHECK ENGINE, VDC, ABS illuminate.<br><br>CRUISE blink |

*1: When U0073 occurs, other U-codes are not stored. (Judge timing affects the storing order.)
*2: The number of DTC memory is limited to 8 items.
*3: The number of DTC memory is limited to 5 items. (Older items are preferentially stored.)
*4: The number of DTC memory is limited to 2 items. (Older items are preferentially stored.)
*5: All types of DTCs can be simultaneously stored. When U0073 occurs, other U-codes are not displayed.
*6: All types of DTCs can be simultaneously stored.
*7: The number of DTC memory is limited to 1 item for Current and 3 items for Latest.
*8: If C1431 contains a current malfunction after repair, perform IGN OFF → ON. (It remains immediately after repair.)

# List of Diagnostic Trouble Code (DTC)

| Control module | | A/B CM vicinity | A/B CM vicinity | Electric power steering CM vicinity | Electric power steering CM vicinity | ECM vicinity | ECM vicinity | Auto head-light beam leveler CM vicinity | Auto head-light beam leveler CM vicinity |
|---|---|---|---|---|---|---|---|---|---|
| Detailed location | | Hi side | Hi side | Hi side | Hi side | Hi side | Hi side | Hi side | Hi side |
| Detailed trouble mode | | Open | Open | Open | Open | Open | Open | Open | Open |
| Trouble status | | Trouble exists | Trouble existed | Trouble exists | Trouble existed | Trouble exists | Trouble existed | Trouble exists | Trouble existed |
| DTC reading result from each module using Subaru Select Monitor | VDC CM[*1*8] | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>C1431<br>U0100<br><br>Past<br>Same as above | Current<br>C1431<br><br>Past<br>C1431<br>U0100 | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None |
| | Body integrated unit[*2] | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>U0100<br>(U1201)<br><br>Past<br>Same as above | Past<br>U0100<br>(U1201) | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None |
| | Combination meter[*3] | Current<br>U0151<br><br>Past<br>Same as above | Past<br>U0151 | Current<br>U0131<br><br>Past<br>Same as above | Past<br>U0131 | Current<br>U0100<br>(U0073)<br><br>Past<br>Same as above | Past<br>U0100<br>(U0073) | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None |
| | MFD[*4] | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None |
| | A/C control panel[*5] | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>U0100<br><br>Past<br>Same as above | Past<br>U0100 | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None |
| | TCM[*1] | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>U0100<br><br>Past<br>Same as above | Past<br>U0100 | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None |
| | A/B CM[*6] | Communication failure | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None |

# List of Diagnostic Trouble Code (DTC)

| Control module | | A/B CM vicinity | A/B CM vicinity | Electric power steering CM vicinity | Electric power steering CM vicinity | ECM vicinity | ECM vicinity | Auto headlight beam leveler CM vicinity | Auto headlight beam leveler CM vicinity |
|---|---|---|---|---|---|---|---|---|---|
| Detailed location | | Hi side | Hi side | Hi side | Hi side | Hi side | Hi side | Hi side | Hi side |
| Detailed trouble mode | | Open | Open | Open | Open | Open | Open | Open | Open |
| Trouble status | | Trouble exists | Trouble existed | Trouble exists | Trouble existed | Trouble exists | Trouble existed | Trouble exists | Trouble existed |
| DTC reading result from each module using Subaru Select Monitor | Electric power steering CM[*7] | Current<br>None<br><br>Latest<br>None | Current<br>None<br><br>Latest<br>None | Current<br>U1120[*9]<br>U0122<br>C2543<br>Any 1 item from above<br><br>Latest<br>U0122<br>C2543<br>(U1120[*9]) | Latest<br>U0122<br>C2543<br>(U1120[*9]) | Current<br>C2543<br>U0073<br>None or any 1 item from above<br><br>Latest<br>C2543<br>U0073 | Latest<br>C2543<br>U0073 | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None |
| | ECM[*1] | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>U0073<br><br>Past<br>Same as above | Past<br>U0073 | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None |
| | Auto headlight beam leveler CM[*6] | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Communication failure | Past<br>U0122<br>U0140 |
| Indicators illuminate/blink. | | A/B illuminates. | No change | No change | No change | VDC, ABS, CHECK ENGINE, EMPTY illuminate.<br><br>AT OIL TEMP blinks.<br><br>Engine coolant temperature gauge (blue/red) blinks.<br><br>Fuel gauge goes off.<br><br>Tachometer: 0 rpm | CHECK ENGINE, VDC, ABS illuminate.<br><br>CRUISE blink | Headlight beam leveler indicator illuminates. | No change |

*1: When U0073 occurs, other U-codes are not stored. (Judge timing affects the storing order.)
*2: The number of DTC memory is limited to 8 items.
*3: The number of DTC memory is limited to 5 items. (Older items are preferentially stored.)
*4: The number of DTC memory is limited to 2 items. (Older items are preferentially stored.)
*5: All types of DTCs can be simultaneously stored. When U0073 occurs, other U-codes are not displayed.
*6: All types of DTCs can be simultaneously stored.
*7: The number of DTC memory is limited to 1 item for Current and 3 items for Latest.
*8: If C1431 contains a current malfunction after repair, perform IGN OFF → ON. (It remains immediately after repair.)
*9: When this code is displayed, perform the diagnosis as COMMUNICATION MALFUNCTION (METER ECU) (U0155). DTC that occurs in “Current” is displayed in top of the “Latest” list.

2. Lo-side circuit of CAN communication circuit is open.

NOTE:
- If the module has a limit of DTC memory and the number of DTC occurrence exceeds the limit, older DTCs are preferentially stored.
- When there is no description in Current, it is referred to as “None”.
- When DTC is in parentheses, it is referred to as “Not always occur”.
- “Trouble exists” is referred to as the status before performing inspection and repair. “Trouble existed” is referred to as the status before performing DTC clear after repair.

| Control module | | VDC CM vicinity | VDC CM vicinity | Body integrated unit (VDC side) vicinity | Body integrated unit (VDC side) vicinity | Body integrated unit (EGI side) vicinity | Body integrated unit (EGI side) vicinity | Combination meter vicinity | Combination meter vicinity |
|---|---|---|---|---|---|---|---|---|---|
| Detailed location | | Lo side | Lo side | Lo side | Lo side | Lo side | Lo side | Lo side | Lo side |
| Detailed trouble mode | | Open | Open | Open | Open | Open | Open | Open | Open |
| Trouble status | | Trouble exists | Trouble existed | Trouble exists | Trouble existed | Trouble exists | Trouble existed | Trouble exists | Trouble existed |
| DTC reading result from each module using Subaru Select Monitor | VDC CM[*1*8] | Communication failure | Current<br>C1431<br><br>Past<br>C1431<br>U0073<br>U0100<br>U0101<br>U0126<br>U0140 | Current<br>U0073<br>U0100<br>U0101<br>U0126<br>U0140<br><br>Past<br>Same as above | Current<br>C1431<br><br>Past<br>C1431<br>U0073<br>U0100<br>U0101<br>U0126<br>U0140 | Current<br>U0100<br>U0101<br>U0126<br><br>Past<br>Same as above | Current<br>C1431<br><br>Past<br>C1431<br>U0100<br>U0101<br>U0126 | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None |
| | Body integrated unit[*2] | Current<br>U0122<br><br>Past<br>Same as above | Past<br>U0122 | Communication failure | Past<br>U0122 | Current<br>U0100<br>U0101<br>U0155<br>U0164<br>(U1201)<br><br>Past<br>Same as above | Past<br>U0100<br>U0101<br>U0155<br>U0164<br>(U1201) | Current<br>U0155<br><br>Past<br>Same as above | Past<br>U0155 |
| | Combination meter[*3] | Current<br>U0122<br><br>Past<br>Same as above | Past<br>U0122 | Communication failure | Past<br>U0122 | Communication failure | Past<br>U0122<br>U0140 | Communication failure | Past<br>U0073<br>U0100<br>U0101<br>U0122<br>U0131<br>U0140<br>U0151<br>U0164<br>Any 5 items from above |
| | MFD[*4] | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Communication failure | Current<br>None<br><br>Past<br>None | Communication failure | Past<br>U1650 | Current<br>(U1650)<br>(U1201)<br><br>Past<br>Same as above | Past<br>(U1650)<br>(U1201) |

| Control module | | VDC CM vicinity | VDC CM vicinity | Body integrated unit (VDC side) vicinity | Body integrated unit (VDC side) vicinity | Body integrated unit (EGI side) vicinity | Body integrated unit (EGI side) vicinity | Combination meter vicinity | Combination meter vicinity |
|---|---|---|---|---|---|---|---|---|---|
| Detailed location | | Lo side | Lo side | Lo side | Lo side | Lo side | Lo side | Lo side | Lo side |
| Detailed trouble mode | | Open | Open | Open | Open | Open | Open | Open | Open |
| Trouble status | | Trouble exists | Trouble existed | Trouble exists | Trouble existed | Trouble exists | Trouble existed | Trouble exists | Trouble existed |
| DTC reading result from each module using Subaru Select Monitor | A/C control panel[*5] | Current<br>U0122<br><br>Past<br>Same as above | Past<br>U0122 | Communication failure | Past<br>U0122 | Communication failure | Past<br>U0122<br>U0140 | Current<br>U0155<br><br>Past<br>Same as above | Past<br>U0155 |
| | TCM[*1] | Current<br>U0122<br><br>Past<br>Same as above | Past<br>U0122 | Communication failure | Past<br>U0122 | Communication failure | Past<br>U0122<br>U0140 | Current<br>U0155<br><br>Past<br>Same as above | Past<br>U0155 |
| | A/B CM[*6] | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Communication failure | Current<br>None<br><br>Past<br>None | Communication failure | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None |
| | Electric power steering CM[*7] | Current<br>U0122<br><br>Latest<br>Same as above | Current<br>None<br><br>Latest<br>U0122 | Current<br>U0122<br><br>Latest<br>Same as above | Latest<br>U0122 | Current<br>U0122<br><br>Latest<br>Same as above | Latest<br>U0122 | Current<br>(C2543)<br><br>Latest<br>Same as above | Current<br>(C2544)<br><br>Latest<br>(C2543)<br>(C2544) |
| | ECM[*1] | Current<br>P0700<br>U0122<br><br>Past<br>Same as above | Past<br>P0700<br>U0122 | Current<br>P0700<br>U0122<br><br>Past<br>Same as above | Past<br>P0700<br>U0122 | Current<br>U0122<br><br>Past<br>Same as above | Past<br>U0122 | Current<br>U0155<br><br>Past<br>Same as above | Past<br>U0155 |
| | Auto headlight beam leveler CM[*6] | Current<br>U0122<br><br>Past<br>Same as above | Past<br>U0122 | Current<br>U0140<br><br>Past<br>Same as above | Past<br>U0140 | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None |

# List of Diagnostic Trouble Code (DTC)

| Control module | VDC CM vicinity | VDC CM vicinity | Body integrated unit (VDC side) vicinity | Body integrated unit (VDC side) vicinity | Body integrated unit (EGI side) vicinity | Body integrated unit (EGI side) vicinity | Combination meter vicinity | Combination meter vicinity |
|---|---|---|---|---|---|---|---|---|
| Detailed location | Lo side | Lo side | Lo side | Lo side | Lo side | Lo side | Lo side | Lo side |
| Detailed trouble mode | Open | Open | Open | Open | Open | Open | Open | Open |
| Trouble status | Trouble exists | Trouble existed | Trouble exists | Trouble existed | Trouble exists | Trouble existed | Trouble exists | Trouble existed |
| Indicators illuminate/blink. | CHECK ENGINE, VDC, VDC off, ABS, BRAKE illuminate.<br><br>AT OIL TEMP, CRUISE blink.<br><br>Headlight beam leveler indicator illuminates. | CHECK ENGINE, VDC, ABS illuminate.<br><br>CRUISE blink | CHECK ENGINE, VDC, ABS, VDC off, BRAKE illuminate.<br><br>AT OIL TEMP, CRUISE blink.<br><br>Headlight beam leveler indicator illuminates. | CHECK ENGINE, VDC, ABS illuminate.<br><br>CRUISE blink | CHECK ENGINE, VDC, VDC off, ABS, BRAKE illuminate.<br><br>SPORTS illuminates.<br><br>TPMS blinks → illuminates.<br><br>AT OIL TEMP, CRUISE blink. | CHECK ENGINE, VDC, ABS illuminate.<br><br>CRUISE blink | CHECK ENGINE, A/B, BRAKE, VDC, EMPTY, VDC OFF, ABS illuminate.<br><br>Engine coolant temperature gauge (blue/red) blinks.<br><br>TPMS blinks → illuminates.<br><br>Shift indicator goes off.<br><br>Fuel level warning indicator goes off.<br><br>Tachometer: 0 rpm | CHECK ENGINE, VDC illuminate.<br><br>CRUISE blink |

*1: When U0073 occurs, other U-codes are not stored. (Judge timing affects the storing order.)
*2: The number of DTC memory is limited to 8 items.
*3: The number of DTC memory is limited to 5 items. (Older items are preferentially stored.)
*4: The number of DTC memory is limited to 2 items. (Older items are preferentially stored.)
*5: All types of DTCs can be simultaneously stored. When U0073 occurs, other U-codes are not displayed.
*6: All types of DTCs can be simultaneously stored.
*7: The number of DTC memory is limited to 1 item for Current and 3 items for Latest.
*8: If C1431 contains a current malfunction after repair, perform IGN OFF → ON. (It remains immediately after repair.)

| Control module | | MFD vicinity | MFD vicinity | A/C control panel vicinity | A/C control panel vicinity | Steering angle sensor vicinity | Steering angle sensor vicinity | AT CM vicinity | AT CM vicinity |
|---|---|---|---|---|---|---|---|---|---|
| Detailed location | | Lo side | Lo side | Lo side | Lo side | Lo side | Lo side | Lo side | Lo side |
| Detailed trouble mode | | Open | Open | Open | Open | Open | Open | Open | Open |
| Trouble status | | Trouble exists | Trouble existed | Trouble exists | Trouble existed | Trouble exists | Trouble existed | Trouble exists | Trouble existed |
| DTC reading result from each module using Subaru Select Monitor | VDC CM[*1*8] | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>U0126<br><br>Past<br>Same as above | Past<br>U0126 | Current<br>U0101<br><br>Past<br>Same as above | Current<br>C1431<br><br>Past<br>C1431<br>U0101 |
| | Body integrated unit[*2] | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>U0164<br><br>Past<br>Same as above | Past<br>U0164 | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>U0101<br><br>Past<br>Same as above | Past<br>U0101 |
| | Combination meter[*3] | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>U0164<br><br>Past<br>None | Past<br>U0164 | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>U0101<br><br>Past<br>Same as above | Past<br>U0101 |
| | MFD[*4] | Communication failure | Past<br>U1201<br>U0073 | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None |
| | A/C control panel[*5] | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Communication failure | Past<br>U0100<br>U0155 | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>U0101<br><br>Past<br>Same as above | Past<br>U0101 |
| | TCM[*1] | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Communication failure | Past<br>U0100<br>U0122<br>U0140<br>U0155 |
| | A/B CM[*6] | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None |
| | Electric power steering CM[*7] | Current<br>None<br><br>Latest<br>None | Current<br>None<br><br>Latest<br>None | Current<br>None<br><br>Latest<br>None | Current<br>None<br><br>Latest<br>None | Current<br>None<br><br>Latest<br>None | Current<br>None<br><br>Latest<br>None | Current<br>None<br><br>Latest<br>None | Current<br>None<br><br>Latest<br>None |

# List of Diagnostic Trouble Code (DTC)

| Control module | | MFD vicinity | MFD vicinity | A/C control panel vicinity | A/C control panel vicinity | Steering angle sensor vicinity | Steering angle sensor vicinity | AT CM vicinity | AT CM vicinity |
|---|---|---|---|---|---|---|---|---|---|
| Detailed location | | Lo side | Lo side | Lo side | Lo side | Lo side | Lo side | Lo side | Lo side |
| Detailed trouble mode | | Open | Open | Open | Open | Open | Open | Open | Open |
| Trouble status | | Trouble exists | Trouble existed | Trouble exists | Trouble existed | Trouble exists | Trouble existed | Trouble exists | Trouble existed |
| DTC reading result from each module using Subaru Select Monitor | ECM[*1] | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>U0101<br><br>Past<br>Same as above | Past<br>U0101 |
| | Auto headlight beam leveler CM[*6] | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None |
| Indicators illuminate/blink. | | No change<br><br>No change in MFD | No change<br><br>No change in MFD | No change | No change | VDC, ABS illuminate. | No change | CHECK ENGINE, VDC, ABS illuminate.<br><br>CRUISE blink<br><br>Shift indicator goes off. | CHECK ENGINE, VDC, ABS illuminate.<br><br>CRUISE blink |

*1: When U0073 occurs, other U-codes are not stored. (Judge timing affects the storing order.)
*2: The number of DTC memory is limited to 8 items.
*3: The number of DTC memory is limited to 5 items. (Older items are preferentially stored.)
*4: The number of DTC memory is limited to 2 items. (Older items are preferentially stored.)
*5: All types of DTCs can be simultaneously stored. When U0073 occurs, other U-codes are not displayed.
*6: All types of DTCs can be simultaneously stored.
*7: The number of DTC memory is limited to 1 item for Current and 3 items for Latest.
*8: If C1431 contains a current malfunction after repair, perform IGN OFF → ON. (It remains immediately after repair.)

| Control module | | A/B CM vicinity | A/B CM vicinity | Electric power steering CM vicinity | Electric power steering CM vicinity | ECM vicinity | ECM vicinity | Auto head-light beam leveler CM vicinity | Auto head-light beam leveler CM vicinity |
|---|---|---|---|---|---|---|---|---|---|
| Detailed location | | Lo side | Lo side | Lo side | Lo side | Lo side | Lo side | Lo side | Lo side |
| Detailed trouble mode | | Open | Open | Open | Open | Open | Open | Open | Open |
| Trouble status | | Trouble exists | Trouble existed | Trouble exists | Trouble existed | Trouble exists | Trouble existed | Trouble exists | Trouble existed |
| DTC reading result from each module using Subaru Select Monitor | VDC CM[*1*8] | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>C1431<br>U0100<br><br>Past<br>Same as above | Current<br>C1431<br><br>Past<br>C1431<br>U0100 | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None |
| | Body integrated unit[*2] | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>U0100<br>(U1201)<br><br>Past<br>Same as above | Past<br>U0100<br>(U1201) | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None |
| | Combination meter[*3] | Current<br>U0151<br><br>Past<br>Same as above | Past<br>U0151 | Current<br>U0131<br><br>Past<br>Same as above | Past<br>U0131 | Current<br>U0100<br>(U0073)<br><br>Past<br>Same as above | Past<br>U0100<br>(U0073) | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None |
| | MFD[*4] | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None |
| | A/C control panel[*5] | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>U0100<br><br>Past<br>Same as above | Past<br>U0100 | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None |
| | TCM[*1] | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>U0100<br><br>Past<br>Same as above | Past<br>U0100 | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None |
| | A/B CM[*6] | Communication failure | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None |

# List of Diagnostic Trouble Code (DTC)



| Control module | | A/B CM vicinity | A/B CM vicinity | Electric power steering CM vicinity | Electric power steering CM vicinity | ECM vicinity | ECM vicinity | Auto headlight beam leveler CM vicinity | Auto headlight beam leveler CM vicinity |
|---|---|---|---|---|---|---|---|---|---|
| Detailed location | | Lo side | Lo side | Lo side | Lo side | Lo side | Lo side | Lo side | Lo side |
| Detailed trouble mode | | Open | Open | Open | Open | Open | Open | Open | Open |
| Trouble status | | Trouble exists | Trouble existed | Trouble exists | Trouble existed | Trouble exists | Trouble existed | Trouble exists | Trouble existed |
| DTC reading result from each module using Subaru Select Monitor | Electric power steering CM[*7] | Current<br>None<br><br>Latest<br>None | Current<br>None<br><br>Latest<br>None | Current<br>U1120[*9]<br>U0122<br>C2543<br>Any 1 item from above<br><br>Latest<br>U0122<br>C2543<br>(U1120[*9]) | Latest<br>U0122<br>C2543<br>(U1120[*9]) | Current<br>C2543<br>U0073<br>None or any 1 item from above<br><br>Latest<br>C2543<br>U0073 | Latest<br>C2543<br>U0073 | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None |
| | ECM[*1] | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>U0073<br><br>Past<br>Same as above | Past<br>U0073 | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None |
| | Auto headlight beam leveler CM[*6] | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Communication failure | Past<br>U0122<br>U0140 |
| Indicators illuminate/blink. | | A/B illuminates. | No change | No change | No change | VDC, ABS, CHECK ENGINE, EMPTY illuminate.<br><br>AT OIL TEMP blinks.<br><br>Engine coolant temperature gauge (blue/red) blinks.<br><br>Fuel gauge goes off.<br><br>Tachometer: 0 rpm | CHECK ENGINE, VDC, ABS illuminate.<br><br>CRUISE blink | Headlight beam leveler indicator illuminates. | No change |

*1: When U0073 occurs, other U-codes are not stored. (Judge timing affects the storing order.)
*2: The number of DTC memory is limited to 8 items.
*3: The number of DTC memory is limited to 5 items. (Older items are preferentially stored.)
*4: The number of DTC memory is limited to 2 items. (Older items are preferentially stored.)
*5: All types of DTCs can be simultaneously stored. When U0073 occurs, other U-codes are not displayed.
*6: All types of DTCs can be simultaneously stored.
*7: The number of DTC memory is limited to 1 item for Current and 3 items for Latest.
*8: If C1431 contains a current malfunction after repair, perform IGN OFF → ON. (It remains immediately after repair.)
*9: When this code is displayed, perform the diagnosis as COMMUNICATION MALFUNCTION (METER ECU) (U0155). DTC that occurs in “Current” is displayed in top of the “Latest” list.

3. Hi/Lo-side circuit of CAN communication circuit is open.

NOTE:
- If the module has a limit of DTC memory and the number of DTC occurrence exceeds the limit, older DTCs are preferentially stored.
- When there is no description in Current, it is referred to as “None”.
- When DTC is in parentheses, it is referred to as “Not always occur”.
- “Trouble exists” is referred to as the status before performing inspection and repair. “Trouble existed” is referred to as the status before performing DTC clear after repair.

| Control module | | VDC CM vicinity | VDC CM vicinity | Body integrated unit (VDC side) vicinity | Body integrated unit (VDC side) vicinity | Body integrated unit (EGI side) vicinity | Body integrated unit (EGI side) vicinity | Combination meter vicinity | Combination meter vicinity |
|---|---|---|---|---|---|---|---|---|---|
| Detailed location | | Both sides | Both sides | Both sides | Both sides | Both sides | Both sides | Both sides | Both sides |
| Detailed trouble mode | | Open | Open | Open | Open | Open | Open | Open | Open |
| Trouble status | | Trouble exists | Trouble existed | Trouble exists | Trouble existed | Trouble exists | Trouble existed | Trouble exists | Trouble existed |
| DTC reading result from each module using Subaru Select Monitor | VDC CM[*1*8] | Communication failure | Current<br>C1431<br><br>Past<br>C1431<br>U0073<br>U0100<br>U0101<br>U0126<br>U0140 | Current<br>U0073<br>U0100<br>U0101<br>U0126<br>U0140<br><br>Past<br>Same as above | Current<br>C1431<br><br>Past<br>C1431<br>U0073<br>U0100<br>U0101<br>U0126<br>U0140 | Current<br>U0100<br>U0101<br>U0126<br><br>Past<br>Same as above | Current<br>C1431<br><br>Past<br>C1431<br>U0100<br>U0101<br>U0126 | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None |
| | Body integrated unit[*2] | Current<br>U0122<br><br>Past<br>Same as above | Past<br>U0122 | Communication failure | Past<br>U0122 | Current<br>U0100<br>U0101<br>U0155<br>U0164<br><br>Past<br>Same as above | Past<br>U0100<br>U0101<br>U0155<br>U0164 | Current<br>U0155<br><br>Past<br>Same as above | Past<br>U0155 |
| | Combination meter[*3] | Current<br>U0122<br><br>Past<br>Same as above | Past<br>U0122 | Communication failure | Past<br>U0122 | Communication failure | Past<br>U0122<br>U0140 | Communication failure | Past<br>U0073<br>U0100<br>U0101<br>U0122<br>U0131<br>U0140<br>U0151<br>U0164<br>Any 5 items from above |
| | MFD[*4] | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Communication failure | Current<br>None<br><br>Past<br>None | Communication failure | Past<br>U1650 | Current<br>U1650<br><br>Past<br>Same as above | Past<br>U1650 |

# List of Diagnostic Trouble Code (DTC)

| Control module | | VDC CM vicinity | VDC CM vicinity | Body integrated unit (VDC side) vicinity | Body integrated unit (VDC side) vicinity | Body integrated unit (EGI side) vicinity | Body integrated unit (EGI side) vicinity | Combination meter vicinity | Combination meter vicinity |
|---|---|---|---|---|---|---|---|---|---|
| Detailed location | | Both sides | Both sides | Both sides | Both sides | Both sides | Both sides | Both sides | Both sides |
| Detailed trouble mode | | Open | Open | Open | Open | Open | Open | Open | Open |
| Trouble status | | Trouble exists | Trouble existed | Trouble exists | Trouble existed | Trouble exists | Trouble existed | Trouble exists | Trouble existed |
| DTC reading result from each module using Subaru Select Monitor | A/C control panel[*5] | Current<br>U0122<br><br>Past<br>Same as above | Past<br>U0122 | Communication failure | Past<br>U0122 | Communication failure | Past<br>U0122<br>U0140 | Current<br>U0155<br><br>Past<br>Same as above | Past<br>U0155 |
| | TCM[*1] | Current<br>U0122<br><br>Past<br>Same as above | Past<br>U0122 | Communication failure | Past<br>U0122 | Communication failure | Past<br>U0122<br>U0140 | Current<br>U0155<br><br>Past<br>Same as above | Past<br>U0155 |
| | A/B CM[*6] | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Communication failure | Current<br>None<br><br>Past<br>None | Communication failure | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None |
| | Electric power steering CM[*7] | Current<br>U0122<br><br>Latest<br>Same as above | Current<br>None<br><br>Latest<br>U0122 | Current<br>U0122<br><br>Latest<br>Same as above | Latest<br>U0122 | Current<br>U0122<br><br>Latest<br>Same as above | Latest<br>U0122 | Current<br>None<br><br>Latest<br>None | Current<br>None<br><br>Latest<br>None |
| | ECM[*1] | Current<br>P0700<br>U0122<br><br>Past<br>Same as above | Past<br>P0700<br>U0122 | Current<br>P0700<br>U0122<br><br>Past<br>Same as above | Past<br>P0700<br>U0122 | Current<br>U0122<br><br>Past<br>Same as above | Past<br>U0122 | Current<br>U0155<br><br>Past<br>Same as above | Past<br>U0155 |
| | Auto headlight beam leveler CM[*6] | Current<br>U0122<br><br>Past<br>Same as above | Past<br>U0122 | Current<br>U0140<br><br>Past<br>Same as above | Past<br>U0140 | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None |

| Control module | VDC CM vicinity | VDC CM vicinity | Body integrated unit (VDC side) vicinity | Body integrated unit (VDC side) vicinity | Body integrated unit (EGI side) vicinity | Body integrated unit (EGI side) vicinity | Combination meter vicinity | Combination meter vicinity |
|---|---|---|---|---|---|---|---|---|
| Detailed location | Both sides | Both sides | Both sides | Both sides | Both sides | Both sides | Both sides | Both sides |
| Detailed trouble mode | Open | Open | Open | Open | Open | Open | Open | Open |
| Trouble status | Trouble exists | Trouble existed | Trouble exists | Trouble existed | Trouble exists | Trouble existed | Trouble exists | Trouble existed |
| Indicators illuminate/blink. | CHECK ENGINE, VDC, VDC off, ABS, BRAKE illuminate.<br><br>AT OIL TEMP, CRUISE blink.<br><br>Headlight beam leveler indicator illuminates. | CHECK ENGINE, VDC, ABS illuminate.<br><br>CRUISE blink | CHECK ENGINE, VDC, ABS, VDC off, BRAKE illuminate.<br><br>AT OIL TEMP, CRUISE blink.<br><br>Headlight beam leveler indicator illuminates. | CHECK ENGINE, VDC, ABS illuminate.<br><br>CRUISE blink | CHECK ENGINE, VDC, VDC off, ABS, BRAKE illuminate.<br><br>SPORTS illuminates.<br><br>TPMS blinks → illuminates.<br><br>AT OIL TEMP, CRUISE blink. | CHECK ENGINE, VDC, ABS illuminate.<br><br>CRUISE blink | CHECK ENGINE, A/B, BRAKE, VDC, EMPTY, VDC OFF, ABS illuminate.<br><br>Engine coolant temperature gauge (blue/red) alternately blinks.<br><br>TPMS blinks → illuminates.<br><br>Shift indicator goes off.<br><br>Fuel level warning indicator goes off.<br><br>Tachometer: 0 rpm | CHECK ENGINE, VDC illuminate.<br><br>CRUISE blink |

*1: When U0073 occurs, other U-codes are not stored. (Judge timing affects the storing order.)
*2: The number of DTC memory is limited to 8 items.
*3: The number of DTC memory is limited to 5 items. (Older items are preferentially stored.)
*4: The number of DTC memory is limited to 2 items. (Older items are preferentially stored.)
*5: All types of DTCs can be simultaneously stored. When U0073 occurs, other U-codes are not displayed.
*6: All types of DTCs can be simultaneously stored.
*7: The number of DTC memory is limited to 1 item for Current and 3 items for Latest.
*8: If C1431 contains a current malfunction after repair, perform IGN OFF → ON. (It remains immediately after repair.)

# List of Diagnostic Trouble Code (DTC)

| Control module | | MFD vicinity | MFD vicinity | A/C control panel vicinity | A/C control panel vicinity | Steering angle sensor vicinity | Steering angle sensor vicinity | AT CM vicinity | AT CM vicinity |
|---|---|---|---|---|---|---|---|---|---|
| Detailed location | | Both sides | Both sides | Both sides | Both sides | Both sides | Both sides | Both sides | Both sides |
| Detailed trouble mode | | Open | Open | Open | Open | Open | Open | Open | Open |
| Trouble status | | Trouble exists | Trouble existed | Trouble exists | Trouble existed | Trouble exists | Trouble existed | Trouble exists | Trouble existed |
| DTC reading result from each module using Subaru Select Monitor | VDC CM[*1*8] | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>U0126<br><br>Past<br>Same as above | Past<br>U0126 | Current<br>U0101<br><br>Past<br>Same as above | Current<br>C1431<br><br>Past<br>C1431<br>U0101 |
| | Body integrated unit[*2] | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>U0164<br><br>Past<br>Same as above | Past<br>U0164 | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>U0101<br><br>Past<br>Same as above | Past<br>U0101 |
| | Combination meter[*3] | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>U0164<br><br>Past<br>None | Past<br>U0164 | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>U0101<br><br>Past<br>Same as above | Past<br>U0101 |
| | MFD[*4] | Communication failure | Past<br>U1201<br>(U0073) | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None |
| | A/C control panel[*5] | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Communication failure | Past<br>U0100<br>U0155 | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>U0101<br><br>Past<br>Same as above | Past<br>U0101 |
| | TCM[*1] | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Communication failure | Past<br>U0100<br>U0122<br>U0140<br>U0155 |
| | A/B CM[*6] | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None |
| | Electric power steering CM[*7] | Current<br>None<br><br>Latest<br>None | Current<br>None<br><br>Latest<br>None | Current<br>None<br><br>Latest<br>None | Current<br>None<br><br>Latest<br>None | Current<br>None<br><br>Latest<br>None | Current<br>None<br><br>Latest<br>None | Current<br>None<br><br>Latest<br>None | Current<br>None<br><br>Latest<br>None |

# List of Diagnostic Trouble Code (DTC)

| Control module | | MFD vicinity | MFD vicinity | A/C control panel vicinity | A/C control panel vicinity | Steering angle sensor vicinity | Steering angle sensor vicinity | AT CM vicinity | AT CM vicinity |
|---|---|---|---|---|---|---|---|---|---|
| Detailed location | | Both sides | Both sides | Both sides | Both sides | Both sides | Both sides | Both sides | Both sides |
| Detailed trouble mode | | Open | Open | Open | Open | Open | Open | Open | Open |
| Trouble status | | Trouble exists | Trouble existed | Trouble exists | Trouble existed | Trouble exists | Trouble existed | Trouble exists | Trouble existed |
| DTC reading result from each module using Subaru Select Monitor | ECM[*1] | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>U0101<br><br>Past<br>Same as above | Past<br>U0101 |
| | Auto headlight beam leveler CM[*6] | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None |
| Indicators illuminate/blink. | | No change<br><br>No change in MFD | No change<br><br>No change in MFD | No change | No change | VDC, ABS illuminate. | No change | CHECK ENGINE, VDC, ABS illuminate.<br><br>CRUISE blink<br><br>Shift indicator goes off. | CHECK ENGINE, VDC, ABS illuminate.<br><br>CRUISE blink |

*1: When U0073 occurs, other U-codes are not stored. (Judge timing affects the storing order.)
*2: The number of DTC memory is limited to 8 items.
*3: The number of DTC memory is limited to 5 items. (Older items are preferentially stored.)
*4: The number of DTC memory is limited to 2 items. (Older items are preferentially stored.)
*5: All types of DTCs can be simultaneously stored. When U0073 occurs, other U-codes are not displayed.
*6: All types of DTCs can be simultaneously stored.
*7: The number of DTC memory is limited to 1 item for Current and 3 items for Latest.
*8: If C1431 contains a current malfunction after repair, perform IGN OFF → ON. (It remains immediately after repair.)

| Control module | | A/B CM vicinity | A/B CM vicinity | Electric power steering CM vicinity | Electric power steering CM vicinity | ECM vicinity | ECM vicinity | Auto head-light beam leveler CM vicinity | Auto head-light beam leveler CM vicinity |
|---|---|---|---|---|---|---|---|---|---|
| Detailed location | | Both sides | Both sides | Both sides | Both sides | Both sides | Both sides | Both sides | Both sides |
| Detailed trouble mode | | Open | Open | Open | Open | Open | Open | Open | Open |
| Trouble status | | Trouble exists | Trouble existed | Trouble exists | Trouble existed | Trouble exists | Trouble existed | Trouble exists | Trouble existed |
| DTC reading result from each module using Subaru Select Monitor | VDC CM[*1*8] | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>C1431<br>U0100<br><br>Past<br>Same as above | Current<br>C1431<br><br>Past<br>C1431<br>U0100 | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None |
| | Body integrated unit[*2] | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>U0100<br>(U1201)<br><br>Past<br>Same as above | Past<br>U0100<br>(U1201) | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None |
| | Combination meter[*3] | Current<br>U0151<br><br>Past<br>Same as above | Past<br>U0151 | Current<br>U0131<br><br>Past<br>Same as above | Past<br>U0131 | Current<br>U0100<br><br>Past<br>Same as above | Past<br>U0100 | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None |
| | MFD[*4] | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None |
| | A/C control panel[*5] | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>U0100<br><br>Past<br>Same as above | Past<br>U0100 | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None |
| | TCM[*1] | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>U0100<br><br>Past<br>Same as above | Past<br>U0100 | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None |
| | A/B CM[*6] | Communication failure | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None |

| Control module | | A/B CM vicinity | A/B CM vicinity | Electric power steering CM vicinity | Electric power steering CM vicinity | ECM vicinity | ECM vicinity | Auto headlight beam leveler CM vicinity | Auto headlight beam leveler CM vicinity |
|---|---|---|---|---|---|---|---|---|---|
| Detailed location | | Both sides | Both sides | Both sides | Both sides | Both sides | Both sides | Both sides | Both sides |
| Detailed trouble mode | | Open | Open | Open | Open | Open | Open | Open | Open |
| Trouble status | | Trouble exists | Trouble existed | Trouble exists | Trouble existed | Trouble exists | Trouble existed | Trouble exists | Trouble existed |
| DTC reading result from each module using Subaru Select Monitor | Electric power steering CM[*7] | Current<br>None<br><br>Latest<br>None | Current<br>None<br><br>Latest<br>None | Current<br>U1120[*9]<br>U0122<br>C2543<br>Any 1 item from above<br><br>Latest<br>U0122<br>C2543<br>(U1120[*9]) | Latest<br>U0122<br>C2543<br>(U1120[*9]) | Current<br>C2543<br>U0073<br>None or any 1 item from above<br><br>Latest<br>C2543<br>U0073 | Latest<br>C2543<br>U0073 | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None |
| | ECM[*1] | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>U0073<br><br>Past<br>Same as above | Past<br>U0073 | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None |
| | Auto headlight beam leveler CM[*6] | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Current<br>None<br><br>Past<br>None | Communication failure | Past<br>U0122<br>U0140 |
| Indicators illuminate/blink. | | A/B illuminates. | No change | No change | No change | VDC, ABS, CHECK ENGINE, EMPTY illuminate.<br><br>AT OIL TEMP blinks.<br><br>Engine coolant temperature gauge (blue/red) blinks.<br><br>Fuel gauge goes off.<br><br>Tachometer: 0 rpm | CHECK ENGINE, VDC, ABS illuminate.<br><br>CRUISE blink | Headlight beam leveler indicator illuminates. | No change |

*1: When U0073 occurs, other U-codes are not stored. (Judge timing affects the storing order.)
*2: The number of DTC memory is limited to 8 items.
*3: The number of DTC memory is limited to 5 items. (Older items are preferentially stored.)
*4: The number of DTC memory is limited to 2 items. (Older items are preferentially stored.)
*5: All types of DTCs can be simultaneously stored. When U0073 occurs, other U-codes are not displayed.
*6: All types of DTCs can be simultaneously stored.
*7: The number of DTC memory is limited to 1 item for Current and 3 items for Latest.
*8: If C1431 contains a current malfunction after repair, perform IGN OFF → ON. (It remains immediately after repair.)
*9: When this code is displayed, perform the diagnosis as COMMUNICATION MALFUNCTION (METER ECU) (U0155). DTC that occurs in “Current” is displayed in top of the “Latest” list.

4. Power supply-output short, GND-output short and short circuit in CAN communication circuit

NOTE:
- If the module has a limit of DTC memory and the number of DTC occurrence exceeds the limit, older DTCs are preferentially stored.
- When there is no description in Current, it is referred to as “None”.
- When DTC is in parentheses, it is referred to as “Not always occur”.
- “Trouble exists” is referred to as the status before performing inspection and repair. “Trouble existed” is referred to as the status before performing DTC clear after repair.

| Control module[*10] | | Option | Option | Option | Option | Option | Option | Option | Option |
|---|---|---|---|---|---|---|---|---|---|
| Detailed location | | Hi side | Lo side | Hi to Low | Hi side | Lo side | Hi to Low | Lo side | Hi side |
| Detailed trouble mode | | GND-output short | Power supply-output short | Short circuit | GND-output short | Power supply-output short | Short circuit | GND-output short[*9] | Power supply-output short[*9] |
| Trouble status | | Trouble exists | ← | ← | Trouble existed | ← | ← | Trouble exists/ Trouble existed | ← |
| DTC reading result from each module using Subaru Select Monitor | VDC CM[*1*8] | Communication failure | ← | ← | Current<br>C1431<br>None or 1 item from above<br>Past<br>U0073<br>C1431<br>(U0126) | ← | ← | Current<br>None<br><br>Past<br>None | ← |
| | Body integrated unit[*2] | Communication failure | ← | ← | Past<br>U0073<br>U0100<br>U0101<br>U0122<br>U0155<br>U0164<br>U1201 | ← | ← | Current<br>None<br><br>Past<br>None | ← |
| | Combination meter[*3] | Communication failure | ← | ← | Past<br>U0073<br>U0100<br>U0101<br>U0122<br>U0131<br>U0140<br>U0151<br>U0164<br>Any 5 items from above | ← | ← | Current<br>None<br><br>Past<br>None | ← |
| | MFD[*4] | Communication failure | ← | ← | Past<br>U0073<br>U1201<br>U1650<br>Any 1 or 2 items from above | ← | ← | Current<br>None<br><br>Past<br>None | ← |

| Control module[*10] | | Option | Option | Option | Option | Option | Option | Option | Option |
|---|---|---|---|---|---|---|---|---|---|
| Detailed location | | Hi side | Lo side | Hi to Low | Hi side | Lo side | Hi to Low | Lo side | Hi side |
| Detailed trouble mode | | GND-output short | Power supply-output short | Short circuit | GND-output short | Power supply-output short | Short circuit | GND-output short[*9] | Power supply-output short[*9] |
| Trouble status | | Trouble exists | ← | ← | Trouble existed | ← | ← | Trouble exists/ Trouble existed | ← |
| DTC reading result from each module using Subaru Select Monitor | A/C control panel[*5] | Communication failure | ← | ← | Past<br>U0073 | ← | ← | Current<br>None<br><br>Past<br>None | ← |
| | TCM[*1] | Communication failure | ← | ← | Past<br>U0073<br>U0100<br>U0122<br>U0140<br>U0155 | ← | ← | Current<br>None<br><br>Past<br>None | ← |
| | A/B CM[*6] | Communication failure | ← | ← | Past<br>U0073 | ← | ← | Current<br>None<br><br>Past<br>None | ← |
| | Electric power steering CM[*7] | Current<br>U0073<br>U0122<br>C2543<br>Any 1 items from above<br><br>Latest<br>All items above | ← | ← | Latest<br>U0073<br>U0122<br>C2543 | ← | ← | Current<br>None<br><br>Latest<br>None | ← |
| | ECM[*1] | Current<br>U0073<br>U0122<br>U0155<br>None or any 1 to 4 items from above<br><br>Past<br>Same as above | ← | ← | Past<br>U0073<br>U0101<br>U0122<br>U0155<br>None or any 1 to 4 items from above | ← | ← | Current<br>None<br><br>Past<br>None | ← |
| | Auto headlight beam leveler CM[*6] | Communication failure | ← | ← | Past<br>U0140<br>U0122 | ← | ← | Current<br>None<br><br>Past<br>None | ← |

| Control module*10 | Option | Option | Option | Option | Option | Option | Option | Option |
|---|---|---|---|---|---|---|---|---|
| Detailed location | Hi side | Lo side | Hi to Low | Hi side | Lo side | Hi to Low | Lo side | Hi side |
| Detailed trouble mode | GND-output short | Power supply-output short | Short circuit | GND-output short | Power supply-output short | Short circuit | GND-output short*9 | Power supply-output short*9 |
| Trouble status | Trouble exists | ← | ← | Trouble existed | ← | ← | Trouble exists/ Trouble existed | ← |
| Indicators illuminate/blink. | CHECK ENGINE, A/B, BRAKE, VDC, EMPTY, VDC OFF, ABS illuminate.<br><br>Headlight beam leveler indicator illuminates.<br><br>Engine coolant temperature gauge (blue/red) alternately blinks.<br><br>TPMS blinks → illuminates.<br><br>Shift indicator goes off.<br><br>Fuel level warning indicator goes off.<br><br>Tachometer: 0 rpm | ← | ← | CHECK ENGINE, VDC, ABS illuminate.<br><br>CRUISE blink | ← | ← | No change | ← |

*1: When U0073 occurs, other U-codes are not stored. (Judge timing affects the storing order.)
*2: The number of DTC memory is limited to 8 items.
*3: The number of DTC memory is limited to 5 items. (Older items are preferentially stored.)
*4: The number of DTC memory is limited to 2 items. (Older items are preferentially stored.)
*5: All types of DTCs can be simultaneously stored. When U0073 occurs, other U-codes are not displayed.
*6: All types of DTCs can be simultaneously stored.
*7: The number of DTC memory is limited to 1 item for Current and 3 items for Latest.
*8: If C1431 contains a current malfunction after repair, perform IGN OFF → ON. (It remains immediately after repair.)
*9: This can only be detected by inspection using a tester.
*10: In this trouble mode, a faulty portion can only be identified by inspection using a tester.

# 11.Diagnostic Procedure with Diagnostic Trouble Code (DTC)

## A: DTC U1201 CAN-HS COUNTER ABNORMAL

**DTC DETECTING CONDITION:**

Communication is unstable because of high speed CAN communication error.

**TROUBLE SYMPTOM:**

- Display of combination meter indicates faulty.
- Control faulty may occur due to CAN communication error.

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK PERFORMING OF BASIC DIAGNOSTIC PROCEDURE.** | Was the basic diagnostic procedure performed up to STEP 3? | Go to step **2**. | Perform the basic diagnostic procedure. <Ref. to LAN(w/o HEV)(diag)-2, Basic Diagnostic Procedure.> |
| 2 | **CHECK DTC.**<br>1) Start the engine.<br>2) Using the Subaru Select Monitor, read DTC of CAN system. | Is U0073 a current malfunction? | Perform the diagnosis of U0073. <Ref. to LAN(w/o HEV)(diag)-96, DTC U0073 CONTROL MODULE COMMUNICATION BUS OFF, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> | Go to step **3**. |
| 3 | **CHECK DTC.**<br>Check the displayed DTC. | Is U1201 a current malfunction? | Go to step **4**. | It is possible that temporary poor communication occurs. Perform the clear memory. |
| 4 | **CHECK DTC.**<br>1) Turn the ignition switch to ON.<br>2) Using the Subaru Select Monitor, read DTC of CAN system. | Is U1201 a current malfunction? | Go to step **5**. | It is possible that temporary poor communication occurs. Perform the clear memory. |
| 5 | **CHECK CONTROL MODULE.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the control modules other than body integrated unit in order.<br>NOTE:<br>When disconnecting ECM or VDC CM, connect resistance of 120 Ω between CAN Hi and CAN Lo as an alternative of end resistance.<br>3) Turn the ignition switch to ON.<br>4) Using the Subaru Select Monitor, read DTC of CAN system. | Is there any control module that U1201 is not detected as current malfunction? | Replace the control module. | Repeat 1) to 4) in step 5 until U1201 is not detected. |

## B: DTC U0073 CONTROL MODULE COMMUNICATION BUS OFF

**DTC DETECTING CONDITION:**
Integrated unit communication is shut down because of high speed CAN error.
**TROUBLE SYMPTOM:**
CAN communication is not normal.

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK PERFORMING OF BASIC DIAGNOSTIC PROCEDURE.** | Was the basic diagnostic procedure performed up to STEP 3? | Go to step **2**. | Perform the basic diagnostic procedure. <Ref. to LAN(w/o HEV)(diag)-2, Basic Diagnostic Procedure.> |
| 2 | **CHECK DTC.**<br>1) Start the engine.<br>2) Using the Subaru Select Monitor, read DTC of CAN system. | Is U0073 a current malfunction? | Go to step **3**. | It may be a temporary poor contact. Perform the clear memory. |
| 3 | **CHECK CAN COMMUNICATION CIRCUIT.**<br>Check CAN communication circuit. <Ref. to LAN(w/o HEV)(diag)-27, PROCEDURE, CAN Communication Circuit Check.> | Is CAN communication circuit faulty? | Repair the faulty portion, following the diagnosis procedure. | Go to step **4**. |
| 4 | **CHECK DTC.**<br>1) Perform the inspection using the DTC check sheet. <Ref. to LAN(w/o HEV)(diag)-66, CHECK USING THE DTC CHECK SHEET, LIST, List of Diagnostic Trouble Code (DTC).><br>2) Using the Subaru Select Monitor, read DTC of CAN system. | Is U0073 a current malfunction? | Go to step **5**. | System is normal. |
| 5 | **CHECK CONTROL MODULE.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the control modules other than body integrated unit in order.<br>NOTE:<br>When disconnecting ECM or VDC CM, connect resistance of 120 Ω between CAN Hi and CAN Lo as an alternative of end resistance.<br>3) Turn the ignition switch to ON.<br>4) Using the Subaru Select Monitor, read DTC of CAN system. | Is there any control module that U0073 is not detected as current malfunction? | Replace the control module. | Repeat 1) to 4) in step 3 until U0073 is not detected. |

## C: DTC U0401 INVALID DATA RECEIVED FROM ECM/PCM "A"

**DTC DETECTING CONDITION:**
Defective data from ECM.
**TROUBLE SYMPTOM:**
Defective data on CAN communication occurs.

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK PERFORMING OF BASIC DIAGNOSTIC PROCEDURE.** | Was the basic diagnostic procedure performed up to STEP 3? | Go to step **2**. | Perform the basic diagnostic procedure. <Ref. to LAN(w/o HEV)(diag)-2, Basic Diagnostic Procedure.> |
| 2 | **CHECK DTC.**<br>Check the displayed DTC. | Are DTCs other than U*** displayed? | Perform the diagnosis according to DTC. | Go to step **3**. |
| 3 | **CHECK DTC.**<br>Check the displayed DTC. | Is DTC for the bus off or the data no-receive displayed? | Perform the diagnosis according to DTC. | Go to step **4**. |
| 4 | **CHECK DTC.**<br>Check the displayed DTC. | Is U0401 a current malfunction? | Go to step **5**. | Go to step **9**. |
| 5 | **CHECK DTC.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the ECM connector.<br>3) Connect the disconnected connectors.<br>4) Read the DTC using Subaru Select Monitor. | Is U0401 a current malfunction? | Go to step **6**. | Go to step **9**. |
| 6 | **CHECK DTC.**<br>Using the Subaru Select Monitor, read DTC of all the systems. | Is the engine data abnormal detected in several modules? | Replace the ECM. <Ref. to FU(H4DO(w/o HEV))-100, Engine Control Module (ECM).> | Go to step **7**. |
| 7 | **REPLACE MODULE.**<br>1) Replace the ECM.<br>2) Read the DTC using Subaru Select Monitor. | Is U0401 a current malfunction? | Go to step **8**. | System is normal. |
| 8 | **CHECK MODULE.**<br>1) Reinstall the ECM.<br>2) Replace the module that the DTC has been detected.<br>3) Read the DTC using Subaru Select Monitor. | Is U0401 a current malfunction? | Replace the ECM. <Ref. to FU(H4DO(w/o HEV))-100, Engine Control Module (ECM).> | System is normal. |
| 9 | **CHECK HARNESS.**<br>1) Shake the harness, and check for poor contact.<br>2) Using the Subaru Select Monitor, read DTC of CAN system. | Is U0401 a current malfunction? | Repair the poor contact of harness, or replace the harness. | Go to step **10**. |
| 10 | **CHECK CONNECTOR.**<br>Check the connector used for high speed CAN for poor contact. | Is there poor contact of connector? | Repair the connector that has poor contact, or replace harness. | It is possible that temporary poor communication occurs. Delete the DTC. |

## D: DTC U0402 INVALID DATA RECEIVED FROM TCM

**DTC DETECTING CONDITION:**
Received error data from TCM.
**TROUBLE SYMPTOM:**
Sport indicator light blinks.

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK PERFORMING OF BASIC DIAGNOSTIC PROCEDURE.** | Was the basic diagnostic procedure performed up to STEP 3? | Go to step **2**. | Perform the basic diagnostic procedure. <Ref. to LAN(w/o HEV)(diag)-2, Basic Diagnostic Procedure.> |
| 2 | **CHECK DTC.**<br>Check the displayed DTC. | Are DTCs other than U*** displayed? | Perform the diagnosis according to DTC. | Go to step **3**. |
| 3 | **CHECK DTC.**<br>Check the displayed DTC. | Is DTC for the bus off or the data no-receive displayed? | Perform the diagnosis according to DTC. | Go to step **4**. |
| 4 | **CHECK DTC.**<br>Check the displayed DTC. | Is U0402 a current malfunction? | Go to step **5**. | Go to step **9**. |
| 5 | **CHECK DTC.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the TCM connector.<br>3) Connect the disconnected connectors.<br>4) Read the DTC using Subaru Select Monitor. | Is U0402 a current malfunction? | Go to step **6**. | Go to step **9**. |
| 6 | **CHECK DTC.**<br>Using the Subaru Select Monitor, read DTC of all the systems. | Is the transmission data abnormal detected in several modules? | Replace the TCM. <Ref. to CVT(TH58A)-158, Transmission Control Module (TCM).> | Go to step **7**. |
| 7 | **REPLACE MODULE.**<br>1) Replace the TCM.<br>2) Read the DTC using Subaru Select Monitor. | Is U0402 a current malfunction? | Go to step **8**. | System is normal. |
| 8 | **CHECK MODULE.**<br>1) Reinstall the TCM.<br>2) Replace the module that the DTC has been detected.<br>3) Read the DTC using Subaru Select Monitor. | Is U0402 a current malfunction? | Replace the TCM. <Ref. to CVT(TH58A)-158, Transmission Control Module (TCM).> | System is normal. |
| 9 | **CHECK HARNESS.**<br>1) Shake the harness, and check for poor contact.<br>2) Using the Subaru Select Monitor, read DTC of CAN system. | Is U0402 a current malfunction? | Repair the poor contact of harness, or replace the harness. | Go to step **10**. |
| 10 | **CHECK CONNECTOR.**<br>Check the connector used for high speed CAN for poor contact. | Is there poor contact of connector? | Repair the connector that has poor contact, or replace harness. | It is possible that temporary poor communication occurs. Delete the DTC. |

## E: DTC U0416 INVALID DATA RECEIVED FROM VEHICLE DYNAMICS CONTROL MODULE

**DTC DETECTING CONDITION:**
Data from VDCCM is faulty.
**TROUBLE SYMPTOM:**
ABS warning light and VDC warning light illuminate.

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK PERFORMING OF BASIC DIAGNOSTIC PROCEDURE.** | Was the basic diagnostic procedure performed up to STEP 3? | Go to step **2**. | Perform the basic diagnostic procedure. <Ref. to LAN(w/o HEV)(diag)-2, Basic Diagnostic Procedure.> |
| 2 | **CHECK DTC.**<br>Check the displayed DTC. | Are DTCs other than U*** displayed? | Perform the diagnosis according to DTC. | Go to step **3**. |
| 3 | **CHECK DTC.**<br>Check the displayed DTC. | Is DTC for the bus off or the data no-receive displayed? | Perform the diagnosis according to DTC. | Go to step **4**. |
| 4 | **CHECK DTC.**<br>Check the displayed DTC. | Is U0416 a current malfunction? | Go to step **5**. | Go to step **9**. |
| 5 | **CHECK DTC.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the VDC CM connector.<br>3) Connect the disconnected connectors.<br>4) Read the DTC using Subaru Select Monitor. | Is U0416 a current malfunction? | Go to step **6**. | Go to step **9**. |
| 6 | **CHECK DTC.**<br>Using the Subaru Select Monitor, read DTC of all the systems. | Is the VDC data abnormal detected in several modules? | Replace the VDC CM. <Ref. to VDC-10, VDC Control Module and Hydraulic Control Unit (VDCCM&H/U).> | Go to step **7**. |
| 7 | **REPLACE MODULE.**<br>1) Replace the VDC CM.<br>2) Read the DTC using Subaru Select Monitor. | Is U0416 a current malfunction? | Go to step **8**. | System is normal. |
| 8 | **CHECK MODULE.**<br>1) Reinstall the VDC CM.<br>2) Replace the module that the DTC has been detected.<br>3) Read the DTC using Subaru Select Monitor. | Is U0416 a current malfunction? | Replace the VDC CM. <Ref. to VDC-10, VDC Control Module and Hydraulic Control Unit (VDCCM&H/U).> | System is normal. |
| 9 | **CHECK HARNESS.**<br>1) Shake the harness, and check for poor contact.<br>2) Using the Subaru Select Monitor, read DTC of CAN system. | Is U0416 a current malfunction? | Repair the poor contact of harness, or replace the harness. | Go to step **10**. |
| 10 | **CHECK CONNECTOR.**<br>Check the connector used for high speed CAN for poor contact. | Is there poor contact of connector? | Repair the connector that has poor contact, or replace harness. | It is possible that temporary poor communication occurs. Delete the DTC. |

## F: DTC U0420 INVALID DATA RECEIVED FROM POWER STEERING CONTROL MODULE

**DTC DETECTING CONDITION:**
Defective data was transmitted from EPS CM.
**TROUBLE SYMPTOM:**
Cooperation control with EPS CM does not operate properly.

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK PERFORMING OF BASIC DIAGNOSTIC PROCEDURE.** | Was the basic diagnostic procedure performed up to STEP 3? | Go to step **2**. | Perform the basic diagnostic procedure. <Ref. to LAN(w/o HEV)(diag)-2, Basic Diagnostic Procedure.> |
| 2 | **CHECK DTC.**<br>Check the displayed DTC. | Are DTCs other than U*** displayed? | Perform the diagnosis according to DTC. | Go to step **3**. |
| 3 | **CHECK DTC.**<br>Check the displayed DTC. | Is DTC for the bus off or the data no-receive displayed? | Perform the diagnosis according to DTC. | Go to step **4**. |
| 4 | **CHECK DTC.**<br>Check the displayed DTC. | Is U0420 a current malfunction? | Go to step **5**. | Go to step **9**. |
| 5 | **CHECK DTC.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the power steering CM connector.<br>3) Connect the disconnected connectors.<br>4) Read the DTC using Subaru Select Monitor. | Is U0420 a current malfunction? | Go to step **6**. | Go to step **9**. |
| 6 | **CHECK DTC.**<br>Using the Subaru Select Monitor, read DTC of all the systems. | Is the electric power steering data abnormal detected in several modules? | Replace the power steering CM. <Ref. to PS-44, Power Steering Control Module.> | Go to step **7**. |
| 7 | **REPLACE MODULE.**<br>1) Replace the power steering CM.<br>2) Read the DTC using Subaru Select Monitor. | Is U0420 a current malfunction? | Go to step **8**. | System is normal. |
| 8 | **CHECK MODULE.**<br>1) Reinstall the power steering CM.<br>2) Replace the module that the DTC has been detected.<br>3) Read the DTC using Subaru Select Monitor. | Is U0420 a current malfunction? | Replace the power steering CM. <Ref. to PS-44, Power Steering Control Module.> | System is normal. |
| 9 | **CHECK HARNESS.**<br>1) Shake the harness, and check for poor contact.<br>2) Using the Subaru Select Monitor, read DTC of CAN system. | Is U0420 a current malfunction? | Repair the poor contact of harness, or replace the harness. | Go to step **10**. |
| 10 | **CHECK CONNECTOR.**<br>Check the connector used for high speed CAN for poor contact. | Is there poor contact of connector? | Repair the connector that has poor contact, or replace harness. | It is possible that temporary poor communication occurs. Delete the DTC. |

## G: DTC U0422 INVALID DATA RECEIVED FROM BODY CONTROL MODULE

**DTC DETECTING CONDITION:**
Defective data was transmitted from body integrated unit.
**TROUBLE SYMPTOM:**
Cooperation control with body integrated unit does not operate properly.

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK PERFORMING OF BASIC DIAGNOSTIC PROCEDURE.** | Was the basic diagnostic procedure performed up to STEP 3? | Go to step **2**. | Perform the basic diagnostic procedure. <Ref. to LAN(w/o HEV)(diag)-2, Basic Diagnostic Procedure.> |
| 2 | **CHECK DTC.**<br>Check the displayed DTC. | Are DTCs other than U*** displayed? | Perform the diagnosis according to DTC. | Go to step **3**. |
| 3 | **CHECK DTC.**<br>Check the displayed DTC. | Is DTC for the bus off or the data no-receive displayed? | Perform the diagnosis according to DTC. | Go to step **4**. |
| 4 | **CHECK DTC.**<br>Check the displayed DTC. | Is U0422 a current malfunction? | Go to step **5**. | Go to step **9**. |
| 5 | **CHECK DTC.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the body integrated unit connector.<br>3) Connect the disconnected connectors.<br>4) Read the DTC using Subaru Select Monitor. | Is U0422 a current malfunction? | Go to step **6**. | Go to step **9**. |
| 6 | **CHECK DTC.**<br>Using the Subaru Select Monitor, read DTC of all the systems. | Is the body integrated data abnormal detected in several modules? | Replace the body integrated unit. <Ref. to SL-87, Body Integrated Unit.> | Go to step **7**. |
| 7 | **REPLACE MODULE.**<br>1) Replace the body integrated unit.<br>2) Read the DTC using Subaru Select Monitor. | Is U0422 a current malfunction? | Go to step **8**. | System is normal. |
| 8 | **CHECK MODULE.**<br>1) Reinstall the body integrated unit.<br>2) Replace the module that the DTC has been detected.<br>3) Read the DTC using Subaru Select Monitor. | Is U0422 a current malfunction? | Replace the body integrated unit. <Ref. to SL-87, Body Integrated Unit.> | System is normal. |
| 9 | **CHECK HARNESS.**<br>1) Shake the harness, and check for poor contact.<br>2) Using the Subaru Select Monitor, read DTC of CAN system. | Is U0422 a current malfunction? | Repair the poor contact of harness, or replace the harness. | Go to step **10**. |
| 10 | **CHECK CONNECTOR.**<br>Check the connector used for high speed CAN for poor contact. | Is there poor contact of connector? | Repair the connector that has poor contact, or replace harness. | It is possible that temporary poor communication occurs. Delete the DTC. |

## H: DTC U0423 INVALID DATA RECEIVED FROM INSTRUMENT PANEL CLUSTER CONTROL MODULE

**DTC DETECTING CONDITION:**
Defective data was transmitted from combination meter.
**TROUBLE SYMPTOM:**
Display of combination meter does not operate properly.

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK PERFORMING OF BASIC DIAGNOSTIC PROCEDURE.** | Was the basic diagnostic procedure performed up to STEP 3? | Go to step **2**. | Perform the basic diagnostic procedure. <Ref. to LAN(w/o HEV)(diag)-2, Basic Diagnostic Procedure.> |
| 2 | **CHECK DTC.**<br>Check the displayed DTC. | Are DTCs other than U*** displayed? | Perform the diagnosis according to DTC. | Go to step **3**. |
| 3 | **CHECK DTC.**<br>Check the displayed DTC. | Is DTC for the bus off or the data no-receive displayed? | Perform the diagnosis according to DTC. | Go to step **4**. |
| 4 | **CHECK DTC.**<br>Check the displayed DTC. | Is U0423 a current malfunction? | Go to step **5**. | Go to step **9**. |
| 5 | **CHECK DTC.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the combination meter connector.<br>3) Connect the disconnected connectors.<br>4) Read the DTC using Subaru Select Monitor. | Is U0423 a current malfunction? | Go to step **6**. | Go to step **9**. |
| 6 | **CHECK DTC.**<br>Using the Subaru Select Monitor, read DTC of all the systems. | Is the meter data abnormal detected in several modules? | Replace the combination meter. <Ref. to IDI-20, Combination Meter.> | Go to step **7**. |
| 7 | **REPLACE MODULE.**<br>1) Replace the combination meter.<br>2) Read the DTC using Subaru Select Monitor. | Is U0423 a current malfunction? | Go to step **8**. | System is normal. |
| 8 | **CHECK MODULE.**<br>1) Replace the current combination meter with the original combination meter.<br>2) Replace the module that the DTC has been detected.<br>3) Read the DTC using Subaru Select Monitor. | Is U0423 a current malfunction? | Replace the combination meter. <Ref. to IDI-20, Combination Meter.> | System is normal. |
| 9 | **CHECK HARNESS.**<br>1) Shake the harness, and check for poor contact.<br>2) Using the Subaru Select Monitor, read DTC of CAN system. | Is U0423 a current malfunction? | Repair the poor contact of harness, or replace the harness. | Go to step **10**. |
| 10 | **CHECK CONNECTOR.**<br>Check the connector used for high speed CAN for poor contact. | Is there poor contact of connector? | Repair the connector that has poor contact, or replace harness. | It is possible that temporary poor communication occurs. Delete the DTC. |

# I: DTC U0424 INVALID DATA RECEIVED FROM HVAC CONTROL MODULE

**DTC DETECTING CONDITION:**
Defective data was transmitted from A/C control panel.
**TROUBLE SYMPTOM:**
Cooperation control of air conditioner does not operate properly.

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK PERFORMING OF BASIC DIAGNOSTIC PROCEDURE.** | Was the basic diagnostic procedure performed up to STEP 3? | Go to step **2**. | Perform the basic diagnostic procedure. <Ref. to LAN(w/o HEV)(diag)-2, Basic Diagnostic Procedure.> |
| 2 | **CHECK DTC.**<br>Check the displayed DTC. | Are DTCs other than U*** displayed? | Perform the diagnosis according to DTC. | Go to step **3**. |
| 3 | **CHECK DTC.**<br>Check the displayed DTC. | Is DTC for the bus off or the data no-receive displayed? | Perform the diagnosis according to DTC. | Go to step **4**. |
| 4 | **CHECK DTC.**<br>Check the displayed DTC. | Is U0424 a current malfunction? | Go to step **5**. | Go to step **9**. |
| 5 | **CHECK DTC.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the A/C control panel connector.<br>3) Connect the disconnected connectors.<br>4) Read the DTC using Subaru Select Monitor. | Is U0424 a current malfunction? | Go to step **6**. | Go to step **9**. |
| 6 | **CHECK DTC.**<br>Using the Subaru Select Monitor, read DTC of all the systems. | Is the air conditioner data abnormal detected in several modules? | Replace the A/C control panel. <Ref. to AC-50, Control Panel.> | Go to step **7**. |
| 7 | **REPLACE MODULE.**<br>1) Replace the A/C control panel.<br>2) Read the DTC using Subaru Select Monitor. | Is U0424 a current malfunction? | Go to step **8**. | System is normal. |
| 8 | **CHECK MODULE.**<br>1) Restore the A/C control panel.<br>2) Replace the module that the DTC has been detected.<br>3) Read the DTC using Subaru Select Monitor. | Is U0424 a current malfunction? | Replace the A/C control panel. <Ref. to AC-50, Control Panel.> | System is normal. |
| 9 | **CHECK HARNESS.**<br>1) Shake the harness, and check for poor contact.<br>2) Read the DTC using Subaru Select Monitor. | Is U0424 a current malfunction? | Repair the poor contact of harness, or replace the harness. | Go to step **10**. |
| 10 | **CHECK CONNECTOR.**<br>Check the connector used for high speed CAN for poor contact. | Is there poor contact of connector? | Repair the connector that has poor contact, or replace harness. | It is possible that temporary poor communication occurs. Delete the DTC. |

## J: DTC U0427 INVALID DATA RECEIVED FROM VEHICLE SECURITY CONTROL MODULE

**DTC DETECTING CONDITION:**
Defective data was transmitted from keyless access CM.
**TROUBLE SYMPTOM:**
Cooperation control of keyless access does not operate properly.

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK PERFORMING OF BASIC DIAGNOSTIC PROCEDURE.** | Was the basic diagnostic procedure performed up to STEP 3? | Go to step **2**. | Perform the basic diagnostic procedure. <Ref. to LAN(w/o HEV)(diag)-2, Basic Diagnostic Procedure.> |
| 2 | **CHECK DTC.**<br>Check the displayed DTC. | Are DTCs other than U*** displayed? | Perform the diagnosis according to DTC. | Go to step **3**. |
| 3 | **CHECK DTC.**<br>Check the displayed DTC. | Is DTC for the bus off or the data no-receive displayed? | Perform the diagnosis according to DTC. | Go to step **4**. |
| 4 | **CHECK DTC.**<br>Check the displayed DTC. | Is U0427 a current malfunction? | Go to step **5**. | Go to step **9**. |
| 5 | **CHECK DTC.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the keyless access CM connector.<br>3) Connect the disconnected connectors.<br>4) Read the DTC using Subaru Select Monitor. | Is U0427 a current malfunction? | Go to step **6**. | Go to step **9**. |
| 6 | **CHECK DTC.**<br>Using the Subaru Select Monitor, read DTC of all the systems. | Is the smart data abnormal detected in several modules? | Replace the keyless access CM. <Ref. to SL-110, Keyless Access CM.> | Go to step **7**. |
| 7 | **REPLACE MODULE.**<br>1) Replace the keyless access CM.<br>NOTE:<br>Do not perform keyless access CM registration.<br>2) Read the DTC using Subaru Select Monitor. | Is U0427 a current malfunction? | Go to step **8**. | System is normal.<br>NOTE:<br>Be sure to perform keyless access CM registration. |
| 8 | **CHECK MODULE.**<br>1) Reinstall the keyless access CM.<br>2) Replace the body integrated unit. <Ref. to SL-87, Body Integrated Unit.><br>3) Read the DTC using Subaru Select Monitor. | Is U0427 a current malfunction? | Replace the keyless access CM. <Ref. to SL-110, Keyless Access CM.> | System is normal. |
| 9 | **CHECK HARNESS.**<br>1) Shake the harness, and check for poor contact.<br>2) Read the DTC using Subaru Select Monitor. | Is U0427 a current malfunction? | Repair the poor contact of harness, or replace the harness. | Go to step **10**. |
| 10 | **CHECK CONNECTOR.**<br>Check the connector used for high speed CAN for poor contact. | Is there poor contact of connector? | Repair the connector that has poor contact, or replace harness. | It is possible that temporary poor communication occurs. Delete the DTC. |

## K: DTC U0428 INVALID DATA RECEIVED FROM STEERING ANGLE SENSOR MODULE

**DTC DETECTING CONDITION:**
Defective data was transmitted from steering angle sensor.
**TROUBLE SYMPTOM:**
VDC CM does not operate normally.

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK PERFORMING OF BASIC DIAGNOSTIC PROCEDURE.** | Was the basic diagnostic procedure performed up to STEP 3? | Go to step **2**. | Perform the basic diagnostic procedure. <Ref. to LAN(w/o HEV)(diag)-2, Basic Diagnostic Procedure.> |
| 2 | **CHECK DTC.**<br>Check the displayed DTC. | Are DTCs other than U*** displayed? | Perform the diagnosis according to DTC. | Go to step **3**. |
| 3 | **CHECK DTC.**<br>Check the displayed DTC. | Is DTC for the bus off or the data no-receive displayed? | Perform the diagnosis according to DTC. | Go to step **4**. |
| 4 | **CHECK DTC.**<br>Check the displayed DTC. | Is U0428 a current malfunction? | Go to step **5**. | Go to step **9**. |
| 5 | **CHECK DTC.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the steering angle sensor connector.<br>3) Connect the disconnected connectors.<br>4) Read the DTC using Subaru Select Monitor. | Is U0428 a current malfunction? | Go to step **6**. | Go to step **9**. |
| 6 | **CHECK DTC.**<br>Using the Subaru Select Monitor, read DTC of all the systems. | Is the steering angle sensor data abnormal detected in several modules? | Replace the steering angle sensor. <Ref. to VDC-35, Steering Angle Sensor.> | Go to step **7**. |
| 7 | **REPLACE MODULE.**<br>1) Replace the steering angle sensor.<br>2) Read the DTC using Subaru Select Monitor. | Is U0428 a current malfunction? | Go to step **8**. | System is normal. |
| 8 | **CHECK MODULE.**<br>1) Reinstall the steering angle sensor.<br>2) Replace the module that the DTC has been detected.<br>3) Read the DTC using Subaru Select Monitor. | Is U0428 a current malfunction? | Replace the steering angle sensor. <Ref. to VDC-35, Steering Angle Sensor.> | System is normal. |
| 9 | **CHECK HARNESS.**<br>1) Shake the harness, and check for poor contact.<br>2) Using the Subaru Select Monitor, read DTC of CAN system. | Is U0428 a current malfunction? | Repair the poor contact of harness, or replace the harness. | Go to step **10**. |
| 10 | **CHECK CONNECTOR.**<br>Check the connector used for high speed CAN for poor contact. | Is there poor contact of connector? | Repair the connector that has poor contact, or replace harness. | It is possible that temporary poor communication occurs. Delete the DTC. |

## L: DTC U0452 INVALID DATA RECEIVED FROM RESTRAINTS CONTROL MODULE

**DTC DETECTING CONDITION:**
Defective data was transmitted from A/B CM.
**TROUBLE SYMPTOM:**
Cooperation control with airbag does not operate properly.

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK PERFORMING OF BASIC DIAGNOSTIC PROCEDURE.** | Was the basic diagnostic procedure performed up to STEP 3? | Go to step **2**. | Perform the basic diagnostic procedure. <Ref. to LAN(w/o HEV)(diag)-2, Basic Diagnostic Procedure.> |
| 2 | **CHECK DTC.**<br>Check the displayed DTC. | Are DTCs other than U*** displayed? | Perform the diagnosis according to DTC. | Go to step **3**. |
| 3 | **CHECK DTC.**<br>Check the displayed DTC. | Is DTC for the bus off or the data no-receive displayed? | Perform the diagnosis according to DTC. | Go to step **4**. |
| 4 | **CHECK DTC.**<br>Check the displayed DTC. | Is U0452 a current malfunction? | Go to step **5**. | Go to step **9**. |
| 5 | **CHECK DTC.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the A/B CM connector.<br>3) Connect the disconnected connectors.<br>4) Read the DTC using Subaru Select Monitor. | Is U0452 a current malfunction? | Go to step **6**. | Go to step **9**. |
| 6 | **CHECK DTC.**<br>Using the Subaru Select Monitor, read DTC of all the systems. | Is the airbag data abnormal detected in several modules? | Replace the A/B CM. <Ref. to AB-66, Airbag Control Module.> | Go to step **7**. |
| 7 | **REPLACE MODULE.**<br>1) Replace the A/B CM.<br>2) Read the DTC using Subaru Select Monitor. | Is U0452 a current malfunction? | Go to step **8**. | System is normal. |
| 8 | **CHECK MODULE.**<br>1) Reinstall the A/B CM.<br>2) Replace the module that the DTC has been detected.<br>3) Read the DTC using Subaru Select Monitor. | Is U0452 a current malfunction? | Replace the A/B CM. <Ref. to AB-66, Airbag Control Module.> | System is normal. |
| 9 | **CHECK HARNESS.**<br>1) Shake the harness, and check for poor contact.<br>2) Using the Subaru Select Monitor, read DTC of CAN system. | Is U0452 a current malfunction? | Repair the poor contact of harness, or replace the harness. | Go to step **10**. |
| 10 | **CHECK CONNECTOR.**<br>Check the connector used for high speed CAN for poor contact. | Is there poor contact of connector? | Repair the connector that has poor contact, or replace harness. | It is possible that temporary poor communication occurs. Delete the DTC. |

## M: DTC U1433 INVALID DATA RECEIVED FROM EyeSight

**DTC DETECTING CONDITION:**
Defective data was transmitted from stereo camera.
**TROUBLE SYMPTOM:**
Cooperation control of EyeSight does not operate properly.

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK PERFORMING OF BASIC DIAGNOSTIC PROCEDURE.** | Was the basic diagnostic procedure performed up to STEP 3? | Go to step **2**. | Perform the basic diagnostic procedure. <Ref. to LAN(w/o HEV)(diag)-2, Basic Diagnostic Procedure.> |
| 2 | **CHECK DTC.**<br>Check the displayed DTC. | Are DTCs other than U*** displayed? | Perform the diagnosis according to DTC. | Go to step **3**. |
| 3 | **CHECK DTC.**<br>Check the displayed DTC. | Is DTC for the bus off or the data no-receive displayed? | Perform the diagnosis according to DTC. | Go to step **4**. |
| 4 | **CHECK DTC.**<br>Check the displayed DTC. | Is U1433 a current malfunction? | Go to step **5**. | Go to step **9**. |
| 5 | **CHECK DTC.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the stereo camera connector.<br>3) Connect the disconnected connectors.<br>4) Read the DTC using Subaru Select Monitor. | Is U1433 a current malfunction? | Go to step **6**. | Go to step **9**. |
| 6 | **CHECK DTC.**<br>Using the Subaru Select Monitor, read DTC of all the systems. | Is the EyeSight data abnormal detected in several modules? | Replace the stereo camera. <Ref. to ES-7, Stereo Camera.> | Go to step **7**. |
| 7 | **REPLACE MODULE.**<br>1) Replace the stereo camera.<br>2) Read the DTC using Subaru Select Monitor. | Is U1433 a current malfunction? | Go to step **8**. | System is normal. |
| 8 | **CHECK MODULE.**<br>1) Reinstall the stereo camera.<br>2) Replace the module that the DTC has been detected.<br>3) Read the DTC using Subaru Select Monitor. | Is U1433 a current malfunction? | Replace the stereo camera. <Ref. to ES-7, Stereo Camera.> | System is normal. |
| 9 | **CHECK HARNESS.**<br>1) Shake the harness, and check for poor contact.<br>2) Using the Subaru Select Monitor, read DTC of CAN system. | Is U1433 a current malfunction? | Repair the poor contact of harness, or replace the harness. | Go to step **10**. |
| 10 | **CHECK CONNECTOR.**<br>Check the connector used for high speed CAN for poor contact. | Is there poor contact of connector? | Repair the connector that has poor contact, or replace harness. | It is possible that temporary poor communication occurs. Delete the DTC. |

## N: DTC U0100 LOST COMMUNICATION WITH ECM/PCM "A"

**DTC DETECTING CONDITION:**
Not received data from ECM.
**TROUBLE SYMPTOM:**
Cooperation control of transmission may not operate properly.

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK PERFORMING OF BASIC DIAGNOSTIC PROCEDURE.** | Was the basic diagnostic procedure performed up to STEP 3? | Go to step **2**. | Perform the basic diagnostic procedure. <Ref. to LAN(w/o HEV)(diag)-2, Basic Diagnostic Procedure.> |
| 2 | **CHECK DTC.**<br>Check the displayed DTC. | Are DTCs other than U*** displayed? | Perform the diagnosis according to DTC. | Go to step **3**. |
| 3 | **CHECK DTC.**<br>Check the displayed DTC. | Is U0100 a current malfunction? | Go to step **4**. | Go to step **8**. |
| 4 | **CHECK DTC.**<br>1) Check CAN communication circuit. <Ref. to LAN(w/o HEV)(diag)-27, CAN Communication Circuit Check.><br>2) Read the DTC using Subaru Select Monitor. | Is U0100 a current malfunction? | Go to step **5**. | Go to step **8**. |
| 5 | **CHECK DTC.**<br>Using the Subaru Select Monitor, read DTC of all the systems. | Is the engine data no-receive detected in several modules? | Replace the ECM. <Ref. to FU(H4DO(w/o HEV))-100, Engine Control Module (ECM).> | Go to step **6**. |
| 6 | **REPLACE MODULE.**<br>1) Replace the ECM.<br>2) Read the DTC using Subaru Select Monitor. | Is U0100 a current malfunction? | Go to step **7**. | System is normal. |
| 7 | **CHECK MODULE.**<br>1) Reinstall the ECM.<br>2) Replace the module that the DTC has been detected.<br>3) Read the DTC using Subaru Select Monitor. | Is U0100 a current malfunction? | Replace the ECM. <Ref. to FU(H4DO(w/o HEV))-100, Engine Control Module (ECM).> | System is normal. |
| 8 | **CHECK HARNESS.**<br>1) Shake the harness, and check for poor contact.<br>2) Read the DTC using Subaru Select Monitor. | Is U0100 a current malfunction? | Repair the poor contact of harness, or replace the harness. | Go to step **9**. |
| 9 | **CHECK CONNECTOR.**<br>Check the connector used for high speed CAN for poor contact. | Is there poor contact of connector? | Repair the connector that has poor contact, or replace harness. | It is possible that temporary poor communication occurs. Delete the DTC. |

## O: DTC U0101 LOST COMMUNICATION WITH TCM

**DTC DETECTING CONDITION:**
Not received data from TCM.
**TROUBLE SYMPTOM:**
Cooperation control with transmission is not performed.

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK PERFORMING OF BASIC DIAGNOSTIC PROCEDURE.** | Was the basic diagnostic procedure performed up to STEP 3? | Go to step **2**. | Perform the basic diagnostic procedure. <Ref. to LAN(w/o HEV)(diag)-2, Basic Diagnostic Procedure.> |
| 2 | **CHECK DTC.**<br>Check the displayed DTC. | Are DTCs other than U*** displayed? | Perform the diagnosis according to DTC. | Go to step **3**. |
| 3 | **CHECK DTC.**<br>Check the displayed DTC. | Is U0101 a current malfunction? | Go to step **4**. | Go to step **8**. |
| 4 | **CHECK DTC.**<br>1) Check CAN communication circuit. <Ref. to LAN(w/o HEV)(diag)-27, CAN Communication Circuit Check.><br>2) Read the DTC using Subaru Select Monitor. | Is U0101 a current malfunction? | Go to step **5**. | Go to step **8**. |
| 5 | **CHECK DTC.**<br>Using the Subaru Select Monitor, read DTC of all the systems. | Is the transmission data no-receive detected in several modules? | Replace the TCM. <Ref. to CVT(TH58A)-158, Transmission Control Module (TCM).> | Go to step **6**. |
| 6 | **REPLACE MODULE.**<br>1) Replace the TCM.<br>2) Read the DTC using Subaru Select Monitor. | Is U0101 a current malfunction? | Go to step **7**. | System is normal. |
| 7 | **CHECK MODULE.**<br>1) Reinstall the TCM.<br>2) Replace the module that the DTC has been detected.<br>3) Read the DTC using Subaru Select Monitor. | Is U0101 a current malfunction? | Replace the TCM. <Ref. to CVT(TH58A)-158, Transmission Control Module (TCM).> | System is normal. |
| 8 | **CHECK HARNESS.**<br>1) Shake the harness, and check for poor contact.<br>2) Read the DTC using Subaru Select Monitor. | Is U0101 a current malfunction? | Repair the poor contact of harness, or replace the harness. | Go to step **9**. |
| 9 | **CHECK CONNECTOR.**<br>Check the connector used for high speed CAN for poor contact. | Is there poor contact of connector? | Repair the connector that has poor contact, or replace harness. | It is possible that temporary poor communication occurs. Delete the DTC. |

# P: DTC U0122 LOST COMMUNICATION WITH VEHICLE DYNAMICS CONTROL MODULE

**DTC DETECTING CONDITION:**
No data from VDCCM is received.
**TROUBLE SYMPTOM:**
ABS warning light and VDC warning light illuminate.

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK PERFORMING OF BASIC DIAGNOSTIC PROCEDURE.** | Was the basic diagnostic procedure performed up to STEP 3? | Go to step **2**. | Perform the basic diagnostic procedure. <Ref. to LAN(w/o HEV)(diag)-2, Basic Diagnostic Procedure.> |
| 2 | **CHECK DTC.**<br>Check the displayed DTC. | Are DTCs other than U*** displayed? | Perform the diagnosis according to DTC. | Go to step **3**. |
| 3 | **CHECK DTC.**<br>Check the displayed DTC. | Is U0122 a current malfunction? | Go to step **4**. | Go to step **8**. |
| 4 | **CHECK DTC.**<br>1) Check CAN communication circuit. <Ref. to LAN(w/o HEV)(diag)-27, CAN Communication Circuit Check.><br>2) Read the DTC using Subaru Select Monitor. | Is U0122 a current malfunction? | Go to step **5**. | Go to step **8**. |
| 5 | **CHECK DTC.**<br>Using the Subaru Select Monitor, read DTC of all the systems. | Is the VDC data no-receive detected in several modules? | Replace the VDC CM. <Ref. to VDC-10, VDC Control Module and Hydraulic Control Unit (VDCCM&H/U).> | Go to step **6**. |
| 6 | **REPLACE MODULE.**<br>1) Replace the VDC CM.<br>2) Read the DTC using Subaru Select Monitor. | Is U0122 a current malfunction? | Go to step **7**. | System is normal. |
| 7 | **CHECK MODULE.**<br>1) Reinstall the VDC CM.<br>2) Replace the module that the DTC has been detected.<br>3) Read the DTC using Subaru Select Monitor. | Is U0122 a current malfunction? | Replace the VDC CM. <Ref. to VDC-10, VDC Control Module and Hydraulic Control Unit (VDCCM&H/U).> | System is normal. |
| 8 | **CHECK HARNESS.**<br>1) Shake the harness, and check for poor contact.<br>2) Read the DTC using Subaru Select Monitor. | Is U0122 a current malfunction? | Repair the poor contact of harness, or replace the harness. | Go to step **9**. |
| 9 | **CHECK CONNECTOR.**<br>Check the connector used for high speed CAN for poor contact. | Is there poor contact of connector? | Repair the connector that has poor contact, or replace harness. | It is possible that temporary poor communication occurs. Delete the DTC. |

## Q: DTC U0126 LOST COMMUNICATION WITH STEERING ANGLE SENSOR MODULE

**DTC DETECTING CONDITION:**
No data is received from steering angle sensor.
**TROUBLE SYMPTOM:**
VDC CM does not operate normally.

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK PERFORMING OF BASIC DIAGNOSTIC PROCEDURE.** | Was the basic diagnostic procedure performed up to STEP 3? | Go to step **2**. | Perform the basic diagnostic procedure. <Ref. to LAN(w/o HEV)(diag)-2, Basic Diagnostic Procedure.> |
| 2 | **CHECK DTC.**<br>Check the displayed DTC. | Are DTCs other than U*** displayed? | Perform the diagnosis according to DTC. | Go to step **3**. |
| 3 | **CHECK DTC.**<br>Check the displayed DTC. | Is U0126 a current malfunction? | Go to step **4**. | Go to step **8**. |
| 4 | **CHECK DTC.**<br>1) Check CAN communication circuit. <Ref. to LAN(w/o HEV)(diag)-27, CAN Communication Circuit Check.><br>2) Read the DTC using Subaru Select Monitor. | Is U0126 a current malfunction? | Go to step **5**. | Go to step **8**. |
| 5 | **CHECK DTC.**<br>Using the Subaru Select Monitor, read DTC of all the systems. | Is the steering angle sensor data no-receive detected in several modules? | Replace the steering angle sensor. <Ref. to VDC-35, Steering Angle Sensor.> | Go to step **6**. |
| 6 | **REPLACE MODULE.**<br>1) Replace the steering angle sensor.<br>2) Read the DTC using Subaru Select Monitor. | Is U0126 a current malfunction? | Go to step **7**. | System is normal. |
| 7 | **CHECK MODULE.**<br>1) Reinstall the steering angle sensor.<br>2) Replace the module that the DTC has been detected.<br>3) Read the DTC using Subaru Select Monitor. | Is U0126 a current malfunction? | Replace the steering angle sensor. <Ref. to VDC-35, Steering Angle Sensor.> | System is normal. |
| 8 | **CHECK HARNESS.**<br>1) Shake the harness, and check for poor contact.<br>2) Read the DTC using Subaru Select Monitor. | Is U0126 a current malfunction? | Repair the poor contact of harness, or replace the harness. | Go to step **9**. |
| 9 | **CHECK CONNECTOR.**<br>Check the connector used for high speed CAN for poor contact. | Is there poor contact of connector? | Repair the connector that has poor contact, or replace harness. | It is possible that temporary poor communication occurs. Delete the DTC. |

## R: DTC U0131 LOST COMMUNICATION WITH POWER STEERING CONTROL MODULE

**DTC DETECTING CONDITION:**
No data is received from power steering CM.
**TROUBLE SYMPTOM:**
Cooperation control with power steering CM does not operate properly.

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK PERFORMING OF BASIC DIAGNOSTIC PROCEDURE.** | Was the basic diagnostic procedure performed up to STEP 3? | Go to step **2**. | Perform the basic diagnostic procedure. <Ref. to LAN(w/o HEV)(diag)-2, Basic Diagnostic Procedure.> |
| 2 | **CHECK DTC.**<br>Check the displayed DTC. | Are DTCs other than U*** displayed? | Perform the diagnosis according to DTC. | Go to step **3**. |
| 3 | **CHECK DTC.**<br>Check the displayed DTC. | Is U0131 a current malfunction? | Go to step **4**. | Go to step **8**. |
| 4 | **CHECK DTC.**<br>1) Check CAN communication circuit. <Ref. to LAN(w/o HEV)(diag)-27, CAN Communication Circuit Check.><br>2) Read the DTC using Subaru Select Monitor. | Is U0131 a current malfunction? | Go to step **5**. | Go to step **8**. |
| 5 | **CHECK DTC.**<br>Using the Subaru Select Monitor, read DTC of all the systems. | Is the electric power steering data no-receive detected in several modules? | Replace the power steering CM. <Ref. to PS-44, Power Steering Control Module.> | Go to step **6**. |
| 6 | **REPLACE MODULE.**<br>1) Replace the power steering CM.<br>2) Read the DTC using Subaru Select Monitor. | Is U0131 a current malfunction? | Go to step **7**. | System is normal. |
| 7 | **CHECK MODULE.**<br>1) Reinstall the power steering CM.<br>2) Replace the module that the DTC has been detected.<br>3) Read the DTC using Subaru Select Monitor. | Is U0131 a current malfunction? | Replace the power steering CM. <Ref. to PS-44, Power Steering Control Module.> | System is normal. |
| 8 | **CHECK HARNESS.**<br>1) Shake the harness, and check for poor contact.<br>2) Read the DTC using Subaru Select Monitor. | Is U0131 a current malfunction? | Repair the poor contact of harness, or replace the harness. | Go to step **9**. |
| 9 | **CHECK CONNECTOR.**<br>Check the connector used for high speed CAN for poor contact. | Is there poor contact of connector? | Repair the connector that has poor contact, or replace harness. | It is possible that temporary poor communication occurs. Delete the DTC. |

## S: DTC U0140 LOST COMMUNICATION WITH BODY CONTROL MODULE

**DTC DETECTING CONDITION:**
No data is received from body integrated unit.
**TROUBLE SYMPTOM:**
Cooperation control with body integrated unit does not operate properly.

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK PERFORMING OF BASIC DIAGNOSTIC PROCEDURE.** | Was the basic diagnostic procedure performed up to STEP 3? | Go to step **2**. | Perform the basic diagnostic procedure. <Ref. to LAN(w/o HEV)(diag)-2, Basic Diagnostic Procedure.> |
| 2 | **CHECK DTC.**<br>Check the displayed DTC. | Are DTCs other than U*** displayed? | Perform the diagnosis according to DTC. | Go to step **3**. |
| 3 | **CHECK DTC.**<br>Check the displayed DTC. | Is U0140 a current malfunction? | Go to step **4**. | Go to step **8**. |
| 4 | **CHECK DTC.**<br>1) Check CAN communication circuit. <Ref. to LAN(w/o HEV)(diag)-27, CAN Communication Circuit Check.><br>2) Read the DTC using Subaru Select Monitor. | Is U0140 a current malfunction? | Go to step **5**. | Go to step **8**. |
| 5 | **CHECK DTC.**<br>Using the Subaru Select Monitor, read DTC of all the systems. | Is the body integrated data no-receive detected in several modules? | Replace the body integrated unit. <Ref. to SL-87, Body Integrated Unit.> | Go to step **6**. |
| 6 | **REPLACE MODULE.**<br>1) Replace the body integrated unit.<br>2) Read the DTC using Subaru Select Monitor. | Is U0140 a current malfunction? | Go to step **7**. | System is normal. |
| 7 | **CHECK MODULE.**<br>1) Reinstall the body integrated unit.<br>2) Replace the module that the DTC has been detected.<br>3) Read the DTC using Subaru Select Monitor. | Is U0140 a current malfunction? | Replace the body integrated unit. <Ref. to SL-87, Body Integrated Unit.> | System is normal. |
| 8 | **CHECK HARNESS.**<br>1) Shake the harness, and check for poor contact.<br>2) Read the DTC using Subaru Select Monitor. | Is U0140 a current malfunction? | Repair the poor contact of harness, or replace the harness. | Go to step **9**. |
| 9 | **CHECK CONNECTOR.**<br>Check the connector used for high speed CAN for poor contact. | Is there poor contact of connector? | Repair the connector that has poor contact, or replace harness. | It is possible that temporary poor communication occurs. Delete the DTC. |

## T: DTC U0151 LOST COMMUNICATION WITH RESTRAINTS CONTROL MODULE

**DTC DETECTING CONDITION:**
No data is received from A/B CM.
**TROUBLE SYMPTOM:**
Cooperation control with A/B CM does not operate properly.

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK PERFORMING OF BASIC DIAGNOSTIC PROCEDURE.** | Was the basic diagnostic procedure performed up to STEP 3? | Go to step **2**. | Perform the basic diagnostic procedure. <Ref. to LAN(w/o HEV)(diag)-2, Basic Diagnostic Procedure.> |
| 2 | **CHECK DTC.**<br>Check the displayed DTC. | Are DTCs other than U*** displayed? | Perform the diagnosis according to DTC. | Go to step **3**. |
| 3 | **CHECK DTC.**<br>Check the displayed DTC. | Is U0151 a current malfunction? | Go to step **4**. | Go to step **8**. |
| 4 | **CHECK DTC.**<br>1) Check CAN communication circuit. <Ref. to LAN(w/o HEV)(diag)-27, CAN Communication Circuit Check.><br>2) Read the DTC using Subaru Select Monitor. | Is U0151 a current malfunction? | Go to step **5**. | Go to step **8**. |
| 5 | **CHECK DTC.**<br>Using the Subaru Select Monitor, read DTC of all the systems. | Is the airbag data no-receive detected in several modules? | Replace the A/B CM. <Ref. to AB-66, Airbag Control Module.> | Go to step **6**. |
| 6 | **REPLACE MODULE.**<br>1) Replace the A/B CM.<br>2) Read the DTC using Subaru Select Monitor. | Is U0151 a current malfunction? | Go to step **7**. | System is normal. |
| 7 | **CHECK MODULE.**<br>1) Reinstall the A/B CM.<br>2) Replace the module that the DTC has been detected.<br>3) Read the DTC using Subaru Select Monitor. | Is U0151 a current malfunction? | Replace the A/B CM. <Ref. to AB-66, Airbag Control Module.> | System is normal. |
| 8 | **CHECK HARNESS.**<br>1) Shake the harness, and check for poor contact.<br>2) Read the DTC using Subaru Select Monitor. | Is U0151 a current malfunction? | Repair the poor contact of harness, or replace the harness. | Go to step **9**. |
| 9 | **CHECK CONNECTOR.**<br>Check the connector used for high speed CAN for poor contact. | Is there poor contact of connector? | Repair the connector that has poor contact, or replace harness. | It is possible that temporary poor communication occurs. Delete the DTC. |

# U: DTC U0155 LOST COMMUNICATION WITH INSTRUMENT PANEL CLUSTER (IPC) CONTROL MODULE

**DTC DETECTING CONDITION:**
No data received from combination meter.
**TROUBLE SYMPTOM:**
Display of combination meter does not operate properly.

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK PERFORMING OF BASIC DIAGNOSTIC PROCEDURE.** | Was the basic diagnostic procedure performed up to STEP 3? | Go to step **2**. | Perform the basic diagnostic procedure. <Ref. to LAN(w/o HEV)(diag)-2, Basic Diagnostic Procedure.> |
| 2 | **CHECK DTC.**<br>Check the displayed DTC. | Are DTCs other than U*** displayed? | Perform the diagnosis according to DTC. | Go to step **3**. |
| 3 | **CHECK DTC.**<br>Check the displayed DTC. | Is U0155 a current malfunction? | Go to step **4**. | Go to step **8**. |
| 4 | **CHECK DTC.**<br>1) Check CAN communication circuit. <Ref. to LAN(w/o HEV)(diag)-27, CAN Communication Circuit Check.><br>2) Read the DTC using Subaru Select Monitor. | Is U0155 a current malfunction? | Go to step **5**. | Go to step **8**. |
| 5 | **CHECK DTC.**<br>Using the Subaru Select Monitor, read DTC of all the systems. | Is the meter data no-receive detected in several modules? | Replace the meter. <Ref. to IDI-20, Combination Meter.> | Go to step **6**. |
| 6 | **REPLACE MODULE.**<br>1) Replace the combination meter.<br>2) Read the DTC using Subaru Select Monitor. | Is U0155 a current malfunction? | Go to step **7**. | System is normal. |
| 7 | **CHECK MODULE.**<br>1) Replace the current combination meter with the original combination meter.<br>2) Replace the module that the DTC has been detected.<br>3) Read the DTC using Subaru Select Monitor. | Is U0155 a current malfunction? | Replace the combination meter. <Ref. to IDI-20, Combination Meter.> | System is normal. |
| 8 | **CHECK HARNESS.**<br>1) Shake the harness, and check for poor contact.<br>2) Read the DTC using Subaru Select Monitor. | Is U0155 a current malfunction? | Repair the poor contact of harness, or replace the harness. | Go to step **9**. |
| 9 | **CHECK CONNECTOR.**<br>Check the connector used for high speed CAN for poor contact. | Is there poor contact of connector? | Repair the connector that has poor contact, or replace harness. | It is possible that temporary poor communication occurs. Delete the DTC. |

## V: DTC U0164 LOST COMMUNICATION WITH HVAC CONTROL MODULE

**DTC DETECTING CONDITION:**
No data is received from A/C control panel.
**TROUBLE SYMPTOM:**
Cooperation control of air conditioner does not operate properly.

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK PERFORMING OF BASIC DIAGNOSTIC PROCEDURE.** | Was the basic diagnostic procedure performed up to STEP 3? | Go to step **2**. | Perform the basic diagnostic procedure. <Ref. to LAN(w/o HEV)(diag)-2, Basic Diagnostic Procedure.> |
| 2 | **CHECK DTC.**<br>Check the displayed DTC. | Are DTCs other than U*** displayed? | Perform the diagnosis according to DTC. | Go to step **3**. |
| 3 | **CHECK DTC.**<br>Check the displayed DTC. | Is U0164 a current malfunction? | Go to step **4**. | Go to step **8**. |
| 4 | **CHECK DTC.**<br>1) Check CAN communication circuit. <Ref. to LAN(w/o HEV)(diag)-27, CAN Communication Circuit Check.><br>2) Read the DTC using Subaru Select Monitor. | Is U0164 a current malfunction? | Go to step **5**. | Go to step **8**. |
| 5 | **CHECK DTC.**<br>Using the Subaru Select Monitor, read DTC of all the systems. | Is the air conditioner data no-receive detected in several modules? | Replace the A/C control panel. <Ref. to AC-50, Control Panel.> | Go to step **6**. |
| 6 | **REPLACE MODULE.**<br>1) Replace the A/C control panel.<br>2) Read the DTC using Subaru Select Monitor. | Is U0164 a current malfunction? | Go to step **7**. | System is normal. |
| 7 | **CHECK MODULE.**<br>1) Restore the A/C control panel.<br>2) Replace the module that the DTC has been detected.<br>3) Read the DTC using Subaru Select Monitor. | Is U0164 a current malfunction? | Replace the A/C control panel. <Ref. to AC-50, Control Panel.> | System is normal. |
| 8 | **CHECK HARNESS.**<br>1) Shake the harness, and check for poor contact.<br>2) Read the DTC using Subaru Select Monitor. | Is U0164 a current malfunction? | Repair the poor contact of harness, or replace the harness. | Go to step **9**. |
| 9 | **CHECK CONNECTOR.**<br>Check the connector used for high speed CAN for poor contact. | Is there poor contact of connector? | Repair the connector that has poor contact, or replace harness. | It is possible that temporary poor communication occurs. Delete the DTC. |

## W: DTC U0327 SOFTWARE INCOMPATIBILITY WITH VEHICLE SECURITY CONTROL MODULE

**DTC DETECTING CONDITION:**
No data is received from keyless access CM.
**TROUBLE SYMPTOM:**
Cooperation control of keyless access does not operate properly.

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK PERFORMING OF BASIC DIAGNOSTIC PROCEDURE.** | Was the basic diagnostic procedure performed up to STEP 3? | Go to step **2**. | Perform the basic diagnostic procedure. <Ref. to LAN(w/o HEV)(diag)-2, Basic Diagnostic Procedure.> |
| 2 | **CHECK DTC.**<br>Check the displayed DTC. | Are DTCs other than U*** displayed? | Perform the diagnosis according to DTC. | Go to step **3**. |
| 3 | **CHECK DTC.**<br>Check the displayed DTC. | Is U0327 a current malfunction? | Go to step **4**. | Go to step **8**. |
| 4 | **CHECK DTC.**<br>1) Check CAN communication circuit. <Ref. to LAN(w/o HEV)(diag)-27, CAN Communication Circuit Check.><br>2) Read the DTC using Subaru Select Monitor. | Is U0327 a current malfunction? | Go to step **5**. | Go to step **8**. |
| 5 | **CHECK DTC.**<br>Using the Subaru Select Monitor, read DTC of all the systems. | Is the smart data no-receive detected in several modules? | Replace the keyless access CM. <Ref. to SL-110, Keyless Access CM.> | Go to step **6**. |
| 6 | **REPLACE MODULE.**<br>1) Replace the keyless access CM.<br>NOTE:<br>Do not perform keyless access CM registration.<br>2) Read the DTC using Subaru Select Monitor. | Is U0327 a current malfunction? | Go to step **7**. | System is normal.<br>NOTE:<br>Be sure to perform keyless access CM registration. |
| 7 | **CHECK MODULE.**<br>1) Reinstall the keyless access CM.<br>2) Replace the module that the DTC has been detected.<br>3) Read the DTC using Subaru Select Monitor. | Is U0327 a current malfunction? | Replace the keyless access CM. <Ref. to SL-110, Keyless Access CM.> | System is normal. |
| 8 | **CHECK HARNESS.**<br>1) Shake the harness, and check for poor contact.<br>2) Read the DTC using Subaru Select Monitor. | Is U0327 a current malfunction? | Repair the poor contact of harness, or replace the harness. | Go to step **9**. |
| 9 | **CHECK CONNECTOR.**<br>Check the connector used for high speed CAN for poor contact. | Is there poor contact of connector? | Repair the connector that has poor contact, or replace harness. | It is possible that temporary poor communication occurs. Delete the DTC. |

## X: DTC U1120 LOST COMMUNICATION WITH AUTOSTART STOP CONTROL MODULE

NOTE:
The electric power steering CM identifies whether the Auto Start Stop function is provided or not using information from the combination meter. Therefore, this DTC may be detected if lost communication with the combination meter occurs.
For the diagnostic procedure, refer to DTC U0155 LOST COMMUNICATION WITH INSTRUMENT PANEL CLUSTER (IPC) CONTROL MODULE. <Ref. to LAN(w/o HEV)(diag)-115, DTC U0155 LOST COMMUNICATION WITH INSTRUMENT PANEL CLUSTER (IPC) CONTROL MODULE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

## Y: DTC U1235 LOST COMMUNICATION WITH EyeSight

**DTC DETECTING CONDITION:**
No data from stereo camera is received.
**TROUBLE SYMPTOM:**
Cooperation control of EyeSight does not operate properly.

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK PERFORMING OF BASIC DIAGNOSTIC PROCEDURE.** | Was the basic diagnostic procedure performed up to STEP 3? | Go to step **2**. | Perform the basic diagnostic procedure. <Ref. to LAN(w/o HEV)(diag)-2, Basic Diagnostic Procedure.> |
| 2 | **CHECK DTC.**<br>Check the displayed DTC. | Are DTCs other than U*** displayed? | Perform the diagnosis according to DTC. | Go to step **3**. |
| 3 | **CHECK DTC.**<br>Check the displayed DTC. | Is U1235 a current malfunction? | Go to step **4**. | Go to step **8**. |
| 4 | **CHECK DTC.**<br>1) Check CAN communication circuit. <Ref. to LAN(w/o HEV)(diag)-27, CAN Communication Circuit Check.><br>2) Read the DTC using Subaru Select Monitor. | Is U1235 a current malfunction? | Go to step **5**. | Go to step **8**. |
| 5 | **CHECK DTC.**<br>Using the Subaru Select Monitor, read DTC of all the systems. | Is the EyeSight data no-receive detected in several modules? | Replace the stereo camera. <Ref. to ES-7, Stereo Camera.> | Go to step **6**. |
| 6 | **REPLACE MODULE.**<br>1) Replace the stereo camera.<br>2) Read the DTC using Subaru Select Monitor. | Is U1235 a current malfunction? | Go to step **7**. | System is normal. |
| 7 | **CHECK MODULE.**<br>1) Reinstall the stereo camera.<br>2) Replace the module that the DTC has been detected.<br>3) Read the DTC using Subaru Select Monitor. | Is U1235 a current malfunction? | Replace the stereo camera. <Ref. to ES-7, Stereo Camera.> | System is normal. |
| 8 | **CHECK HARNESS.**<br>1) Shake the harness, and check for poor contact.<br>2) Read the DTC using Subaru Select Monitor. | Is U1235 a current malfunction? | Repair the poor contact of harness, or replace the harness. | Go to step **9**. |
| 9 | **CHECK CONNECTOR.**<br>Check the connector used for high speed CAN for poor contact. | Is there poor contact of connector? | Repair the connector that has poor contact, or replace harness. | It is possible that temporary poor communication occurs. Delete the DTC. |

# 12.General Diagnostic Table

## A: INSPECTION

| Item | Operation | Specifications | | Note |
|---|---|---|---|---|
| | | YES | NO | |
| Diagnostic code | DTC is displayed when inspecting all DTCs. | Perform the diagnosis according to DTC. | System is normal. | — |
| Speedometer | Faster vehicle speed than the actual speed is displayed. | VDC CM data may not be received. | System is normal. | Also, check vehicle speed pulse circuit. |
| Fuel gauge | Fuel is present, but displayed less than actual amount. | Communication error may be present. | System is normal. | Also, check the fuel gauge. |
| Fuel level warning light | Fuel is present, but the light illuminates. | Communication error may be present. | System is normal. | Also, check the fuel gauge. |
| Engine coolant temperature light | Engine coolant temperature light blinks in red and blue alternately. | Communication error may be present. | System is normal. | Check the engine coolant light related items. |
| [S], [I] or [S#] indicator | Blinking. | Communication error may be present. | System is normal. | Check the intelligent switch. |
| VDC indicator | Illuminating. | Communication error may be present. | System is normal. | Check that VDC is not operating. |
| VDC OFF indicator | Illuminating. | Communication error may be present. | System is normal. | Check that VDC is not OFF. |
| Brake warning, etc. | Illuminating. | Brake fluid may be low in amount, or communication error may be present. | System is normal. | Check brake related items. |
| Shift position | Not displayed. | Communication error may be present. | System is normal. | Also, check AT system. |
| AT temperature light | Blinking. | Communication error may be present. | System is normal. | Also, check AT system. |
| Door indicator | Not displayed. | Communication error may be present. | System is normal. | Check the door switch. |
| Clearance indicator | Not illuminating. | Communication error may be present. | System is normal. | Check the combination switch. |
| Hi beam indicator | Not illuminating. | Communication error may be present. | System is normal. | Check the combination switch. |
| Front fog indicator | Not illuminating. | Communication error may be present. | System is normal. | Check the combination switch. |
| Illumination | Illuminating at the maximum brightness. | Communication error may be present. | System is normal. | Also, check the illumination switch. |
| Cruise control indicator | Not illuminating. | Communication error may be present. | System is normal. | Check the cruise control system. |
| AWD indicator | Not illuminating. | Communication error may be present. | System is normal. | Check TCM. |
| Hill hold indicator | Not illuminating. | Communication error may be present. | System is normal. | Also, check VDC CM. |

# EyeSight

# ES


| | | Page |
|---|---|---|
| 1. | General Description | 2 |
| 2. | Relay and Fuse | 4 |
| 3. | EyeSight System | 5 |
| 4. | Control Unit | 6 |
| 5. | Stereo Camera | 7 |
| 6. | Camera Adjustment, Inspection | 12 |
| 7. | Switches and Harness | 32 |
| 8. | Cruise Control Command Switch | 33 |
| 9. | Combination Meter | 34 |
| 10. | Transmission Control Module (TCM) | 35 |
| 11. | Stop Light & Brake Switch | 36 |
| 12. | VDC Control Module and Hydraulic Control Unit (VDCCM&H/U) | 37 |
| 13. | Multi-function Display (MFD) | 38 |
| 14. | Power Steering Control Module | 39 |
| 15. | Roll Connector | 40 |
| 16. | Body Integrated Unit | 41 |
| 17. | Diagnostics with Phenomenon | 42 |

# 1. Basic Diagnostic Procedure

## A: PROCEDURE

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **PERFORM CUSTOMER INTERVIEW.**<br>Using the Check List for Interview, ask the customer the condition of how trouble occurs. | Did you interview the customer? | Go to step **2**. | Interview the customer. <Ref. to PA(diag)-3, CHECK, Check List for Interview.> |
| 2 | **CHECK SUBARU SELECT MONITOR COMMUNICATION.**<br>Using Subaru Select Monitor, check that it can normally communicate with the pedestrian alert system.<br>NOTE:<br>If the communication function of the Subaru Select Monitor cannot be executed properly, check the communication circuit. <Ref. to PA(diag)-7, COMMUNICATION FOR INITIALIZING IMPOSSIBLE, INSPECTION, Subaru Select Monitor.> | Is communication possible? | Go to step **3**. | Check the communication circuit. <Ref. to PA(diag)-7, COMMUNICATION FOR INITIALIZING IMPOSSIBLE, INSPECTION, Subaru Select Monitor.> |
| 3 | **CHECK PEDESTRIAN ALERT SYSTEM.**<br>Read the DTC of the pedestrian alert system using the Subaru Select Monitor. <Ref. to PA(diag)-9, OPERATION, Read Diagnostic Trouble Code (DTC).> | Is DTC detected? | Perform the diagnosis according to DTC. <Ref. to PA(diag)-13, LIST, List of Diagnostic Trouble Code (DTC).> | Go to step **4**. |
| 4 | **PERFORM DIAGNOSTICS WITH PHENOMENON.**<br>Check the list for diagnostics with phenomenon. <Ref. to PA(diag)-16, INSPECTION, Diagnostics with Phenomenon.> | Does the symptom apply? | Perform diagnosis according to the procedures in the diagnostics with phenomenon. | Go to step **5**. |
| 5 | **CHECK TROUBLE PHENOMENON.**<br>1) Perform the basic inspection. <Ref. to PA(diag)-4, General Description.><br>2) Check the pedestrian alert CM. <Ref. to PA(diag)-6, Control Module I/O Signal.><br>3) Perform check of current data. <Ref. to PA(diag)-11, Read Current Data.><br>4) Perform a unit check. | Was the trouble cause found? | Correct or repair the cause of trouble, and then clear the memory. <Ref. to PA(diag)-10, OPERATION, Clear Memory Mode.> | System is normal. |

# 2. Check List for Interview

## A: CHECK

- Inspect the following items regarding the vehicle's state.
- Print out this page for interviewing customers.

<table>
<tr><td colspan="2">Pedestrian alert system check list for interview</td><td colspan="2">Date of Vehicle Bring-in Year Month Date</td></tr>
<tr><td colspan="2" rowspan="2">Customer's name</td><td>Registration No.</td><td>Initial year of registration<br>Year Month Date</td></tr>
<tr><td>Vehicle model</td><td>Frame number</td></tr>
<tr><td>Interviewer</td><td>Inspector</td><td>Engine type</td><td>Odometer reading</td></tr>
<tr><td colspan="4">Customer specified content<br>•<br>•<br>•</td></tr>
<tr><td>Date when problem occurred</td><td>Year Month Date</td><td>Frequency of trouble occurrence</td><td>Always occurs<br>Sometimes occurs ( times per day, times per month)</td></tr>
<tr><td rowspan="2">Condition of trouble occurrence<br>(How the trouble occurs)</td><td rowspan="2"></td><td>Weather</td><td>Fine • Cloudy • Rainy • Snowy • Others ( )</td></tr>
<tr><td>Temperature</td><td>°C (°F) — °C (°F)</td></tr>
<tr><td>Road conditions</td><td></td><td>Occurrence location</td><td></td></tr>
<tr><td>Accessory installation condition</td><td colspan="3"></td></tr>
<tr><td rowspan="2">Confirmation of trouble condition</td><td colspan="3">❑ No sound comes out from the pedestrian alert speaker.</td></tr>
<tr><td colspan="3">❑ Other</td></tr>
<tr><td>Diagnostic code</td><td colspan="3"></td></tr>
</table>

# 3. General Description

## A: CAUTION

### 1. PEDESTRIAN ALERT SYSTEM

a. The sound pressure or tone of the pedestrian alert system may change in the following cases:
• When the vehicle is parked under the scorching sun or in snow-covered areas for a prolonged time. (Over time, the symptom is recovered.)
• When pedestrian alert speaker is directly subject to high-pressure water sprayer from under the vehicle.
• When front of pedestrian alert speaker is covered with foreign matters such as mud, snow, or ice.
• When whole of pedestrian alert speaker is frozen.
b. Warning sound may be difficult to be heard in the following cases:
• When the ambient noise is too loud. (In the very crowded crossing or when emergency vehicle is approaching.)
• When there is a person at the rear of the vehicle, he or she cannot hear the warning sound.

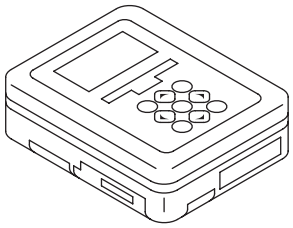
## B: INSPECTION

### 1. BASIC INSPECTION

Before performing diagnosis, check the following items which might affect pedestrian alert system related problems.
1) Check 12 volt auxiliary battery. <Ref. to SC(H4DO(HEV))-43, INSPECTION, Battery.>
2) Check the relay and fuse condition. <Ref. to PA-4, Relay and Fuse.>
3) Check the connecting condition of harness and harness connector.

## C: PREPARATION TOOL

### 1. SPECIAL TOOL

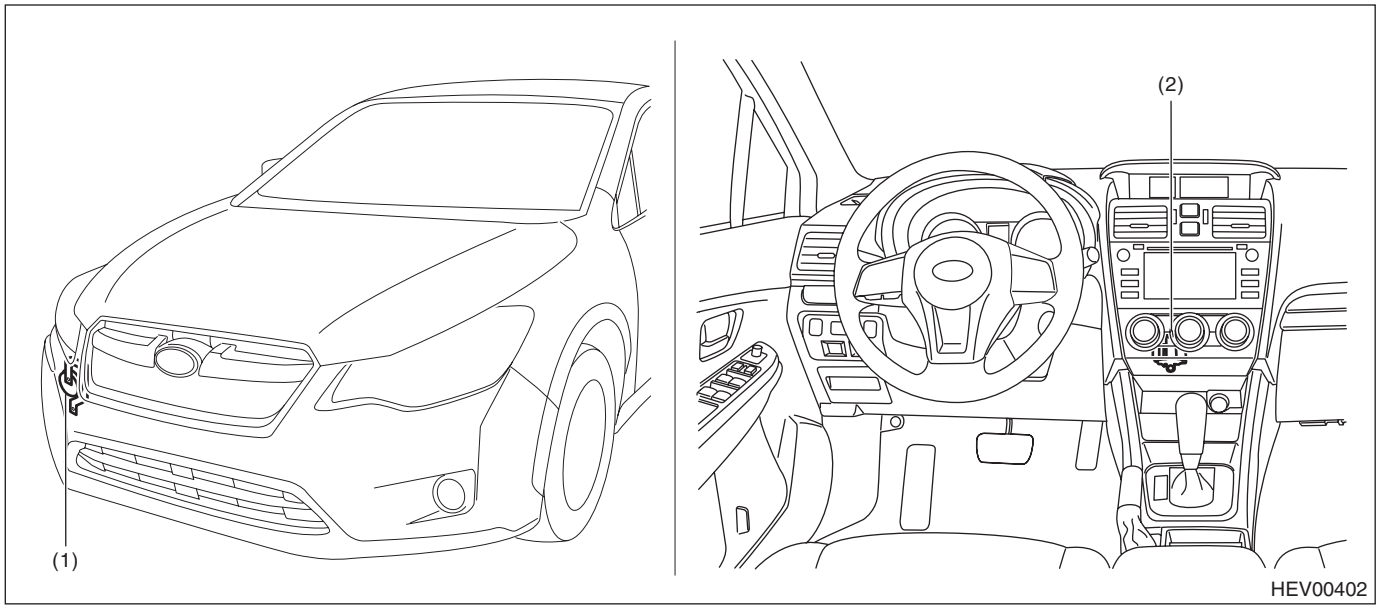
| ILLUSTRATION | TOOL NUMBER | DESCRIPTION | REMARKS |
|---|---|---|---|
|  ST1B022XU0 | ST1B022XU0 | SUBARU SELECT MONITOR III KIT | Used for setting of each function and trouble-shooting for electrical system.<br>NOTE:<br>For detailed operation procedures of SUBARU SELECT MONITOR III, refer to “PC application help for Subaru Select Monitor”. |

### 2. GENERAL TOOL

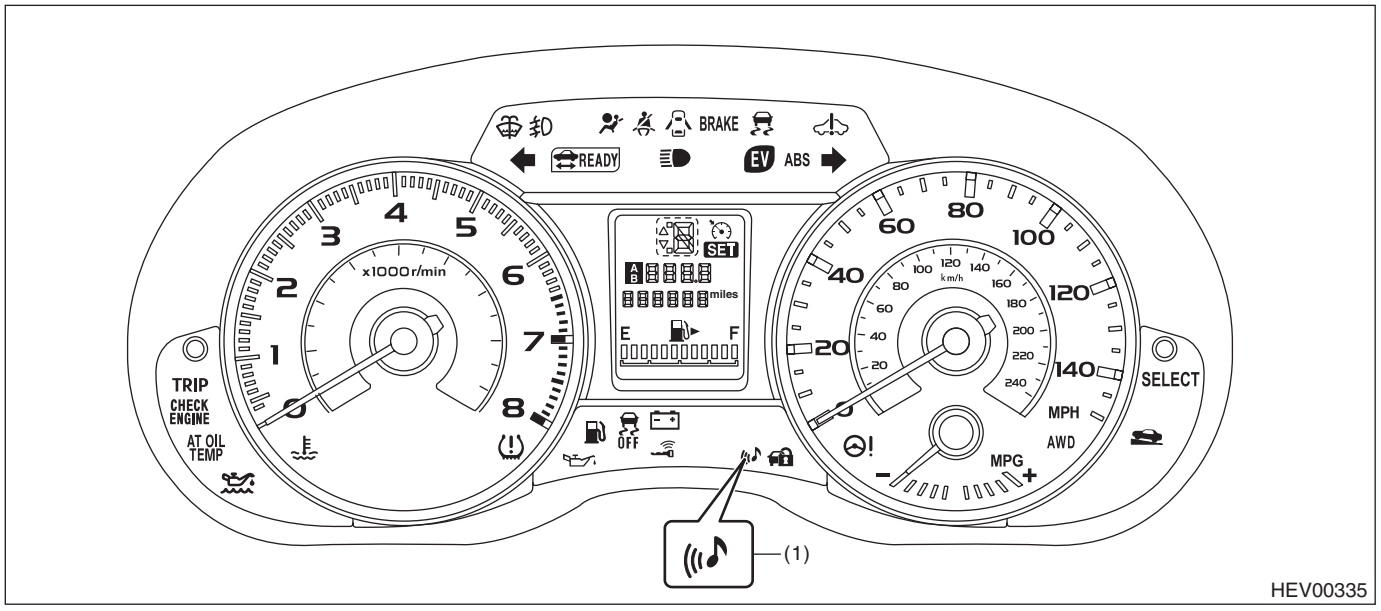
| TOOL NAME | REMARKS |
|---|---|
| Circuit tester | Used for measuring resistance, voltage and current. |

# 4. Electrical Component Location

## A: LOCATION




(1) Pedestrian alert speaker (2) Pedestrian alert control unit

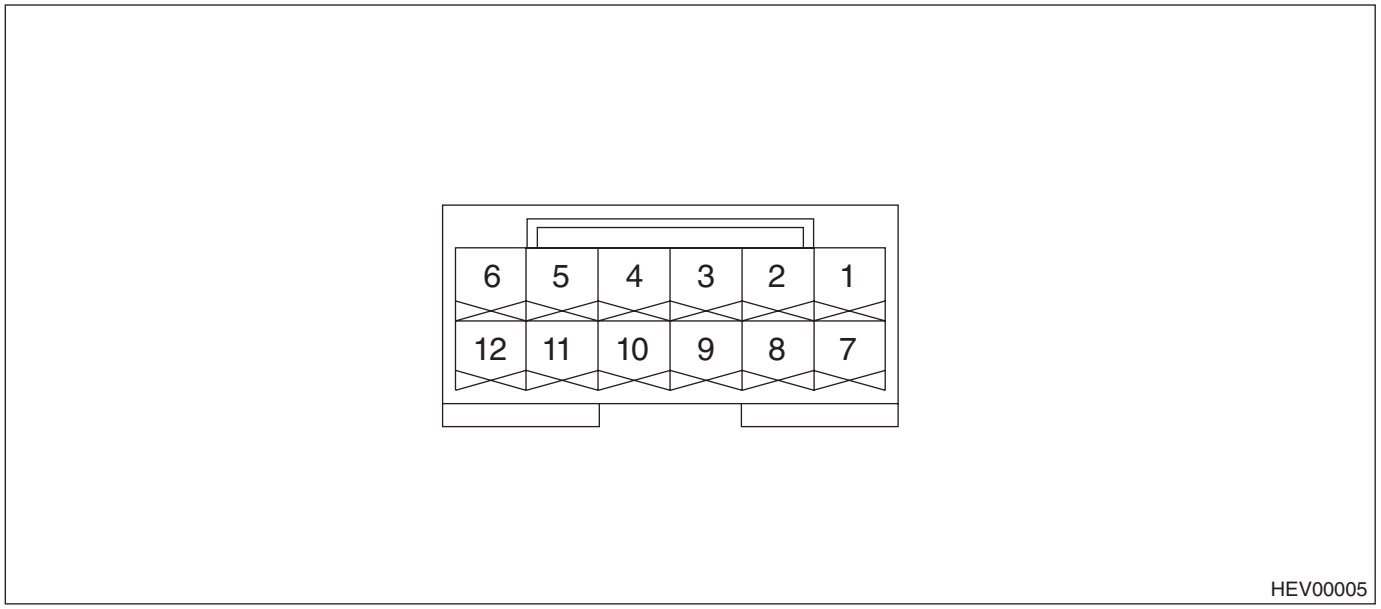



(1) Pedestrian alert warning light

# 5. Control Module I/O Signal

## A: ELECTRICAL SPECIFICATION

### 1. PEDESTRIAN ALERT CONTROL UNIT




| Item | Terminal No. (terminal symbol) | Measuring condition | Measurement value | Note |
|---|---|---|---|---|
| Operational power supply | 1 (IG) | IG ON | 10 V or more | — |
| STOP light signal | 2 (STP) | Brake pedal ON → OFF | 8 V or more → less than 1 V | — |
| Pedestrian alert speaker output (+) | 3 (SP+) | — | — | Pulse output |
| Vehicle speed signal | 6 (SPD) | — | — | Pulse output |
| GND | 7 (GND) | Always | 0 V | — |
| Pedestrian alert speaker output (–) | 8 (SP–) | — | — | Pulse output |
| K-line | 9 (PRST) | — | — | Communication line |
| IND output | 10 (IND) | OFF | 8 V or more | — |
| Shift position signal | 11 (SFTP) | Except for P range | 8 V or more | — |
| Oil pressure signal | 12 (OPSW) | Engine running | 8 V or more | — |

## B: WIRING DIAGRAM

Refer to “Pedestrian Alert System” in the wiring diagram. <Ref. to WI(HEV)-216, WIRING DIAGRAM, Pedestrian Alert System.>

# 6. Subaru Select Monitor

## A: OPERATION

- For operation procedures, refer to the “PC application help for Subaru Select Monitor”.
- When the pedestrian alert system cannot communicate with Subaru Select Monitor, perform “COMMUNICATION FOR INITIALIZING IMPOSSIBLE”.

## B: INSPECTION

### 1. COMMUNICATION FOR INITIALIZING IMPOSSIBLE

Communication error with pedestrian alert CM

**DETECTING CONDITION:**

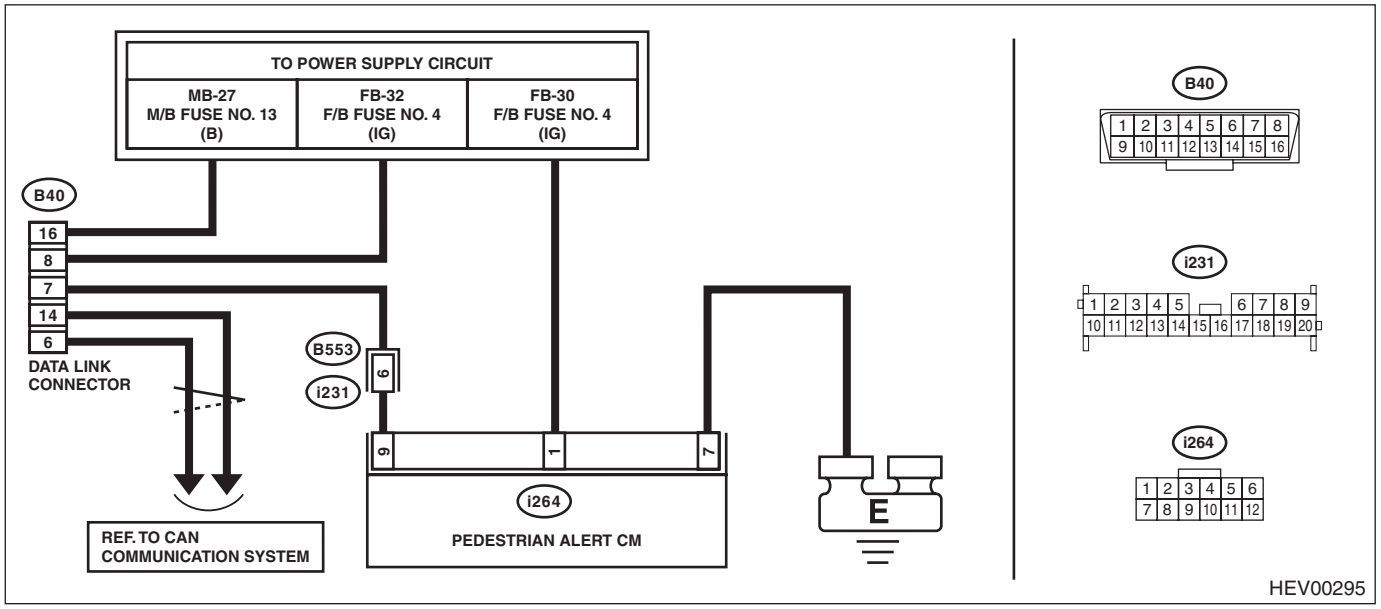
- Defective harness connector
- Power supply circuit malfunction
- Defective pedestrian alert CM
- Defective K-line communication circuit
- Defective Subaru Select Monitor

**TROUBLE SYMPTOM:**

Communication is impossible between the pedestrian alert control unit and Subaru Select Monitor.

**WIRING DIAGRAM**:

Pedestrian alert system <Ref. to WI(HEV)-216, WIRING DIAGRAM, Pedestrian Alert System.>




| Step | | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK IGNITION SWITCH.** | Is the ignition switch ON? | Go to step **2**. | Turn the ignition switch to ON, and select the pedestrian alert system using the Subaru Select Monitor. |
| 2 | **CHECK BATTERY.**<br>1) Turn the ignition switch to OFF.<br>2) Measure the voltage for 12 volt auxiliary battery. | Is the voltage 11 V or more? | Go to step **3**. | Charge or replace the battery. |
| 3 | **CHECK BATTERY TERMINAL.**<br>Check the terminal for 12 volt auxiliary battery. | Is there poor contact at battery terminal? | Repair or tighten the battery terminal. | Go to step **4**. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 4 | **CHECK COMMUNICATION OF SUBARU SELECT MONITOR.**<br>1) Turn the ignition switch to ON.<br>2) Using the Subaru Select Monitor, check whether communication to other systems can be executed normally. | Is the system name displayed? | Go to step **8**. | Go to step **5**. |
| 5 | **CHECK DATA LINK CONNECTOR.**<br>1) Turn the ignition switch to OFF.<br>2) Using the tester, measure the resistance between data link connector and chassis ground.<br>***Connector & terminal***<br>***(B40) No. 7 — Chassis ground:*** | Is the resistance 1 MΩ or more? | Go to step **6**. | Repair or replace the short circuit of the harness. |
| 6 | **CHECK DATA LINK CONNECTOR.**<br>1) Turn the ignition switch to ON.<br>2) Using the tester, measure the voltage between data link connector and chassis ground.<br>***Connector & terminal***<br>***(B40) No. 7 (+) — Chassis ground (–):*** | Is the voltage less than 1 V? | Go to step **7**. | Repair or replace the short circuit of the harness. |
| 7 | **CHECK DATA LINK CONNECTOR.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the pedestrian alert CM connector.<br>3) Using the tester, measure the resistance between data link connector and pedestrian alert CM (harness side).<br>***Connector & terminal***<br>***(B40) No. 7 — (i264) No. 9:*** | Is the resistance less than 1 Ω? | Go to step **8**. | Repair or replace the open circuit of harness. |
| 8 | **CHECK POWER SUPPLY CIRCUIT.**<br>1) Turn the ignition switch to ON.<br>2) Using the tester, measure the voltage between pedestrian alert CM (harness side) and chassis ground.<br>***Connector & terminal***<br>***(i264) No. 1 (+) — Chassis ground (–):*** | Is the voltage 10 V or more? | Go to step **9**. | Repair or replace the open circuit of harness. |
| 9 | **CHECK GROUND CIRCUIT.**<br>1) Turn the ignition switch to OFF.<br>2) Using the tester, measure the resistance between pedestrian alert CM (harness side) and chassis ground.<br>***Connector & terminal***<br>***(i264) No. 7 — Chassis ground:*** | Is the resistance less than 1 Ω? | Go to step **10**. | Repair or replace the open circuit of harness. |
| 10 | **CHECK POOR CONTACT OF CONNECTOR.** | Is there poor contact of pedestrian alert CM connector and data link connector? | Repair the poor contact of connector. | Replace the pedestrian alert CM. <Ref. to PA-6, Pedestrian Alert Control Unit.> |

# 7. Read Diagnostic Trouble Code (DTC)

## A: OPERATION

- For operation procedures, refer to the “PC application help for Subaru Select Monitor”.
- For details concerning DTC, refer to the List of Diagnostic Trouble Codes (DTC). <Ref. to PA(diag)-13, List of Diagnostic Trouble Code (DTC).>

# 8. Clear Memory Mode

## A: OPERATION

For operation procedures, refer to the “PC application help for Subaru Select Monitor”.

# 9. Read Current Data

## A: OPERATION

For detailed operation procedures, refer to “PC application help for Subaru Select Monitor”.
1) On «Main Menu» display, select {Each System Check}.
2) On «Each System Check» display, select {Approach Info UNIT}.
3) On «Approach Info UNIT» display, select {Current Data Display & Save}.

## B: LIST

| Display | Description | Note (when normal) | Unit of measure |
|---|---|---|---|
| P-Range SW | Gear shift position | P range: when in P range<br>Other than P range: when in other than P range | — |
| OIL Pressure SW | Status of oil pressure switch | Engine RUN: during engine start | — |
| Foot Brakes SW | Status of stop light switch | ON: when brake pedal is ON | — |
| Vehicle speed | Vehicle speed | Show vehicle speed | MPH |
| Voltage of IGN | Value of IGN power supply voltage | 0 — 20.4 V | V |
| Speaker Terminal voltage | Value of vehicle approach information speaker voltage | 0 — 4.998 V | V |
| P-Range SW voltage | Value of shift switch voltage | 0 — 4.998 V | V |
| OIL Pressure SW voltage | Value of oil pressure switch voltage | 0 — 4.998 V | V |

# 10.System Operation Check Mode

## A: OPERATION

For detailed operation procedures, refer to “PC application help for Subaru Select Monitor”.

## B: LIST

1) On «Main Menu» display, select {Each System Check}.
2) On «Each System Check» display, select {Approach Info UNIT}.
3) On «Approach Info UNIT» display, select {Work Support}.
4) On «Work Support» display, select {System Operation Check Mode}.

| Data | Customize setting | Note |
|---|---|---|
| Speaker Check | 320 Hz | Make a single sound at a frequency of 320 Hz. |
| | 1 kHz | Make a single sound at a frequency of 1 kHz. |
| | 3.2 kHz | Make a single sound at a frequency of 3.2 kHz. |

# 11.List of Diagnostic Trouble Code (DTC)

## A: LIST

| DTC | Item | Content of diagnosis | Note |
|---|---|---|---|
| B1700 | Approach Information Speaker Abnormal | Vehicle approach information speaker harness is open or shorted. | <Ref. to PA(diag)-14, DTC B1700 APPROACH INFORMATION SPEAKER ABNORMAL, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |

# 12.Diagnostic Procedure with Diagnostic Trouble Code (DTC)

## A: DTC B1700 APPROACH INFORMATION SPEAKER ABNORMAL

**DTC DETECTING CONDITION:**

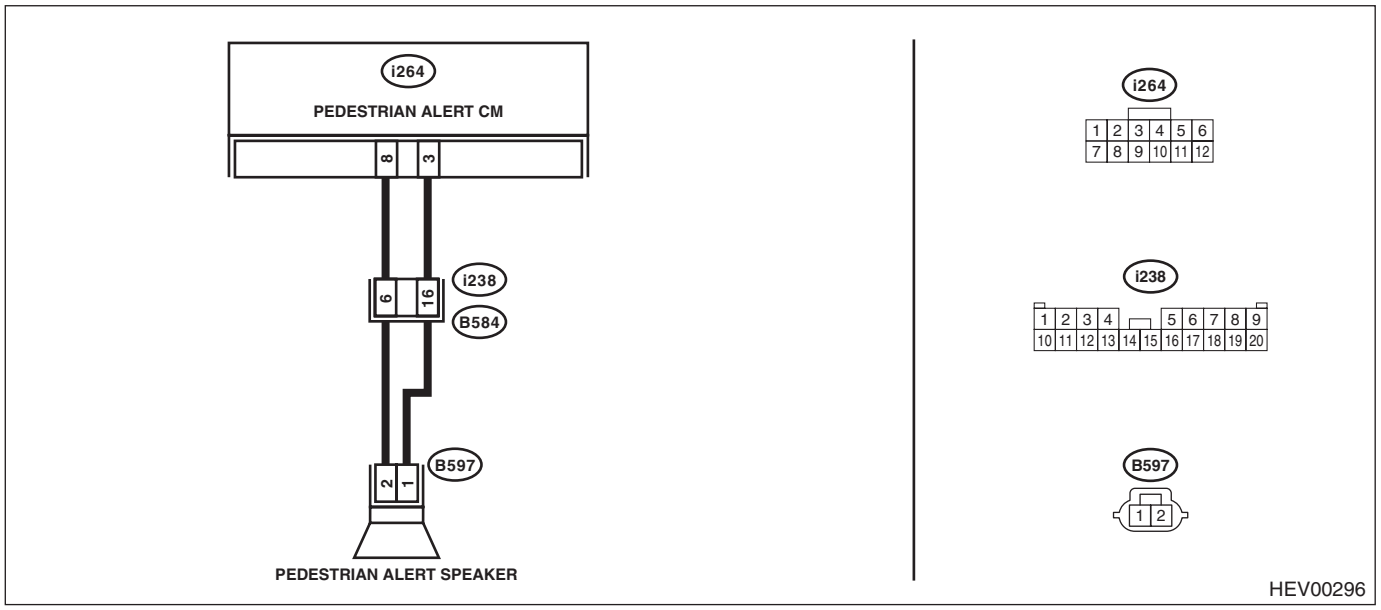
Detected when harness between pedestrian alert CM and pedestrian alert speaker is open or shorted, or when internal voice coil of pedestrian alert speaker is open or shorted.

**TROUBLE SYMPTOM:**

- No sound comes out from the pedestrian alert speaker during EV mode driving.
- After turning to IGN-ON, the light illuminates → blinks → illuminates.

**WIRING DIAGRAM**:

Pedestrian alert system <Ref. to WI(HEV)-216, WIRING DIAGRAM, Pedestrian Alert System.>




| Step | | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK DTC.**<br>Read DTCs of the pedestrian alert CM using the Subaru Select Monitor. | Is B1700 displayed? | Go to step **2**. | Go to step **4**. |
| 2 | **CHECK CONNECTOR.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the pedestrian alert CM connector.<br>3) Check the pedestrian alert CM connector. | Is the connector OK? | Go to step **3**. | Repair or replace the connector. |
| 3 | **CHECK HARNESS (SHORT).**<br>Using the tester, measure the resistance between pedestrian alert CM connector (harness side).<br>***Connector & terminal***<br>***(i264) No. 3 — (i264) No. 8:*** | Is the resistance less than 2 Ω? | Repair the pedestrian alert speaker or the short circuit of the harness. Go to step **5**. | Go to step **4**. |
| 4 | **CHECK HARNESS (OPEN CIRCUIT).**<br>Using the tester, measure the resistance between pedestrian alert CM connector (harness side).<br>***Connector & terminal***<br>***(i264) No. 3 — (i264) No. 8:*** | Is the resistance 20 Ω or more? | Repair the pedestrian alert speaker or the open circuit of the harness. Go to step **5**. | Replace the pedestrian alert CM. <Ref. to PA-6, Pedestrian Alert Control Unit.> |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 5 | **CHECK PEDESTRIAN ALERT SYSTEM.**<br>1) Connect the disconnected connectors.<br>2) Using the Subaru Select Monitor, perform «Speaker Check» of the system operation check mode. <Ref. to PA(diag)-12, System Operation Check Mode.> | Does any sound come out from the pedestrian alert speaker? | Even if DTC is detected, the circuit has returned to a normal condition at this time. Reproduce the failure, and then perform the diagnosis again.<br>NOTE:<br>In this case, temporary poor contact of connector, temporary open or short circuit of harness may be the cause. | Replace the pedestrian alert CM. <Ref. to PA-6, Pedestrian Alert Control Unit.> |

# 13.Diagnostics with Phenomenon

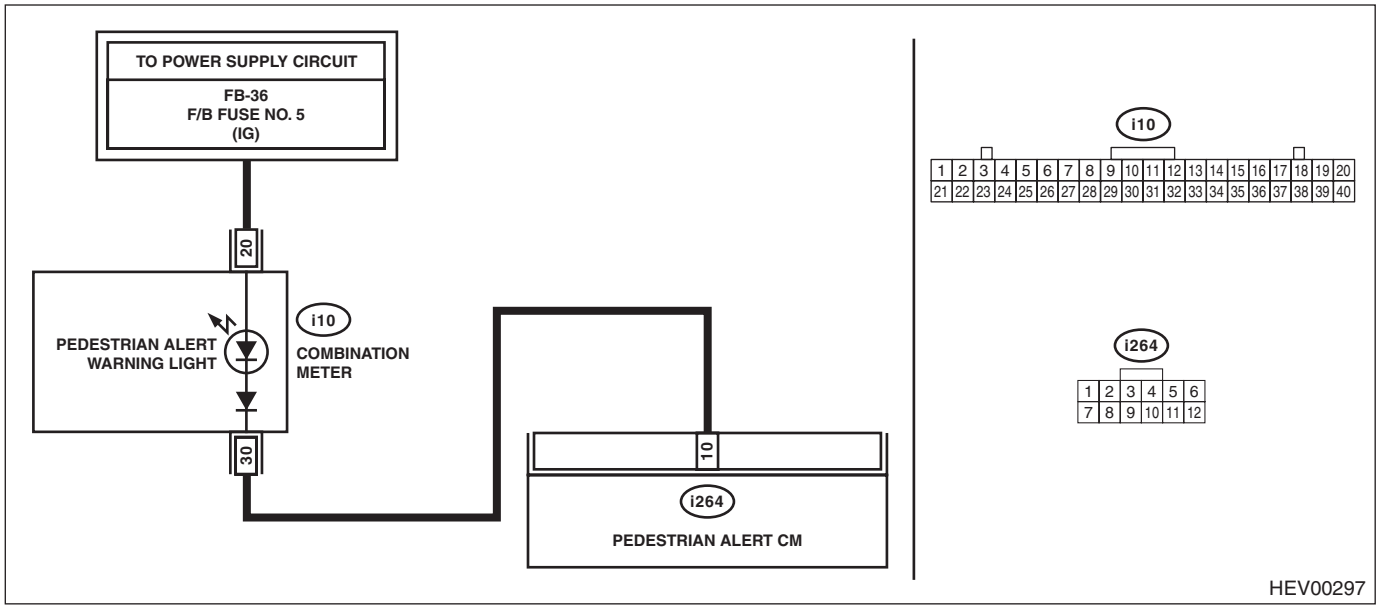
## A: INSPECTION

| Symptoms | Reference |
|---|---|
| When the ignition switch is turned on, the pedestrian alert warning light on the combination meter does not illuminate. | <Ref. to PA(diag)-17, PEDESTRIAN ALERT WARNING LIGHT DOES NOT ILLUMINATE, INSPECTION, Diagnostics with Phenomenon.> |
| No sound comes out immediately after the brake pedal is released when the vehicle stops. | <Ref. to PA(diag)-20, CHECK STOP LIGHT SWITCH CIRCUIT, INSPECTION, Diagnostics with Phenomenon.> |
| No sound comes out during EV mode driving (at 24 km/h (15 MPH) or less). Or speaker sound is very small.<br>(Perform steps listed on the right column in numerical order.) | 1. <Ref. to PA(diag)-18, CHECK POWER SUPPLY CIRCUIT, INSPECTION, Diagnostics with Phenomenon.> |
| | 2. <Ref. to PA(diag)-21, CHECK P RANGE SWITCH CIRCUIT, INSPECTION, Diagnostics with Phenomenon.> |
| | 3. <Ref. to PA(diag)-22, CHECK OIL PRESSURE SWITCH CIRCUIT, INSPECTION, Diagnostics with Phenomenon.> |
| | 4. <Ref. to PA(diag)-23, CHECK VEHICLE SPEED SIGNAL CIRCUIT, INSPECTION, Diagnostics with Phenomenon.> |
| | 5. Replace the pedestrian alert CM. <Ref. to PA-6, Pedestrian Alert Control Unit.> |

## 1. PEDESTRIAN ALERT WARNING LIGHT DOES NOT ILLUMINATE

**WIRING DIAGRAM:**

Pedestrian alert system <Ref. to WI(HEV)-216, WIRING DIAGRAM, Pedestrian Alert System.>

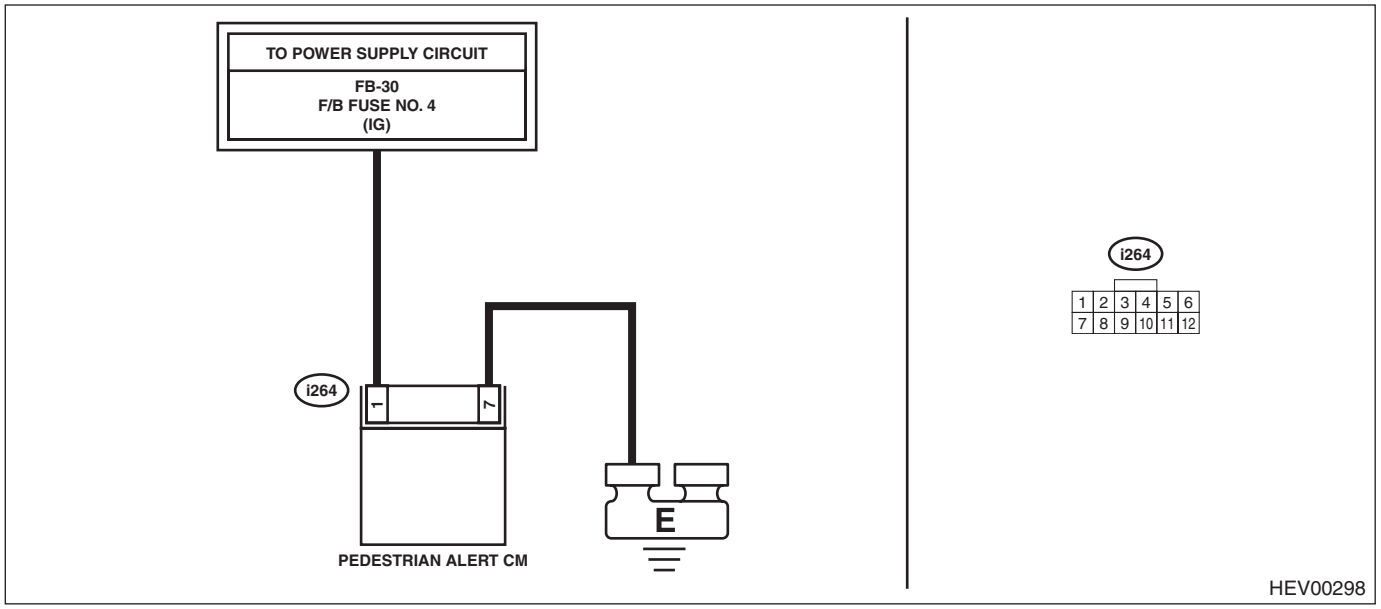



| Step | | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK FUSE.**<br>Check the fuse for the combination meter. | Is the fuse OK? | Go to step **2**. | Replace the fuse. When the replaced fuse is blown immediately, repair or replace the short-circuited portion of the harness. |
| 2 | **CHECK HARNESS.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the pedestrian alert CM connector.<br>3) Turn the ignition switch to ON.<br>4) Using the tester, measure the voltage between pedestrian alert CM connector (harness side) and chassis ground.<br>***Connector & terminal***<br>***(i264) No. 10 (+) — Chassis ground (–):*** | Is the voltage 10 V or more? | Replace the pedestrian alert CM. <Ref. to PA-6, Pedestrian Alert Control Unit.> | Repair or replace the open circuit of harness. Or, repair it according to combination meter inspection. |

## 2. CHECK POWER SUPPLY CIRCUIT

**WIRING DIAGRAM:**

Pedestrian alert system <Ref. to WI(HEV)-216, WIRING DIAGRAM, Pedestrian Alert System.>



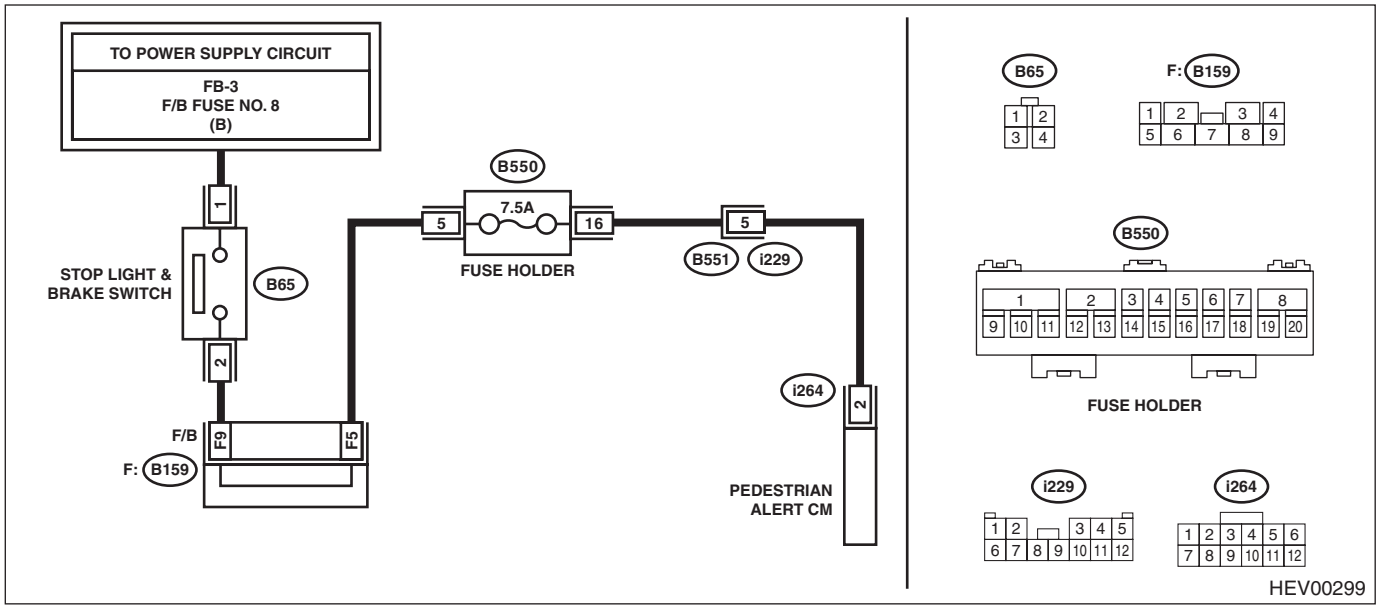

| Step | | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK FUSE.**<br>1) Turn the ignition switch to OFF.<br>2) Check the fuse. <Ref. to PA-4, Relay and Fuse.> | Is the fuse OK? | Go to step **2**. | Replace the defective fuse. When the fuse is blown immediately, repair the short circuit. |
| 2 | **CHECK HARNESS.**<br>1) Disconnect the pedestrian alert CM connector.<br>2) Using the tester, measure the voltage between pedestrian alert CM connector (harness side) and chassis ground.<br>***Connector & terminal***<br>***(i264) No. 1 (+) — Chassis ground (–):*** | Is the voltage 10 V or more? | Go to step **3**. | Repair or replace the open circuit of harness. |
| 3 | **CHECK HARNESS.**<br>Using the tester, measure the resistance between pedestrian alert CM connector (harness side) and chassis ground.<br>***Connector & terminal***<br>***(i264) No. 7 — Chassis ground:*** | Is the resistance 1 Ω or less? | Go to step **4**. | Repair or replace the open circuit of harness. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 4 | **CHECK CURRENT DATA.**<br>Check «Voltage of IGN» using the Subaru Select Monitor. <Ref. to PA(diag)-11, Read Current Data.> | Is the voltage 10 V or more when the ignition switch is ON? | Even if abnormality is detected, the circuit has returned to a normal condition at this time. Reproduce the failure, and then perform the diagnosis again.<br>NOTE:<br>In this case, temporary poor contact of connector, temporary open or short circuit of harness may be the cause. | Replace the pedestrian alert CM. <Ref. to PA-6, Pedestrian Alert Control Unit.> |

## 3. CHECK STOP LIGHT SWITCH CIRCUIT

**WIRING DIAGRAM:**

Stop light system <Ref. to WI(HEV)-210, WIRING DIAGRAM, Stop Light System.>

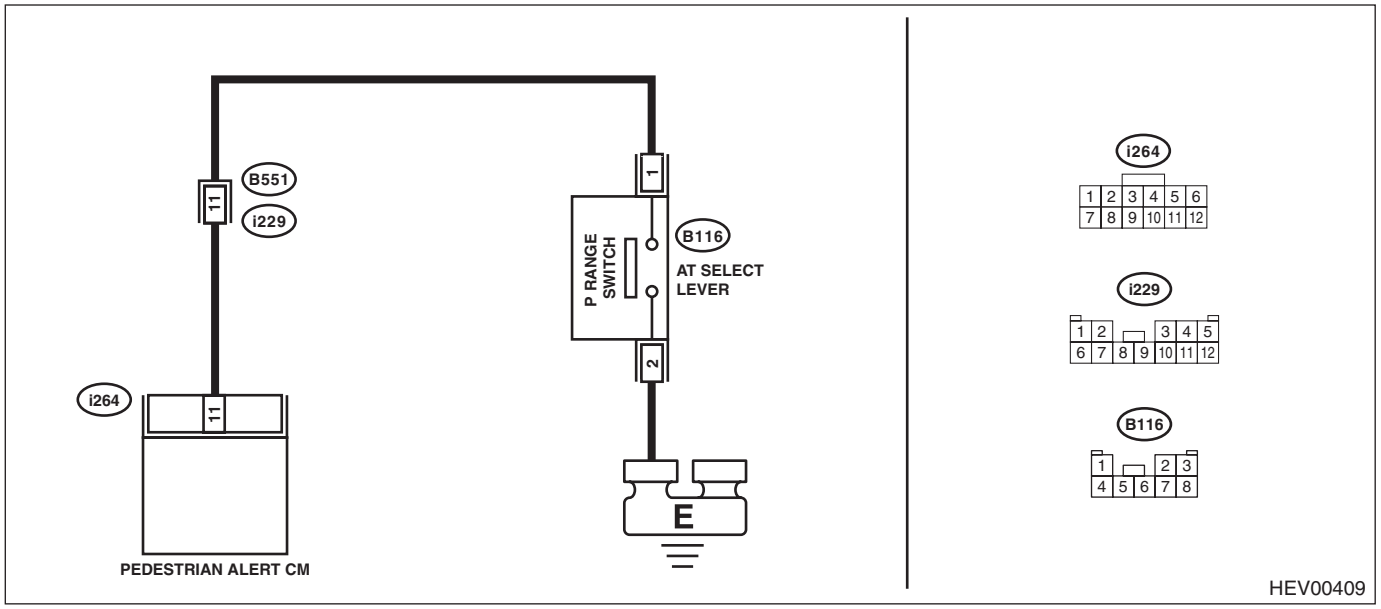



| Step | | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK STOP LIGHT.**<br>Check the illumination status of the stop light. | Do all stop lights illuminate? | Go to step **2**. | Repair the stop lights. Go to step **2**. |
| 2 | **CHECK HARNESS.**<br>1) Disconnect the pedestrian alert CM connector.<br>2) Using the tester, measure the voltage between pedestrian alert CM connector (harness side) and chassis ground.<br>***Connector & terminal***<br>***(i264) No. 2 (+) — Chassis ground (–):*** | Is the voltage 10 V or more when the brake pedal is depressed and less than 1 V when not depressed? | Replace the pedestrian alert CM. <Ref. to PA-6, Pedestrian Alert Control Unit.> | Repair the stop light circuit. Go to step **3**. |
| 3 | **CHECK HARNESS.**<br>1) Connect the disconnected connectors.<br>2) Apply parking brake.<br>3) Turn the ignition switch to ON.<br>4) Set the select lever from P to N while depressing the brake pedal.<br>5) Check that sound comes out from the pedestrian alert speaker immediately after the brake pedal is released. (For 3 seconds) | Does any sound come out? | Even if abnormality is detected, the circuit has returned to a normal condition at this time. Reproduce the failure, and then perform the diagnosis again.<br>NOTE:<br>In this case, temporary poor contact of connector, temporary open or short circuit of harness may be the cause. | Replace the pedestrian alert CM. <Ref. to PA-6, Pedestrian Alert Control Unit.> |

## 4. CHECK P RANGE SWITCH CIRCUIT

**WIRING DIAGRAM:**

Pedestrian alert system <Ref. to WI(HEV)-216, WIRING DIAGRAM, Pedestrian Alert System.>

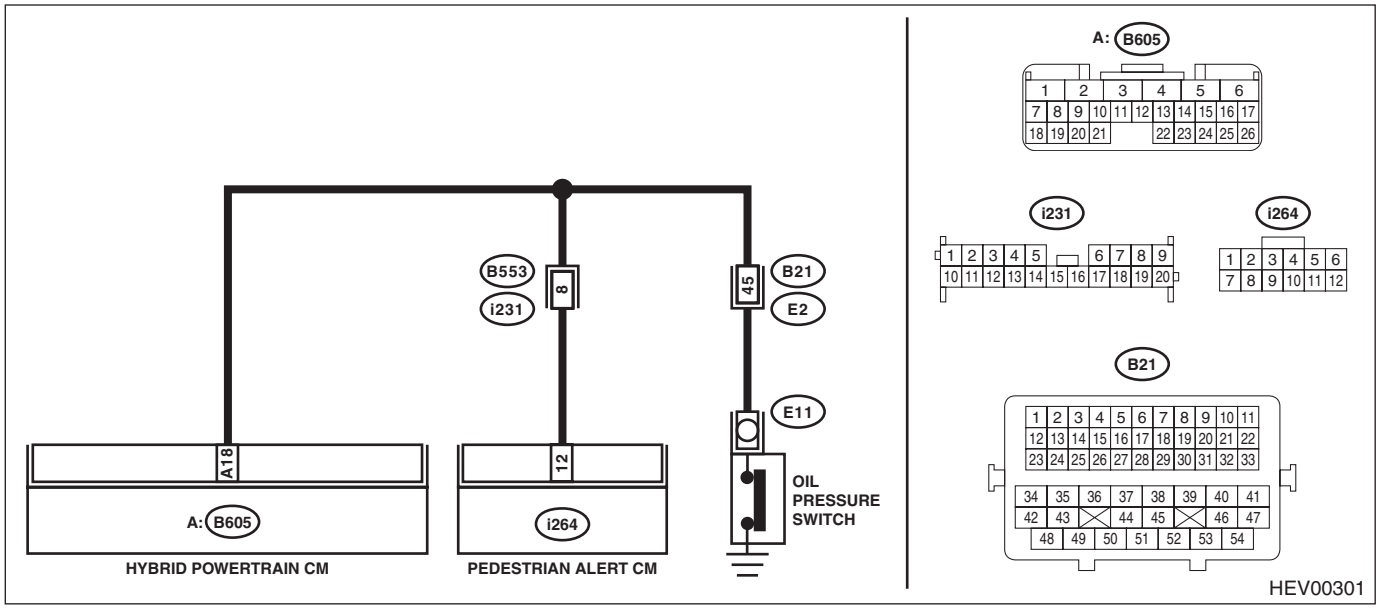



| Step | | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK CURRENT DATA.**<br>1) Turn the ignition switch to ON.<br>2) Check «P-Range SW» using the Subaru Select Monitor. <Ref. to PA(diag)-11, Read Current Data.><br>3) Move the select lever to P range ←→ other than P range. | Is the display normal? | Even if abnormality is detected, the circuit has returned to a normal condition at this time. Reproduce the failure, and then perform the diagnosis again.<br>NOTE:<br>In this case, temporary poor contact of connector, temporary open or short circuit of harness may be the cause. | Go to step **2**. |
| 2 | **CHECK P RANGE SWITCH.**<br>1) Disconnect the ground terminal from the 12 volt auxiliary battery.<br>2) Disconnect the pedestrian alert CM connector.<br>3) Using the tester, measure the resistance between pedestrian alert CM connector (harness side) and chassis ground.<br>***Connector & terminal***<br>***(i264) No. 11 — Chassis ground:*** | Is the resistance 1 Ω or less when the shift lever is in P range and 1 kΩ or more when the shift lever is in other than P range? | Replace the pedestrian alert CM. <Ref. to PA-6, Pedestrian Alert Control Unit.> | Repair or replace the P range switch circuit. |

## 5. CHECK OIL PRESSURE SWITCH CIRCUIT

**WIRING DIAGRAM:**

Hybrid system <Ref. to WI(HEV)-140, WIRING DIAGRAM, Hybrid Electric Vehicle System.>

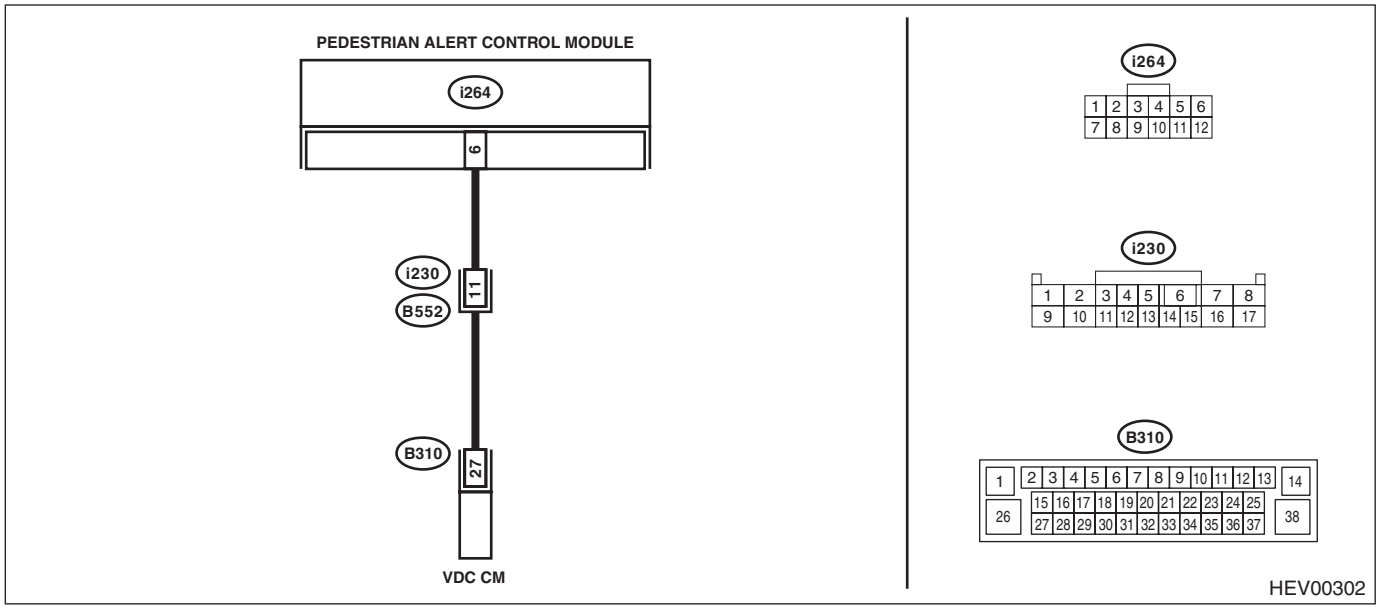



| Step | | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK CURRENT DATA.**<br>1) Using the Subaru Select Monitor, check «OIL Pressure SW». <Ref. to PA(diag)-11, Read Current Data.><br>2) Apply the parking brake.<br>3) Move the select lever in P range.<br>4) Start the engine. | Is the display normal? | Even if abnormality is detected, the circuit has returned to a normal condition at this time. Reproduce the failure, and then perform the diagnosis again.<br>NOTE:<br>In this case, temporary poor contact of connector, temporary open or short circuit of harness may be the cause. | Go to step **2**. |
| 2 | **CHECK SWITCH CIRCUIT.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the pedestrian alert CM connector.<br>3) Using the tester, measure the voltage between pedestrian alert CM connector (harness side) and chassis ground.<br>***Connector & terminal***<br>***(i264) No. 12 (+) — Chassis ground (–):*** | Is the voltage less than 1 V when the ignition switch is turned to ON and 8 V or more while the engine is starting? | Replace the pedestrian alert CM. <Ref. to PA-6, Pedestrian Alert Control Unit.> | Repair the oil pressure switch or the short circuit portion of the harness. |

## 6. CHECK VEHICLE SPEED SIGNAL CIRCUIT

**WIRING DIAGRAM:**

Pedestrian alert system <Ref. to WI(HEV)-216, WIRING DIAGRAM, Pedestrian Alert System.>




| Step | | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK CURRENT DATA.**<br>Check «Vehicle Speed» using Subaru Select Monitor. <Ref. to PA(diag)-11, Read Current Data.> | Is the display normal? | Even if abnormality is detected, the circuit has returned to a normal condition at this time. Reproduce the failure, and then perform the diagnosis again.<br>NOTE:<br>In this case, temporary poor contact of connector, temporary open or short circuit of harness may be the cause. | Go to step **2**. |
| 2 | **CHECK VDC.**<br>Check the VDC system. <Ref. to VDC(diag)-2, Basic Diagnostic Procedure.> | Is the VDC system normal? | Go to step **3**. | Perform the diagnosis according to inspection for the VDC system. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 3 | **CHECK HARNESS.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the pedestrian alert CM connector.<br>3) Disconnect the VDC CM connector.<br>4) Using the tester, measure the resistance between pedestrian alert CM connector (harness side) and VDC CM connector (harness side).<br>***Connector & terminal***<br>***(i264) No. 6 — (B310) No. 27:*** | Is the resistance 1 Ω or less? | Even if abnormality is detected, the circuit has returned to a normal condition at this time. Reproduce the failure, and then perform the diagnosis again.<br>NOTE:<br>In this case, temporary poor contact of connector, temporary open or short circuit of harness may be the cause. | Repair or replace the open circuit of harness. |

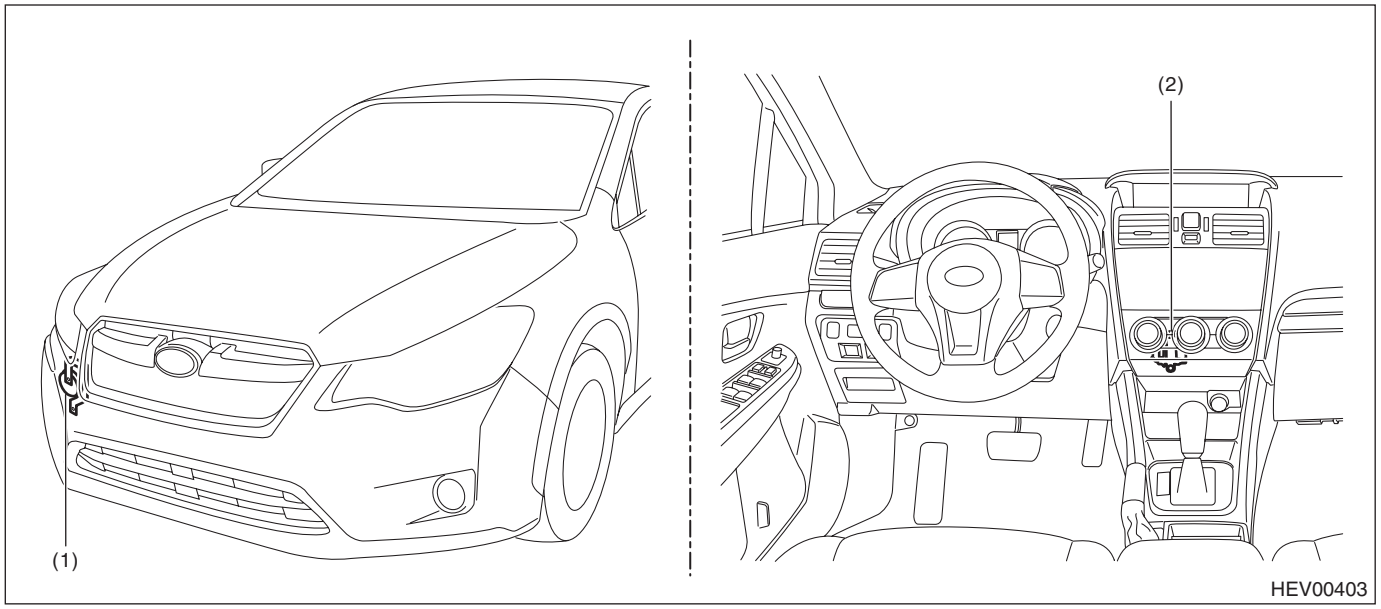
# KEYLESS ACCESS WITH PUSH BUTTON START SYSTEM (DIAGNOSTICS)

# KPS(diag)

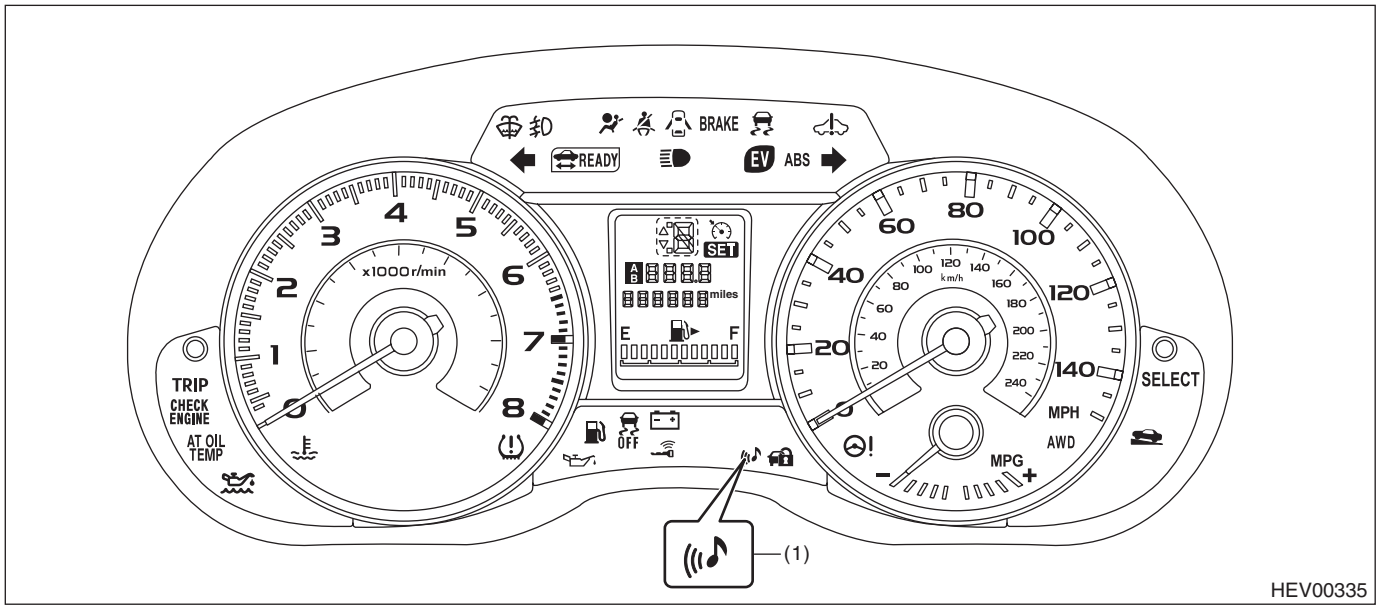

| | | Page |
|---|---|---|
| 1. | Basic Diagnostic Procedure | 2 |
| 2. | Check List for Interview | 4 |
| 3. | General Description | 5 |
| 4. | Electrical Component Location | 12 |
| 5. | Control Module I/O Signal | 16 |
| 6. | Subaru Select Monitor | 26 |
| 7. | Read Diagnostic Trouble Code (DTC) | 29 |
| 8. | Read Current Data | 30 |
| 9. | Clear Memory Mode | 36 |
| 10. | Keyless Access System Check | 37 |
| 11. | System Operation Check Mode | 38 |
| 12. | List of Diagnostic Trouble Code (DTC) | 39 |
| 13. | Diagnostic Procedure with Diagnostic Trouble Code (DTC) | 44 |
| 14. | General Diagnostic Table | 108 |
| 15. | Diagnostics with Phenomenon | 110 |

# 1. General Description

## A: COMPONENT




(1) Pedestrian alert speaker (2) Pedestrian alert control unit



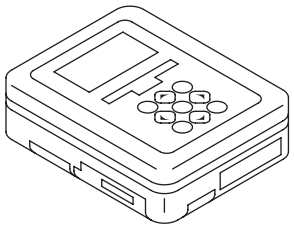

(1) Pedestrian alert warning light

## B: CAUTION

• Before disassembling or reassembling parts, always disconnect the battery ground cable from battery. When replacing the audio, control module and other parts provided with memory functions, record the memory contents before disconnecting the battery ground cable. Otherwise, the memory is cleared.
• Reassemble the parts in the reverse order of disassembly procedure unless otherwise indicated.
• Connect the connectors securely during reassembly.
• After reassembly, make sure that the each component operates normally.
• Yellow connectors and harnesses with yellow tapes around them are the connectors and harnesses for the airbag system. Use great care to protect the connector or wiring harness from being damaged. Otherwise, malfunction may occur in the airbag system.
• The report sound may not be heard well in loud ambient sound, or to people behind the vehicle.
• When the front of speaker is covered with foreign matter such as mud and snow, it may change the tone of report sound.

## C: PREPARATION TOOL

### 1. SPECIAL TOOL

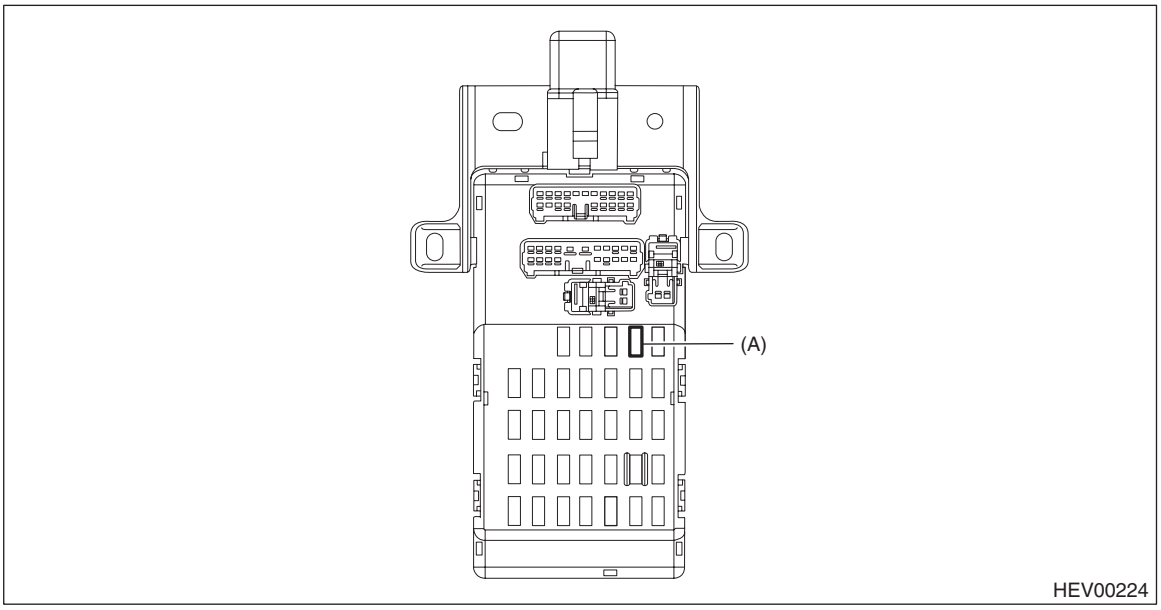
| ILLUSTRATION | TOOL NUMBER | DESCRIPTION | REMARKS |
|---|---|---|---|
|  ST1B022XU0 | 1B022XU0 | SUBARU SELECT MONITOR III KIT | Used for setting of each function and trouble-shooting for electrical system.<br>NOTE:<br>For detailed operation procedures of SUBARU SELECT MONITOR III, refer to “PC application help for Subaru Select Monitor”. |

### 2. GENERAL TOOL

| TOOL NAME | REMARKS |
|---|---|
| Circuit tester | Used for measuring resistance and voltage. |

# 2. Relay and Fuse

## A: LOCATION




| | | |
|---|---|---|
| Relay & fuse box | Fuse 10 A (pedestrian alert control unit) | (A) |

NOTE:
For other related fuses, refer to the wiring diagram. <Ref. to WI(HEV)-21, Power Supply Circuit.>

## B: INSPECTION

### 1. CHECK FUSE

1) Remove the fuse and inspect visually.
2) If the fuse is blown out, replace the fuse.

NOTE:
If the fuse is blown again, check the system wiring harness.

# 3. Pedestrian Alert System

## A: WIRING DIAGRAM

Refer to “Pedestrian Alert System” in the wiring diagram. <Ref. to WI(HEV)-216, WIRING DIAGRAM, Pedestrian Alert System.>

## B: INSPECTION

Refer to “Basic Diagnostic Procedure” of “PEDESTRIAN ALERT SYSTEM (DIAGNOSTICS)” section. <Ref. to PA(diag)-2, Basic Diagnostic Procedure.>

## C: NOTE

For procedure of each component in the pedestrian alert system, refer to the respective section.

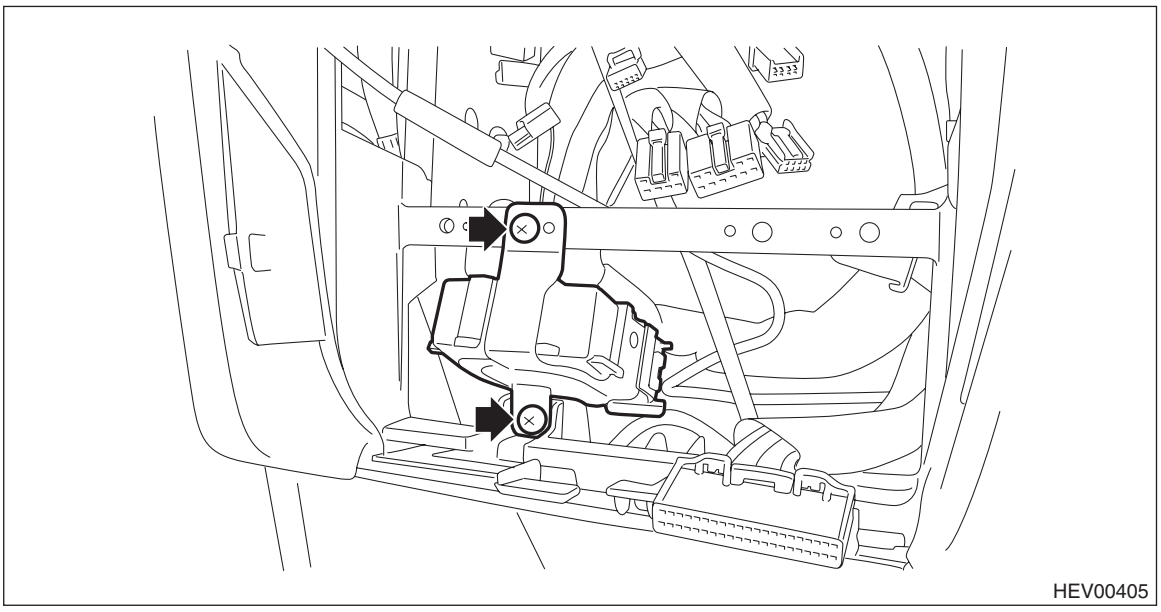
- Pedestrian alert control unit: <Ref. to PA-6, Pedestrian Alert Control Unit.>
- Pedestrian alert speaker: <Ref. to PA-7, Pedestrian Alert Speaker.>

# 4. Pedestrian Alert Control Unit

## A: REMOVAL

1) Disconnect the ground cable from battery. <Ref. to NT-5, BATTERY, NOTE, Note.>

NOTE:
For the 12 volt engine restart battery, disconnect the ground terminal from 12V engine restart battery sensor.
2) Remove the center grille assembly. <Ref. to AC-104, REMOVAL, Air Vent Grille.>
3) Remove the audio assembly or navigation assembly. <Ref. to ET-12, REMOVAL, Audio.>
4) Remove the pedestrian alert control unit.
   (1) Remove the screws.
   (2) Pull out the pedestrian alert control unit toward you, and disconnect the connector.




## B: INSTALLATION

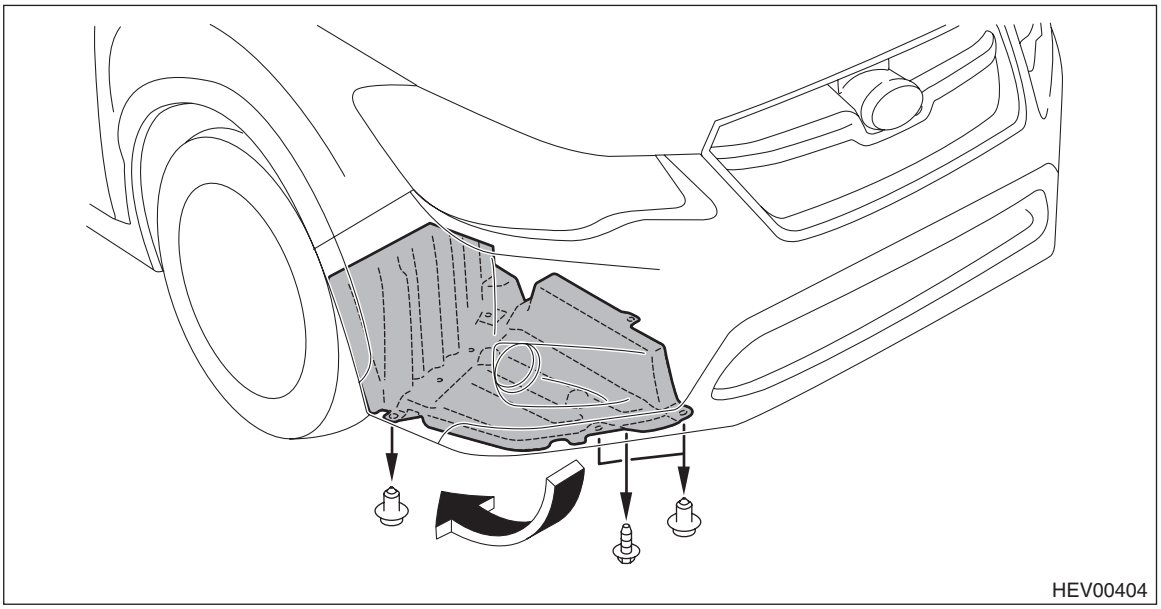
Install each part in the reverse order of removal.

# 5. Pedestrian Alert Speaker

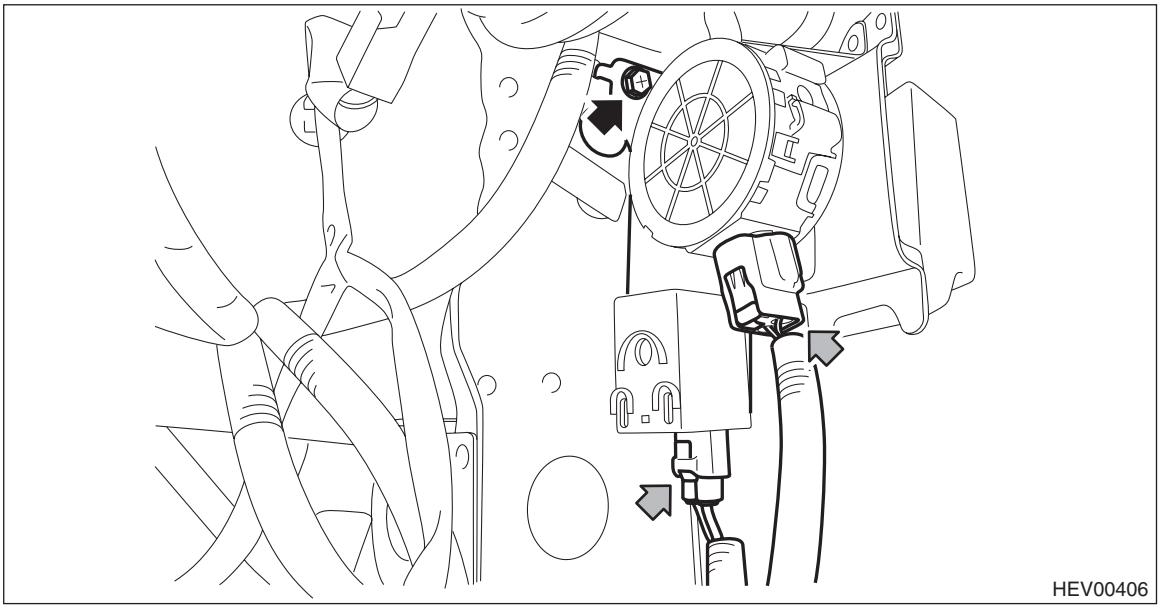
## A: REMOVAL

1) Disconnect the ground cable from battery. <Ref. to NT-5, BATTERY, NOTE, Note.>

NOTE:
For the 12 volt engine restart battery, disconnect the ground terminal from 12V engine restart battery sensor.
2) Lift up the vehicle.
3) Remove the clips, and turn over the front side of the mud guard - front.




4) Remove the pedestrian alert speaker.
   (1) Disconnect the connector.
   (2) Remove the bolt, and remove the pedestrian alert speaker and bracket as a unit.




   (3) Remove the keyless buzzer from bracket.

## B: INSTALLATION

Install each part in the reverse order of removal.

***Tightening torque:***
***Pedestrian alert speaker: 7.5 N·m (0.76 kgf-m, 5.5 ft-lb)***

## C: INSPECTION

Using the Subaru Select Monitor, perform the compulsory sound generation of the speaker. <Ref. to PA(diag)-12, System Operation Check Mode.>
When a malfunction is detected for the speaker, refer to “Diagnostics with Phenomenon” of “PEDESTRIAN ALERT SYSTEM (DIAGNOSTICS)” section. <Ref. to PA(diag)-16, Diagnostics with Phenomenon.>

# 6. Combination Meter

## A: NOTE

For the combination meter, refer to “INSTRUMENTATION/DRIVER INFO” section. <Ref. to IDI-20, Combination Meter.>

# 7. Stop Light & Brake Switch

## A: NOTE

For stop light and brake switch, refer to “BRAKE” section. <Ref. to BR-76, INSPECTION, Stop Light Switch.>

# 8. Diagnostics with Phenomenon

## A: INSPECTION

Refer to “Diagnostics with Phenomenon” of “PEDESTRIAN ALERT SYSTEM (DIAGNOSTICS)” section. <Ref. to PA(diag)-16, Diagnostics with Phenomenon.>

# PEDESTRIAN ALERT SYSTEM (DIAGNOSTICS)

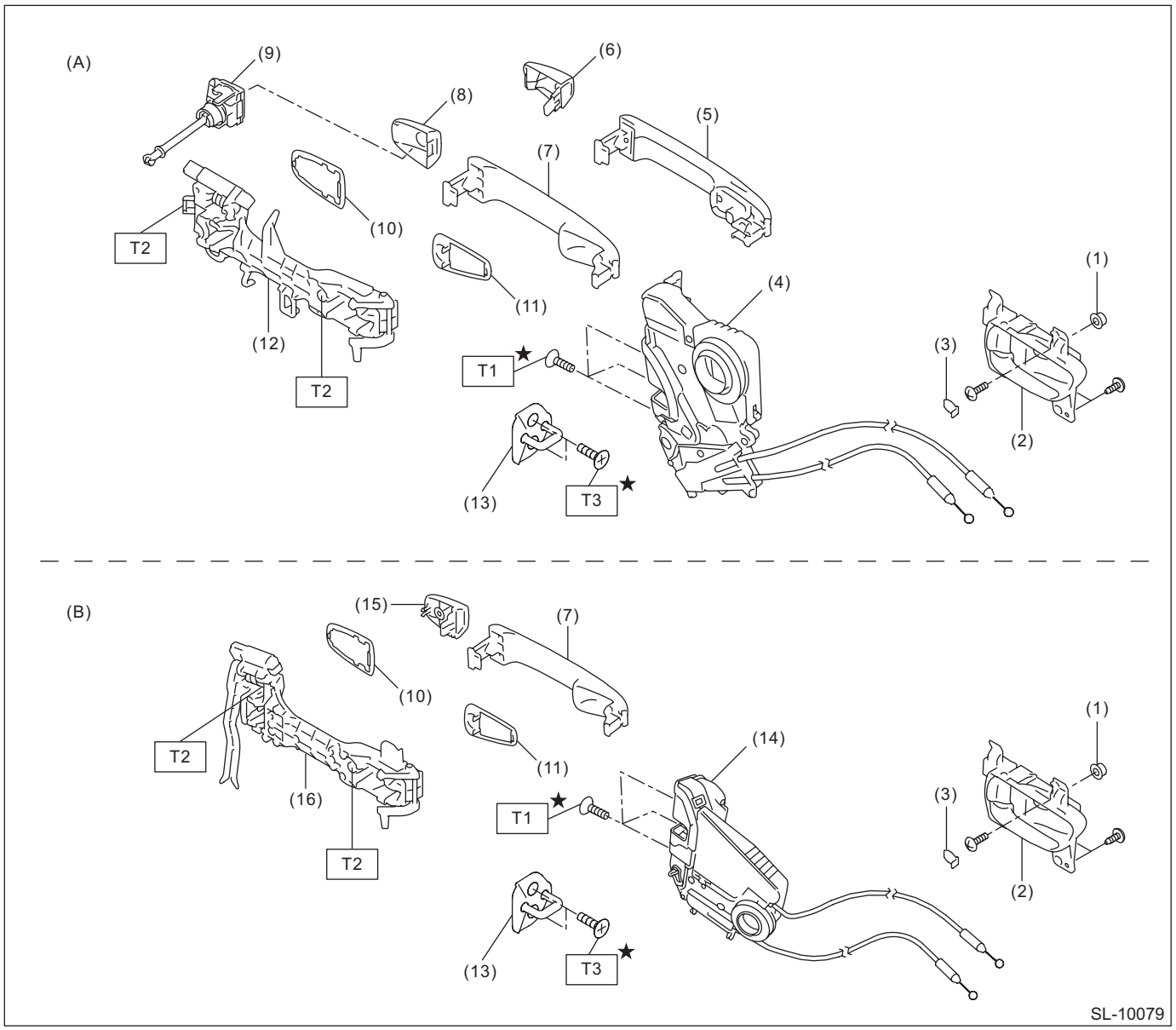
# PA(diag)


| | | Page |
|---|---|---|
| 1. | Basic Diagnostic Procedure | 2 |
| 2. | Check List for Interview | 3 |
| 3. | General Description | 4 |
| 4. | Electrical Component Location | 5 |
| 5. | Control Module I/O Signal | 6 |
| 6. | Subaru Select Monitor | 7 |
| 7. | Read Diagnostic Trouble Code (DTC) | 9 |
| 8. | Clear Memory Mode | 10 |
| 9. | Read Current Data | 11 |
| 10. | System Operation Check Mode | 12 |
| 11. | List of Diagnostic Trouble Code (DTC) | 13 |
| 12. | Diagnostic Procedure with Diagnostic Trouble Code (DTC) | 14 |
| 13. | Diagnostics with Phenomenon | 16 |

# 1. General Description

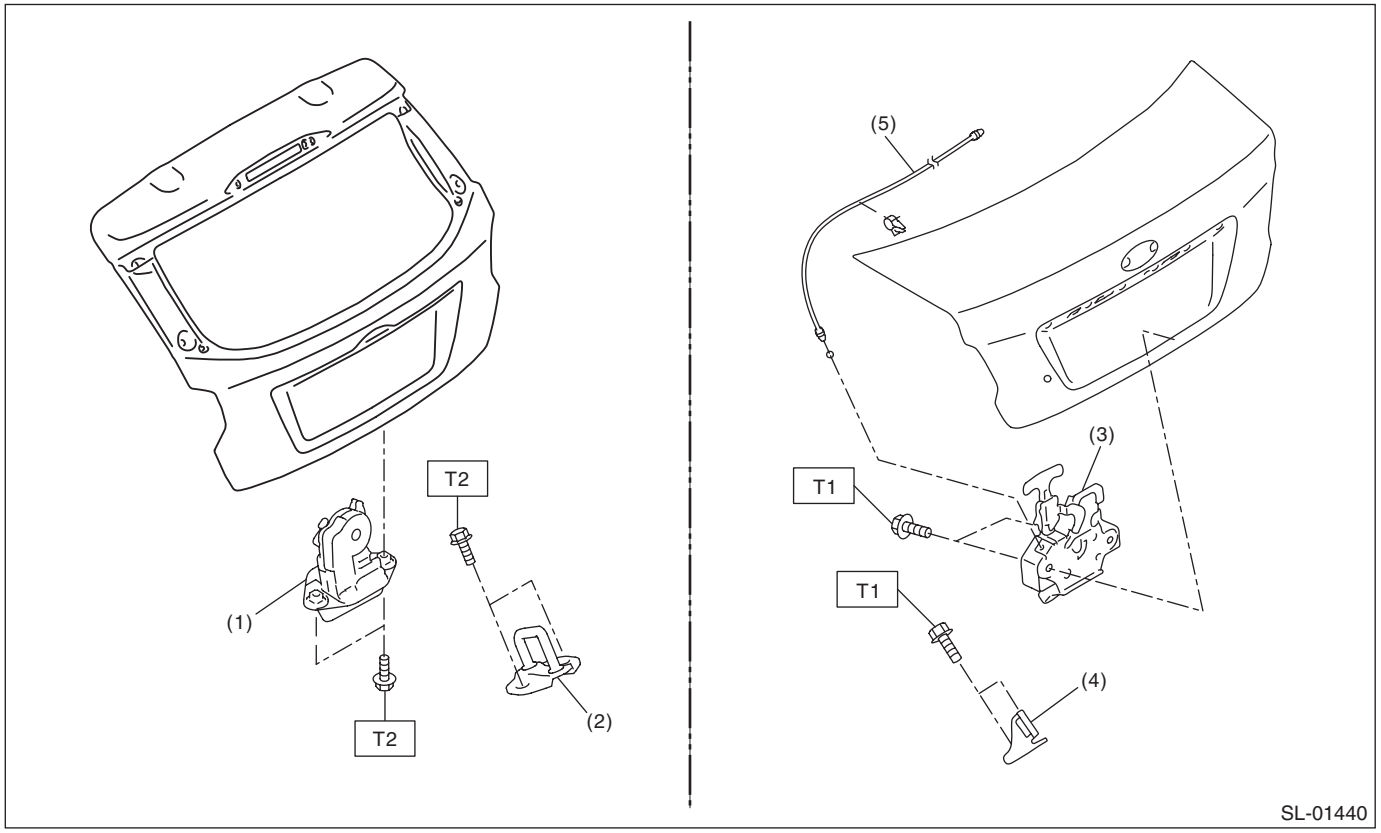
## A: COMPONENT

### 1. DOOR LOCK ASSEMBLY




| | | | | | |
|---|---|---|---|---|---|
| (A) | Front | (B) | Rear | | |
| (1) | Grommet - screw | (8) | Cover - handle front outer (driver's seat) | (15) | Cover - handle rear outer |
| (2) | Remote ASSY - door | (9) | Key lock - door (driver's seat only) | (16) | Frame ASSY - rear door outer |
| (3) | Cap remote | (10) | Spacer - door handle outer B | | |
| (4) | Latch & actuator ASSY - front | (11) | Spacer - door handle outer A | ***Tightening torque: N·m (kgf-m, ft-lb)*** | |
| (5) | Handle - door outer (model with keyless access) | (12) | Frame ASSY - front door outer | ***T1: 6.5 (0.66, 4.8)*** | |
| (6) | Cover - handle front outer (passenger's seat) | (13) | Striker - door | ***T2: 7.5 (0.76, 5.5)*** | |
| (7) | Handle - door outer (model without keyless access) | (14) | Latch & actuator ASSY - rear | ***T3: 18 (1.84, 13.3)*** | |

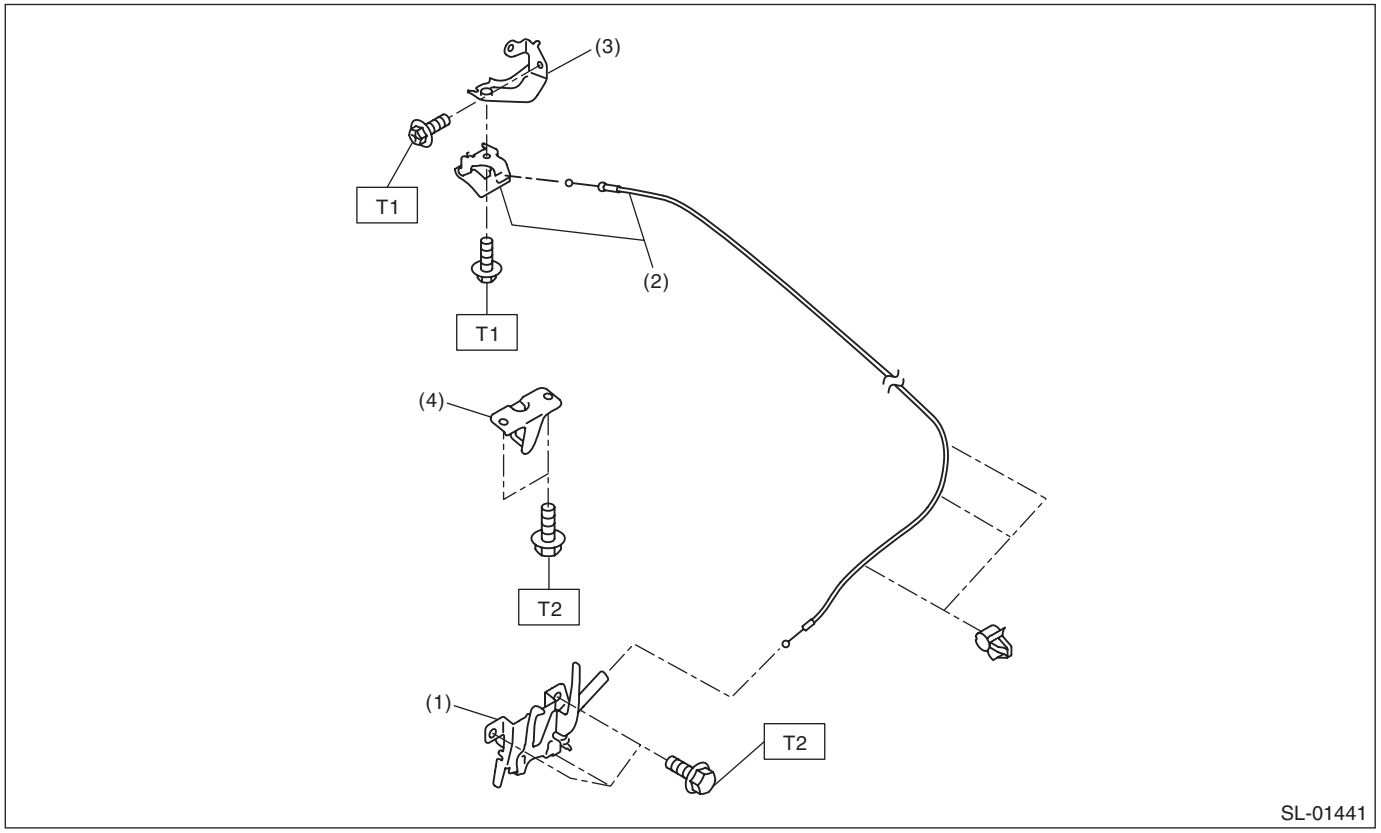
## 2. REAR GATE LOCK AND TRUNK LID LOCK




(1) Latch & actuator - rear gate
(2) Striker - rear gate
(3) Lock ASSY - trunk lid
(4) Striker - trunk lid
(5) Cable ASSY - trunk lid

***Tightening torque: N·m (kgf-m, ft-lb)***
***T1: 7.5 (0.76, 5.5)***
***T2: 25 (2.55, 18.4)***

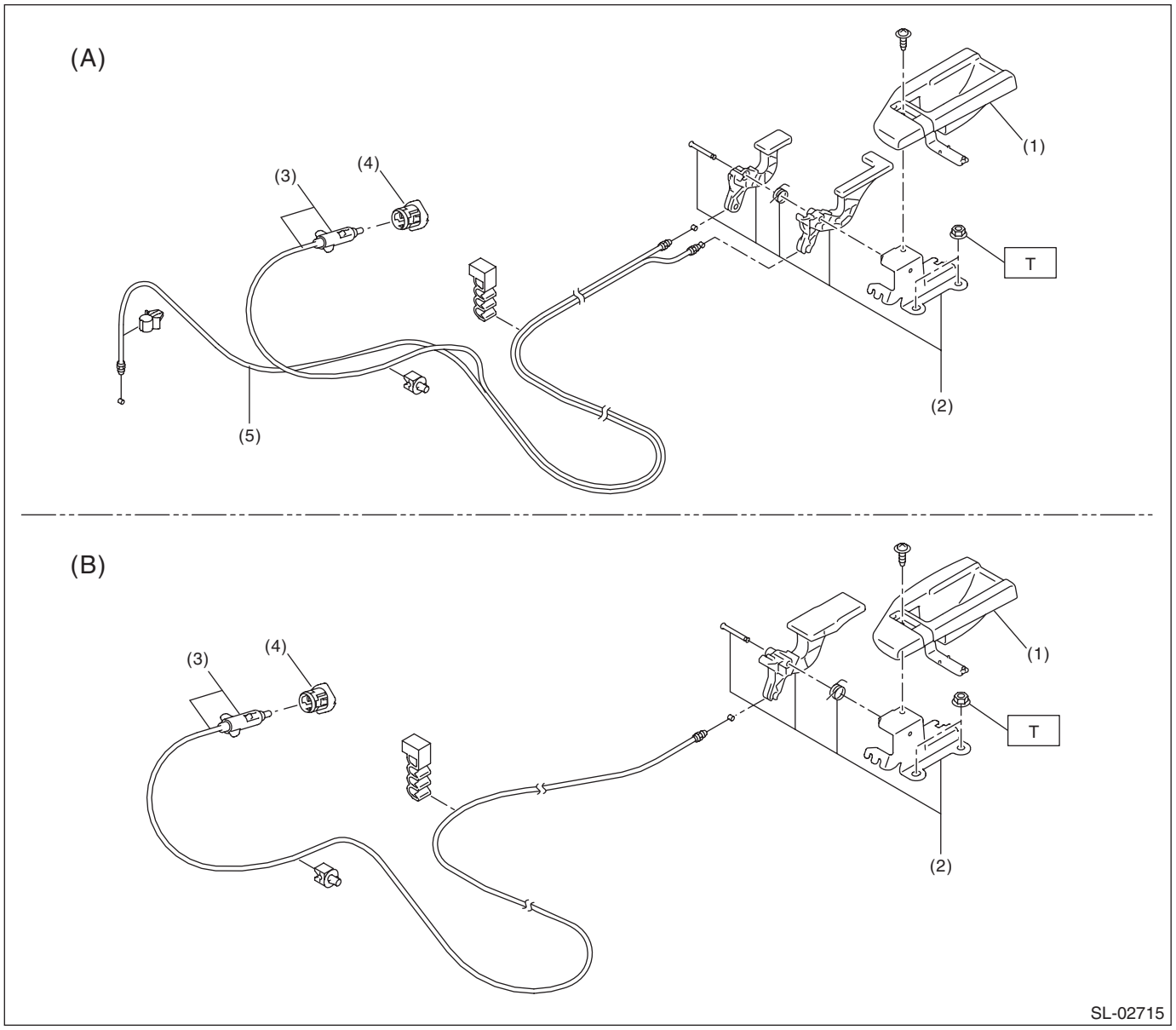
## 3. FRONT HOOD LOCK




(1) Lock ASSY - front hood
(2) Cable - front hood
(3) Bracket - opener handle
(4) Striker - front hood

***Tightening torque: N·m (kgf-m, ft-lb)***
***T1: 7.5 (0.76, 5.5)***
***T2: 33 (3.36, 24.3)***

## 4. REMOTE OPENER

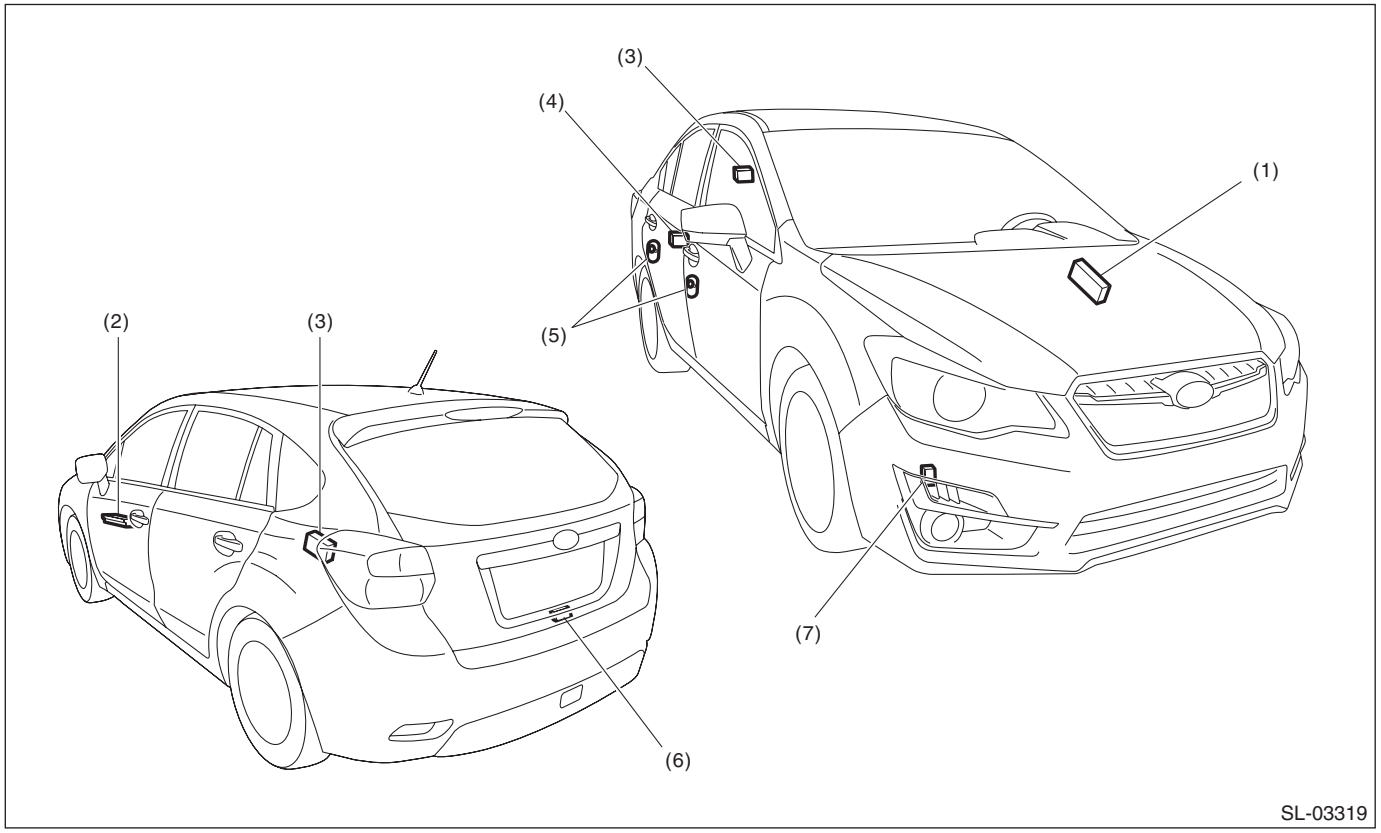



(A) 4 door model
(B) 5 door model/XV model

(1) Cover - handle
(2) Pull handle - opener
(3) Cable ASSY - fuel
(4) Holder
(5) Cable ASSY - trunk lid

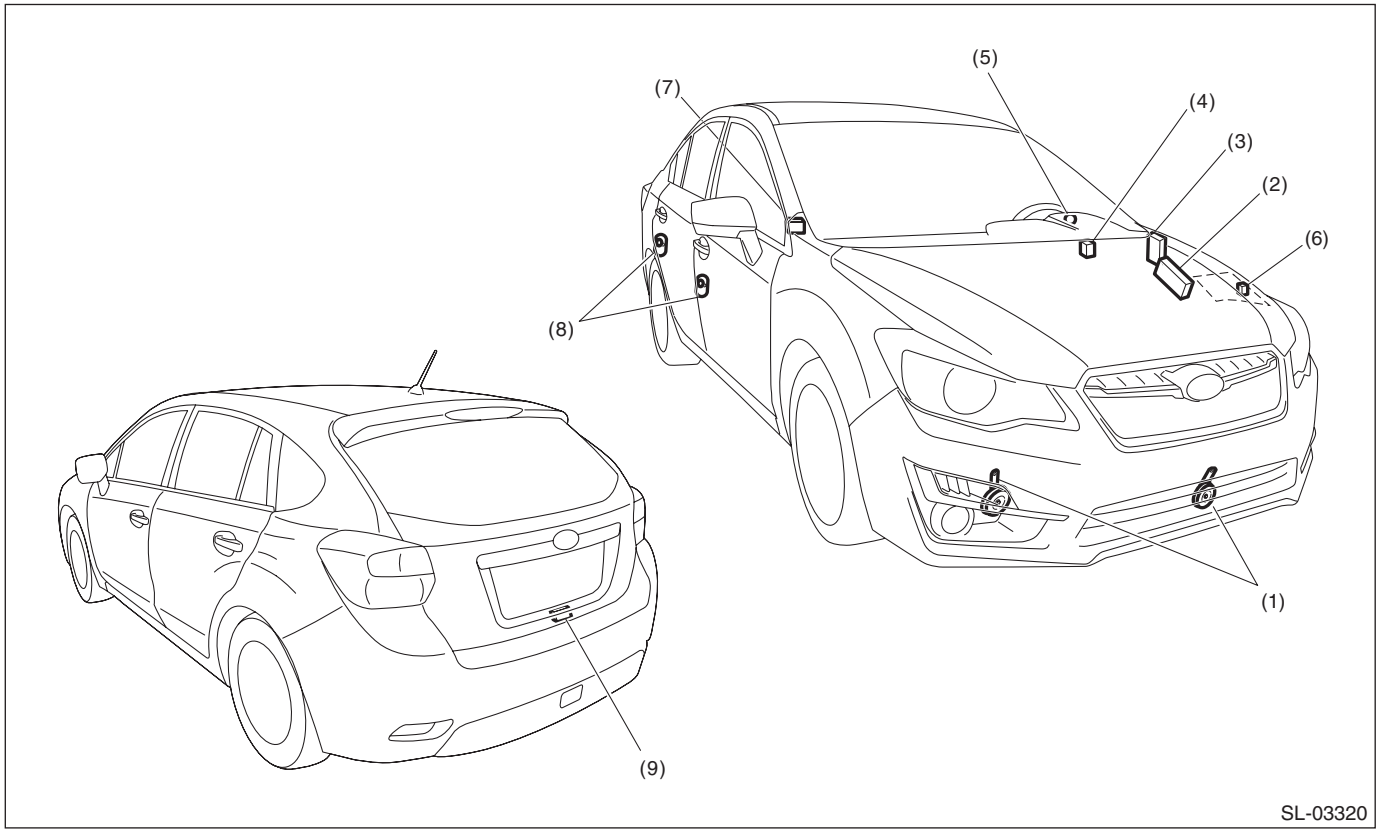
***Tightening torque: N·m (kgf-m, ft-lb)***
***T: 7.5 (0.76, 5.5)***

## 5. KEYLESS ENTRY SYSTEM




(1) Body integrated unit
(2) Power window main switch
(3) Keyless entry control module
(4) Trunk lid latch switch (4 door model)
(5) Door switch
(6) Rear gate latch switch (5 door model/XV model)
(7) Keyless buzzer

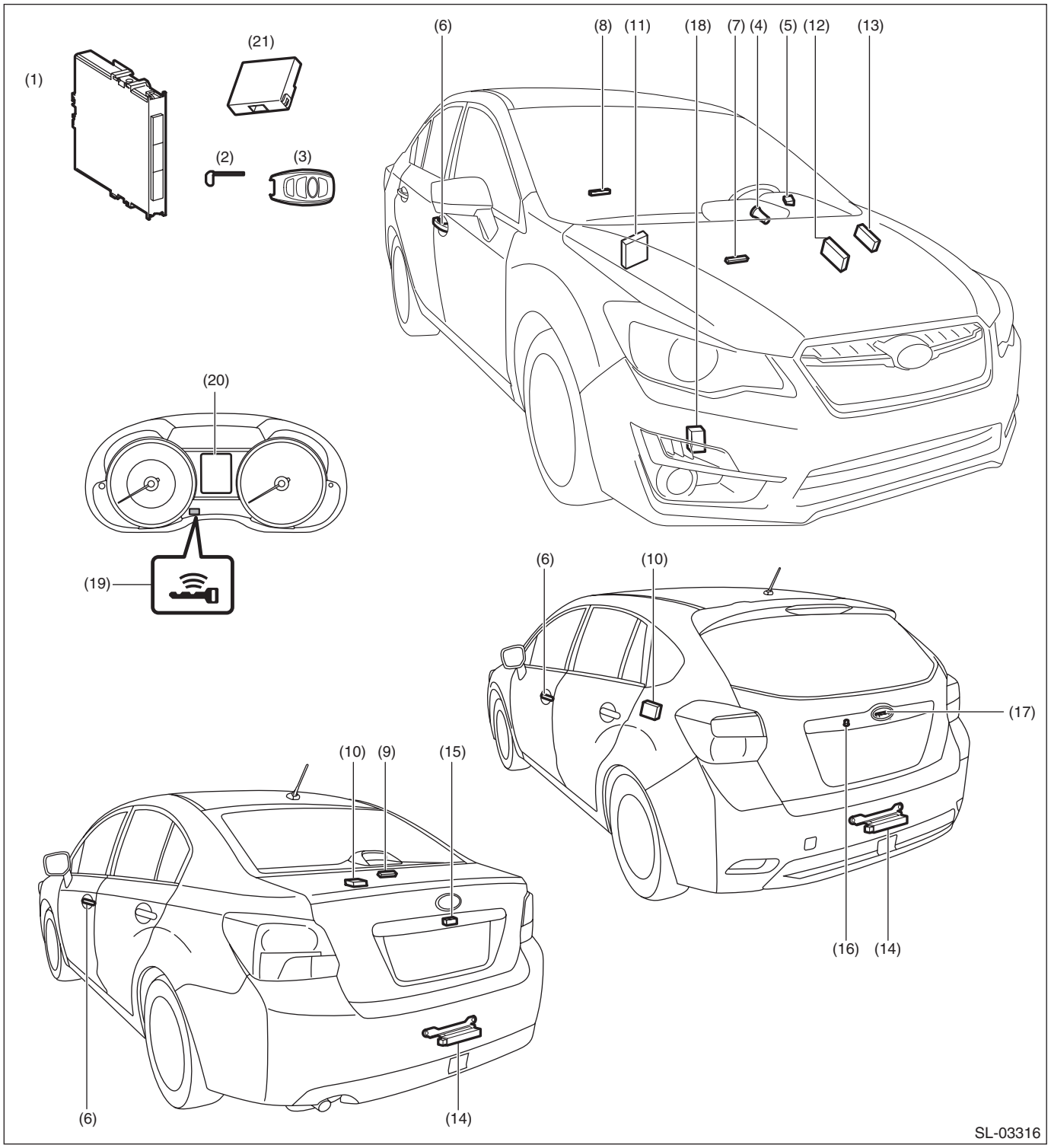
## 6. SECURITY SYSTEM




| | | | | | |
|---|---|---|---|---|---|
| (1) | Horn | (4) | Turn signal and hazard module | (7) | Trunk lid latch switch (4 door model) |
| (2) | Body integrated unit | (5) | Security indicator light (in combination meter) | (8) | Door switch |
| (3) | Impact sensor (driver's seat instrument panel side) (dealer option) | (6) | Horn relay (in main fuse box) | (9) | Rear gate latch switch (5 door model/XV model) |

## 7. KEYLESS ACCESS WITH PUSH BUTTON START SYSTEM

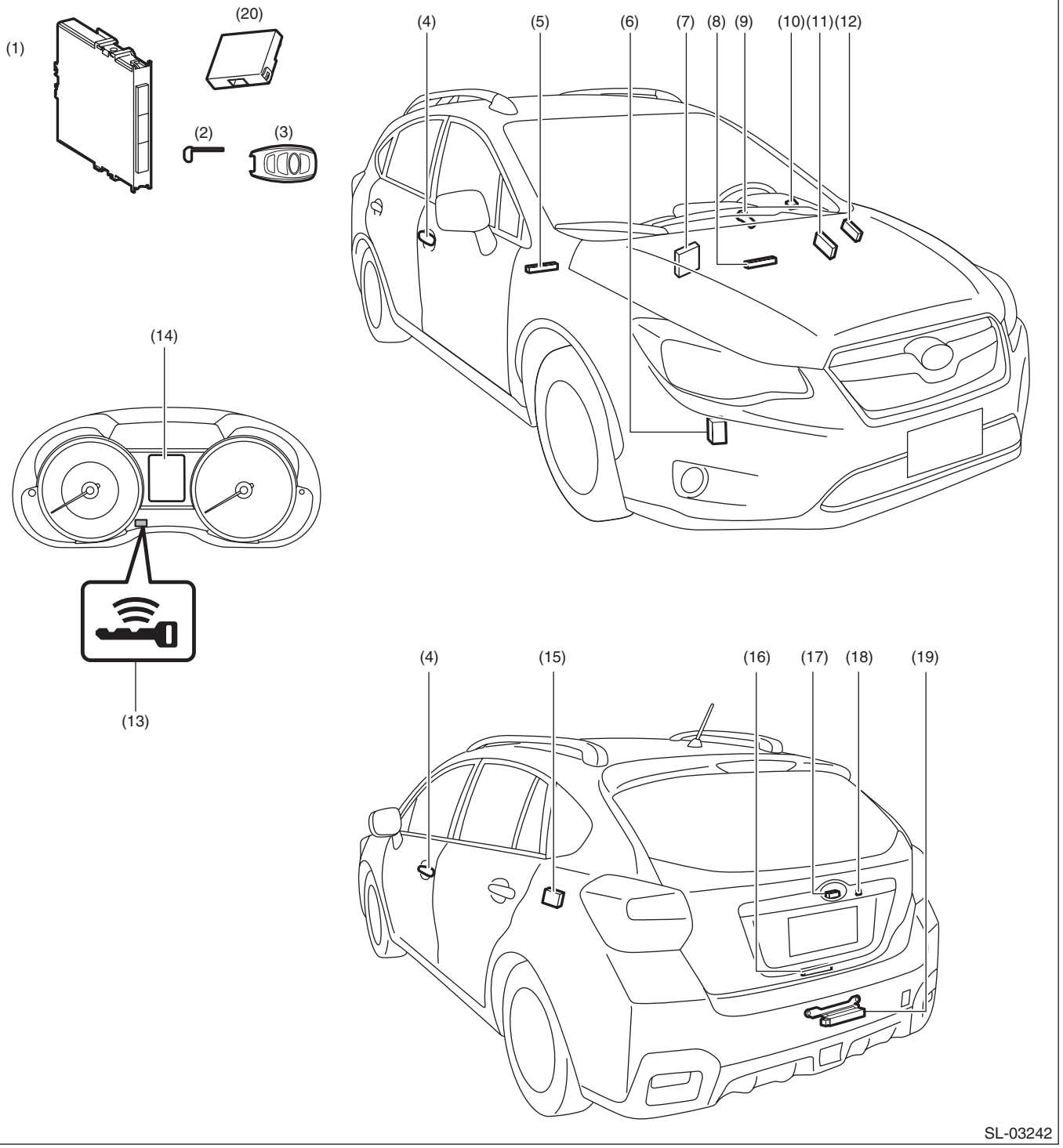
NOTE:
Except for model without keyless access.
- Gasoline engine model



(1) Keyless access CM
(2) Mechanical key
(3) Access key
(4) Push button ignition switch
(5) Steering lock CM
(6) Front outer handle (front exterior antenna)
– Touch sensor (lock)
– Touch sensor (unlock)
(7) Front interior antenna
(8) Center interior antenna*1 or rear interior antenna*2
(9) Rear interior antenna*1
(10) Receiver
(11) ECM
(12) TCM
(13) Body integrated unit
(14) Rear exterior antenna
(15) Trunk opener button*1
(16) Rear lock button*2
(17) Rear gate opener button*2
(18) Access buzzer
(19) Access key warning light
(20) Multi-information display
(21) ID code box
(For C0 and C5 models only)

*1: 4 door model
*2: 5 door model

- HEV model



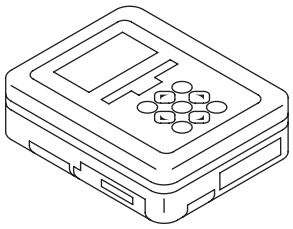
(1) Keyless access CM
(2) Mechanical key
(3) Access key
(4) Front outer handle (front exterior antenna)
– Touch sensor (lock)
– Touch sensor (unlock)
(5) Center interior antenna
(6) Access buzzer
(7) ECM
(8) Front interior antenna
(9) Push button ignition switch
(10) Steering lock CM
(11) TCM
(12) Body integrated unit
(13) Access key warning light
(14) Multi-information display
(15) Receiver
(16) Rear interior antenna
(17) Rear gate opener button
(18) Rear lock button
(19) Rear exterior antenna
(20) ID code box
(For C0 and C5 model only)

## B: CAUTION

• Before disassembling or reassembling parts, always disconnect the battery ground cable from battery. When replacing the audio, control module and other parts provided with memory functions, record the memory contents before disconnecting the battery ground cable. Otherwise, the memory is cleared.
• Reassemble the parts in the reverse order of disassembly procedure unless otherwise indicated.
• Connect the connectors securely during reassembly.
• After reassembly, make sure that the each component operates normally.
• If any immobilizer related part has been replaced, make sure to register the immobilizer.
• Do not use any electrical test equipment on the airbag system wiring harnesses and connector circuits.
• Be careful not to damage the airbag system wiring harness when servicing the ignition key cylinder.
• If the steering wheel and steering angle sensor (steering roll connector) are removed, perform “VDC sensor midpoint setting mode” of the VDC. <Ref. to VDC-26, VDC SENSOR MIDPOINT SETTING MODE (MODELS WITHOUT EyeSight), ADJUSTMENT, VDC Control Module and Hydraulic Control Unit (VDCCM&H/U).>

## C: PREPARATION TOOL

### 1. SPECIAL TOOL

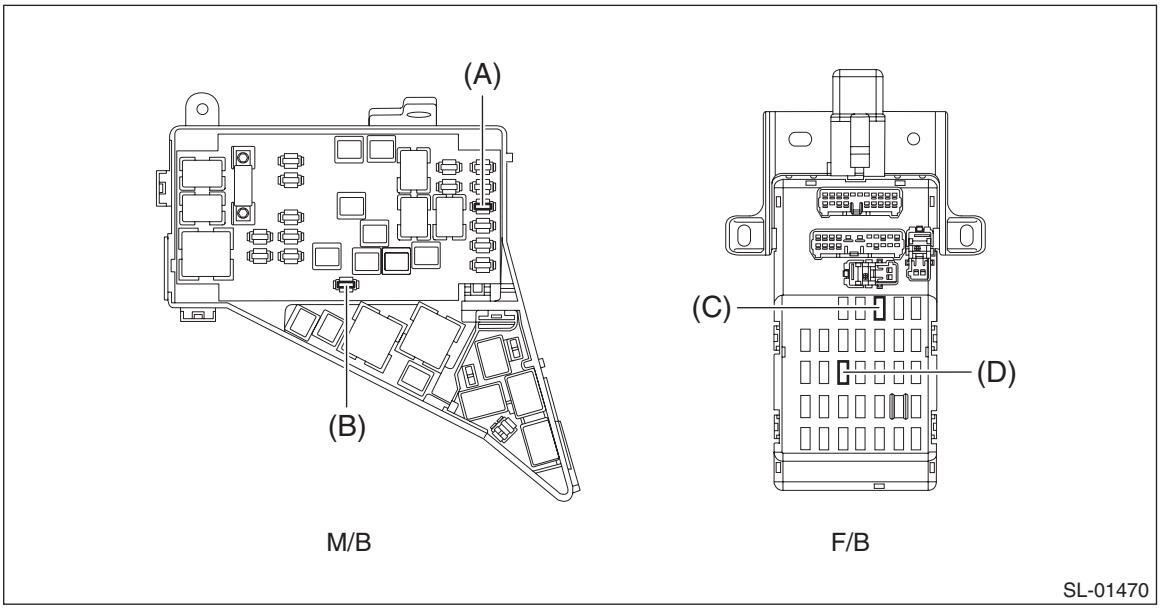
| ILLUSTRATION | TOOL NUMBER | DESCRIPTION | REMARKS |
|---|---|---|---|
|  ST1B022XU0 | 1B022XU0 | SUBARU SELECT MONITOR III KIT | Used for setting of each function and trouble-shooting for electrical system.<br>NOTE:<br>For detailed operation procedures of SUBARU SELECT MONITOR III, refer to “PC application help for Subaru Select Monitor”. |

### 2. GENERAL TOOL

| TOOL NAME | REMARKS |
|---|---|
| Circuit tester | Used for measuring resistance and voltage. |
| Drill | Used for replacing ignition key lock. |
| Reverse tap | Used for replacing ignition key lock. |
| TORX® T30 | Used for removing and installing door outer handle cover and frame assembly. |
| Clip remover | Used for removing trim clip. |

# 2. Relay and Fuse

## A: LOCATION




| | | |
|---|---|---|
| Main fuse box | Fuse 15 A (turn signal and hazard unit, body integrated unit) | (A) |
| | Fuse 20 A (body integrated unit, immobilizer antenna) | (B) |
| Relay & fuse box | Fuse 15 A (body integrated unit) | (C) |
| | Fuse 10 A (keyless entry CM, TPMS & keyless entry CM) | (D) |

NOTE:
For other related fuses, refer to the wiring diagram.
- Gasoline engine model: <Ref. to WI(w/o HEV)-16, Power Supply Circuit.>
- HEV model: <Ref. to WI(HEV)-21, Power Supply Circuit.>

# B: INSPECTION

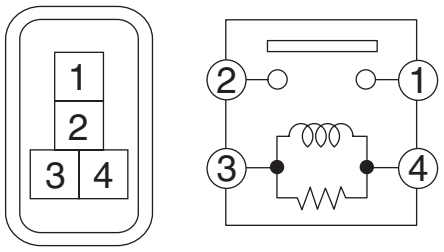
## 1. CHECK FUSE

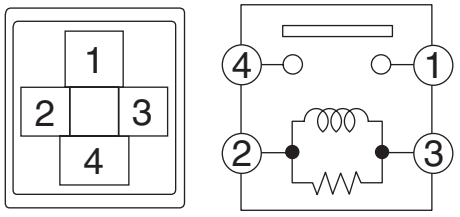
1) Remove the fuse and inspect visually.
2) If the fuse is blown out, replace the fuse.

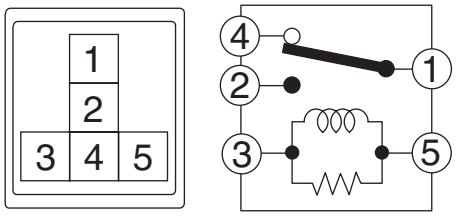
NOTE:
If the fuse is blown again, check the system wiring harness.

## 2. CHECK RELAY

1) Check the resistance between relay terminals.

| Terminal No. | Inspection conditions | Standard | Circuit |
|---|---|---|---|
| 1 — 2 | Always | 1 MΩ or more |  LI-01273 |
| 1 — 2 | Apply battery voltage between terminals 4 and 3. | Less than 1 Ω | |

| Terminal No. | Inspection conditions | Standard | Circuit |
|---|---|---|---|
| 1 — 4 | Always | 1 MΩ or more |  AC-02796 |
| 1 — 4 | Apply battery voltage between terminals 2 and 3. | Less than 1 Ω | |

| Terminal No. | Inspection conditions | Standard | Circuit |
|---|---|---|---|
| 1 — 2 | Always | 1 MΩ or more |  SL-01566 |
| 1 — 4 | Always | Less than 1 Ω | |
| 1 — 2 | Apply battery voltage between terminals 3 and 5. | Less than 1 Ω | |

2) Replace the relay if the inspection result is not within the standard value.

# 3. Door Lock Control System

## A: WIRING DIAGRAM

Refer to “Keyless Entry System” in the wiring diagram.
- Gasoline engine model: <Ref. to WI(w/o HEV)-160, WIRING DIAGRAM, Keyless Entry System.>
- HEV model: <Ref. to WI(HEV)-165, WIRING DIAGRAM, Keyless Entry System.>

## B: ELECTRICAL SPECIFICATION

### 1. BODY INTEGRATED UNIT

Refer to “Control Module I/O Signal” of “BODY CONTROL SYSTEM (DIAGNOSTICS)” section. <Ref. to BC(diag)-6, ELECTRICAL SPECIFICATION, Control Module I/O Signal.>

## C: INSPECTION

### 1. SYMPTOM CHART

| Symptoms | Repair order | Reference |
|---|---|---|
| The door lock control system does not operate. | 1. Remove and visually inspect the following fuses.<br>• No. 3 (in fuse & relay box)<br>• No. 7 (in fuse & relay box)<br>• No. 8 (in main fuse box) | If the fuse is blown out, replace the fuse with a new part.<br>When there is no defective with the fuse, check the power supply and ground circuit. <Ref. to SL-15, CHECK POWER SUPPLY AND GROUND CIRCUIT, INSPECTION, Door Lock Control System.> |
| | 2. Check the power supply and ground circuit for body integrated unit. | <Ref. to SL-15, CHECK POWER SUPPLY AND GROUND CIRCUIT, INSPECTION, Door Lock Control System.> |
| | 3. Check the door lock switch and the circuit. | <Ref. to SL-16, CHECK DOOR LOCK SWITCH, INSPECTION, Door Lock Control System.> |
| | 4. Check the rear gate opener button and the circuit. | <Ref. to SL-17, CHECK REAR GATE OPENER BUTTON CIRCUIT, INSPECTION, Door Lock Control System.> |
| | 5. Check the door lock actuator and the circuit. | <Ref. to SL-18, CHECK DOOR LOCK ACTUATOR AND CIRCUIT, INSPECTION, Door Lock Control System.> |
| A specific door lock actuator does not operate. | Check the door lock actuator and circuit. | <Ref. to SL-18, CHECK DOOR LOCK ACTUATOR AND CIRCUIT, INSPECTION, Door Lock Control System.> |

## 2. CHECK POWER SUPPLY AND GROUND CIRCUIT

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK POWER SUPPLY.**<br>1) Disconnect the connector of body integrated unit.<br>2) Measure the voltage between the body integrated unit connector and chassis ground.<br>***Connector & terminal***<br>***(i84) No. 6 (+) — Chassis ground (–):***<br>***(i171) No. 1 (+) — Chassis ground (–):***<br>***(B281) No. 7 (+) — Chassis ground (–):*** | Is the voltage 9 V or more? | Go to step **2**. | Check the harness for open or short circuit between body integrated unit and fuse. |
| 2 | **CHECK GROUND CIRCUIT.**<br>Measure the resistance between the body integrated unit connector and chassis ground.<br>***Connector & terminal***<br>***(i84) No. 1 — Chassis ground:***<br>***(B280) No. 1 — Chassis ground:*** | Is the resistance less than 10 Ω? | The power supply and ground circuit are OK. | Repair or replace the harness. |

## 3. CHECK DOOR LOCK SWITCH

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK CURRENT DATA.**<br>Using the Subaru Select Monitor, display the data of «Manual lock SW input».<br>NOTE:<br>For detailed procedures, refer to "PC application help for Subaru Select Monitor". | Does the display switch between OFF ←→ ON when each door lock switch is moved to LOCK? | Go to step **2**. | Go to step **3**. |
| 2 | **CHECK DOOR LOCK SWITCH.**<br>From the condition in step 1), operate each door lock switch (driver's and passenger's) in the UNLOCK direction. | Does the display switch between OFF ←→ ON? | The door lock switch is OK. | Go to step **4**. |
| 3 | **CHECK POWER WINDOW MAIN SWITCH (DOOR LOCK SWITCH).**<br>1) Disconnect the power window main switch (door lock switch) connector.<br>2) Measure the continuity between terminals when moving the power window main switch (door lock switch) in LOCK direction.<br>***Terminals***<br>***Driver's side***<br>***(D7) No. 10 — (D102) No. 3:***<br>***Passenger's side***<br>***(D125) No. 4 — (D125) No. 5:*** | Did the indicator change from "No continuity" (1 MΩ or more) to "Continuity exists" (less than 10 Ω)? | Go to step **4**. | Replace the power window main switch or door lock switch. |
| 4 | **CHECK POWER WINDOW MAIN SWITCH (DOOR LOCK SWITCH).**<br>Measure the continuity between terminals when moving the power window main switch (door lock switch) in UNLOCK direction.<br>***Terminals***<br>***Driver's side***<br>***(D7) No. 2 — (D102) No. 3:***<br>***Passenger's side***<br>***(D125) No. 2 — (D125) No. 5:*** | Did the indicator change from "No continuity" (1 MΩ or more) to "Continuity exists" (less than 10 Ω)? | Go to step **5**. | Replace the power window main switch or door lock switch. |
| 5 | **CHECK HARNESS.**<br>Measure the resistance between the power window main switch (door lock switch) connector and chassis ground.<br>***Connector & terminal***<br>***Driver's side***<br>***(D102) No. 3 — Chassis ground:***<br>***Passenger's side***<br>***(D125) No. 5 — Chassis ground:*** | Is the resistance less than 10 Ω? | Go to step **6**. | Repair or replace the harness. |
| 6 | **CHECK HARNESS.**<br>Check the harness between body integrated unit and power window main switch (door lock switch).<br>***Connector & terminal***<br>***Driver's side***<br>***(D7) No. 10 — (i84) No. 9:***<br>***(D7) No. 2 — (i84) No. 20:***<br>***Passenger's side***<br>***(D125) No. 4 — (i84) No. 9:***<br>***(D125) No. 2 — (i84) No. 20:*** | Is harness normal? | Replace the body integrated unit. <Ref. to SL-87, Body Integrated Unit.> | Repair or replace the harness. |

## 4. CHECK REAR GATE OPENER BUTTON CIRCUIT

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK CURRENT DATA.**<br>Using the Subaru Select Monitor, display the data of «R Gate Release SW input».<br>NOTE:<br>For detailed procedures, refer to "PC application help for Subaru Select Monitor". | Does the display change to OFF ←→ ON, when the rear gate opener button is operated? | Rear gate opener button is normal. | Go to step **2**. |
| 2 | **CHECK HARNESS.**<br>1) Disconnect the connectors of body integrated unit and rear gate opener button.<br>2) Check the harness between the body integrated unit and rear gate opener button.<br>***Connector & terminal***<br>***(i84) No. 10 — (D47) No. 1:*** | Is harness normal? | Go to step **3**. | Repair or replace the harness. |
| 3 | **CHECK HARNESS.**<br>Measure the resistance between the rear gate opener button connector and chassis ground.<br>***Connector & terminal***<br>***(D47) No. 2 — Chassis ground:*** | Is the resistance less than 10 Ω? | Go to step **4**. | Repair or replace the harness. |
| 4 | **CHECK REAR GATE OPENER BUTTON.**<br>Measure the resistance between terminals both when the rear gate opener button is pressed and when not pressed.<br>***Terminals***<br>***No. 1 — No. 2:*** | Is the resistance less than 10 Ω when the switch is pressed and 1 MΩ or more when not pressed? | Replace the body integrated unit. <Ref. to SL-87, Body Integrated Unit.> | Replace the rear gate opener button. |

## 5. CHECK DOOR LOCK ACTUATOR AND CIRCUIT

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK HARNESS (DOOR LOCK).**<br>1) Disconnect the body integrated unit and each door lock actuator connector.<br>2) Check the harness between body integrated unit and each door lock actuator.<br>***Connector & terminal***<br>***Front door LH***<br>***(i171) No. 2 — (D72) No. 4:***<br>***Front door RH***<br>***(i171) No. 2 — (D18) No. 4:***<br>***Rear door LH***<br>***(i171) No. 2 — (D26) No. 4:***<br>***Rear door RH***<br>***(i171) No. 2 — (D32) No. 4:*** | Is harness normal? | Go to step **2**. | Repair or replace the harness. |
| 2 | **CHECK HARNESS (DOOR UNLOCK).**<br>Check the harness between body integrated unit and each door lock actuator.<br>***Connector & terminal***<br>***Front door LH***<br>***(i171) No. 4 — (D72) No. 1:***<br>***Front door RH***<br>***(i171) No. 3 — (D18) No. 1:***<br>***Rear door LH***<br>***(i171) No. 3 — (D26) No. 1:***<br>***Rear door RH***<br>***(i171) No. 3 — (D32) No. 1:*** | Is harness normal? | 4 door model: Go to step **5**.<br>5 door model/XV model: Go to step **3**. | Repair or replace the harness. |
| 3 | **CHECK HARNESS (REAR GATE UNLOCK).**<br>Check the harness between the body integrated unit and rear gate lock actuator.<br>***Connector & terminal***<br>***(i171) No. 7 — (D46) No. 1:*** | Is harness normal? | Go to step **4**. | Repair or replace the harness. |
| 4 | **CHECK HARNESS (REAR GATE UNLOCK).**<br>Measure the resistance between the rear gate lock actuator connector and chassis ground.<br>***Connector & terminal***<br>***(D46) No. 2 — Chassis ground:*** | Is the resistance less than 10 Ω? | Go to step **7**. | Repair or replace the harness. |
| 5 | **CHECK HARNESS (TRUNK UNLOCK).**<br>Check the harness between the body integrated unit and trunk lid lock actuator.<br>***Connector & terminal***<br>***(i171) No. 7 — (R186) No. 1:*** | Is harness normal? | Go to step **6**. | Repair or replace the harness. |
| 6 | **CHECK HARNESS (TRUNK UNLOCK).**<br>Measure the resistance between the trunk lid lock actuator connector and chassis ground.<br>***Connector & terminal***<br>***(R186) No. 2 — Chassis ground:*** | Is the resistance less than 10 Ω? | Go to step **7**. | Repair or replace the harness. |
| 7 | **CHECK BODY INTEGRATED UNIT OUTPUT SIGNAL.**<br>1) Connect the body integrated unit connector.<br>2) Measure the voltage between terminals of the body integrated unit when operating the door lock switch to LOCK direction.<br>***Connector & terminal***<br>***Except for front door LH***<br>***(i171) No. 2 (+) — (i171) No. 3 (–):***<br>***Front door LH***<br>***(i171) No. 2 (+) — (i171) No. 4 (–):*** | Does the voltage change from less than 1 V → 9 V or more? (During lock output) | Go to step **8**. | Replace the body integrated unit. <Ref. to SL-87, Body Integrated Unit.> |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 8 | **CHECK BODY INTEGRATED UNIT OUTPUT SIGNAL.**<br>Measure the voltage between terminals of the body integrated unit when operating the door lock switch to UNLOCK direction.<br>***Connector & terminal***<br>***Except for front door LH***<br>***(i171) No. 3 (+) — (i171) No. 2 (–):***<br>***Front door LH***<br>***(i171) No. 4 (+) — (i171) No. 2 (–):*** | Does the voltage change from less than 1 V → 9 V or more? (During unlock output) | Go to step **9**. | Replace the body integrated unit. <Ref. to SL-87, Body Integrated Unit.> |
| 9 | **CHECK BODY INTEGRATED UNIT OUTPUT SIGNAL.**<br>Measure the voltage between body integrated unit and chassis ground when operating the rear gate opener button.<br>***Connector & terminal***<br>***(i171) No. 7 (+) — Chassis ground (–):*** | Does the voltage change from less than 1 V → 9 V or more? (During unlock output) | Go to step **10**. | Replace the body integrated unit. <Ref. to SL-87, Body Integrated Unit.> |
| 10 | **CHECK DOOR LOCK ACTUATOR.**<br>Check the door lock actuator.<br>• Front door lock actuator: <Ref. to SL-46, INSPECTION, Front Door Latch and Door Lock Actuator Assembly.><br>• Rear door lock actuator: <Ref. to SL-53, INSPECTION, Rear Door Latch and Door Lock Actuator Assembly.> | Is the door lock actuator OK? | • 4 door model: Go to step **12**.<br>• 5 door model/XV model: Go to step **11**. | Replace the door latch and door lock actuator assembly. |
| 11 | **CHECK REAR GATE LOCK ACTUATOR.**<br>Check the rear gate lock actuator. <Ref. to SL-56, Rear Gate Latch and Actuator Assembly.> | Is the rear gate lock actuator normal? | Check the connection status of the harness and connector that may have a temporary poor contact. | Replace the rear gate latch and actuator assembly. |
| 12 | **CHECK TRUNK LID LOCK ACTUATOR.**<br>Check the trunk lid lock actuator. <Ref. to SL-58, Trunk Lid Latch and Actuator Assembly.> | Is trunk lid lock actuator normal? | Check the connection status of the harness and connector that may have a temporary poor contact. | Replace the trunk lid latch & actuator assembly. |

# 4. Keyless Entry System

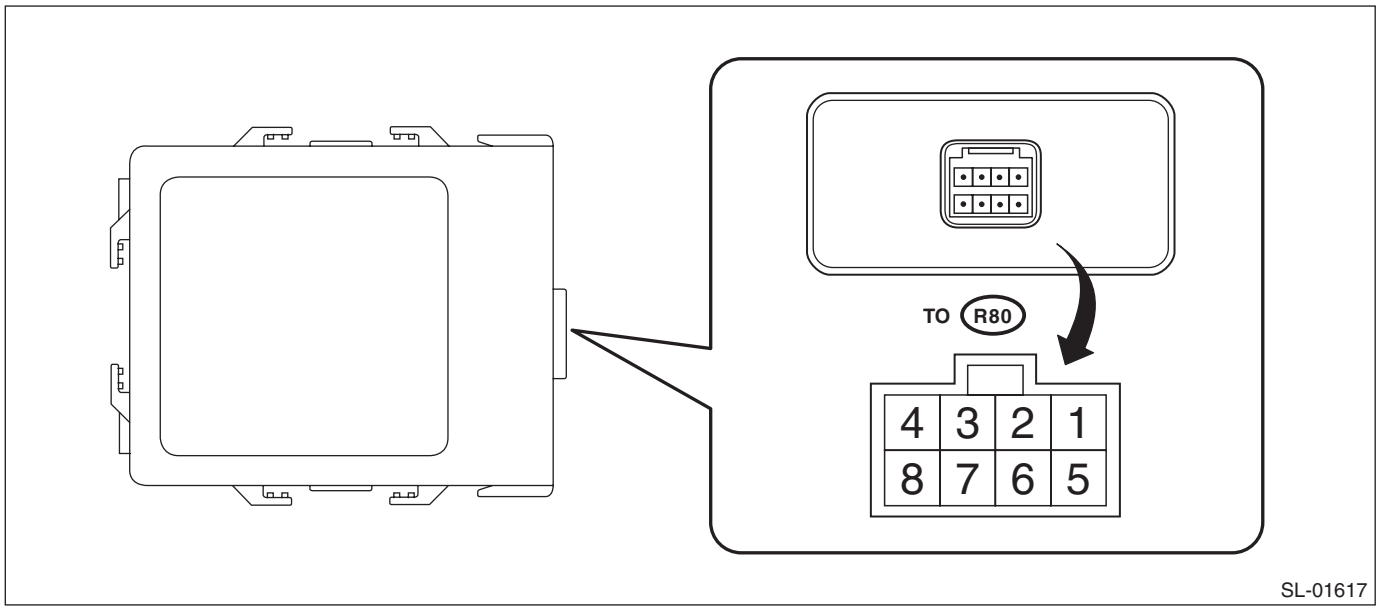
## A: WIRING DIAGRAM

Refer to “Keyless Entry System” in the wiring diagram. <Ref. to WI(w/o HEV)-160, WIRING DIAGRAM, Keyless Entry System.>

## B: ELECTRICAL SPECIFICATION

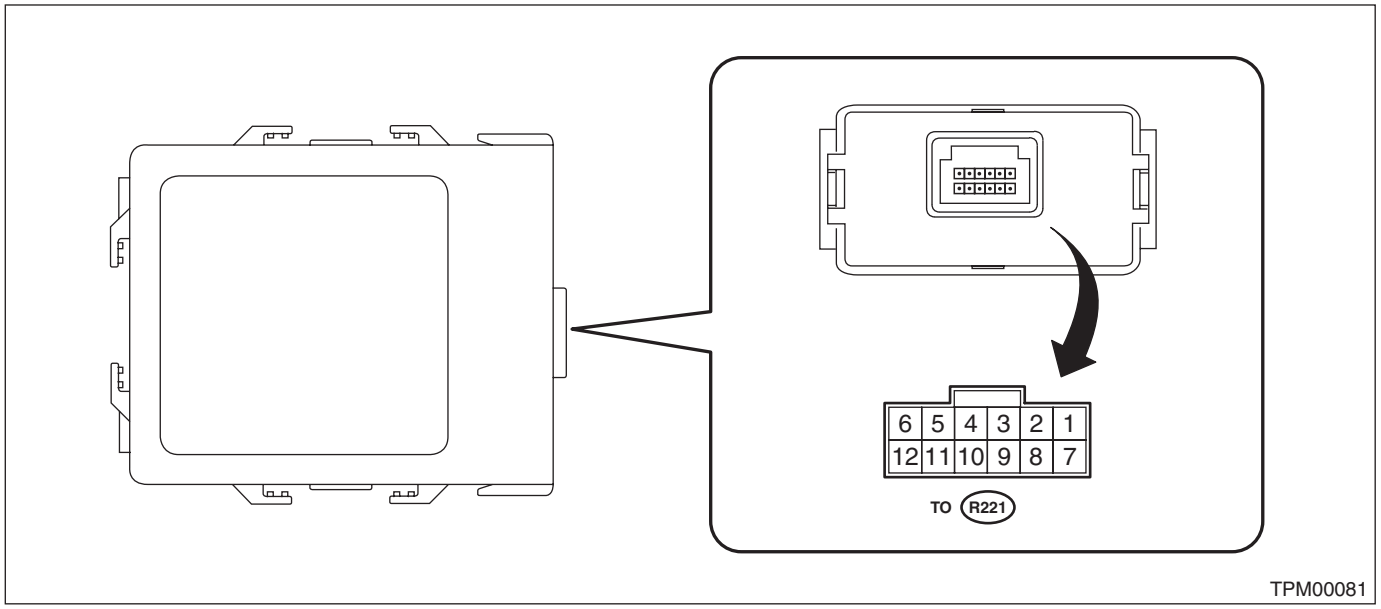
### 1. KEYLESS ENTRY CONTROL MODULE

- Model without tire pressure monitoring system




| Terminal No. | Item | Measuring condition | Standard |
|---|---|---|---|
| 3 (U-ART com.) | — | Cannot be measured | — |
| 4 (+B) ←→ Chassis ground | Voltage | Always | 10 — 14 V |
| 7 (GND) ←→ Chassis ground | Resistance | Always | Less than 1 Ω |

- Model with tire pressure monitoring system




| Terminal No. | Item | Measuring condition | Standard |
|---|---|---|---|
| 4 (IG) ←→ Chassis ground | Resistance | IG OFF → ON | 0 V → 10 — 14 V |
| 5 (GND) ←→ Chassis ground | Resistance | Always | Less than 1 Ω |
| 6 (+B) ←→ Chassis ground | Voltage | Always | 10 — 14 V |
| 11 (U-ART com.) | — | Cannot be measured | — |

## 2. BODY INTEGRATED UNIT

Refer to “Control Module I/O Signal” of “BODY CONTROL SYSTEM (DIAGNOSTICS)” section. <Ref. to BC(diag)-6, ELECTRICAL SPECIFICATION, Control Module I/O Signal.>

# C: INSPECTION

## 1. SYMPTOM CHART

| Symptoms | Repair order | Reference |
|---|---|---|
| None of the functions of the keyless entry system operate. | 1. Check the keyless transmitter battery. | <Ref. to SL-23, CHECK KEYLESS TRANSMITTER BATTERY AND FUNCTION, INSPECTION, Keyless Entry System.> |
| | 2. Remove and visually inspect the following fuses.<br>• No. 3 (in fuse & relay box)<br>• No. 7 (in fuse & relay box)<br>• No. 8 (in main fuse box) | If the fuse is blown out, replace the fuse with a new part.<br>When there is no defective with the fuse, check the power supply and ground circuit. <Ref. to SL-15, CHECK POWER SUPPLY AND GROUND CIRCUIT, INSPECTION, Door Lock Control System.> |
| | 3. Check the keyless entry control module. | <Ref. to SL-24, CHECK KEYLESS ENTRY CONTROL MODULE, INSPECTION, Keyless Entry System.> |
| | 4. Check the power supply and ground circuit for body integrated unit. | <Ref. to SL-24, CHECK BODY INTEGRATED UNIT POWER SUPPLY AND GROUND CIRCUIT, INSPECTION, Keyless Entry System.> |
| | 5. Check the key warning switch. | <Ref. to SL-27, CHECK KEY WARNING SWITCH, INSPECTION, Keyless Entry System.> |
| | 6. Check the body integrated unit. | <Ref. to BC(diag)-2, Basic Diagnostic Procedure.> |
| The keyless transmitter cannot be registered. | 1. Check the keyless transmitter battery. | <Ref. to SL-23, CHECK KEYLESS TRANSMITTER BATTERY AND FUNCTION, INSPECTION, Keyless Entry System.> |
| | 2. Check the key warning switch. | <Ref. to SL-27, CHECK KEY WARNING SWITCH, INSPECTION, Keyless Entry System.> |
| | 3. Check the keyless entry control module. | <Ref. to SL-24, CHECK KEYLESS ENTRY CONTROL MODULE, INSPECTION, Keyless Entry System.> |
| | 4. Check the body integrated unit. | <Ref. to BC(diag)-2, Basic Diagnostic Procedure.> |
| Door lock or unlock does not operate.<br>NOTE:<br>If the door lock control system does not operate when using the door lock switch, check the door lock control system. <Ref. to SL-14, INSPECTION, Door Lock Control System.> | 1. Check the keyless transmitter battery. | <Ref. to SL-23, CHECK KEYLESS TRANSMITTER BATTERY AND FUNCTION, INSPECTION, Keyless Entry System.> |
| | 2. Check the key warning switch. | <Ref. to SL-27, CHECK KEY WARNING SWITCH, INSPECTION, Keyless Entry System.> |
| | 3. Check the door switch signal. | <Ref. to SL-25, CHECK DOOR SWITCH, INSPECTION, Keyless Entry System.> |
| | 4. Check the keyless entry control module. | <Ref. to SL-24, CHECK KEYLESS ENTRY CONTROL MODULE, INSPECTION, Keyless Entry System.> |
| | 5. Check the body integrated unit. | <Ref. to BC(diag)-2, Basic Diagnostic Procedure.> |
| The keyless buzzer and hazard light do not operate. | 1. Check the keyless buzzer operation. | <Ref. to SL-30, CHECK KEYLESS BUZZER, INSPECTION, Keyless Entry System.> |
| | 2. Check the hazard light operation. | <Ref. to SL-29, CHECK HAZARD LIGHT OPERATION, INSPECTION, Keyless Entry System.> |
| | 3. Check the body integrated unit. | <Ref. to BC(diag)-2, Basic Diagnostic Procedure.> |
| Room light does not operate. | 1. Check the room light operation. | <Ref. to SL-28, CHECK ROOM LIGHT OPERATION, INSPECTION, Keyless Entry System.> |
| | 2. Check the body integrated unit. | <Ref. to BC(diag)-2, Basic Diagnostic Procedure.> |
| Ignition switch illumination does not operate. | 1. Check the ignition switch illumination. | <Ref. to SL-31, CHECK IGNITION SWITCH ILLUMINATION, INSPECTION, Keyless Entry System.> |
| | 2. Check the body integrated unit. | <Ref. to BC(diag)-2, Basic Diagnostic Procedure.> |

## 2. CHECK KEYLESS TRANSMITTER BATTERY AND FUNCTION

**CAUTION:**
**Be sure to reset keyless transmitter of other vehicles registered to the inspection target vehicle, and vehicles to which keyless transmitters were registered for inspection, to the condition before performing the inspection. (Re-register the keyless transmitters.)**

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK KEYLESS TRANSMITTER BATTERY.**<br>1) Remove the battery from the keyless transmitter. <Ref. to SL-90, REMOVAL, Keyless Transmitter.><br>2) Check the battery voltage. <Ref. to SL-91, INSPECTION, Keyless Transmitter.> | Is the voltage 2.5 V or more? | Go to step **2**. | Replace the keyless transmitter battery. |
| 2 | **CHECK KEYLESS TRANSMITTER.**<br>Register the keyless transmitter which operates normally on other vehicles to the inspection target vehicle. <Ref. to SL-92, REGISTRATION OF KEYLESS TRANSMITTER WITH SUBARU SELECT MONITOR, REPLACEMENT, Keyless Transmitter.><br>1) Close all the doors and rear gate (5 door model/XV model) or trunk lid (4 door model) of the inspection target vehicle.<br>2) Using the keyless transmitter, lock and unlock the doors and rear gate of vehicle. For the 4 door model, unlock the trunk lid. | Can lock, unlock of doors and unlock of the trunk lid be performed properly on the inspection target vehicle? | Go to step **3**. | Due to vehicle malfunction, continue the keyless entry system diagnosis. |
| 3 | **CHECK KEYLESS TRANSMITTER.**<br>Register the keyless transmitter of the inspected vehicle to another vehicle whose keyless system operates normally. <Ref. to SL-92, REGISTRATION OF KEYLESS TRANSMITTER WITH SUBARU SELECT MONITOR, REPLACEMENT, Keyless Transmitter.> | Is the keyless transmitter registered correctly? | Go to step **4**. | Replace the keyless transmitter and perform registration. |
| 4 | **CHECK KEYLESS TRANSMITTER.**<br>Check the registered keyless transmitter.<br>1) Close all the doors and rear gate (5 door model/XV model) or trunk lid (4 door model) of the vehicle on which the keyless system works normally.<br>2) Using the keyless transmitter, lock and unlock the doors and rear gate of vehicle. For the 4 door model, unlock the trunk lid. | Can lock, unlock of doors and unlock of the trunk lid be performed properly on the vehicle? | Keyless transmitter is OK. | Replace the keyless transmitter and perform registration. |

## 3. CHECK KEYLESS ENTRY CONTROL MODULE

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK BODY INTEGRATED UNIT.**<br>Read the DTC using Subaru Select Monitor.<br>NOTE:<br>For detailed procedures, refer to "PC application help for Subaru Select Monitor". | Is DTC B1500 "Keyless UART com. Malfunction" displayed? | Go to step **2**. | Keyless entry control module is normal. |
| 2 | **CHECK POWER SUPPLY.**<br>1) Disconnect the keyless entry control module connector.<br>2) Measure the voltage between keyless entry control module connector and chassis ground.<br>***Connector & terminal***<br>***Model without tire pressure monitoring system***<br>***(R80) No. 4 (+) — Chassis ground (–):***<br>***Model with tire pressure monitoring system***<br>***(R221) No. 6 (+) — Chassis ground (–):*** | Is the voltage 10 V or more? | Go to step **3**. | Check the harness for open or short circuits between the keyless entry control module and the fuse. |
| 3 | **CHECK GROUND CIRCUIT.**<br>Measure the resistance between keyless entry control module connector and chassis ground.<br>***Connector & terminal***<br>***Model without tire pressure monitoring system***<br>***(R80) No. 7 — Chassis ground:***<br>***Model with tire pressure monitoring system***<br>***(R221) No. 5 — Chassis ground:*** | Is the resistance less than 10 Ω? | Go to step **4**. | Repair or replace the harness. |
| 4 | **CHECK KEYLESS ENTRY CONTROL MODULE CIRCUIT.**<br>1) Disconnect the body integrated unit connector.<br>2) Check the harness between keyless entry control module and body integrated unit.<br>***Connector & terminal***<br>***Model without tire pressure monitoring system***<br>***(i171) No. 11 — (R80) No. 3:***<br>***Model with tire pressure monitoring system***<br>***(i171) No. 11 — (R221) No. 11:*** | Is harness normal? | Replace the keyless entry control module. | Repair or replace the harness. |

## 4. CHECK BODY INTEGRATED UNIT POWER SUPPLY AND GROUND CIRCUIT

Refer to the "INSPECTION of POWER SUPPLY AND GROUND CIRCUIT" of "Door Lock Control System" for detailed procedures. <Ref. to SL-15, CHECK POWER SUPPLY AND GROUND CIRCUIT, INSPECTION, Door Lock Control System.>

## 5. CHECK DOOR SWITCH

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK CURRENT DATA.**<br>Display the following items using Subaru Select Monitor.<br>• «Driver's door SW input»<br>• «P-door SW input»<br>• «Rear right door SW input»<br>• «Rear left door SW input»<br>• «R Gate SW input»<br>NOTE:<br>For detailed procedures, refer to "PC application help for Subaru Select Monitor". | Does the display switch between OFF ←→ ON when each door, rear gate, or trunk lid is opened/closed? | The door switches, trunk lid latch switch or rear gate latch switch are normal. | Go to step **2**. |
| 2 | **CHECK HARNESS.**<br>1) Disconnect the connector of body integrated unit.<br>2) Disconnect the connector of the door switch, trunk lid latch switch or rear gate latch switch that the display does not change.<br>3) Check the harness between body integrated unit and defective switch.<br>***Connector & terminal***<br>***Front door LH***<br>***(i84) No. 14 — (R9) No. 1:***<br>***Front door RH***<br>***(i84) No. 13 — (R12) No. 1:***<br>***Rear door LH***<br>***(i84) No. 24 — (R22) No. 1:***<br>***Rear door RH***<br>***(i84) No. 25 — (R16) No. 1:***<br>***Trunk lid***<br>***(i84) No. 33 — (R186) No. 3:***<br>***Rear gate***<br>***(i84) No. 33 — (D46) No. 3:*** | Is harness normal? | Go to step **3**. | Repair or replace the harness. |
| 3 | **CHECK HARNESS.**<br>Measure the resistance between the faulty switch connector and chassis ground.<br>***Connector & terminal***<br>***Front door LH***<br>***(R9) No. 3 — Chassis ground:***<br>***Front door RH***<br>***(R12) No. 3 — Chassis ground:***<br>***Rear door LH***<br>***(R22) No. 3 — Chassis ground:***<br>***Rear door RH***<br>***(R16) No. 3 — Chassis ground:***<br>***Trunk lid***<br>***(R186) No. 2 — Chassis ground:***<br>***Rear gate***<br>***(D46) No. 4 — Chassis ground:*** | Is the resistance less than 10 Ω? | Go to step **4**. | Repair or replace the harness. |

| Step | | Check | Yes | No |
|---|---|---|---|---|
| 4 | **CHECK DOOR SWITCH.**<br>Measure the resistance between faulty switch terminals.<br>***Terminals***<br>***Front LH door switch***<br>***No. 1 — No. 3:***<br>***Front RH door switch***<br>***No. 1 — No. 3:***<br>***Rear LH door switch***<br>***No. 1 — No. 3:***<br>***Rear RH door switch***<br>***No. 1 — No. 3:***<br>***Trunk lid latch switch***<br>***No. 3 — No. 2:***<br>***Rear gate latch switch***<br>***No. 3 — No. 4:*** | Is the resistance 1 MΩ or more when the door switch is pushed, or the trunk lid or rear gate is closed? | Replace the body integrated unit. <Ref. to SL-87, Body Integrated Unit.> | Replace the faulty parts.<br>• Door switches<br>• Trunk lid latch and actuator ASSY<br>• Rear gate latch and actuator ASSY |

## 6. CHECK KEY WARNING SWITCH

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK CURRENT DATA.**<br>Using the Subaru Select Monitor, display the data of «key-lock warning SW».<br>NOTE:<br>For detailed procedures, refer to "PC application help for Subaru Select Monitor". | Is the normal input signal displayed when the key is inserted in/removed from the ignition switch? | The key warning switch is OK. | Go to step **2**. |
| 2 | **CHECK FUSE.**<br>Remove and visually check fuse No. 14 (in the main fuse box). | Is the fuse blown out? | Replace the fuse with a new part. | Go to step **3**. |
| 3 | **CHECK KEY WARNING SWITCH CIRCUIT.**<br>1) Disconnect the connector of body integrated unit.<br>2) Insert the key into ignition switch. (LOCK position)<br>3) Measure the voltage between the body integrated unit connector and chassis ground.<br>***Connector & terminal***<br>***(B280) No. 4 (+) — Chassis ground (–):*** | Is the voltage 9 V or more? | Go to step **4**. | Go to step **5**. |
| 4 | **CHECK KEY WARNING SWITCH CIRCUIT.**<br>1) Remove the key from ignition switch.<br>2) Measure the voltage between the body integrated unit connector and chassis ground.<br>***Connector & terminal***<br>***(B280) No. 4 (+) — Chassis ground (–):*** | Is the voltage less than 1.5 V? | The key warning switch is OK. | Go to step **5**. |
| 5 | **CHECK KEY WARNING SWITCH.**<br>1) Disconnect the connector of key warning switch.<br>2) Insert the key into ignition switch. (LOCK position)<br>3) Measure the resistance between key warning switch terminals.<br>***Terminals***<br>***No. 1 — No. 2:*** | Is the resistance less than 1 Ω? | Go to step **6**. | Replace the key warning switch. |
| 6 | **CHECK KEY WARNING SWITCH.**<br>1) Remove the key from ignition switch.<br>2) Measure the resistance between key warning switch terminals.<br>***Terminals***<br>***No. 1 — No. 2:*** | Is the resistance 1 MΩ or more? | Check the following:<br>• Harness for open circuits and shorts between the key warning switch and fuse.<br>• Harness for open or short between the body integrated unit and key warning switch | Replace the key warning switch. |

## 7. CHECK ROOM LIGHT OPERATION

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK ROOM LIGHT OPERATION.**<br>Make sure the room light illuminates when the room light switch is ON, and goes off when the switch is OFF. | Does the room light illuminate or go off? | Go to step **2**. | Check the room light circuit. <Ref. to LI-83, INSPECTION, Room Light.> |
| 2 | **CHECK ROOM LIGHT OPERATION.**<br>1) Turn the room light switch to the “DOOR” position.<br>2) Open and close any door. | Does the room light illuminate ←→ go off (including off delay) when the door is opened and closed? | Go to step **3**. | Go to step **4**. |
| 3 | **CHECK KEYLESS ENTRY OPERATION.**<br>Press the LOCK/UNLOCK button of the keyless transmitter. | Does it operate properly? | Room light is normal. | Check keyless entry system. <Ref. to SL-22, SYMPTOM CHART, INSPECTION, Keyless Entry System.> |
| 4 | **CHECK ROOM LIGHT.**<br>Check the room light. <Ref. to LI-83, INSPECTION, Room Light.> | Is room light normal? | Go to step **5**. | Replace the bulb or room light assembly. |
| 5 | **CHECK HARNESS.**<br>1) Disconnect the connectors of body integrated unit and room light.<br>2) Check the harness between body integrated unit and room light.<br>***Connector & terminal***<br>***(i84) No. 4 — (R52) No. 2:*** | Is harness normal? | Go to step **6**. | Repair or replace the harness. |
| 6 | **CHECK HARNESS.**<br>Measure the voltage between the room light connector and chassis ground.<br>***Connector & terminal***<br>***(R52) No. 3 (+) — Chassis ground (–):*** | Is the voltage 10 V or more? | Replace the body integrated unit. <Ref. to SL-87, Body Integrated Unit.> | Repair or replace the harness. |

## 8. CHECK HAZARD LIGHT OPERATION

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK HAZARD LIGHT OPERATION.**<br>Make sure the hazard light blinks when hazard switch is turned to ON. | Does the hazard light blink? | Go to step **2**. | Check the hazard light circuit. |
| 2 | **CHECK BODY INTEGRATED UNIT SETTING.**<br>Display the data of «Abnormal warning lamp flashing setting» using Subaru Select Monitor.<br>NOTE:<br>For detailed procedures, refer to “PC application help for Subaru Select Monitor”. | Is the setting ON? | Go to step **3**. | Turn the setting to ON. |
| 3 | **CHECK CURRENT DATA.**<br>Display the data of «Hazard Output» using Subaru Select Monitor. | Is output signal present when operating the transmitter LOCK/UNLOCK button? | Go to step **4**. | Go to step **5**. |
| 4 | **CHECK KEYLESS ENTRY OPERATION.**<br>Press the LOCK/UNLOCK button of the keyless transmitter. | Does it operate properly? | Replace the body integrated unit. <Ref. to SL-87, Body Integrated Unit.> | Check keyless entry system. <Ref. to SL-22, SYMPTOM CHART, INSPECTION, Keyless Entry System.> |
| 5 | **CHECK HAZARD LIGHT CIRCUIT.**<br>1) Disconnect the connectors of the body integrated unit and turn signal & hazard unit.<br>2) Check the harness between body integrated unit and turn signal & hazard unit.<br>***Connector & terminal***<br>***(i171) No. 18 — (B32) No. 8:*** | Is harness normal? | Check body integrated unit. <Ref. to BC(diag)-2, Basic Diagnostic Procedure.> | Repair or replace the harness. |

## 9. CHECK KEYLESS BUZZER

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK BODY INTEGRATED UNIT SETTING.**<br>Display the data of «Answer-back buzzer setup» using Subaru Select Monitor.<br>NOTE:<br>For detailed procedures, refer to "PC application help for Subaru Select Monitor". | Is the setting ON? | Go to step **2**. | Turn the setting to ON. |
| 2 | **CHECK BODY INTEGRATED UNIT.**<br>Select and perform the «Keyless Buzzer Output» using Subaru Select Monitor. | Does the keyless buzzer sound? | Check the keyless control module. | Go to step **3**. |
| 3 | **CHECK KEYLESS BUZZER CIRCUIT.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the connectors of the body integrated unit and keyless buzzer.<br>3) Check the harness between body integrated unit and keyless buzzer.<br>***Connector & terminal***<br>***(B280) No. 20 — (B164) No. 1:*** | Is harness normal? | Go to step **4**. | Repair or replace the harness. |
| 4 | **CHECK HARNESS.**<br>Measure the resistance between keyless buzzer connector and chassis ground.<br>***Connector & terminal***<br>***(B164) No. 1 — Chassis ground:*** | Is the resistance value 10 kΩ or more? | Go to step **5**. | Repair or replace the short circuit of the harness. |
| 5 | **CHECK KEYLESS BUZZER CIRCUIT.**<br>Measure the resistance between the keyless buzzer connector and chassis ground.<br>***Connector & terminal***<br>***(B164) No. 2 — Chassis ground:*** | Is the resistance less than 10 Ω? | Go to step **6**. | Repair or replace the harness. |
| 6 | **CHECK BODY INTEGRATED UNIT.**<br>1) Connect the connector of body integrated unit.<br>2) Select and perform the «Keyless Buzzer Output» using Subaru Select Monitor.<br>3) Measure the voltage between body integrated unit connector and chassis ground using an oscilloscope.<br>***Connector & terminal***<br>***(B280) No. 20 (+) — Chassis ground (–):*** | Is the frequency 2 kHz or the voltage 9 V or more? | Replace the keyless buzzer. | Replace the body integrated unit. <Ref. to SL-87, Body Integrated Unit.> |

## 10.CHECK DOOR LOCK SWITCH

For operation procedures, refer to the "INSPECTION OF DOOR LOCK SWITCH" of the "Door Lock Control System". <Ref. to SL-16, CHECK DOOR LOCK SWITCH, INSPECTION, Door Lock Control System.>

## 11.CHECK IGNITION SWITCH ILLUMINATION

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK IGNITION CIRCUIT.**<br>Check the ignition circuit. <Ref. to SL-38, CHECK IGNITION SWITCH CIRCUIT, INSPECTION, Security System.> | Is the switch circuit normal? | Go to step **2**. | Repair or replace. |
| 2 | **CHECK DOOR SWITCH CIRCUIT.**<br>Inspect door switch circuit. <Ref. to SL-25, CHECK DOOR SWITCH, INSPECTION, Keyless Entry System.> | Is the switch circuit normal? | Go to step **3**. | Repair or replace. |
| 3 | **CHECK FUSE.**<br>Remove and visually check fuse No. 14 (in the main fuse box). | Is the fuse blown out? | Replace the fuse with a new part. | Go to step **4**. |
| 4 | **CHECK HARNESS.**<br>1) Disconnect the ignition switch illumination connector.<br>NOTE:<br>The ignition switch illumination is integrated into the immobilizer antenna.<br>2) Measure the voltage between ignition switch illumination connector and chassis ground.<br>***Connector & terminal***<br>***(B415) No. 2 (+) — Chassis ground (–):*** | Is the voltage 10 V or more? | Go to step **5**. | Check the harness for open or short circuits between the ignition switch illumination and fuse. |
| 5 | **CHECK IGNITION SWITCH ILLUMINATION CIRCUIT.**<br>1) Disconnect the connector of body integrated unit.<br>2) Check the harness between body integrated unit and ignition switch illumination.<br>***Connector & terminal***<br>***(B280) No. 25 — (B415) No. 6:*** | Is harness normal? | Go to step **6**. | Check the harness for open circuits and shorts between the body integrated unit and ignition switch illumination. |
| 6 | **CHECK IGNITION SWITCH ILLUMINATION BULB.**<br>Apply battery voltage between terminals of the bulb.<br>***Terminals***<br>***No. 2 (+) — No. 6 (–):*** | Does the bulb illuminate? | Replace the body integrated unit. <Ref. to SL-87, Body Integrated Unit.> | Replace the immobilizer antenna. <Ref. to SL-96, REMOVAL, Immobilizer Antenna.> |

# 5. Keyless Access System

## A: WIRING DIAGRAM

For wiring diagrams related to the keyless access system, refer to the following items. (HEV model)

- Keyless access system: <Ref. to WI(HEV)-158, WIRING DIAGRAM, Keyless Access System.>
- Push button start system: <Ref. to WI(HEV)-181, WIRING DIAGRAM, Push Button Start System.>

## B: ELECTRICAL SPECIFICATION

Refer to “Control Module I/O Signal” of “KEYLESS ACCESS WITH PUSH BUTTON START SYSTEM (DIAGNOSTICS)” section. <Ref. to KPS(diag)-16, ELECTRICAL SPECIFICATION, Control Module I/O Signal.>

## C: INSPECTION

### 1. KEYLESS ACCESS WITH PUSH BUTTON START SYSTEM

Refer to “Basic Diagnostic Procedure” of “KEYLESS ACCESS WITH PUSH BUTTON START SYSTEM (DIAGNOSTICS)” section. <Ref. to KPS(diag)-2, Basic Diagnostic Procedure.>

# 6. Push Button Start System

## A: WIRING DIAGRAM

For wiring diagrams related to the push button start system (ignition change), refer to the following items. (HEV model)

- Keyless access system: <Ref. to WI(HEV)-158, WIRING DIAGRAM, Keyless Access System.>
- Push button start system: <Ref. to WI(HEV)-181, WIRING DIAGRAM, Push Button Start System.>

## B: ELECTRICAL SPECIFICATION

Refer to “Control Module I/O Signal” of “KEYLESS ACCESS WITH PUSH BUTTON START SYSTEM (DIAGNOSTICS)” section. <Ref. to KPS(diag)-16, ELECTRICAL SPECIFICATION, Control Module I/O Signal.>

## C: INSPECTION

### 1. POWER SUPPLY SWITCH FUNCTION INSPECTION

1) Check push button ignition switch function

(1) Check the power supply change control through the operation of push button ignition switch, brake pedal, and shift position.

| Shift lever position | Brake pedal operation | Push button ignition switch operation |
|---|---|---|
| P | Released | Repeat Ignition OFF → ACC ON → Ignition ON → Ignition OFF |
| P | Released | Engine running or hybrid system operating → Ignition OFF |
| P | Depressed | Ignition OFF → Engine or hybrid system started |
| P | Depressed | ACC ON → Engine or hybrid system started |
| P | Depressed | Ignition ON → Engine or hybrid system started |
| P | Depressed | Engine running or hybrid system operating → Ignition OFF |
| N | Released | Repeat Ignition OFF → ACC ON → Ignition ON → ACC ON |
| N | Released | Engine running or hybrid system operating → ACC ON |
| N | Depressed | Ignition OFF → Engine or hybrid system started |
| N | Depressed | ACC ON → Engine or hybrid system started |
| N | Depressed | Ignition ON → Engine or hybrid system started |
| N | Depressed | Engine running or hybrid system operating → ACC ON |
| Other than P or N | Released | Repeat Ignition OFF → ACC ON → Ignition ON → ACC ON |
| Other than P or N | Released | Engine running or hybrid system operating → ACC ON |
| Other than P or N | Depressed | Ignition OFF → Ignition ON |
| Other than P or N | Depressed | ACC ON → Ignition ON |
| Other than P or N | Depressed | Engine running or hybrid system operating → ACC ON |

(2) Check the changeover functions other than push button ignition switch operation.
With ACC ON or Ignition ON, and with the shift lever in “P” position, leave the vehicle for 1 hour or more, and confirm that the vehicle status changed from ACC ON or Ignition ON to Ignition OFF.

(3) If the inspection result indicates an improper operation, check the push button start system. <Ref. to KPS(diag)-109, POWER SUPPLY SWITCHING SYSTEM, INSPECTION, General Diagnostic Table.>

2) Check power status display
(1) Check the power indicator display of the push button ignition switch.

NOTE:
*1: Key collation is normal, and the stop light switch (AT) is ON.
Indicator display

| Push button ignition switch status | Indicator lighting status |
|---|---|
| Ignition OFF (except for condition *1) | Light OFF |
| ACC ON (except for condition *1) | Orange light |
| Ignition ON (except for condition *1) | Orange light |
| Engine or hybrid system in start standby mode (*1) | Green light |
| After engine or hybrid system started | Light OFF |

(2) If the inspection result indicates an improper operation, check the push button start system. <Ref. to KPS(diag)-109, POWER SUPPLY SWITCHING SYSTEM, INSPECTION, General Diagnostic Table.>

NOTE:
The indicator blinks if any of the following malfunctions are detected.

| Detected malfunction | Indicator lighting status |
|---|---|
| Steering lock stuck | Green blinking |
| Steering lock CM internal malfunction | Orange blinking |
| Keyless access CM internal malfunction | Orange blinking |
| Vehicle speed signal malfunction | Orange blinking |

# 7. Security System

## A: WIRING DIAGRAM

Refer to “Security System” in the wiring diagram.
- Gasoline engine model: <Ref. to WI(w/o HEV)-199, WIRING DIAGRAM, Security System.>
- HEV model: <Ref. to WI(HEV)-203, WIRING DIAGRAM, Security System.>

## B: ELECTRICAL SPECIFICATION

Refer to “Control Module I/O Signal” of “BODY CONTROL SYSTEM (DIAGNOSTICS)” section. <Ref. to BC(diag)-6, ELECTRICAL SPECIFICATION, Control Module I/O Signal.>

## C: INSPECTION

### 1. BASIC DIAGNOSTIC PROCEDURE

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **INITIAL CHECK.**<br>Check the keyless entry system or keyless access system operation. | Does the keyless entry system or keyless access system operate normally? | Go to step **2**. | Check the keyless entry system or keyless access system.<br>• Keyless entry system: <Ref. to SL-22, INSPECTION, Keyless Entry System.><br>• Keyless access system: <Ref. to KPS(diag)-5, KEYLESS ACCESS WITH PUSH BUTTON START SYSTEM, CAUTION, General Description.> |
| 2 | **CHECK SECURITY ON/OFF SETTING.**<br>1) Remove the key from ignition switch or turn the power OFF, and then close all doors.<br>2) Check the status of security indicator light.<br>3) Press the LOCK button of the keyless transmitter or access key.<br>4) Check the security indicator light blinking patterns. | Is the security indicator light blinking patterns as follows?<br>• Before pressing the LOCK button: Blinks once within 3 seconds<br>• After pressing the LOCK button: When monitoring lag is set to 0 second, flashes twice within 0.5 seconds in 2 second intervals / When monitoring lag is set to 30 seconds, flashes once within 0.4 seconds in 30 seconds. | Go to step **4**. | Go to step **3**. |
| 3 | **CHANGE SETTING OF SECURITY SYSTEM.**<br>Change the setting of security system to ON using Subaru Select Monitor. <Ref. to SL-37, SECURITY SYSTEM ON/OFF SETTING, INSPECTION, Security System.> | Is setting change completed correctly? | Go to step **4**. | Replace the body integrated unit. <Ref. to SL-87, Body Integrated Unit.> |
| 4 | **CHECK SECURITY SYSTEM OPERATION.**<br>1) Remove the key from ignition switch or turn the power OFF, and then close all doors.<br>2) Press the LOCK button on the keyless transmitter or access key, then wait for 30 seconds.<br>3) Check the security indicator light blinking patterns. | Does the security indicator light blink twice within 0.5 seconds in 2 second intervals? | Go to step **5**. | Check the security indicator light. <Ref. to SL-38, CHECK SECURITY INDICATOR LIGHT CIRCUIT, INSPECTION, Security System.> |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 5 | **CHECK SECURITY ALARM OPERATION.**<br>1) Operate the driver's door lock switch to the UNLOCK side.<br>2) Open any door, trunk lid or rear gate. | Does the security alarm operate when opening any door, trunk lid, or rear gate? | Go to step **6**. | Check the following parts. <Ref. to SL-25, CHECK DOOR SWITCH, INSPECTION, Keyless Entry System.><br>• Door switches<br>• Trunk lid latch switch<br>• Rear gate latch switch |
| 6 | **CHECK SECURITY ALARM OPERATION.**<br>Check the security alarm operation status. | During the operation, does the horn keep sounding and the hazard light blink? | Go to step **7**. | Check the following parts. <Ref. to SL-25, CHECK DOOR SWITCH, INSPECTION, Keyless Entry System.><br>• Horn: <Ref. to SL-38, CHECK HORN, INSPECTION, Security System.><br>• Hazard light: <Ref. to SL-38, CHECK HAZARD LIGHT OPERATION, INSPECTION, Security System.> |
| 7 | **CHECK SECURITY ALARM CANCEL OPERATION.**<br>Press any button of the transmitter or access key while the security alarm is operating. | Do the horn sound and the blinking of the hazard light stop? | Go to step **8**. | Replace the body integrated unit. <Ref. to SL-87, Body Integrated Unit.> |
| 8 | **CHECK IMPACT SENSOR (DEALER OPTION).**<br>Check the sensibility of impact sensor. <Ref. to SL-82, CHECK IMPACT SENSOR, ADJUSTMENT, Impact Sensor.> | Is the sensibility set properly? | Go to step **9**. | Adjust the sensitivity. <Ref. to SL-82, IMPACT SENSITIVITY ADJUSTMENT, ADJUSTMENT, Impact Sensor.> |
| 9 | **CHECK SECURITY SYSTEM CONDITION MEMORY.**<br>1) Remove the key from ignition switch or turn the power OFF, and then close all doors.<br>2) Open the front hood.<br>3) Press the LOCK button on the keyless transmitter or access key, then wait for 30 seconds.<br>4) Disconnect the ground cable from battery. <Ref. to NT-5, BATTERY, NOTE, Note.><br>NOTE:<br>For the 12 volt engine restart battery of HEV model, disconnect the ground terminal from 12V engine restart battery sensor.<br>5) Connect the ground cable to battery. <Ref. to NT-5, BATTERY, NOTE, Note.><br>6) Check the status of security indicator light. | Does the security indicator light blinks twice within 0.5 seconds at 2 second intervals? | Go to step **10**. | Replace the body integrated unit. <Ref. to SL-87, Body Integrated Unit.> |

| Step | | Check | Yes | No |
|---|---|---|---|---|
| 10 | **CHECK SECURITY SYSTEM MANUAL ON/OFF SETTING.**<br>1) Press the UNLOCK button of the keyless transmitter or access key.<br>2) Change the setting of security system. <Ref. to SL-37, SECURITY SYSTEM ON/OFF SETTING, INSPECTION, Security System.> | Is setting change completed correctly? | Restore the security system settings to those before the diagnosis and finish the diagnosis. | Check the following parts.<br>• Ignition switch circuit: <Ref. to SL-74, INSPECTION, Ignition Key Lock.><br>• Door lock switch circuit: <Ref. to SL-16, CHECK DOOR LOCK SWITCH, INSPECTION, Door Lock Control System.> |

NOTE:
If the horn sounds when the security is turned on (monitor condition) using the keyless transmitter or access key, check the function setting of the body integrated unit. As a cause, it is possible that the impact sensor present (ON) / not present (OFF) setting is set to ON in the customization function though there is no impact sensor. <Ref. to BC(diag)-18, User Customizing.>

## 2. CHECK SECURITY SYSTEM CONDITION MEMORY

1) Pull out the key from the ignition switch, or turn the ignition to OFF.
2) Close all the doors, trunk lid or rear gate.
3) Open the front hood.
4) Press the LOCK button of the keyless transmitter or access key.

NOTE:
Wait until the security indicator light blinks twice within 0.5 seconds at 2 second intervals.
If the 30 second monitoring lag has been set, wait for 30 seconds.
5) Disconnect the ground cable from battery. <Ref. to NT-5, BATTERY, NOTE, Note.>

NOTE:
For the 12 volt engine restart battery of HEV model, disconnect the ground terminal from 12V engine restart battery sensor.
6) Connect the ground cable to battery. <Ref. to NT-5, BATTERY, NOTE, Note.>
7) Check that the security indicator light blinks twice within 0.5 seconds at 2 second intervals. When it does not blink, replace the body integrated unit.

## 3. SECURITY SYSTEM ON/OFF SETTING

NOTE:
It can be set by «Security Alarm Setup» in unit customizing using Subaru Select Monitor.
For detailed procedures, refer to “PC application help for Subaru Select Monitor”.
1) Close all doors, trunk lid or rear gate, and sit down on the driver seat. Press the UNLOCK button of the keyless transmitter or access key.
2) Turn the ignition to ON.
3) Press the central door unlock switch and open the driver’s door simultaneously. (Keep the central door unlock switch pressed down.)
4) When the condition in step 3) continues for 10 seconds, the system switches to a mode reverse to the current mode.

| Setting | Horn activation | Meter display |
|---|---|---|
| ON → OFF | Twice | [AL_OF] |
| OFF → ON | Once | [AL_ON] |

## 4. CHECK DOOR SWITCH

For operation procedure, refer to “CHECK DOOR SWITCH” of “Keyless Entry System”. <Ref. to SL-25, CHECK DOOR SWITCH, INSPECTION, Keyless Entry System.>

## 5. CHECK SECURITY INDICATOR LIGHT CIRCUIT

For operation procedures, refer to “CHECK SECURITY INDICATOR LIGHT CIRCUIT” of “IMMOBILIZER (DIAGNOSTICS)” section. <Ref. to IM(diag)-11, CHECK SECURITY INDICATOR LIGHT CIRCUIT, INSPECTION, Diagnostics Chart for Security Indicator Light.>

## 6. CHECK HORN

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK HORN OPERATION.**<br>Check the horn sounds when the horn switch is pushed. | Does the horn sound? | Go to step **2**. | Check the horn circuit. |
| 2 | **CHECK BODY INTEGRATED UNIT.**<br>Select and perform the «Horn Output» using Subaru Select Monitor.<br>NOTE:<br>For detailed procedures, refer to “PC application help for Subaru Select Monitor”. | Does the horn sound? | Horn circuit is OK. | Go to step **3**. |
| 3 | **CHECK HORN RELAY CIRCUIT.**<br>1) Turn the ignition switch to OFF or turn the power to OFF.<br>2) Disconnect the connector of body integrated unit.<br>3) Remove the horn relay.<br>4) Check the harness between body integrated unit and horn relay.<br>***Connector & terminal***<br>***(B280) No. 24 — Horn relay No. 4:*** | Is harness normal? | Check body integrated unit. <Ref. to BC(diag)-2, Basic Diagnostic Procedure.> | Repair or replace the harness. |

## 7. CHECK HAZARD LIGHT OPERATION

For operation procedure, refer to “CHECK HAZARD LIGHT OPERATION” of “Keyless Entry System”. <Ref. to SL-29, CHECK HAZARD LIGHT OPERATION, INSPECTION, Keyless Entry System.>

## 8. CHECK IGNITION SWITCH CIRCUIT

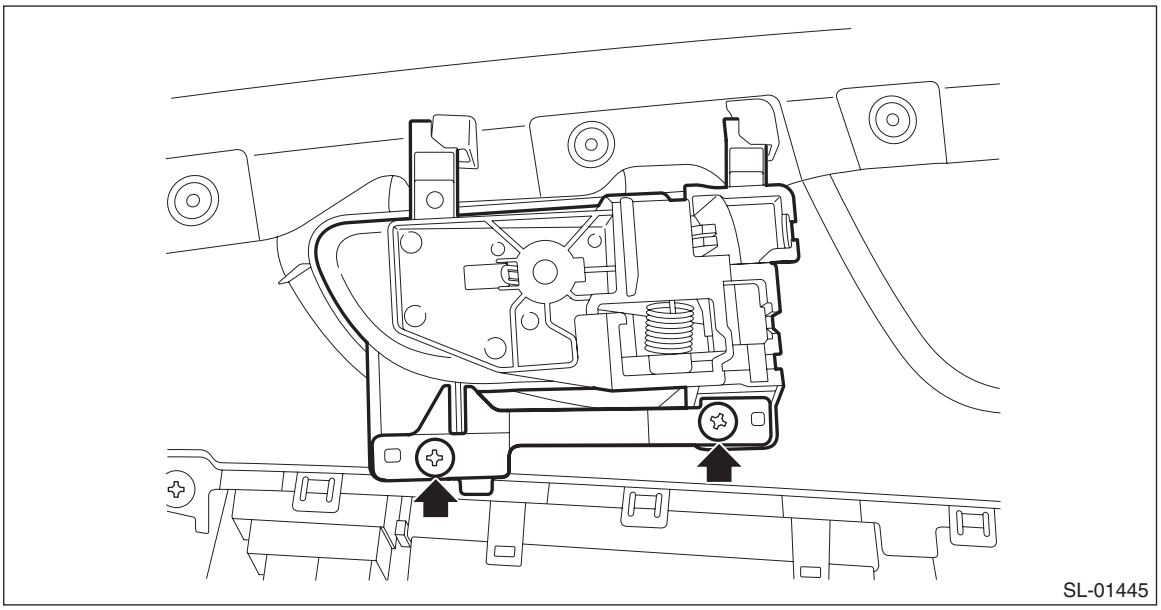
| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK CURRENT DATA.**<br>Display the data of «BATT voltage» and «IG power supply voltage» using the Subaru Select Monitor.<br>NOTE:<br>For detailed procedures, refer to “PC application help for Subaru Select Monitor”. | Does the «IG power supply voltage» indicate 0 V when the ignition is OFF, and fall within a range of ±1 V from the «BATT voltage» when the ignition is ON? | The ignition switch input circuit is OK. | Go to step **2**. |
| 2 | **CHECK IGNITION SWITCH CIRCUIT.**<br>1) Turn the ignition switch to OFF or turn the power to OFF.<br>2) Disconnect the connector of body integrated unit.<br>3) Turn the ignition switch to ON.<br>4) Measure the voltage between the body integrated unit connector and chassis ground.<br>***Connector & terminal***<br>***(B281) No. 3 (+) — Chassis ground (–):*** | Is the voltage 10 V or more? | Check body integrated unit. <Ref. to BC(diag)-2, Basic Diagnostic Procedure.> | Check the harness for open or short circuit between body integrated unit and fuse. |

# 8. Front Inner Remote

## A: REMOVAL

1) Remove the trim panel - front door. <Ref. to EI-72, FRONT DOOR, REMOVAL, Door Trim.>
2) Remove the screw, and remove the remote assembly - door.

**CAUTION:**
**The remote assembly - door is tightened with the plate. Be careful not to drop or damage the part.**




## B: INSTALLATION

1) Before installation, check the following items.
- Cable is free from deformation such as fray.
- Grease is applied sufficiently to cable joints.

If grease is insufficient, add it as necessary before assembling the cable.
- If the lever is faulty, replace the front inner remote handle.

2) Install each part in the reverse order of removal.

**CAUTION:**
**Securely install the plate.**

## C: INSPECTION

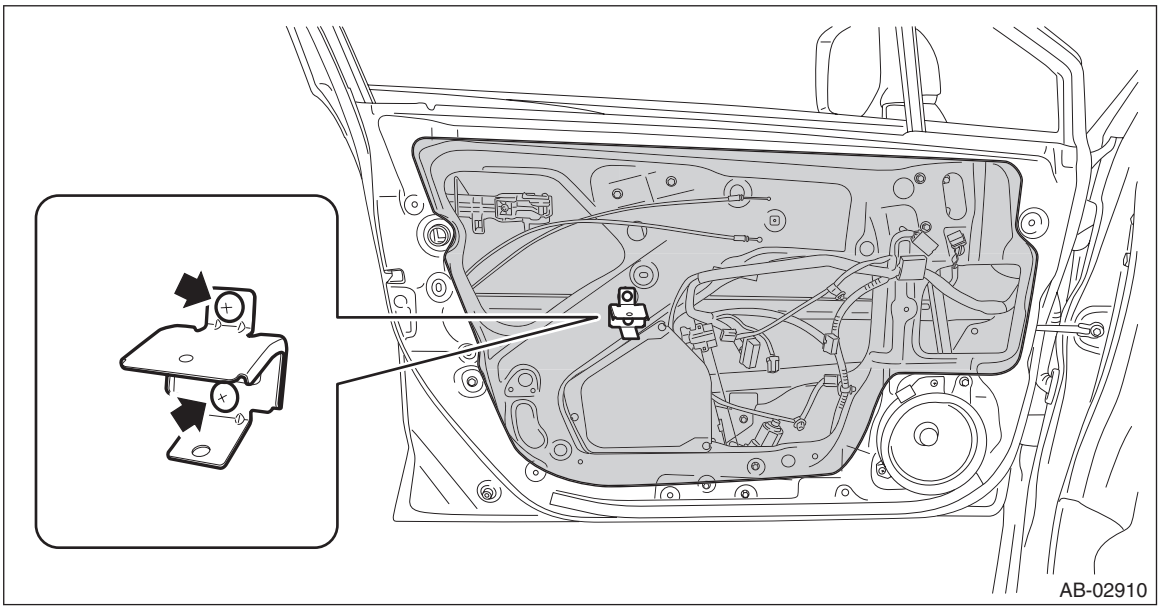
Check if the remote handle operates normally.
- If the lever is faulty, replace the remote handle.
- If the cable is deformed, replace the latch & actuator assembly - front.

# 9. Front Outer Handle

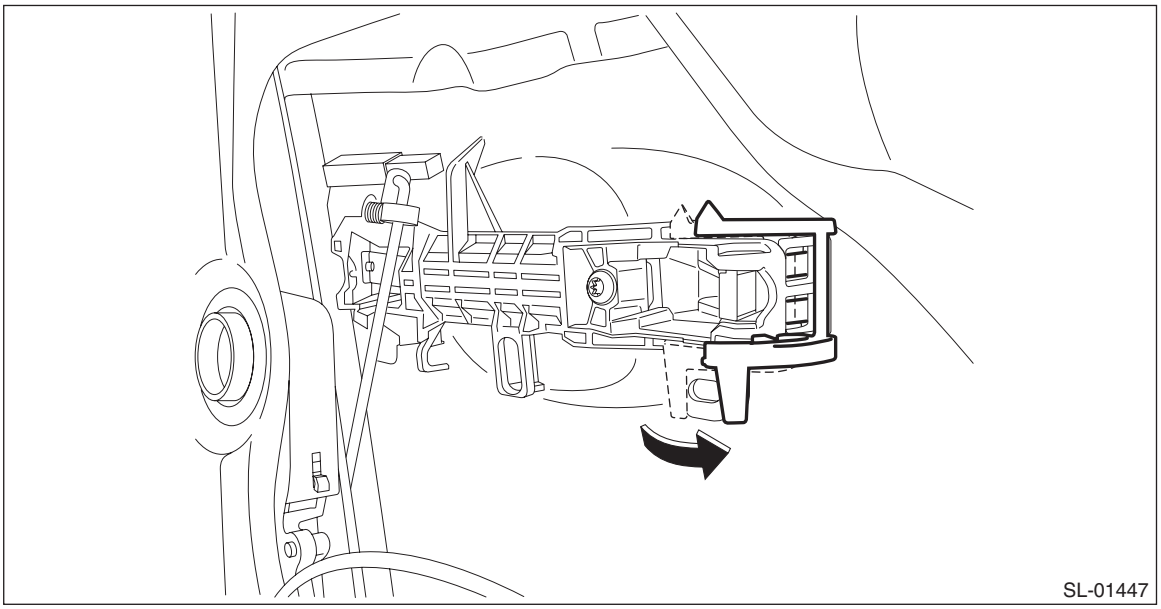
## A: REMOVAL

1) Raise the glass assembly - front door to the top position.
2) Remove the trim panel - front door. <Ref. to EI-72, FRONT DOOR, REMOVAL, Door Trim.>
3) Remove the sealing cover - front door.

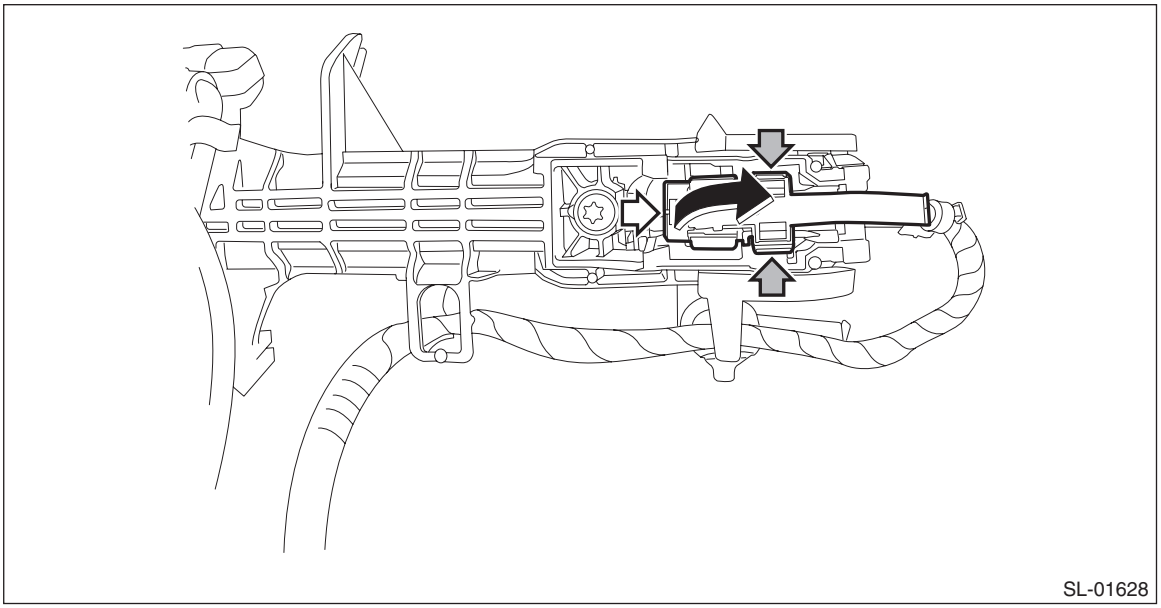
**CAUTION:**
- **Carefully remove the butyl tape. Excessive force will easily break the sealing cover - front door.**
- **If the sealing cover - front door gets broken, replace it with a new part.**
  (1) Remove the screw to remove the bracket - door trim front.
  (2) Disconnect connectors.
  (3) Carefully remove the butyl tape to remove the sealing cover - front door.




4) Remove the holder of the frame assembly - front door outer.



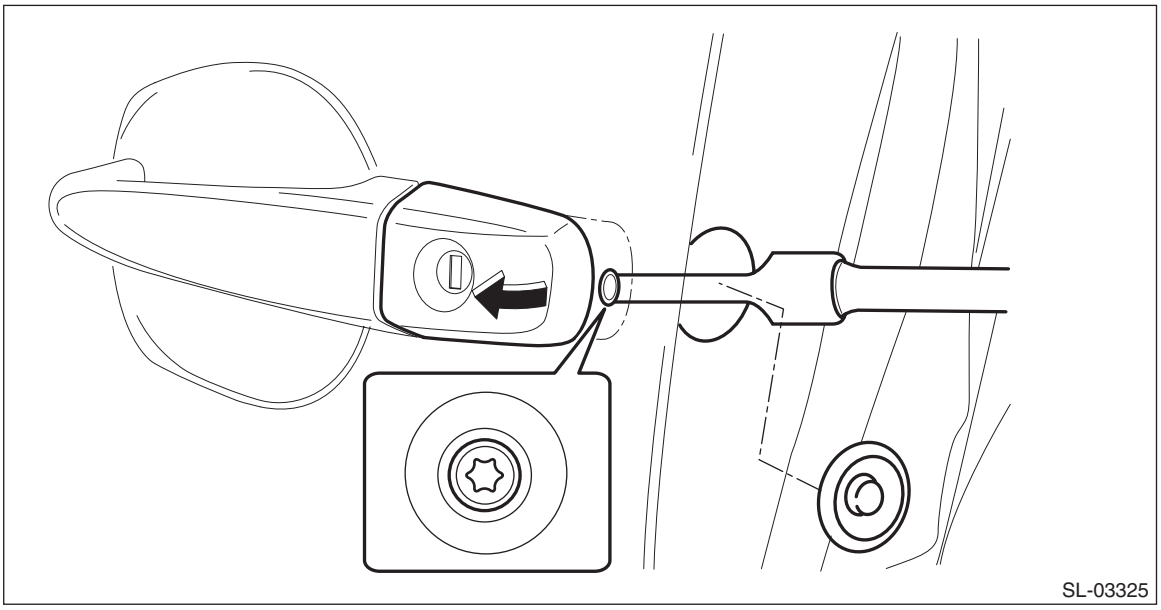
NOTE:
For model with keyless access, disconnect the harness clip and exterior antenna (touch sensor) connector.


SL-01628

5) Remove the cover - handle front outer.

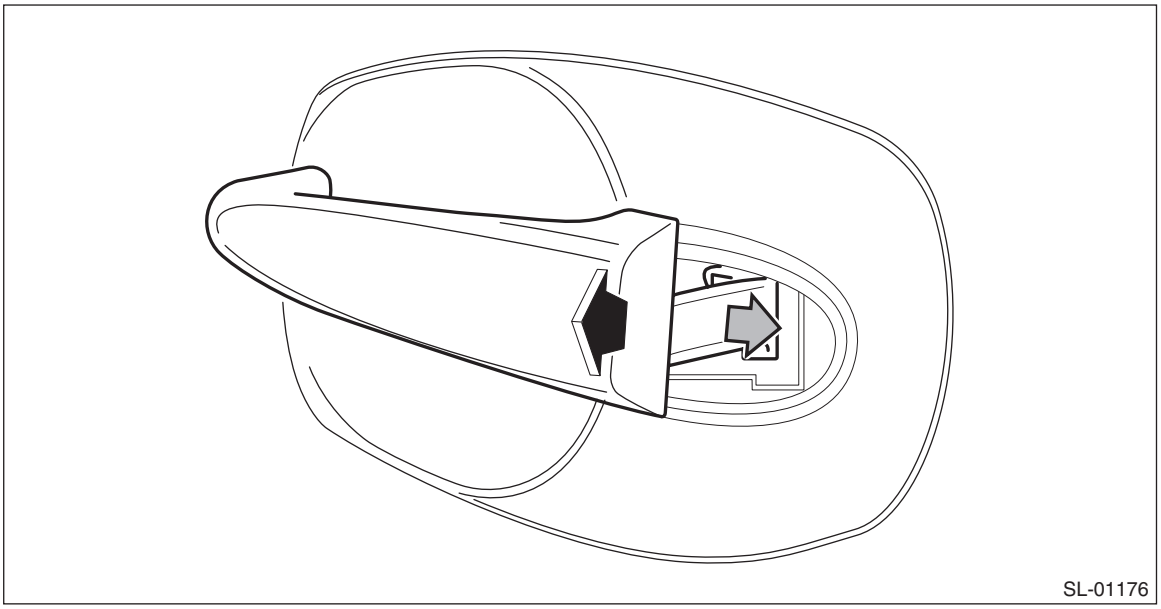
***Preparation tool:***
***TORX® T30***

(1) Remove the plug at the rear end of the panel assembly - front door.
(2) Loosen the TORX® bolt and remove the cover - handle front outer.


SL-03325

6) Remove the handle - door outer by moving it rearward.

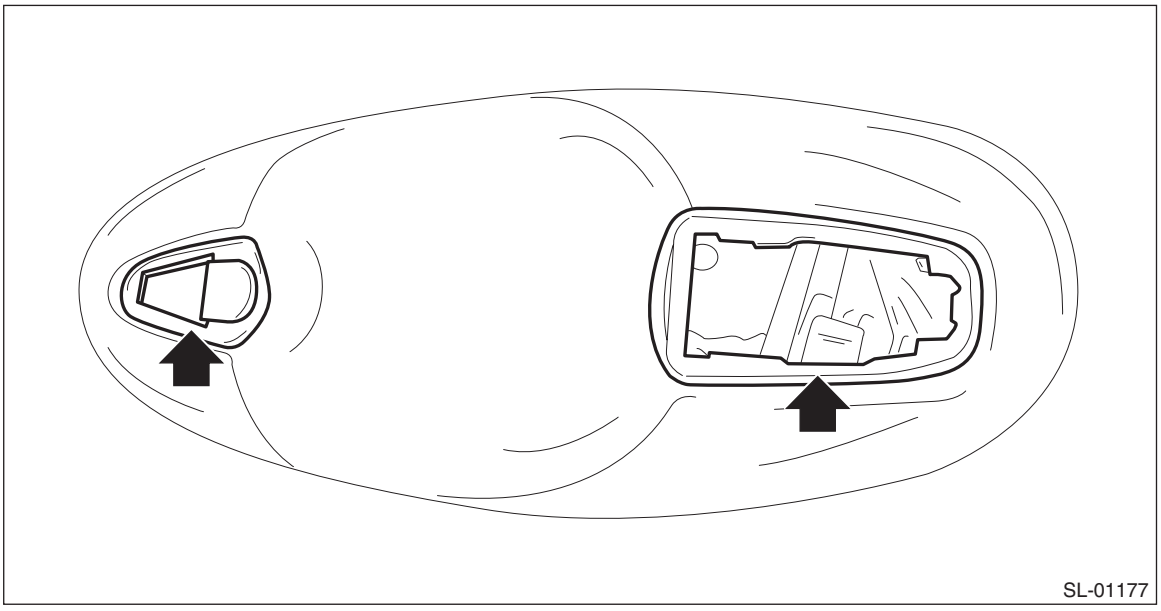
**CAUTION:**
**Do not apply excessive force to remove the handle - door outer from the panel assembly - front door. The panel assembly - front door may be deformed.**




7) Remove the frame assembly - front door outer.

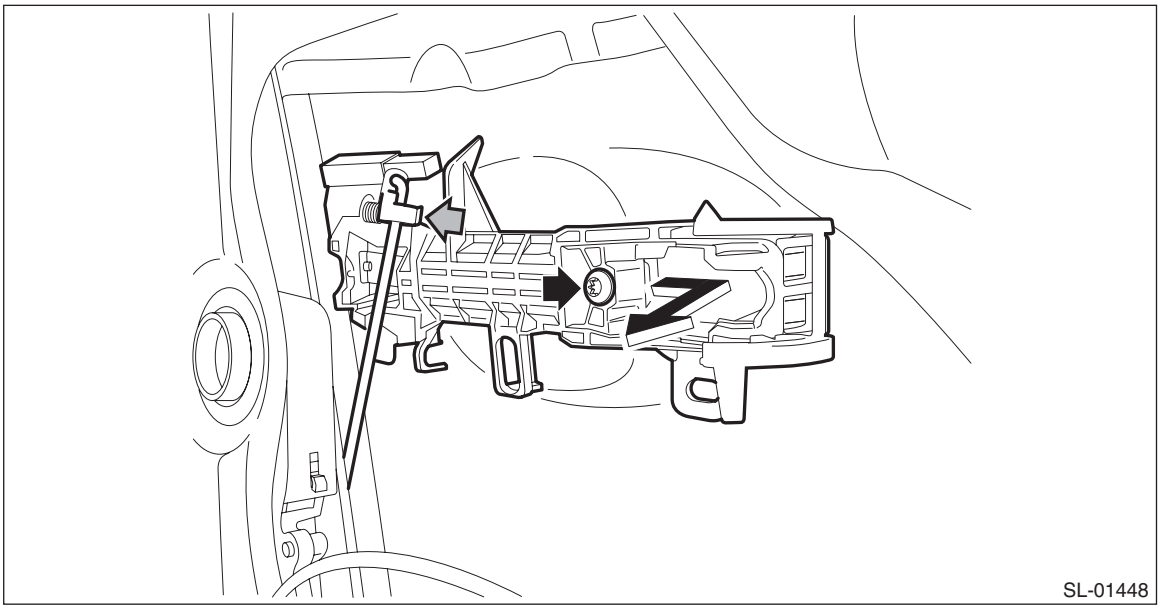
***Preparation tool:***
***TORX® T30***

(1) Remove the spacer - door handle outer.




(2) Remove the rod from the rod clamp of the frame assembly - front door outer.

(3) Loosen the TORX® bolt and remove the frame assembly - front door outer from inside the panel assembly - front door.




## B: INSTALLATION

1) Before installation, check the following items.
- Rod is free from deformation.
- Grease is applied sufficiently to rod joints.

If grease is insufficient, add it as necessary before assembling the rod.
- If the lever is faulty, replace the front outer handle.
- If the rod is deformed, replace the latch & actuator assembly - front.

2) Install each part in the reverse order of removal.

**CAUTION:**
**When installing the cover - handle front outer on driver's side, make sure that the key cylinder shaft is correctly inserted into the latch & actuator assembly - front.**

***Tightening torque:***
***Refer to "COMPONENT" of "General Description". <Ref. to SL-2, DOOR LOCK ASSEMBLY, COMPONENT, General Description.>***

## C: INSPECTION

Check if the outer handle operates normally.
- If the lever is faulty, replace the handle - door outer.
- If the rod is deformed, replace the latch & actuator assembly - front.

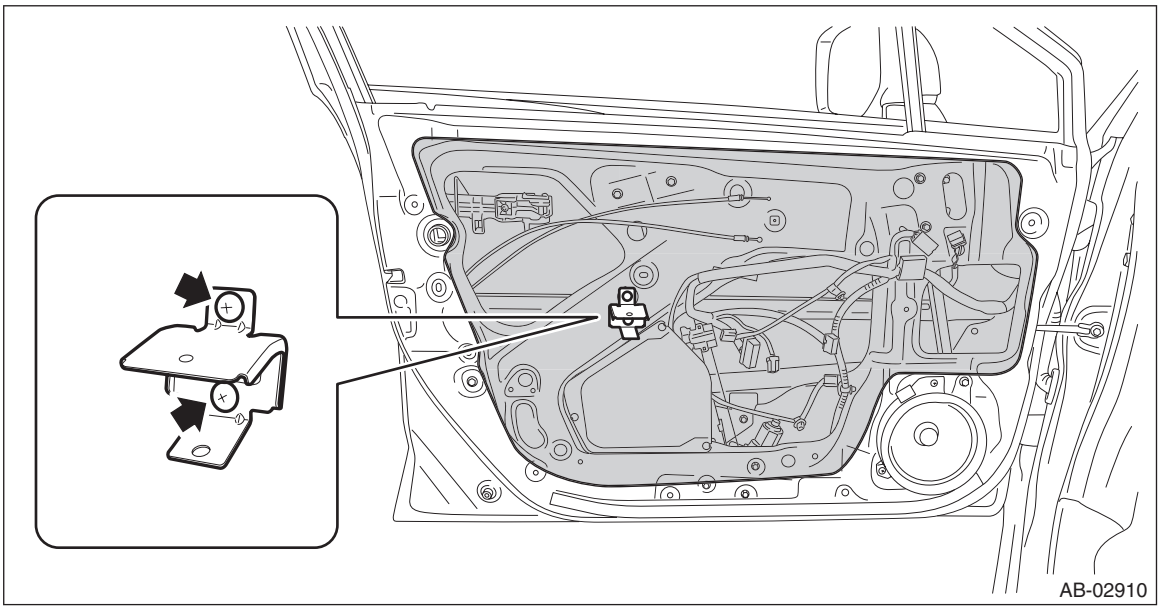
For model with keyless access system, check that the keyless access function operates normally.
If the system does not operate normally, refer to "General Diagnostic Table" of the "KEYLESS ACCESS WITH PUSH BUTTON START SYSTEM (DIAGNOSTICS)" section. <Ref. to KPS(diag)-109, KEYLESS ACCESS SYSTEM, INSPECTION, General Diagnostic Table.>

# 10.Front Door Latch and Door Lock Actuator Assembly

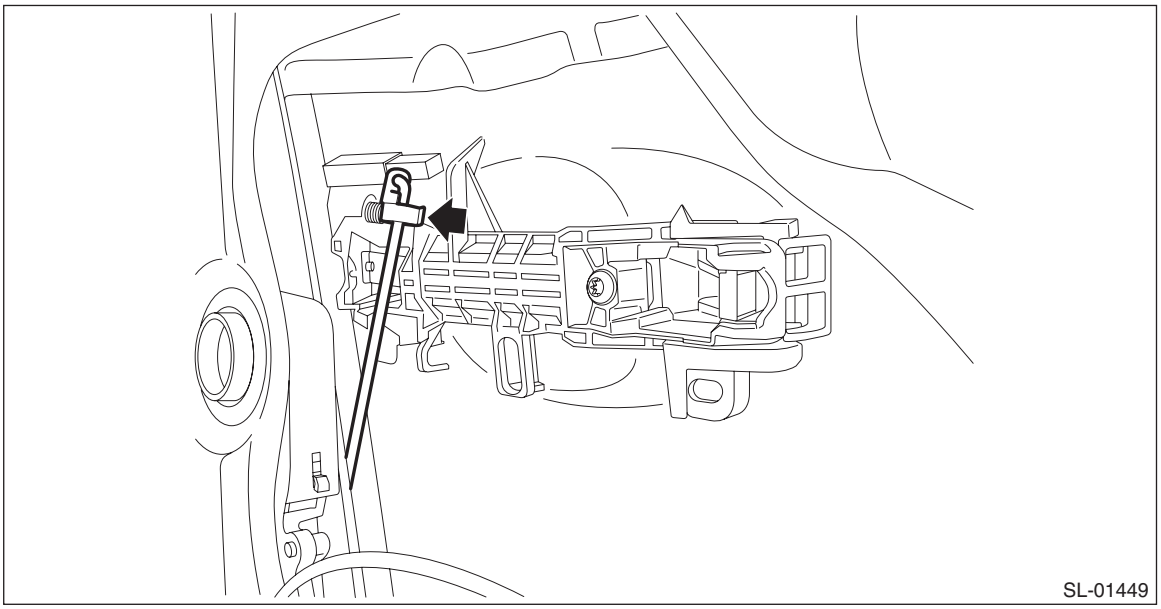
## A: REMOVAL

1) Raise the glass assembly - front door to the top position.
2) Remove the trim panel - front door. <Ref. to EI-72, FRONT DOOR, REMOVAL, Door Trim.>
3) Remove the sealing cover - front door.

**CAUTION:**
- **Carefully remove the butyl tape. Excessive force will easily break the sealing cover - front door.**
- **If the sealing cover - front door gets broken, replace it with a new part.**
  (1) Remove the screw to remove the bracket - door trim front.
  (2) Disconnect connectors.
  (3) Carefully remove the butyl tape to remove the sealing cover - front door.

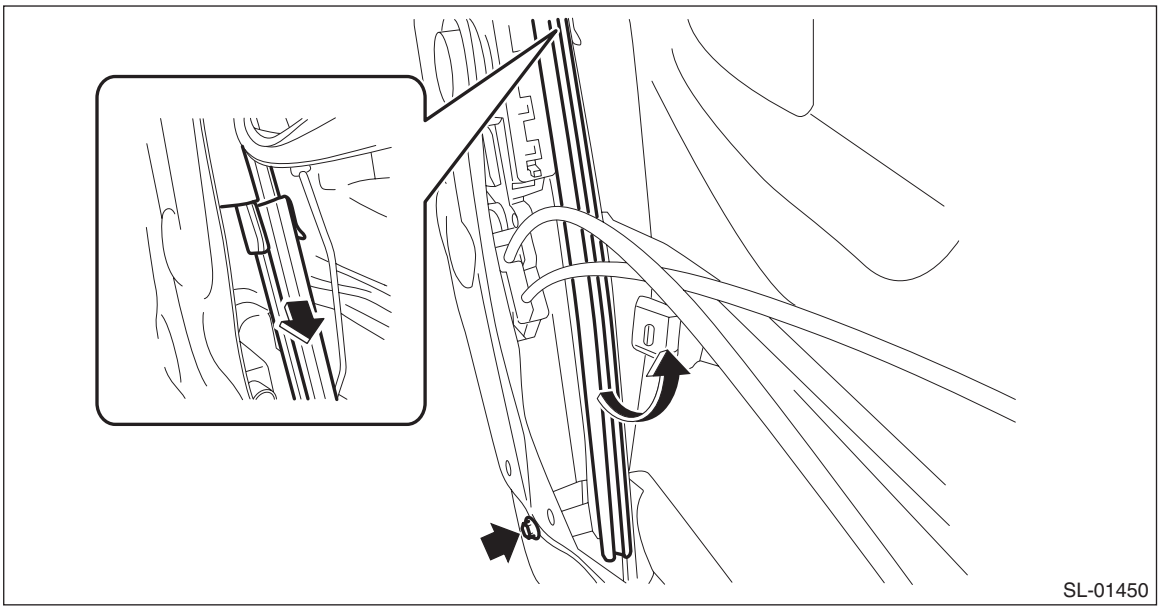



4) Remove the rod from the rod clamp of the frame assembly - front door outer.

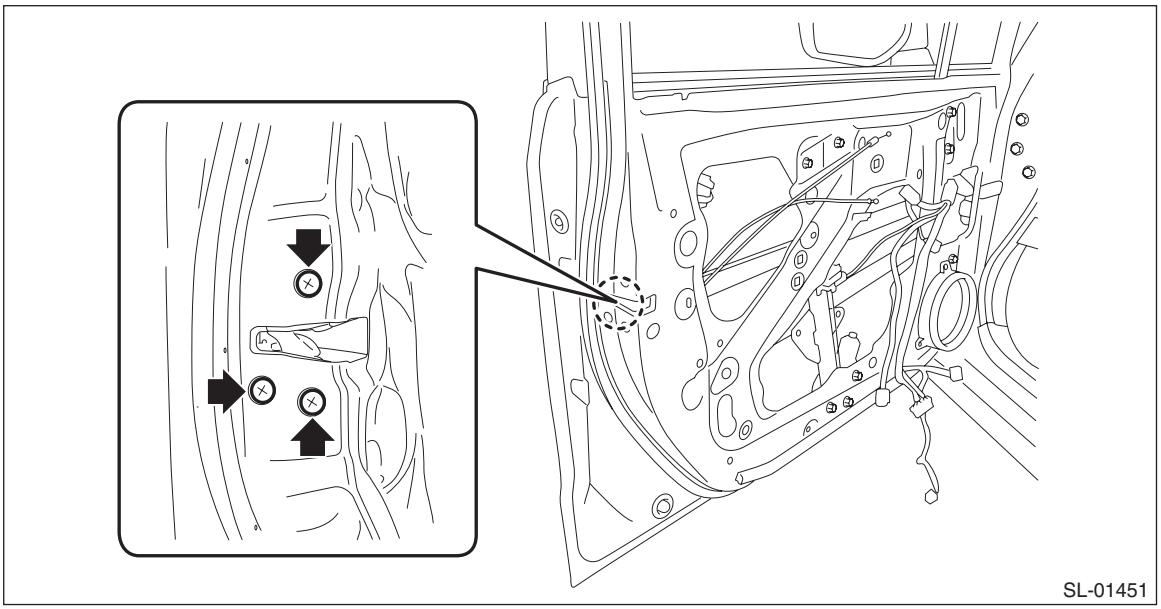



5) Remove the cover - handle front outer. <Ref. to SL-78, FRONT DOOR, REPLACEMENT, Key Lock Cylinders.>

6) Remove the sash COMPL - lower.
(1) Remove the lower side of the running channel - front door.
(2) Remove the bolts, and remove the sash COMPL - lower.




7) Remove the screws to remove the latch & actuator assembly - front.




## B: INSTALLATION

1) Before installation, check the following items.
- Cable and rod are free from deformation.
- Grease is applied sufficiently to rod joints and remote cable joints.

If grease is insufficient, add it as necessary before assembling the rod.
2) Install each part in the reverse order of removal.

***Tightening torque:***
***Door lock assembly: <Ref. to SL-2, DOOR LOCK ASSEMBLY, COMPONENT, General Description.>***
***Sash COMPL - lower: 7.5 N·m (0.76 kgf-m, 5.5 ft-lb)***

# C: INSPECTION

## 1. LATCH

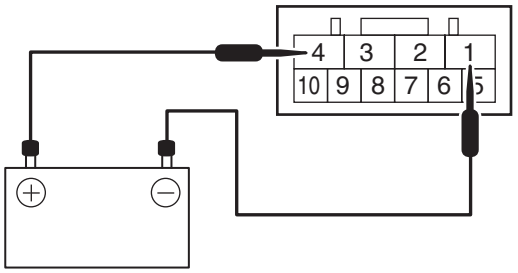
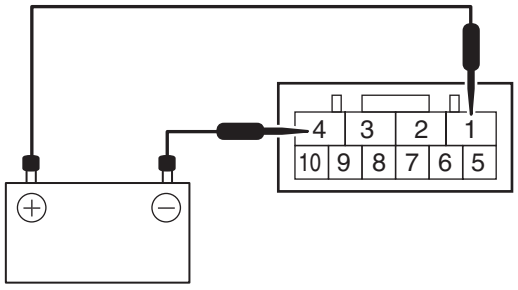
Check if the latch operates normally.
If the cable or rod is faulty, replace the latch & actuator assembly - front.

## 2. LOCK ACTUATOR

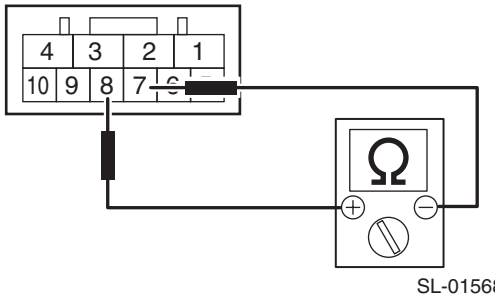
### UNIT INSPECTION

***Preparation tool:***
***Circuit tester***

1) Check door lock operation
Check the door lock operation when battery voltage is applied between the terminals of actuator.

| Terminal No. | Inspection conditions | Specification | Connection diagram |
|---|---|---|---|
| 4 (+) — 1 (–) | Apply battery voltage. | LOCK |  SL-01474 |
| 1 (+) — 4 (–) | | UNLOCK |  SL-01473 |

2) Check position switch
Check the resistance between actuator terminals.

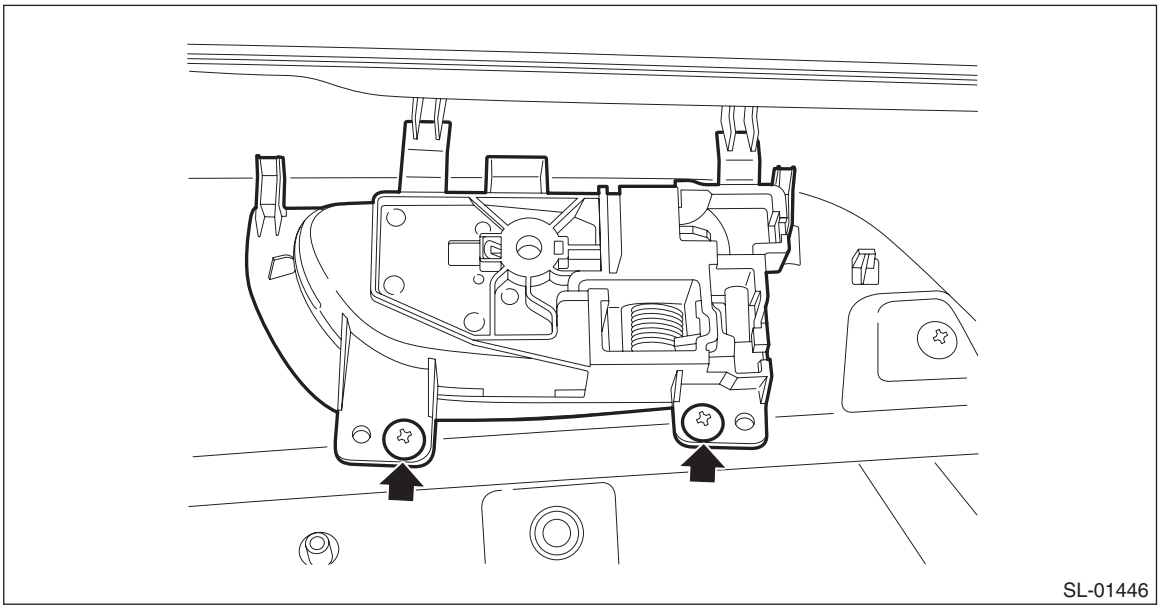
| Terminal No. | Inspection conditions | Standard | Connection diagram |
|---|---|---|---|
| 8 — 7 | LOCK | 1 MΩ or more |  SL-01568 |
| | UNLOCK | Less than 1 Ω | |

3) Replace the latch & actuator assembly - front if it is found defective.

# 11.Rear Inner Remote

## A: REMOVAL

1) Remove the trim panel - rear door. <Ref. to EI-73, REAR DOOR, REMOVAL, Door Trim.>
2) Remove the screw, and remove the remote assembly - door.




## B: INSTALLATION

1) Before installation, check the following items.
- Cable is free from deformation such as fray.
- Grease is applied sufficiently to cable joints.

If grease is insufficient, add it as necessary before assembling the cable.
- If the lever is faulty, replace the rear inner remote handle.

2) Install each part in the reverse order of removal.

## C: INSPECTION

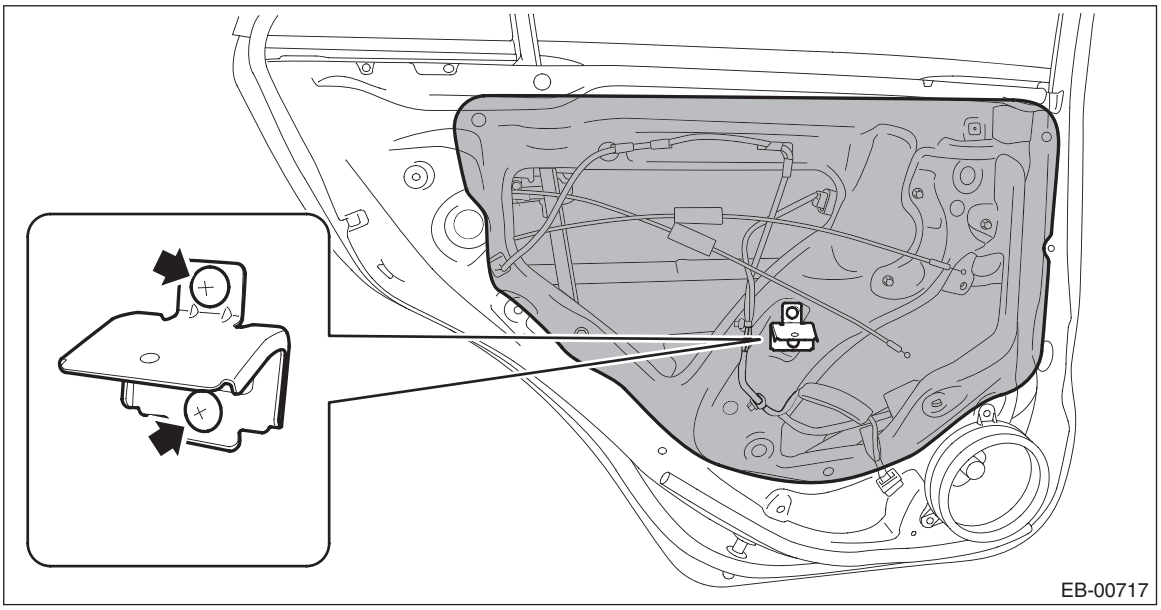
Check if the remote handle operates normally.
- If the lever is faulty, replace the remote handle.
- If the cable is deformed, replace the latch & actuator assembly - rear.

# 12.Rear Outer Handle

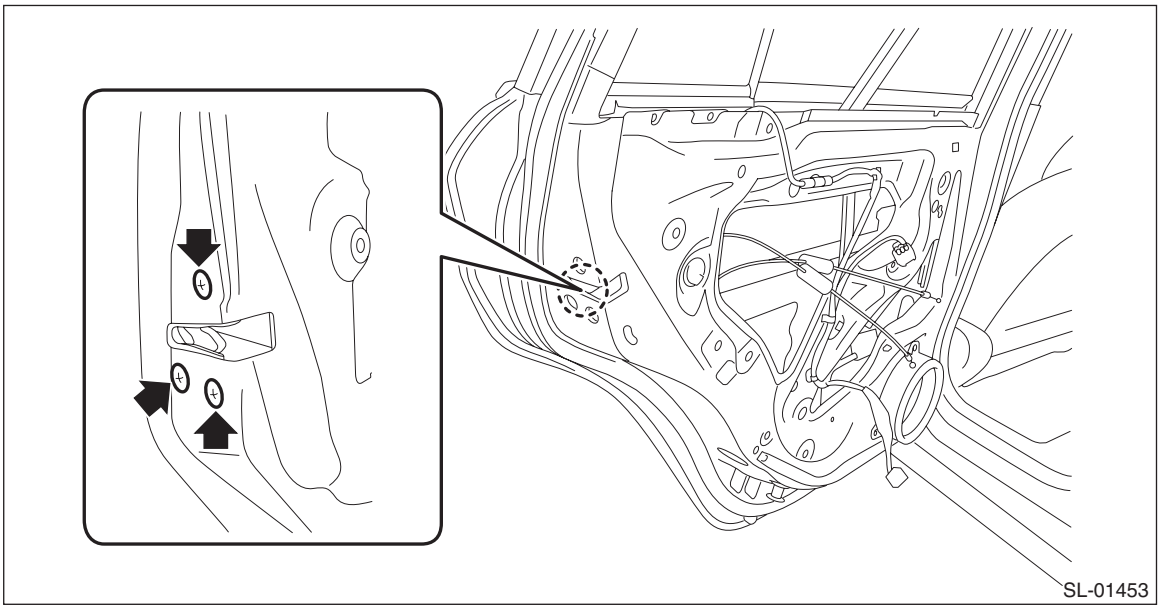
## A: REMOVAL

1) Raise the glass assembly - rear door to the top position.
2) Remove the trim panel - rear door. <Ref. to EI-73, REAR DOOR, REMOVAL, Door Trim.>
3) Remove the sealing cover - rear door.

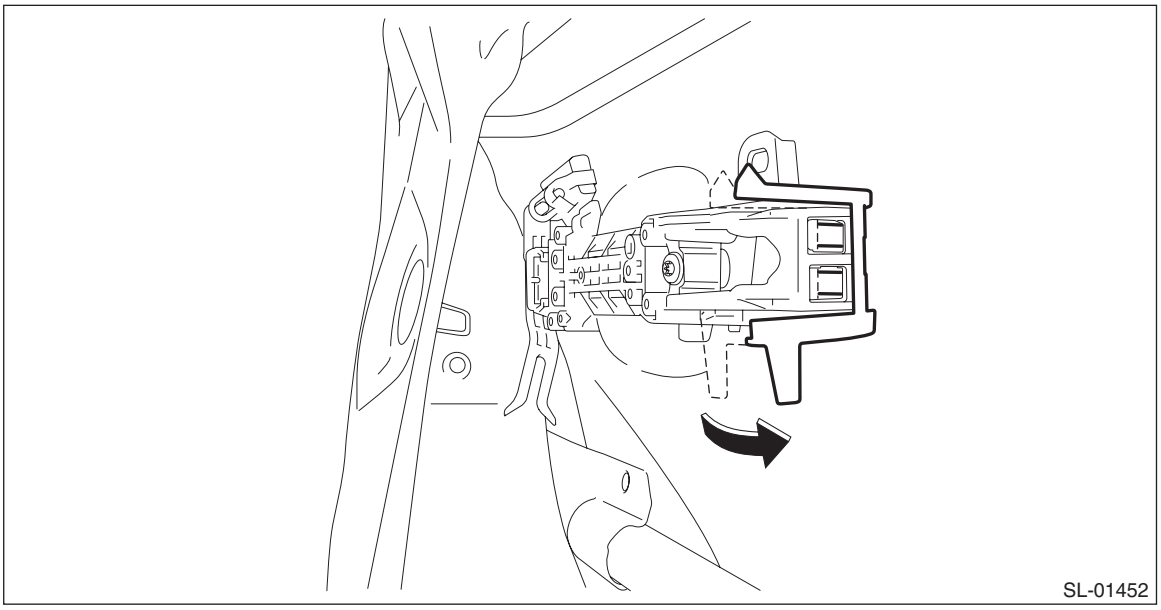
**CAUTION:**
- **Carefully remove the butyl tape. Excessive force will easily break the sealing cover - rear door.**
- **If the sealing cover - rear door gets broken, replace it with a new part.**
  (1) Remove the screw to remove the bracket - door trim rear.
  (2) Disconnect connectors.
  (3) Carefully remove the butyl tape to remove the sealing cover - rear door.




4) Remove the screws and move downward the latch & actuator assembly - rear.



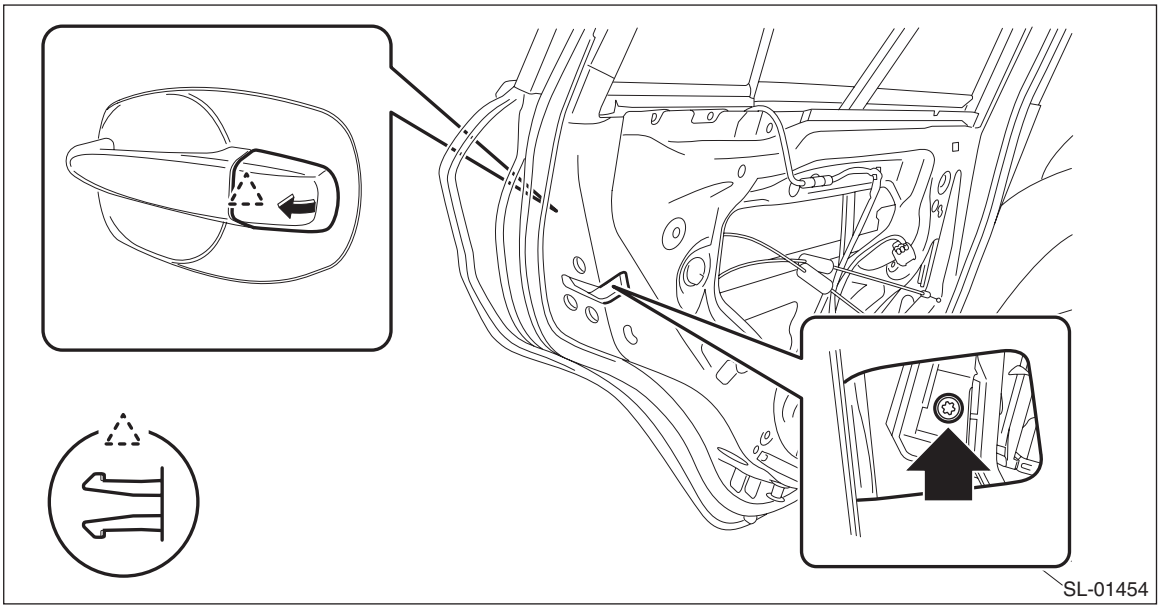
5) Remove the holder of the frame assembly - rear door outer.




6) Remove the cover - handle rear outer.

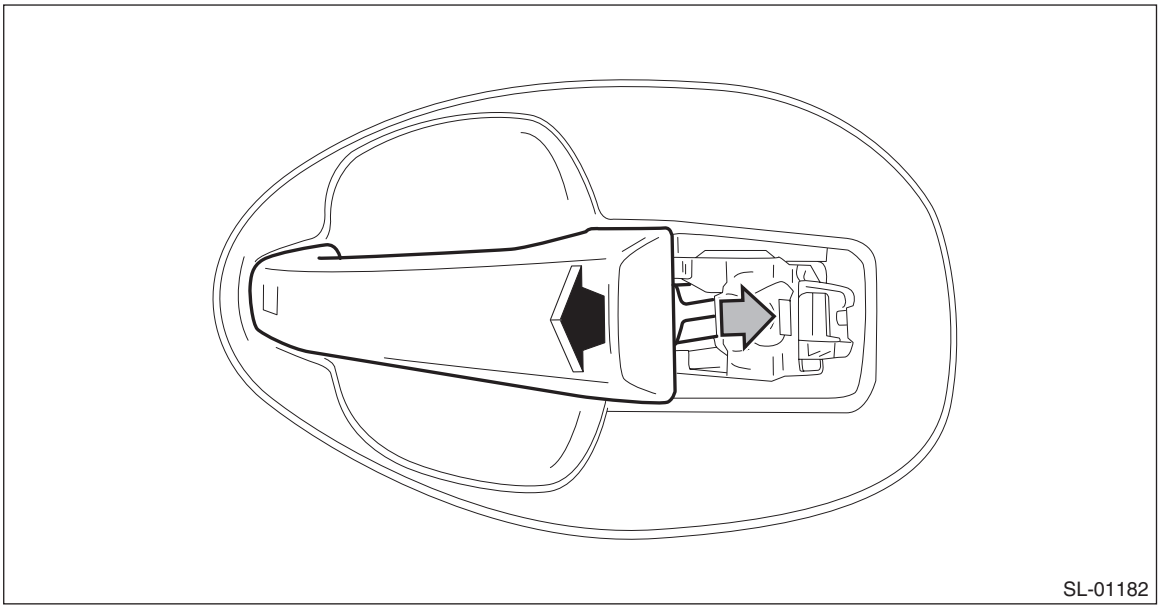
***PREPARATION TOOL:***
***TORX® T30***

(1) Loosen the TORX® bolt.
(2) Release the claws, and then remove the cover - handle rear outer.



7) Remove the handle - door outer by moving it rearward.

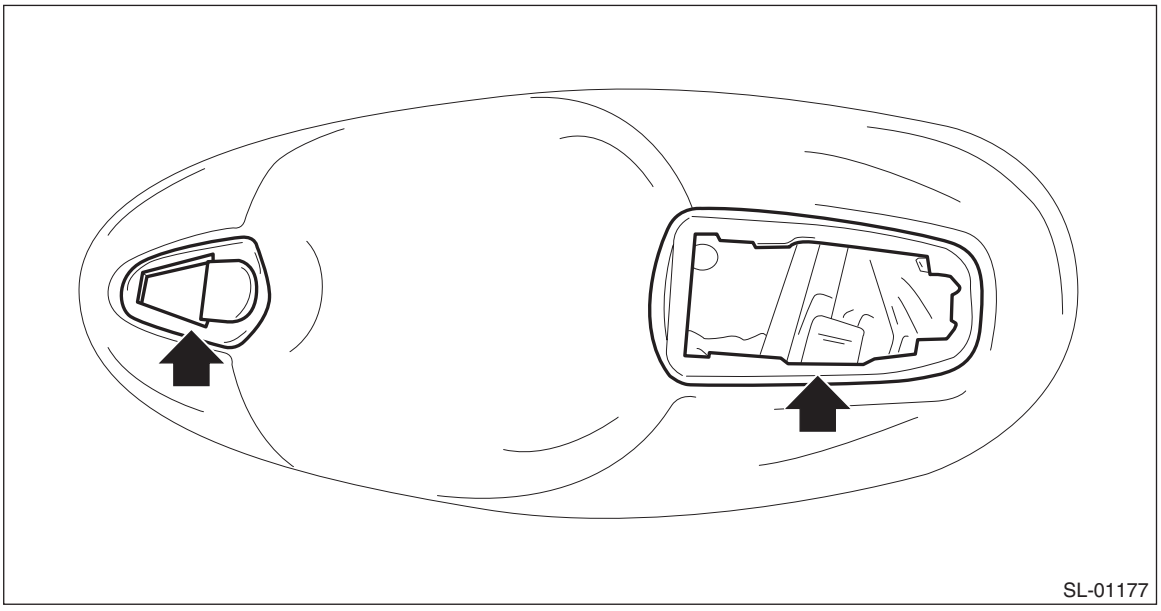
**CAUTION:**
**Do not apply excessive force to remove the handle - door outer from the panel assembly - rear door. The panel assembly - rear door may be deformed.**



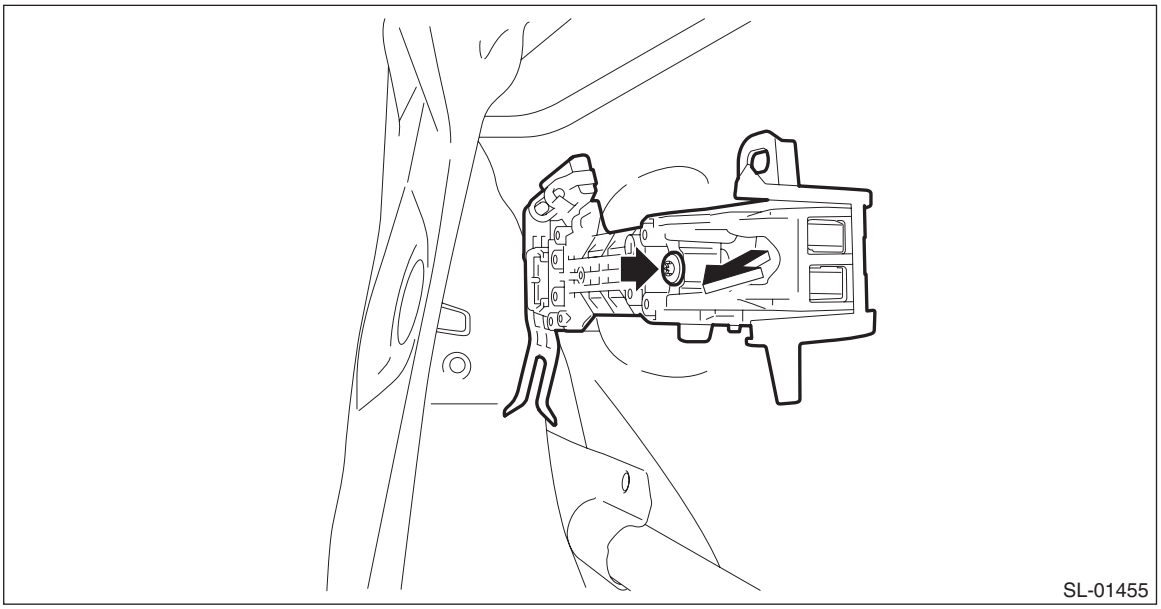

8) Remove the frame assembly - rear door outer.

***PREPARATION TOOL:***
***TORX® T30***

(1) Remove the spacer - door handle outer.



(2) Loosen the TORX® bolt and remove the frame assembly - rear door outer from inside the panel assembly - rear door.




## B: INSTALLATION

1) Before installation, check the following items.
- Lever is free from deformation.
- Grease is applied sufficiently to lever joints.

If grease is insufficient, add it as necessary before assembling.
- If the lever is faulty, replace the rear outer handle.
- If the lever is deformed, replace the latch & actuator assembly - rear.

2) Install each part in the reverse order of removal.

***Tightening torque:***
***Refer to "COMPONENT" of "General Description". <Ref. to SL-2, DOOR LOCK ASSEMBLY, COMPONENT, General Description.>***

## C: INSPECTION

Check if the outer handle operates normally.
If the lever is faulty, replace the handle - door outer.

# 13.Rear Door Latch and Door Lock Actuator Assembly

## A: REMOVAL

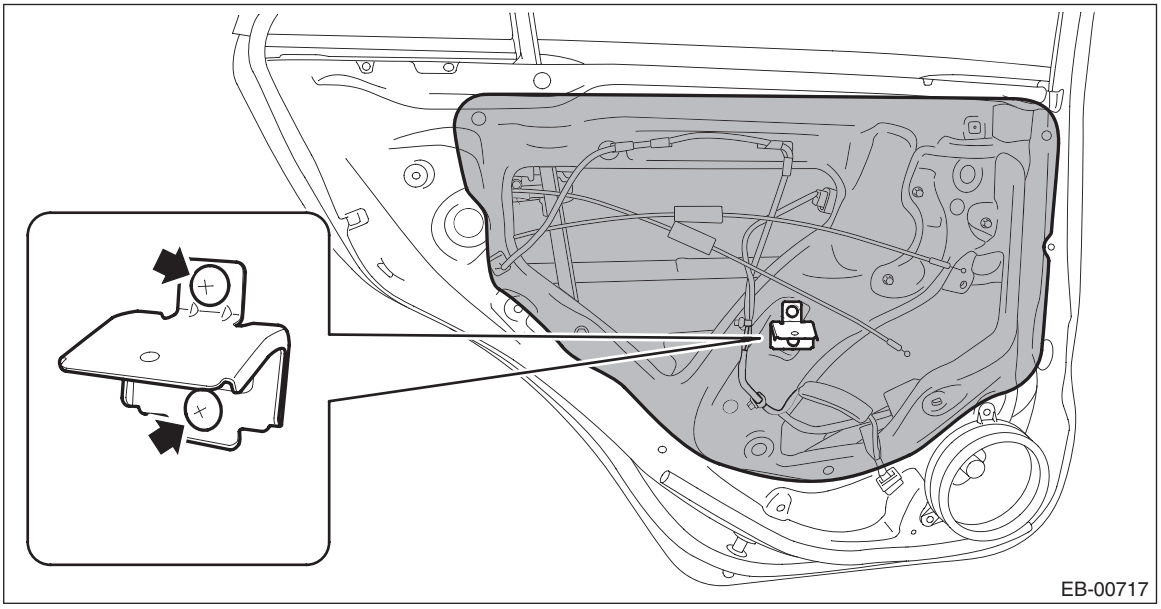
1) Disconnect the ground cable from battery. <Ref. to NT-5, BATTERY, NOTE, Note.>

NOTE:
For the 12 volt engine restart battery of HEV model, disconnect the ground terminal from 12V engine restart battery sensor.

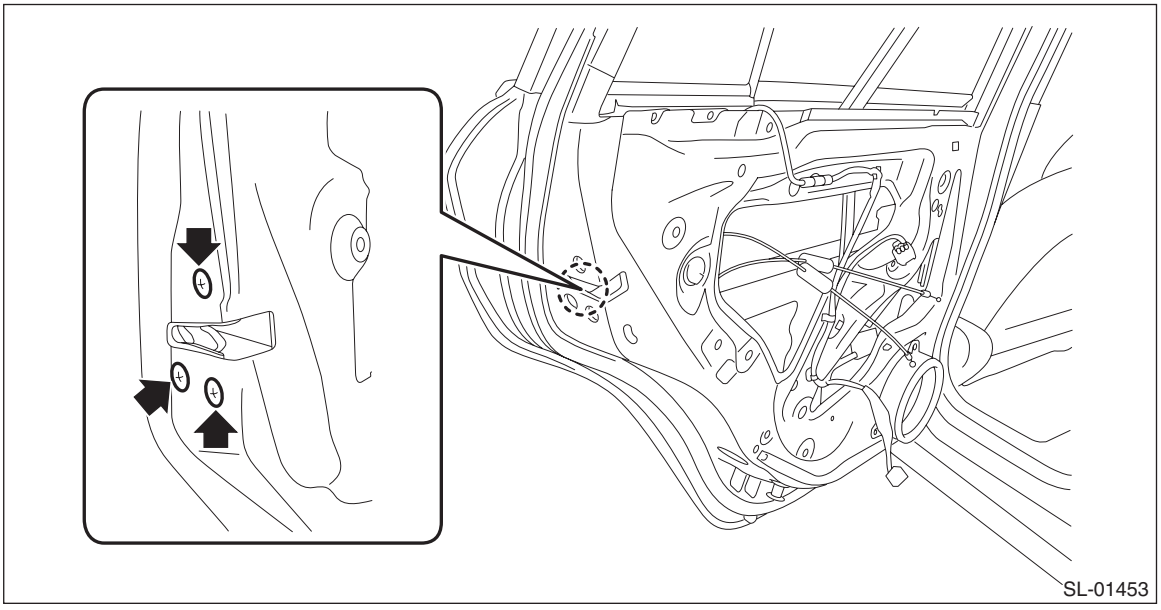
2) Remove the trim panel - rear door. <Ref. to EI-73, REAR DOOR, REMOVAL, Door Trim.>
3) Remove the sealing cover - rear door.

**CAUTION:**
- **Carefully remove the butyl tape. Excessive force will easily break the sealing cover - rear door.**
- **If the sealing cover - rear door gets broken, replace it with a new part.**

(1) Remove the screw to remove the bracket - door trim rear.
(2) Disconnect connectors.
(3) Carefully remove the butyl tape to remove the sealing cover - rear door.




4) Remove the glass assembly - rear door. <Ref. to GW-31, REMOVAL, Rear Door Glass.>
5) Remove the screws to remove the latch & actuator assembly - rear.



## B: INSTALLATION

1) Before installation, check the following items.
- Cable is free from deformation.
- Grease is applied sufficiently to lever joints.

If grease is insufficient, add it as necessary before assembling.
2) Install each part in the reverse order of removal.

***Tightening torque:***
***Refer to "COMPONENT" of "General Description". <Ref. to SL-2, DOOR LOCK ASSEMBLY, COMPONENT, General Description.>***

NOTE:
Make sure the child safety lock works correctly after installation.

## C: INSPECTION

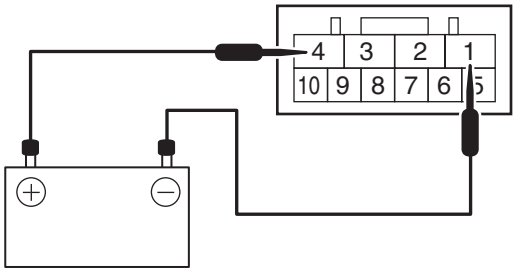
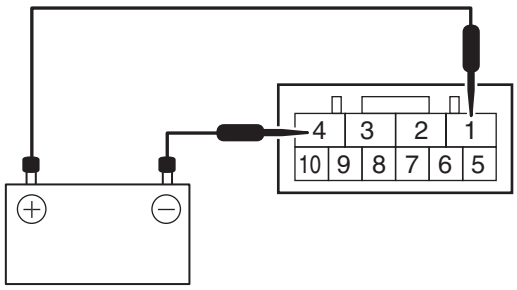
### 1. LATCH

Check if the latch operates normally.
If the cable is faulty, replace the latch & actuator assembly - rear.

### 2. ACTUATOR

#### UNIT INSPECTION

1) Check door lock operation
Check the door lock operation when battery voltage is applied between the terminals of actuator.

| Terminal No. | Inspection conditions | Specification | Connection diagram |
|---|---|---|---|
| 4 (+) — 1 (–) | Apply battery voltage. | LOCK |  SL-01474 |
| 1 (+) — 4 (–) | | UNLOCK |  SL-01473 |

2) If it does not operate properly as a result of inspection, replace the latch & actuator assembly - rear.

# 14.Rear Gate Opener Button

## A: REMOVAL

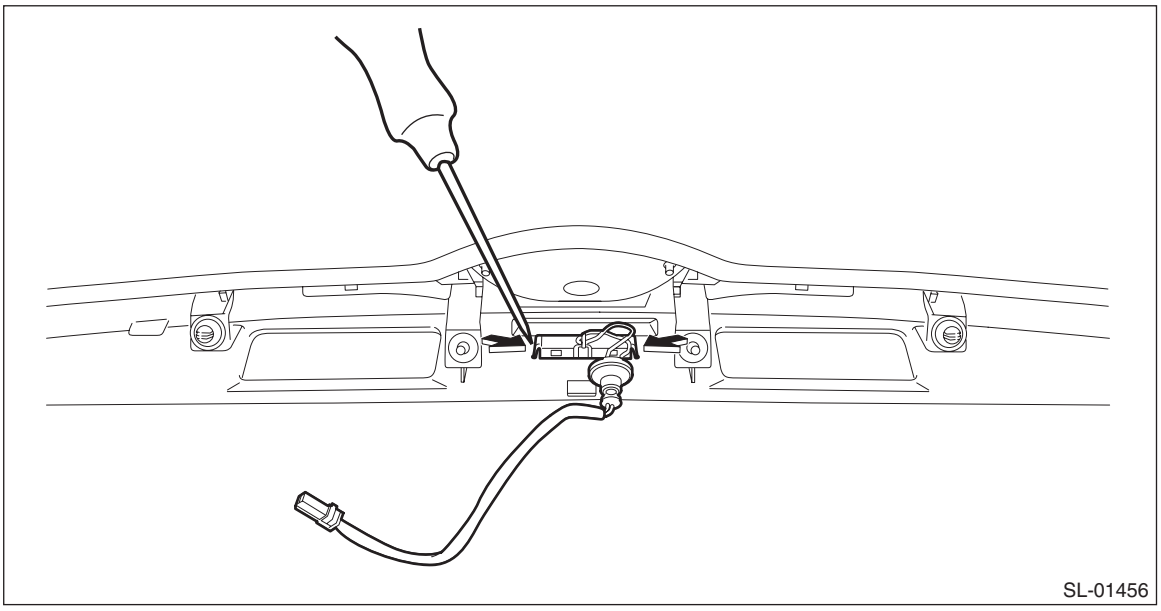
NOTE:
- The button - opener rear gate is integrated with the rear lock button. (Model with keyless access)
- Before disconnecting the battery ground cable, open the panel - rear gate.

1) Disconnect the ground cable from battery. <Ref. to NT-5, BATTERY, NOTE, Note.>

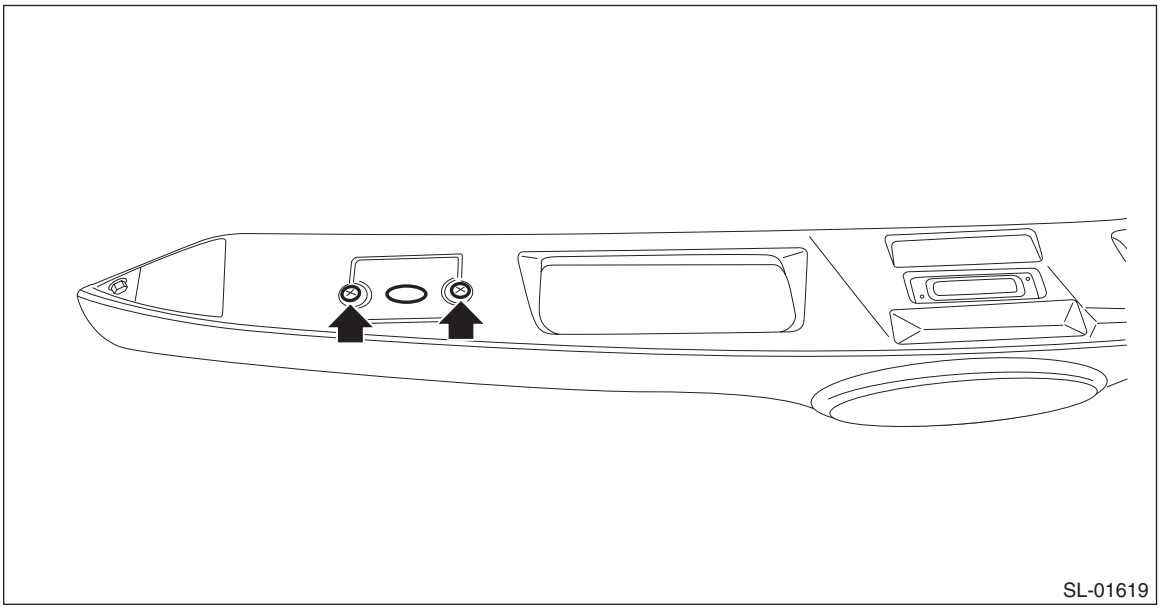
NOTE:
For the 12 volt engine restart battery of HEV model, disconnect the ground terminal from 12V engine restart battery sensor.

2) Remove the garnish assembly - rear gate. <Ref. to EI-163, REMOVAL, Rear Gate Garnish.>

3) Release the locks at both ends of the button - opener rear gate by pushing them with a flat tip screwdriver, and remove the button - opener rear gate.


SL-01456

4) Remove the screws, and remove the rear lock button, and remove the integrated harness. (Model with keyless access)


SL-01619

## B: INSTALLATION

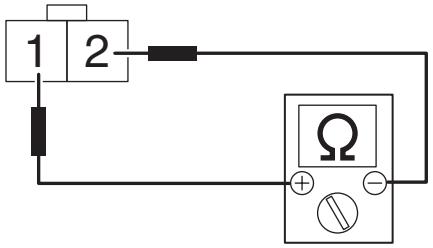
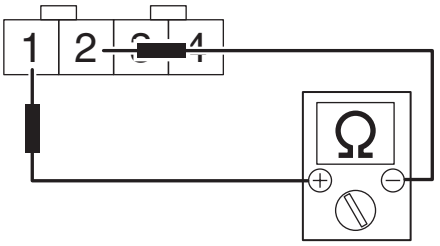
**CAUTION:**
**Make sure that the harness grommet is securely installed.**
**If not properly installed, this may cause leaks.**
Install each part in the reverse order of removal.

## C: INSPECTION

### UNIT INSPECTION

***Preparation tool:***
***Circuit tester***

1) Check the resistance between switch terminals.

| Terminal No. | Inspection conditions | Standard | Connection diagram |
|---|---|---|---|
| 1 — 2 | OPEN | Less than 5 Ω | •Models without keyless access   SL-01476 |
| | CLOSE | 1 MΩ or more | •Models with keyless access   SL-01578 |

2) If the inspection result is not within the standard, replace the button - opener rear gate.

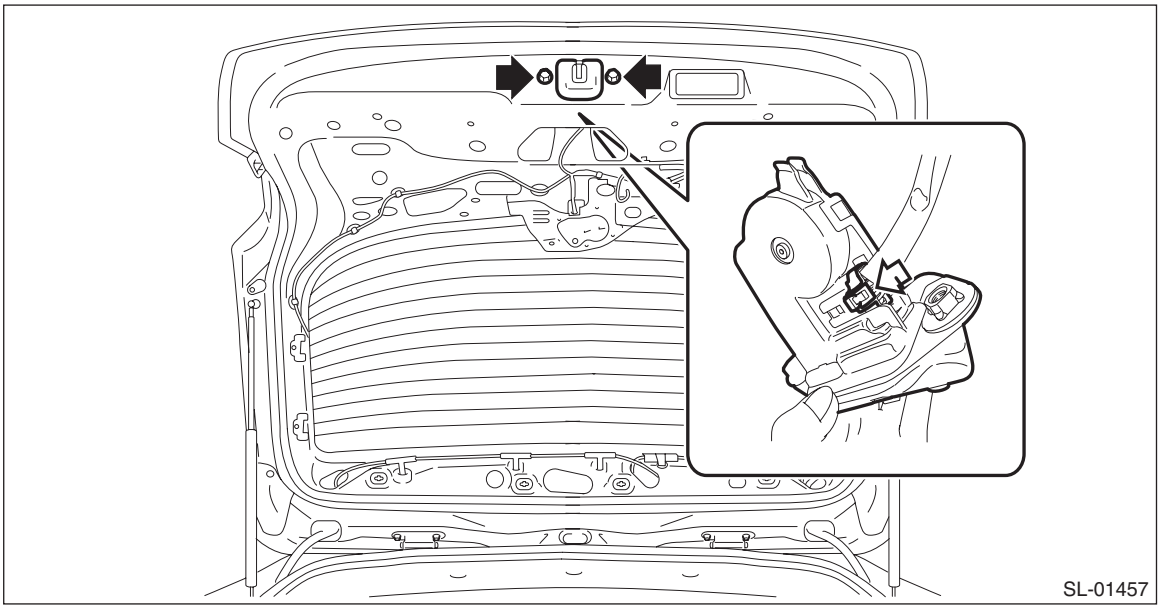
# 15.Rear Gate Latch and Actuator Assembly

## A: REMOVAL

1) Disconnect the ground cable from battery. <Ref. to NT-5, BATTERY, NOTE, Note.>

NOTE:
For the 12 volt engine restart battery of HEV model, disconnect the ground terminal from 12V engine restart battery sensor.

2) Remove the trim panel - rear gate. <Ref. to EI-158, REMOVAL, Rear Gate Trim.>
3) Remove the latch and actuator - rear gate.
   (1) Disconnect the connector.
   (2) Remove the bolts, and remove the latch and actuator - rear gate.




## B: INSTALLATION

Install each part in the reverse order of removal.

***Tightening torque:***
***Refer to "COMPONENT" of "General Description". <Ref. to SL-3, REAR GATE LOCK AND TRUNK LID LOCK, COMPONENT, General Description.>***

# C: INSPECTION

## 1. LATCH

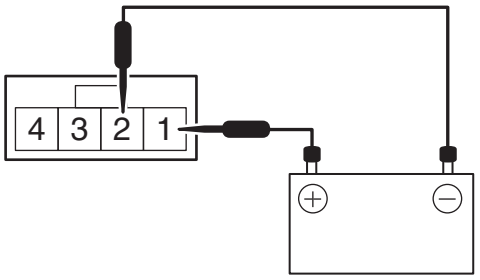
Check if the latch operates normally.
If latch deformation, abnormal wear, or unsmooth lock operation is observed, replace the latch and actuator - rear gate.

## 2. ACTUATOR

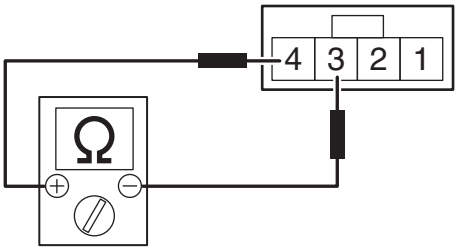
### UNIT INSPECTION

***PREPARATION TOOL:***
***Circuit tester***

1) Check door lock operation
Check the door lock operation when battery voltage is applied between the terminals of actuator.

| Terminal No. | Inspection conditions | Specification | Connection diagram |
|---|---|---|---|
| 1 (+) — 2 (–) | Connect battery to the terminals | OPEN |  SL-01477 |

2) Check switch
Check the resistance between actuator terminals.

| Terminal No. | Inspection conditions | Specification | Connection diagram |
|---|---|---|---|
| 3 — 4 | OPEN | Less than 1.5 Ω |  SL-01478 |
| | CLOSE | 1 MΩ or more | |

3) If it does not operate properly as a result of inspection, replace the latch and actuator - rear gate.

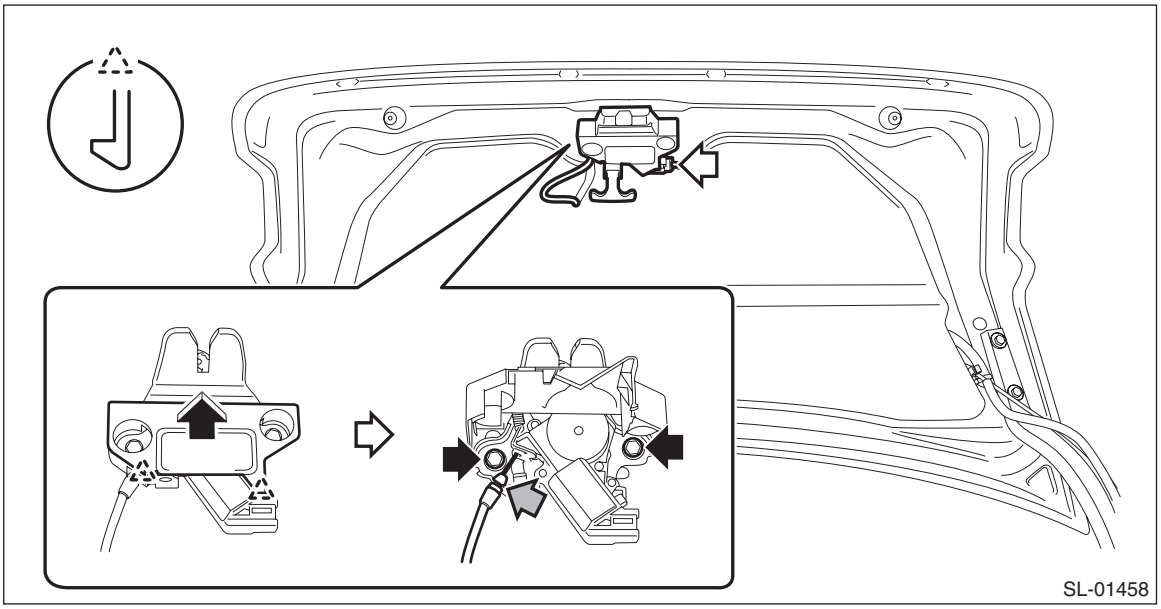
# 16.Trunk Lid Latch and Actuator Assembly

## A: REMOVAL

1) Disconnect the ground cable from battery. <Ref. to NT-5, BATTERY, NOTE, Note.>

NOTE:
For the 12 volt engine restart battery of HEV model, disconnect the ground terminal from 12V engine restart battery sensor.

2) Remove the lock assembly - trunk lid.
   (1) Disconnect the connector.
   (2) Release the claws, and open the lock cover.
   (3) Remove the bolts, and disconnect the release cable, and then remove the lock assembly - trunk lid.




NOTE:
When disconnecting the release cable, refer to “TRUNK LID OPENER” of “Remote Openers”. <Ref. to SL-64, TRUNK LID OPENER, REMOVAL, Remote Openers.>

## B: INSTALLATION

1) Before installation, check the following items.
- Is the cable deformed?
- Grease is applied sufficiently to cable joints.

If grease is insufficient, add it as necessary before assembling the cable.

2) Install each part in the reverse order of removal.

***Tightening torque:***
***Refer to “COMPONENT” of “General Description”. <Ref. to SL-3, REAR GATE LOCK AND TRUNK LID LOCK, COMPONENT, General Description.>***

# C: INSPECTION

## 1. LATCH

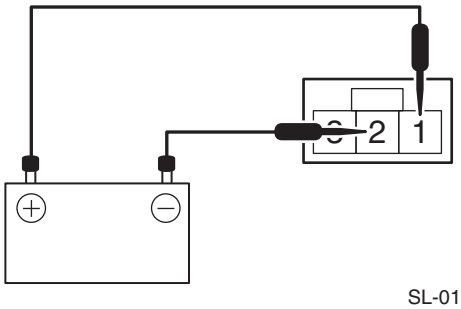
Check if the latch operates normally.
If latch deformation, abnormal wear, or unsmooth lock operation is observed, replace the lock assembly - trunk lid.

## 2. ACTUATOR

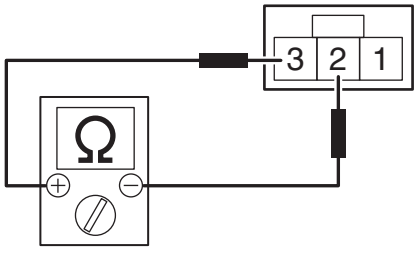
### UNIT INSPECTION

***PREPARATION TOOL:***
***Circuit tester***

1) Check door lock operation
Check the door lock operation when battery voltage is applied between the terminals of actuator.

| Terminal No. | Inspection conditions | Specification | Connection diagram |
|---|---|---|---|
| 1 (+) — 2 (–) | Connect battery to the terminals | LOCK → UNLOCK |  SL-01517 |

2) CHECK SWITCH.
Check the resistance between actuator terminals.

| Terminal No. | Inspection conditions | Specification | Connection diagram |
|---|---|---|---|
| 2 — 3 | LOCK | 1 MΩ or more |  SL-01518 |
| | UNLOCK | Less than 1 Ω | |

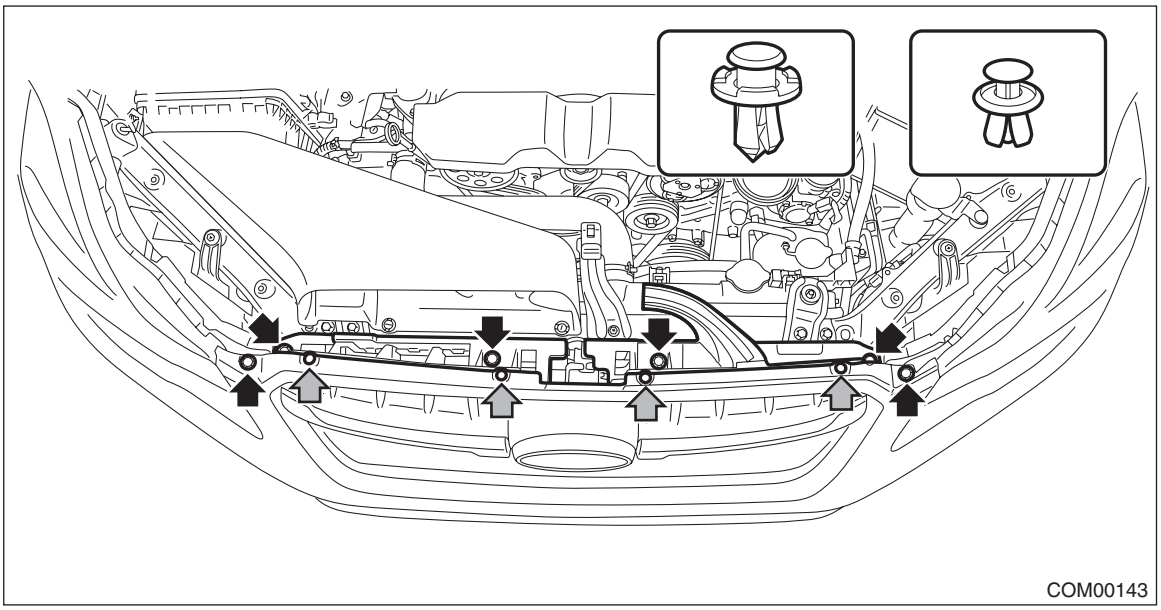
3) If it does not operate normally, replace the lock assembly - trunk lid.

# 17.Front Hood Lock Assembly

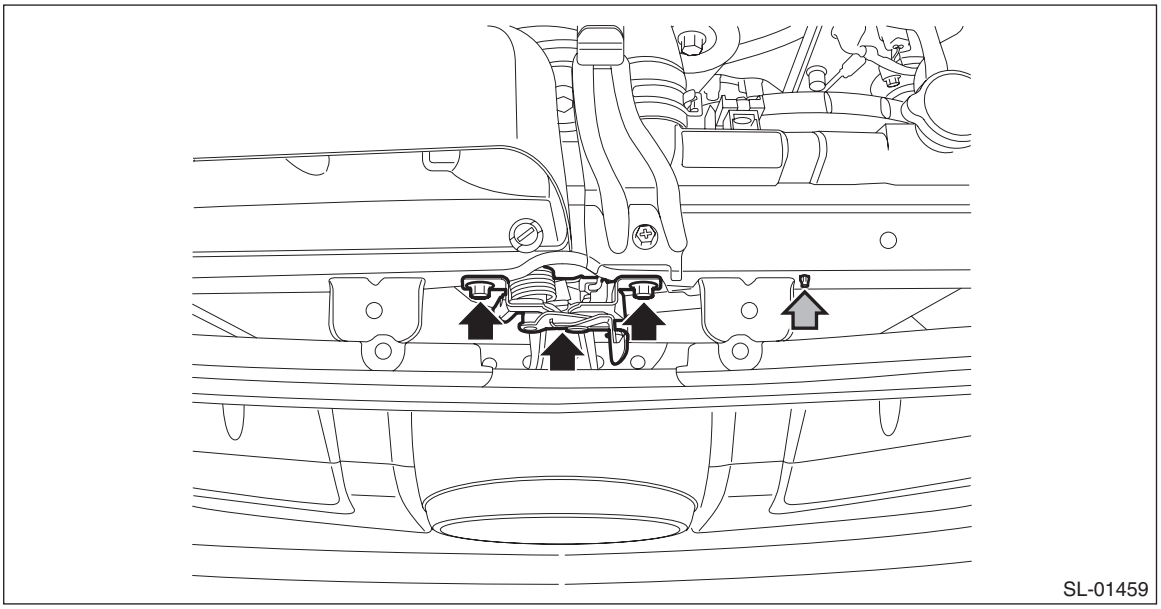
## A: REMOVAL

1) Open the front hood.
2) Remove the clip, and remove the bracket - grille.

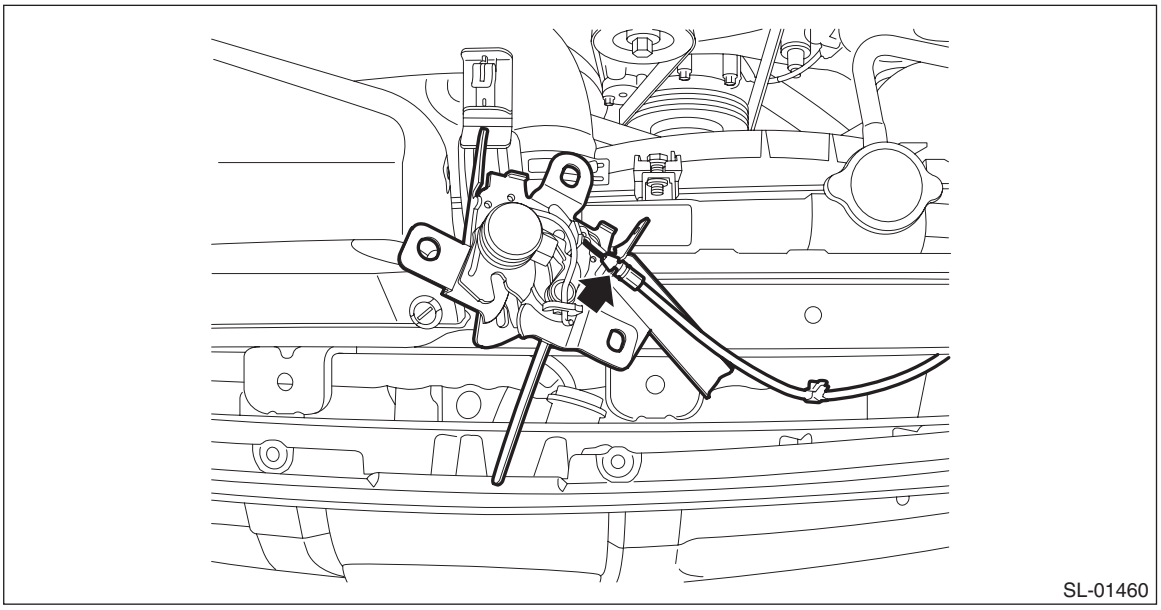
NOTE:
To prevent damage to the bracket - grille, make sure to remove all clips.




3) Remove the lock assembly - front hood.
   (1) Remove the bolt and clip.



(2) Disconnect the release cable, and detach the lock assembly - front hood.




NOTE:
When disconnecting the release cable, refer to “FRONT HOOD OPENER” of “Remote Openers”. <Ref. to SL-63, FRONT HOOD OPENER, REMOVAL, Remote Openers.>

## B: INSTALLATION

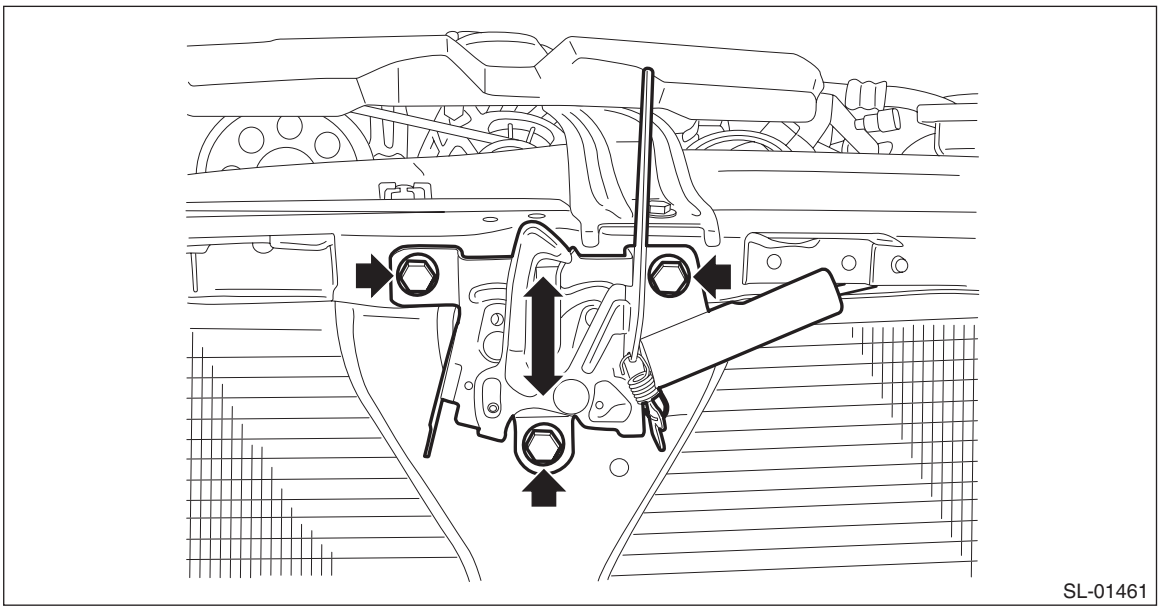
1) Before installation, check the following items.
- Is the cable deformed?
- Grease is applied sufficiently to cable joints.

If grease is insufficient, add it as necessary before assembling the cable.
2) Install each part in the reverse order of removal.

***Tightening torque:***
***Refer to “COMPONENT” of “General Description”. <Ref. to SL-4, FRONT HOOD LOCK, COMPONENT, General Description.>***

## C: ADJUSTMENT

1) Loosen the bolt, and adjust the lock assembly - front hood while moving it up and down.




2) After adjustment, tighten the bolts securely.

***Tightening torque:***
***Refer to "COMPONENT" of "General Description". <Ref. to SL-4, FRONT HOOD LOCK, COMPONENT, General Description.>***

## D: INSPECTION

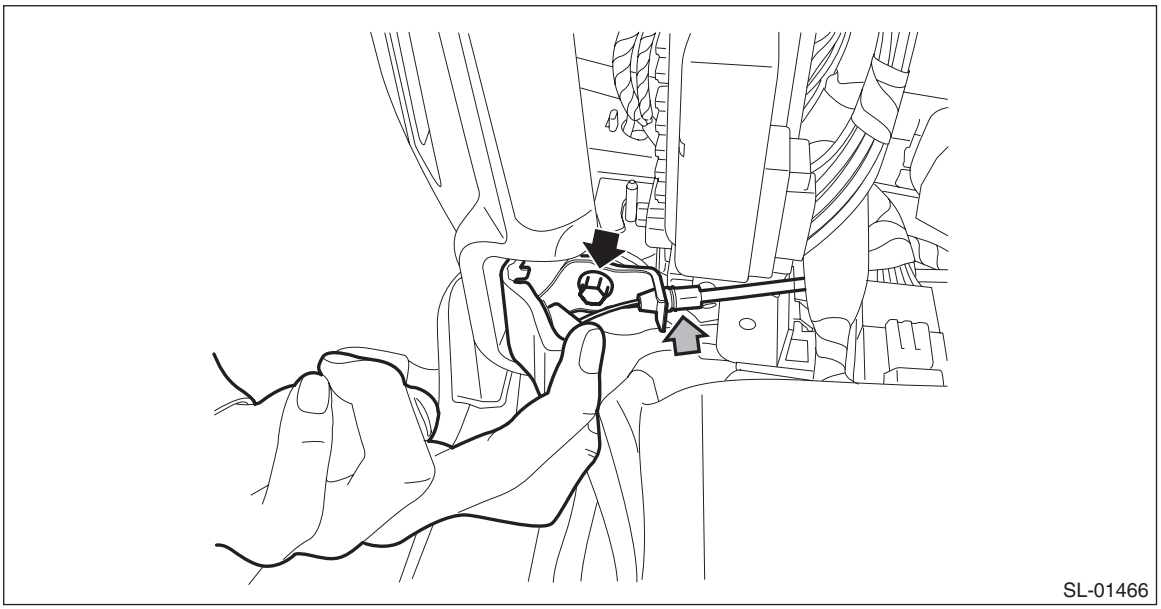
Check if the lock assembly operates normally.
If lever deformation, abnormal wear, or unsmooth lock operation is observed, replace the lock assembly - front hood.

# 18.Remote Openers

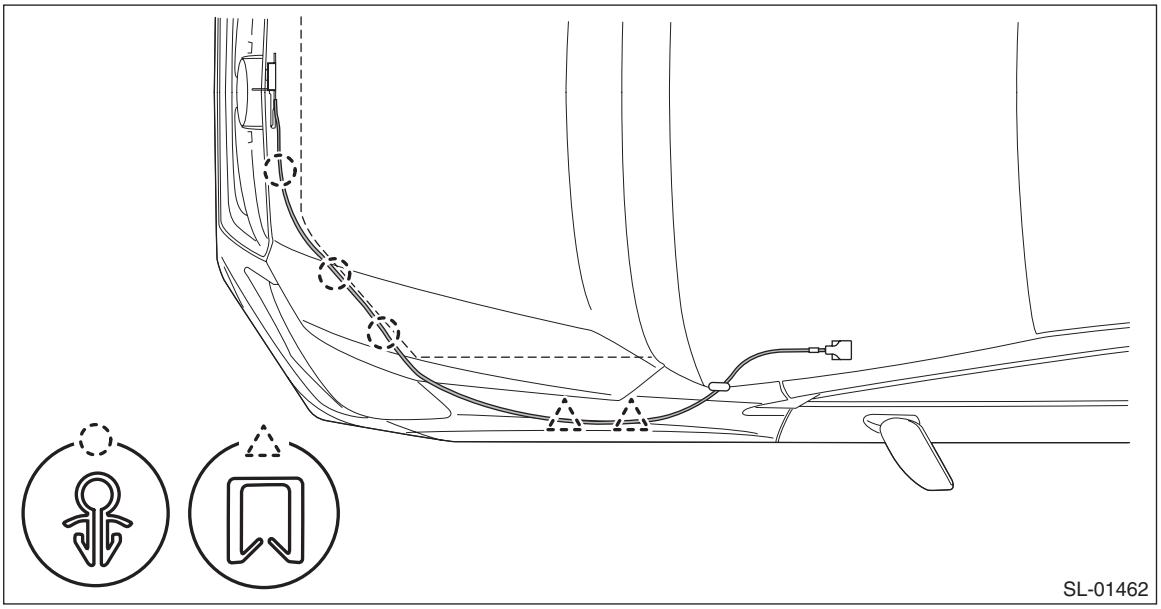
## A: REMOVAL

### 1. FRONT HOOD OPENER

1) Remove the opener handle.
   (1) Remove the cable.
   (2) Remove the bolt, and remove the opener handle.

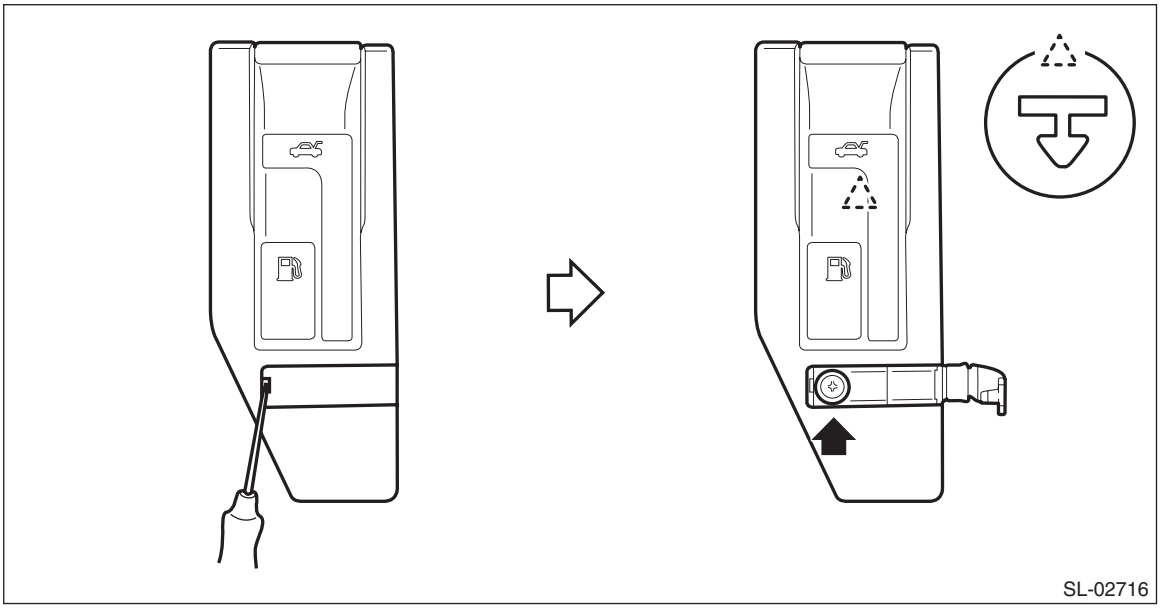



2) Remove the following parts and remove the cable clip and cable.
- Lock assembly - front hood: <Ref. to SL-60, REMOVAL, Front Hood Lock Assembly.>
- Cover assembly - instrument panel LWR driver: <Ref. to EI-76, REMOVAL, Instrument Panel Lower Cover.>

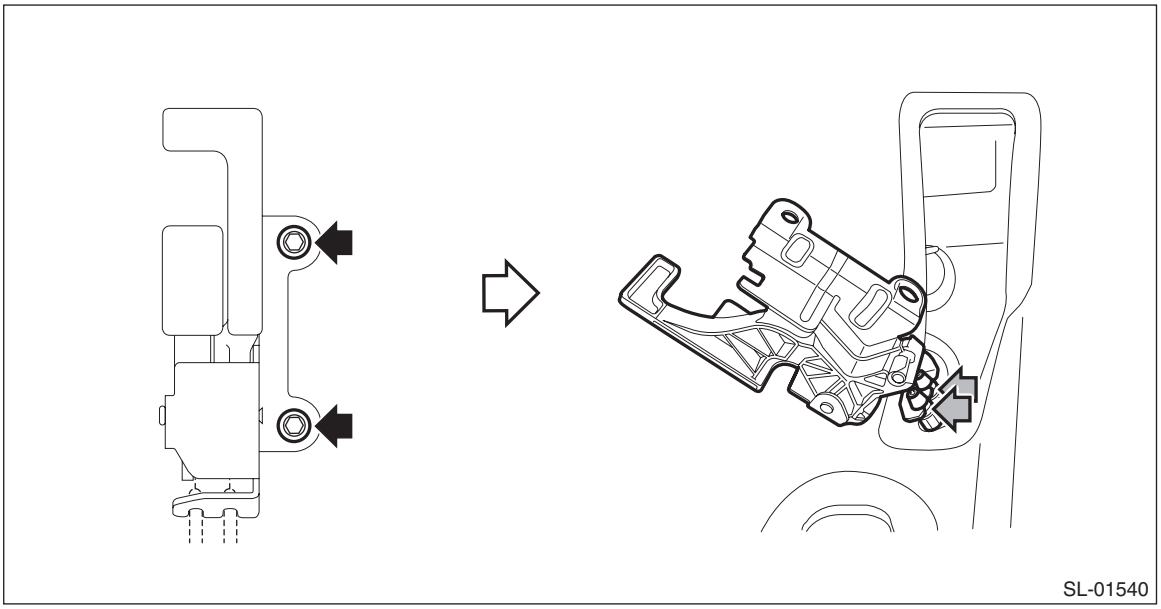


## 2. TRUNK LID OPENER

1) Remove the cover - handle.
   (1) Open the cover by using a flat tip screwdriver.
   (2) Remove the screws and detach the cover - handle.

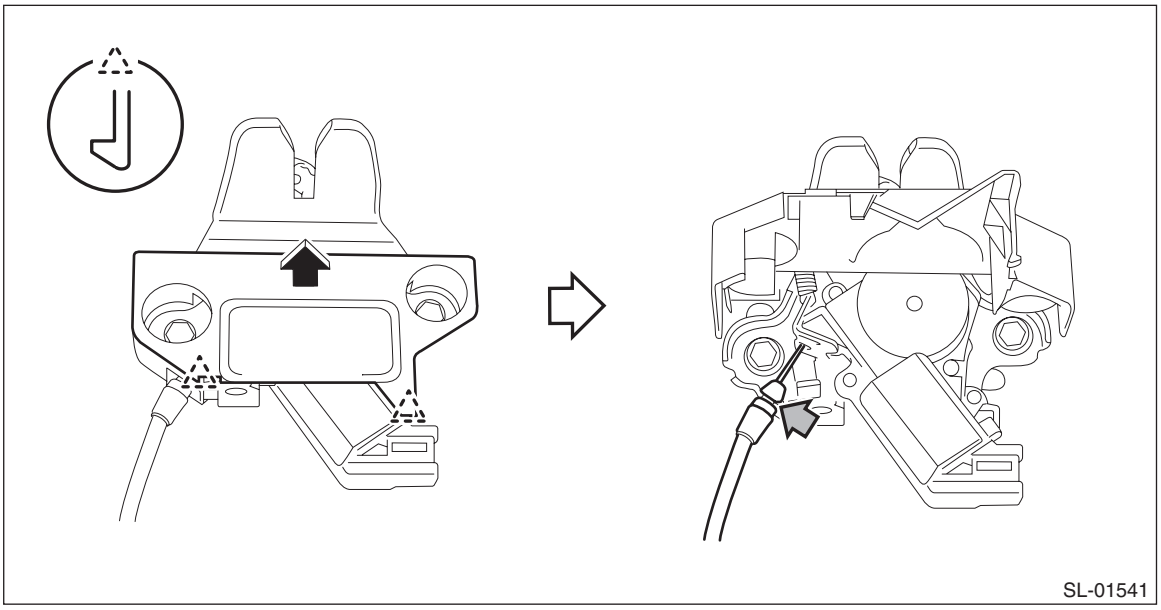



2) Remove the pull handle - opener.
   (1) Remove the nut.
   (2) Remove the cable from pull handle - opener.

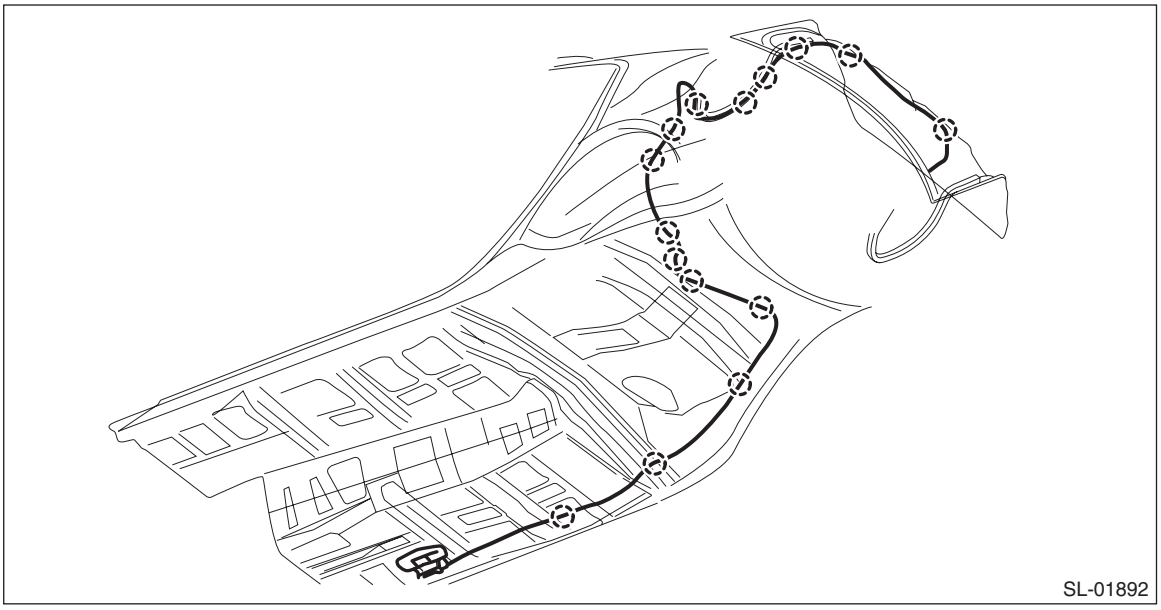



3) Remove the trim panel - trunk side RH. <Ref. to EI-125, TRUNK ROOM TRIM, REMOVAL, Trunk Room Trim.>
4) Remove the lower inner trim. <Ref. to EI-102, REMOVAL, Lower Inner Trim.>
5) Remove the trim panel - trunk lid. <Ref. to EI-125, TRUNK LID TRIM, REMOVAL, Trunk Room Trim.>

6) Disconnect the cable from the lock assembly - trunk lid.

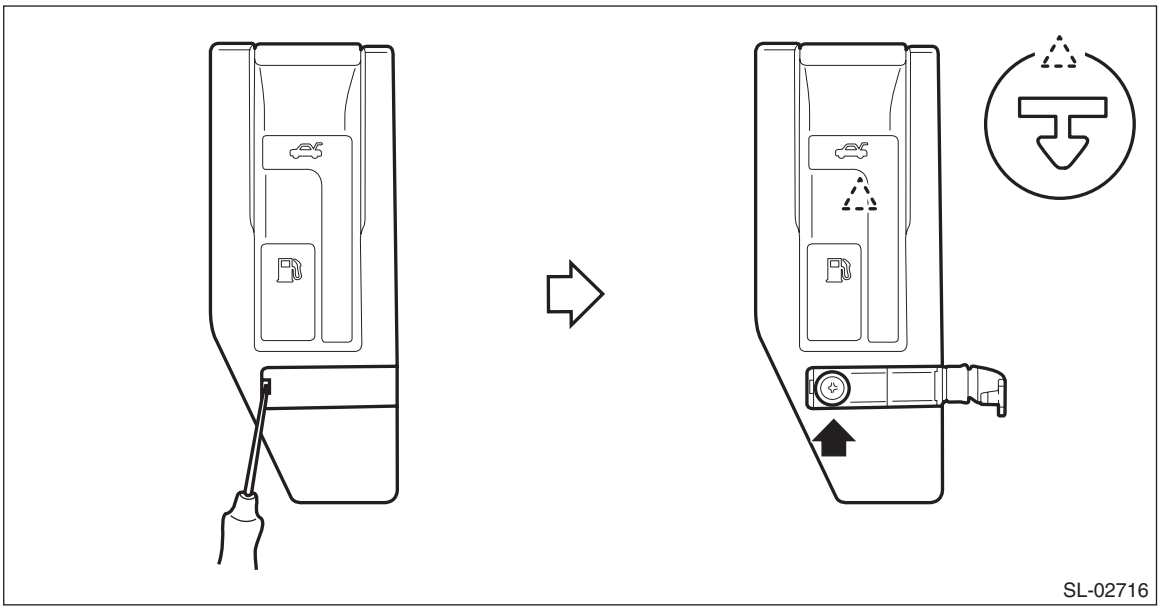



7) Remove the cable clip, and remove the cable.

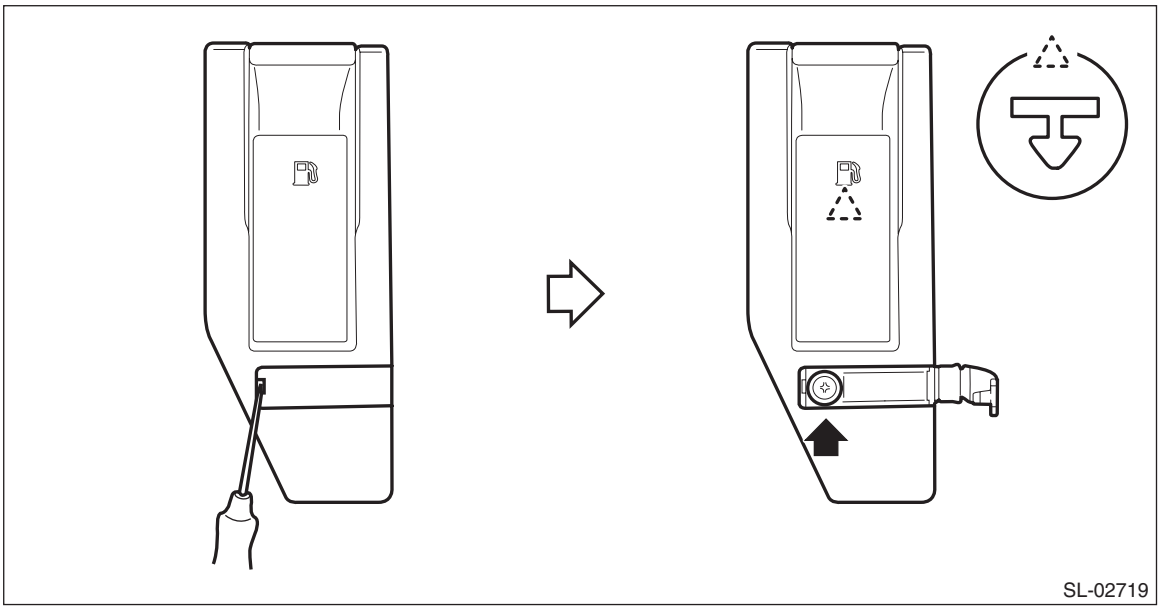


## 3. FUEL FLAP OPENER

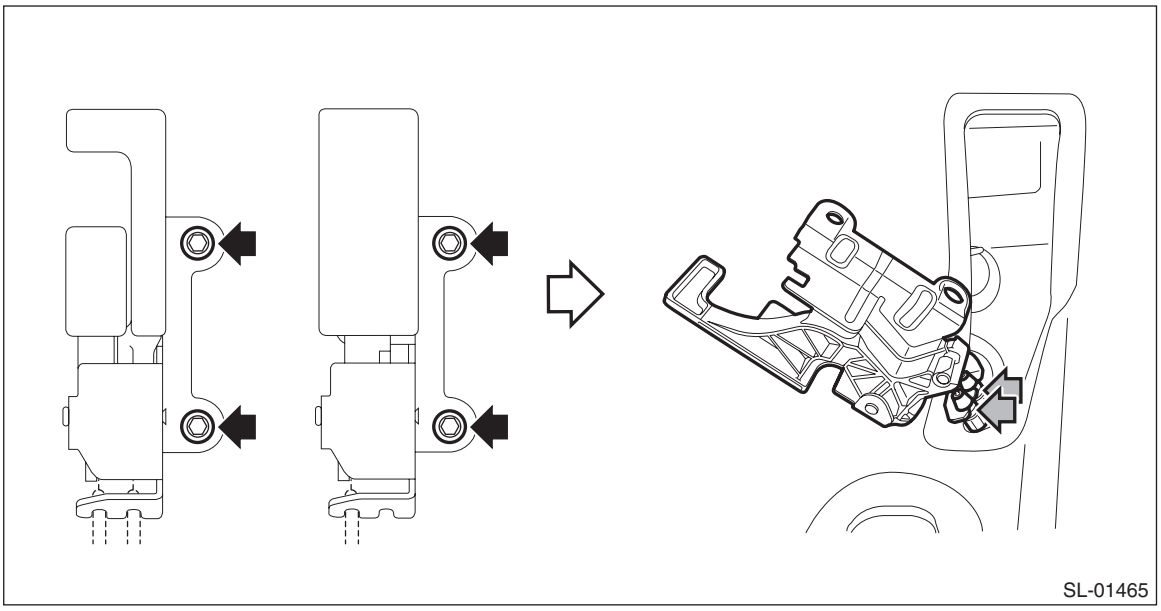
1) Remove the cover - handle.
   (1) Open the cover by using a flat tip screwdriver.
   (2) Remove the screws and detach the cover - handle.
   • 4 door model



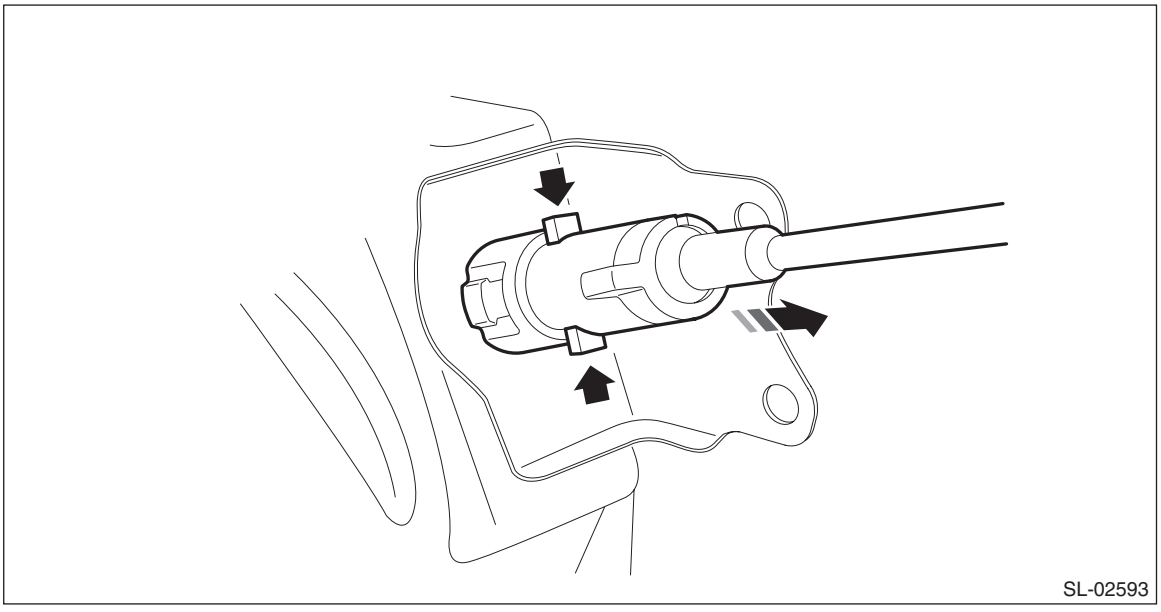

   • 5 door model/XV model



2) Remove the pull handle - opener.
(1) Remove the nut.
(2) Remove the cable from pull handle - opener.

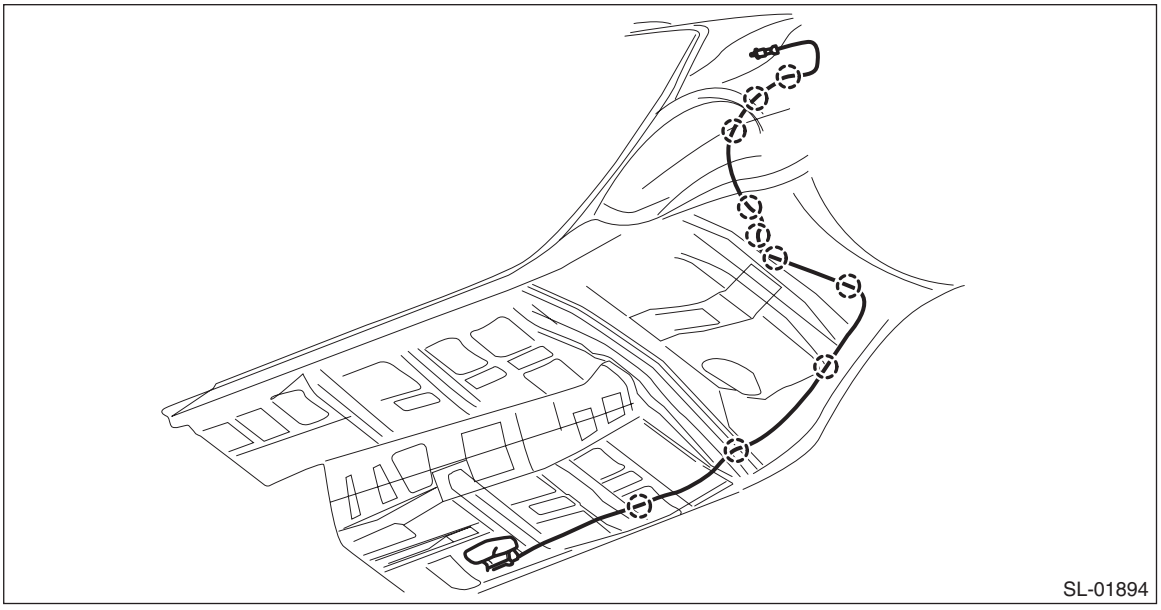

SL-01465

3) Remove the trim panel - trunk side RH. (4 door model) <Ref. to EI-125, TRUNK ROOM TRIM, REMOVAL, Trunk Room Trim.>
4) Remove the trim panel - rear apron RH. (5 door model/XV model) <Ref. to EI-115, 5 DOOR MODEL/XV MODEL, REMOVAL, Rear Quarter Trim.>
5) Remove the fuel lock inside the quarter panel.
(1) Press the claws of the fuel lock.
(2) While keeping the condition in step (1), pull the fuel lock to the rearward of the vehicle.

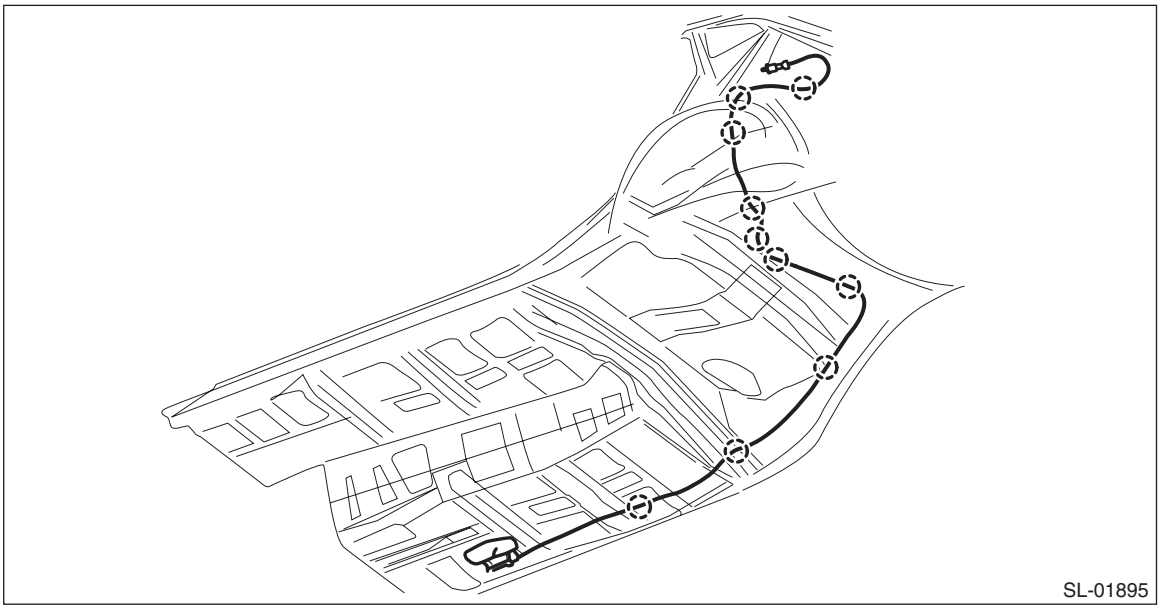

SL-02593

6) Remove the lower inner trim. <Ref. to EI-102, REMOVAL, Lower Inner Trim.>

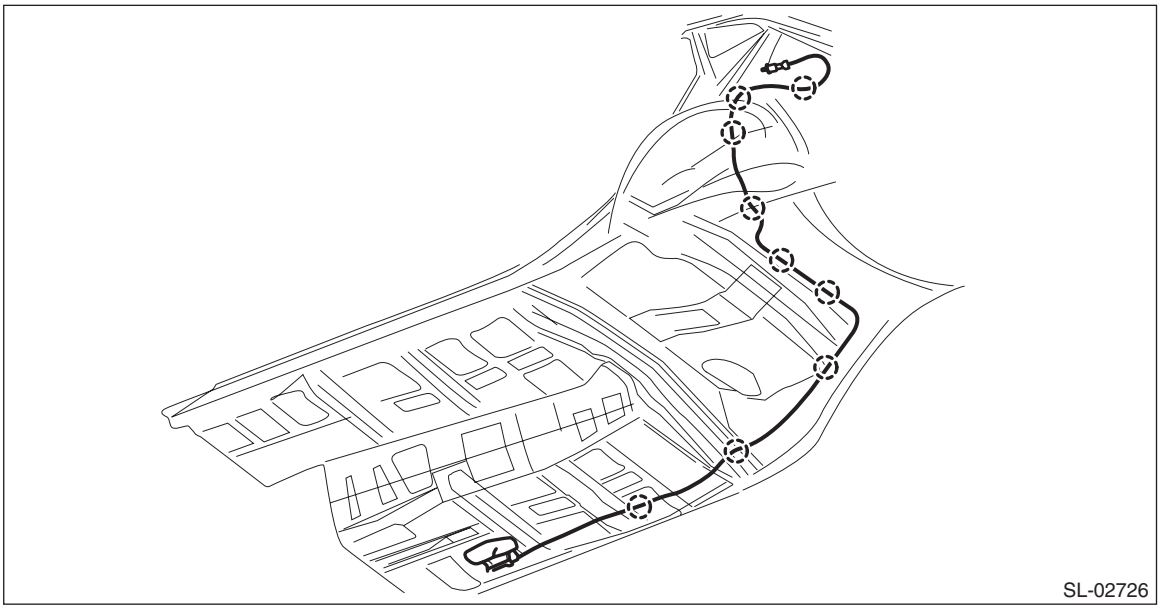
7) Remove the cable clip, and remove the cable.
- 4 door model




- 5 door model/XV model



- HEV model




## B: INSTALLATION

1) Before installation, check the following items.
- Cable is free from deformation such as fray.

2) Install each part in the reverse order of removal.

***Tightening torque:***
***Front hood lock: <Ref. to SL-4, FRONT HOOD LOCK, COMPONENT, General Description.>***
***Remote opener: <Ref. to SL-5, REMOTE OPENER, COMPONENT, General Description.>***

## C: INSPECTION

Check if the front hood and fuel flap operate normally.

# 19.Ignition Key Lock

## A: REPLACEMENT

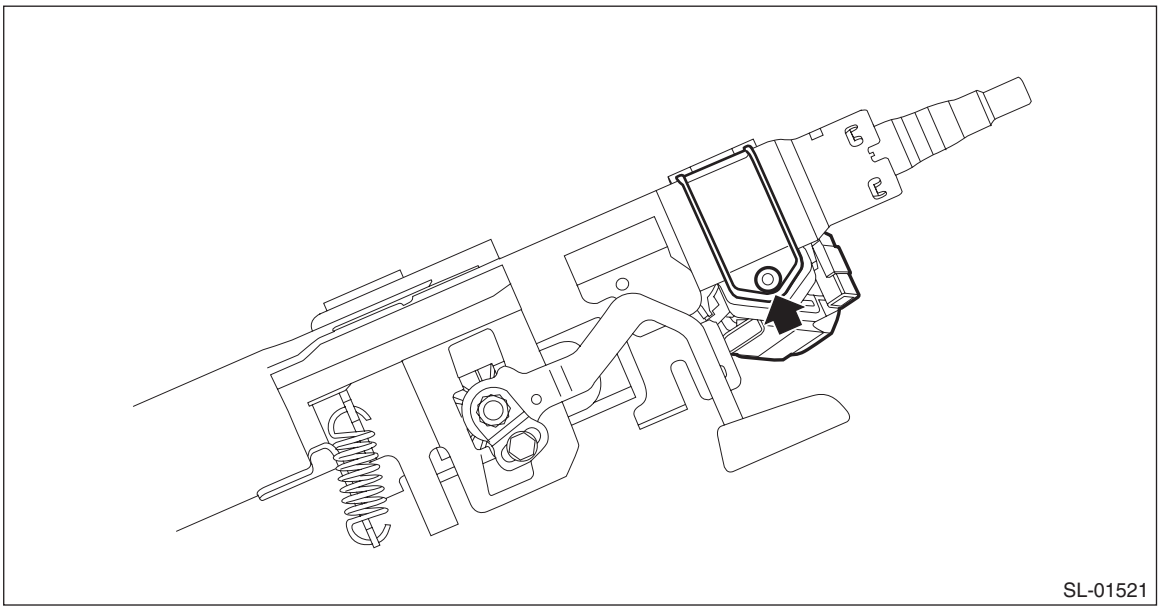
**CAUTION:**
**• Before handling the airbag module, refer to "CAUTION" of "General Description" in "AIRBAG SYSTEM". <Ref. to AB-10, CAUTION, General Description.>**
**• If the steering wheel and steering angle sensor (steering roll connector) are removed, perform "VDC sensor midpoint setting mode" of the VDC. <Ref. to VDC-26, VDC SENSOR MIDPOINT SETTING MODE (MODELS WITHOUT EyeSight), ADJUSTMENT, VDC Control Module and Hydraulic Control Unit (VDCCM&H/U).>**

1) Disconnect the ground cable from battery. <Ref. to NT-5, BATTERY, NOTE, Note.>

NOTE:
For the 12 volt engine restart battery of HEV model, disconnect the ground terminal from 12V engine restart battery sensor.

2) Remove the column assembly - steering. <Ref. to PS-19, REMOVAL, Steering Column.>
3) Remove the ignition key lock.
   (1) Secure the column assembly - steering in a vise.
   (2) Use the reverse tap and drill to remove the set bolt and remove the ignition key lock.

**CAUTION:**
**Do not apply any impact to the set bolt by a chisel or punch.**

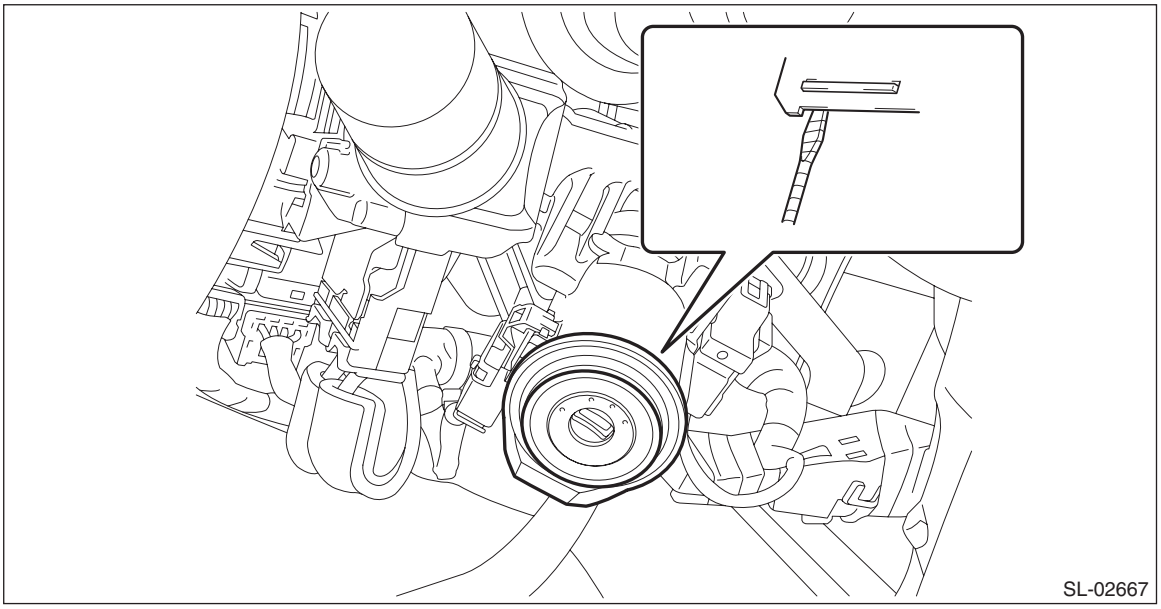

SL-01521

4) Install the ignition key lock.
   (1) Secure the ignition key lock to the column assembly - steering.
   (2) Use new set bolts. Tighten the bolt until the bolt head is broken (bolt head wrenched off).

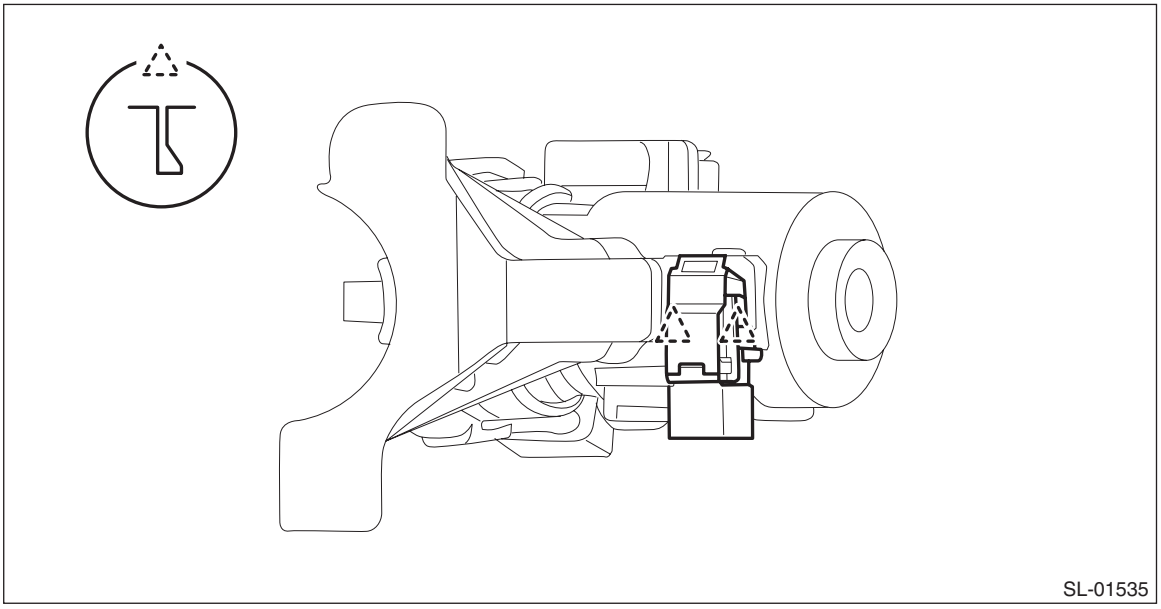
## B: DISASSEMBLY

1) Remove the immobilizer antenna assembly or the ignition switch illumination.
   (1) Disconnect the connector.
   (2) Release two claws using a flat tip screwdriver or similar tool wrapped with a protection tape, and remove the immobilizer antenna assembly or the ignition switch illumination.

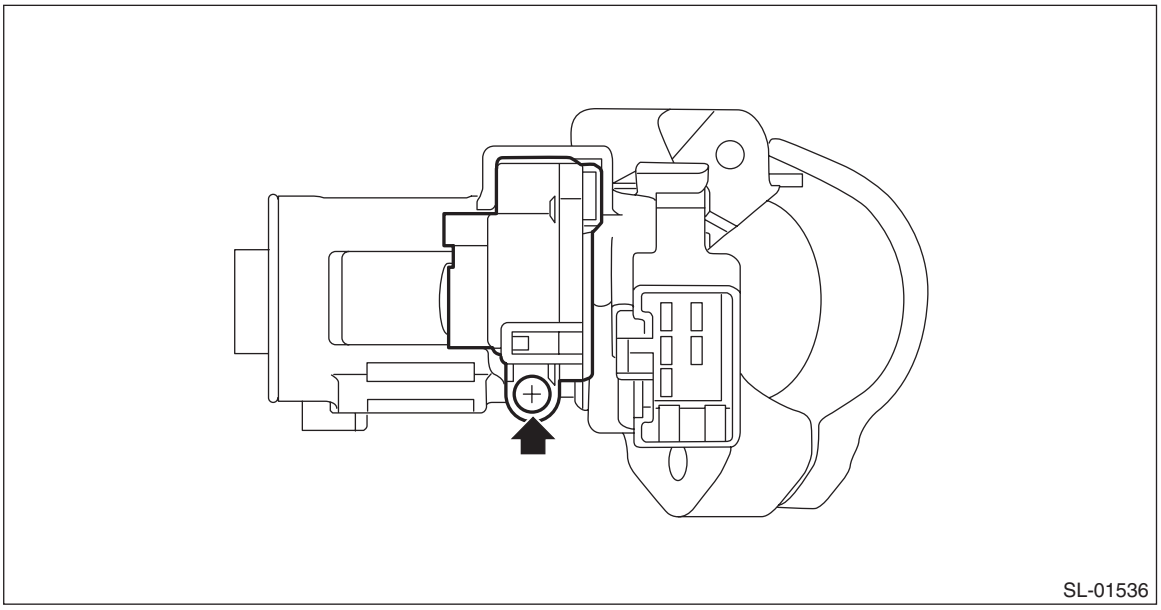
**CAUTION:**
**Do not apply excessive force to disengage the lock of immobilizer antenna assembly or ignition switch illumination. Otherwise they may be broken because those parts are the products made of a plastic.**


SL-02667

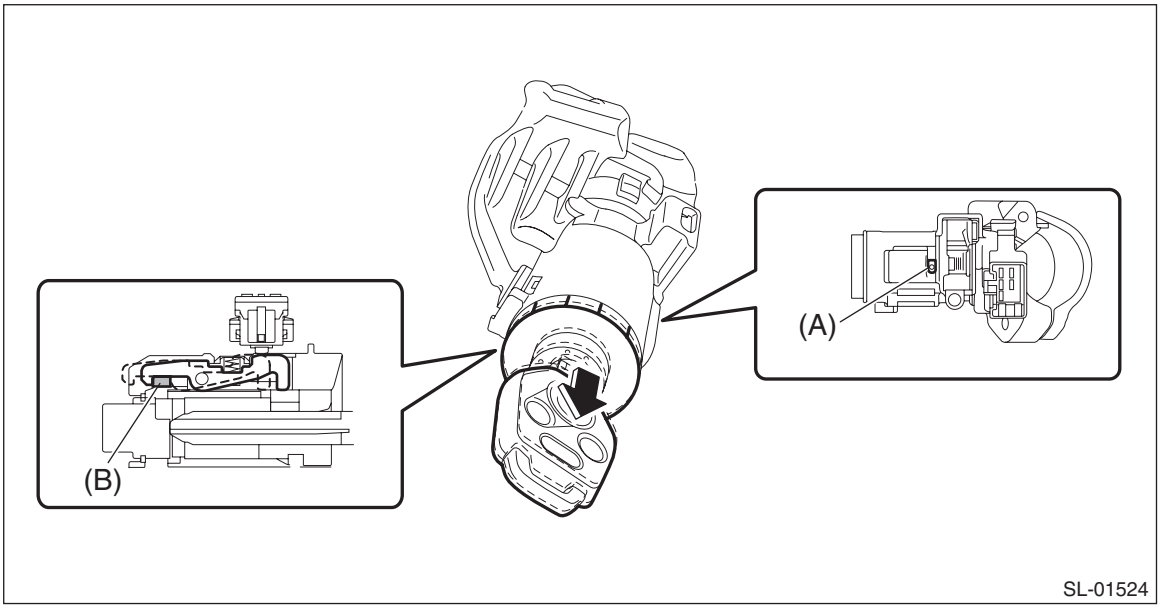
2) Release the claws, and pull the key warning switch downwards to remove.


SL-01535

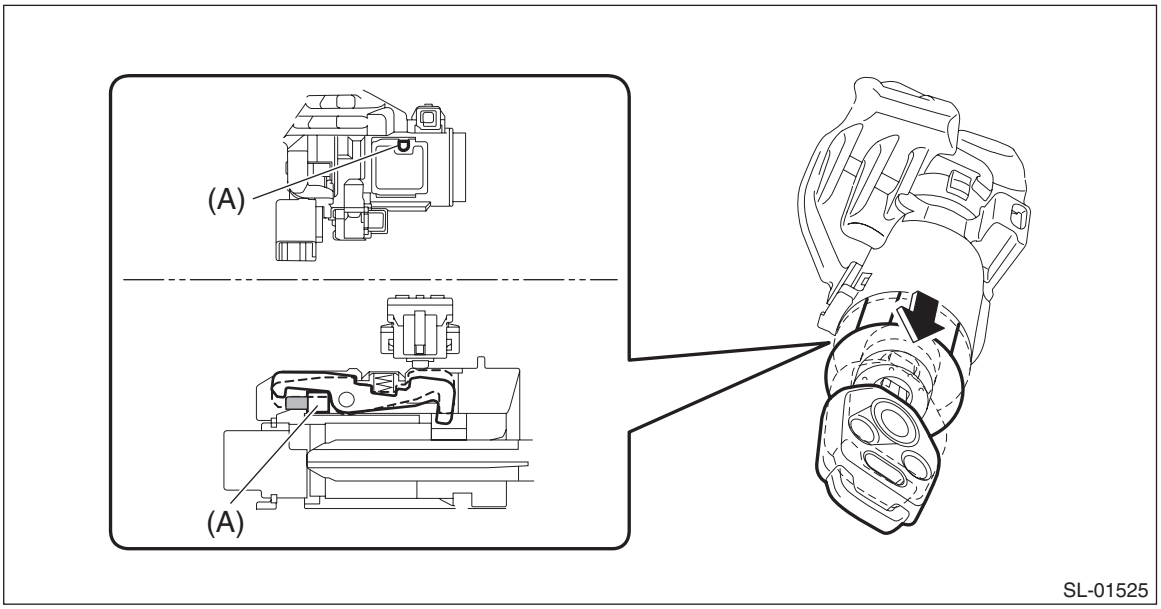
3) Remove the screws and remove the key lock solenoid.



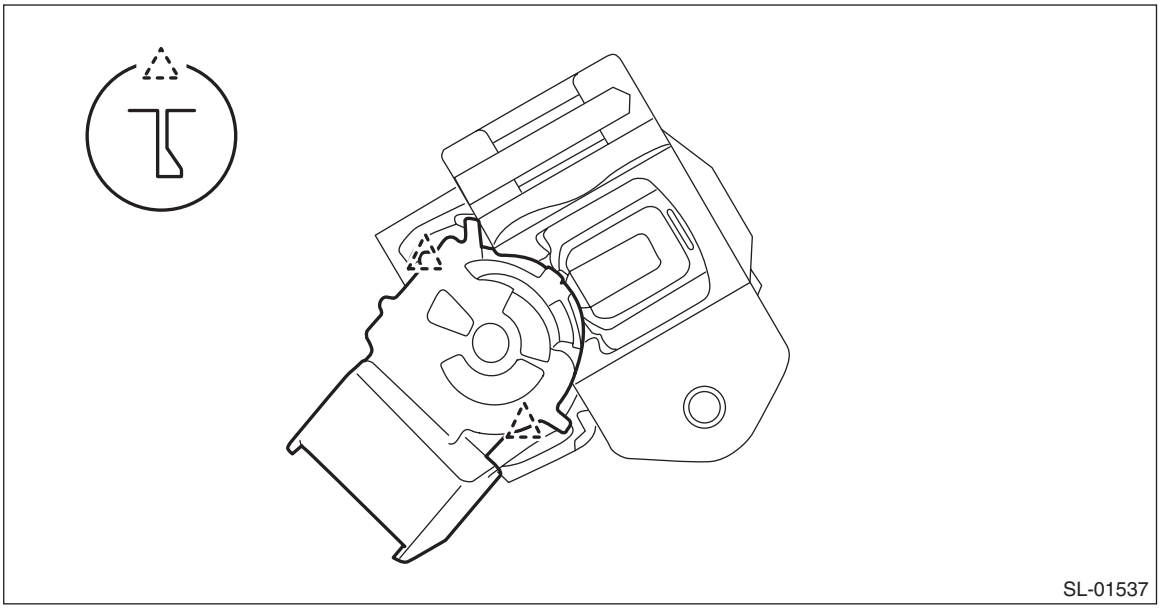

4) Replace the key cylinder.
   (1) Insert the key into the key cylinder, and turn the key to the ACC position.
   (2) Insert a flat tip screwdriver from the steering lock frame hole (A), and pull the key cylinder until the key cylinder claws touch the steering lock frame stopper (B).



(3) Insert a flat tip screwdriver from the steering lock frame hole (A), and release the claws to pull out the key cylinder.




5) Release the claws and remove the ignition switch assembly.

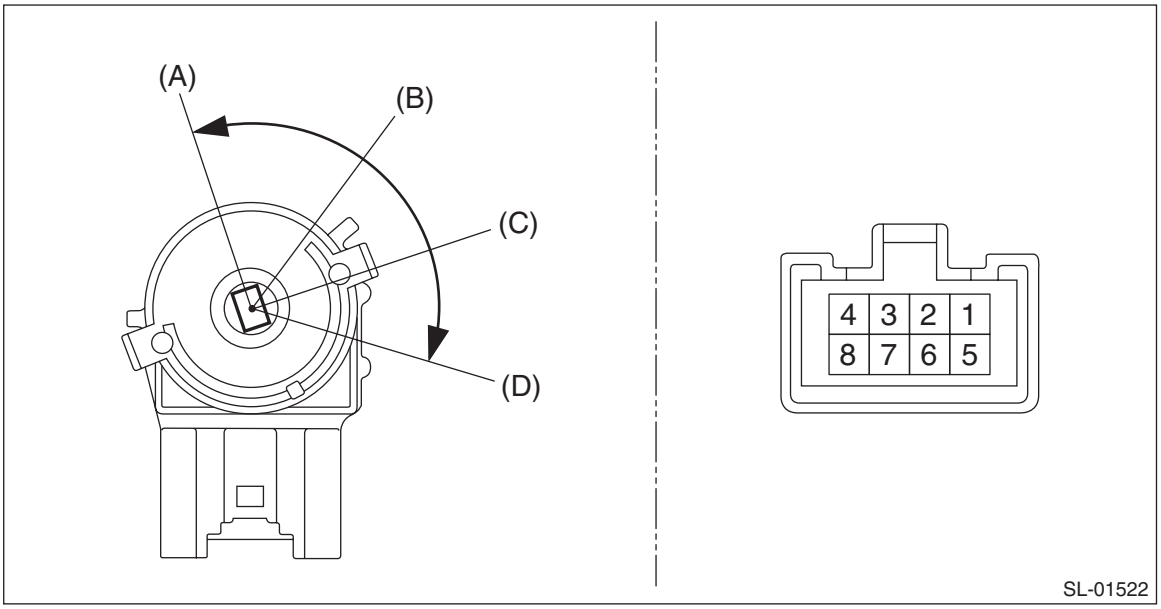


# C: INSPECTION

## UNIT INSPECTION

***PREPARATION TOOL:***
***Circuit tester***

1) Check the resistance between switch terminals.




| Terminal No. | Inspection conditions | | Standard |
|---|---|---|---|
| Between all terminals | (A) | LOCK | 1 MΩ or more |
| 2 — 4 | (B) | ACC | Less than 1 Ω |
| 1 — 2 — 4<br>5 — 6 | (C) | ON | Less than 1 Ω |
| 1 — 3 — 4<br>5 — 6 — 7 | (D) | ST | Less than 1 Ω |

2) Replace the ignition switch assembly if the inspection result is not within the standard.

# 20.Key Lock Cylinders

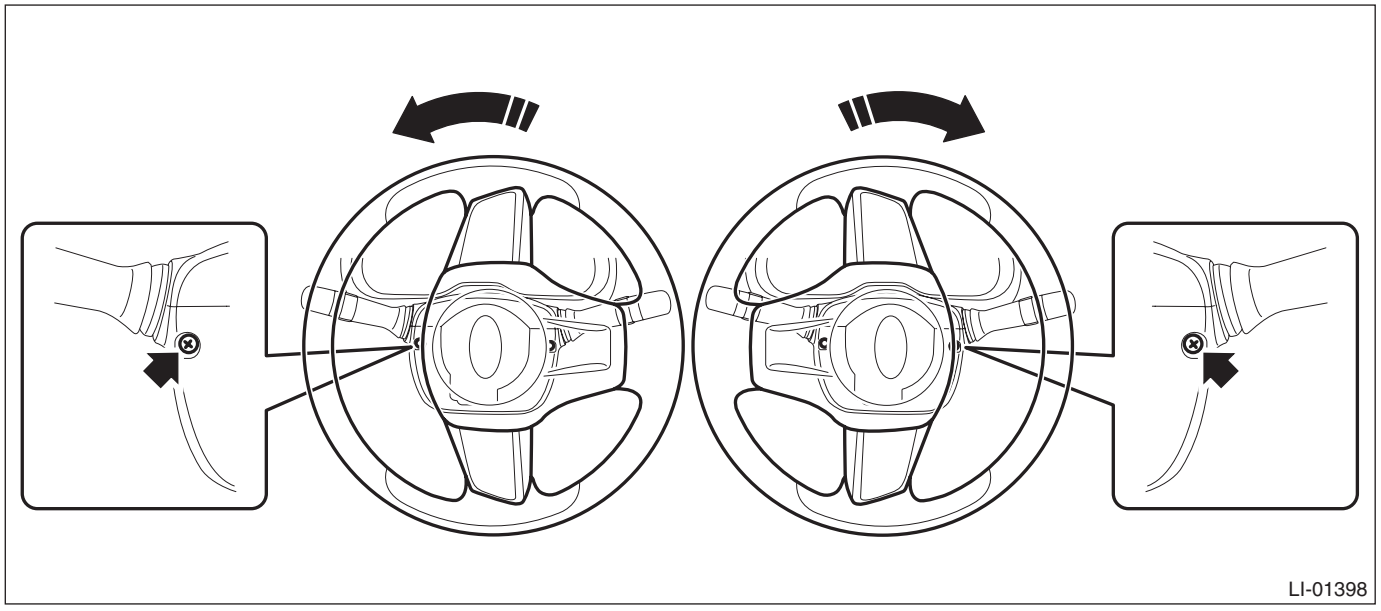
## A: REPLACEMENT

### 1. STEERING LOCK

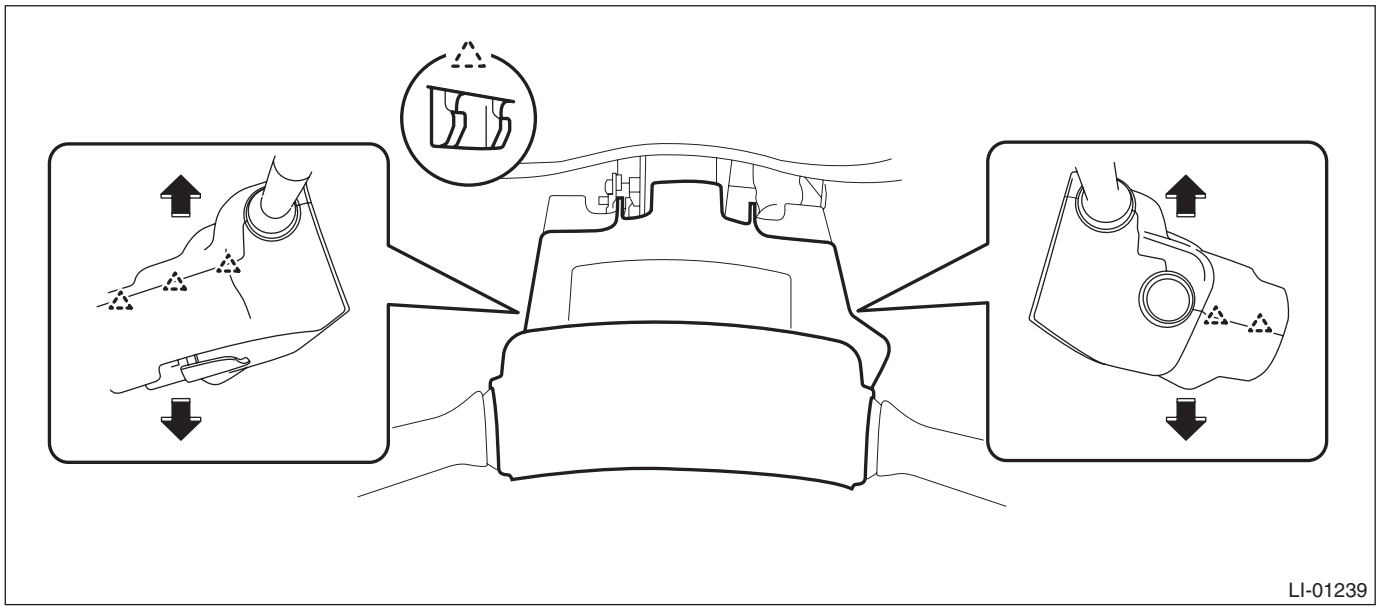
1) Disconnect the ground cable from battery. <Ref. to NT-5, BATTERY, NOTE, Note.>

NOTE:
For the 12 volt engine restart battery of HEV model, disconnect the ground terminal from 12V engine restart battery sensor.

2) Remove the cover assembly - column.
   (1) Remove the screws by turning the steering wheel to right and left.

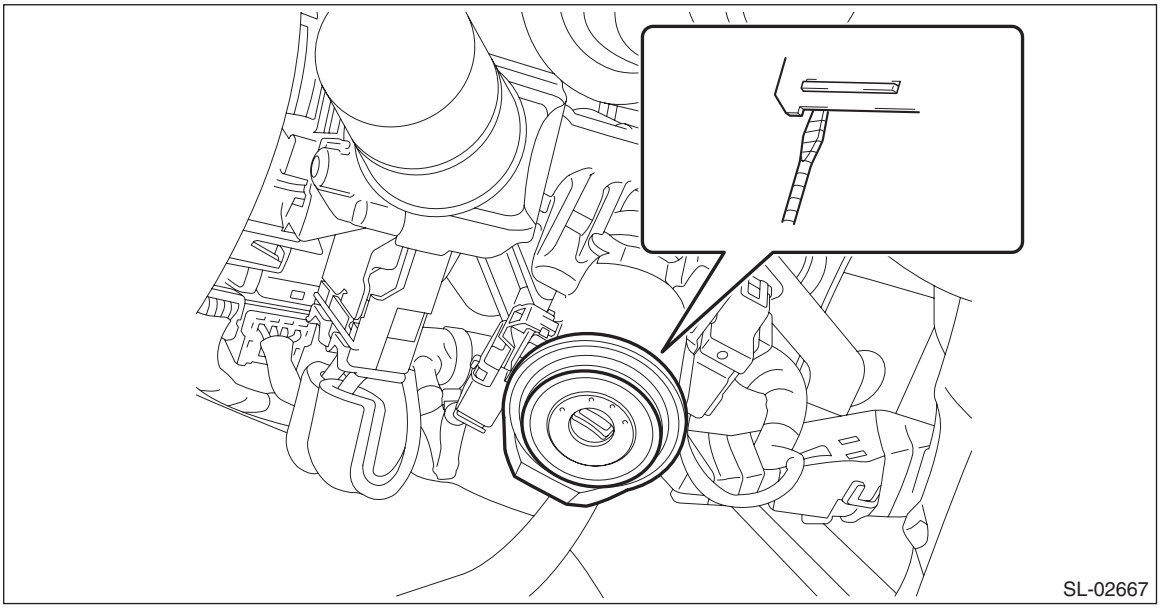



   (2) Release the claw, and remove the cover assembly - column UPR and the cover assembly - column LWR.

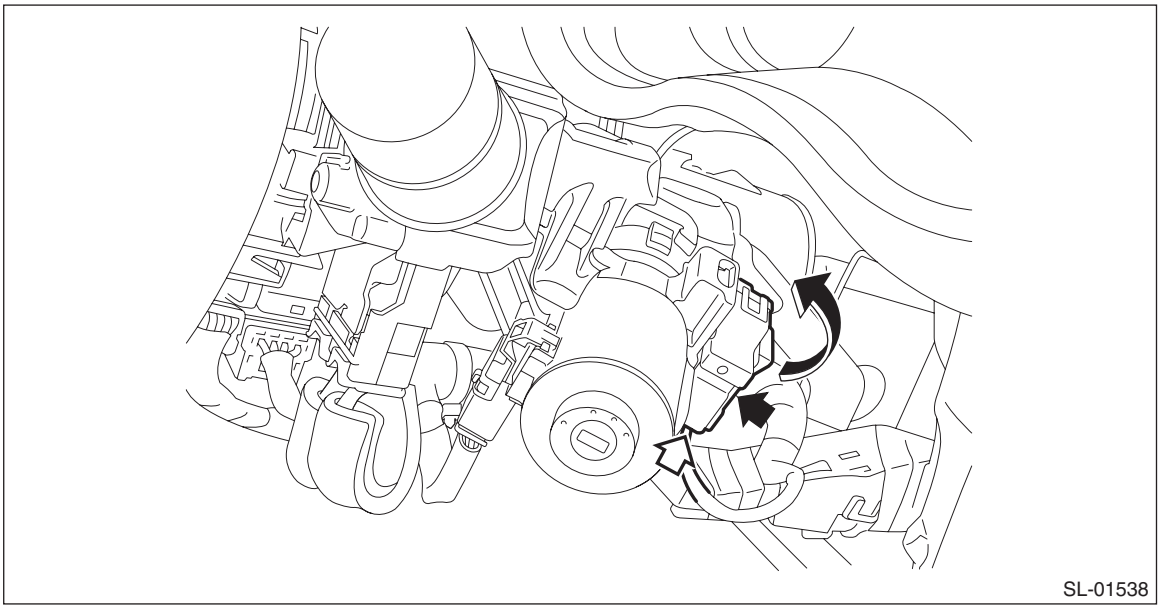


3) Remove the immobilizer antenna assembly or the ignition switch illumination.
(1) Disconnect the connector.
(2) Release two claws using a flat tip screwdriver or similar tool wrapped with a protection tape, and remove the immobilizer antenna assembly or the ignition switch illumination.

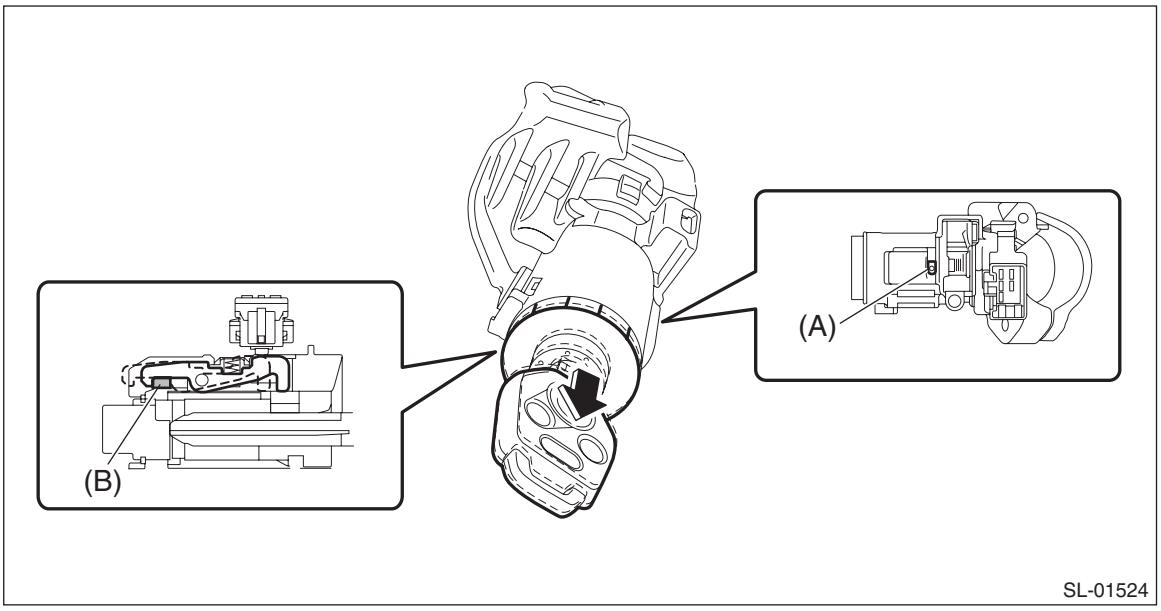
**CAUTION:**
**Do not apply excessive force to disengage the lock of immobilizer antenna assembly or ignition switch illumination. Otherwise they may be broken because those parts are the products made of a plastic.**


SL-02667

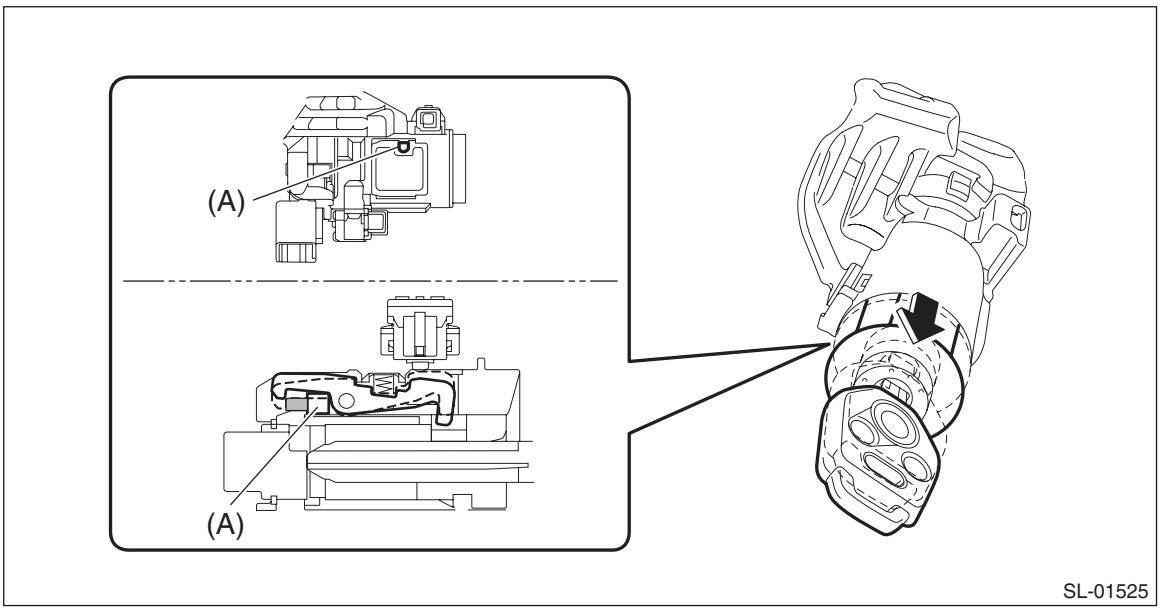
4) Remove the key lock solenoid.
(1) Disconnect the connector.
(2) Remove the screws and remove the key lock solenoid.


SL-01538

5) Replace the key cylinder.
(1) Insert the key into the key cylinder, and turn the key to the ACC position.
(2) Insert a flat tip screwdriver from the steering lock frame hole (A), and pull the key cylinder until the key cylinder claws touch the steering lock frame stopper (B).




(3) Insert a flat tip screwdriver from the steering lock frame hole (A), and release the claws to pull out the key cylinder.



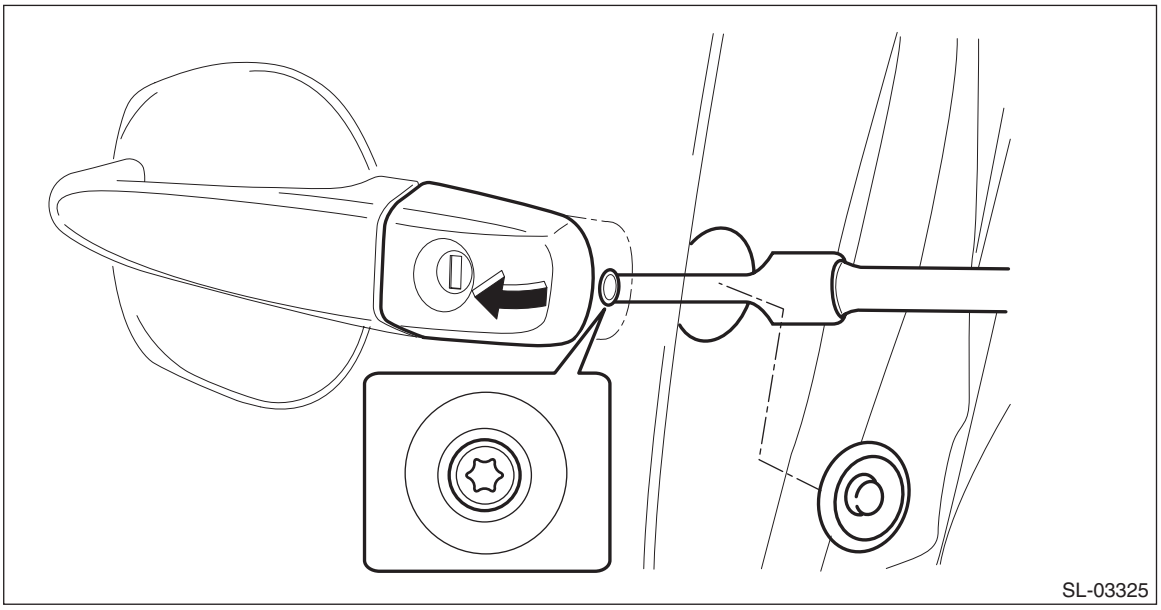

6) Install each part in the reverse order of removal.

## 2. FRONT DOOR

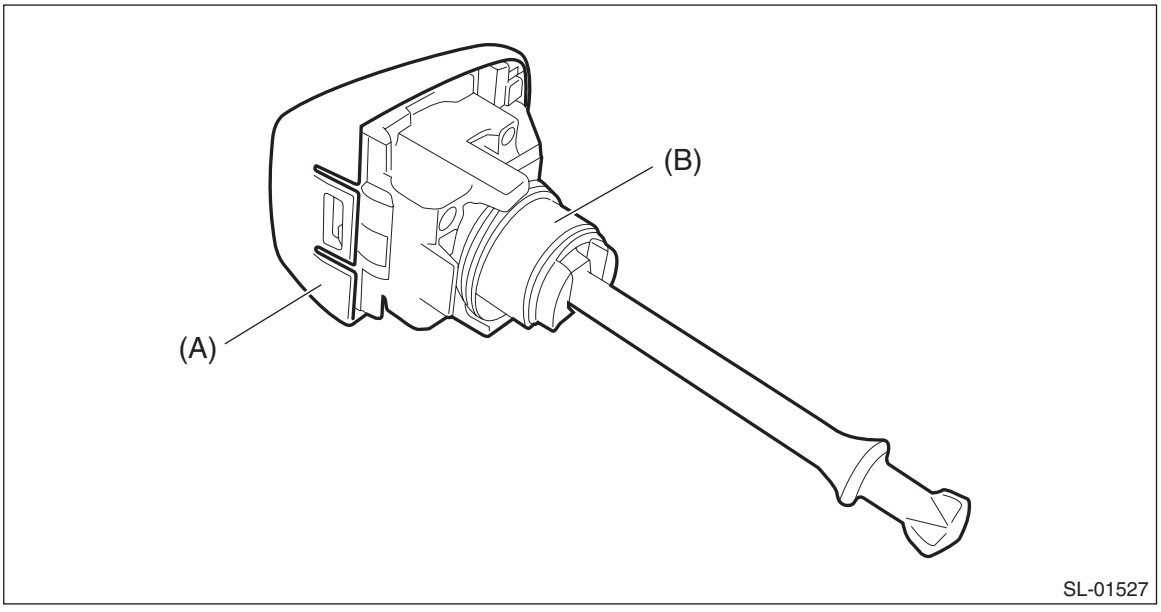
1) Raise the glass assembly - front door to the top position.
2) Remove the cover - handle front outer.

***Preparation tool:***
***TORX® T30***

(1) Remove the plug at the rear end of the panel assembly - front door.
(2) Loosen the TORX® bolt and remove the cover - handle front outer.




3) Remove the key cylinder (B) from the cover - handle front outer (A), and replace the key cylinder.



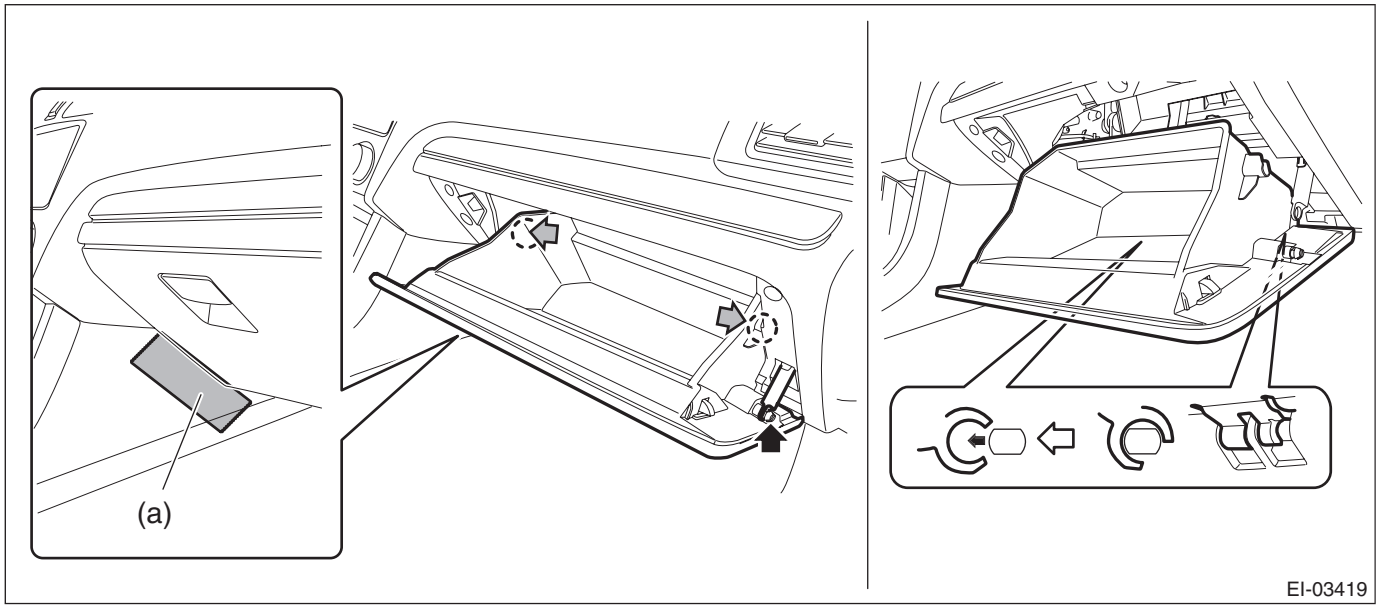

4) Install each part in the reverse order of removal.

**CAUTION:**
**When installing the cover - handle front outer on driver's side, make sure that the key cylinder shaft is correctly inserted into the latch & actuator assembly - front.**

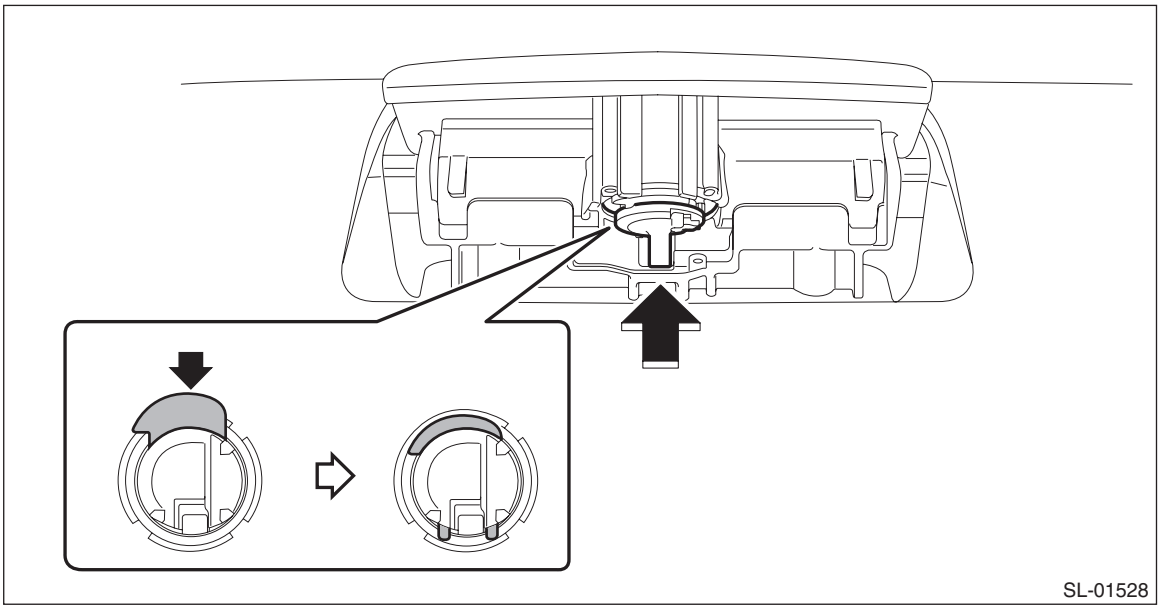
***Tightening torque:***
***Refer to "COMPONENT" of "General Description". <Ref. to SL-2, DOOR LOCK ASSEMBLY, COMPONENT, General Description.>***

### 3. GLOVE BOX LID

1) Remove the pocket assembly.
   (1) Attach the protective tape (a) to the panel center LWR.
   (2) Remove the damper COMPL - pocket.
   (3) Release the stoppers and remove the pocket assembly by pulling it toward you.




2) Replace the key cylinder.
   (1) Pull up the lock knob.
   (2) Push out the key cylinder from the pocket assembly while pressing in the metal plate.

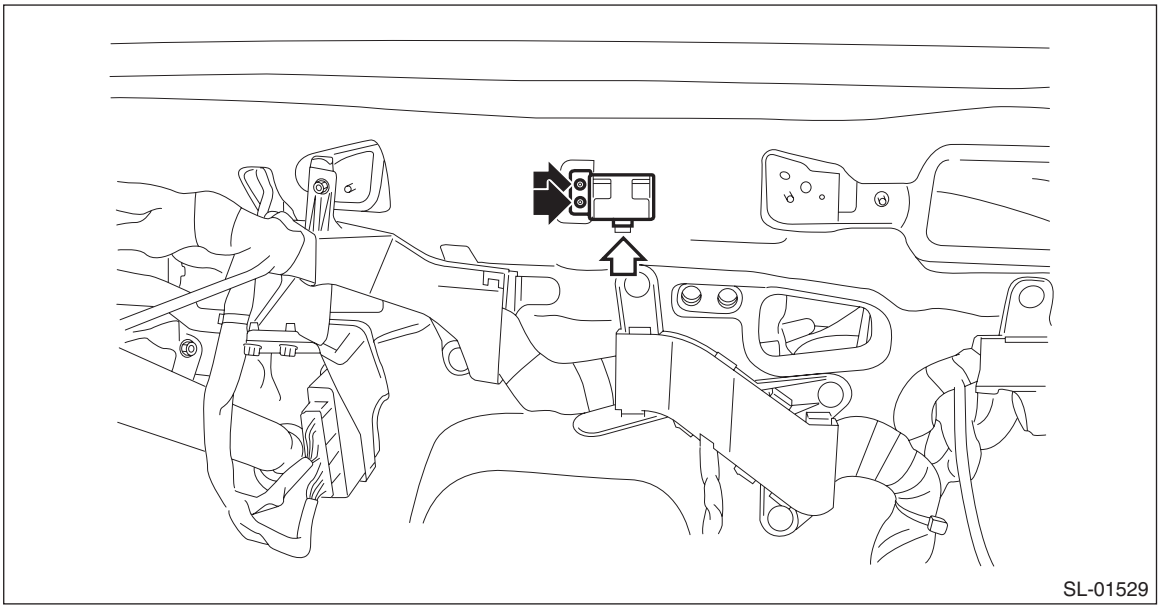



3) Install each part in the reverse order of removal.

# 21.Security Control Module

## A: REMOVAL

1) Remove the heater and cooling unit assembly. <Ref. to AC-60, REMOVAL, Heater and Cooling Unit.>
2) Remove the security control module.
   (1) Disconnect the connector.
   (2) Remove the nuts, and remove the security control module.




## B: INSTALLATION

Install each part in the reverse order of removal.

***Tightening torque:***
***Security control module: 7.5 N·m (0.76 kgf-m, 5.5 ft-lb)***

# 22.Impact Sensor

## A: REMOVAL

1) Pull out the key from the ignition switch, or turn the power to OFF.
2) Close all the doors, trunk lid and rear gate.
3) Press the UNLOCK button of the keyless transmitter or access key.
4) Disconnect the ground cable from battery. <Ref. to NT-5, BATTERY, NOTE, Note.>

NOTE:
For the 12 volt engine restart battery of HEV model, disconnect the ground terminal from 12V engine restart battery sensor.
5) Remove the impact sensor.
6) Change the setting of impact sensor using Subaru Select Monitor.

## B: INSTALLATION

1) Pull out the key from the ignition switch, or turn the power to OFF.
2) Close all the doors, trunk lid and rear gate.
3) Press the UNLOCK button of the keyless transmitter or access key.
4) Disconnect the ground cable from battery. <Ref. to NT-5, BATTERY, NOTE, Note.>

NOTE:
For the 12 volt engine restart battery of HEV model, disconnect the ground terminal from 12V engine restart battery sensor.
5) Install the impact sensor.
6) Change the setting of impact sensor using Subaru Select Monitor.

## C: OPERATION

### 1. IMPACT SENSOR SETTING USING SUBARU SELECT MONITOR

1) Prepare the Subaru Select Monitor kit.
2) Turn the ignition to ON (engine OFF) and run the “PC application for Subaru Select Monitor”.
3) On «System Selection Menu» display, select {Integ. unit mode}.
4) Select {Unit customizing} from {Work Support}.
5) Set the impact sensor setting.
- When installing: ON
- When removing: OFF

6) Set the impact sensor ON/OFF setting.
- When installing: ON
- When removing: OFF

7) Turn the ignition to OFF, and then remove the Subaru Select Monitor.

# D: ADJUSTMENT

## 1. CHECK IMPACT SENSOR

1) Pull out the key from the ignition switch, or turn the power to OFF.
2) Close all the windows.
3) Close all the doors, trunk lid and rear gate. Leave open the front hood.
4) Press the LOCK button of the keyless transmitter or access key from outside of vehicle.
5) Check that the security indicator light blinks twice within 0.5 seconds in 2 second cycles after 30 seconds.
6) Hit all windows with the palm with force repeatedly, to check for whether the security alarm operates. Lift up the front hood approx. 12 cm (4.7 in) or more, and then drop it off to check the operation of security alarm.
7) If NG, adjust the impact sensitivity.

## 2. IMPACT SENSITIVITY ADJUSTMENT

1) Prepare the Subaru Select Monitor kit.
2) Turn the ignition to ON (engine OFF) and run the “PC application for Subaru Select Monitor”.
3) On the «System Selection Menu», select the {Impact Sensor}.
4) Make a {Sensitivity Adjustment Mode}.
- Sensitivity can be adjusted in 11 levels (0 to 10).
- Initial setting is 5.
- Smaller number means more sensitive.
- Larger number means less sensitive.

5) Turn the ignition to OFF, and then remove the Subaru Select Monitor.

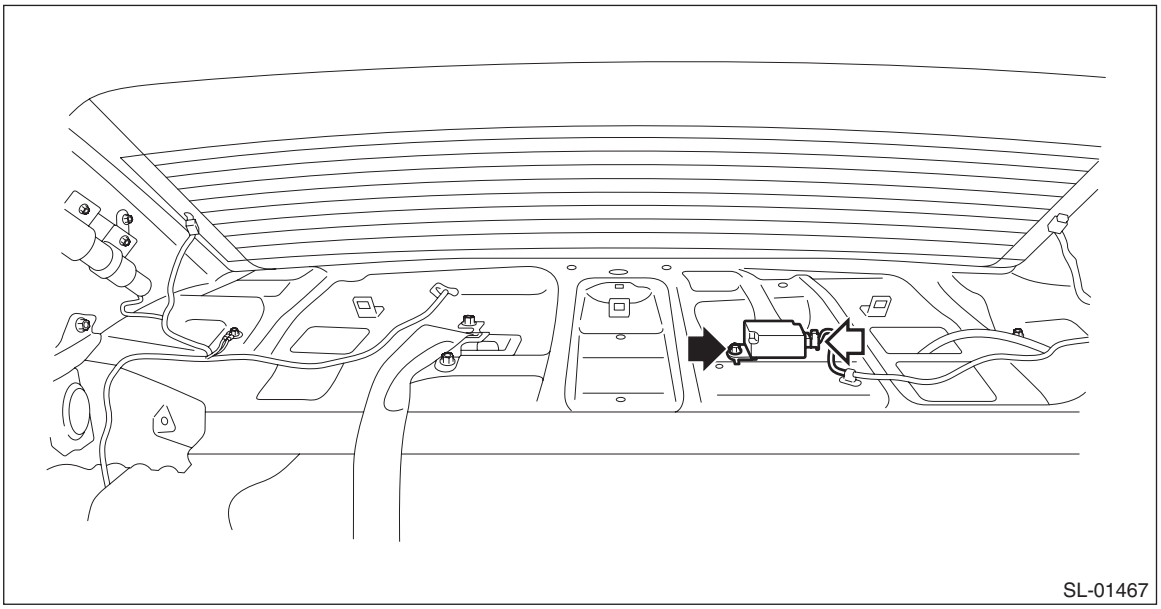
NOTE:
- Set the sensor so that it is not triggered by normal vibrations (someone reclining on the door, hit by a ball, etc.).
- Set the sensor to operate the alarm when the windshield glass or door is hit hard repeatedly, etc, where it can be assumed that there is an attempt to damage the car by a burglar, etc.
- Even if there is no burglary attempt, if there is vibration (road construction, elevated parking lots, passage of trains or boarding of ferries), the alarm can be triggered. Because of this, ask the customer about their parking conditions, and set an appropriate sensitivity level after discussion.
- If the sensitivity setting was not performed properly, a buzzer will sound four times. In this case, check that there is no error in CAN communication.

# 23.Keyless Entry Control Module

## A: REMOVAL

### 1. 4 DOOR MODEL

1) Disconnect the ground cable from battery. <Ref. to NT-5, BATTERY, NOTE, Note.>
2) Remove the trim panel assembly - rear shelf. <Ref. to EI-120, REMOVAL, Rear Shelf Trim.>
3) Remove the keyless entry control module.
   (1) Disconnect the connector.
   (2) Remove the bolt and then remove the keyless entry control module.

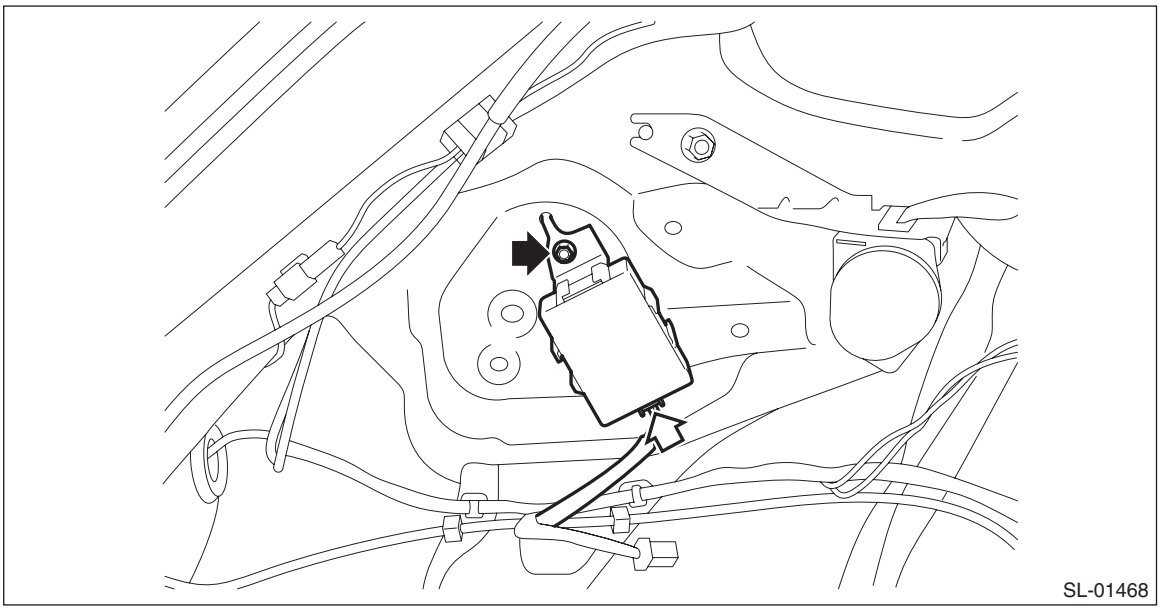


### 2. 5 DOOR MODEL/XV MODEL

1) Disconnect the ground cable from battery. <Ref. to NT-5, BATTERY, NOTE, Note.>

NOTE:
For the 12 volt engine restart battery of HEV model, disconnect the ground terminal from 12V engine restart battery sensor.

2) Remove the trim panel - rear apron LH. <Ref. to EI-112, REMOVAL, Rear Quarter Trim.>
3) Remove the keyless entry control module.
   (1) Disconnect the connector.
   (2) Remove the bolt and then remove the keyless entry control module.




## B: INSTALLATION

Install each part in the reverse order of removal.

***Tightening torque:***
***Keyless entry control module: 13 N·m (1.33 kgf-m, 9.6 ft-lb)***

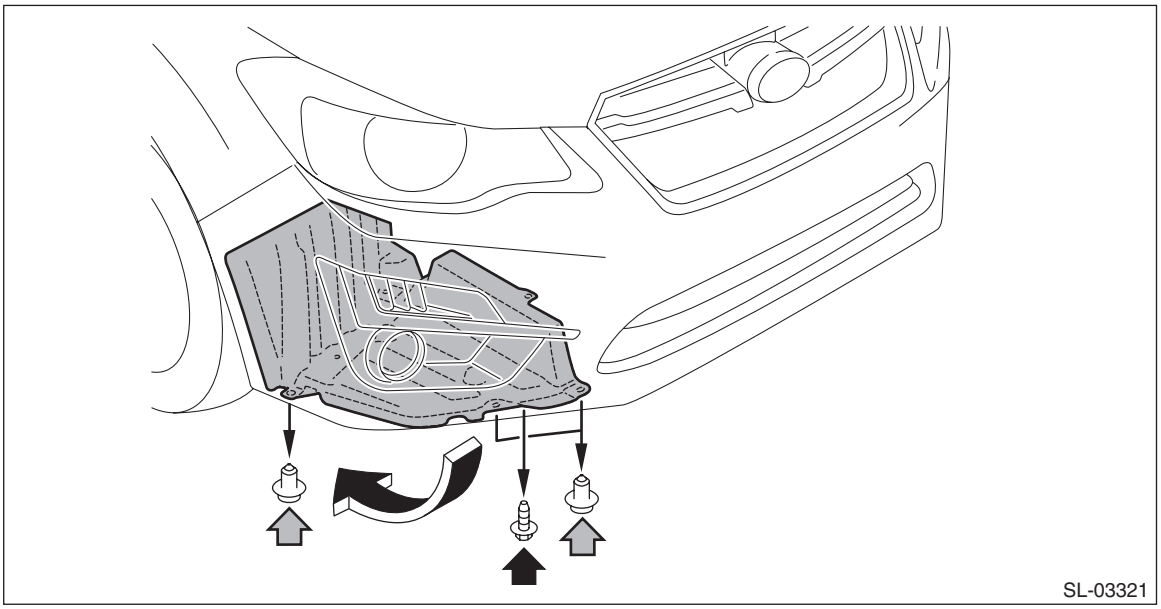
# 24.Keyless Buzzer

## A: REMOVAL

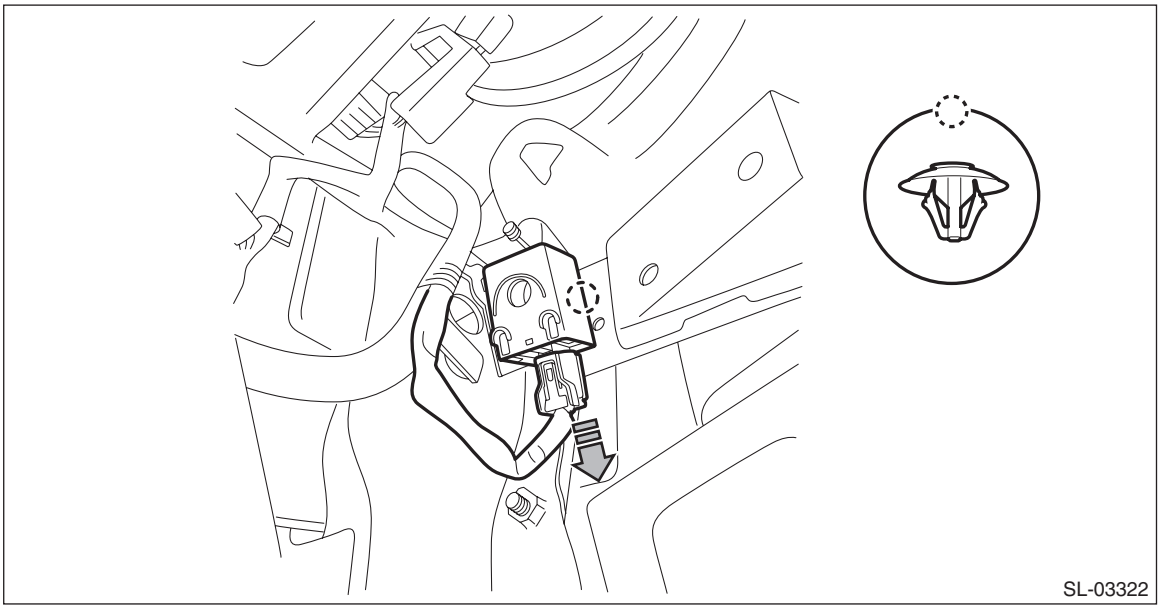
1) Disconnect the ground cable from battery. <Ref. to NT-5, BATTERY, NOTE, Note.>

NOTE:
For the 12 volt engine restart battery of HEV model, disconnect the ground terminal from 12V engine restart battery sensor.

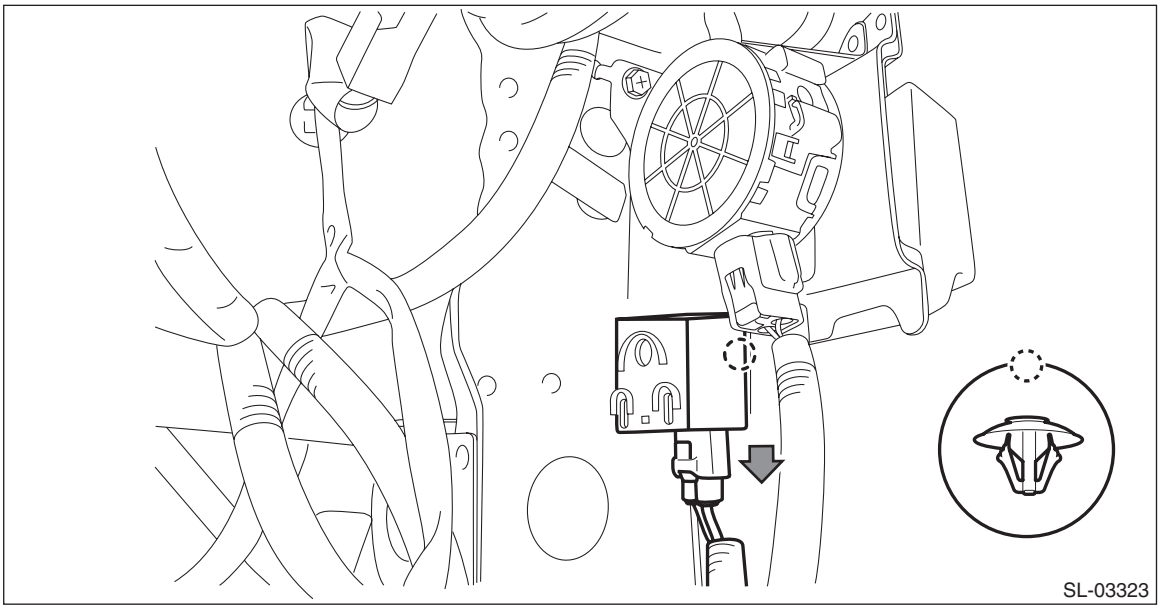
2) Lift up the vehicle.
3) Remove the clips, and turn over the front side of the mud guard - front.


SL-03321

4) Remove the keyless buzzer.
   (1) Disconnect the connector.
   (2) Remove the clip and detach the keyless buzzer.
   • Gasoline engine model


SL-03322

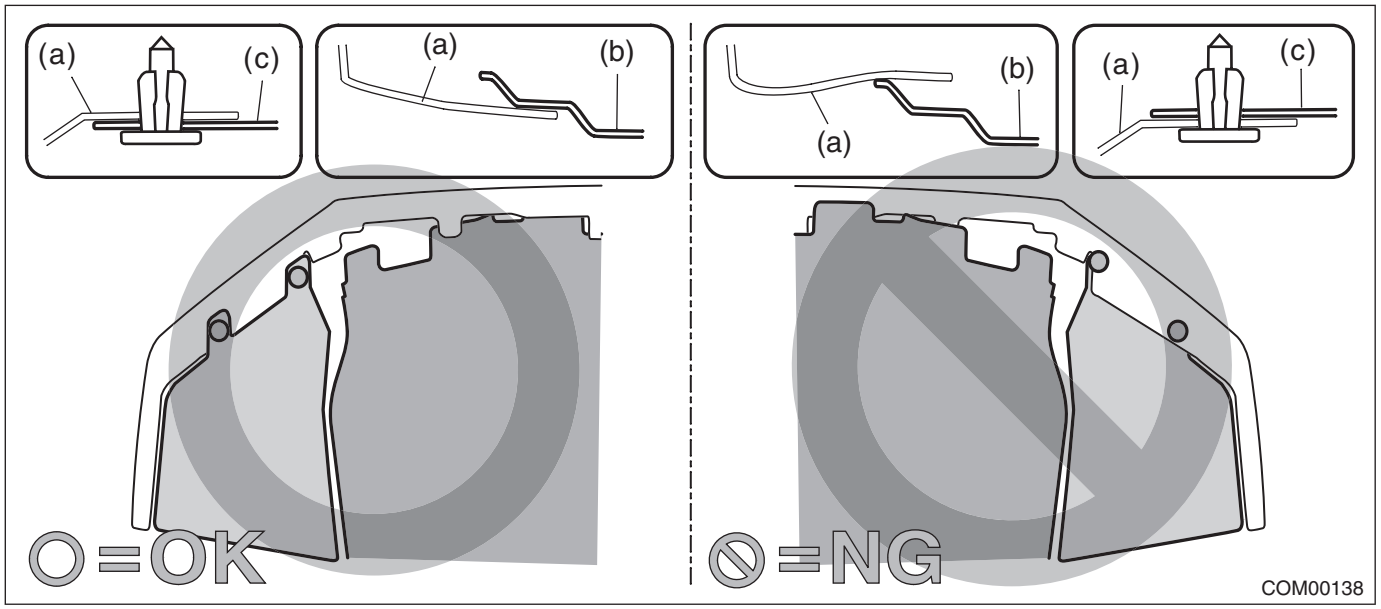
- HEV model




## B: INSTALLATION

Install each part in the reverse order of removal.

**CAUTION:**
**Install so that the front end of the under cover (b) comes inside the bumper face - front (a), and the front end of the mud guard (c) comes outside the bumper face - front (a).**




## C: INSPECTION

Using the Subaru Select Monitor, perform forced operation of the keyless buzzer. <Ref. to BC(diag)-18, OPERATION, User Customizing.>
If the buzzer does not sound, replace the keyless buzzer.

# 25.Body Integrated Unit

## A: NOTE

### 1. WHEN REPLACING THE BODY INTEGRATED UNIT

1) Check and record the current setting. <Ref. to BC(diag)-21, CONFIRM CURRENT SETTING, OPERATION, Registration Body Integrated Unit.>
2) Prepare all immobilizer keys already registered. (Model without keyless access)

NOTE:
If some of the registered immobilizer keys are missing, the following parts must be replaced.
- Except for C0 and C5 models: Combination meter
- C0 and C5 models: Security control module

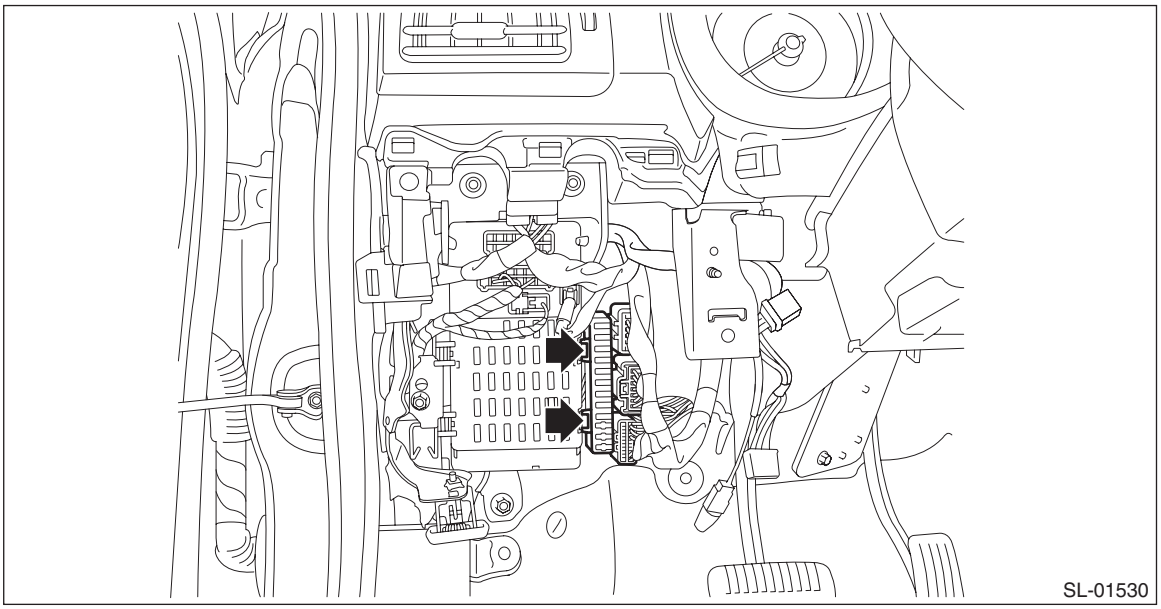
### 2. AFTER REPLACING THE BODY INTEGRATED UNIT

1) Register the immobilizer. (Model without keyless access)

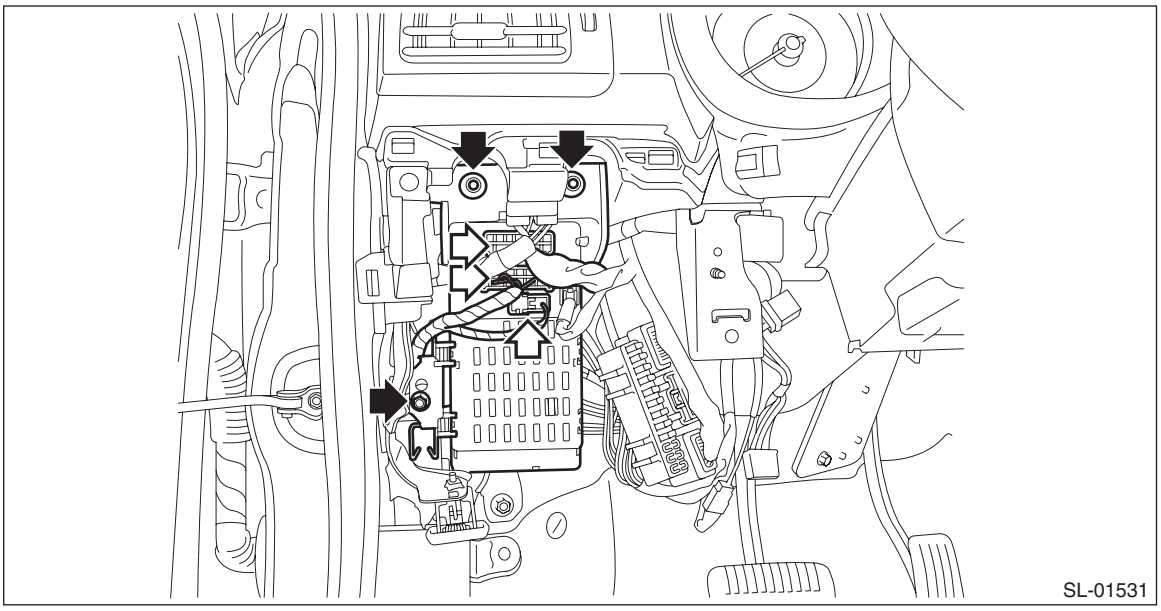
NOTE:
For detailed operation procedure, refer to the “REGISTRATION MANUAL FOR IMMOBILIZER”.
2) Set the current settings as recorded.

## B: REMOVAL

1) Remove the cover assembly - instrument panel LWR driver and the knee airbag module. <Ref. to AB-34, REMOVAL, Knee Airbag Module.>
2) Release the lock and remove the fuse holder.

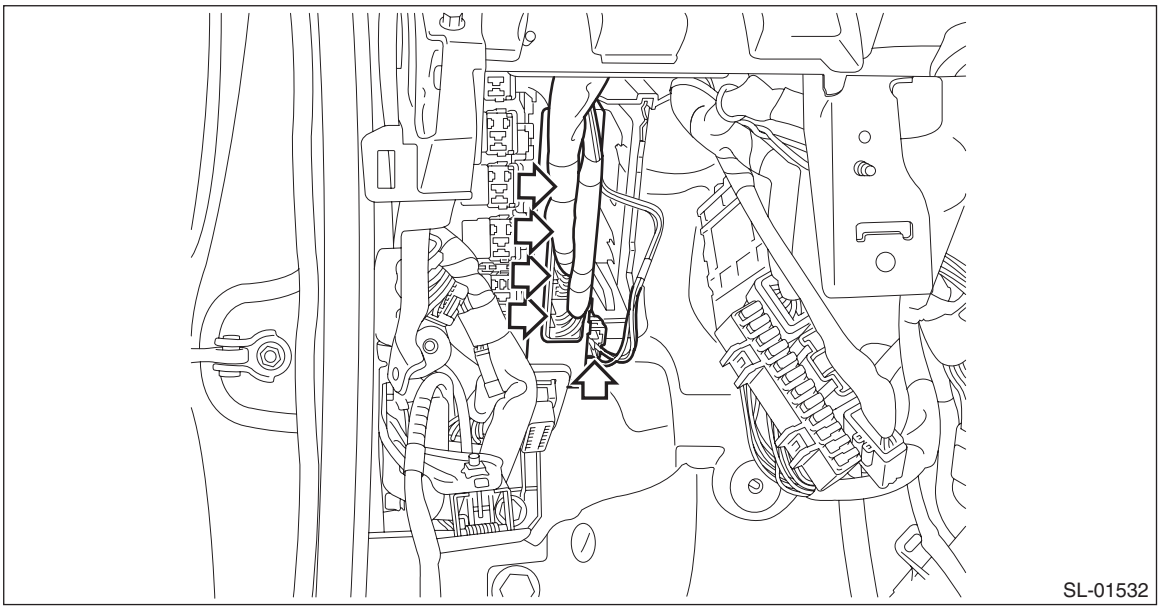


3) Remove the relay & fuse box.
   (1) Disconnect the connector.
   (2) Remove the bolts and nuts, and remove the relay & fuse box.

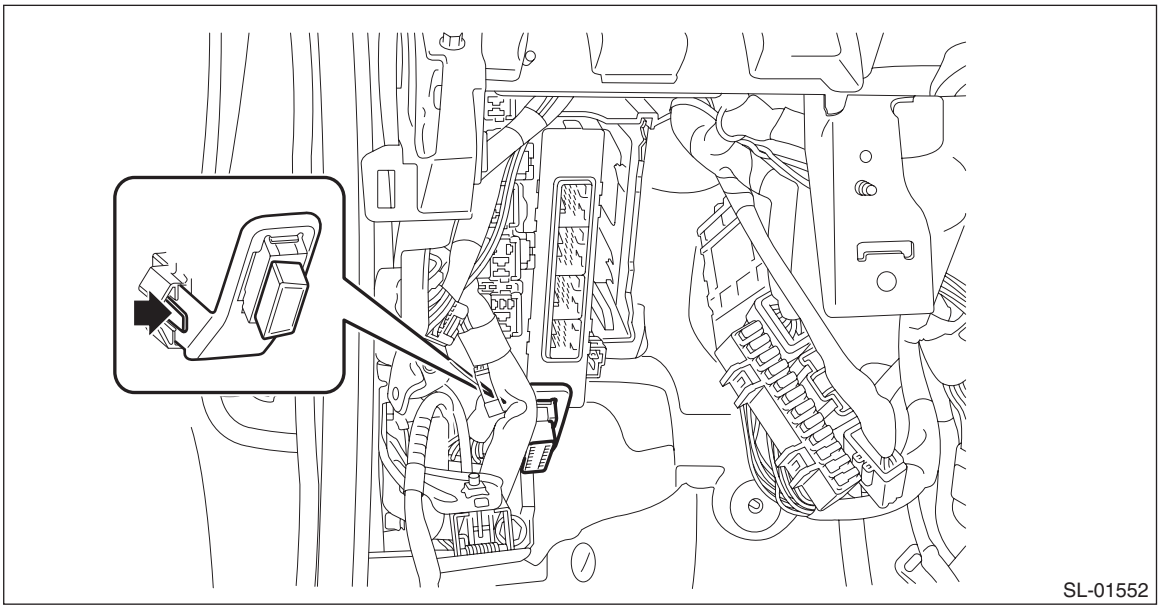



4) Remove the body integrated unit.

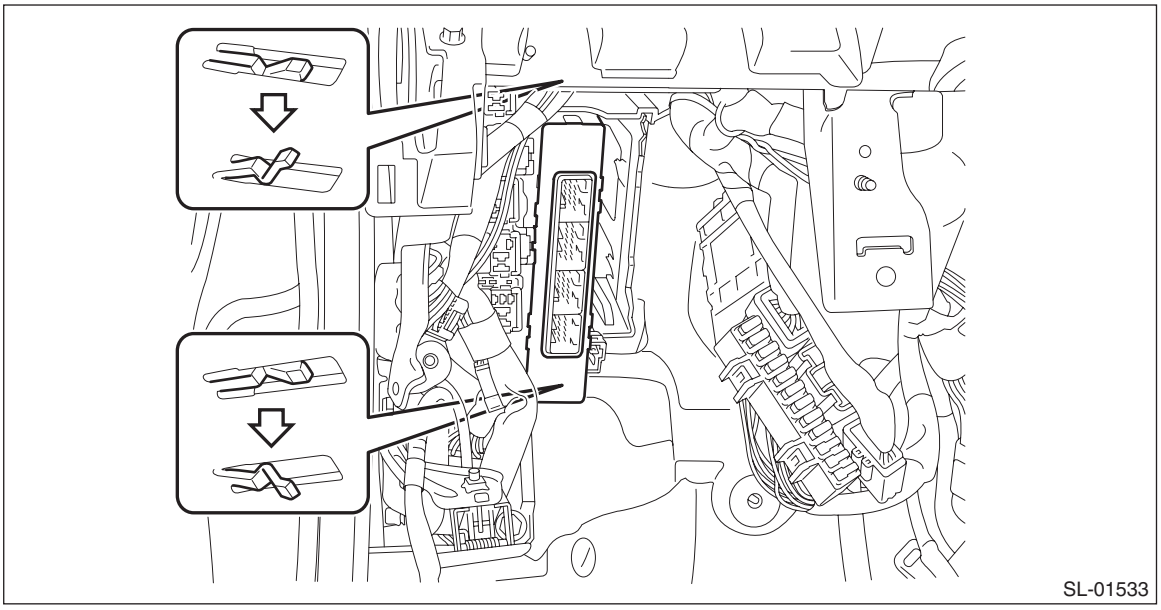
**CAUTION:**
**Be careful to keep water and other foreign materials away from body integrated unit.**
   (1) Disconnect the connector.



(2) Release the lock, and remove the data link connector bracket from the bracket.




(3) Release the claws, and pull out the body integrated unit from the bracket.




## C: INSTALLATION

**CAUTION:**

- **Before handling the airbag module, refer to "CAUTION" of "General Description" in "AIRBAG SYSTEM". <Ref. to AB-10, CAUTION, General Description.>**
- **Do not allow harness and connectors to interfere or get tangled up with other parts.**

Install each part in the reverse order of removal.

***Tightening torque:***

***Relay & fuse box: 7.5 N·m (0.76 kgf-m, 5.5 ft-lb)***

NOTE:

Make sure that there are no differences from the contents of the current settings after installation. <Ref. to BC(diag)-12, LIST, Read Current Data.>

# 26.Keyless Transmitter

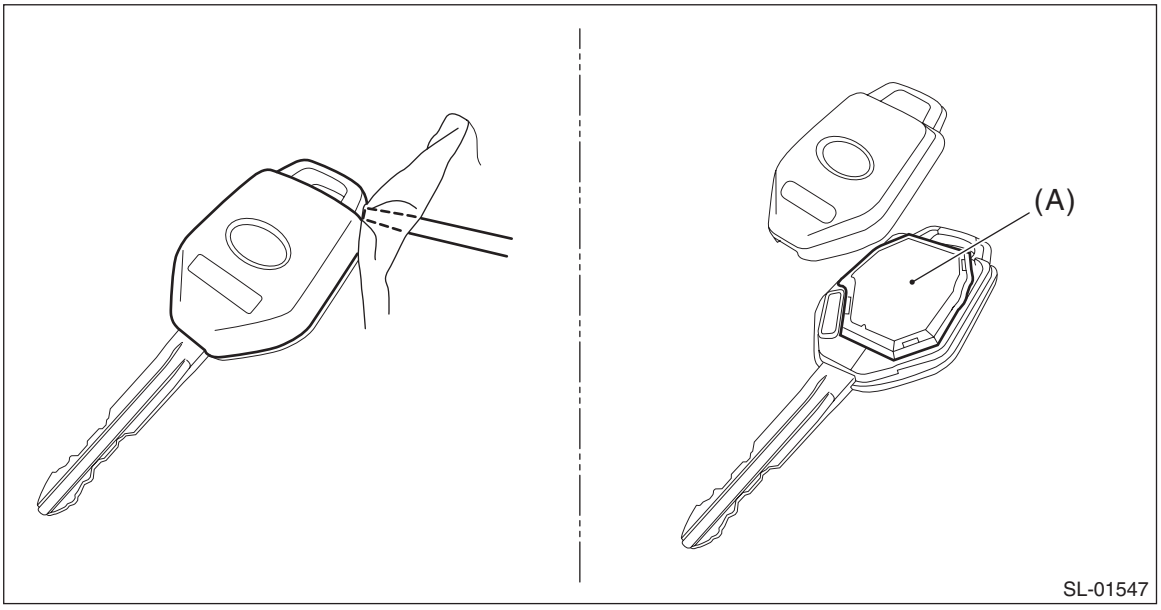
## A: REMOVAL

### 1. KEYLESS TRANSMITTER BATTERY

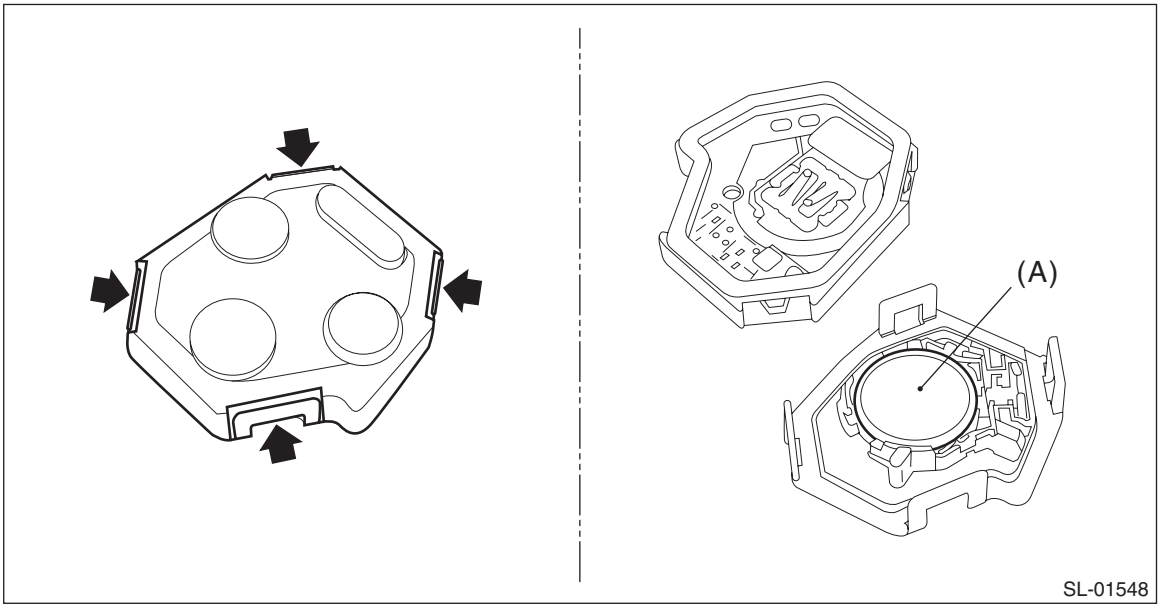
**CAUTION:**
**To prevent static electricity damage to the keyless transmitter printed circuit board, touch the steel area of building with hand to discharge static electricity carried on body or clothes before disassembling the keyless transmitter.**

1) Remove the keyless transmitter cover, and take out the transmitter case (A).

NOTE:
Use a flat tip screwdriver with protective tape or cloth in order not to damage the components.




2) Release the claws to open the transmitter case, then remove the battery (A).



# B: INSTALLATION

## 1. KEYLESS TRANSMITTER BATTERY

Install each part in the reverse order of removal.

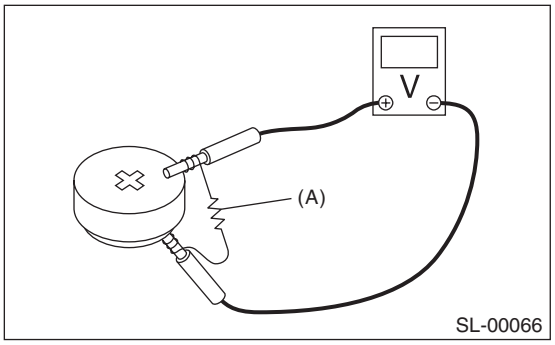
# C: INSPECTION

## 1. KEYLESS TRANSMITTER BATTERY

1) Check the keyless transmitter battery voltage.

***PREPARATION TOOL:***
***Circuit tester***

NOTE:
Complete the measurement within 5 seconds because the battery discharges during measurement.




| Battery terminal | Inspection Conditions | Standard |
|---|---|---|
| (+) — (–) | Connect resistor (A) 47 Ω | 2.5 — 3.0 V |

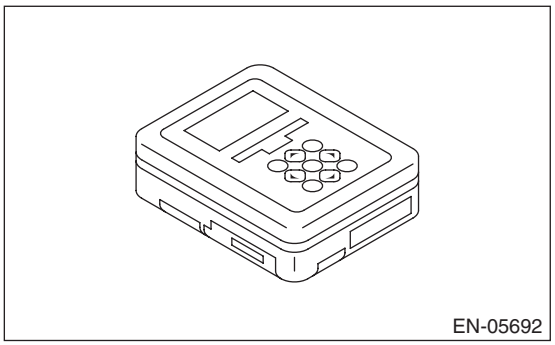
2) Replace the battery if the inspection result is not within the standard. (Use CR1620 or equivalent.)

# D: REPLACEMENT

## 1. REGISTRATION OF KEYLESS TRANSMITTER WITH SUBARU SELECT MONITOR

NOTE:
- A maximum of four keyless transmitters can be registered for each individual vehicle.
- When replacing or adding the keyless transmitter, new registration of transmitter is necessary.

1) Prepare the Subaru Select Monitor kit. <Ref. to SL-11, SPECIAL TOOL, PREPARATION TOOL, General Description.>

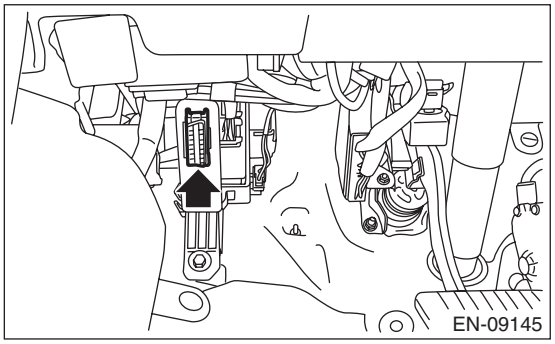



2) Prepare PC with Subaru Select Monitor installed.
3) Connect the USB cable to SDI (Subaru Diagnosis Interface) and USB port on the personal computer (dedicated port for the Subaru Select Monitor).

NOTE:
The dedicated port for the Subaru Select Monitor means the USB port which was used to install the Subaru Select Monitor.

4) Connect the diagnosis cable to SDI.
5) Connect SDI to data link connector located in the lower portion of the instrument panel (on the driver's side).

**CAUTION:**
**Do not connect scan tools other than the Subaru Select Monitor.**




6) Start the PC.
7) Turn the ignition switch to OFF and run the "PC application for Subaru Select Monitor".
8) On the «Main Menu» of the Subaru Select Monitor, select {Each System Check} → {Integ. unit mode} → {Work Support} → {Keyless ID registration}.
9) According to the directions on the screen, press the button of the transmitter to be registered in the LOCK → UNLOCK order. «When registration completed, external buzzer sound once.» Repeat the registration as many times as desired.
10) Press the [Exit] button to finish the operations.

NOTE:
When attempting to register a key that has already been registered, the external buzzer sounds twice.

# 27.Access Key

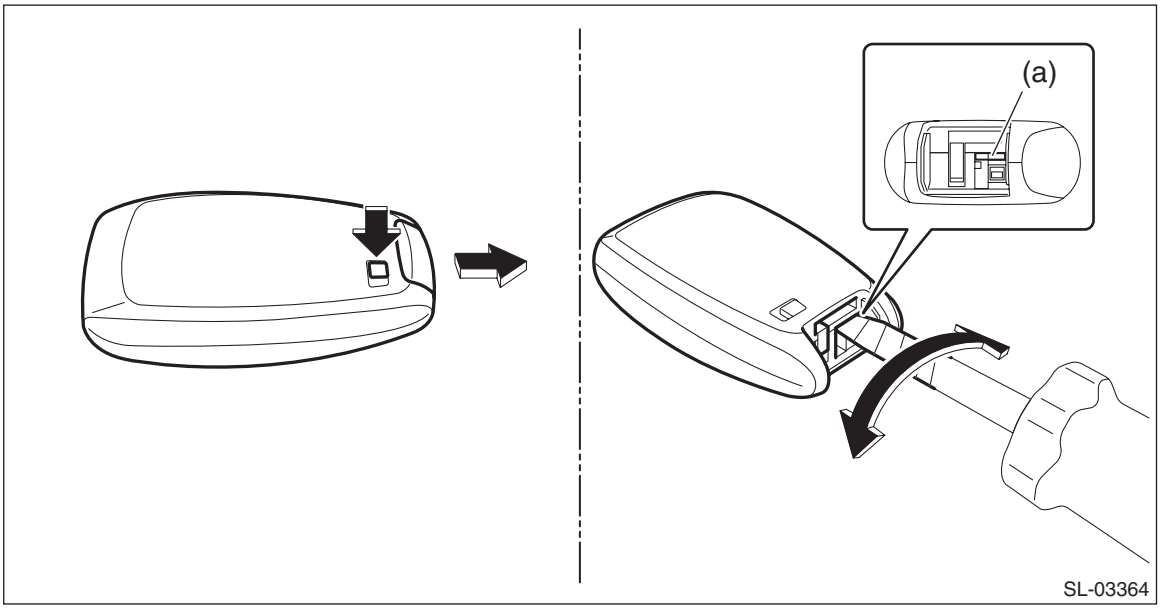
## A: REMOVAL

NOTE:
Refer to keyless transmitter for model without keyless access. <Ref. to SL-90, KEYLESS TRANSMITTER BATTERY, REMOVAL, Keyless Transmitter.>

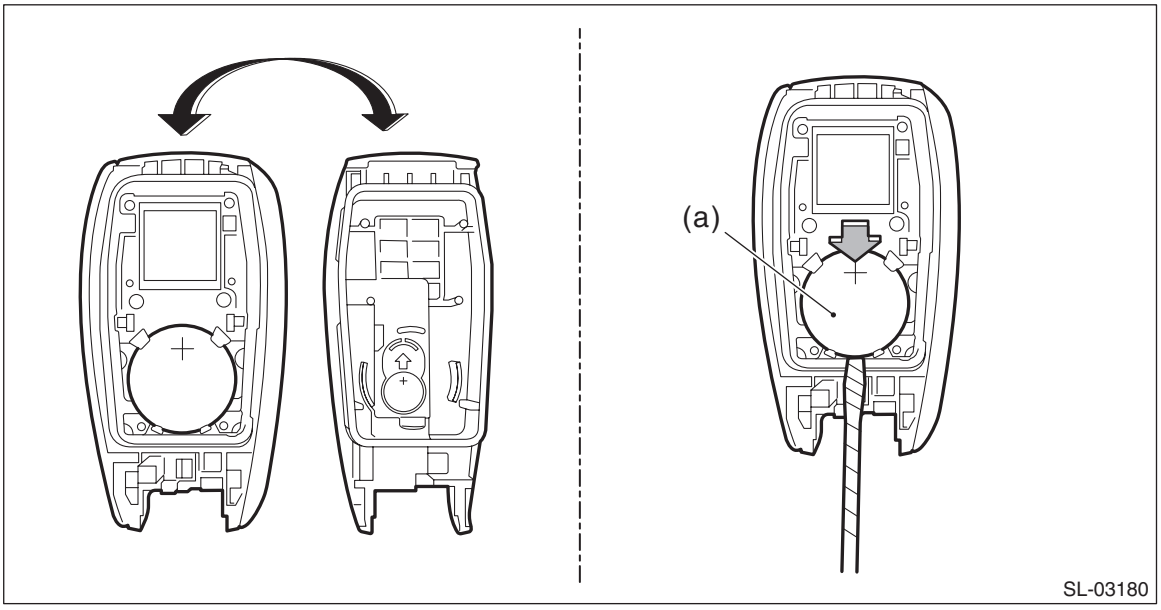
### 1. ACCESS KEY BATTERY

**CAUTION:**
**To prevent static electricity damage to the access key printed circuit board, touch the steel area of building with hand to discharge static electricity carried on body or clothes before disassembling the access key.**

1) Push the lock button and remove the mechanical key from the access key.
2) Insert the tip of a flat tip screwdriver wrapped with insulation tape into the slit (a) of the access key to open the case.




3) Remove the battery (a) from the case.



# B: INSTALLATION

## 1. ACCESS KEY BATTERY

Install each part in the reverse order of removal.

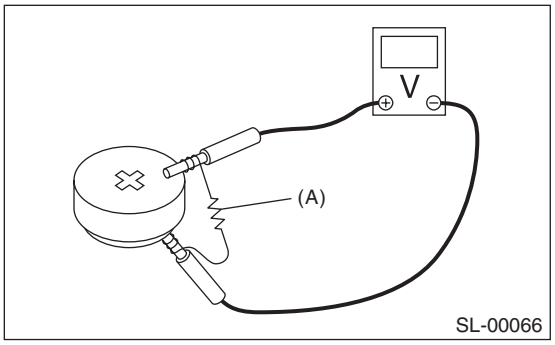
# C: INSPECTION

## 1. ACCESS KEY BATTERY

Check the access key battery voltage.

***Preparation tool:***
***Circuit tester***

NOTE:
Complete the measurement within 5 seconds because the battery discharges during measurement.




| Battery terminal | Inspection conditions | Standard |
|---|---|---|
| (+) — (–) | Connect resistor (A) 47 Ω | 2.5 — 3.0 V |

Replace the battery if the inspection result is not within the standard value. (Use CR2032 V or equivalent.)

# D: REPLACEMENT

## 1. ACCESS KEY REGISTRATION

NOTE:
- A maximum of seven access keys can be registered for each individual vehicle.
- When replacing or adding an access key, new registration of the access key is necessary.
- When the access key has been newly added, it is registered to the immobilizer system at the same time.

## 2. CLEARING ACCESS KEY REGISTRATION

Refer to the “REGISTRATION MANUAL FOR IMMOBILIZER” for clearing access key registration.

# 28.Immobilizer Control Module

## A: NOTE

The control of immobilizer system is carried out in body integrated unit. For the detailed procedure, refer to the section of body integrated unit.

- Removal: <Ref. to SL-87, REMOVAL, Body Integrated Unit.>
- Installation: <Ref. to SL-89, INSTALLATION, Body Integrated Unit.>

# 29.Immobilizer Antenna

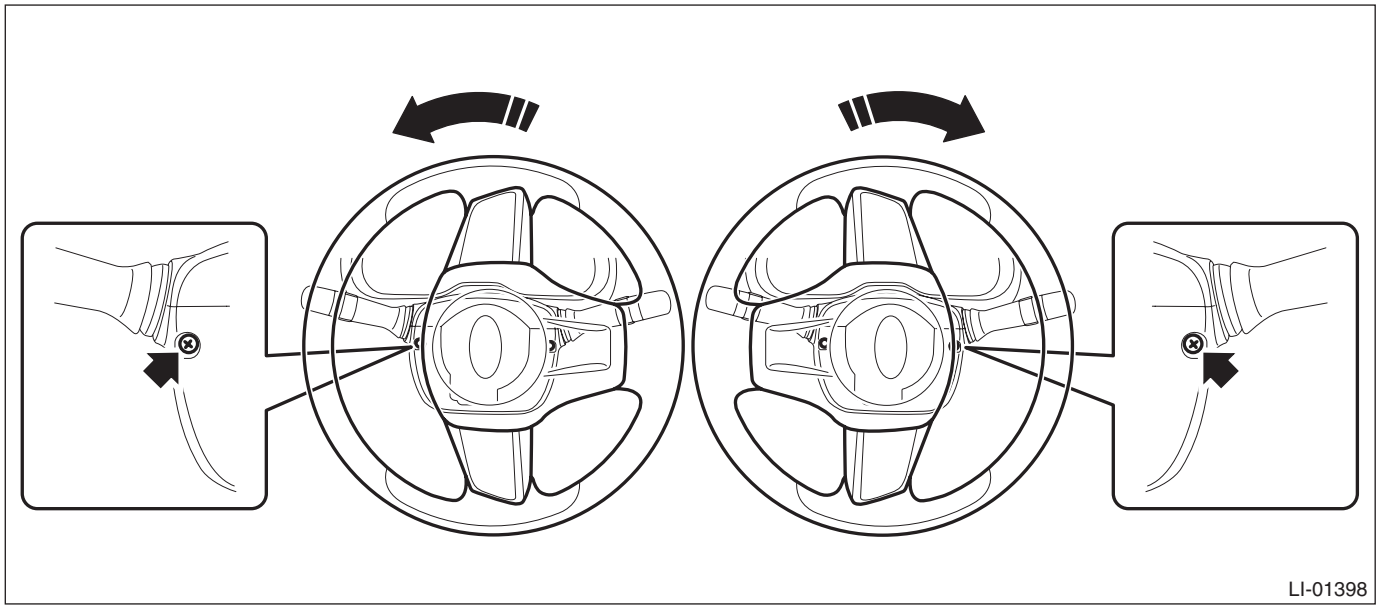
## A: REMOVAL

### 1. MODELS WITHOUT KEYLESS ACCESS

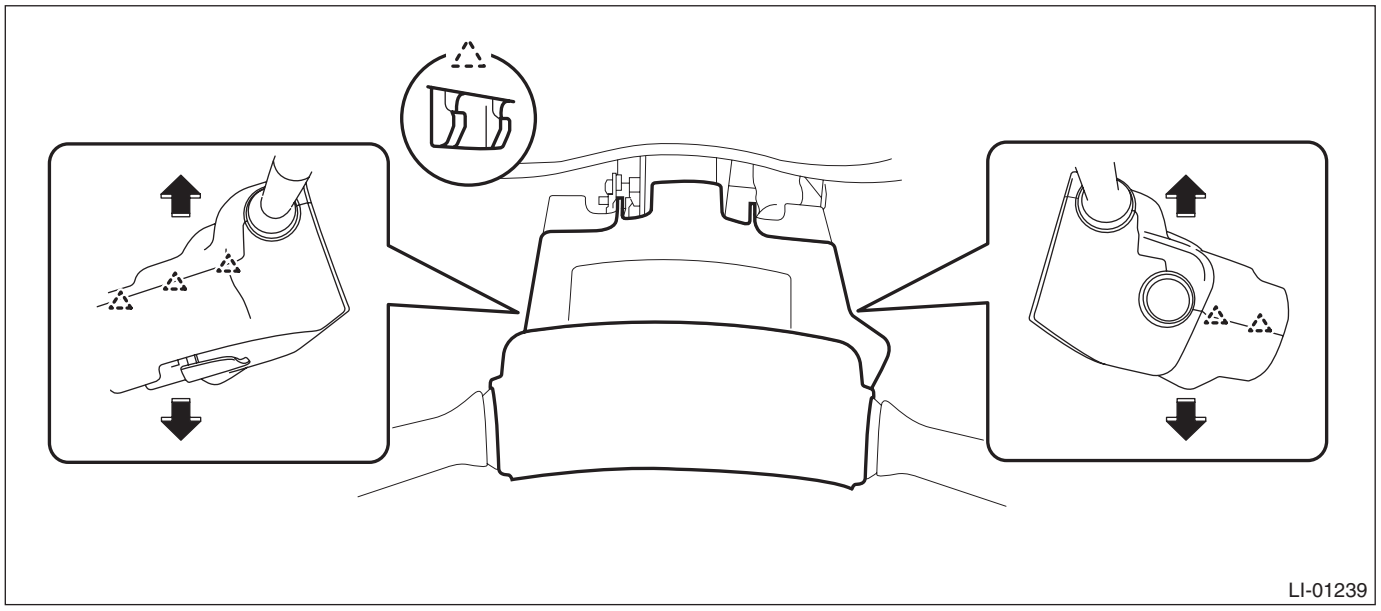
1) Disconnect the ground cable from battery. <Ref. to NT-5, BATTERY, NOTE, Note.>

NOTE:
For the 12 volt engine restart battery of HEV model, disconnect the ground terminal from 12V engine restart battery sensor.

2) Remove the cover assembly - column.
   (1) Remove the screws by turning the steering wheel to right and left.

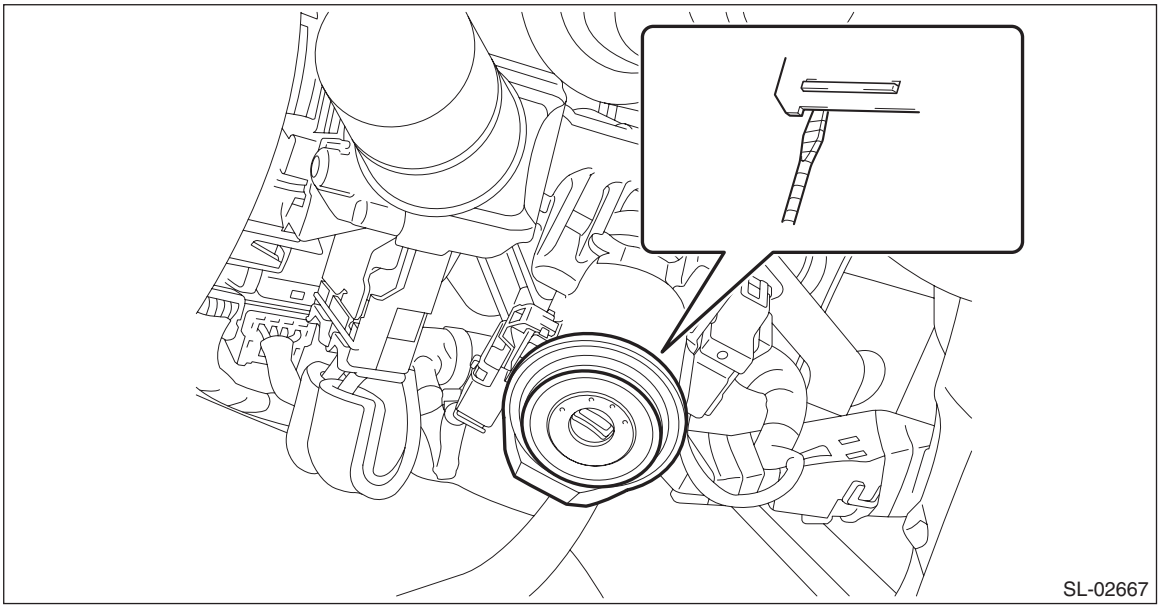



   (2) Release the claw, and remove the cover assembly - column UPR and the cover assembly - column LWR.



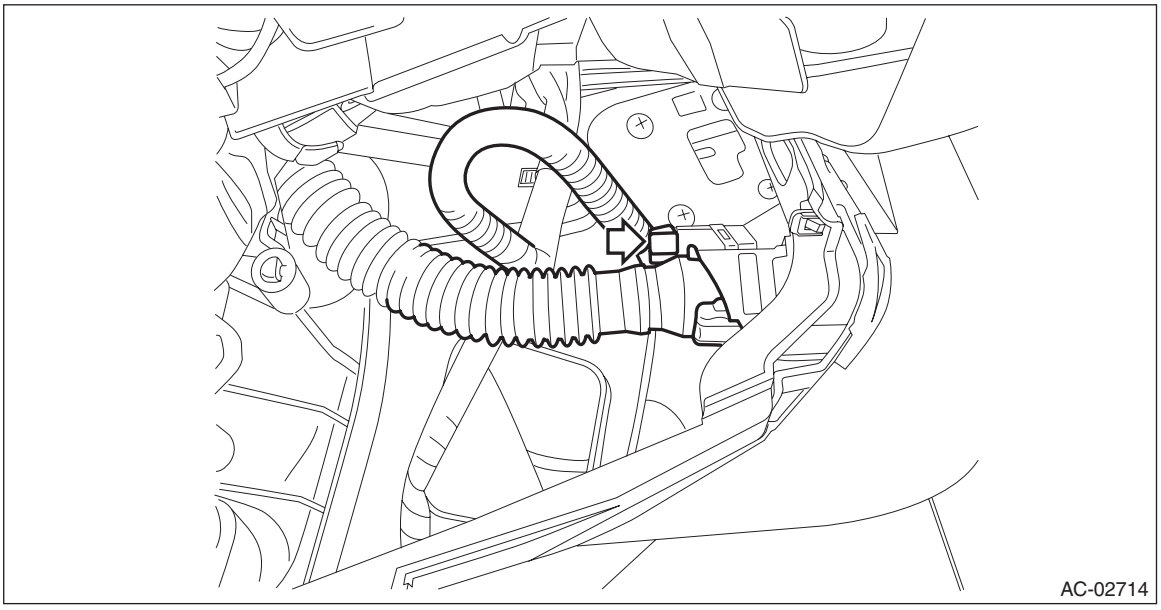
3) Remove the immobilizer antenna assembly.
(1) Disconnect the connector.
(2) Release two claws using a flat tip screwdriver or similar tool wrapped with a protection tape, and remove the immobilizer antenna assembly.

**CAUTION:**
**Do not apply excessive force to disengage the lock of immobilizer antenna assembly. Otherwise they may be broken because those parts are the products made of a plastic.**


SL-02667

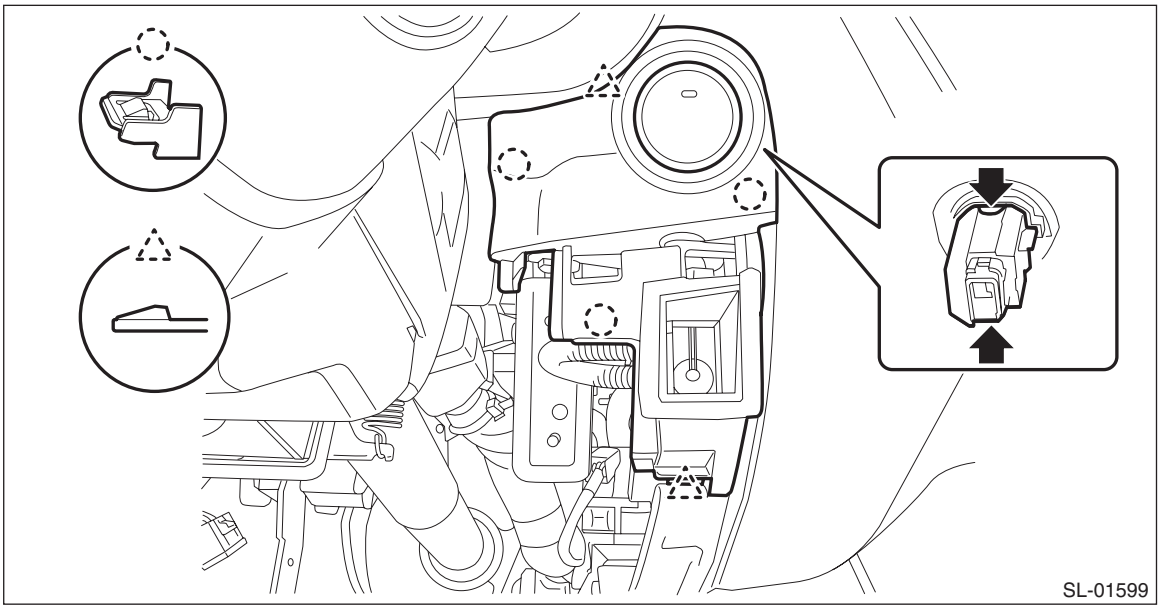
## 2. MODELS WITH KEYLESS ACCESS

NOTE:
Immobilizer antenna is integrated with the push button ignition switch.
1) Remove the cover assembly - instrument panel LWR driver. <Ref. to EI-76, REMOVAL, Instrument Panel Lower Cover.>
2) Remove the push button ignition switch.
(1) Disconnect the connector, and remove the aspirator hose.


AC-02714

(2) Release the claws, and then remove the panel - switch.

(3) Release the claws, and then remove the push button ignition switch from the panel - switch.




## B: INSTALLATION

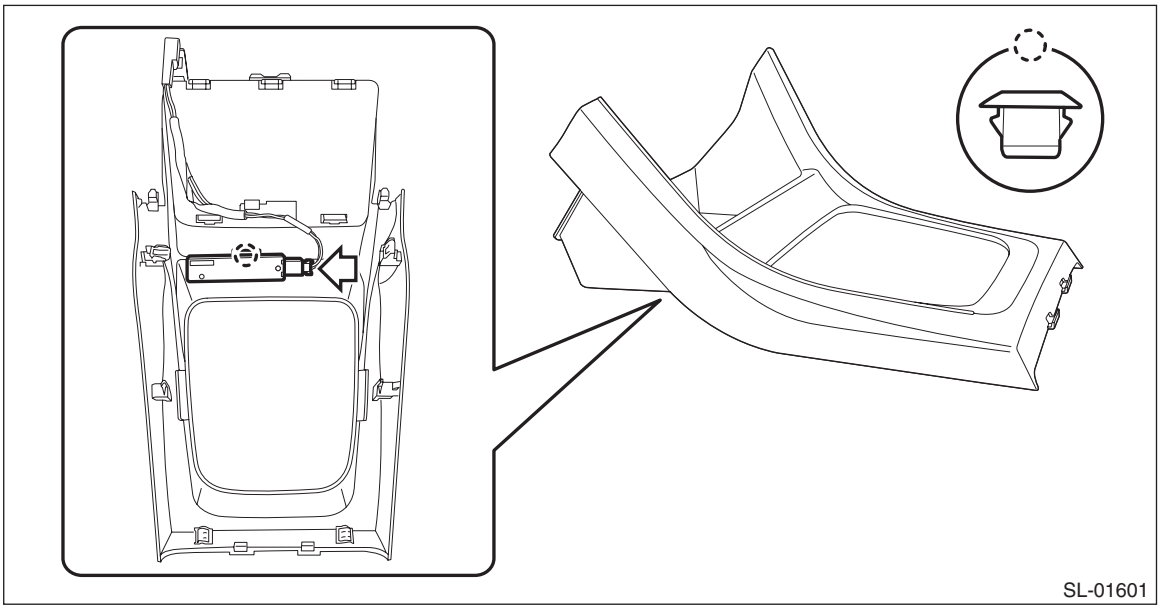
Install each part in the reverse order of removal.

# 30.Keyless Access Indoor Antenna

## A: REMOVAL

### 1. FRONT ANTENNA

1) Remove the cover - shift lever. <Ref. to EI-81, REMOVAL, Console Box.>
2) Disconnect the connector and remove the front antenna assembly - interior.




### 2. CENTER ANTENNA

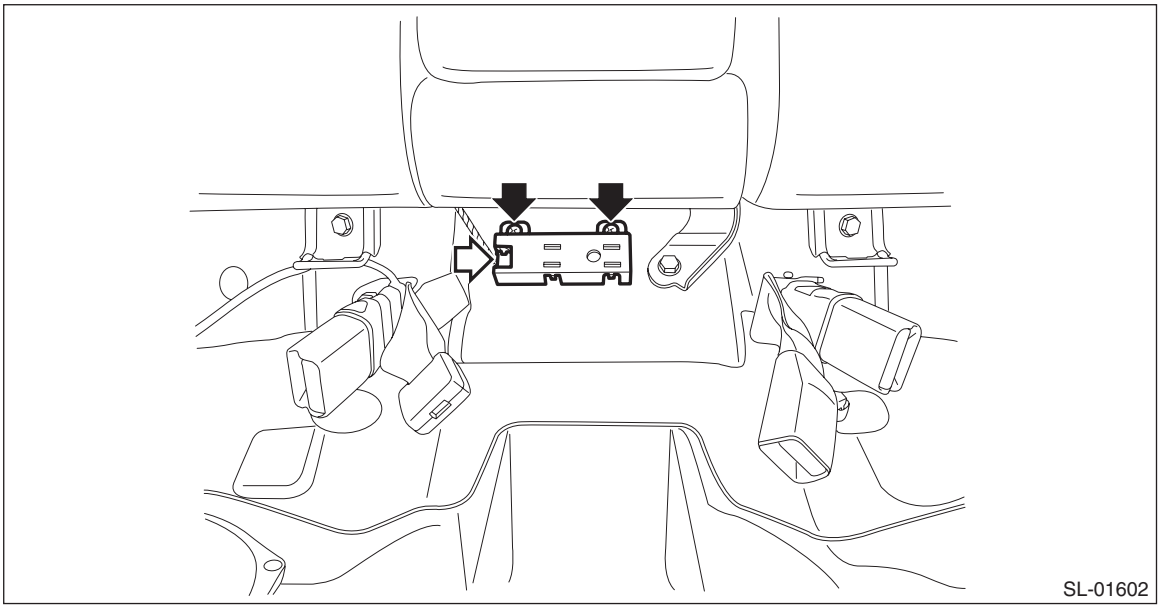
NOTE:
Equipped with 4 door model and HEV model.
1) Disconnect the ground cable from battery. <Ref. to NT-5, BATTERY, NOTE, Note.>

NOTE:
For the 12 volt engine restart battery of HEV model, disconnect the ground terminal from 12V engine restart battery sensor.
2) Remove the rear seat cushion assembly. <Ref. to SE-23, REMOVAL, Rear Seat.>

3) Remove the center antenna assembly - interior.

NOTE:
Do not remove the antenna assembly from the cover. If removed, the antenna assembly and cover mounting becomes loose, causing abnormal noises.

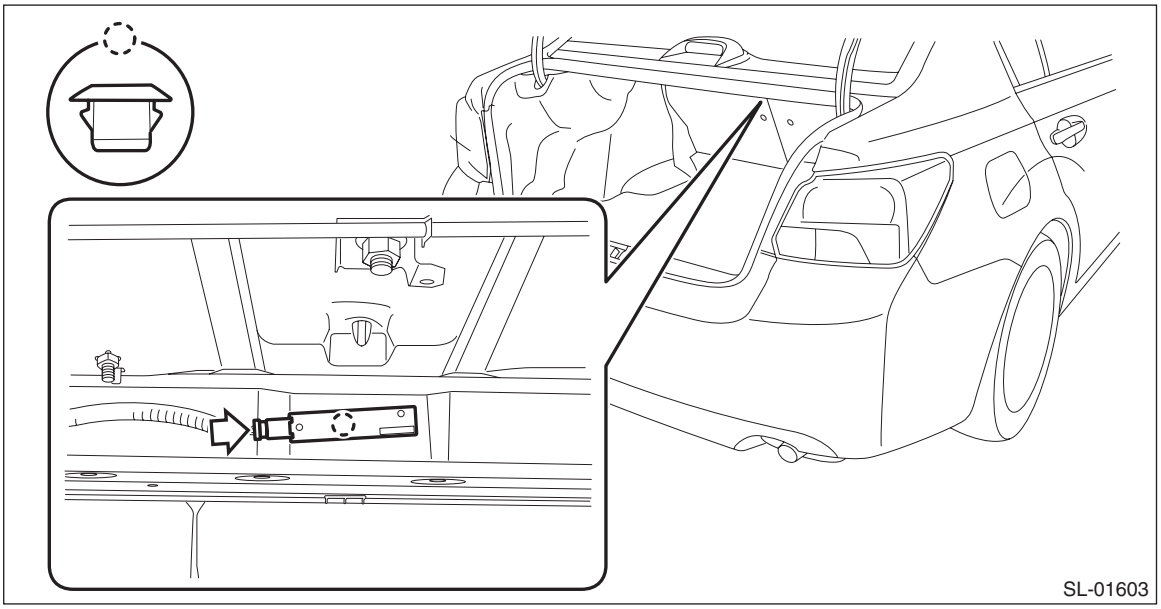
(1) Disconnect the connector.
(2) Remove the screw, and remove the center antenna assembly - interior.




### 3. REAR ANTENNA

**• 4 door model**

1) Disconnect the ground cable from battery.
2) Disconnect the connector and remove the rear antenna assembly - interior.

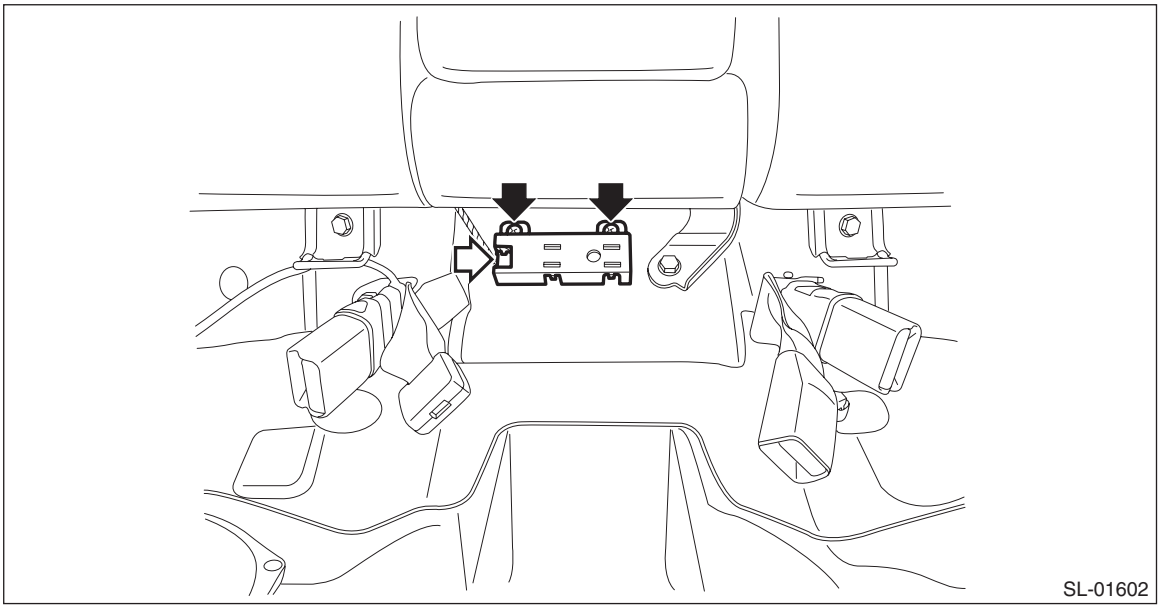


**• 5 door model**

1) Disconnect the ground cable from battery.
2) Remove the rear seat cushion assembly. <Ref. to SE-23, REMOVAL, Rear Seat.>
3) Remove the rear antenna assembly - interior.

NOTE:
Do not remove the antenna assembly from the cover. If removed, the antenna assembly and cover mounting becomes loose, causing abnormal noises.

(1) Disconnect the connector.
(2) Remove the screw, and remove the rear antenna assembly - interior.

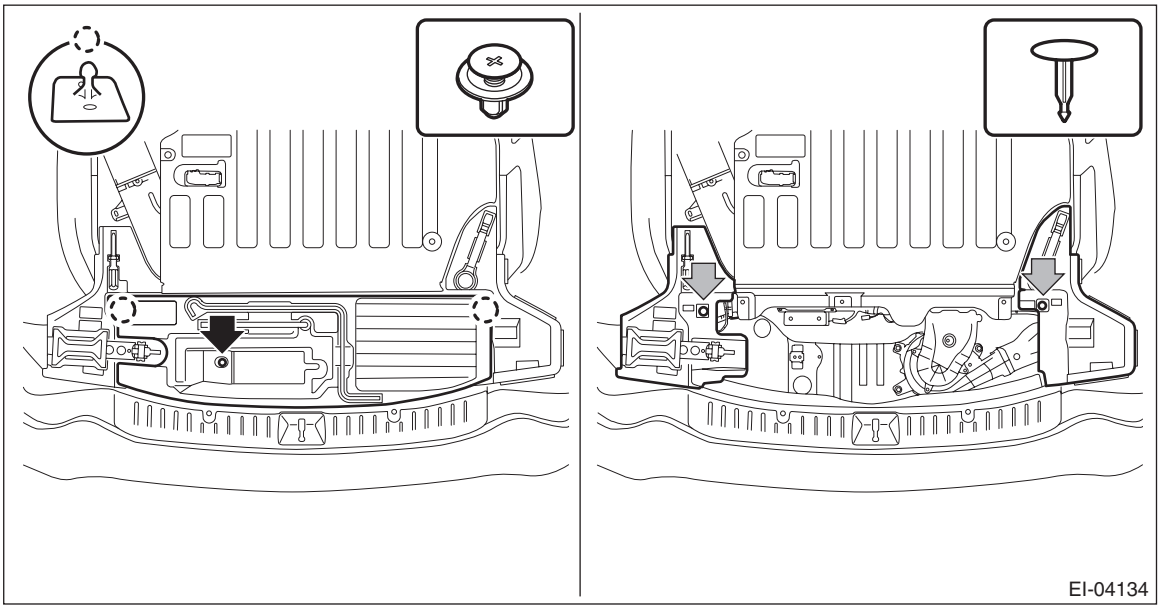



**• HEV model**

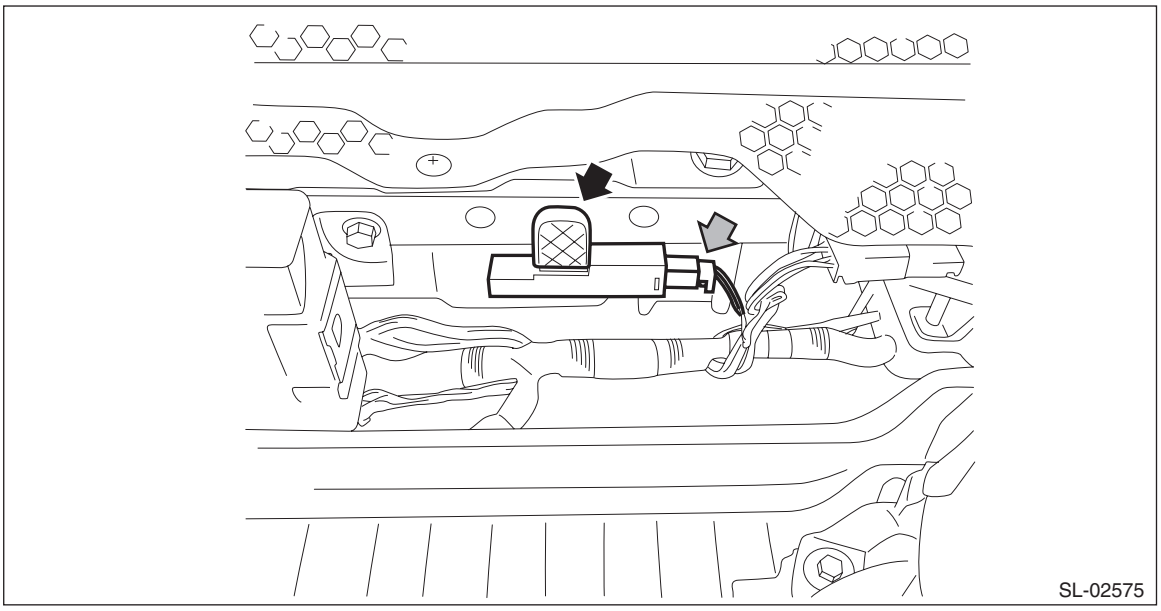
1) Disconnect the ground cable from battery. <Ref. to NT-5, BATTERY, NOTE, Note.>

NOTE:
For the 12 volt engine restart battery of HEV model, disconnect the ground terminal from 12V engine restart battery sensor.

2) Remove the mat - rear floor CTR.
3) Remove the clips, and remove the sub-trunk box.



4) Remove the rear antenna assembly - interior.
(1) Disconnect the connector.
(2) Release the claw, and remove the rear antenna assembly - interior.




## B: INSTALLATION

Install each part in the reverse order of removal.

## C: INSPECTION

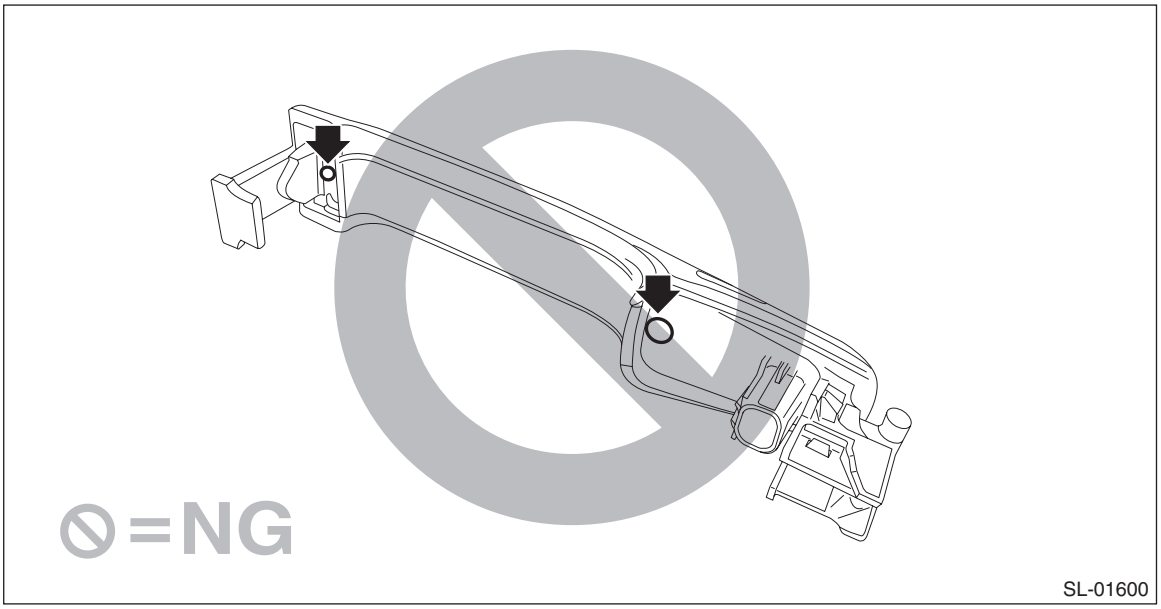
1) Check the setting by performing Keyless access system check using the Subaru Select Monitor. <Ref. to KPS(diag)-37, OPERATION, Keyless Access System Check.>
2) Disconnect the Subaru Select Monitor. Operate the touch sensor of the door outer handle to check if door lock operates.
3) If the system does not operate normally as the result of inspection, refer to “General Diagnostic Table” of the “KEYLESS ACCESS WITH PUSH BUTTON START SYSTEM (DIAGNOSTICS)” section. <Ref. to KPS(diag)-109, KEYLESS ACCESS SYSTEM, INSPECTION, General Diagnostic Table.>

# 31.Keyless Access Outdoor Antenna

## A: REMOVAL

### 1. FRONT ANTENNA

**CAUTION:**
**Do not remove the antenna from the front door outer handle.**
**If replacement is needed, replace the front outer handle assembly as a set.**

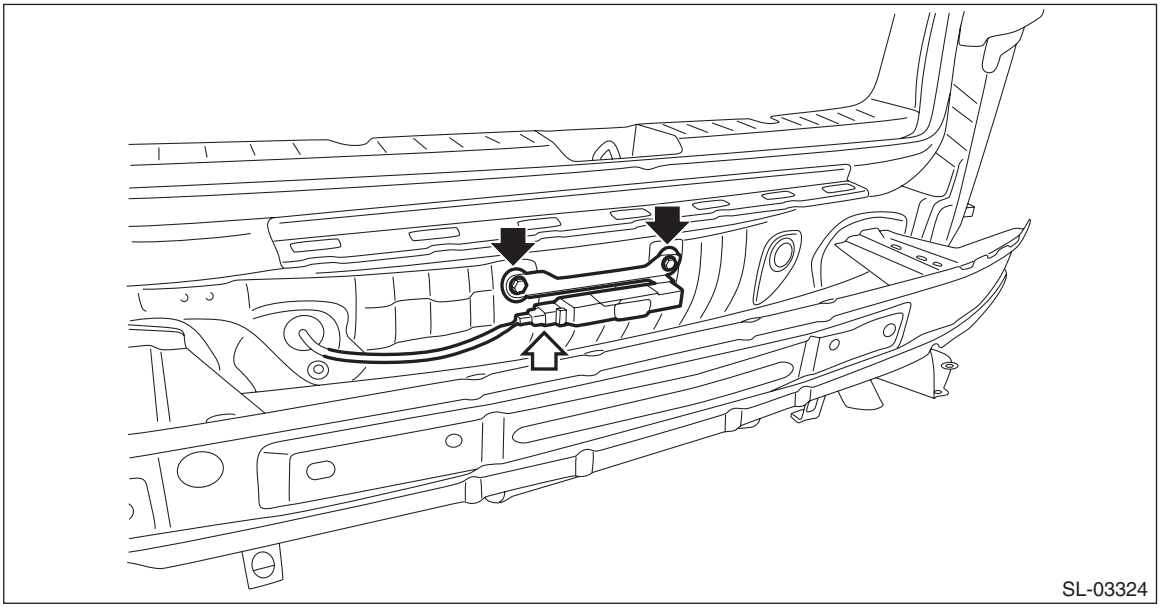



Remove the handle - door outer. <Ref. to SL-40, REMOVAL, Front Outer Handle.>

### 2. REAR ANTENNA

**CAUTION:**
**• Do not remove the antenna except when the antenna needs to be replaced. Otherwise it may cause the antenna to be loose.**
**• When replacing the antenna, do not reuse the tapping screw. Be sure to replace it with a new tapping screw.**

1) Remove the bumper face - rear. <Ref. to EI-55, 5 DOOR MODEL/XV MODEL, REMOVAL, Rear Bumper.>
2) Remove the rear antenna assembly - exterior.
   (1) Disconnect the connector.
   (2) Remove the screw, and remove the rear antenna assembly - exterior.




## B: INSTALLATION

Install each part in the reverse order of removal.

***Tightening torque:***
***Rear antenna assembly - exterior: 1.5 N·m (0.2 kgf-m, 1.1 ft-lb)***

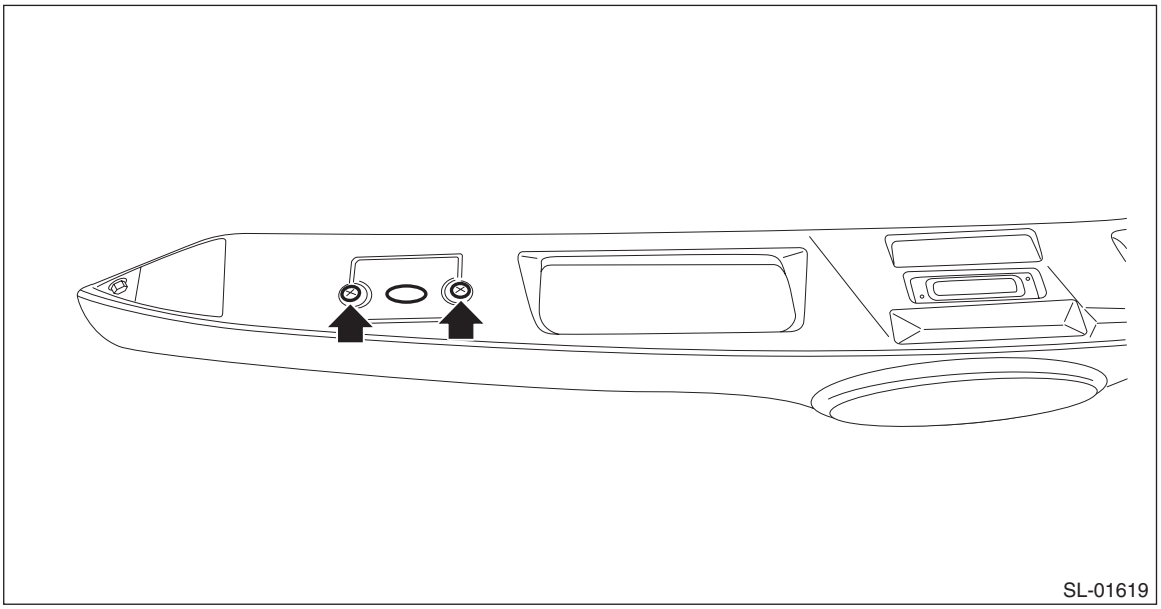
## C: INSPECTION

1) Check the setting by performing Keyless access system check using the Subaru Select Monitor. <Ref. to KPS(diag)-37, OPERATION, Keyless Access System Check.>
2) Disconnect the Subaru Select Monitor. Operate the touch sensor of the door outer handle to check if door lock operates.
3) If the system does not operate normally as the result of inspection, refer to “General Diagnostic Table” of the “KEYLESS ACCESS WITH PUSH BUTTON START SYSTEM (DIAGNOSTICS)” section. <Ref. to KPS(diag)-109, KEYLESS ACCESS SYSTEM, INSPECTION, General Diagnostic Table.>

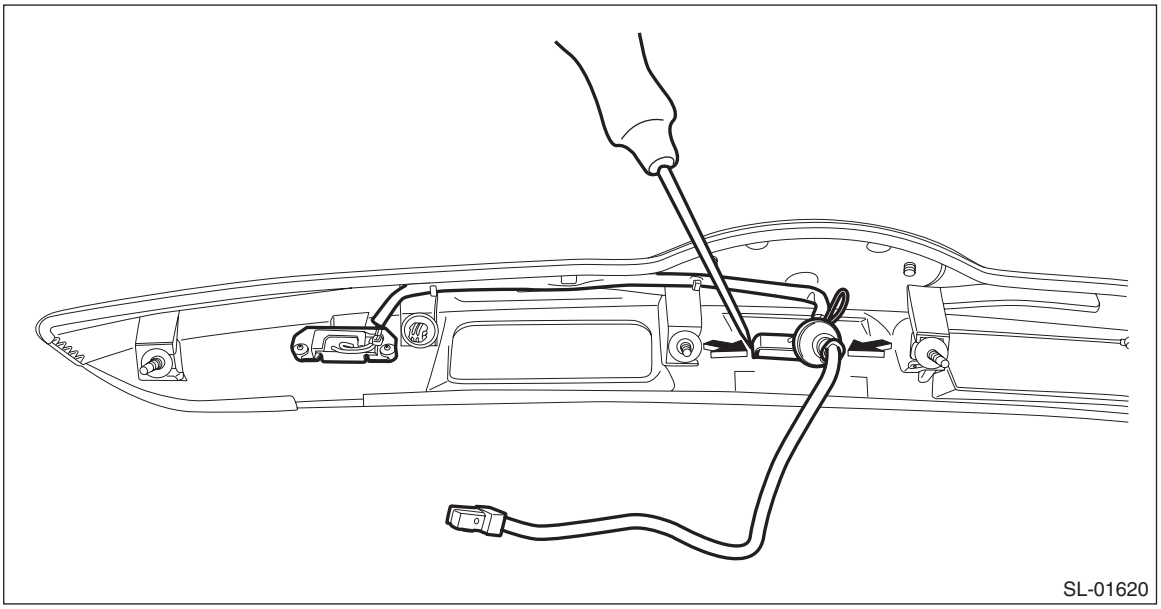
# 32.Rear Lock Button

## A: REMOVAL

NOTE:
The rear lock button is integrated into the rear gate opener button.
1) Remove the garnish assembly - rear gate. <Ref. to EI-163, REMOVAL, Rear Gate Garnish.>
2) Remove the screws and remove the rear lock button.


SL-01619

3) Release the locks at both ends of the button - opener rear gate by pushing them with a flat tip screwdriver, remove the button - opener rear gate and remove the integrated harness.


SL-01620

## B: INSTALLATION

**CAUTION:**
**Make sure that the harness grommet is securely installed.**
**If not properly installed, this may cause leaks.**
Install each part in the reverse order of removal.

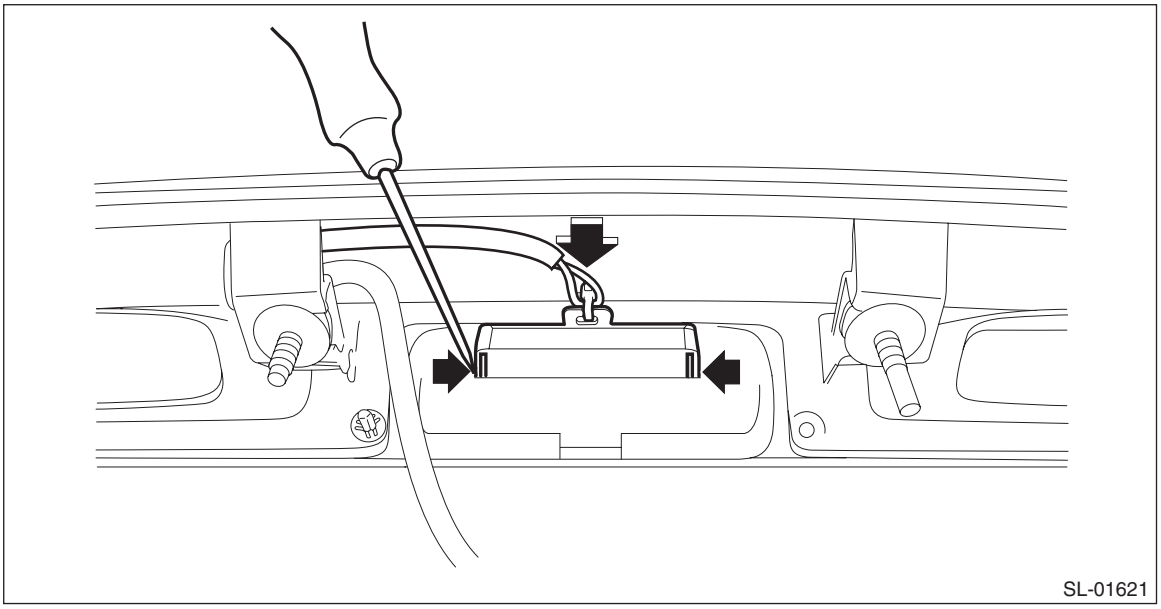
## C: INSPECTION

1) Display the current data using the Subaru Select Monitor.
2) Check if the display changes when the rear lock button is operated.
3) If the display is not correct as the result of inspection, refer to “General Diagnostic Table” of the “KEYLESS ACCESS WITH PUSH BUTTON START SYSTEM (DIAGNOSTICS)” section. <Ref. to KPS(diag)-109, KEYLESS ACCESS SYSTEM, INSPECTION, General Diagnostic Table.>

# 33.Trunk Opener Button

## A: REMOVAL

1) Disconnect the ground cable from battery. <Ref. to NT-5, BATTERY, NOTE, Note.>
2) Remove the garnish - trunk. <Ref. to EI-162, REMOVAL, Trunk Lid Garnish.>
3) Release the locks at both ends of the trunk opener button by pushing them with a flat tip screwdriver.




## B: INSTALLATION

Install each part in the reverse order of removal.

## C: INSPECTION

1) Display the current data using the Subaru Select Monitor.
2) Check that the display changes when the trunk opener button is operated.
3) If the display is not correct as the result of inspection, refer to “General Diagnostic Table” of the “KEYLESS ACCESS WITH PUSH BUTTON START SYSTEM (DIAGNOSTICS)” section. <Ref. to KPS(diag)-109, KEYLESS ACCESS SYSTEM, INSPECTION, General Diagnostic Table.>

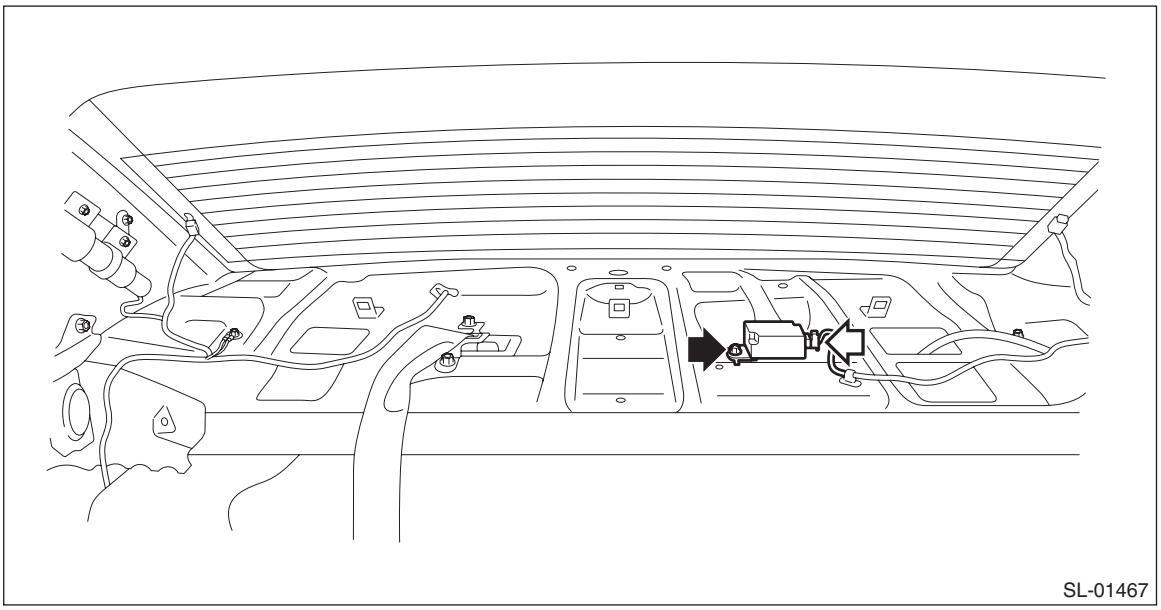
# 34.Receiver

## A: REMOVAL

NOTE:
Except for model with keyless entry

### 1. 4 DOOR MODEL

1) Disconnect the ground cable from battery. <Ref. to NT-5, BATTERY, NOTE, Note.>
2) Remove the trim panel assembly - rear shelf. <Ref. to EI-120, REMOVAL, Rear Shelf Trim.>
3) Remove the receiver assembly.
   (1) Disconnect the connector.
   (2) Remove the bolt and remove the receiver assembly.

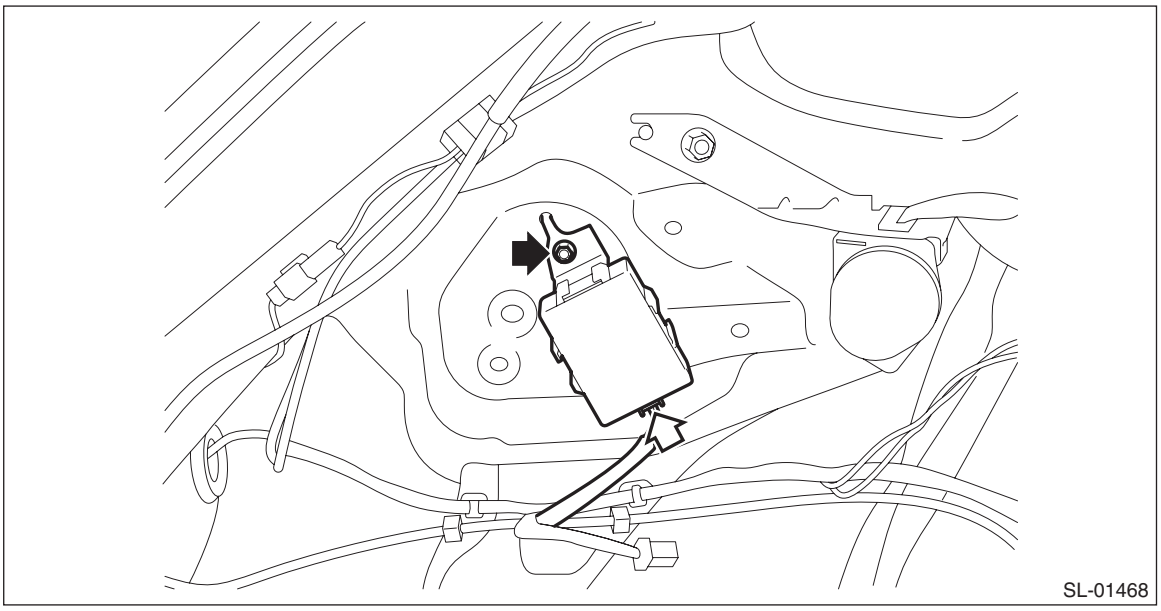


### 2. 5 DOOR MODEL/XV MODEL

1) Disconnect the ground cable from battery. <Ref. to NT-5, BATTERY, NOTE, Note.>

NOTE:
For the 12 volt engine restart battery of HEV model, disconnect the ground terminal from 12V engine restart battery sensor.

2) Remove the trim panel - rear apron LH. <Ref. to EI-112, REMOVAL, Rear Quarter Trim.>
3) Remove the receiver assembly.
   (1) Disconnect the connector.
   (2) Remove the bolt and remove the receiver assembly.




## B: INSTALLATION

Install each part in the reverse order of removal.

***Tightening torque:***
***Receiver assembly: 13 N·m (1.33 kgf-m, 9.6 ft-lb)***

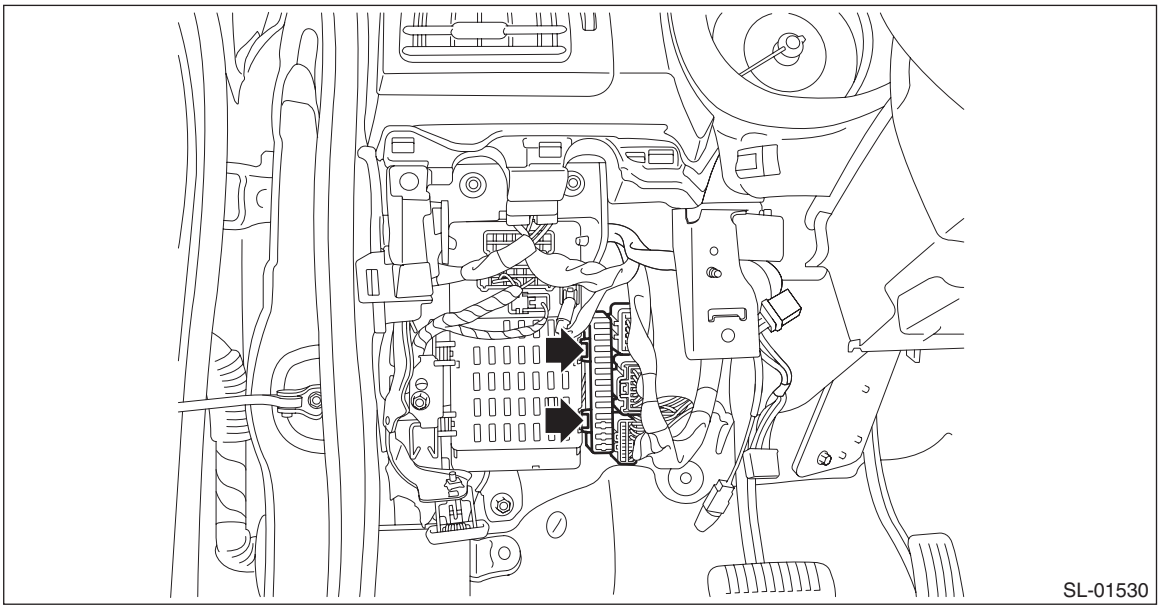
## C: INSPECTION

1) Check if the door lock operates when the touch sensor of the door outer handle, rear lock button or trunk opener button is operated.
2) If the system does not operate normally as the result of inspection, refer to “General Diagnostic Table” of the “KEYLESS ACCESS WITH PUSH BUTTON START SYSTEM (DIAGNOSTICS)” section. <Ref. to KPS(diag)-109, KEYLESS ACCESS SYSTEM, INSPECTION, General Diagnostic Table.>

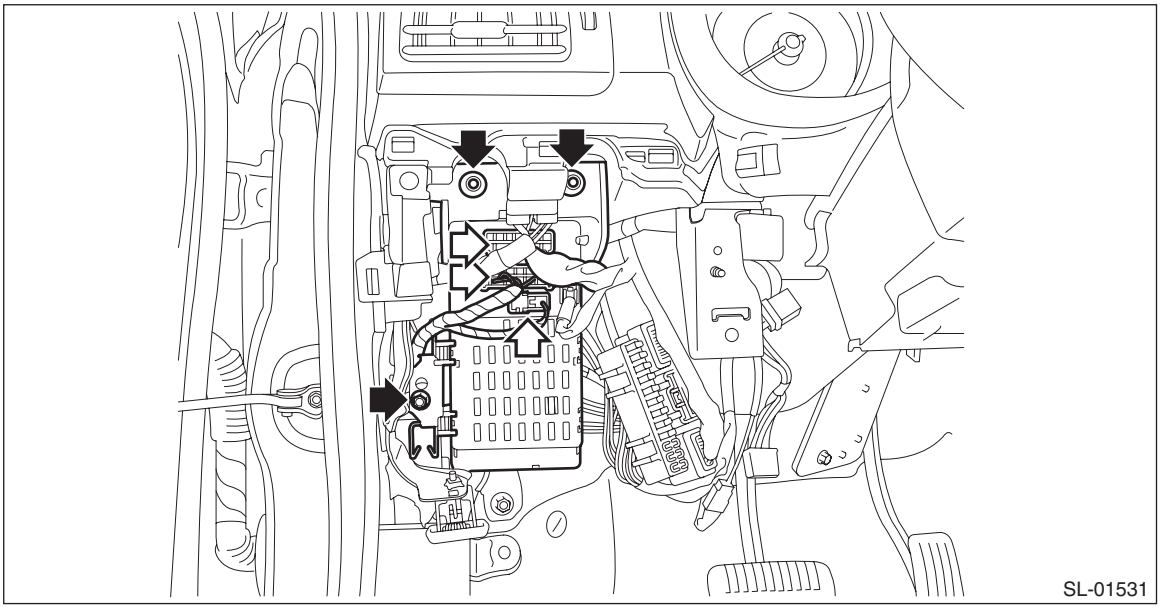
# 35.Keyless Access CM

## A: REMOVAL

1) Remove the cover assembly - instrument panel LWR driver and the knee airbag module. <Ref. to AB-34, REMOVAL, Knee Airbag Module.>
2) Release the lock and remove the fuse holder.



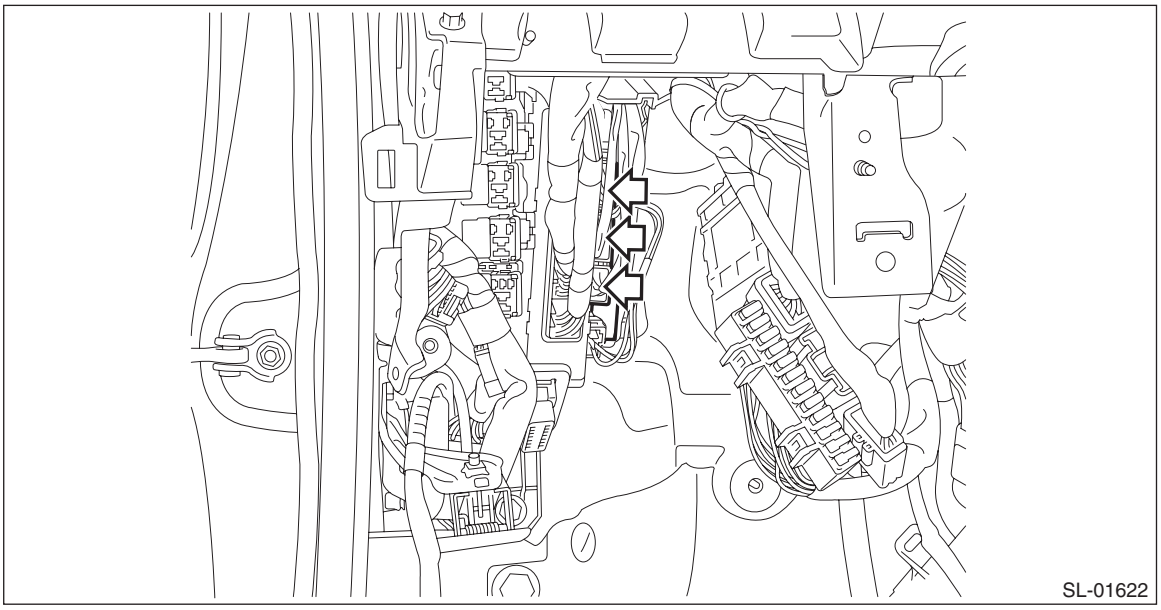

3) Remove the relay & fuse box.
   (1) Disconnect the connector.
   (2) Remove the bolts and nuts, and remove the relay & fuse box.



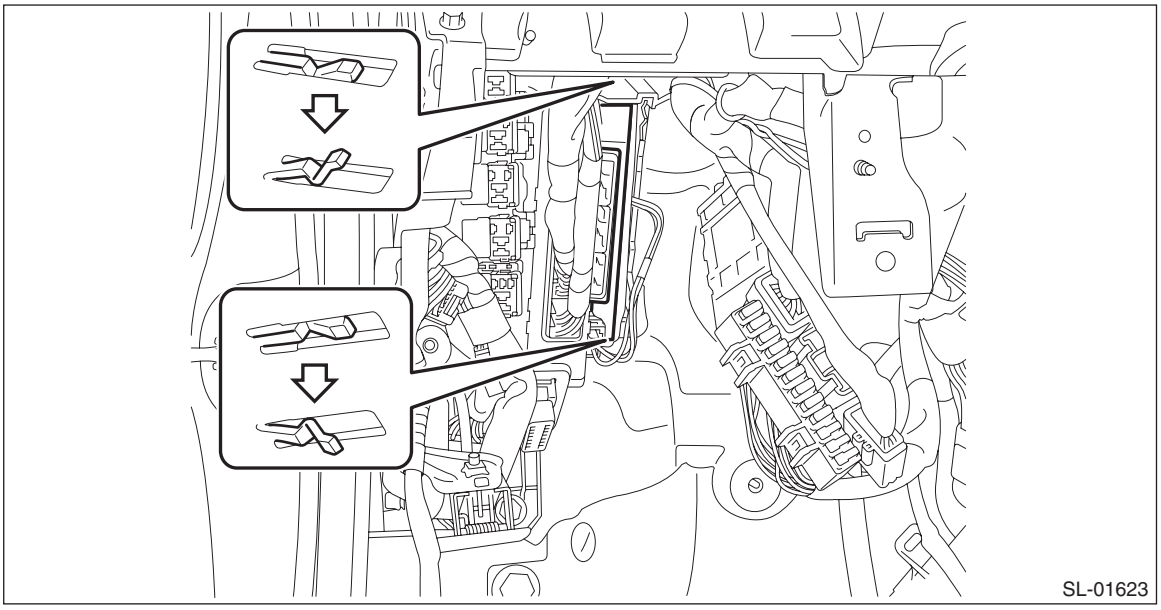
4) Remove the keyless access CM.

**CAUTION:**
**Be careful to keep water and other foreign materials away from body integrated unit.**

(1) Disconnect the connector.


SL-01622

(2) Release the claws, and pull out the keyless access CM from the bracket.


SL-01623

## B: INSTALLATION

**CAUTION:**
**Registration of the immobilizer is necessary when a immobilizer-related control module has been replaced. For detailed operation procedure, refer to the "REGISTRATION MANUAL FOR IMMOBILIZER".**

Install each part in the reverse order of removal.

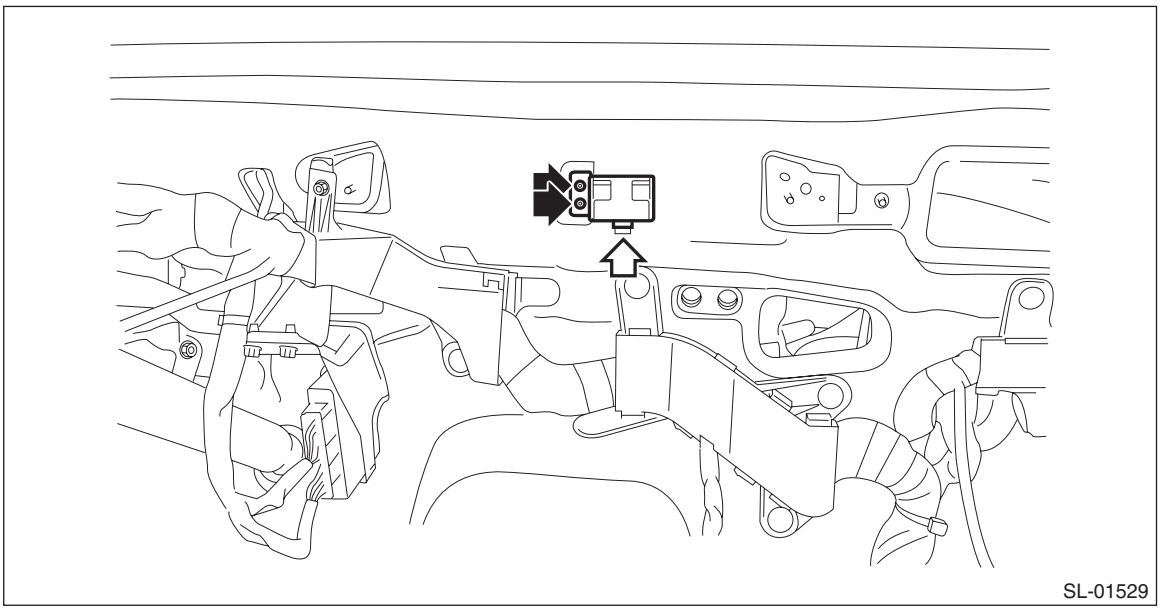
***Tightening torque:***
***Relay & fuse box: 7.5 N·m (0.76 kgf-m, 5.5 ft-lb)***

# 36.ID Code Box

## A: REMOVAL

NOTE:
- Equipped on keyless access model for C0, C5.
- The installation location of ID code box is the same as that for the security control module.

1) Remove the heater and cooling unit assembly. <Ref. to AC-60, REMOVAL, Heater and Cooling Unit.>
2) Remove ID code box.
   (1) Disconnect the connector.
   (2) Remove the nut to remove ID code box.




## B: INSTALLATION

**CAUTION:**
**Registration of the immobilizer is necessary when a immobilizer-related control module has been replaced. For detailed operation procedure, refer to the "REGISTRATION MANUAL FOR IMMOBILIZER".**

Install each part in the reverse order of removal.

***Tightening torque:***
***Security control module: 7.5 N·m (0.76 kgf-m, 5.5 ft-lb)***

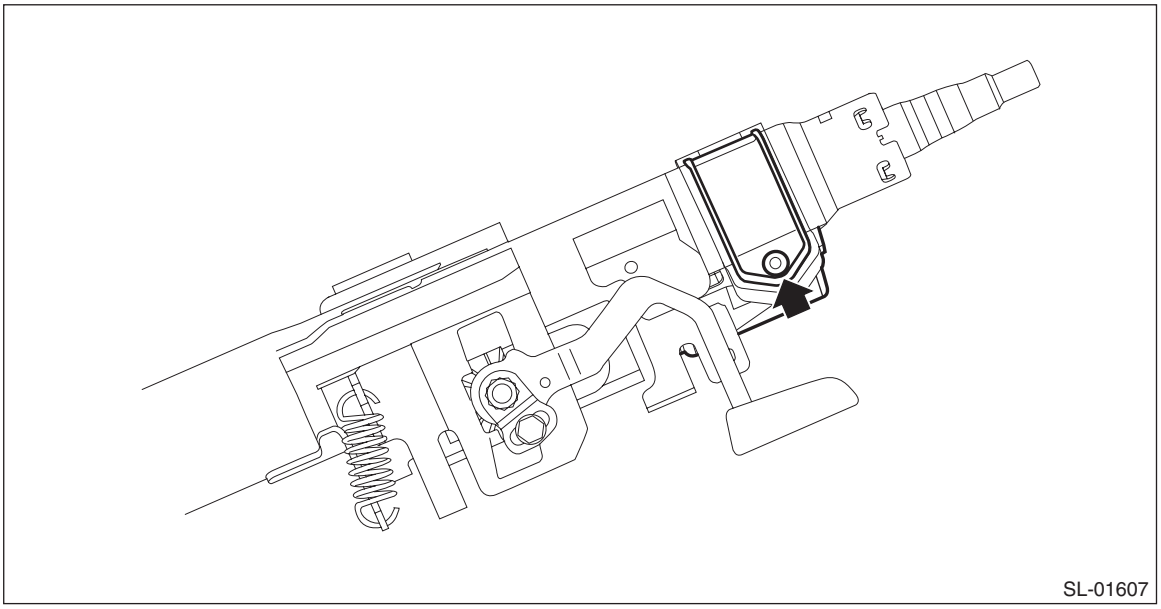
# 37.Steering Lock CM

## A: REMOVAL

1) Disconnect the ground cable from battery. <Ref. to NT-5, BATTERY, NOTE, Note.>

NOTE:
For the 12 volt engine restart battery of HEV model, disconnect the ground terminal from 12V engine restart battery sensor.
2) Remove the column assembly - steering. <Ref. to PS-19, REMOVAL, Steering Column.>
3) Remove the steering lock CM.
   (1) Secure the column assembly - steering in a vise.
   (2) Use the reverse tap or drill to remove the set bolt and remove the steering lock CM.

**CAUTION:**
**Do not apply any impact to the set bolt by a chisel or punch.**




## B: INSTALLATION

**CAUTION:**
**Registration of the immobilizer is necessary when a immobilizer-related control module has been replaced. For the relevant procedures, refer to the "REGISTRATION MANUAL FOR IMMOBILIZER".**
1) Secure the steering lock CM to the steering column.
2) Use new set bolts. Tighten the bolt until the bolt head is broken (bolt head wrenched off).

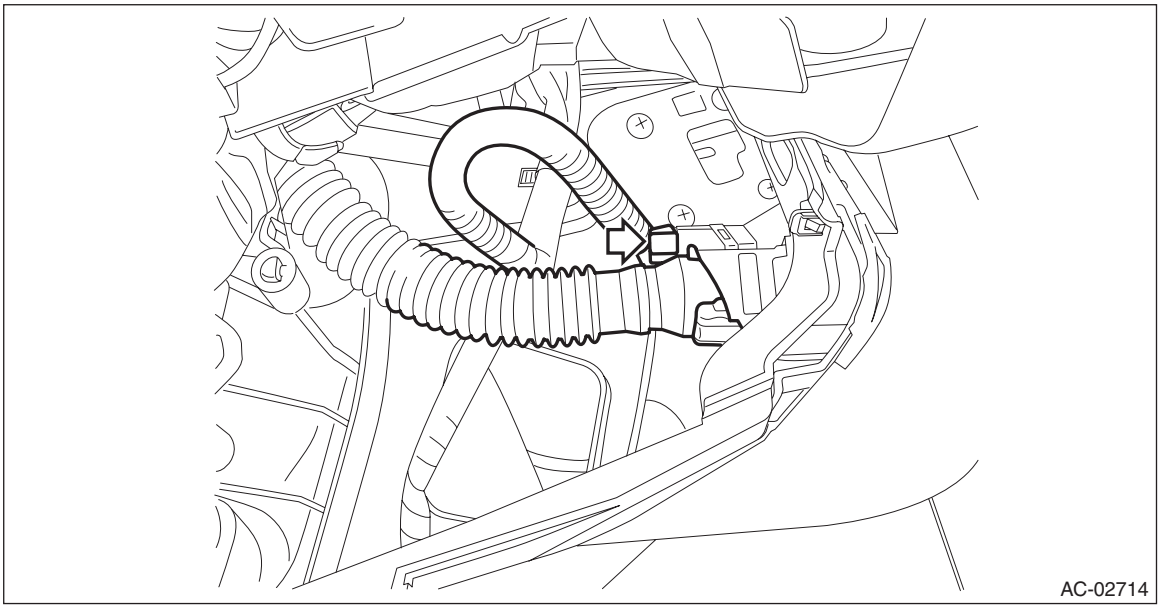
## C: INSPECTION

1) Check if the steering lock is released when you start the engine using the push button ignition switch.
2) If the system does not operate normally as the result of inspection, refer to "General Diagnostic Table" of the "KEYLESS ACCESS WITH PUSH BUTTON START SYSTEM (DIAGNOSTICS)" section. <Ref. to KPS(diag)-109, STEERING LOCK SYSTEM, INSPECTION, General Diagnostic Table.>

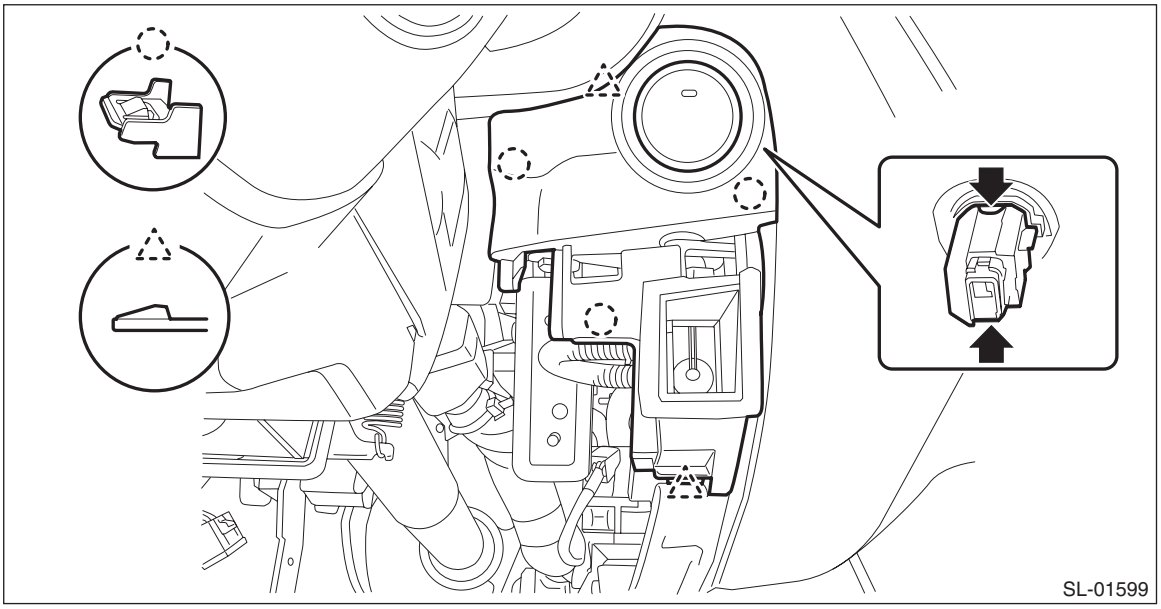
# 38.Push Button Ignition Switch

## A: REMOVAL

1) Remove the cover assembly - instrument panel LWR driver and the knee airbag module. <Ref. to AB-34, REMOVAL, Knee Airbag Module.>
2) Remove the push button ignition switch.
   (1) Disconnect the connector, and remove the aspirator hose.




   (2) Release the claws, and then remove the panel - switch.
   (3) Release the claws, and then remove the push button ignition switch from the panel - switch.




## B: INSTALLATION

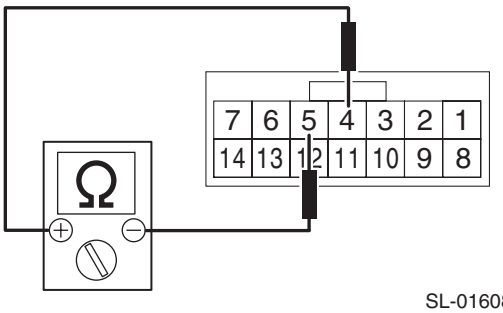
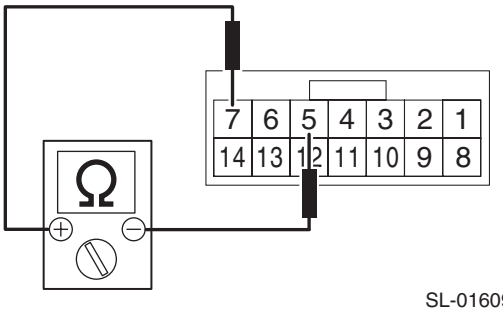
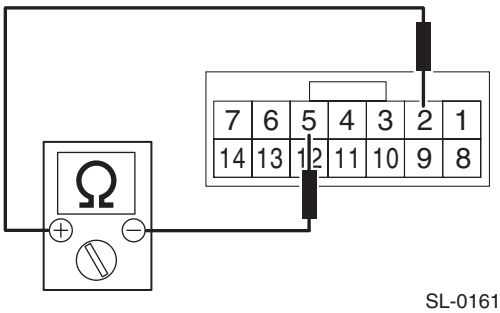
Install each part in the reverse order of removal.

# C: INSPECTION

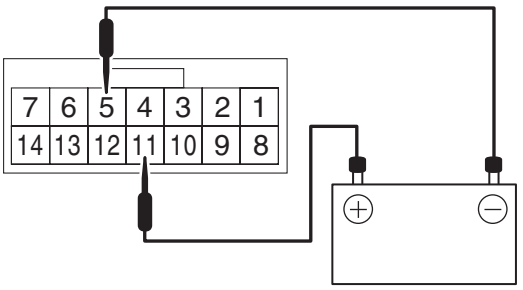
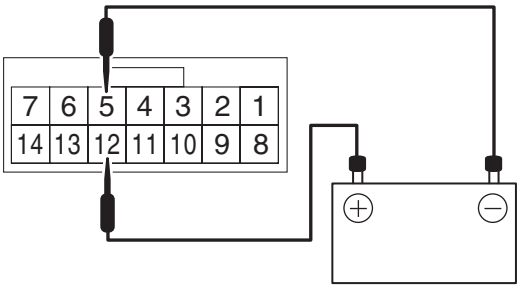
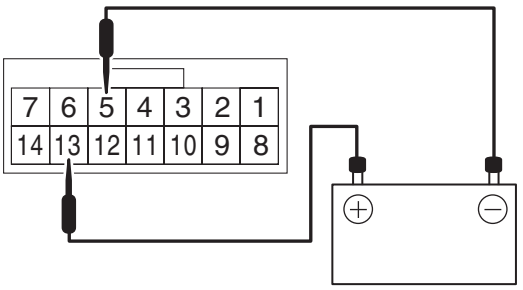
## On the vehicle inspection

***Preparation tool:***
***Circuit tester***

1) Check the continuity between push button ignition switch terminals.

| Terminal No. | Inspection conditions | Specification | Connection diagram |
|---|---|---|---|
| 4 (COM) — 5 (GND) | Always | Continuity exists |  SL-01608 |
| 7 (SSW1) — 5 (GND) | Push button ignition switch released → pressed | Continuity exists |  SL-01609 |
| 2 (SSW2) — 5 (GND) | Push button ignition switch released → pressed | Continuity exists |  SL-01610 |

2) Check the push button ignition switch operation when battery voltage is applied between the terminals of the push button ignition switch.

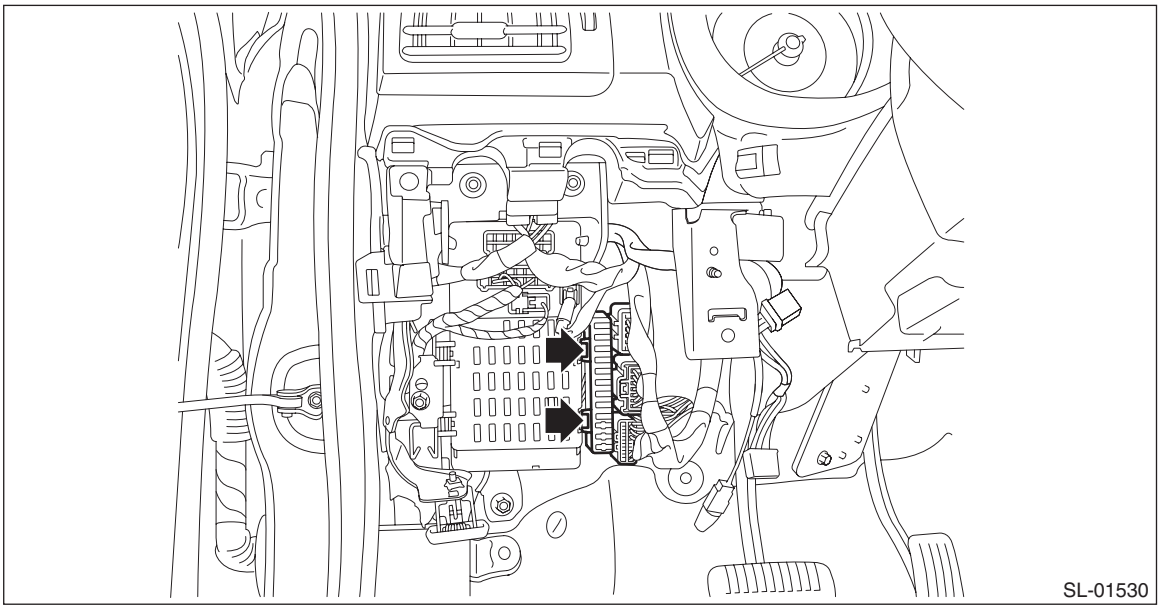
| Terminal No. | Inspection conditions | Specification | Connection diagram |
|---|---|---|---|
| 11 (SWIL) — 5 (GND) | Connect battery to the terminals | Goes off → Red switch illumination light |  SL-01659 |
| 12 (INDS) — 5 (GND) | | Turns off → Switch indicator lights in green |  SL-01660 |
| 13 (INDW) — 5 (GND) | | Turns off → Switch indicator lights in orange |  SL-01661 |

3) Replace the push button ignition switch if the inspection result is not within the standard value.

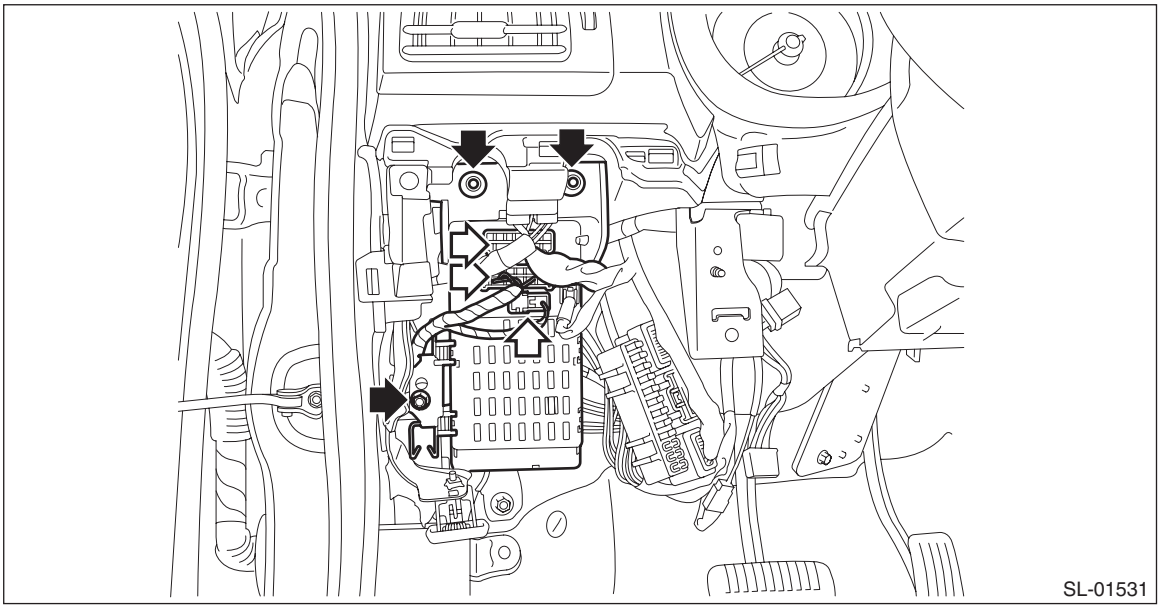
# 39.Starter Relay (Push Button Start)

## A: REMOVAL

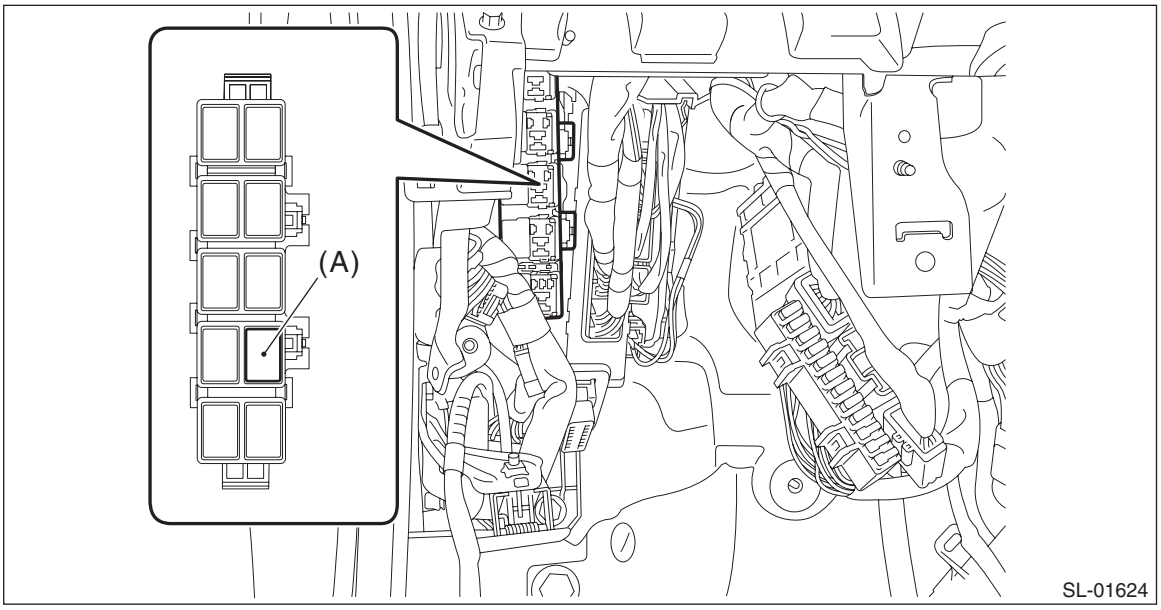
1) Remove the cover assembly - instrument panel LWR driver and the knee airbag module. <Ref. to AB-34, REMOVAL, Knee Airbag Module.>
2) Release the lock and remove the fuse holder.




3) Remove the relay & fuse box.
   (1) Disconnect the connector.
   (2) Remove the bolts and nuts, and remove the relay & fuse box.



4) Remove the starter relay (push button start) (A) from the relay holder.




## B: INSTALLATION

Install each part in the reverse order of removal.

***Tightening torque:***
***Relay & fuse box: 7.5 N·m (0.76 kgf-m, 5.5 ft-lb)***

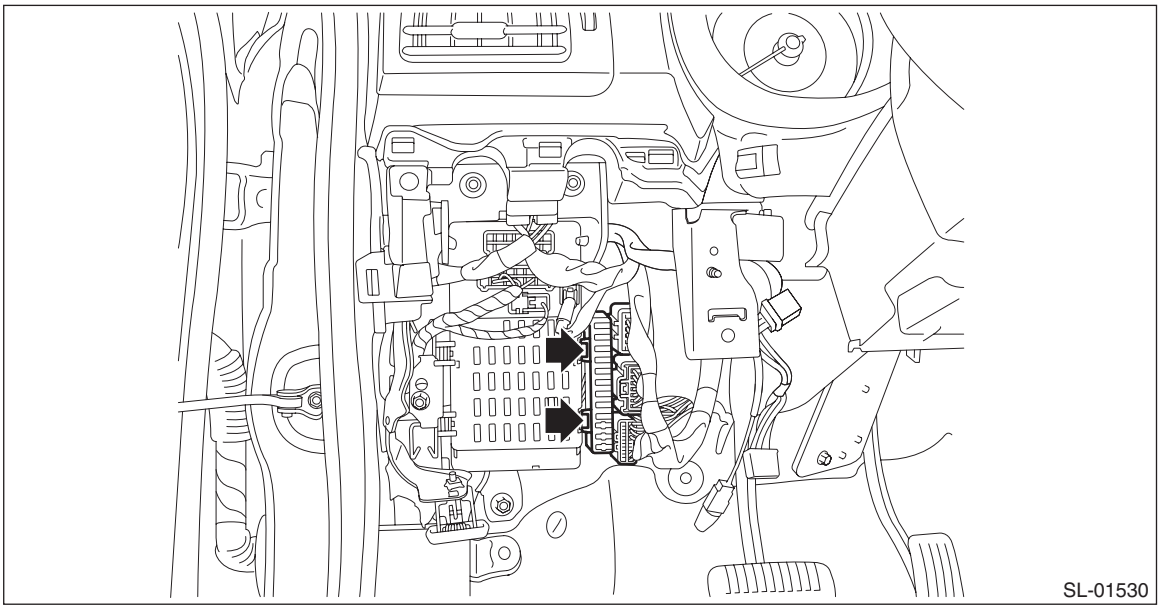
## C: INSPECTION

Refer to “CHECK RELAY” in “Relay and Fuse”. <Ref. to SL-13, CHECK RELAY, INSPECTION, Relay and Fuse.>

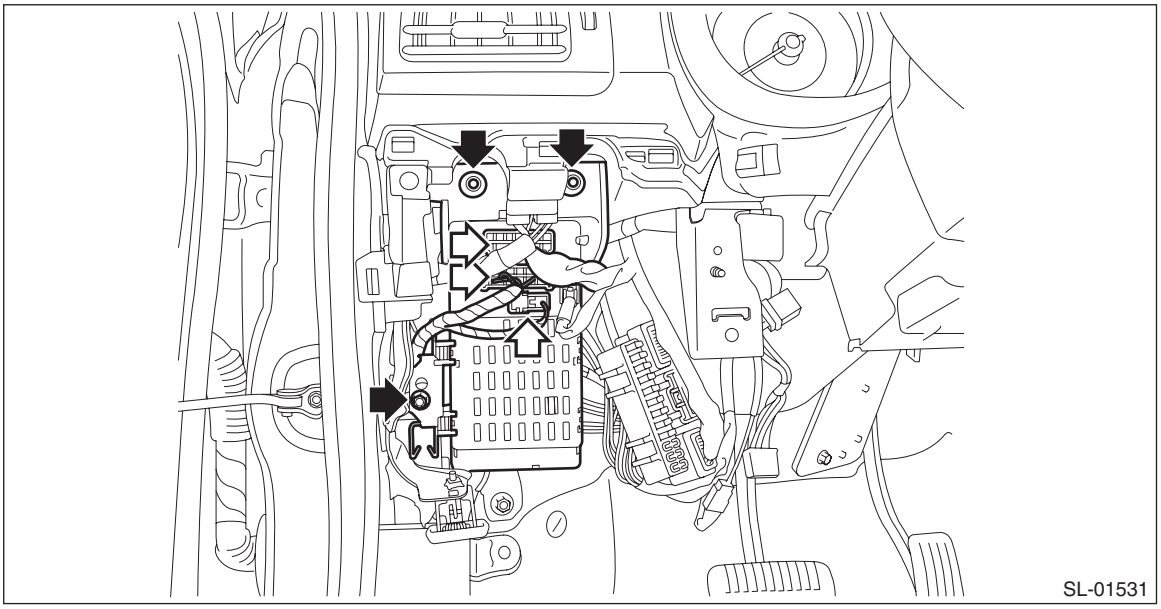
# 40.IG Relay1 (Push Button Start)

## A: REMOVAL

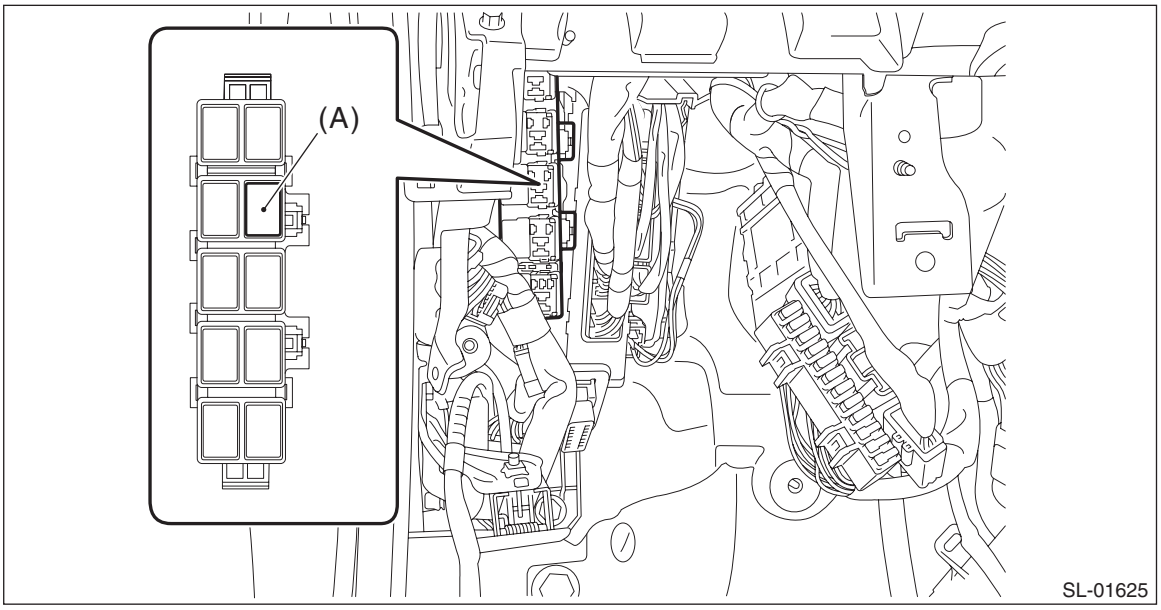
1) Remove the cover assembly - instrument panel LWR driver and the knee airbag module. <Ref. to AB-34, REMOVAL, Knee Airbag Module.>
2) Release the lock and remove the fuse holder.




3) Remove the relay & fuse box.
   (1) Disconnect the connector.
   (2) Remove the bolts and nuts, and remove the relay & fuse box.



4) Remove IG relay 1 (push button start) (A) from the relay holder.




## B: INSTALLATION

Install each part in the reverse order of removal.

***Tightening torque:***
***Relay & fuse box: 7.5 N·m (0.76 kgf-m, 5.5 ft-lb)***

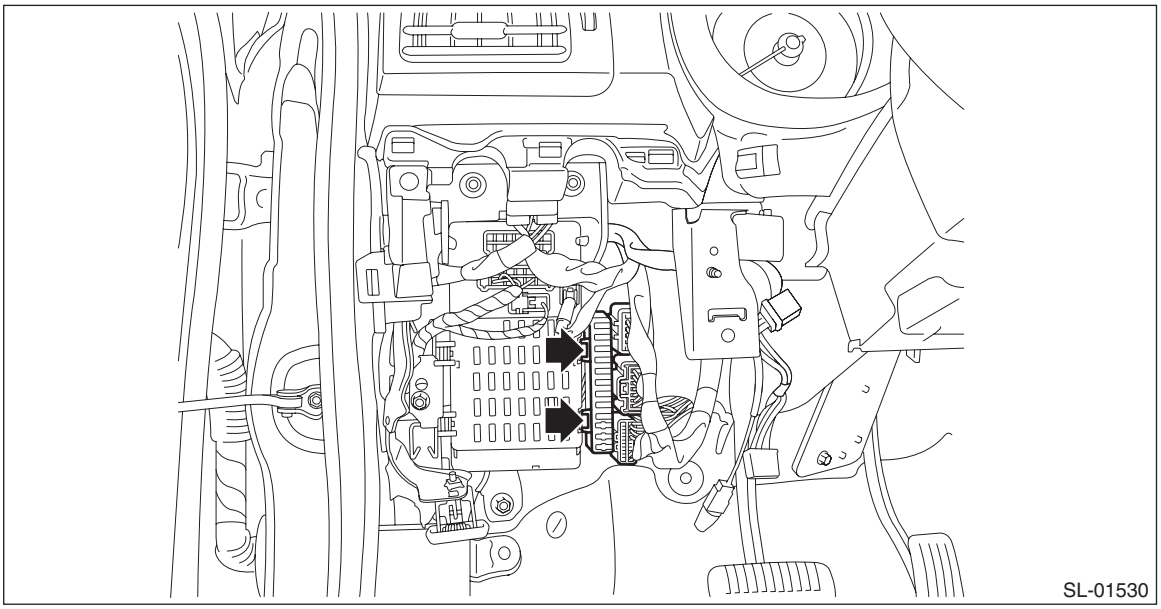
## C: INSPECTION

Refer to “CHECK RELAY” in “Relay and Fuse”. <Ref. to SL-13, CHECK RELAY, INSPECTION, Relay and Fuse.>

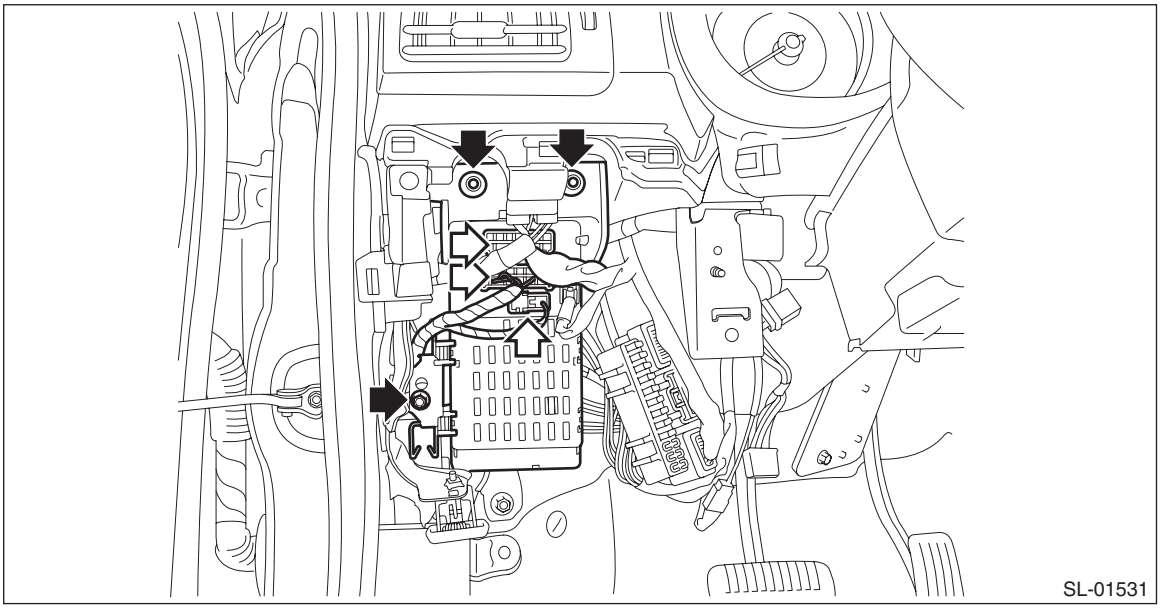
# 41.IG Relay2 (Push Button Start)

## A: REMOVAL

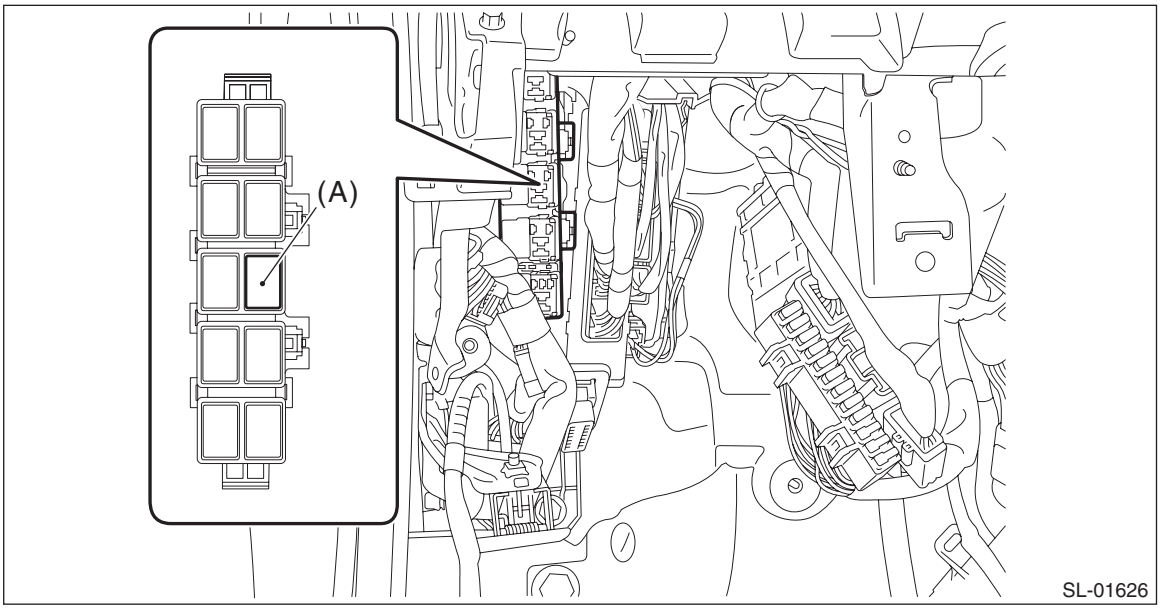
1) Remove the cover assembly - instrument panel LWR driver and the knee airbag module. <Ref. to AB-34, REMOVAL, Knee Airbag Module.>
2) Release the lock and remove the fuse holder.




3) Remove the relay & fuse box.
   (1) Disconnect the connector.
   (2) Remove the bolts and nuts, and remove the relay & fuse box.



4) Remove IG relay 2 (push button start) (A) from the relay holder.




## B: INSTALLATION

***Tightening torque:***
***Relay & fuse box: 7.5 N·m (0.76 kgf-m, 5.5 ft-lb)***

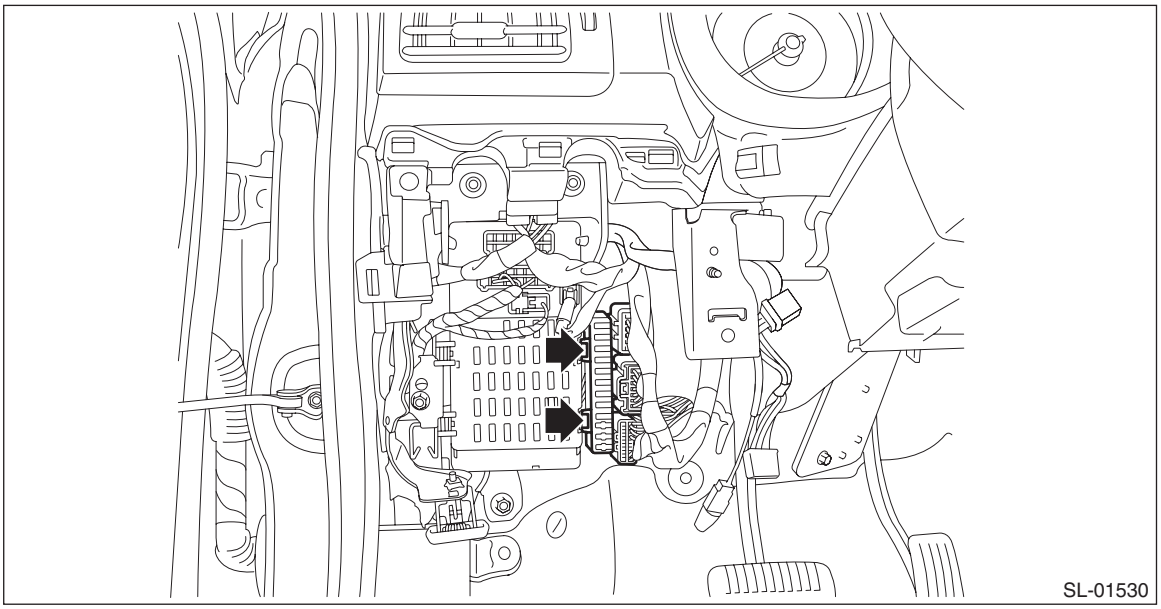
## C: INSPECTION

Refer to “CHECK RELAY” in “Relay and Fuse”. <Ref. to SL-13, CHECK RELAY, INSPECTION, Relay and Fuse.>

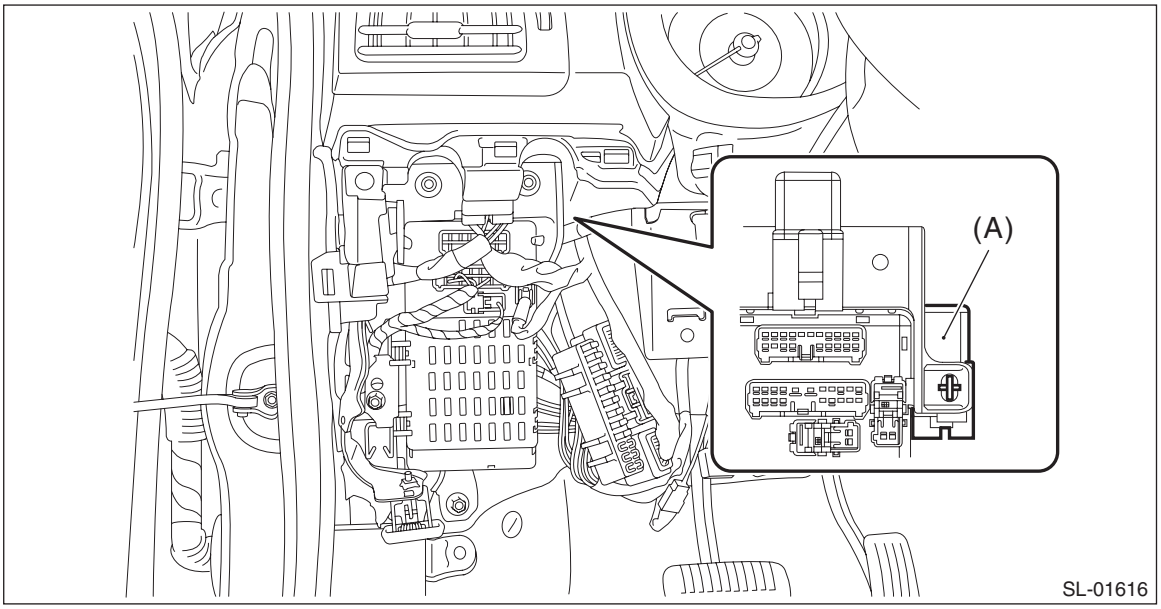
# 42.Accessory Relay (Push Button Start)

## A: REMOVAL

1) Remove the cover assembly - instrument panel LWR driver and the knee airbag module. <Ref. to AB-34, REMOVAL, Knee Airbag Module.>
2) Release the lock and remove the fuse holder.




3) Remove the accessory relay (push button start) (A) from the relay and fuse box.




## B: INSTALLATION

Install each part in the reverse order of removal.

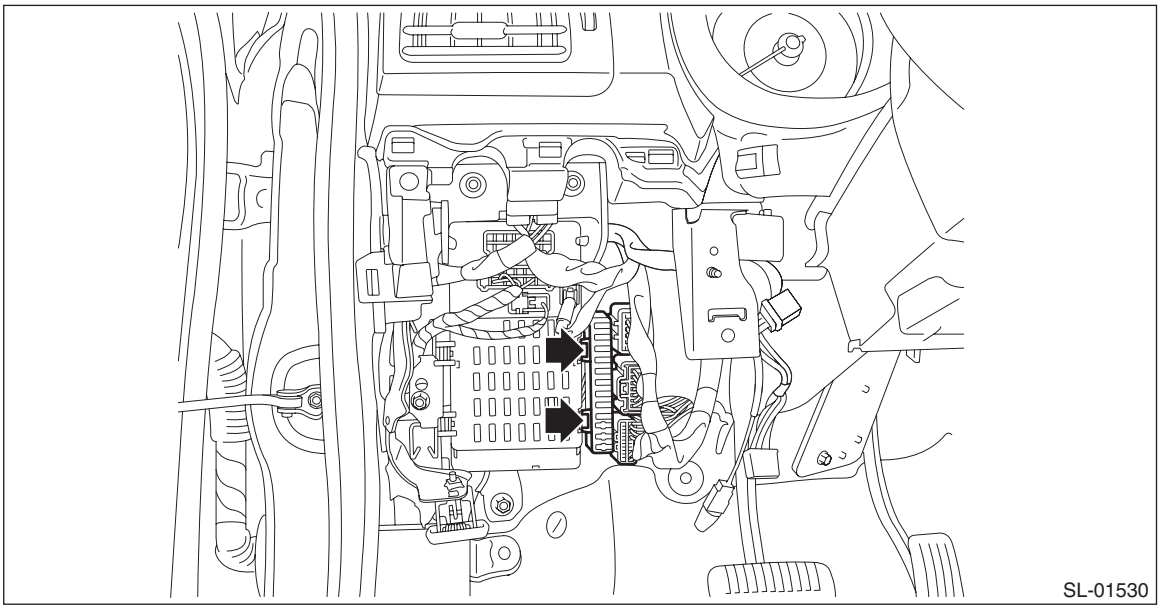
## C: INSPECTION

Refer to “CHECK RELAY” in “Relay and Fuse”. <Ref. to SL-13, CHECK RELAY, INSPECTION, Relay and Fuse.>

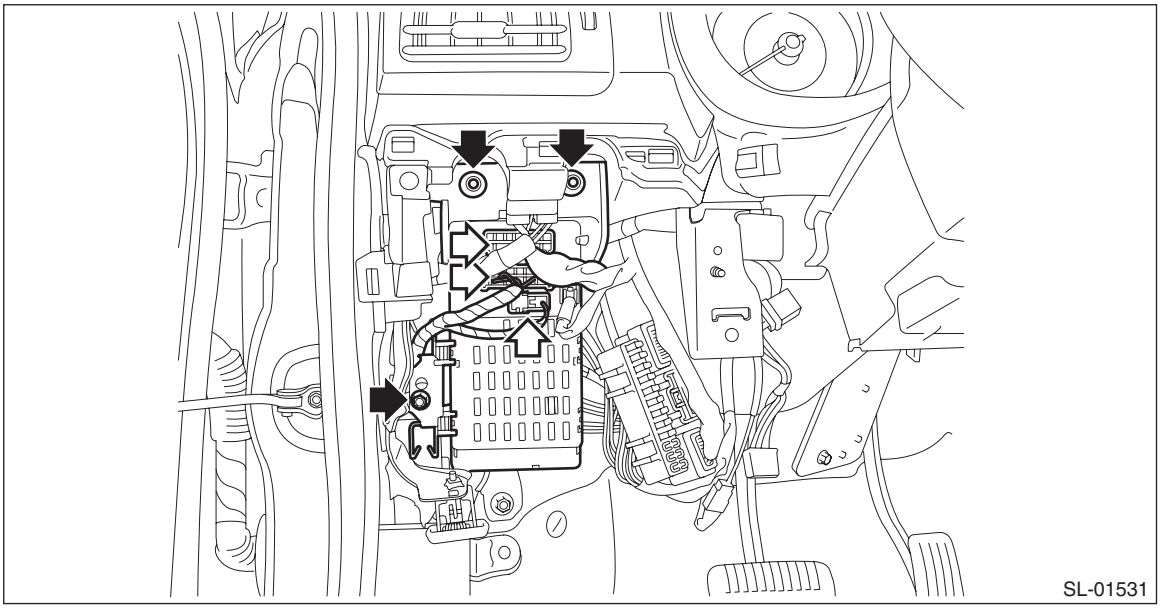
# 43.Starter Cut Relay

## A: REMOVAL

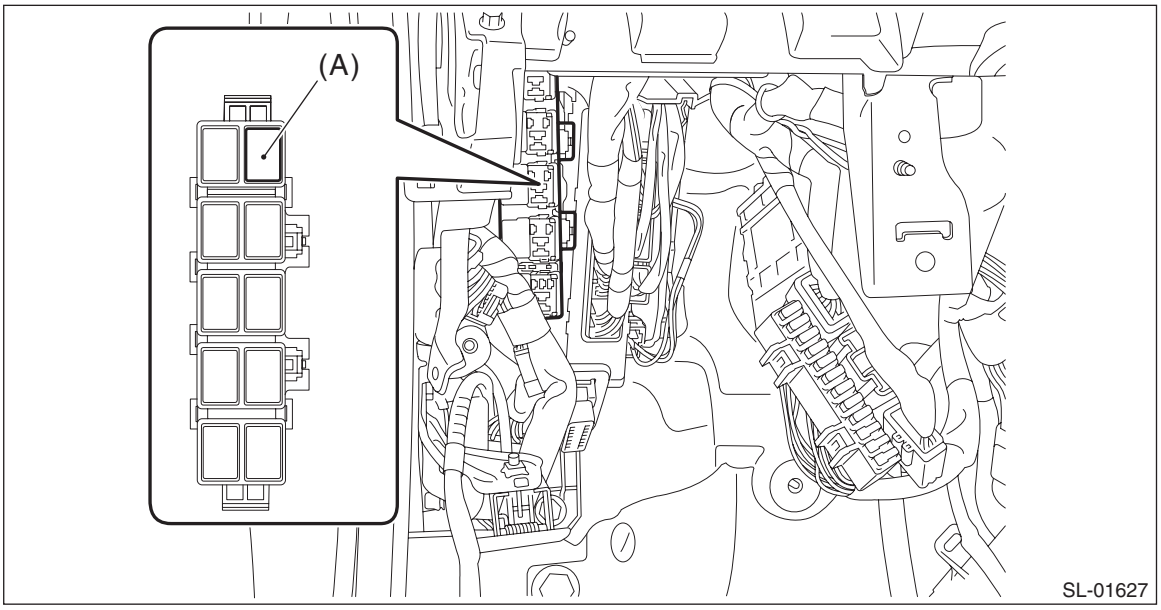
1) Remove the cover assembly - instrument panel LWR driver and the knee airbag module. <Ref. to AB-34, REMOVAL, Knee Airbag Module.>
2) Release the lock and remove the fuse holder.




3) Remove the relay & fuse box.
   (1) Disconnect the connector.
   (2) Remove the bolts and nuts, and remove the relay & fuse box.



4) Remove the starter cut relay (A) from the relay holder.




## B: INSTALLATION

Install each part in the reverse order of removal.

***Tightening torque:***
***Relay & fuse box: 7.5 N·m (0.76 kgf-m, 5.5 ft-lb)***

## C: INSPECTION

Refer to “CHECK RELAY” in “Relay and Fuse”. <Ref. to SL-13, CHECK RELAY, INSPECTION, Relay and Fuse.>

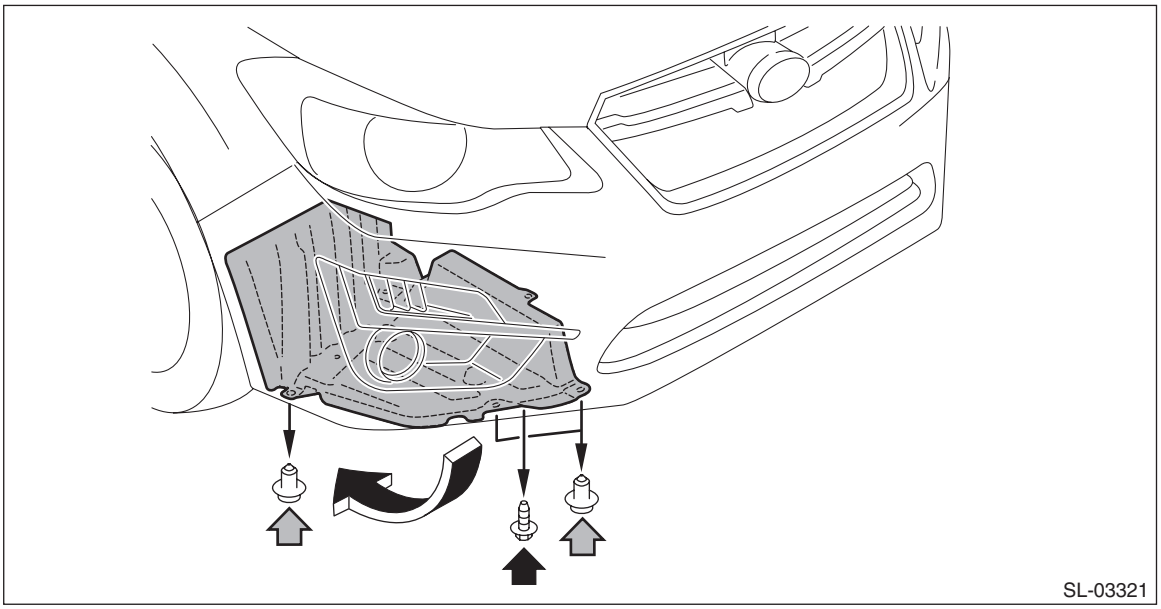
# 44.Access Buzzer

## A: REMOVAL

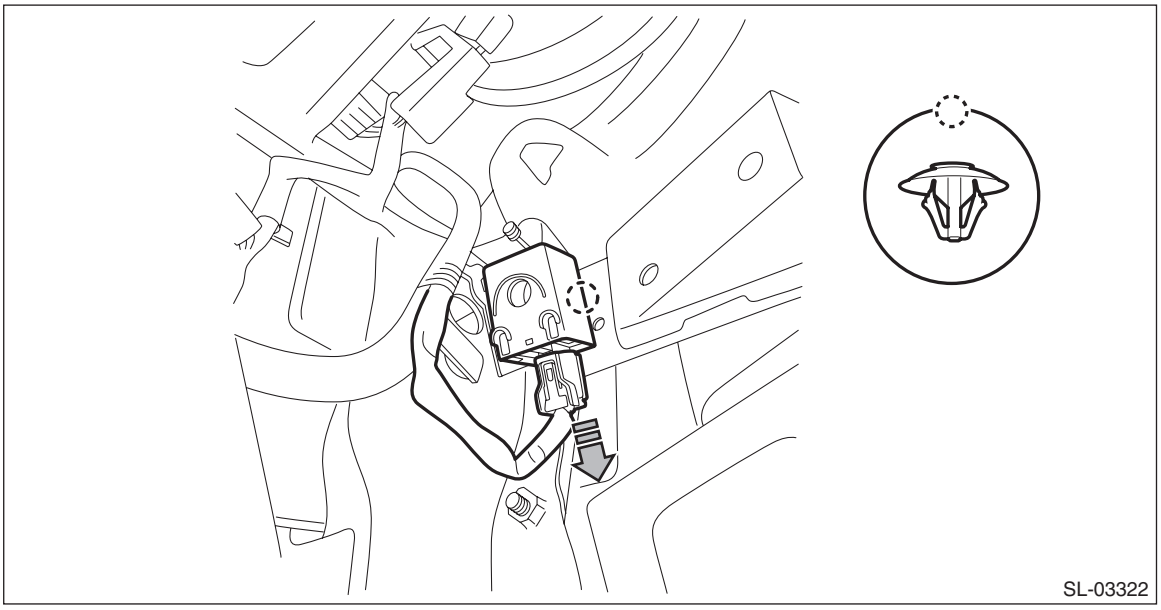
1) Disconnect the ground cable from battery. <Ref. to NT-5, BATTERY, NOTE, Note.>

NOTE:
For the 12 volt engine restart battery of HEV model, disconnect the ground terminal from 12V engine restart battery sensor.

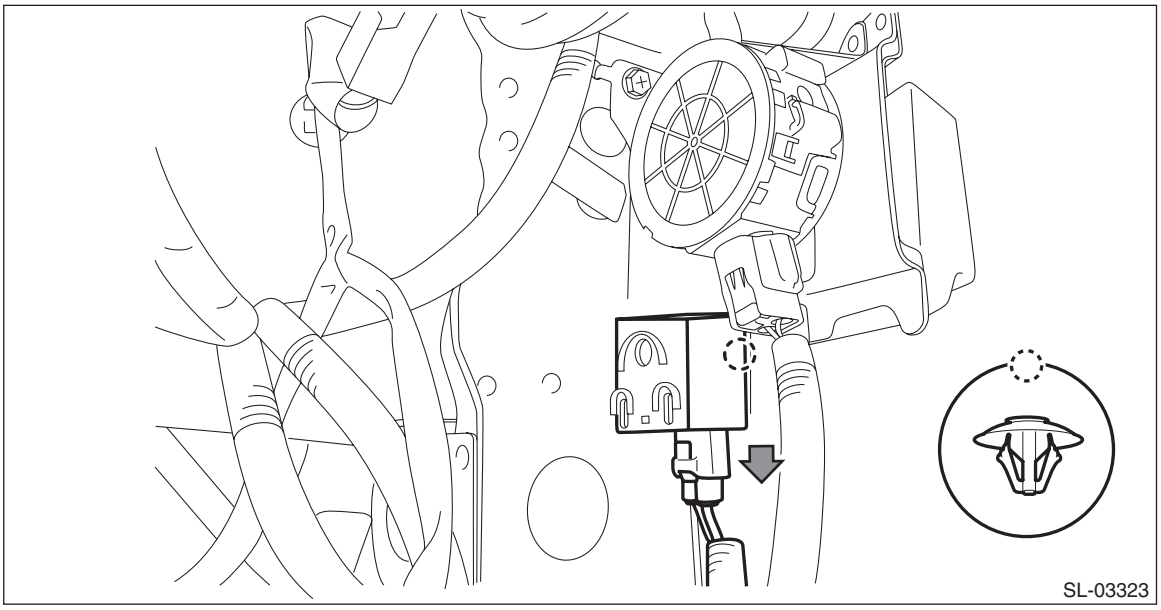
2) Lift up the vehicle.
3) Remove the clips, and turn over the front side of the mud guard - front.




4) Remove the keyless buzzer.
   (1) Disconnect the connector.
   (2) Remove the clip and detach the keyless buzzer.
   • Gasoline engine model



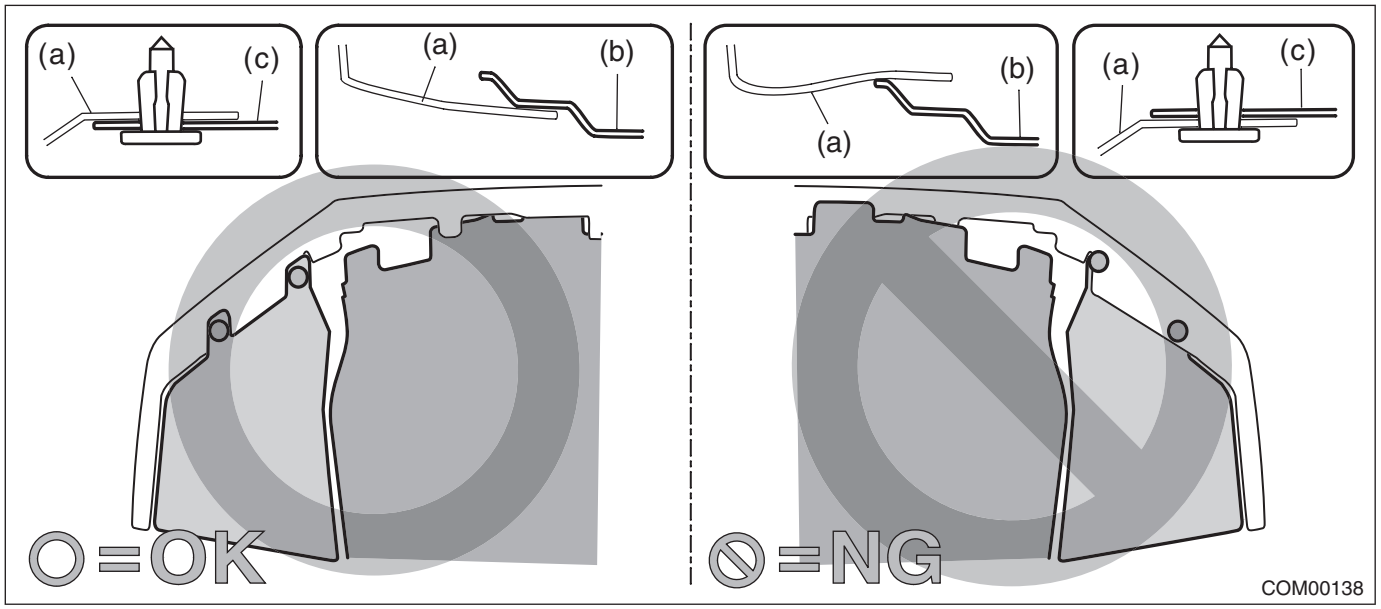
- HEV model




## B: INSTALLATION

Install each part in the reverse order of removal.

**CAUTION:**
**Install so that the front end of the under cover (b) comes inside the bumper face - front (a), and the front end of the mud guard (c) comes outside the bumper face - front (a).**




## C: INSPECTION

Using the Subaru Select Monitor, perform forced operation of the keyless buzzer. <Ref. to BC(diag)-18, OPERATION, User Customizing.>
If the buzzer does not sound, replace the keyless buzzer.

# 45.Function Setting (Customize)

## A: OPERATION

**Disabling/Activating the keyless access system**

The following functions are disabled when the keyless access system functions are disabled:
- LOCK function performed by the operation of touch sensor on the door outer handle
- Rear gate LOCK function by rear lock button operation
- UNLOCK function by the door touch sensor
- Rear gate open function by rear gate opener button operation in the rear gate lock condition
- Trunk lid open function by trunk opener button operation in the trunk lid lock condition
- Lockout prevention feature
- Warning function
- Engine starting control using keyless access collation

## B: PROCEDURE

### 1. METHOD FOR STOPPING KEYLESS ACCESS SYSTEM FUNCTION BY OPENING/CLOSING DOORS

1) Check that the vehicle status is as follows:
- Ignition switch OFF
- One window is completely open
- Keyless access system is activated (or disabled if re-activating)

2) Sit in the driver's seat with the door closed and press the door lock switch to UNLOCK once.
3) Open the driver's door within five seconds.
4) Within 5 seconds, with the driver's door opened, slowly press the door lock switch to UNLOCK twice.
5) Within 30 seconds, perform the closing → opening operation of the driver's door twice.
6) Within 30 seconds, with the driver's door opened, slowly press the door lock switch to UNLOCK twice.
7) Within 30 seconds, perform the closing → opening operation of the driver's door once.
8) Within five seconds, close the driver's door.

NOTE:
- Perform the same procedures to re-activate the keyless access system from the disabled condition.
- If the driver's door is opened or closed in step 4) and step 6), the cancel operation is disabled.

### 2. METHOD FOR STOPPING KEYLESS ACCESS SYSTEM FUNCTION BY OPERATING ACCESS KEY

1) Open the driver's door and press the door lock knob forward (in the LOCK direction).
2) Press the lock button and the trunk/rear gate button of the access key simultaneously for at least five seconds.
3) A buzzer sounds for two seconds and the function stops.

NOTE:
Perform the same procedures to re-activate the keyless access system from the disabled condition.

# 46.Keyless Access With Push Button Start System

## A: DIAGNOSTIC PROCEDURE WITH PHENOMENON

Refer to “Diagnostics with Phenomenon” of “KEYLESS ACCESS WITH PUSH BUTTON START SYSTEM (DIAGNOSTICS)” section. <Ref. to KPS(diag)-110, Diagnostics with Phenomenon.>

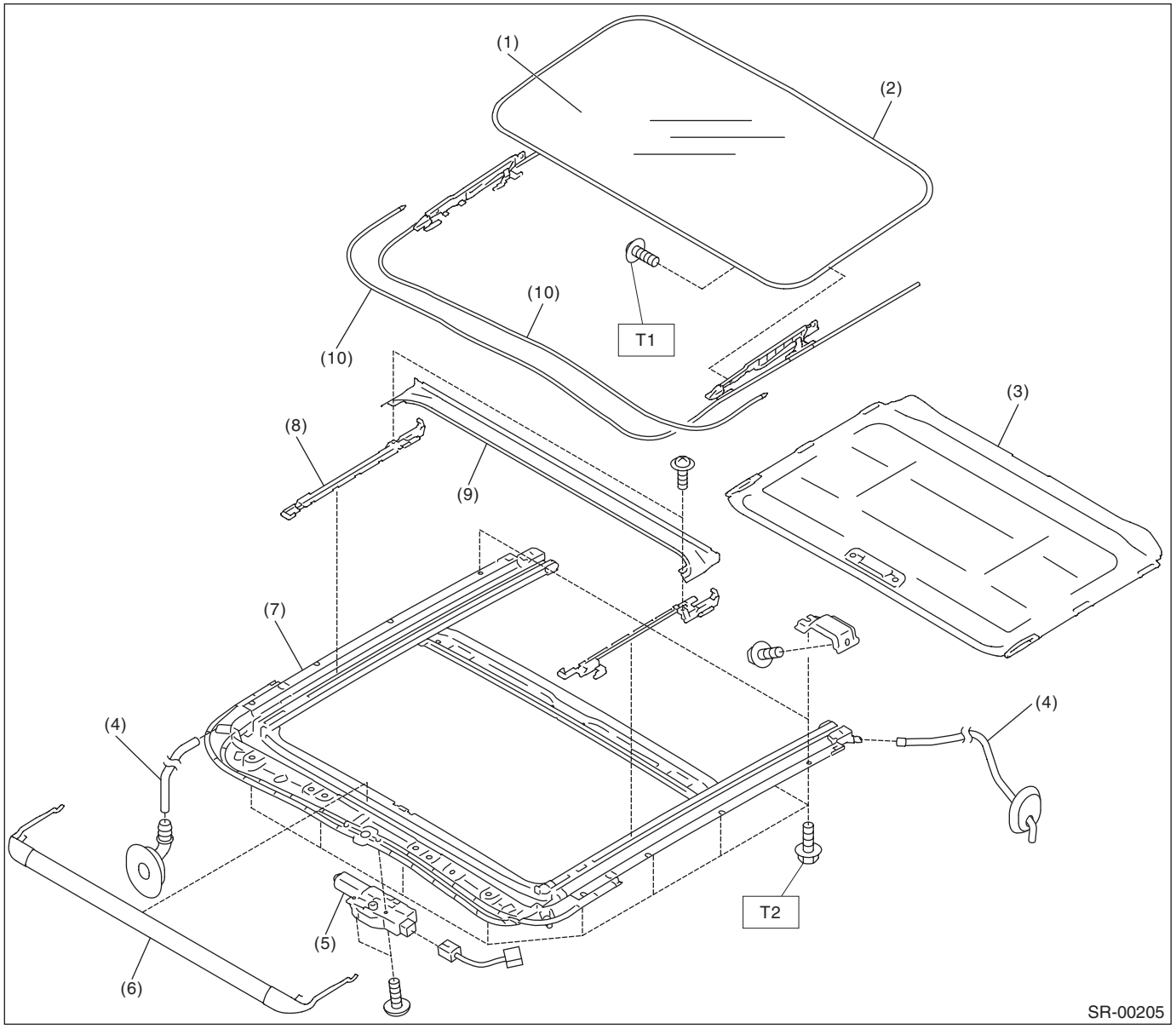
# SUNROOF/T-TOP/CONVERTIBLE TOP (SUNROOF)

# SR


| | | Page |
|---|---|---|
| 1. | General Description | 2 |
| 2. | Relay and Fuse | 4 |
| 3. | Sunroof Control System | 5 |
| 4. | Glass Lid | 7 |
| 5. | Sunroof Assembly | 11 |
| 6. | Sunroof Motor | 17 |
| 7. | Sunroof Switch | 19 |
| 8. | Sunshade | 22 |

# 1. General Description

## A: COMPONENT




(1) Lid ASSY - sunroof
(2) Weather strip
(3) Sunshade ASSY
(4) Drain tube - sunroof
(5) Motor ASSY - sunroof
(6) Deflector ASSY - sunroof
(7) Rail ASSY - sunroof
(8) Link - drain sunroof
(9) Drain ASSY - sunroof
(10) Cable ASSY

***Tightening torque: N·m (kgf-m, ft-lb)***
***T1: 4.5 (0.46, 3.3)***
***T2: 6.0 (0.61, 4.4)***

## B: CAUTION

• Before disassembling or reassembling parts, always disconnect the battery ground cable from battery. When replacing the audio, control module and other parts provided with memory functions, record the memory contents before disconnecting the battery ground cable. Otherwise, the memory is cleared.
• Reassemble the parts in the reverse order of disassembly unless otherwise indicated.
• Adjust parts to the given specifications.
• Connect the connectors securely during reassembly.
• After reassembly, make sure that the each component operates normally.

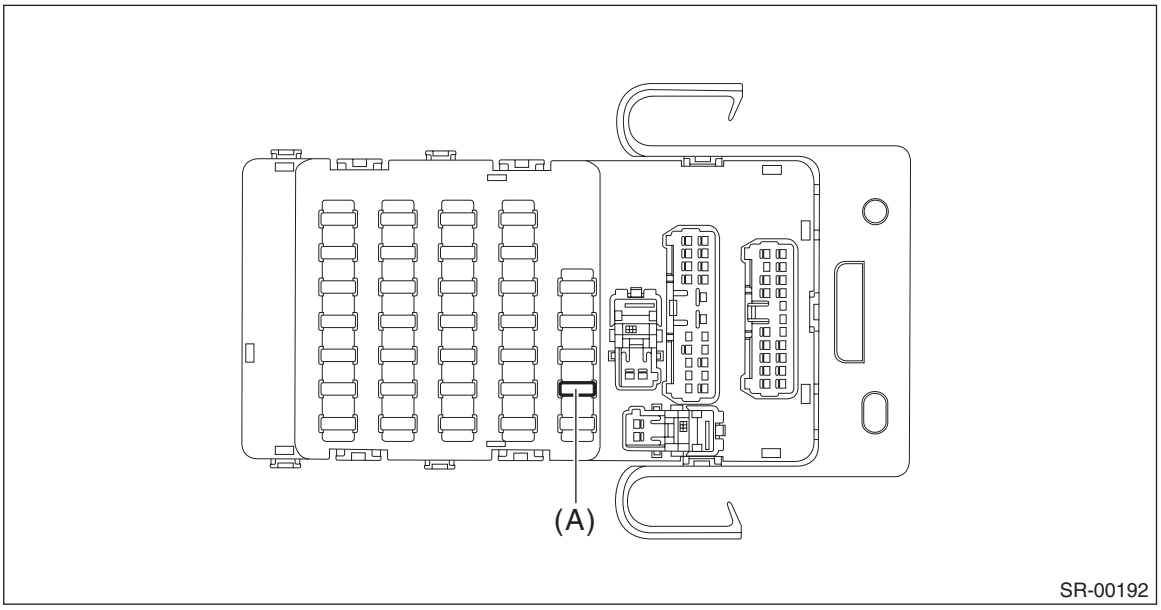
## C: PREPARATION TOOL

### 1. GENERAL TOOL

| TOOL NAME | REMARKS |
|---|---|
| Circuit tester | Used for measuring resistance and voltage. |
| Hexagon wrench | Used for forcibly driving the motor assembly - sunroof. Width across flat 4 mm (0.16 in) |
| TORX® T25 | Used for removing and installing the lid assembly - sunroof. |

# 2. Relay and Fuse

## A: LOCATION




| | | |
|---|---|---|
| Relay & fuse box | Fuse 10A (IG 2) | (A) |

NOTE:
For other related fuses, refer to the wiring diagram. <Ref. to WI(w/o HEV)-16, Power Supply Circuit.>

## B: INSPECTION

### 1. CHECK FUSE

1) Remove the fuse and check visually.
2) If the fuse is blown out, replace the fuse.

# 3. Sunroof Control System

## A: WIRING DIAGRAM

Refer to “Sunroof Control System” in the wiring diagram. <Ref. to WI(w/o HEV)-217, WIRING DIAGRAM, Sunroof Control System.>

## B: INSPECTION

| Symptoms | Inspection steps |
|---|---|
| Water leakage | 1. Check the roof panel and the lid assembly - sunroof for improper or poor sealing.<br>2. Check the drain tube - sunroof for clogging.<br>3. Check the joints of the rail assembly - sunroof for improper sealing and for proper installation to the body. |
| Booming noise, wind noise and other noise | 1. Check the lid assembly - sunroof and the roof panel for improper clearance.<br>2. Check the sunshade assembly and the trim panel - roof assembly for improper clearance. |
| Abnormal motor noise | 1. Check installing part of motor for looseness.<br>2. Check gears and bearings for wear.<br>3. Check cable assembly for wear.<br>4. Check cable pipe for deformities. |
| Failure of sunroof<br>(Motor operates properly.) | 1. Check guide rail for foreign particles.<br>2. Check guide rail for improper installation.<br>3. Check parts for mutual interference.<br>4. Check cable slider for improper clinching.<br>5. Check cable assembly for improper installation. |
| Motor does not rotate or rotate improperly. | 1. Check fuse for blown out.<br>2. Check switch for improper function.<br>3. Check motor assembly for incorrect terminal voltage.<br>4. Check the relay for improper operation.<br>5. Check harness for open or short and terminals for poor connections. |
| Incorrect reverse operation of the lid assembly - sunroof | Check guide rail for foreign particles. |

- Incorrect reverse operation of the lid assembly - sunroof while driving on rough road

The lid assembly - sunroof has auto-reverse function. When the lid assembly - sunroof is pushed in the opening direction with a force of 100 N (10.2 kgf, 22.5 lbf) or less, the glass lid moves in reverse and then stops. Therefore, if you operate (open or close) the lid assembly - sunroof while driving on rough road, the vibration may be judged as a force and the lid may incorrectly move in the reverse direction.
When the incorrect reverse operation is occurred repeatedly, perform inspection around the sunroof frame. If there are no problems, perform the initialization operation with following procedure.

# C: OPERATION

## 1. INITIALIZE OPERATION

**CAUTION:**
**During initialization, perform the position learning and the sliding learning. Sliding learning mode can not be initiated unless the position learning is performed.**

NOTE:
When initialize operation is performed, it is necessary to press the switch repeatedly as it operates for only at the moment when the switch is pressed, even when the switch is held down.

- Position learning

1) Position the lid assembly - sunroof at the full open position, and press and hold the tilt up switch for ten seconds.
2) The motion of the glass lid shifts to inching operation until it reaches the full close position. After that, it returns to the full open position and then stops.
3) Release the tilt up switch to finish the position learning.

- Sliding learning

4) Within six seconds after the position learning is finished, press and hold the tilt up switch again.
5) The lid assembly - sunroof moves to the full close position, full open position, and the full close position successively, and stops at the full close position.
6) Release the tilt up switch and turn the IG to OFF to finish the initializing.

# D: NOTE

For operation procedures of each component of the sunroof control system, refer to the respective section.

- Glass lid: <Ref. to SR-7, Glass Lid.>
- Sunroof assembly: <Ref. to SR-11, Sunroof Assembly.>
- Sunroof motor: <Ref. to SR-17, Sunroof Motor.>
- Sunroof switch: <Ref. to SR-19, Sunroof Switch.>
- Sunshade: <Ref. to SR-22, Sunshade.>

# 4. Glass Lid

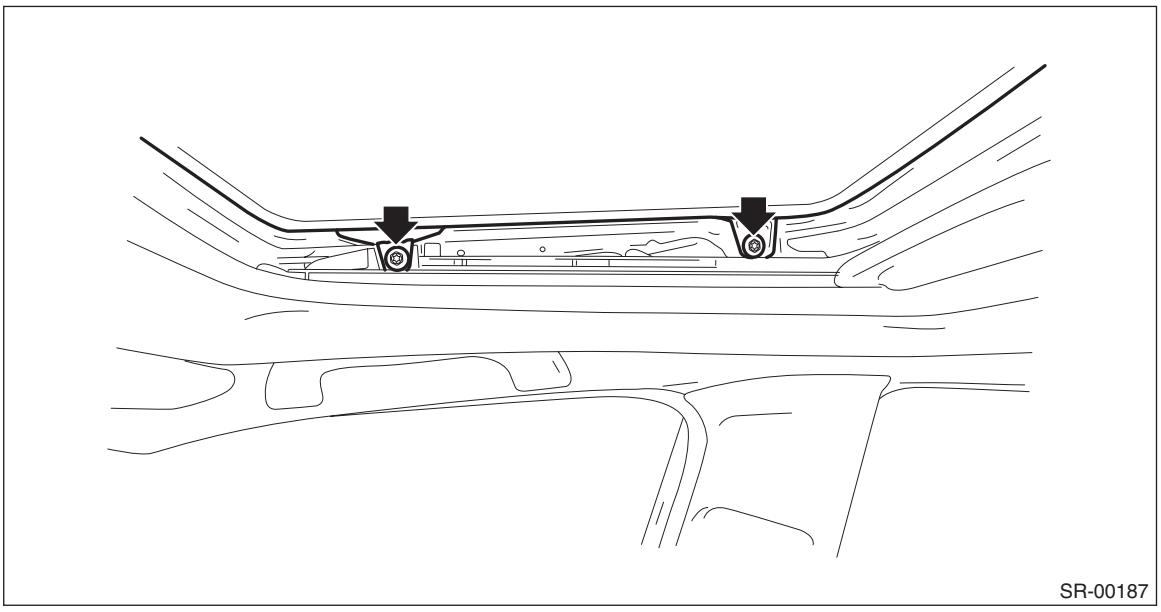
## A: REMOVAL

### 1. GLASS LID

1) Completely close the lid assembly - sunroof, and open the sunshade assembly.
2) Remove the TORX® bolt, and then remove the lid assembly - sunroof.

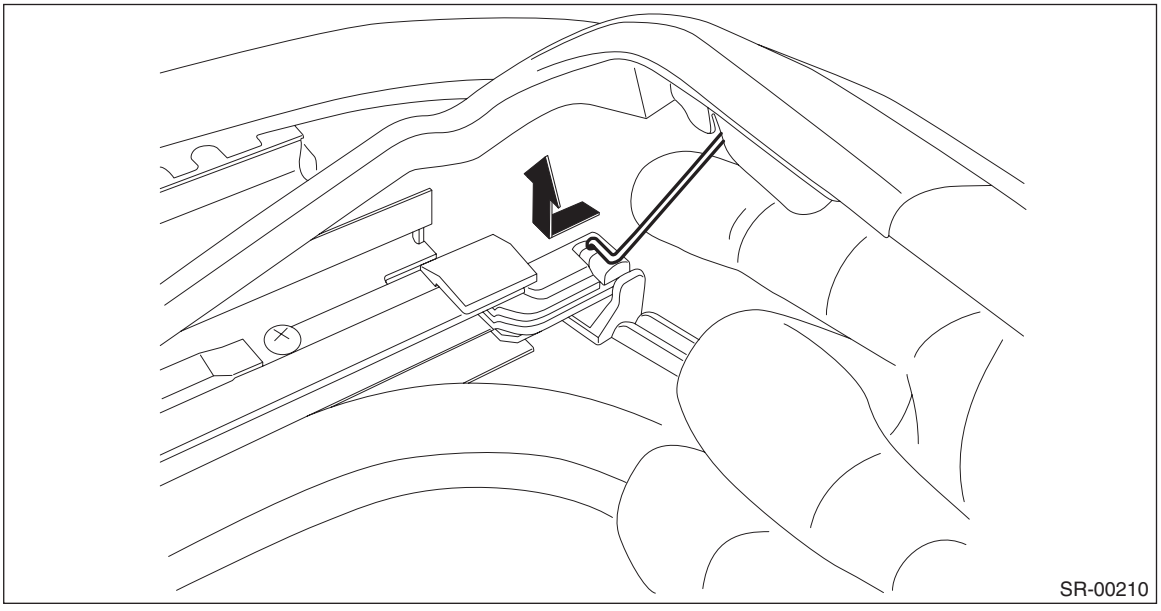
**CAUTION:**
**Be careful not to damage the lid assembly - sunroof.**

***PREPARATION TOOL:***
***TORX® T25***

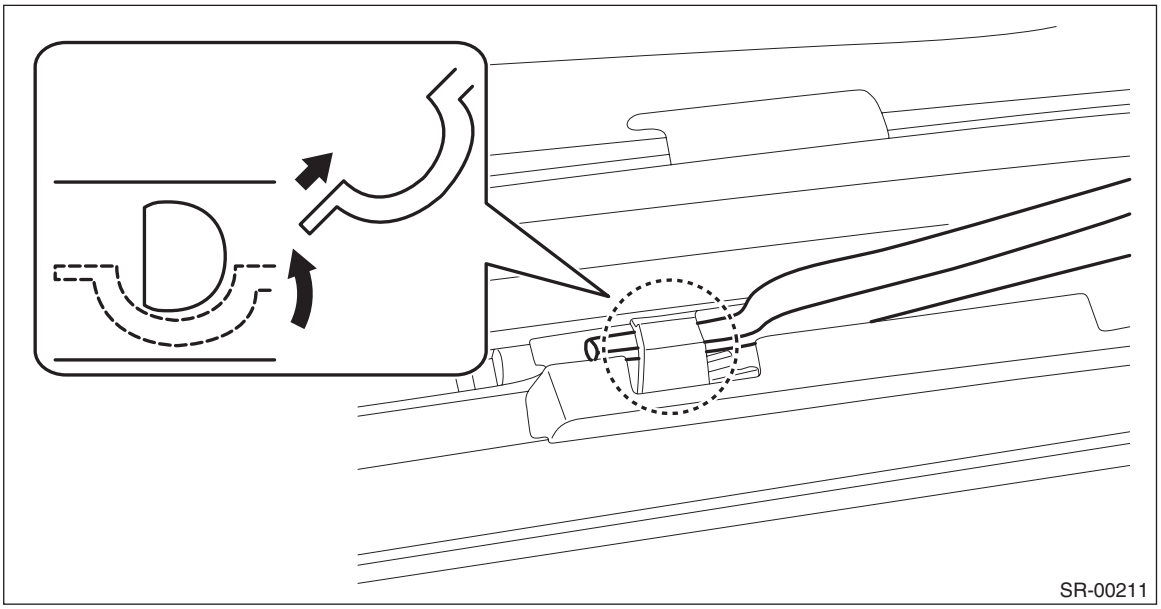



### 2. DEFLECTOR ASSEMBLY

1) Open the lid assembly - sunroof and the sunshade assembly.
2) Remove the deflector assembly - sunroof.
   (1) Remove the spring from the rail assembly - sunroof.



(2) While lifting up the deflector assembly - sunroof, remove the deflector assembly - sunroof from the hook on the rail assembly - sunroof.




## B: INSTALLATION

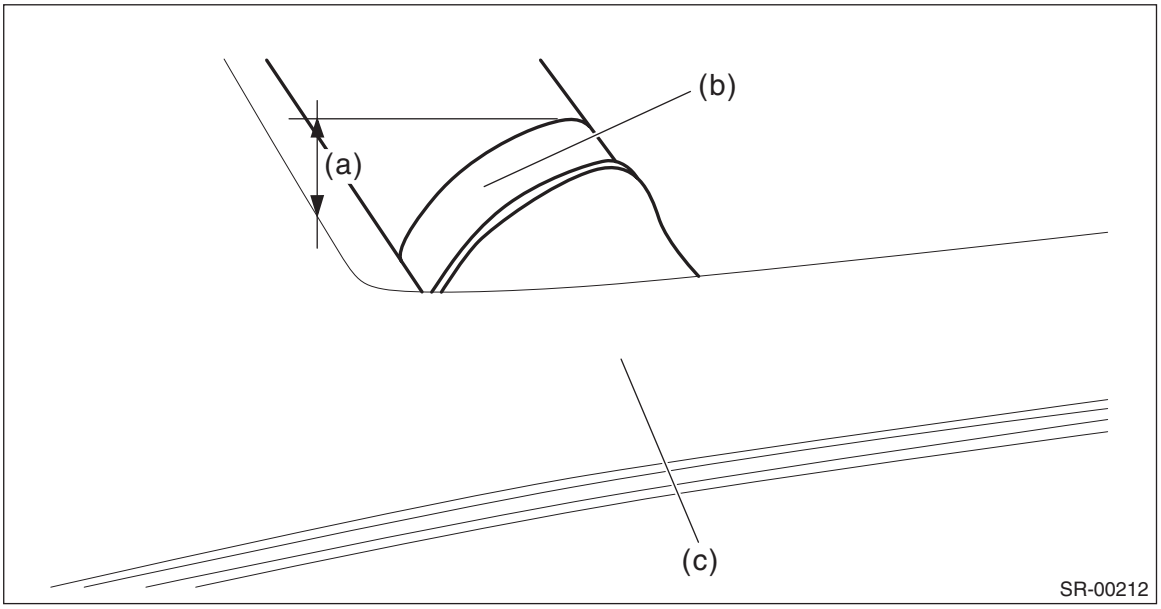
### 1. GLASS LID

Install each part in the reverse order of removal.

***Tightening torque:***
***Refer to "COMPONENT" of "General Description". <Ref. to SR-2, COMPONENT, General Description.>***

### 2. DEFLECTOR ASSEMBLY

1) Install each part in the reverse order of removal.
2) After installation, measure the height from the roof panel when deflector assembly - sunroof is activated.



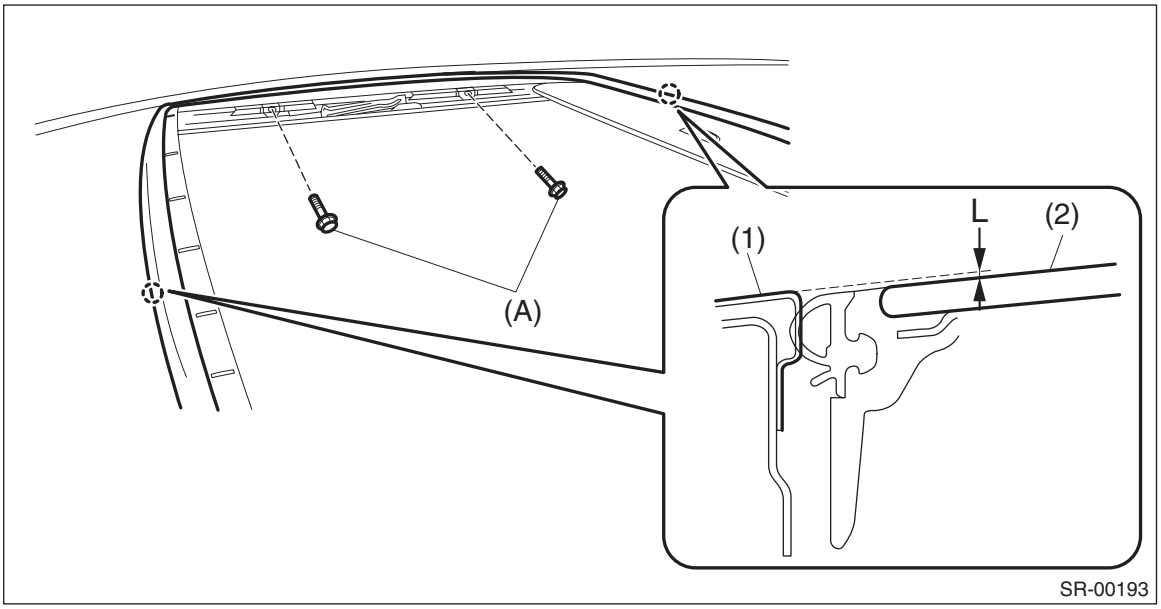

(a) 14 mm (0.55 in) (b) Deflector ASSY - sunroof (c) Roof panel

## C: ADJUSTMENT

Adjust the height of the lid assembly - sunroof and the roof panel.

- Loosen the lid assembly - sunroof mounting bolts (A), and then adjust the height by moving the lid assembly - sunroof side.

***Lid assembly - sunroof height difference L:***
***Lid assembly - sunroof to Roof panel: 0.7±1.0 mm (0.03±0.04 in)***




(1) Roof panel
(2) Lid ASSY - sunroof

## D: FORCED DRIVE

If the lid assembly - sunroof does not operate or the motor assembly is not supplied with power, move the lid assembly - sunroof using the hexagon wrench.

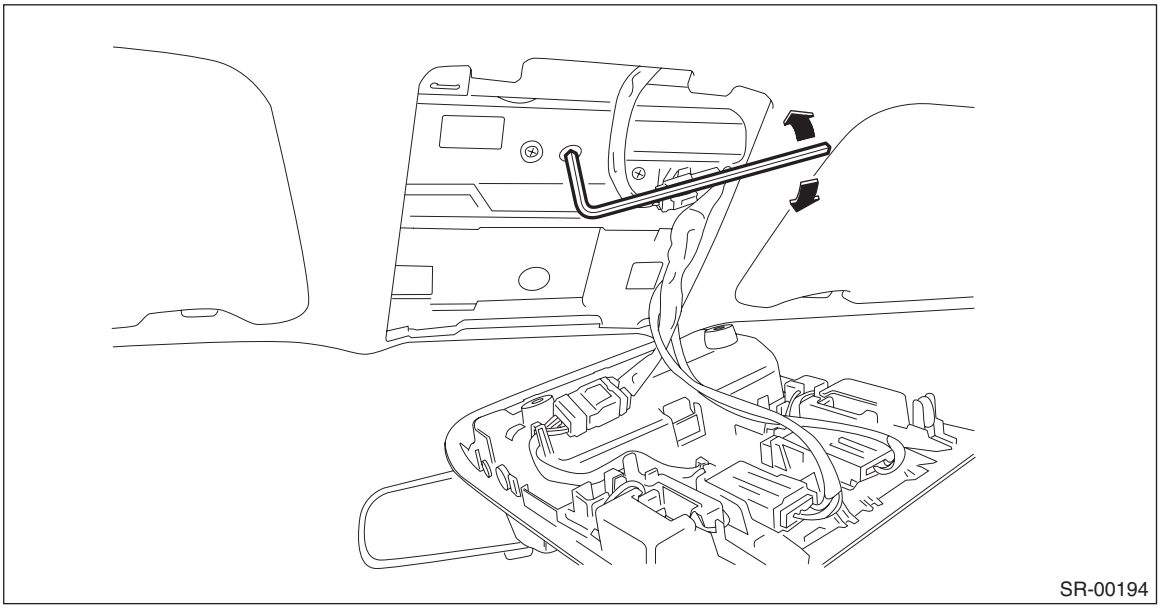
***PREPARATION TOOL:***
***Hexagon wrench: width across flat 4 mm (0.16 in)***

**CAUTION:**
**After a forced operation, make sure to perform an initialize operation. <Ref. to SR-6, INITIALIZE OPERATION, OPERATION, Sunroof Control System.>**

1) Remove the light assembly - map. <Ref. to LI-80, REMOVAL, Spot Map Light.>
2) Insert the hexagon wrench securely until it touches the motor shaft end.
3) Turn the hexagon wrench, and move the lid assembly - sunroof.

- Turning right, the lid assembly - sunroof opens.
- Turning left, the lid assembly - sunroof closes.

**CAUTION:**
**Be careful not to damage the adjacent parts with the rod end when moving the lid assembly - sunroof with the hexagon wrench.**


SR-00194

# 5. Sunroof Assembly

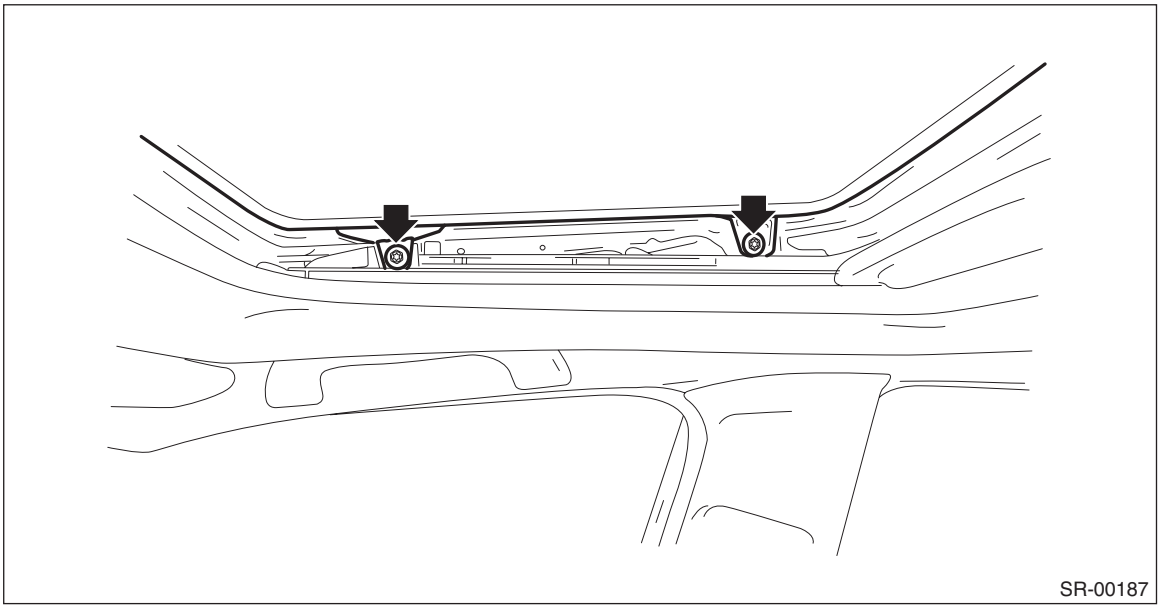
## A: REMOVAL

**CAUTION:**
**When removing the clip, use great care not to damage the trim panel - roof assembly.**

1) Remove the lid assembly - sunroof.
   (1) Completely close the lid assembly - sunroof, and open the sunshade assembly.
   (2) Remove the TORX® bolt, and then remove the lid assembly - sunroof.

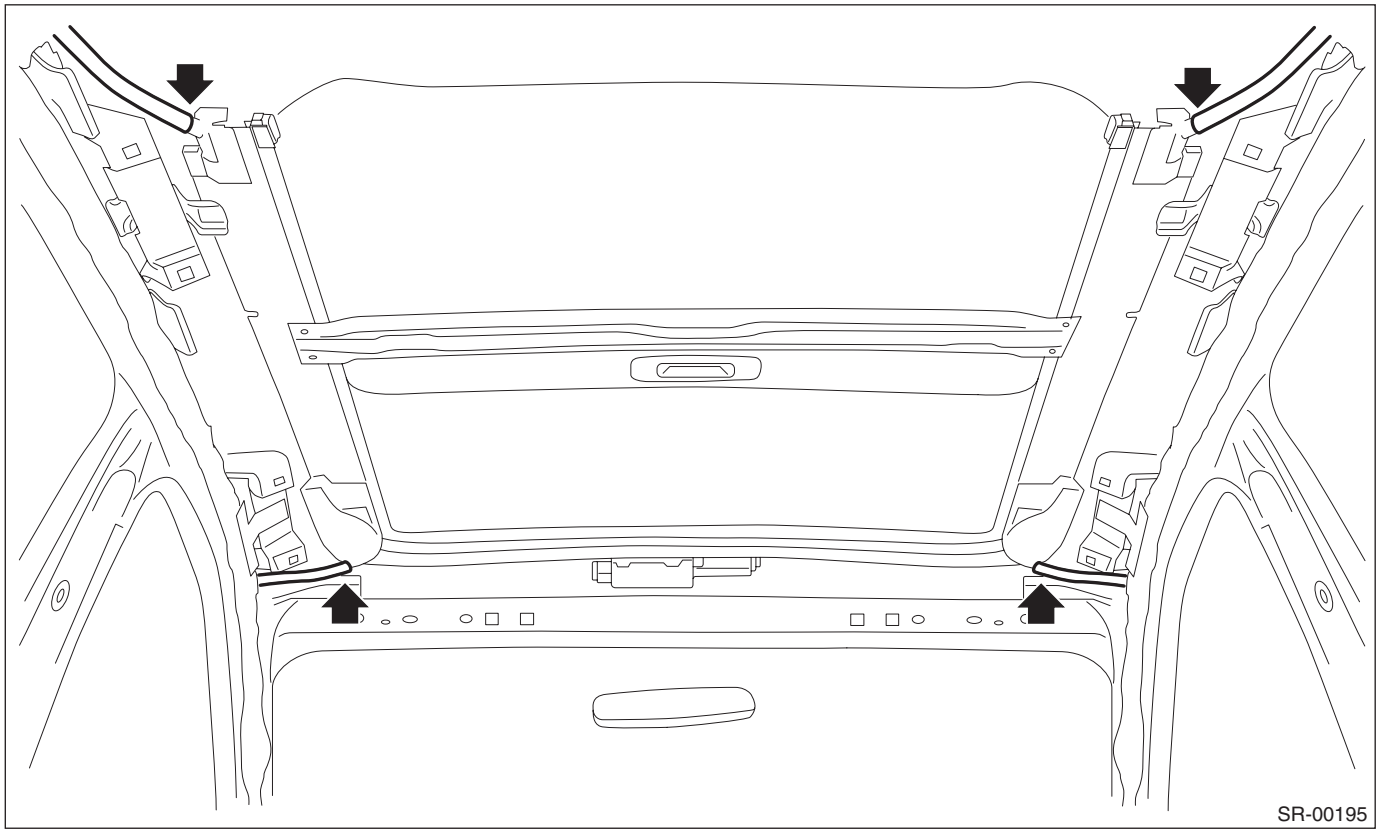
**CAUTION:**
**Be careful not to damage the lid assembly - sunroof.**

***PREPARATION TOOL:***
***TORX® T25***

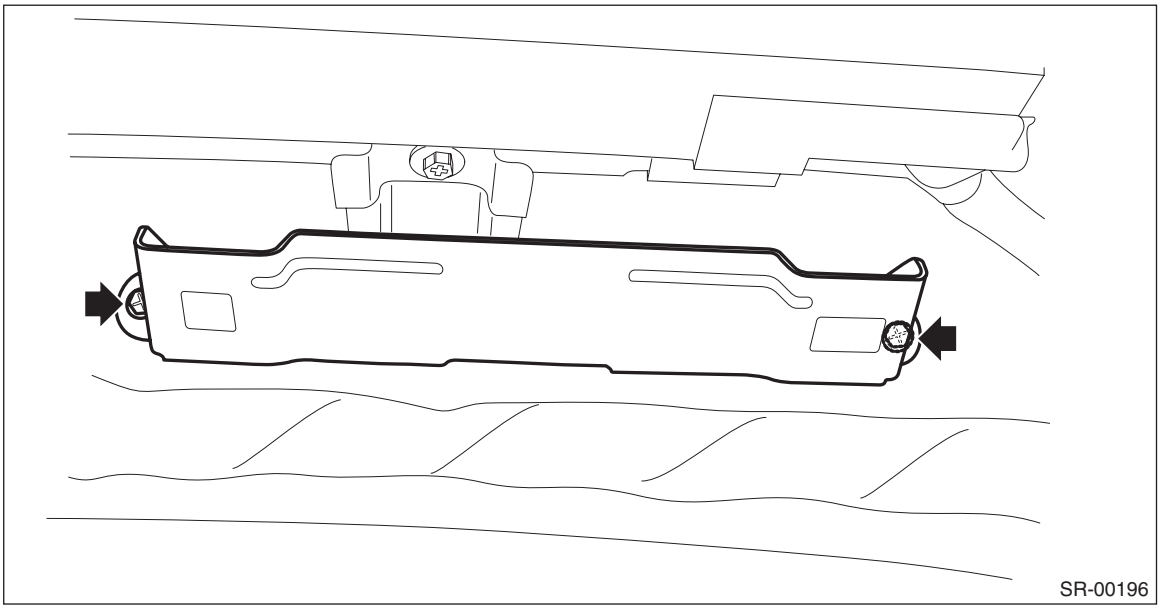



2) Remove the trim panel - roof assembly. <Ref. to EI-129, REMOVAL, Roof Trim.>
3) Disconnect the harness connector of the motor assembly.

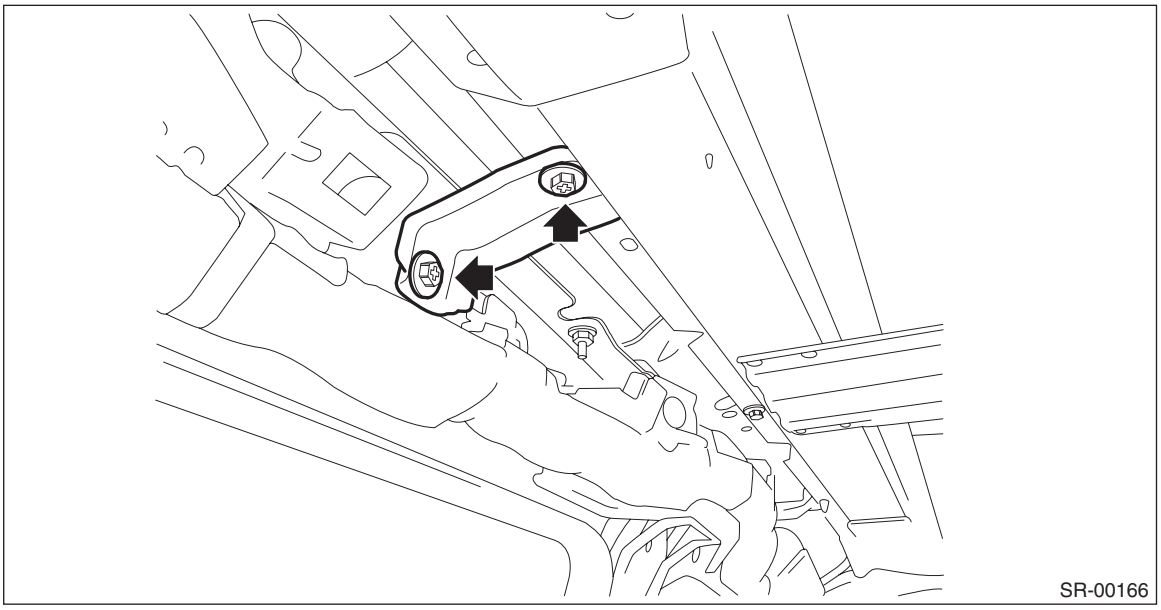
4) Remove the rail assembly.
(1) Remove the drain tube - sunroof.



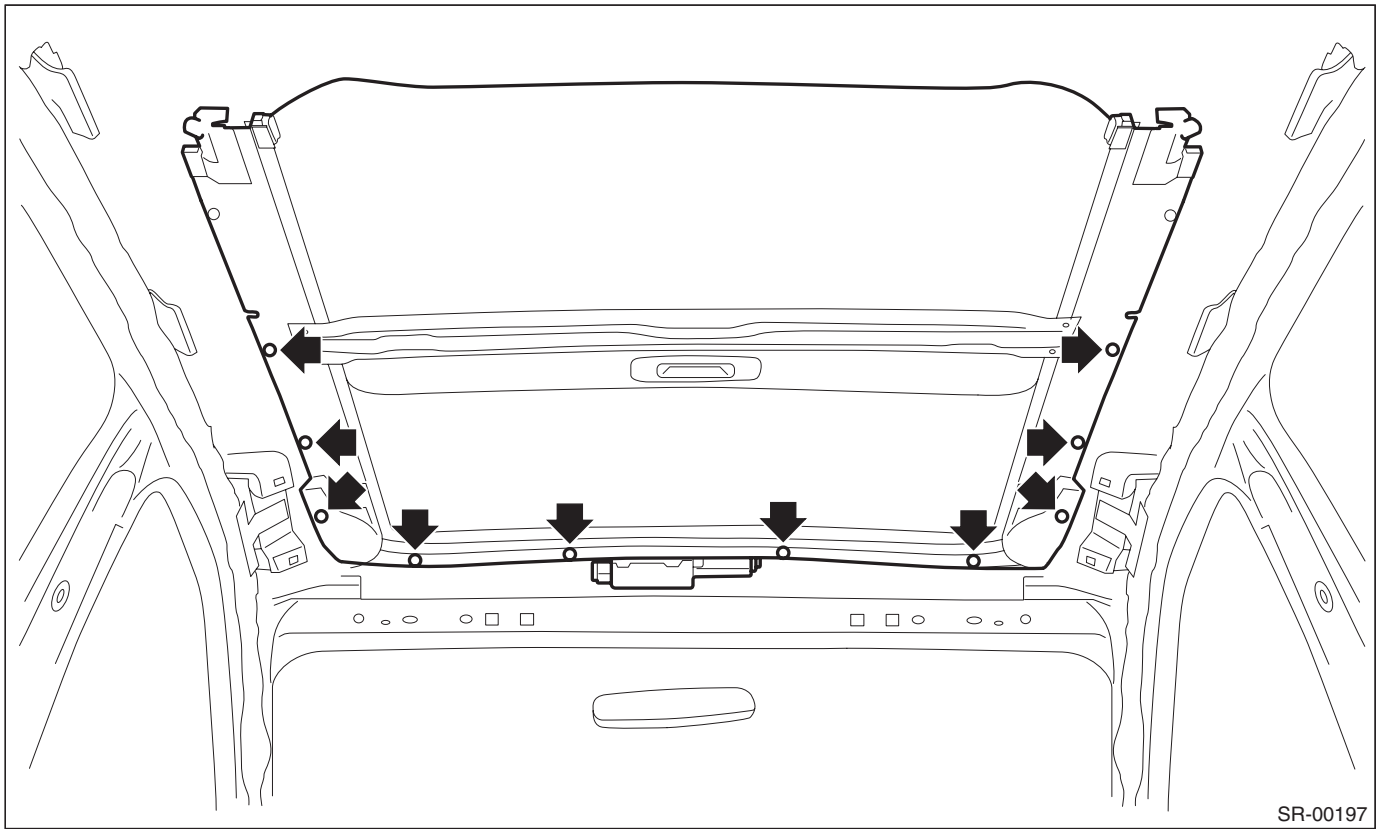

(2) Remove the bracket - assist rail.



(3) Remove the bolts and then remove the sunroof bracket.




(4) Remove the bolts, then remove the rail assembly.



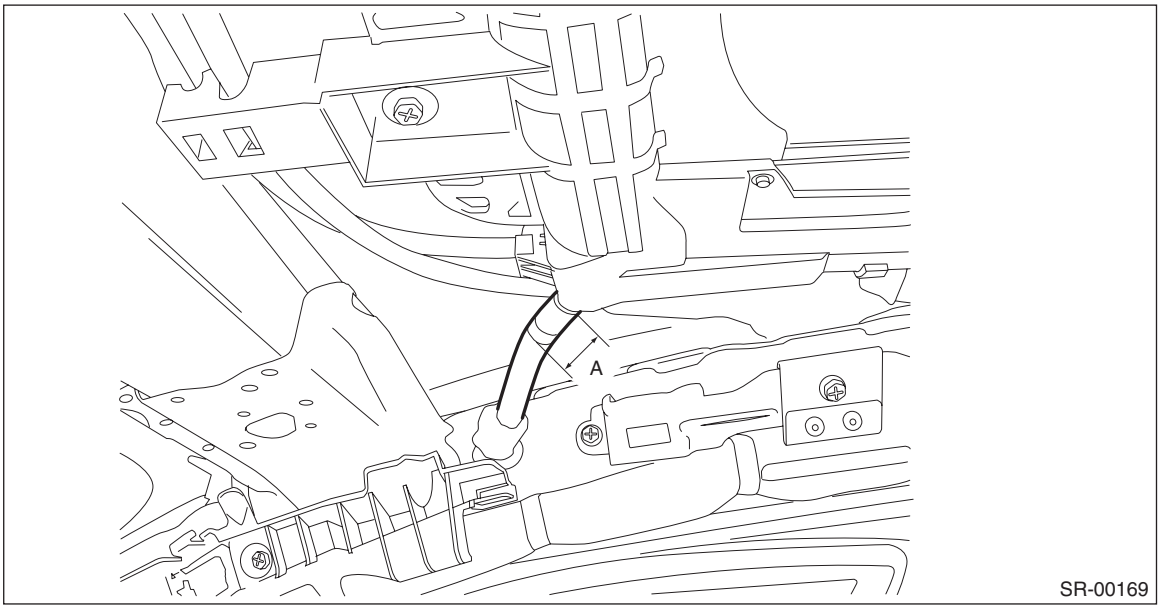
## B: INSTALLATION

**CAUTION:**
**Be careful not to snag the harness.**
Install each part in the reverse order of removal.

***Tightening torque:***
***Refer to "COMPONENT" of "General Description". <Ref. to SR-2, COMPONENT, General Description.>***

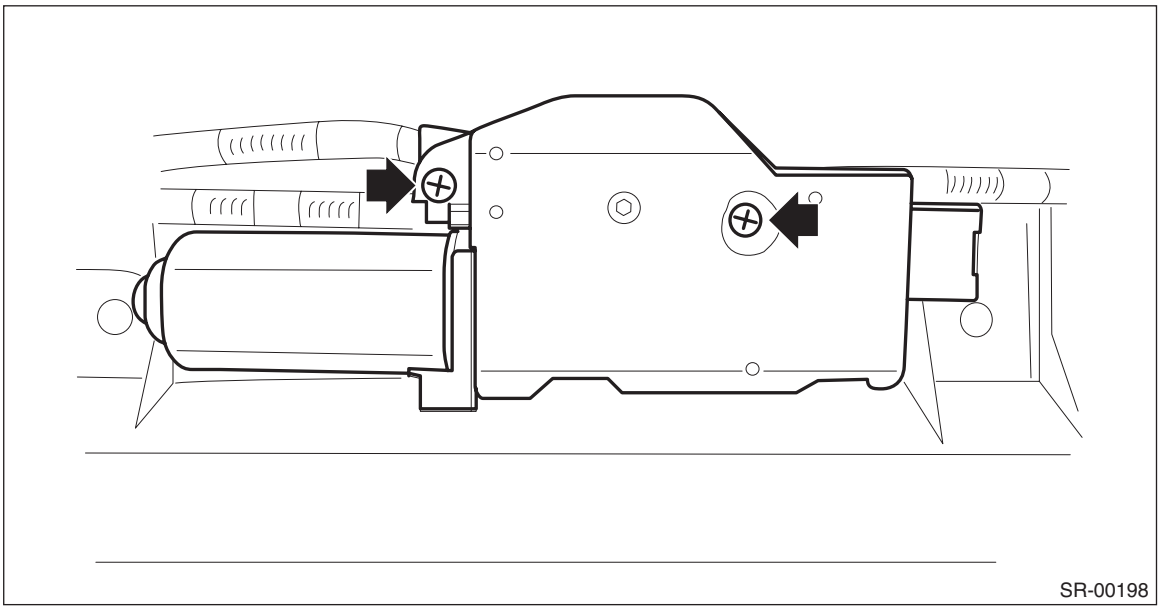
NOTE:
- Be sure to connect the harness connector.
- When installing the drain tube - sunroof, insert it securely into drain pipe.

***Length A:***
***15 mm (0.59 in) or more***

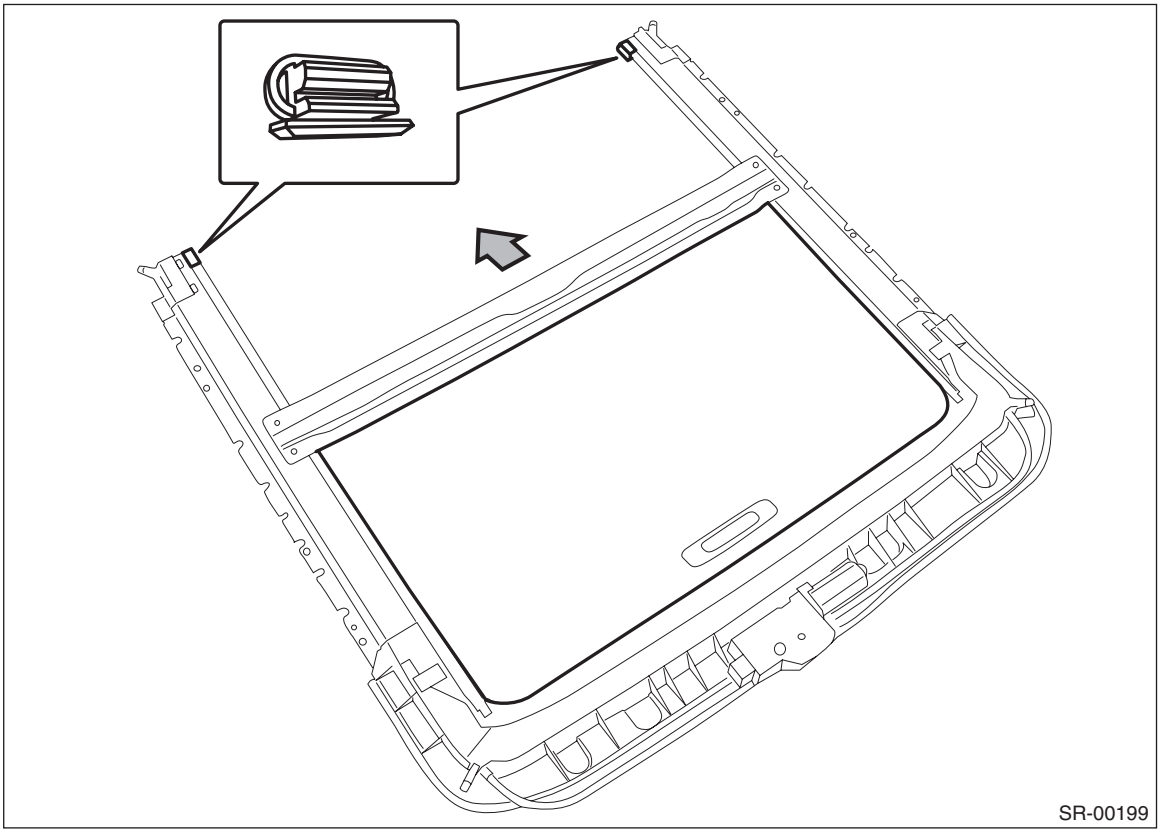



## C: DISASSEMBLY

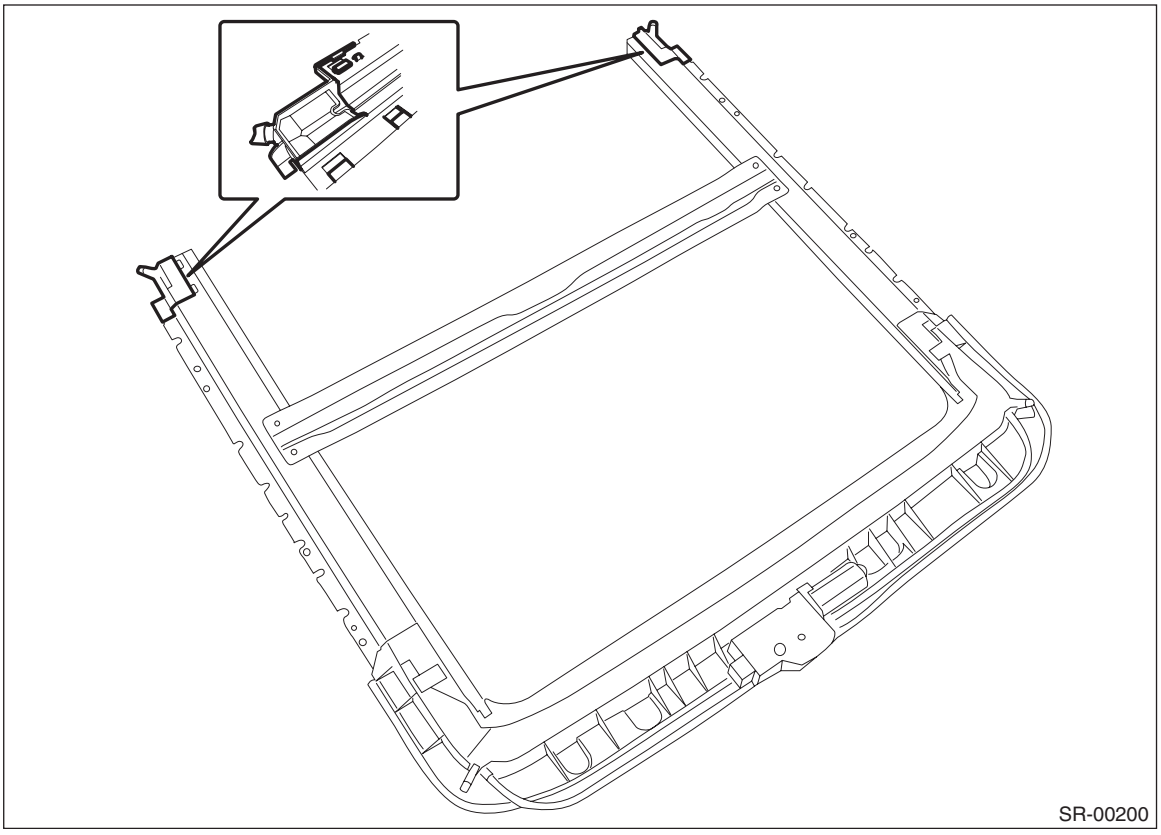
1) Remove the screw and remove the sunroof motor.



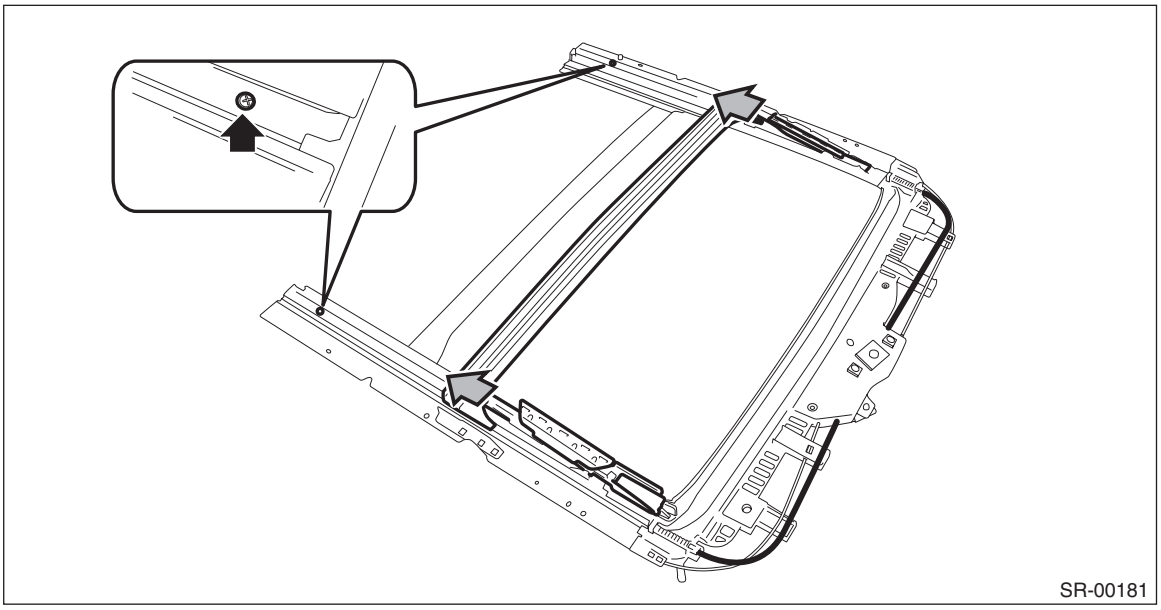
2) Remove the stopper rubber and pull out the sunshade assembly from the rail assembly - sunroof.




3) Disconnect the claws and then remove the drain holder.



4) Remove the screw and pull out the cable assembly from the rail assembly - sunroof.




## D: ASSEMBLY

Install each part in the reverse order of removal.

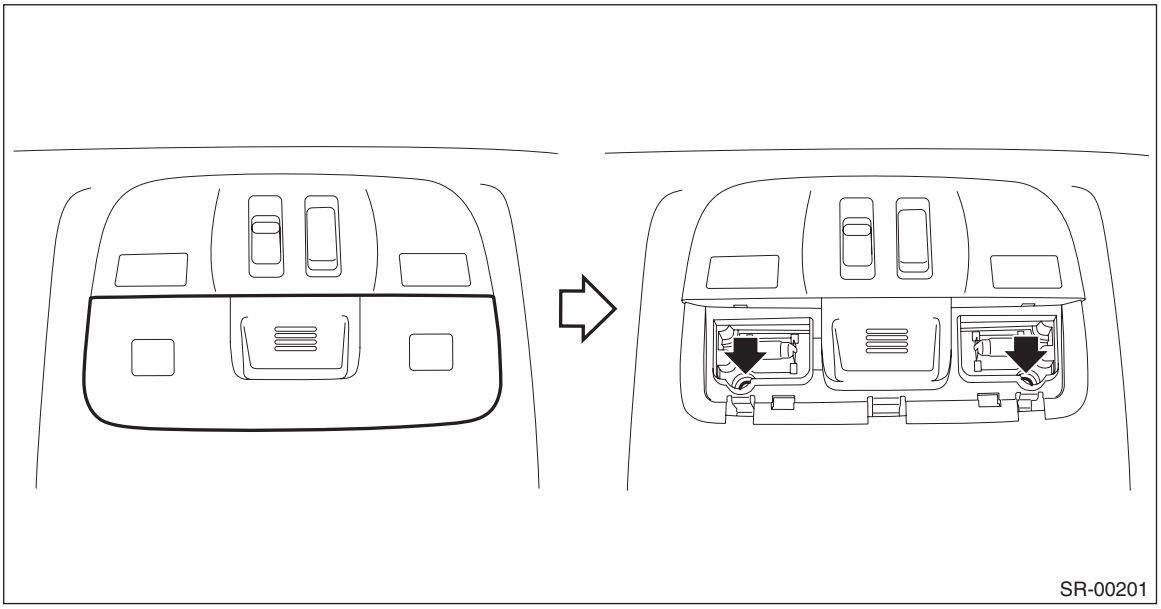
# 6. Sunroof Motor

## A: REMOVAL

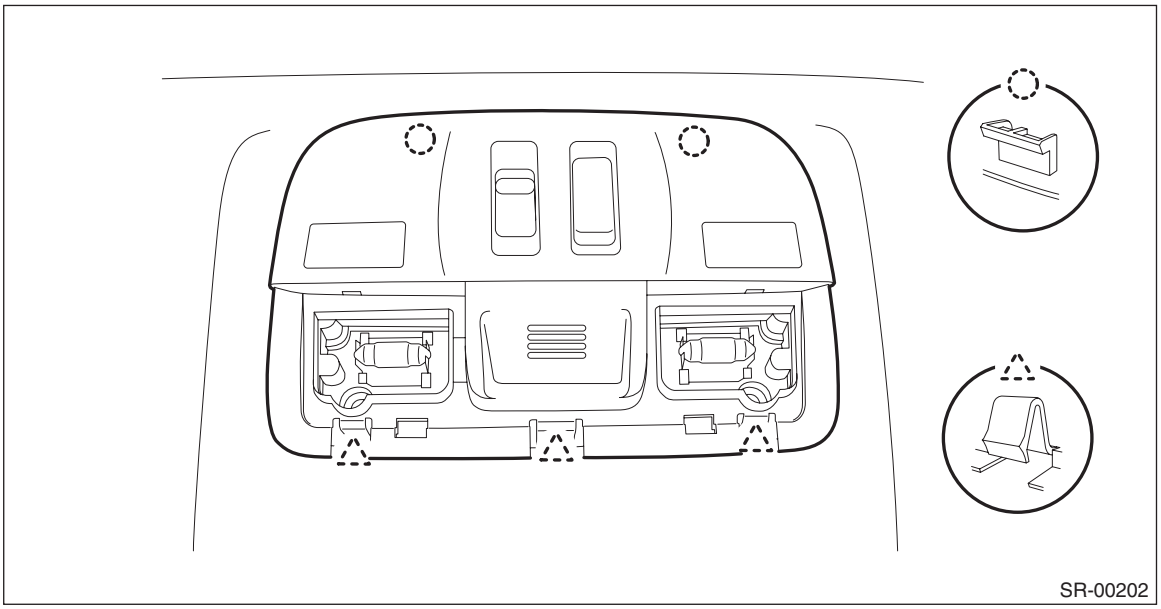
1) Completely close the lid assembly - sunroof.
2) Disconnect the ground cable from battery. <Ref. to NT-5, BATTERY, NOTE, Note.>

NOTE:
For the 12 volt engine restart battery of HEV model, disconnect the ground terminal from 12V engine restart battery sensor.

3) Remove the light assembly - map.
   (1) Remove the lens and detach the screws.

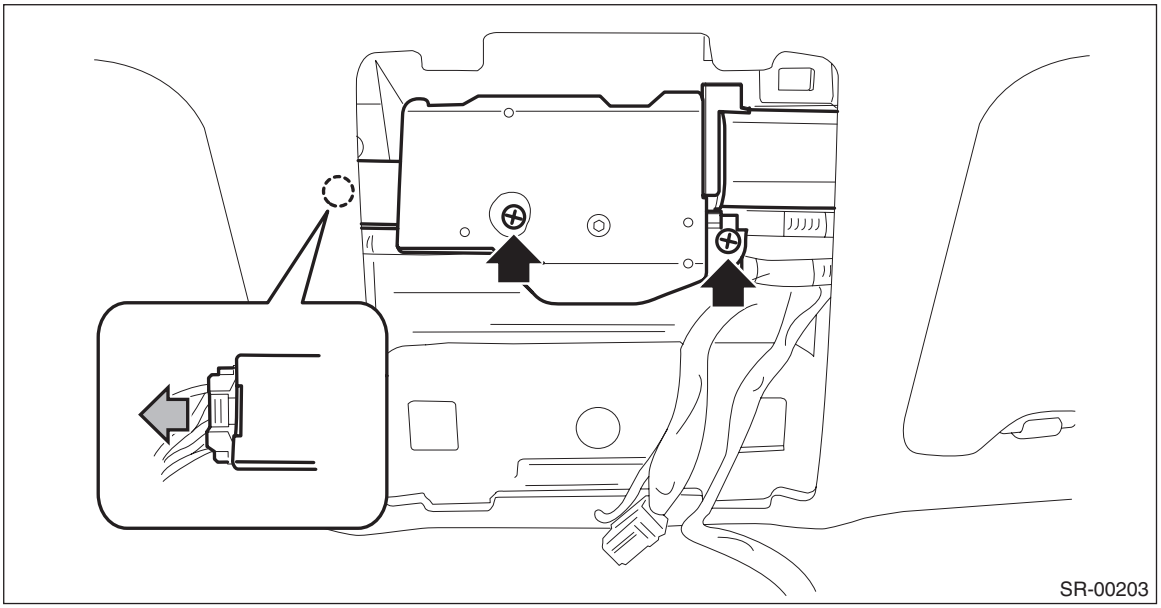

SR-00201

   (2) Release the clips and pull out the light assembly - map to disconnect the connectors.


SR-00202

4) Remove the motor assembly - sunroof.
   (1) Disconnect the harness connector.
   (2) Remove the screws and remove the motor assembly - sunroof.

**CAUTION:**
**When removing the motor assembly - sunroof, secure the cable assembly so that it does not move.**




## B: INSTALLATION

**CAUTION:**
**When installing the motor assembly - sunroof, be careful not to move the cable assembly.**
1) Install the motor assembly - sunroof.
2) Install the light assembly - map, and connect the ground cable to the battery.
3) Perform the initialize operation. <Ref. to SR-6, INITIALIZE OPERATION, OPERATION, Sunroof Control System.>
4) Check the operation of sunroof with following table below.

| Operation | Switch position |
|---|---|
| (1) Lid assembly - sunroof closes completely. | Close |
| (2) Lid assembly - sunroof is tilted up to the top position. | Tilt up |
| (3) Lid assembly - sunroof closes completely. | Tilt down |
| (4) Lid assembly - sunroof opens 295 mm (11.61 in) away from completely closed position. | Open |
| (5) Lid assembly - sunroof opens completely. | Open |
| (6) Lid assembly - sunroof closes completely. | Close |

## C: INSPECTION

Check the auto-reverse mechanism.

**CAUTION:**
**Do not place objects in the way to check the auto-reverse mechanism.**
1) Open the lid assembly - sunroof.
2) Push the lid assembly - sunroof in the opening direction with a force of 110±10 N (11.2 kgf, 24.7 lbf±1.0 kgf, 2.2 lbf) during the auto-closing operation, and check whether the window auto-reverse mechanism functions.

NOTE:
If the auto function is cancelled, perform the initialize operation. <Ref. to SR-6, INITIALIZE OPERATION, OPERATION, Sunroof Control System.>

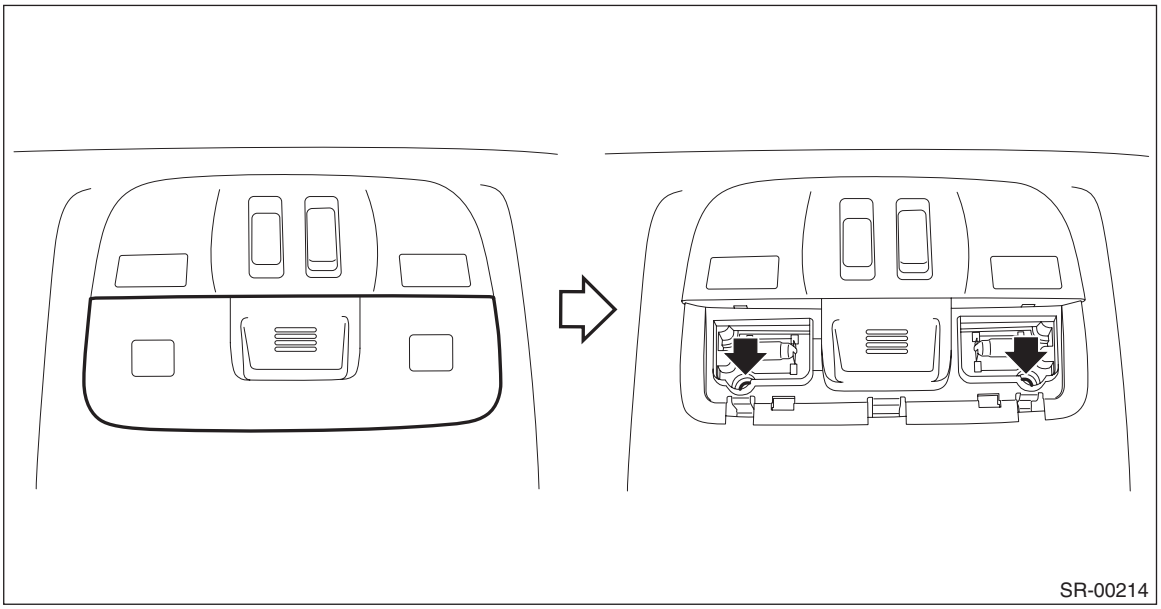
# 7. Sunroof Switch

## A: REMOVAL

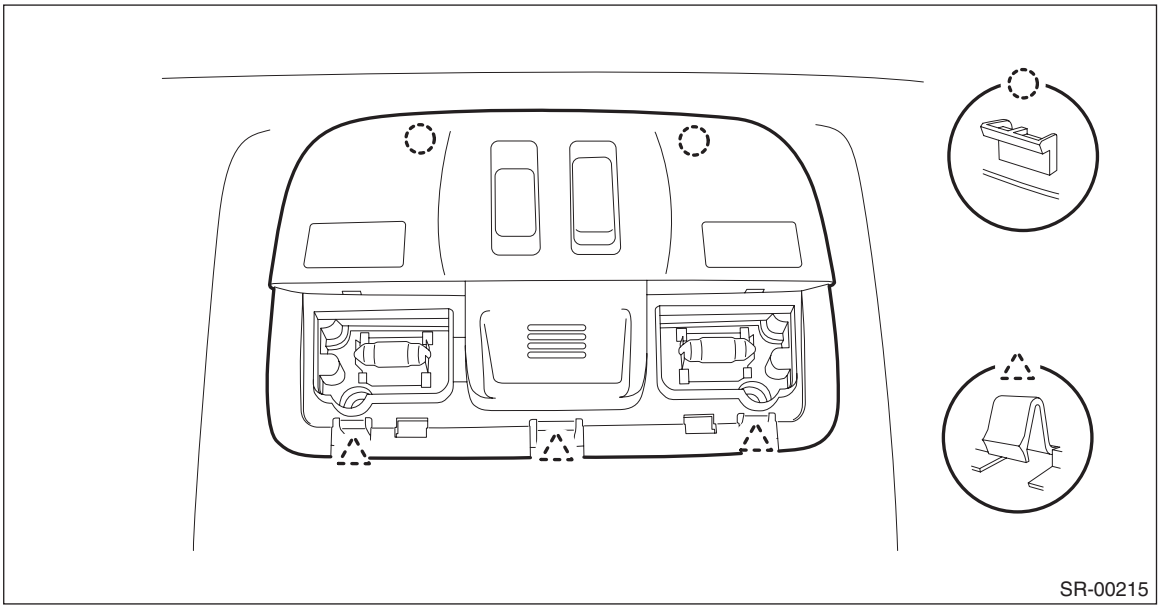
1) Disconnect the ground cable from battery. <Ref. to NT-5, BATTERY, NOTE, Note.>

NOTE:
For the 12 volt engine restart battery of HEV model, disconnect the ground terminal from 12V engine restart battery sensor.

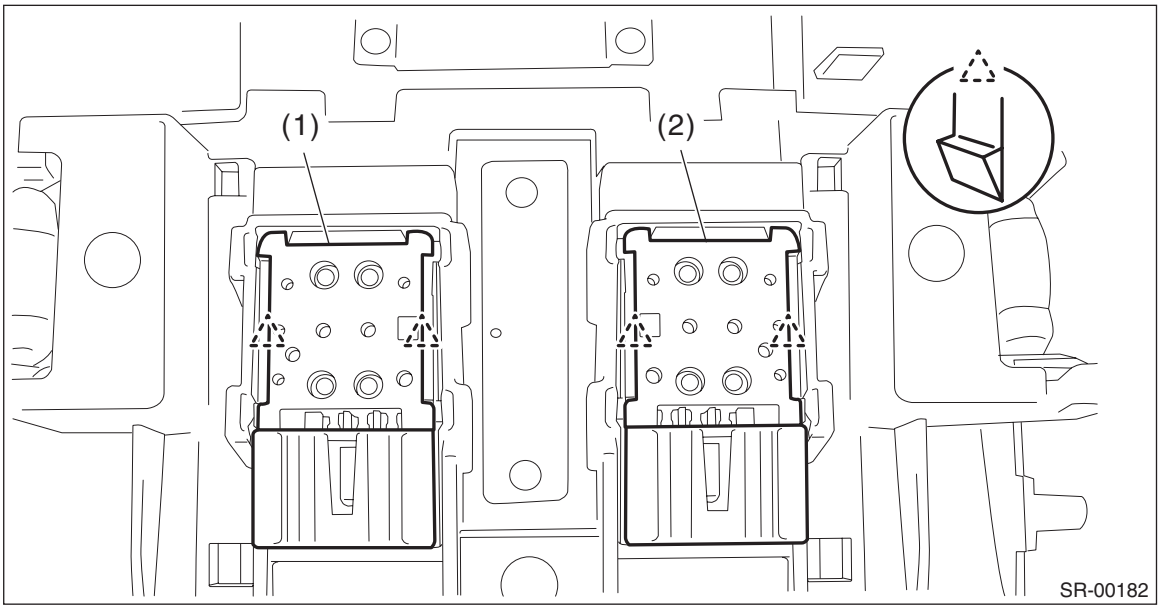
2) Remove the light assembly - map.
   (1) Remove the lens and detach the screws.




   (2) Release the clips and pull out the light assembly - map to disconnect the connectors.



3) Release the claws and remove the sunroof switch from the light assembly - map.




(1) Sunroof switch (tilt)
(2) Sunroof switch (slide)

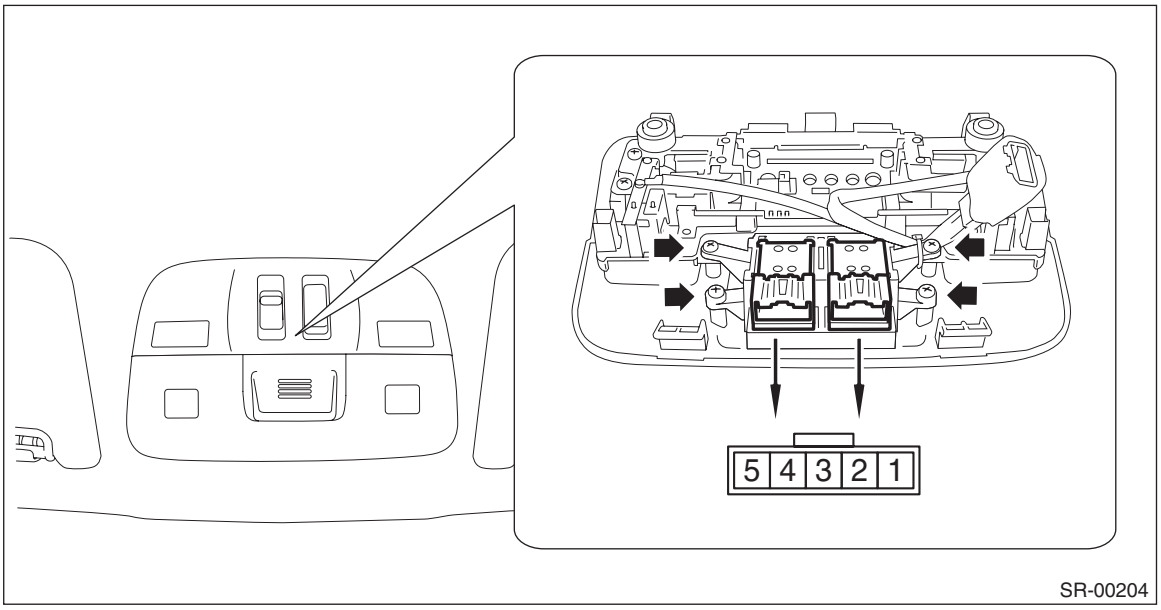
## B: INSTALLATION

Install each part in the reverse order of removal.

## C: INSPECTION

1) Remove the light assembly - map.
2) Disconnect the harness connector of sunroof switch.
3) Check the resistance between sunroof switch terminals.

***PREPARATION TOOL:***
***Circuit tester***




| Terminal No. | Inspection conditions | Standard | Connector No. |
|---|---|---|---|
| 1 — 3 | Open | Less than 1 Ω | R128 |
| 4 — 3 | Close | Less than 1 Ω | |
| 1 — 3 | Tilt up | Less than 1 Ω | R187 |
| 4 — 3 | Tilt down | Less than 1 Ω | |

4) Replace the sunroof switch if the inspection result is not within the standard.

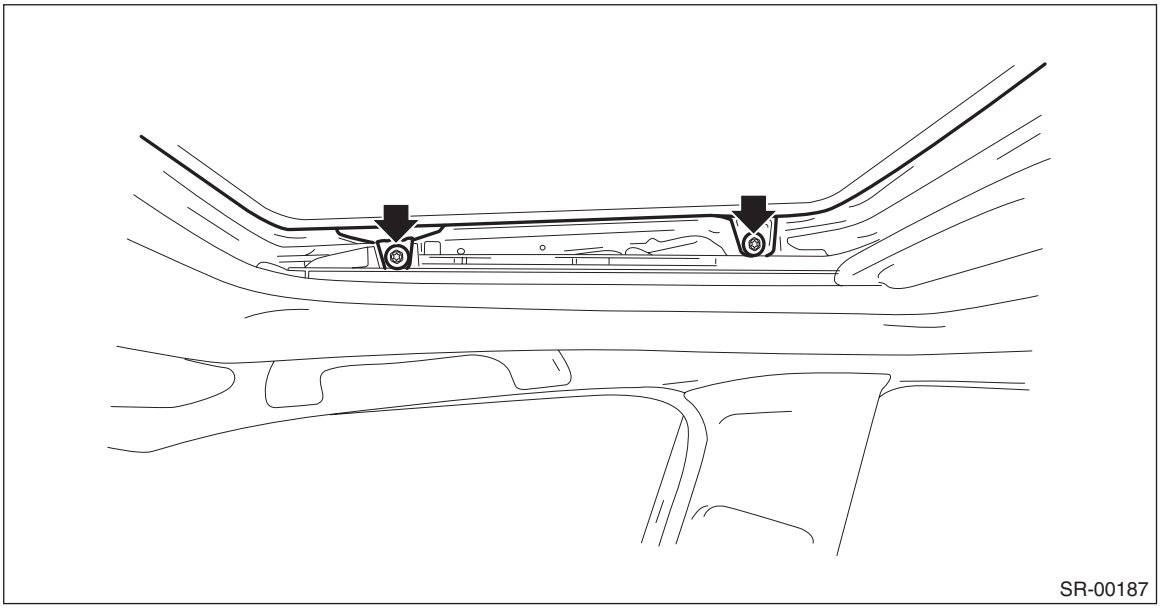
# 8. Sunshade

## A: REMOVAL

1) Remove the lid assembly - sunroof.
   (1) Completely close the lid assembly - sunroof, and open the sunshade assembly.
   (2) Remove the TORX® bolt, and then remove the lid assembly - sunroof.

**CAUTION:**
**Be careful not to damage the lid assembly - sunroof.**

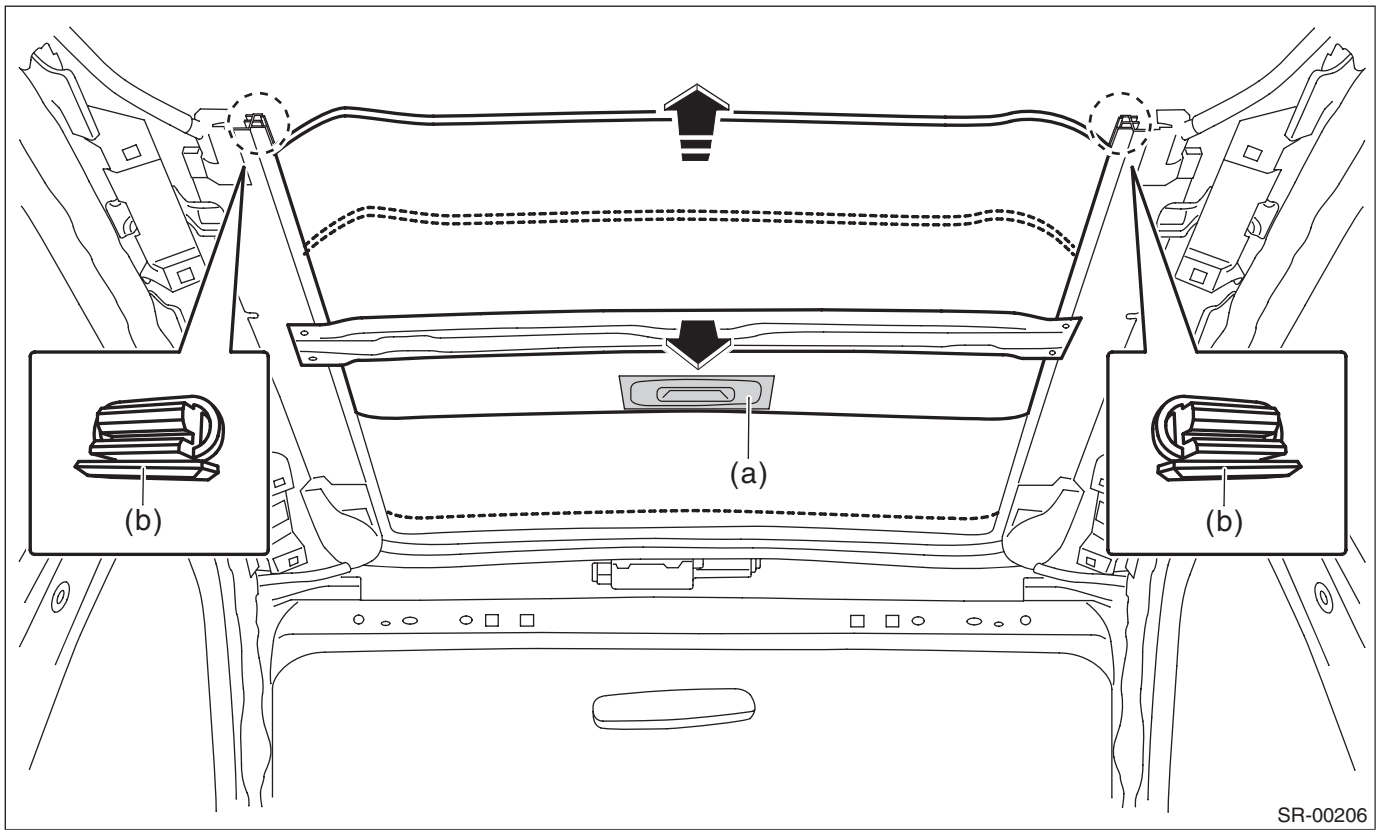
***PREPARATION TOOL:***
***TORX® T25***




2) Remove the trim panel - roof assembly. <Ref. to EI-129, REMOVAL, Roof Trim.>

3) Remove the sunshade assembly.
   (1) Attach protective tape (a) on the handle of sunshade assembly.
   (2) Remove the left and right stoppers (b).
   (3) Remove the sunshade assembly while pulling the center of the brace downward.

**CAUTION:**
**Be careful not to damage the sunshade assembly.**




## B: INSTALLATION

Install each part in the reverse order of removal.

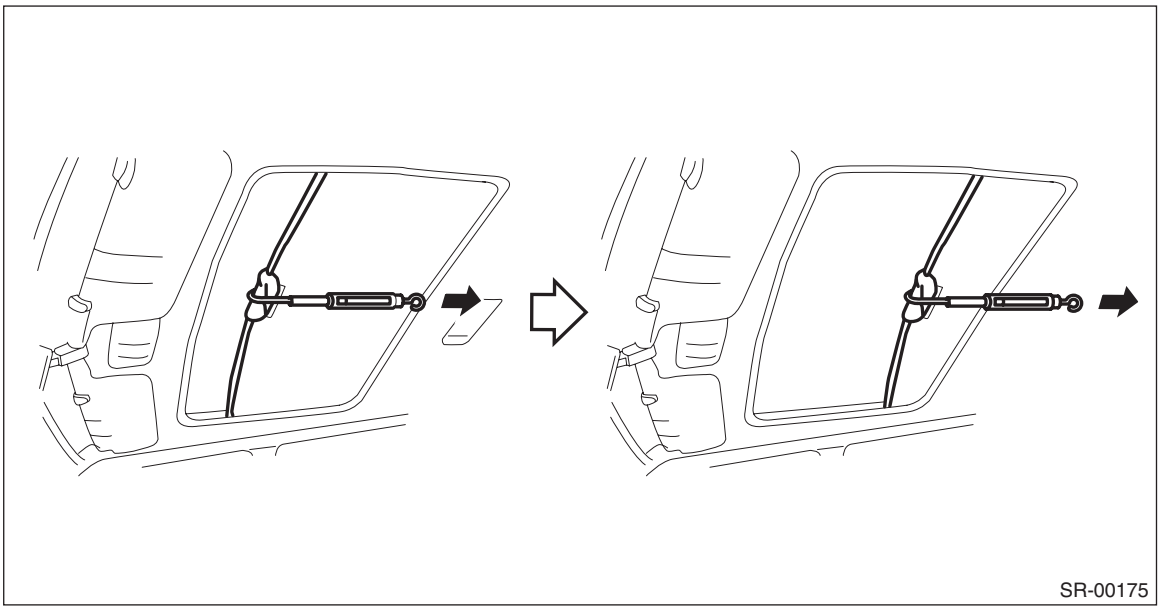
***Tightening torque:***
***Refer to "COMPONENT" of "General Description". <Ref. to SR-2, COMPONENT, General Description.>***

# C: INSPECTION

## 1. MOVING LOAD OF SUNSHADE ASSEMBLY

1) Attach a spring scale together with a cloth to the edge of sunshade assembly.
2) Pull the spring scale to check the moving load of the sunshade assembly.

***Moving load of sunshade assembly:***
***14±6 N (1.43 kgf, 3.1 lbf±0.61 kgf, 1.3 lbf)***




NOTE:
Moving load is larger at the beginning of pulling a spring scale, so take a spring scale reading while the sunshade assembly is sliding smoothly.
3) If the inspection result exceeds the standard, check the sunshade assembly or the rail assembly - sunroof for improper installation, and replace if necessary.

# EXTERIOR/INTERIOR TRIM

**EI**


| | | Page |
|---|---|---|
| 1. | General Description | 2 |
| 2. | Front Under Cover | 32 |
| 3. | Mud Guard | 33 |
| 4. | Floor Under Protector | 34 |
| 5. | Fuel Tank Protector | 36 |
| 6. | Front Grille | 37 |
| 7. | Front Bumper | 40 |
| 8. | Rear Bumper | 52 |
| 9. | Cowl Panel | 61 |
| 10. | Side Garnish | 64 |
| 11. | Roof Molding | 66 |
| 12. | Roof Rail | 69 |
| 13. | Rear Spoiler | 70 |
| 14. | Roof Spoiler | 71 |
| 15. | Door Trim | 72 |
| 16. | Instrument Panel Lower Cover | 76 |
| 17. | Glove Box | 78 |
| 18. | Center Console | 80 |
| 19. | Console Box | 81 |
| 20. | Instrument Panel Assembly | 83 |
| 21. | Lower Inner Trim | 102 |
| 22. | Upper Inner Trim | 107 |
| 23. | Rear Quarter Trim | 112 |
| 24. | Rear Shelf Trim | 120 |
| 25. | Trunk Room Trim | 125 |
| 26. | Sun Visor | 127 |
| 27. | Assist Grip | 128 |
| 28. | Roof Trim | 129 |
| 29. | Rear Gate Trim | 158 |
| 30. | Floor Mat | 160 |
| 31. | Trunk Lid Garnish | 162 |
| 32. | Rear Gate Garnish | 163 |
| 33. | Heat Shield Cover | 166 |
| 34. | Ornament | 167 |