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CONTROL SYSTEMS

General Description

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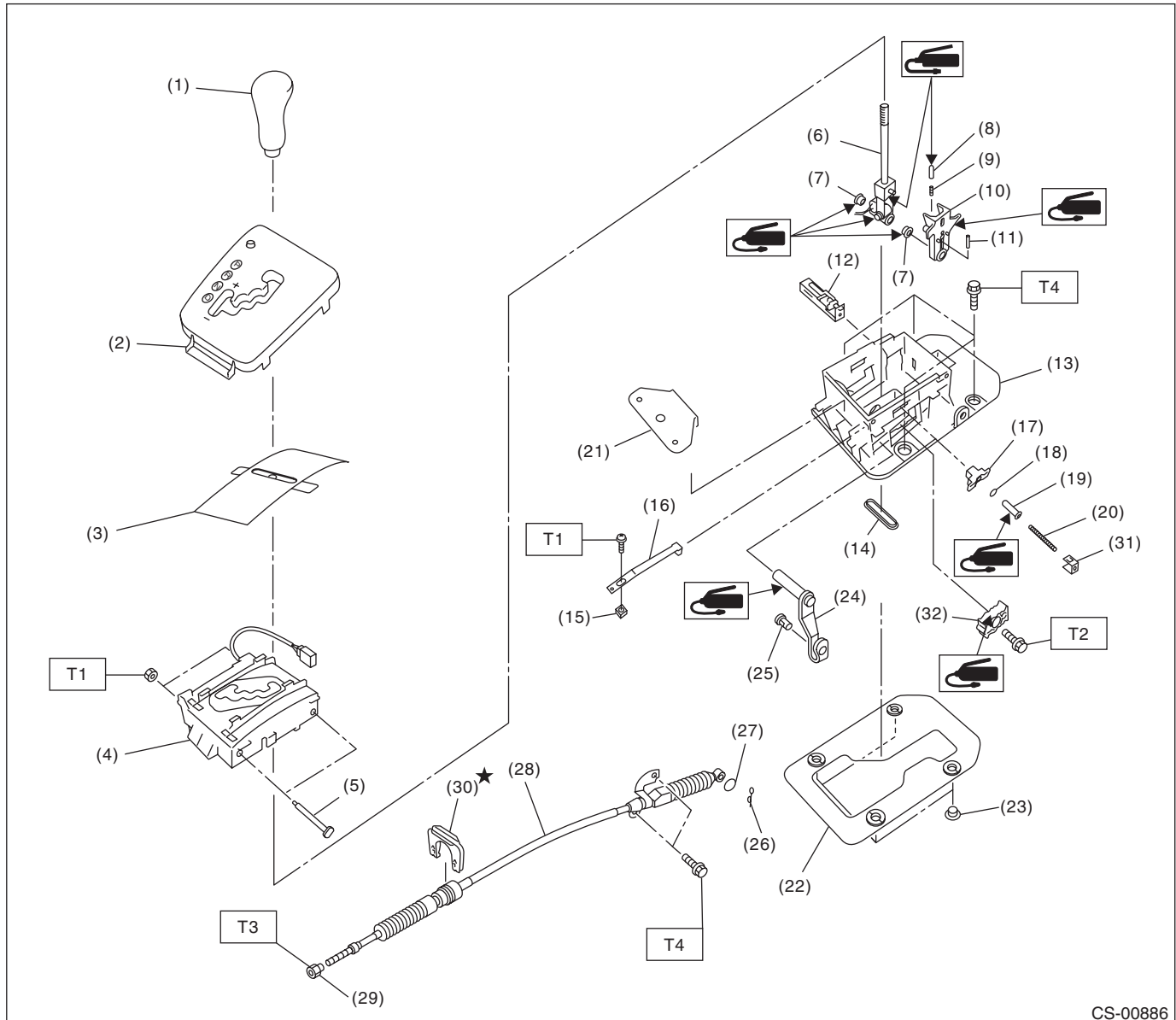
1. General Description

A: SPECIFICATION

Item	Specification
Swing torque of rod against lever N (kgf, lb)	3.7 (0.38, 0.84) or less

B: COMPONENT

1. AT SELECT LEVER



CS-00886

- | | | |
|-------------------------------|-------------------------|-----------------------|
| (1) Grip ASSY | (14) Grommet | (27) Washer |
| (2) Indicator ASSY | (15) Plate nut | (28) Select cable |
| (3) Blind | (16) Detent spring | (29) Nut A |
| (4) Plate guide COMPL | (17) Bushing | (30) Clamp |
| (5) Spacer bolt | (18) Lock plate cushion | (31) Shift lock clamp |
| (6) Selector lever COMPL | (19) Select lever rod | (32) Detent plate |
| (7) Bushing | (20) Spring A | |
| (8) Rod detent | (21) Bracket | |
| (9) Spring detent | (22) Gasket | |
| (10) Bracket arm detent | (23) Spacer | |
| (11) Spring pin | (24) Arm ASSY | |
| (12) Shift lock solenoid unit | (25) Connector pin | |
| (13) Plate COMPL | (26) Snap pin | |

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

T1: 2.2 (0.22, 1.62)

T2: 6 (0.61, 4.4)

T3: 7.5 (0.76, 5.5)

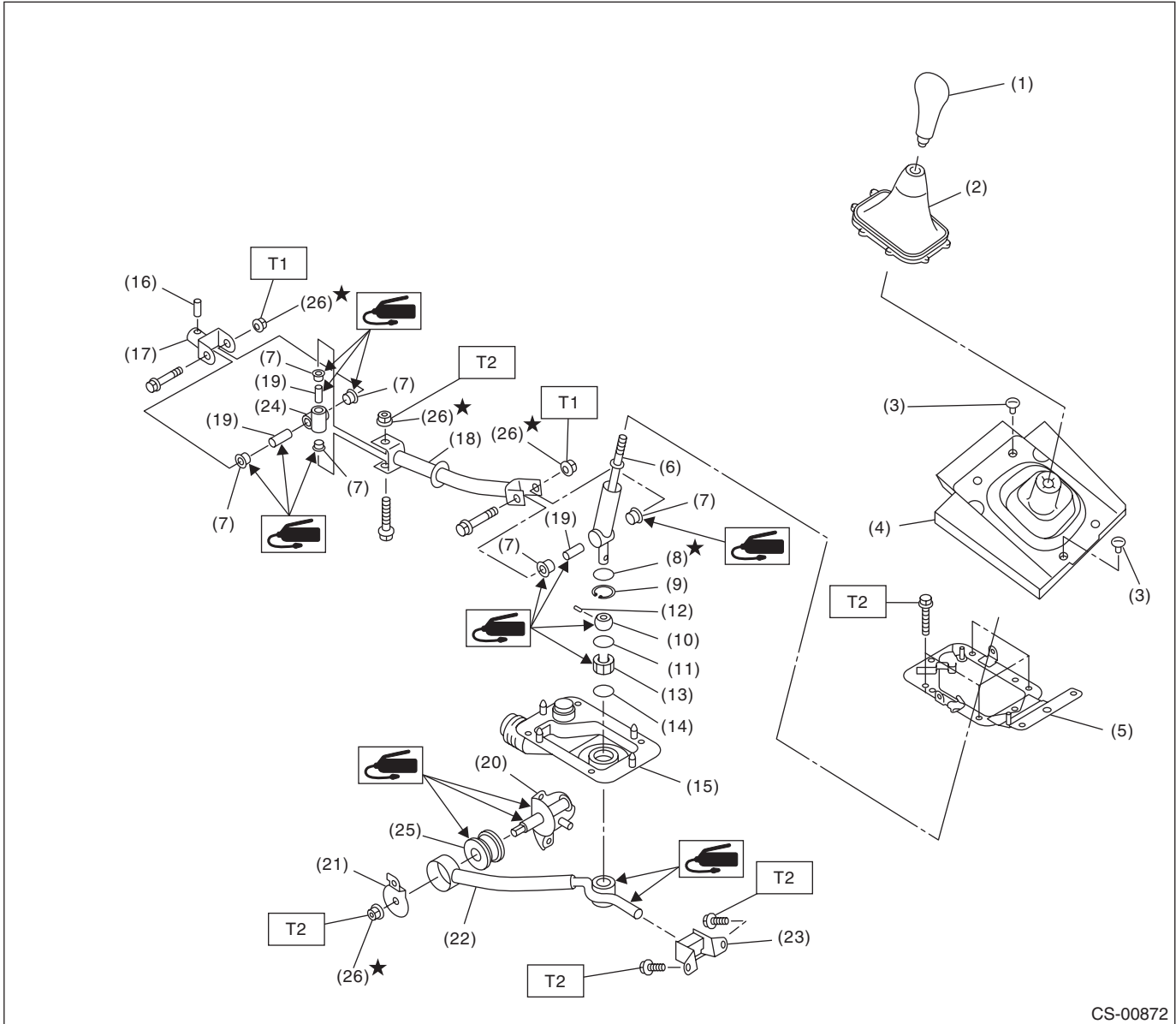
T4: 18 (1.8, 13.3)

General Description

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2. 5MT GEAR SHIFT LEVER



CS-00872

- | | | |
|------------------------|-----------------|-----------------------|
| (1) Gear shift knob | (11) O-ring | (21) Washer |
| (2) Console boot | (12) Spring pin | (22) Stay |
| (3) Clamp | (13) Bushing B | (23) Cushion rubber |
| (4) Boot and insulator | (14) O-ring | (24) Boss |
| (5) Plate ASSY | (15) Boot | (25) Bushing |
| (6) Lever | (16) Spring pin | (26) Self-locking nut |
| (7) Bushing | (17) Joint | |
| (8) Lock wire | (18) Rod | |
| (9) Snap ring | (19) Spacer | |
| (10) Bushing | (20) Bracket | |

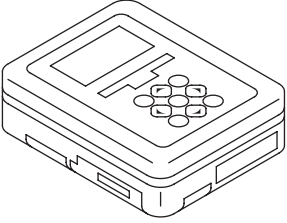
Tightening torque: N·m (kgf·m, ft·lb)

T1: 12 (1.2, 8.9)

T2: 18 (1.8, 13.3)

C: PREPARATION TOOL

1. SPECIAL TOOL

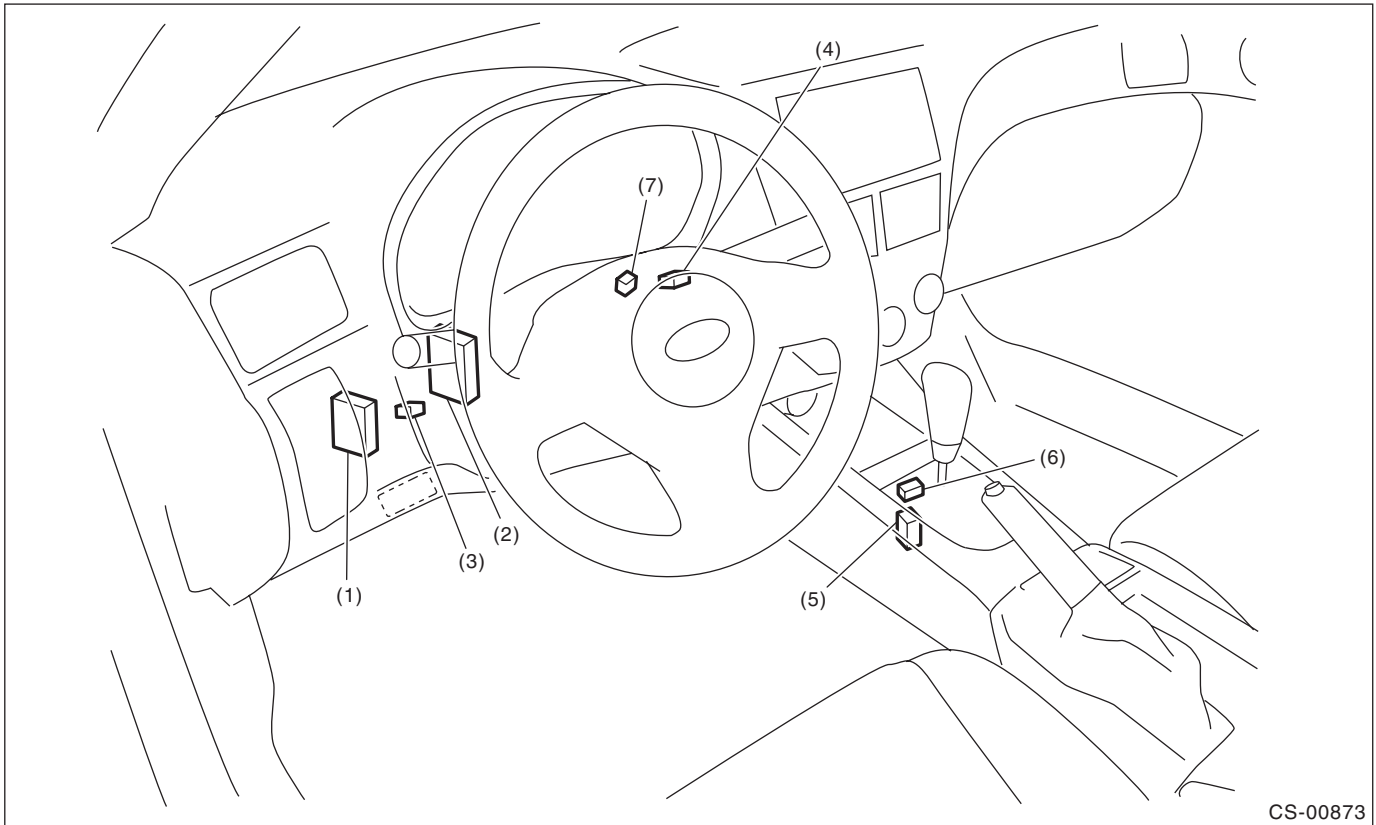
ILLUSTRATION	TOOL NUMBER	DESCRIPTION	REMARKS
 <p style="text-align: center;">ST1B021XU0</p>	1B021XU0	SUBARU SELECT MONITOR III KIT	Used for troubleshooting the electrical system.

D: CAUTION

- Wear appropriate work clothing, including a cap, protective goggles and protective shoes when performing any work.
- Remove contamination including dirt and corrosion before removal, installation or disassembly.
- Keep the disassembled parts in order and protect them from dust and dirt.
- Before removal, installation or disassembly, be sure to clarify the failure. Avoid unnecessary removal, installation, disassembly and replacement.
- Use SUBARU genuine fluid, grease etc. or equivalent. Do not mix fluid, grease, etc. of different grades or manufacturers.
- Be sure to tighten fasteners including bolts and nuts to the specified torque.
- Place shop jacks or rigid racks at the specified points.
- Apply grease onto sliding or revolving surfaces before installation.
- Before installing O-rings or snap rings, apply sufficient amount of fluid to avoid damage and deformation.
- Before securing a part in a vise, place cushioning material such as wood blocks, aluminum plate or cloth between the part and the vise.
- Before disconnecting electrical connectors, be sure to disconnect the negative terminal from battery.

2. AT Shift Lock Control System

A: LOCATION



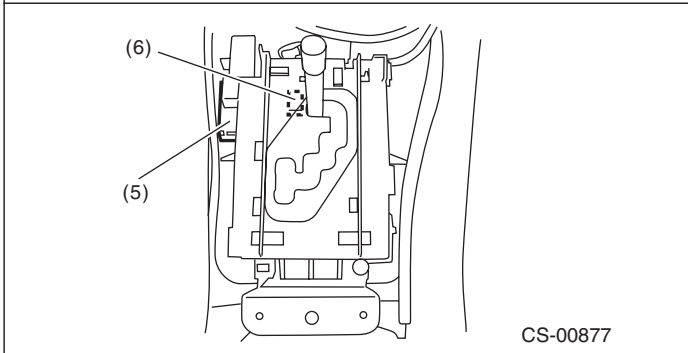
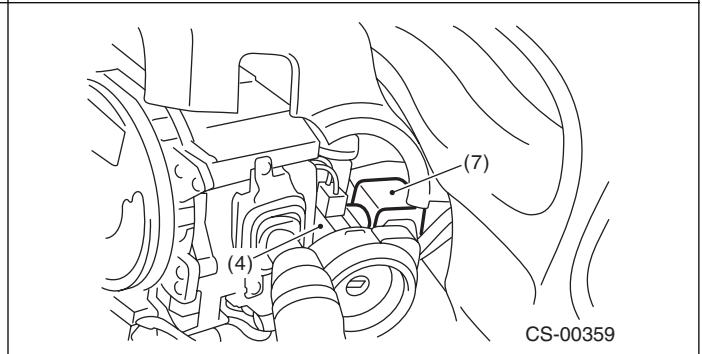
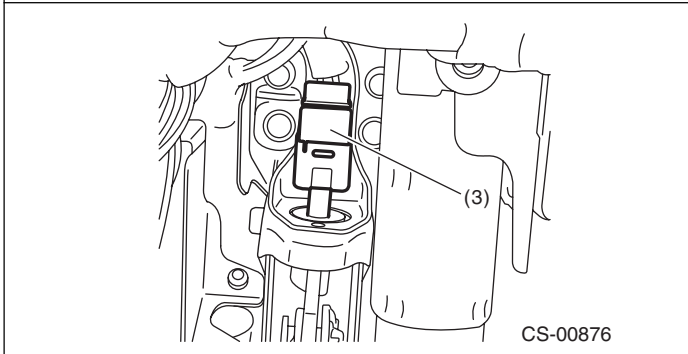
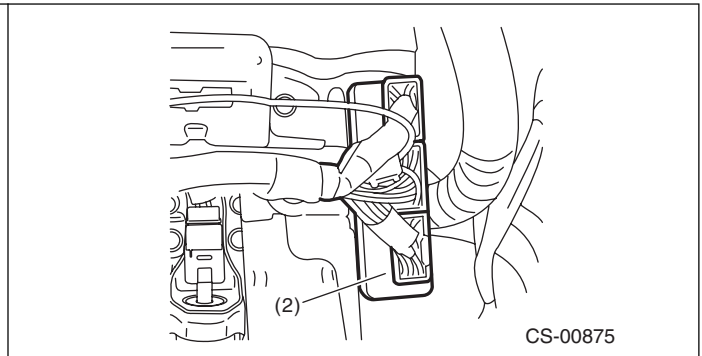
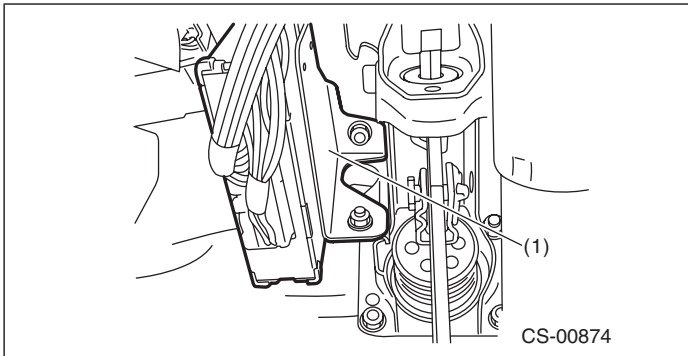
CS-00873

- | | | |
|--------------------------|---|-----------------------|
| (1) TCM ("P" range) | (4) Key cylinder (with built-in key warning switch) | (6) "P" range switch |
| (2) Body integrated unit | (5) Shift lock solenoid ASSY | (7) Key lock solenoid |
| (3) Stop light switch | | |

AT Shift Lock Control System

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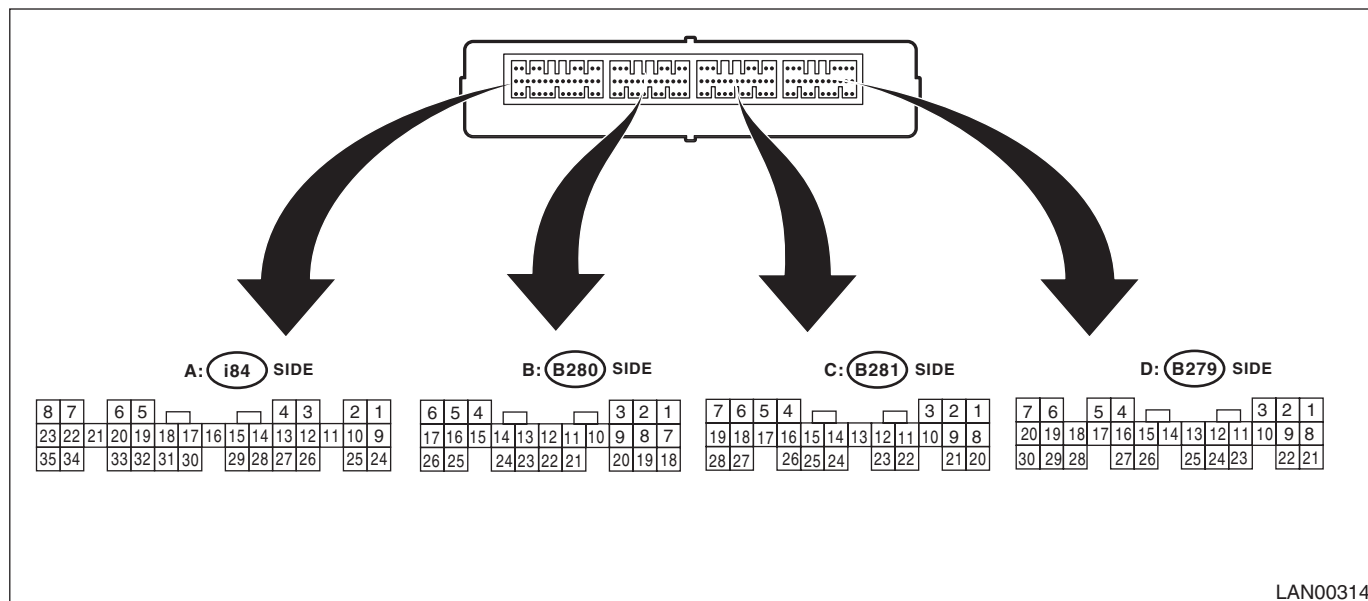


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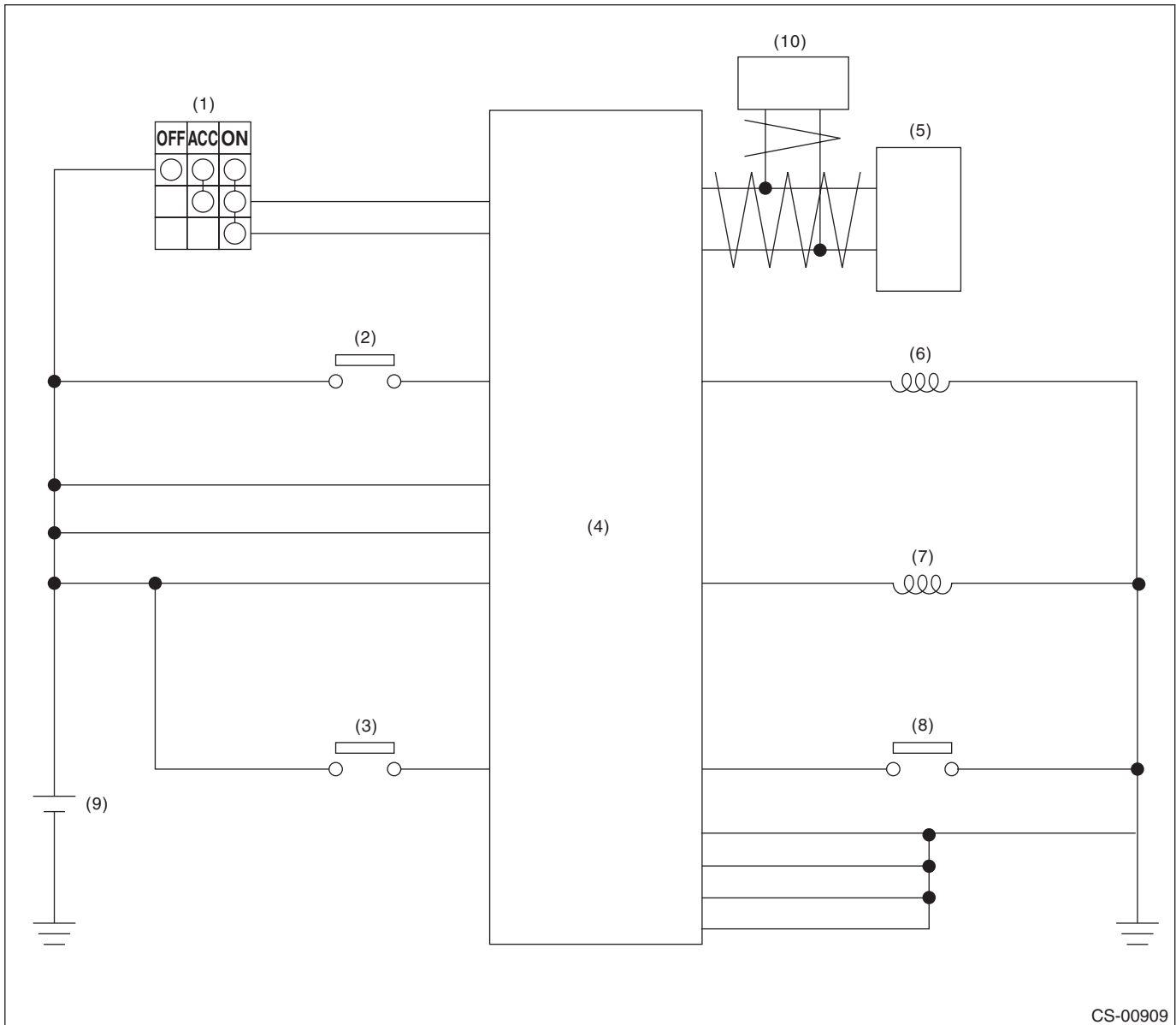
B: ELECTRICAL SPECIFICATION



LAN00314

Item	Connector No.	Terminal No.	Input/Output signal
			Measured value and measuring conditions
Battery power supply	B279	22	9 — 16 V
	B280	6	
Ignition power supply	B280	1	10 — 15 V when ignition switch is at ON or START.
		7	10 — 15 V when ignition switch is at ACC.
TCM ("P" range)	B280	3	Pulse signal
		9	
Stop light switch	B280	2	9 — 16 V when stop light switch is ON. 0 V when stop light switch is OFF.
"P" range switch	B281	4	0 V when select lever is in "P" range. 9 — 16 V when select lever is in other positions than "P" range.
Shift lock solenoid signal	B279	12	8.5 — 16 V when shift lock is released. 0 V when shift lock is operating.
Key warning switch signal	B279	2	9 — 16 V when key is inserted. 0 V when key is removed.
Key lock solenoid signal	B279	11	7.5 — 16 V when ignition switch is turned ON, with select lever in "P" range and brake switch ON. 0 V at other conditions than above.
Ground	i84	28	—
	B280	17	
	B281	20	
	B279	27	

C: WIRING DIAGRAM



CS-00909

- | | | |
|--------------------------|-----------------------------------|---|
| (1) Ignition switch | (5) TCM (shift range information) | (9) Battery |
| (2) Stop light switch | (6) Key lock solenoid | (10) VDC/ABS
(vehicle speed information) |
| (3) Key warning switch | (7) Shift lock solenoid | |
| (4) Body integrated unit | (8) "P" range switch | |

AT Shift Lock Control System

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D: INSPECTION

1. SHIFT LOCK OPERATION

Step	Check	Yes	No
1 CHECK COMMUNICATION OF SUBARU SELECT MONITOR. 1) Turn the ignition switch to ON. 2) Using the Subaru Select Monitor, check whether communication to all systems can be executed normally.	Is the system name displayed?	Go to step 2.	Perform the inspection following the diagnostic procedure in the LAN section. <Ref. to LAN(diag)-2, Basic Diagnostic Procedure.>
2 CHECK SHIFT LOCK. 1) Turn the ignition switch to ON. 2) Shift the select lever to the "P" range.	While brake pedal is not depressed, is it possible to move the select lever from the "P" range to other ranges?	Inspect "SELECT LEVER CANNOT BE LOCKED". <Ref. to CS-14, SELECT LEVER CANNOT BE LOCKED, INSPECTION, AT Shift Lock Control System.>	Go to step 3.
3 CHECK SHIFT LOCK.	While brake pedal is depressed, is it possible to move the select lever from the "P" range to other ranges?	Go to step 4.	Inspect "SELECT LEVER SHIFT LOCK CANNOT BE RELEASED". <Ref. to CS-17, SHIFT LOCK OF SELECT LEVER CANNOT BE RELEASED., INSPECTION, AT Shift Lock Control System.>
4 CHECK SHIFT LOCK. 1) Shift the select lever to "N" range. 2) Turn the ignition switch to OFF.	While brake pedal is depressed, is it possible to move the select lever from the "N" range to the "P" range?	Go to step 5.	Inspect "SELECT LEVER SHIFT LOCK CANNOT BE RELEASED". <Ref. to CS-17, SHIFT LOCK OF SELECT LEVER CANNOT BE RELEASED., INSPECTION, AT Shift Lock Control System.>
5 CHECK KEY INTERLOCK. 1) Turn the ignition switch to OFF. 2) Shift the select lever to other than "P" range.	Can the ignition key be removed?	Perform the inspection of "KEY INTERLOCK CANNOT BE LOCKED OR RELEASED". <Ref. to CS-20, KEY INTERLOCK CANNOT BE LOCKED OR RELEASED, INSPECTION, AT Shift Lock Control System.>	Go to step 6.

AT Shift Lock Control System

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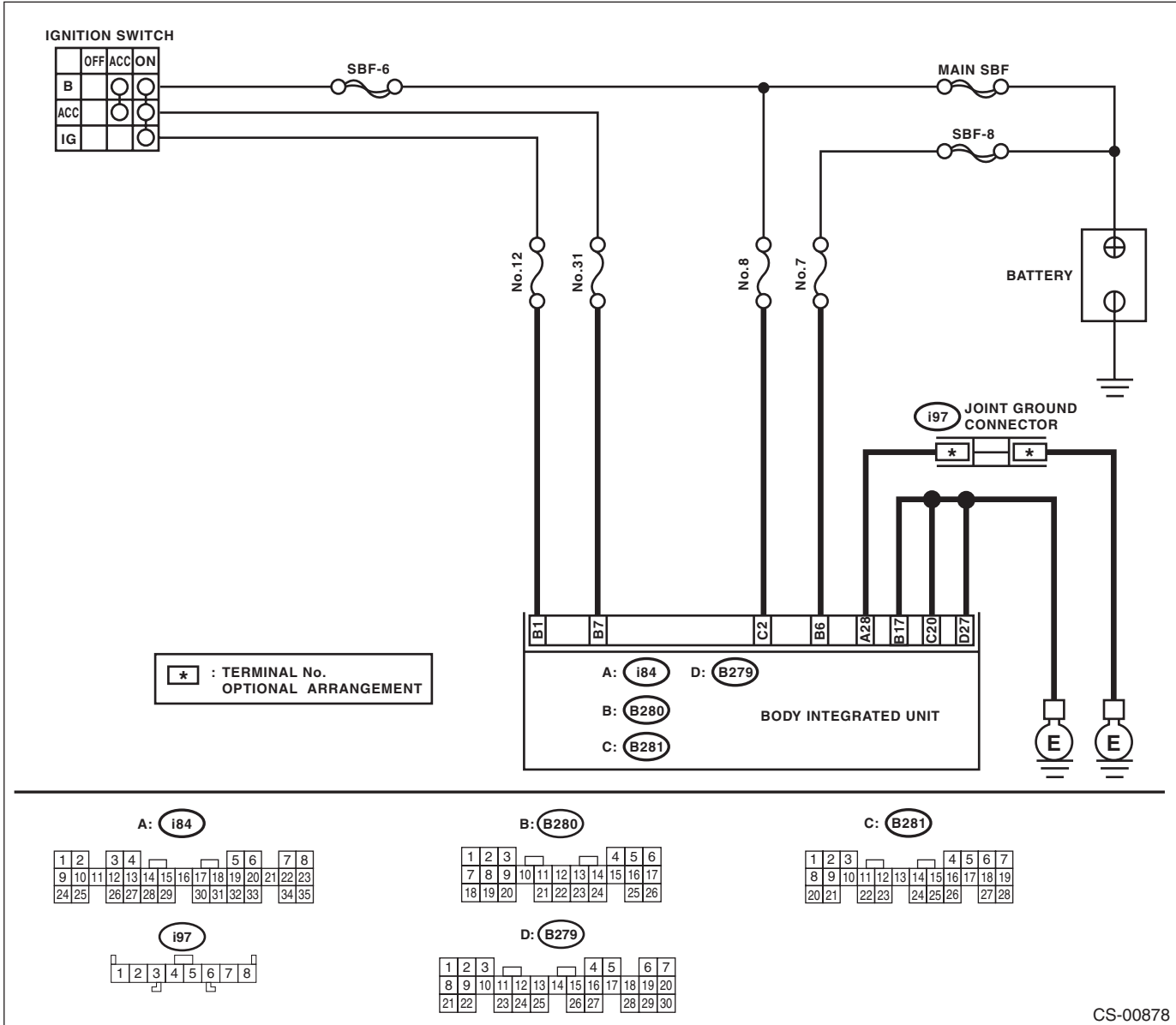
	Step	Check	Yes	No
6	CHECK KEY INTERLOCK. Shift the select lever to the "P" range.	Can the ignition key be removed?	AT shift lock system is normal.	Perform the inspection of "KEY INTERLOCK CANNOT BE LOCKED OR RELEASED". <Ref. to CS-20, KEY INTERLOCK CANNOT BE LOCKED OR RELEASED, INSPECTION, AT Shift Lock Control System.>

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2. BODY INTEGRATED UNIT POWER SUPPLY AND GROUND CIRCUIT



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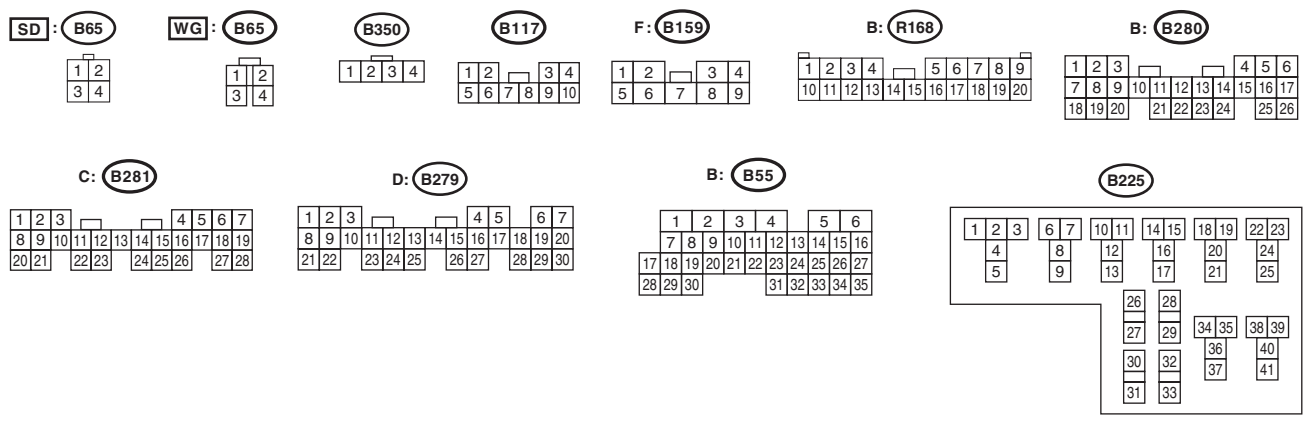
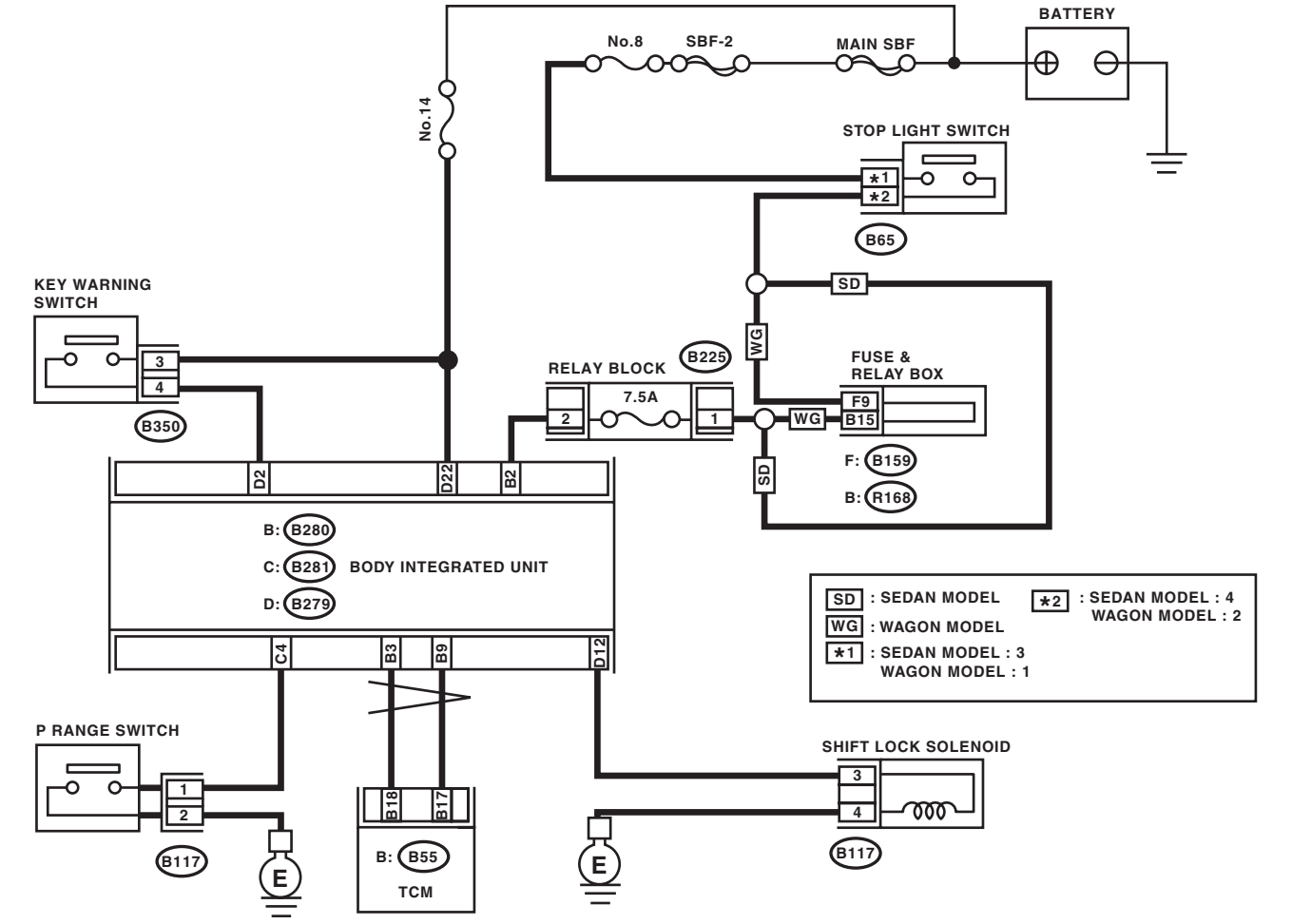
Step	Check	Yes	No
1 CHECK DTC OF BODY INTEGRATED UNIT. Check DTC of body integrated unit. <Ref. to LAN(diag)-14, OPERATION, Subaru Select Monitor.>	Is the DTC of power line displayed on body integrated unit?	Repair or replace it according to the DTC.	Go to step 2.
2 CHECK HARNESS CONNECTOR BETWEEN BODY INTEGRATED UNIT AND CHASSIS GROUND. 1) Turn the ignition switch to ON. 2) Measure the voltage between body integrated unit and chassis ground. Connector & terminal <i>(B280) No. 1 (+) — Chassis ground (-):</i> <i>(B280) No. 6 (+) — Chassis ground (-):</i> <i>(B280) No. 7 (+) — Chassis ground (-):</i> <i>(B281) No. 2 (+) — Chassis ground (-):</i>	Is the voltage 9 — 16 V?	Go to step 3.	Check harness for open circuit between the body integrated unit and the battery or a blown fuse.
3 CHECK HARNESS CONNECTOR BETWEEN BODY INTEGRATED UNIT AND CHASSIS GROUND. 1) Turn the ignition switch to OFF. 2) Measure the harness resistance between the body integrated unit and chassis ground. Connector & terminal <i>(i84) No. 28 — Chassis ground:</i> <i>(B279) No. 27 — Chassis ground:</i> <i>(B280) No. 17 — Chassis ground:</i> <i>(B281) No. 20 — Chassis ground:</i>	Is the resistance less than 1 Ω?	Go to step 4.	Repair the open circuit of harness between the body integrated unit and chassis ground.
4 CHECK POOR CONTACT.	Is there poor contact in connector?	Repair the poor contact.	Check the body integrated unit.

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3. SELECT LEVER CANNOT BE LOCKED



CS-00879

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	Step	Check	Yes	No
1	CHECK IGNITION POWER.	Is the voltage 9 V or more?	Go to step 2.	Check the ignition switch harness.
2	CHECK DTC OF BODY INTEGRATED UNIT. 1) Turn the ignition switch to ON. 2) Read the DTC of body integrated unit using Subaru Select Monitor.	Is B1106 current malfunction?	Repair or replace it according to the DTC.	Go to step 3.
3	CHECK INPUT SIGNAL OF BODY INTEGRATED UNIT USING SUBARU SELECT MONITOR. Read the input signal of shift position from Subaru Select Monitor. <Ref. to LAN(diag)-14, OPERATION, Subaru Select Monitor.>	Is “7” displayed in the “P” range and displayed other than “7” except in the “P” range?	Inspect the inhibitor switch and TCM.	Go to step 4.
4	CHECK INPUT SIGNAL OF BODY INTEGRATED UNIT USING SUBARU SELECT MONITOR. Read the input signal of “P” range switch from the Subaru Select Monitor. <Ref. to LAN(diag)-14, OPERATION, Subaru Select Monitor.>	Is “ON” displayed in the “P” range and displayed “OFF” except in the “P” range?	Go to step 9.	Go to step 5.
5	CHECK HARNESS BETWEEN BODY INTEGRATED UNIT AND “P” RANGE SWITCH. 1) Disconnect the connector of the “P” range switch. 2) Measure the resistance of harness between the body integrated unit and the “P” range switch. Connector & terminal (B117) No. 1 — (B281) No. 4:	Is the resistance 1 MΩ or more?	Repair the open circuit of harness between the body integrated unit and the “P” range switch.	Go to step 6.
6	CHECK HARNESS BETWEEN “P” RANGE SWITCH AND CHASSIS GROUND. Measure the resistance of harness between “P” range switch and chassis ground. Connector & terminal (B117) No. 2 — Chassis ground:	Is the resistance 1 MΩ or more?	Repair the open circuit of harness between “P” range switch and chassis ground.	Go to step 7.
7	CHECK “P” RANGE SWITCH. 1) Shift the select lever to the “P” range. 2) Measure the resistance between “P” range switch connector terminals. Terminals No. 2 — No. 1:	Is the resistance less than 1 Ω?	Go to step 8.	Replace the “P” range switch.
8	CHECK “P” RANGE SWITCH. 1) Shift the select lever to other than “P” range. 2) Measure the resistance between “P” range switch connector terminals. Terminals No. 2 — No. 1:	Is the resistance 1 MΩ or more?	Replace the body integrated unit.	Replace the “P” range switch.
9	CHECK INPUT SIGNAL OF BODY INTEGRATED UNIT USING SUBARU SELECT MONITOR. Read the input signal of stop light switch from Subaru Select Monitor. <Ref. to LAN(diag)-14, OPERATION, Subaru Select Monitor.>	Is “ON” displayed when the brake pedal is depressed and displayed “OFF” when not depressed?	Go to step 11.	Go to step 10.

AT Shift Lock Control System

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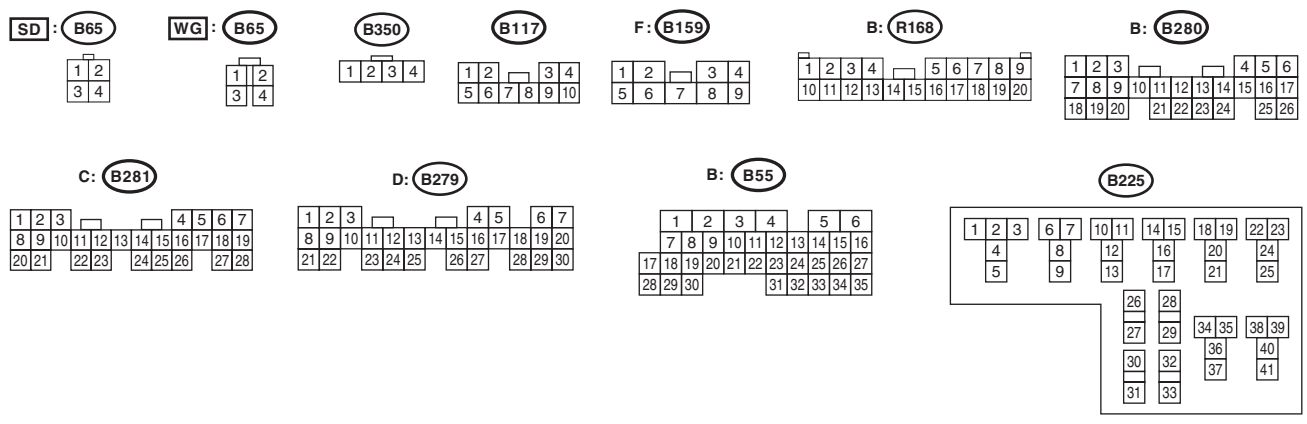
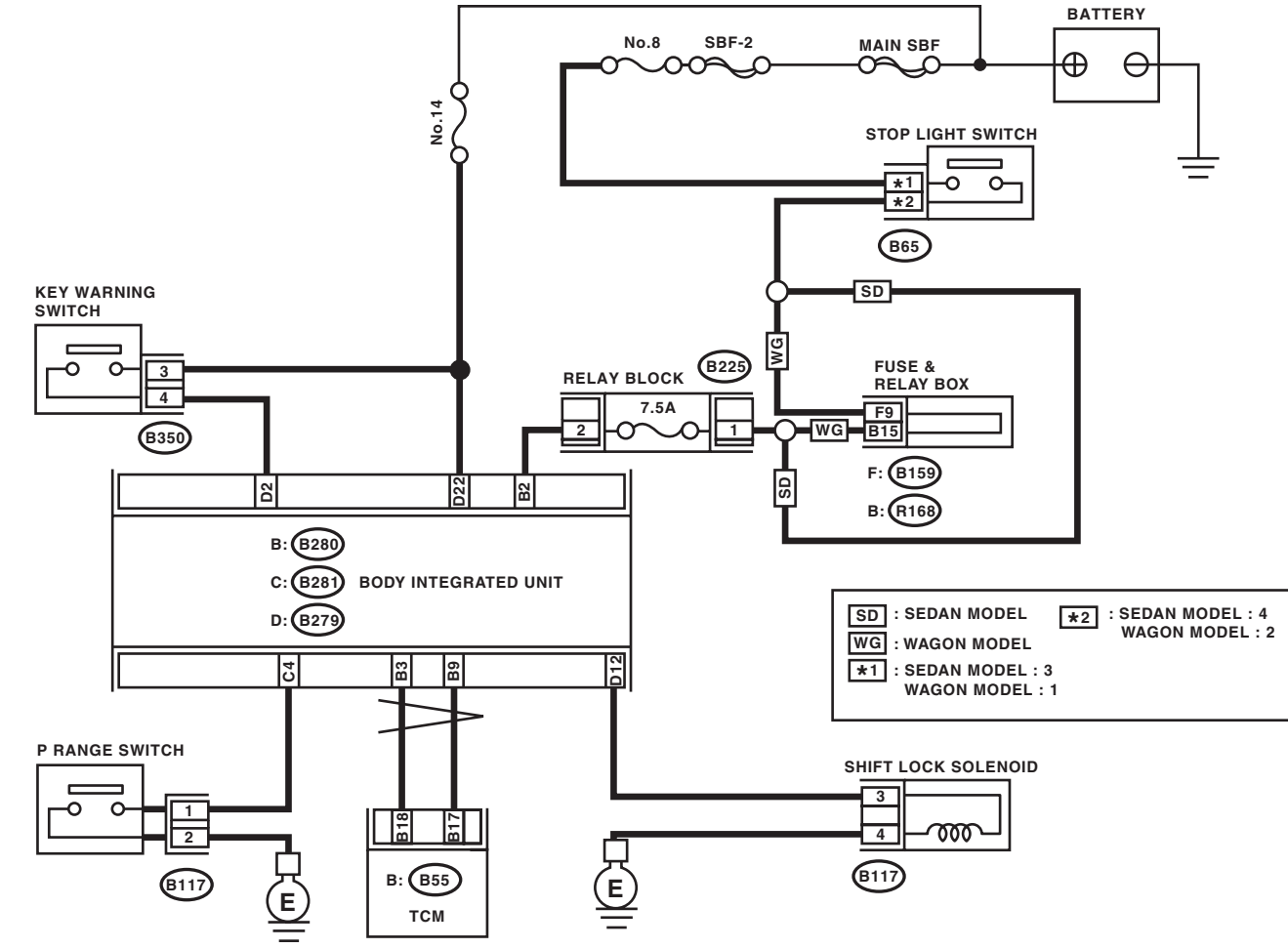
	Step	Check	Yes	No
10	CHECK STOP LIGHT SWITCH INPUT SIGNAL. 1) Turn the ignition switch to OFF. 2) Disconnect the connector from body integrated unit. 3) Measure the voltage between the body integrated unit connector terminal and chassis ground. Connector & terminal (B280) No. 2 (+) — Chassis ground (-):	Is the voltage 9 V or more when the brake pedal is depressed, and approx. 0 V when not depressed?	Replace the body integrated unit.	Check the stop light system.
11	CHECK SHIFT LOCK SOLENOID. 1) Disconnect the connector from the shift lock solenoid. 2) Measure the resistance of shift lock solenoid terminals. Terminals No. 3 — No. 4:	Is the resistance 19.8 — 24.2 Ω ?	Go to step 12.	Replace the shift lock solenoid.
12	CHECK SHIFT LOCK SOLENOID. Connect the battery to the shift lock solenoid connector terminal, and then operate the solenoid. Terminals No. 3 (+) — No. 4 (-):	Does the shift lock solenoid operate normally?	Go to step 13.	Replace the shift lock solenoid unit.
13	CHECK INPUT SIGNAL OF BODY INTEGRATED UNIT USING SUBARU SELECT MONITOR. 1) Shift the select lever to the "P" range. 2) Depress the brake pedal. 3) Read the input signal of shift lock solenoid from Subaru Select Monitor. <Ref. to LAN(diag)-14, OPERATION, Subaru Select Monitor.>	Is "ON" displayed?	Go to step 14.	Replace the body integrated unit.
14	CHECK HARNESS BETWEEN BATTERY AND BODY INTEGRATED UNIT. 1) Disconnect the connector of body integrated unit. 2) Measure the voltage between body integrated unit and chassis ground. Connector & terminal (B279) No. 22 (+) — Chassis ground (-):	Is the voltage 9 V or more?	Replace the body integrated unit.	Check the harness for open between the body integrated unit and battery or the fuse (No. 14).

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4. SHIFT LOCK OF SELECT LEVER CANNOT BE RELEASED



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Step	Check	Yes	No	
1	CHECK IGNITION POWER.	Is the voltage 9 V or more?	Go to step 2.	Check the ignition switch harness.
2	CHECK DTC OF BODY INTEGRATED UNIT. 1) Turn the ignition switch to ON. 2) Read the DTC of body integrated unit using Subaru Select Monitor.	Is B1106 current malfunction?	Repair or replace it according to the DTC.	Go to step 3.
3	CHECK DTC OF BODY INTEGRATED UNIT.	Are U1213 and U1223 current malfunction?	Check the CAN communication system.	Go to step 4.
4	CHECK DTC OF BODY INTEGRATED UNIT.	Are U1212 and U1222 current malfunction?	Check the CAN communication system.	Go to step 5.
5	CHECK INPUT SIGNAL OF BODY INTEGRATED UNIT USING SUBARU SELECT MONITOR. Read the input signal of front wheel speed from Subaru Select Monitor.	Is the front wheel speed 10 km/h or more?	Check the VDC/ABS CM.	Go to step 6.
6	CHECK INPUT SIGNAL OF BODY INTEGRATED UNIT USING SUBARU SELECT MONITOR. Read the input signal of shift position from Subaru Select Monitor. <Ref. to LAN(diag)-14, OPERATION, Subaru Select Monitor.>	Is "7" displayed in the "P" range and displayed other than "7" except in the "P" range?	Inspect the inhibitor switch and TCM.	Go to step 7.
7	CHECK INPUT SIGNAL OF BODY INTEGRATED UNIT USING SUBARU SELECT MONITOR. Read the input signal of "P" range switch from the Subaru Select Monitor. <Ref. to LAN(diag)-14, OPERATION, Subaru Select Monitor.>	Is "ON" displayed in the "P" range and displayed "OFF" except in the "P" range?	Go to step 12.	Go to step 8.
8	CHECK HARNESS BETWEEN BODY INTEGRATED UNIT AND "P" RANGE SWITCH. 1) Disconnect the connector of the "P" range switch. 2) Measure the resistance of harness between the body integrated unit and the "P" range switch. Connector & terminal (B117) No. 1 (+) — (B281) No. 4 (-):	Is the resistance 1 MΩ or more?	Repair the open circuit of harness between the body integrated unit and the "P" range switch.	Go to step 9.
9	CHECK HARNESS BETWEEN "P" RANGE SWITCH AND CHASSIS GROUND. Measure the resistance of harness between "P" range switch and chassis ground. Connector & terminal (B117) No. 2 — Chassis ground:	Is the resistance 1 MΩ or more?	Repair the open circuit of harness between "P" range switch and chassis ground.	Go to step 10.
10	CHECK "P" RANGE SWITCH. 1) Shift the select lever to the "P" range. 2) Measure the resistance between "P" range switch connector terminals. Terminals No. 2 — No. 1:	Is the resistance less than 1 Ω?	Go to step 11.	Replace the "P" range switch.
11	CHECK "P" RANGE SWITCH. 1) Shift the select lever to other than "P" range. 2) Measure the resistance between "P" range switch connector terminals. Terminals No. 2 — No. 1:	Is the resistance 1 MΩ or more?	Replace the body integrated unit.	Replace the "P" range switch.

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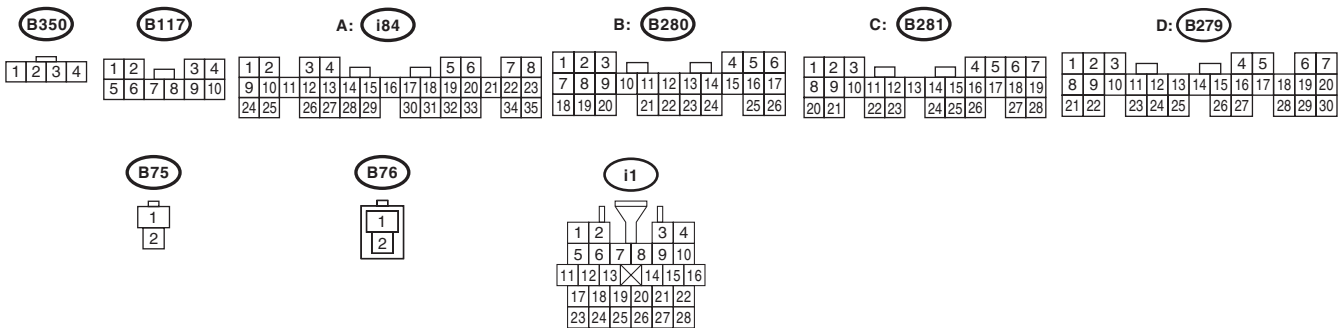
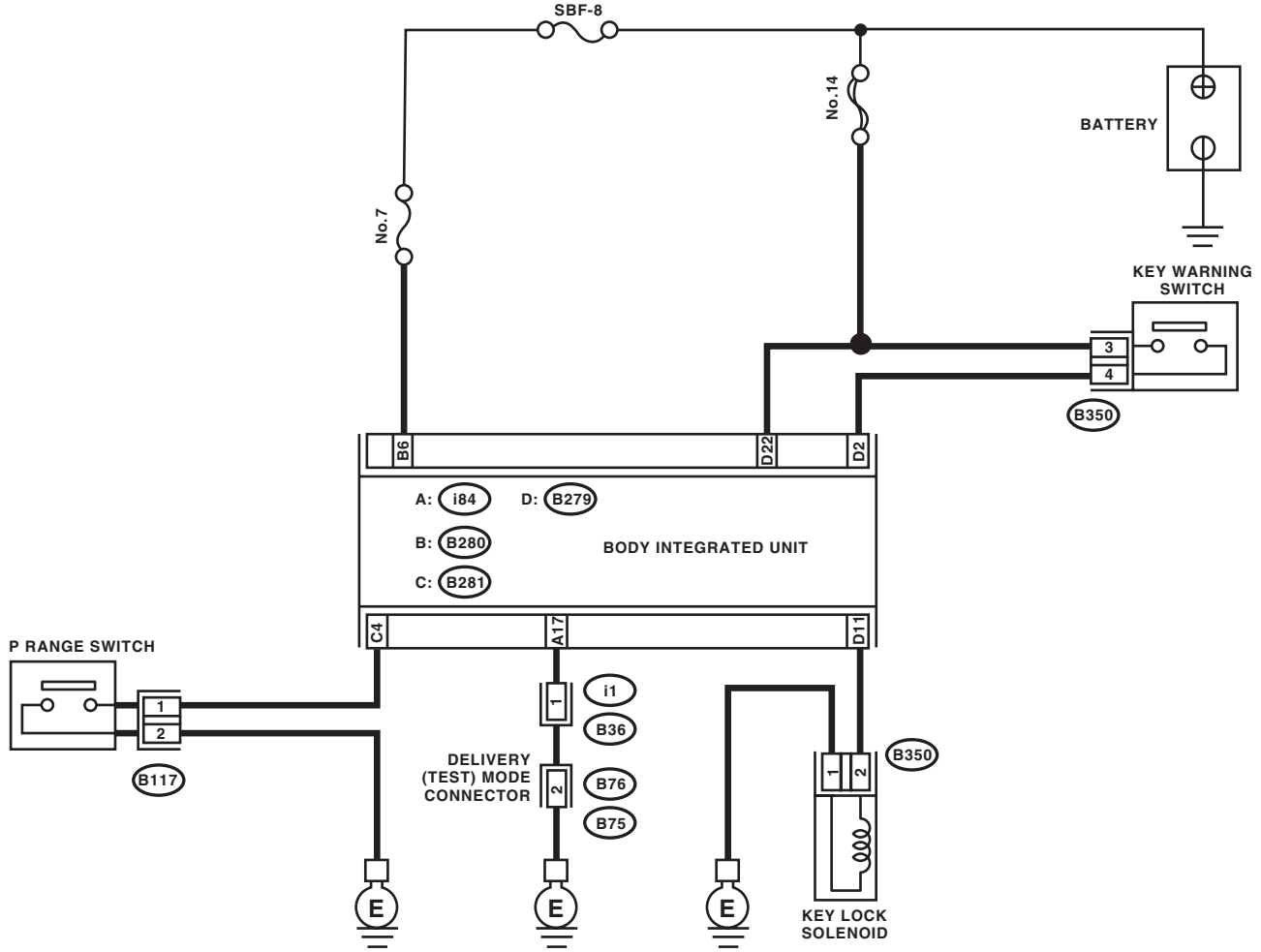
	Step	Check	Yes	No
12	CHECK INPUT SIGNAL OF BODY INTEGRATED UNIT USING SUBARU SELECT MONITOR. Read the input signal of stop light switch from Subaru Select Monitor. <Ref. to LAN(diag)-14, OPERATION, Subaru Select Monitor.>	Is "ON" displayed when the brake pedal is depressed and displayed "OFF" when not depressed?	Go to step 14.	Go to step 13.
13	CHECK STOP LIGHT SWITCH INPUT SIGNAL. 1) Turn the ignition switch to OFF. 2) Disconnect the connector from body integrated unit. 3) Measure the voltage between the body integrated unit connector terminal and chassis ground. <i>Connector & terminal (B280) No. 2 (+) — Chassis ground (-):</i>	Is the voltage 9 V or more when the brake pedal is depressed, and approx. 0 V when not depressed?	Replace the body integrated unit.	Check the stop light system.
14	CHECK SHIFT LOCK SOLENOID. 1) Disconnect the connector from the shift lock solenoid. 2) Measure the resistance of shift lock solenoid terminals. <i>Terminals No. 3 — No. 4:</i>	Is the resistance 19.8 — 24.2 Ω?	Go to step 15.	Replace the shift lock solenoid.
15	CHECK SHIFT LOCK SOLENOID. Connect the battery to the shift lock solenoid connector terminal, and then operate the solenoid. <i>Terminals No. 3 (+) — No. 4 (-):</i>	Does the shift lock solenoid operate normally?	Go to step 16.	Replace the shift lock solenoid unit.
16	CHECK INPUT SIGNAL OF BODY INTEGRATED UNIT USING SUBARU SELECT MONITOR. 1) Turn the ignition switch to ON. 2) Shift the select lever to the "P" range. 3) Depress the brake pedal. 4) Read the output signal of shift lock solenoid from the Subaru Select Monitor. <Ref. to LAN(diag)-14, OPERATION, Subaru Select Monitor.>	Is "ON" displayed?	Go to step 17.	Replace the body integrated unit.
17	CHECK HARNESS BETWEEN BATTERY AND BODY INTEGRATED UNIT. 1) Disconnect the connector of body integrated unit. 2) Measure the voltage between body integrated unit and chassis ground. <i>Connector & terminal (B279) No. 22 (+) — Chassis ground (-):</i>	Is the voltage 9 V or more?	Replace the body integrated unit.	Check the harness for open between the body integrated unit and battery or the fuse (No. 14).

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5. KEY INTERLOCK CANNOT BE LOCKED OR RELEASED



CS-00889

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Step	Check	Yes	No
1 CHECK INPUT SIGNAL OF BODY INTEGRATED UNIT USING SUBARU SELECT MONITOR. 1) Turn the ignition switch to OFF. 2) Connect the Subaru Select Monitor to the data link connector. 3) Run the Subaru Select Monitor. 4) Read the input signal of the key warning switch from the Subaru Select Monitor. <Ref. to LAN(diag)-14, OPERATION, Subaru Select Monitor.>	Is "ON" displayed when the key is inserted and displayed "OFF" when removed?	Go to step 7.	Go to step 2.
2 CHECK HARNESS BETWEEN BATTERY AND KEY WARNING SWITCH. 1) Disconnect the connector of key warning switch. 2) Measure the voltage of harness between key warning switch and chassis ground. <i>Connector & terminal</i> <i>(B350) No. 3 (+) — Chassis ground (-):</i>	Is the voltage 9 — 16 V?	Go to step 3.	Repair the open or short circuit of harness between battery and key warning switch.
3 CHECK HARNESS BETWEEN KEY WARNING SWITCH AND BODY INTEGRATED UNIT. Measure the resistance between key warning switch and body integrated unit. <i>Connector & terminal</i> <i>(B279) No. 2 — (B350) No. 4:</i>	Is the resistance less than 1 Ω?	Go to step 4.	Repair the open circuit of harness between key warning switch connector and body integrated unit.
4 CHECK HARNESS BETWEEN KEY WARNING SWITCH AND BODY INTEGRATED UNIT. Measure the resistance of harness between key warning switch and chassis ground. <i>Connector & terminal</i> <i>(B279) No. 2 — Chassis ground:</i>	Is the resistance 1 MΩ or more?	Go to step 5.	Repair the short circuit of harness between key warning switch and chassis ground.
5 CHECK KEY WARNING SWITCH. 1) Press the key. 2) Measure the resistance between connector terminals of key warning switch. <i>Terminals</i> <i>No. 3 — No. 4:</i>	Is the resistance 1 MΩ or more?	Replace the key warning switch.	Go to step 6.
6 CHECK KEY WARNING SWITCH. 1) Remove the key. 2) Measure the resistance between connector terminals of key warning switch. <i>Terminals</i> <i>No. 3 — No. 4:</i>	Is the resistance 1 MΩ or more?	Replace the body integrated unit.	Replace the key warning switch.
7 CHECK IGNITION POWER.	Is the voltage 9 V or more?	Go to step 8.	Check the ignition switch harness.
8 CHECK DTC OF BODY INTEGRATED UNIT. 1) Shift the select lever to "N" range. 2) Check DTC indicated by body integrated unit using Subaru Select Monitor.	Is B1105 current malfunction?	Repair or replace it according to the DTC.	Go to step 9.
9 CHECK INPUT SIGNAL OF BODY INTEGRATED UNIT USING SUBARU SELECT MONITOR. Read the input signal of "P" range switch from the Subaru Select Monitor. <Ref. to LAN(diag)-14, OPERATION, Subaru Select Monitor.>	Is "ON" displayed in the "P" range and displayed "OFF" except in the "P" range?	Go to step 14.	Go to step 10.

AT Shift Lock Control System

CONTROL SYSTEMS

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Step	Check	Yes	No
10 CHECK HARNESS BETWEEN BODY INTEGRATED UNIT AND "P" RANGE SWITCH. 1) Disconnect the connector of the "P" range switch. 2) Measure the resistance of harness between the body integrated unit and the "P" range switch. <i>Connector & terminal</i> <i>(B117) No. 1 — (B281) No. 4:</i>	Is the resistance 1 MΩ or more?	Repair the open circuit of harness between the body integrated unit and the "P" range switch.	Go to step 11.
11 CHECK HARNESS BETWEEN "P" RANGE SWITCH AND CHASSIS GROUND. Measure the resistance of harness between "P" range switch and chassis ground. <i>Connector & terminal</i> <i>(B117) No. 2 — Chassis ground:</i>	Is the resistance 1 MΩ or more?	Repair the open circuit of harness between "P" range switch and chassis ground.	Go to step 12.
12 CHECK "P" RANGE SWITCH. 1) Shift the select lever to the "P" range. 2) Measure the resistance between "P" range switch connector terminals. <i>Terminals</i> <i>No. 2 — No. 1:</i>	Is the resistance less than 1 Ω?	Go to step 13.	Replace the "P" range switch.
13 CHECK "P" RANGE SWITCH. 1) Shift the select lever to other than "P" range. 2) Measure the resistance between "P" range switch connector terminals. <i>Terminals</i> <i>No. 2 — No. 1:</i>	Is the resistance 1 MΩ or more?	Replace the body integrated unit.	Replace the "P" range switch.
14 CHECK TEST MODE CONNECTOR. 1) Check that the test mode connector is disconnected. 2) Measure the resistance between the body integrated unit and chassis ground. <i>Connector & terminal</i> <i>(i84) No. 17 — Chassis ground:</i>	Is the resistance 1 MΩ or more?	Go to step 15.	Repair the short circuit of the harness between the body integrated unit and test mode connector.
15 CHECK HARNESS BETWEEN KEY LOCK SOLENOID AND BODY INTEGRATED UNIT. Measure the resistance between key lock solenoid and body integrated unit. <i>Terminals</i> <i>(B279) No. 11 — (B350) No. 2:</i>	Is the resistance less than 1 Ω?	Go to step 16.	Repair the open circuit of harness between key lock solenoid connector and body integrated unit.
16 CHECK HARNESS BETWEEN KEY LOCK SOLENOID AND CHASSIS GROUND. 1) Disconnect the connector from the key lock solenoid. 2) Measure the resistance of harness between key lock solenoid and chassis ground. <i>Terminals</i> <i>(B279) No. 11 — Chassis ground:</i>	Is the resistance 1 MΩ or more?	Go to step 17.	Repair short circuit of harness between key lock solenoid and chassis ground.
17 CHECK KEY LOCK SOLENOID. 1) Disconnect the connector from the key lock solenoid. 2) Measure the resistance of key lock solenoid connector terminals. <i>Terminals</i> <i>No. 2 — No. 1:</i>	Is the resistance 12.8 — 14.2 Ω?	Go to step 18.	Replace the key lock solenoid.

AT Shift Lock Control System

CONTROL SYSTEMS

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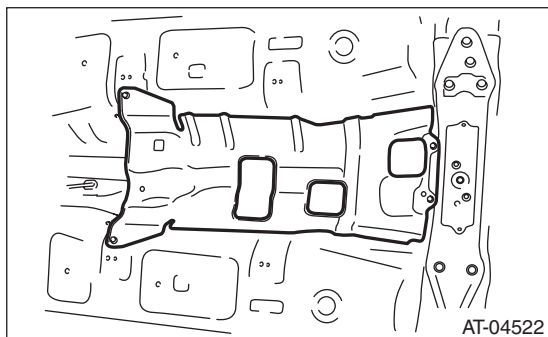
Step	Check	Yes	No
18 CHECK KEY LOCK SOLENOID. Connect the battery to connector terminal of key lock solenoid, and operate the solenoid. <i>Terminals</i> <i>No. 2 (+) — No. 1 (-):</i>	Does the key lock solenoid operate normally?	Go to step 19.	Replace the key lock solenoid.
19 CHECK INPUT SIGNAL OF BODY INTEGRATED UNIT USING SUBARU SELECT MONITOR. 1) Turn the ignition switch to ON. 2) Read the output signal of key interlock from the Subaru Select Monitor. <Ref. to LAN(diag)-14, OPERATION, Subaru Select Monitor.>	Is "OFF" displayed in the "P" range and displayed "ON" except in the "P" range?	Go to step 20.	Replace the body integrated unit.
20 CHECK HARNESS BETWEEN BATTERY AND BODY INTEGRATED UNIT. 1) Disconnect the connector of body integrated unit. 2) Measure the voltage between body integrated unit and chassis ground. <i>Connector & terminal</i> <i>(B279) No. 22 (+) — Chassis ground (-):</i>	Is the voltage 9 V or more?	Replace the body integrated unit.	Check the harness for open between the body integrated unit and battery or the fuse (No. 14).

CONTROL SYSTEMS

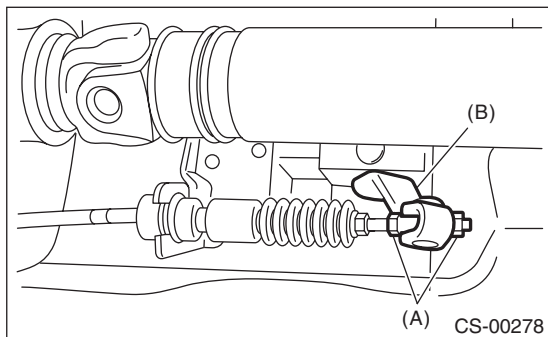
3. Select Lever

A: REMOVAL

- 1) Set the vehicle on a lift.
- 2) Disconnect the ground cable from the battery.
- 3) Shift the select lever to "N" range.
- 4) Lift up the vehicle.
- 5) Remove the rear exhaust pipe and muffler.
 - Non-turbo model
<Ref. to EX(H4SO)-10, REMOVAL, Rear Exhaust Pipe.> <Ref. to EX(H4SO)-12, REMOVAL, Muffler.>
 - Turbo model
<Ref. to EX(H4DOTC)-13, REMOVAL, Rear Exhaust Pipe.> <Ref. to EX(H4DOTC)-15, REMOVAL, Muffler.>
- 6) Remove the heat shield cover.

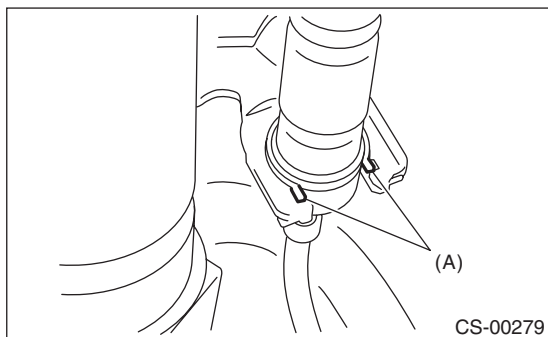


- 7) Remove the cable from arm assembly.



- (A) Adjusting nut
- (B) Arm ASSY

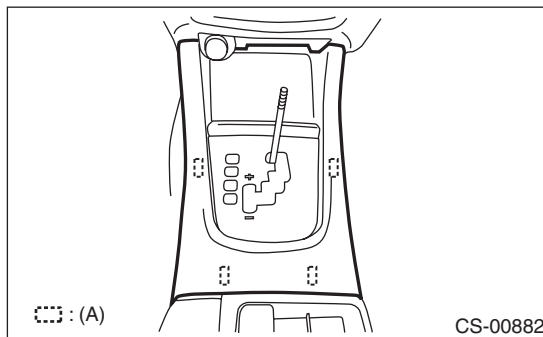
- 8) Raise the claw of clamp to remove the cable.



- (A) Claw

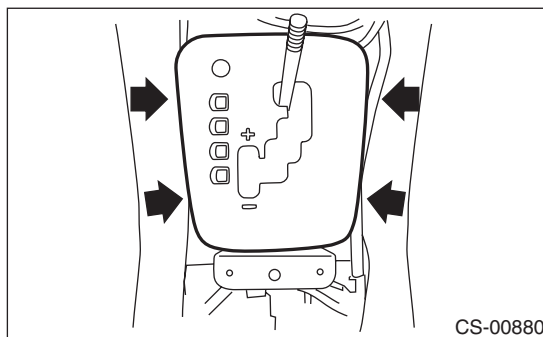
- 9) Lower the vehicle.

- 10) Remove the grip.
- 11) Remove the hand brake boot cover.
- 12) Remove the console front panel.

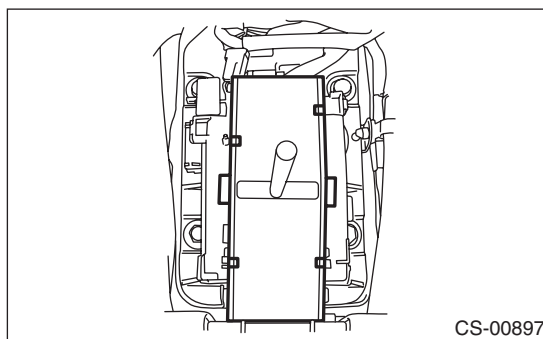


- (A) Hook

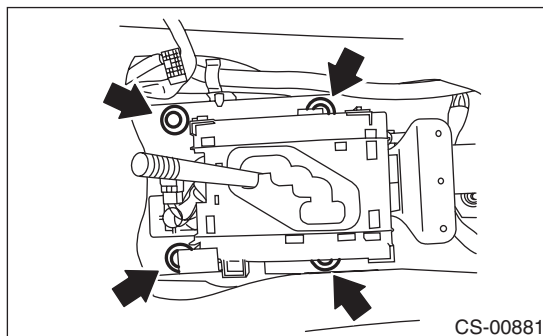
- 13) Remove the console cover and console box.
<Ref. to EI-47, REMOVAL, Console Box.>
- 14) Remove the indicator assembly.



- 15) Remove the harness clips from the bracket.
- 16) Remove the blind.



- 17) Disconnect the connectors, and then remove the four bolts to take out the select lever assembly from vehicle body.

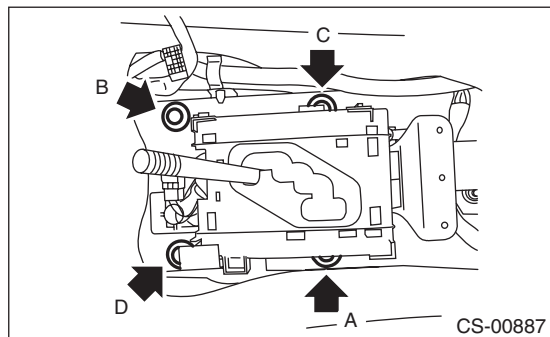


B: INSTALLATION

- 1) Set the select lever to vehicle body.
- 2) Tighten the four bolts to install the select lever to vehicle body, and then connect the connector.
 - (1) Temporarily tighten the bolt A.
 - (2) Tighten the bolt B.
 - (3) Tighten the bolt A.
 - (4) Tighten the bolts C and D.

Tightening torque:

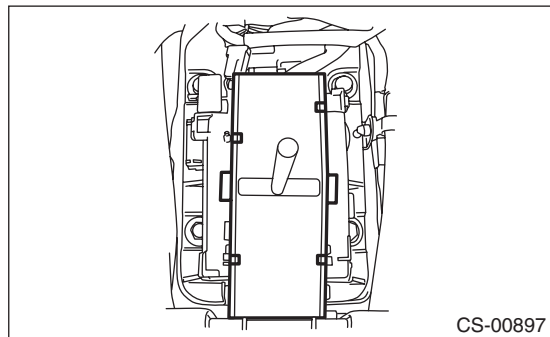
18 N·m (1.8 kgf-m, 13.3 ft-lb)



- 3) Install the harness clips to the bracket.
- 4) Install the console cover and console box. <Ref. to EI-47, INSTALLATION, Console Box.>
- 5) Shift the select lever to “N” range.
- 6) Install the blind.

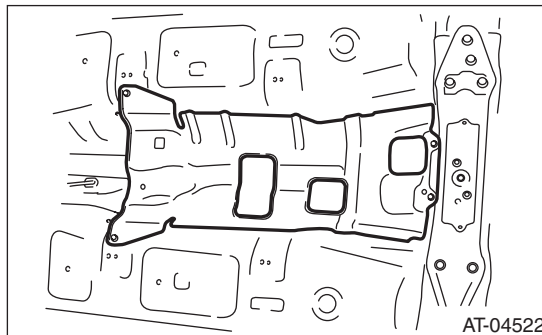
CAUTION:

The blind should be installed so that it is securely caught by tabs of the plate guide COMPL.



- 7) Install the indicator assembly.
- 8) Install the console front panel.
- 9) Install the hand brake boot cover.
- 10) Install the grip.
- 11) Lift up the vehicle.
- 12) Shift the range select lever to the “N” range.
- 13) Secure the cable to the bracket. <Ref. to CS-30, INSTALLATION, Select Cable.>
- 14) Adjust the select cable position. <Ref. to CS-31, ADJUSTMENT, Select Cable.>
- 15) After the completion of adjustment, confirm that the select lever operates properly at all range positions.

- 16) Install the heat shield cover.



- 17) Install the rear exhaust pipe and muffler.

- Non-turbo model

<Ref. to EX(H4SO)-10, INSTALLATION, Rear Exhaust Pipe.> <Ref. to EX(H4SO)-13, INSTALLATION, Muffler.>

- Turbo model

<Ref. to EX(H4DOTC)-14, INSTALLATION, Rear Exhaust Pipe.> <Ref. to EX(H4DOTC)-16, INSTALLATION, Muffler.>

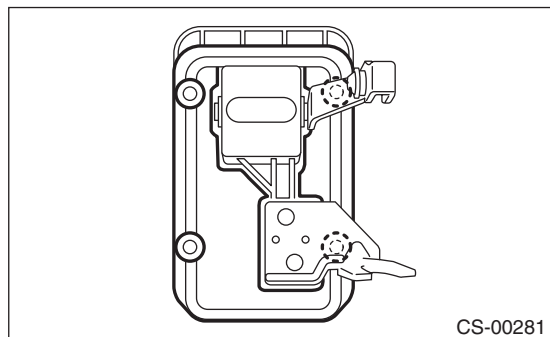
- 18) Inspect the following items. When a malfunction is found in the inspection, adjust the select cable and inhibitor switch. <Ref. to CS-31, ADJUSTMENT, Select Cable.> <Ref. to 4AT-47, ADJUSTMENT, Inhibitor Switch.>

- (1) Engine starts when the select lever is in “P” and “N” range, but not in other ranges.
- (2) Back-up light illuminates when the select lever is in the “R” range, but not in other ranges.
- (3) Select lever and indicator positions are matched.

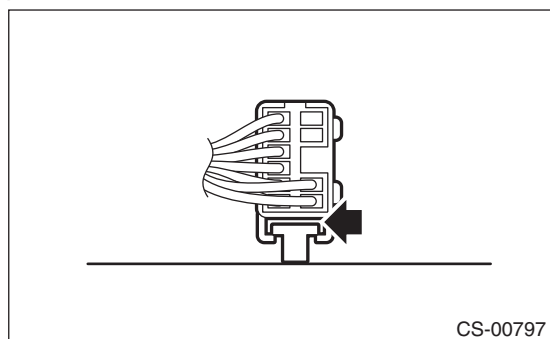
CONTROL SYSTEMS

C: DISASSEMBLY

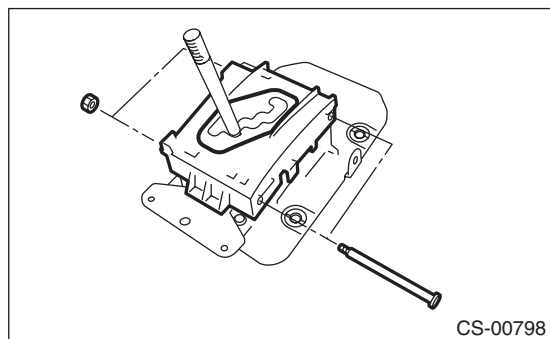
1) Remove the gasket and plate COMPL.



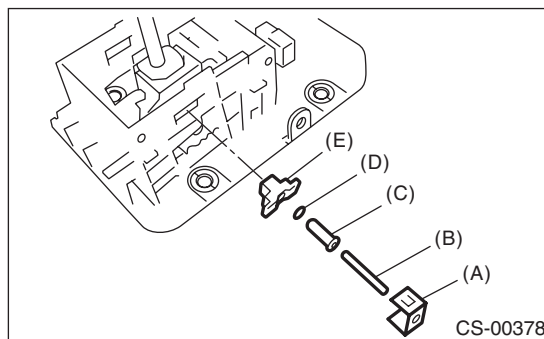
2) Insert a flat-tip screwdriver with a thin tip under the connector and disconnect each connector from the plate COMPL.



3) Remove the spacer bolt and remove the plate guide COMPL.

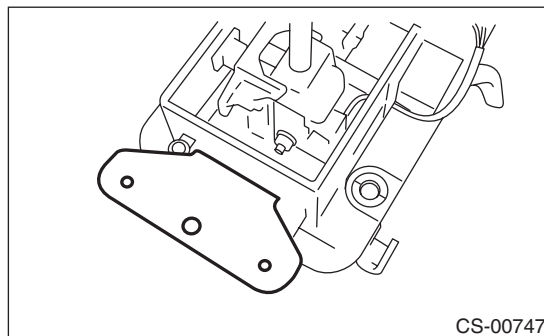


4) Remove the shift lock clamp, spring A, rod, cushion, and bushing.

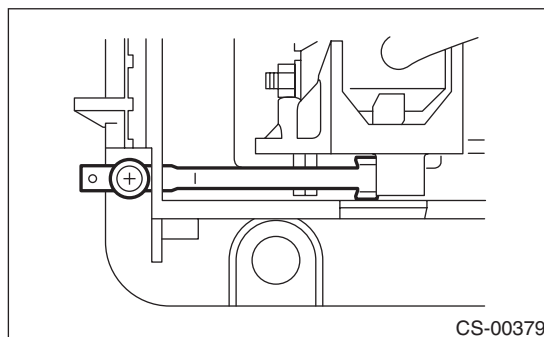


- (A) Shift lock clamp
- (B) Spring A
- (C) Select lever rod
- (D) Lock plate cushion
- (E) Bushing

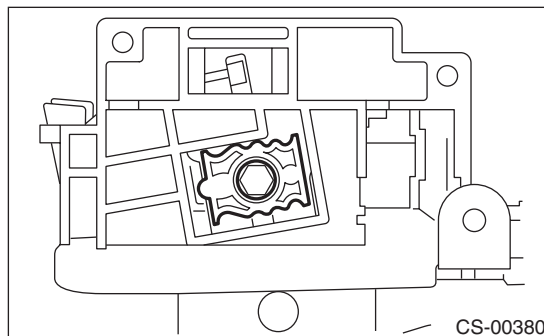
5) Remove the bracket.



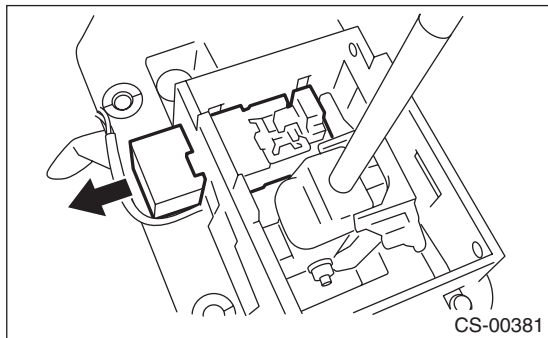
6) Remove the detent spring.



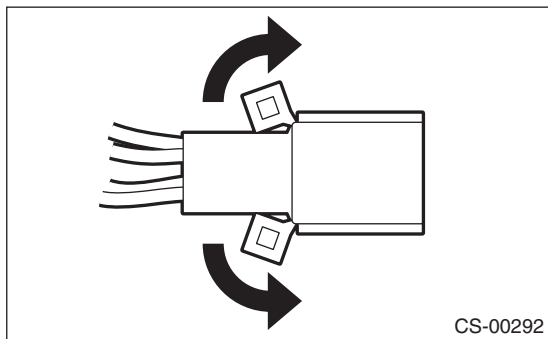
7) Remove the detent plate.



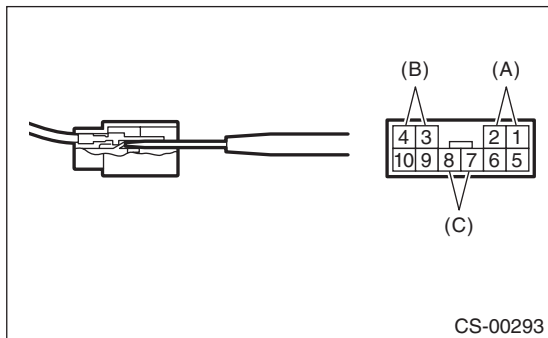
8) Remove the shift lock solenoid unit.



9) Raise the claw of connector.

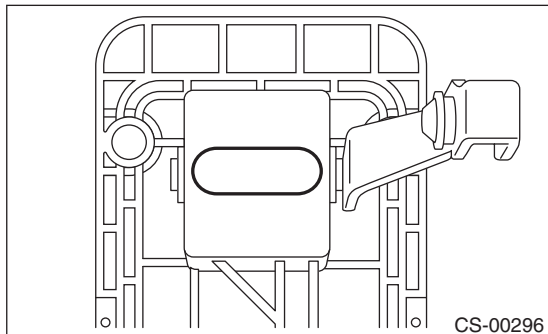


10) Disconnect the terminals of the SPORT mode switch, "P" range switch, and shift lock solenoid from the connector, using a flat-tip screwdriver with a thin tip.

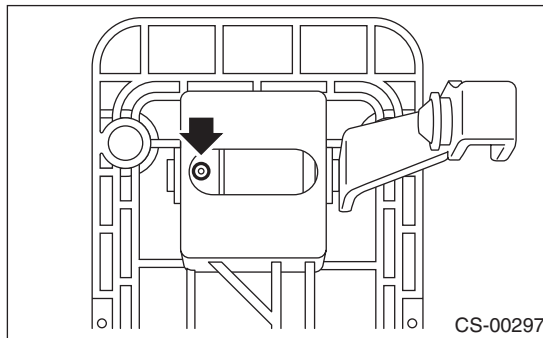


- (A) "P" range switch terminal
- (B) Shift lock solenoid terminal
- (C) SPORT mode switch terminal

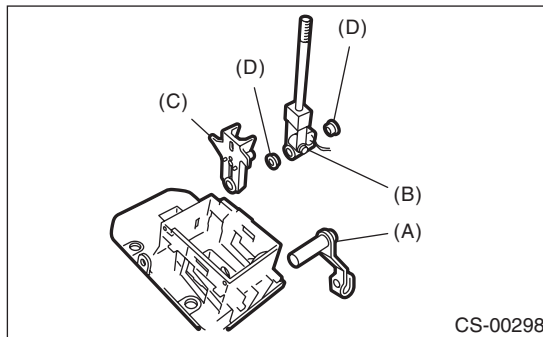
11) Remove the grommet.



12) Remove the spring pin.

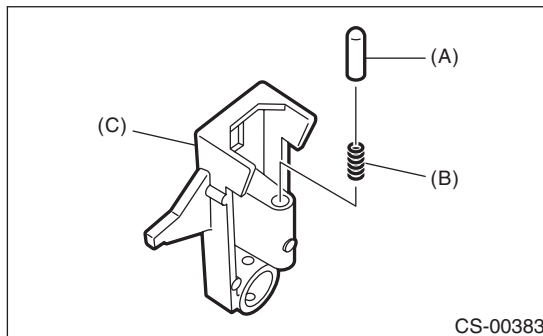


13) Pull out the arm assembly, remove select lever COMPL, and remove bracket arm detent and bushing.



- (A) Arm ASSY
- (B) Selector lever COMPL
- (C) Bracket arm detent
- (D) Bushing

14) Remove the rod detent and spring detent from the bracket arm detent.



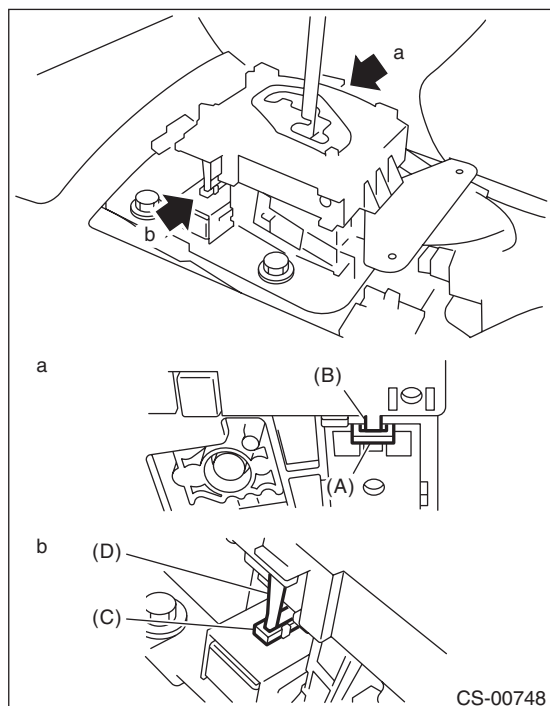
- (A) Rod detent
- (B) Spring detent
- (C) Bracket arm detent

D: ASSEMBLY

- 1) Clean all the parts before assembly.
- 2) Apply NIGTIGHT LYW No. 2 grease or equivalent to each part. <Ref. to CS-3, AT SELECT LEVER, COMPONENT, General Description.>
- 3) Assemble in the reverse order of disassembly.

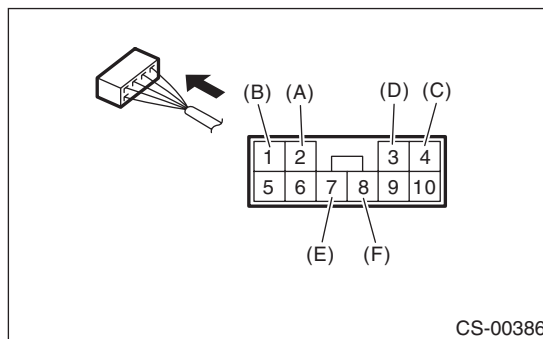
NOTE:

- Set the select lever to “D” range (normal mode position) when installing the guide plate and be careful of the following.
 - Insert protrusion (B) of the guide plate into the hole on the shift lock solenoid unit (A).
 - Insert link (D) of the shift lock release into link (C) of the shift lock solenoid unit.



CS-00748

- Connect the switch and solenoid terminals to the connector.



CS-00386

- (A) “P” range switch (color code: white)
- (B) “P” range switch (color code: black)
- (C) Shift lock solenoid (color code: blue/red)
- (D) Shift lock solenoid (color code: black)
- (E) SPORT mode switch (color code: white)
- (F) SPORT mode switch (color code: black)

- 4) After completing installation, shift the select lever from “P” range to “D” range, then check whether the indicator and select lever matches, whether the pointer and position mark matches and what the operating force is.

E: INSPECTION

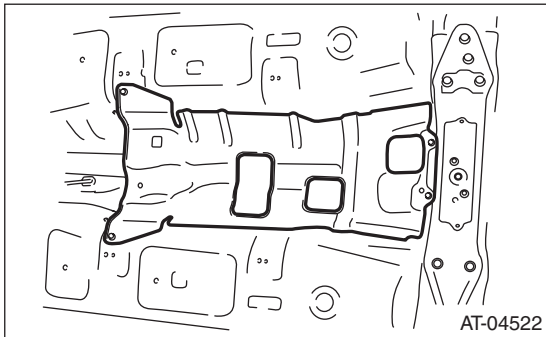
- 1) Inspect the removed parts by comparing with new parts for deformation, damage and wear. Repair or replace if defective.
- 2) Confirm the select lever operating condition before assembly. Normal if it operates smoothly.

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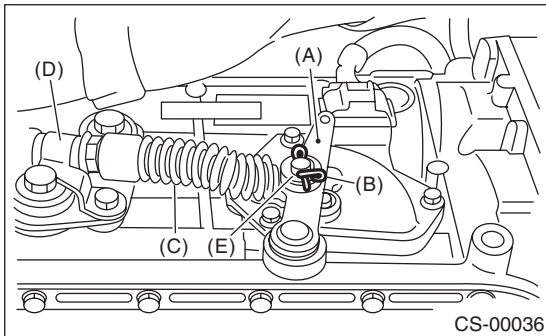
4. Select Cable

A: REMOVAL

- 1) Set the vehicle on a lift.
- 2) Shift the select lever to "N" range.
- 3) Disconnect the ground cable from the battery.
- 4) Lift up the vehicle.
- 5) Remove the front, center and rear exhaust pipes and the muffler. (Non-turbo model)
 <Ref. to EX(H4SO)-6, REMOVAL, Front Exhaust Pipe.> <Ref. to EX(H4SO)-10, REMOVAL, Rear Exhaust Pipe.> <Ref. to EX(H4SO)-12, REMOVAL, Muffler.>
- 6) Remove the center and rear exhaust pipes and the muffler. (Turbo model)
 <Ref. to EX(H4DOTC)-8, REMOVAL, Center Exhaust Pipe.> <Ref. to EX(H4DOTC)-13, REMOVAL, Rear Exhaust Pipe.> <Ref. to EX(H4DOTC)-15, REMOVAL, Muffler.>
- 7) Remove the heat shield cover.

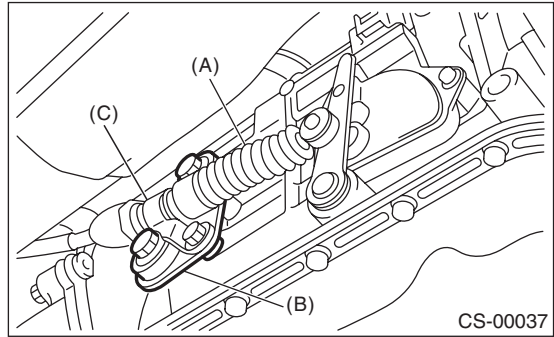


- 8) Remove the snap pin and washer from range select lever.



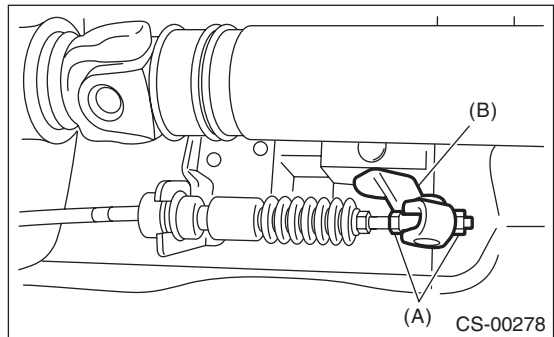
- (A) Range select lever
- (B) Snap pin
- (C) Select cable
- (D) Bracket
- (E) Washer

- 9) Remove the plate assembly from the transmission case.



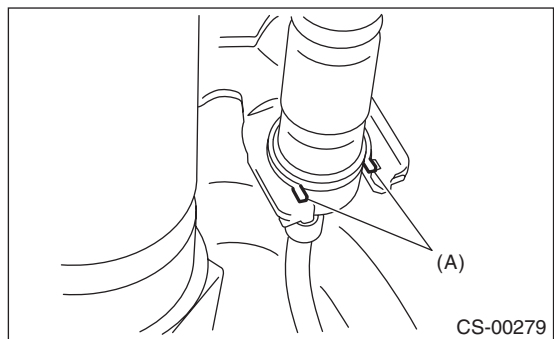
- (A) Select cable
- (B) Plate ASSY
- (C) Bracket

- 10) Disconnect the cable from arm assembly.



- (A) Adjusting nut
- (B) Arm ASSY

- 11) Raise the claw of clamp to remove the cable from bracket.



- (A) Claw

- 12) Remove the select cable from plate assembly.

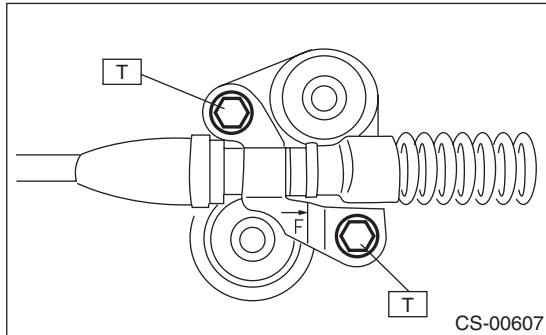
CONTROL SYSTEMS

B: INSTALLATION

1) Install the select cable to plate assembly.

Tightening torque:

18 N·m (1.8 kgf-m, 13.3 ft-lb)

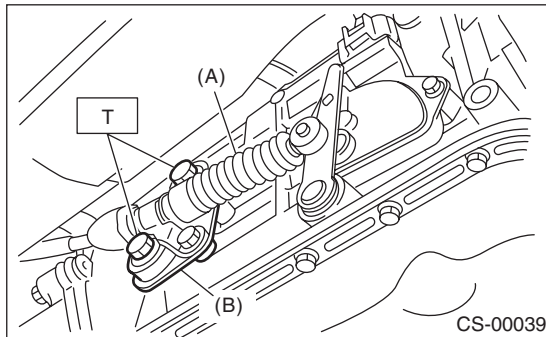


2) Install the select cable to range select lever.

3) Install the plate assembly to transmission.

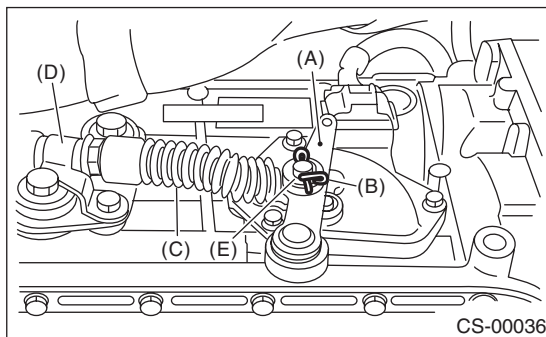
Tightening torque:

T: 25 N·m (2.5 kgf-m, 18.4 ft-lb)



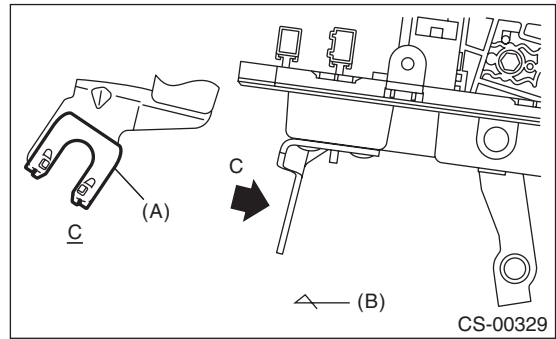
- (A) Select cable
- (B) Plate ASSY

4) Install the washer and snap pin to range select lever.



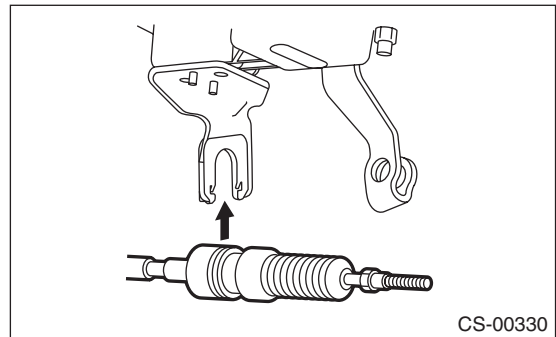
- (A) Range select lever
- (B) Snap pin
- (C) Select cable
- (D) Bracket
- (E) Washer

5) Install new clamp paying attention to the installing direction.



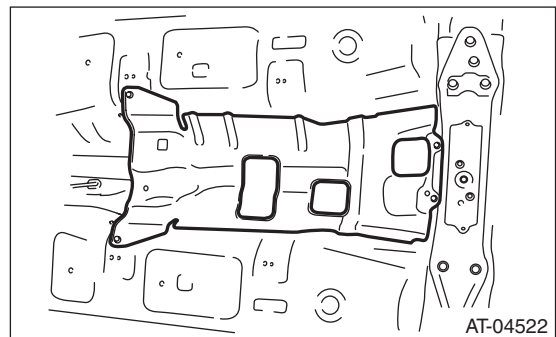
- (A) Clamp
- (B) Forward

6) Insert the tip of inner cable into connector hole of select lever, and fix the cable to bracket.



7) Shift the select lever to the "N" range, and then adjust the select cable position. <Ref. to CS-31, ADJUSTMENT, Select Cable.>

8) Install the heat shield cover.



9) Install the front, center and rear exhaust pipes, and the muffler. (Non-turbo model)

<Ref. to EX(H4SO)-7, INSTALLATION, Front Exhaust Pipe.> <Ref. to EX(H4SO)-10, INSTALLATION, Rear Exhaust Pipe.> <Ref. to EX(H4SO)-13, INSTALLATION, Muffler.>

10) Install the center, rear exhaust pipes and the muffler. (Turbo model)

<Ref. to EX(H4DOTC)-9, INSTALLATION, Center Exhaust Pipe.> <Ref. to EX(H4DOTC)-14, INSTALLATION, Rear Exhaust Pipe.> <Ref. to EX(H4DOTC)-16, INSTALLATION, Muffler.>

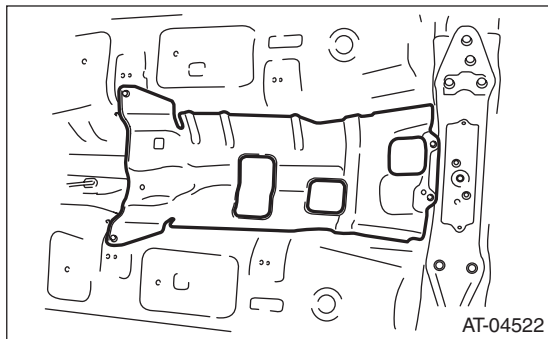
C: INSPECTION

Check the removed cable and replace or adjust if damaged, rusty or malfunctioning.

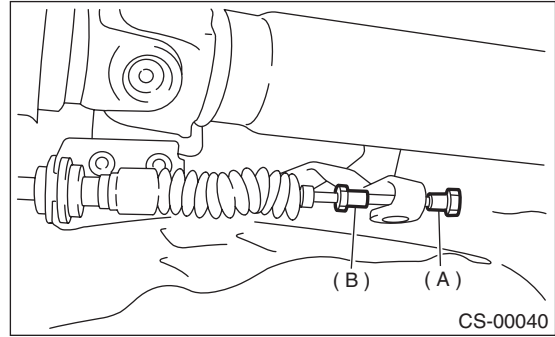
- 1) Check the cable for smooth operation.
- 2) Check the inner cable for damage and rust.
- 3) Check the outer cable for damage, bends and cracks.
- 4) Check the boot for damage, cracks, and deterioration.
- 5) Move the select lever from "P" to "D" range. Check the existence of feel to contact the detents in each range. If the detents cannot be felt or the position pointer is improperly aligned, adjust the cable.
- 6) Check if the starter motor rotates when the select lever is set to "P" range.
- 7) Check the back-up light illumination when the select lever is in "R" range.
- 8) Check the parking lock operation when the select lever is in "P" range.

D: ADJUSTMENT

- 1) Set the vehicle on a lift.
- 2) Lift up the vehicle.
- 3) Shift the select lever to "N" range.
- 4) Remove the rear exhaust pipe and muffler.
 - Non-turbo model
<Ref. to EX(H4SO)-10, REMOVAL, Rear Exhaust Pipe.> <Ref. to EX(H4SO)-12, REMOVAL, Muffler.>
 - Turbo model
<Ref. to EX(H4DOTC)-13, REMOVAL, Rear Exhaust Pipe.> <Ref. to EX(H4DOTC)-15, REMOVAL, Muffler.>
- 5) Remove the heat shield cover.

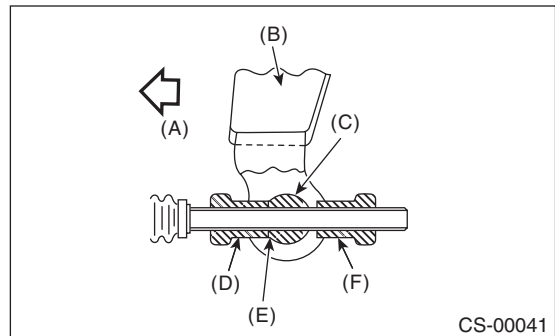


- 6) Loosen the adjusting nuts on both sides.



- (A) Adjusting nut A
- (B) Adjusting nut B

- 7) Turn adjusting nut B until it lightly touches the connector.

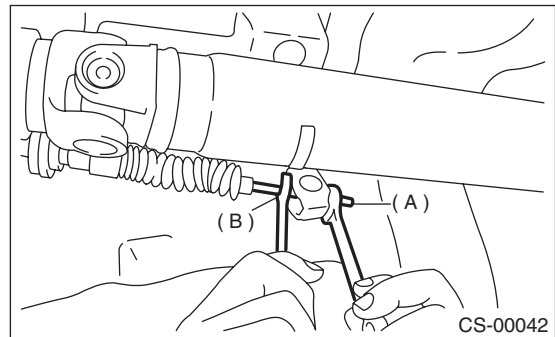


- (A) Forward side
- (B) Select lever
- (C) Connector
- (D) Adjusting nut B
- (E) Contact point
- (F) Adjusting nut A

- 8) Set a spanner wrench to adjusting nut B so that it does not rotate, and then tighten the adjusting nut A.

Tightening torque:

7.5 N·m (0.76 kgf·m, 5.5 ft·lb)



- (A) Adjusting nut A
- (B) Adjusting nut B

- 9) After the completion of adjustment, confirm that the select lever operates normally at all ranges.
- 10) Install in the reverse order of removal.

AT Shift Lock Solenoid and "P" Range Switch

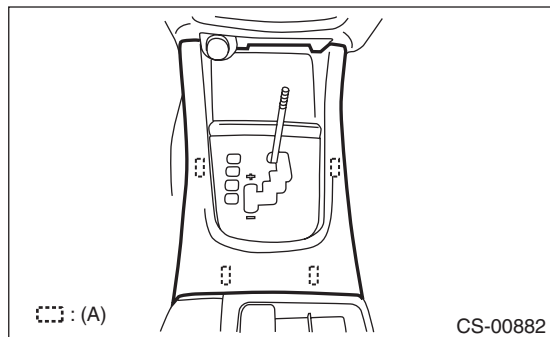
CONTROL SYSTEMS

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5. AT Shift Lock Solenoid and "P" Range Switch

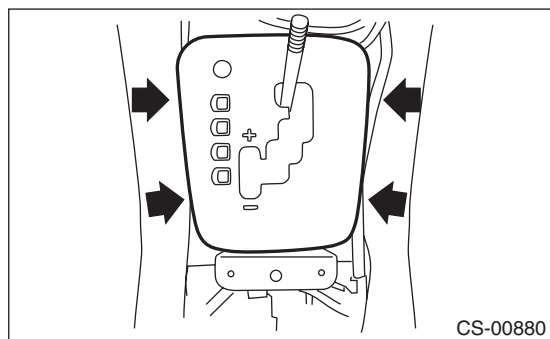
A: REMOVAL

- 1) Remove the grip.
- 2) Remove the hand brake boot cover.
- 3) Remove the console front panel.

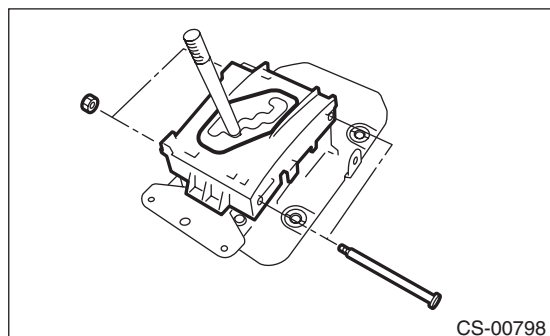


(A) Hook

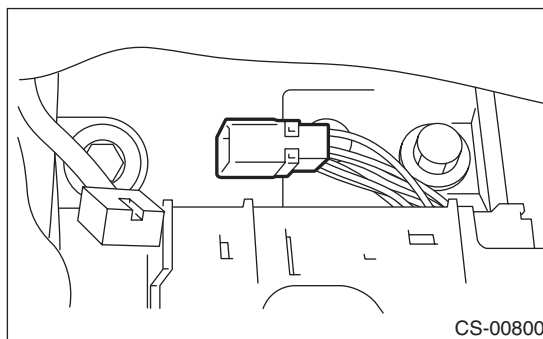
- 4) Remove the console cover and console box. <Ref. to EI-47, REMOVAL, Console Box.>
- 5) Remove the indicator assembly.



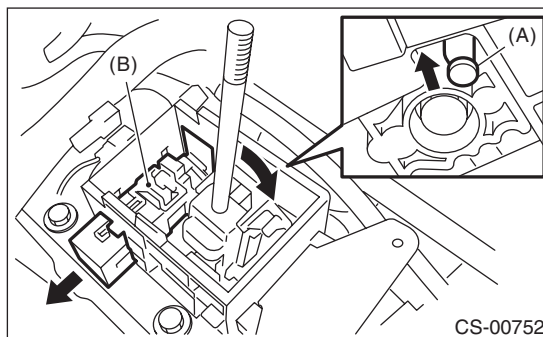
- 6) With the shift lock release button held down, move the select lever to the "N" range.
- 7) Remove the spacer bolt and remove the plate guide COMPL.



- 8) Using a flat-tip screwdriver with a thin tip, remove the connector from the plate COMPL.

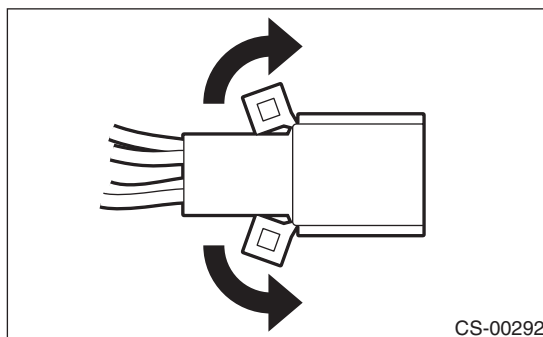


- 9) With detent spring lifted up, push the select lever backward and remove the shift lock solenoid unit.



- (A) Detent spring
(B) Shift lock solenoid unit

- 10) Raise the claw of connector.

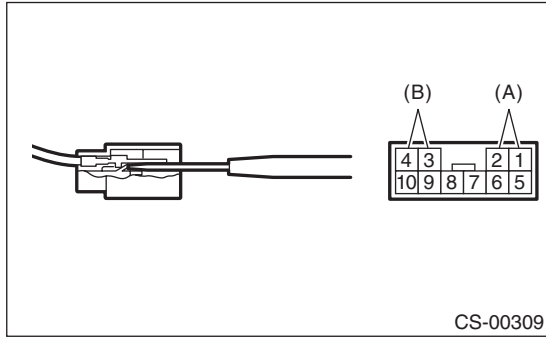


AT Shift Lock Solenoid and "P" Range Switch

CONTROL SYSTEMS

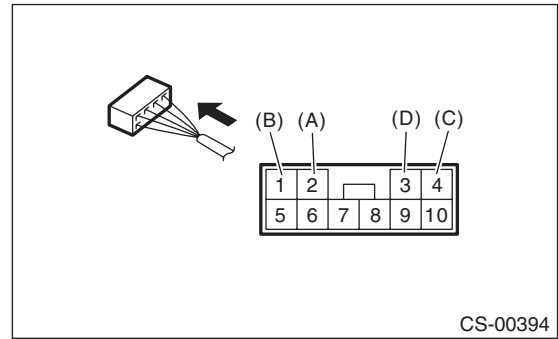
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11) Disconnect the terminals of "P" range switch and shift lock solenoid unit from the connector, using a flat-tip screwdriver with a thin tip.



- (A) "P" range switch terminal
- (B) Shift lock solenoid terminal

• Connect the switch and solenoid terminals to the connector.



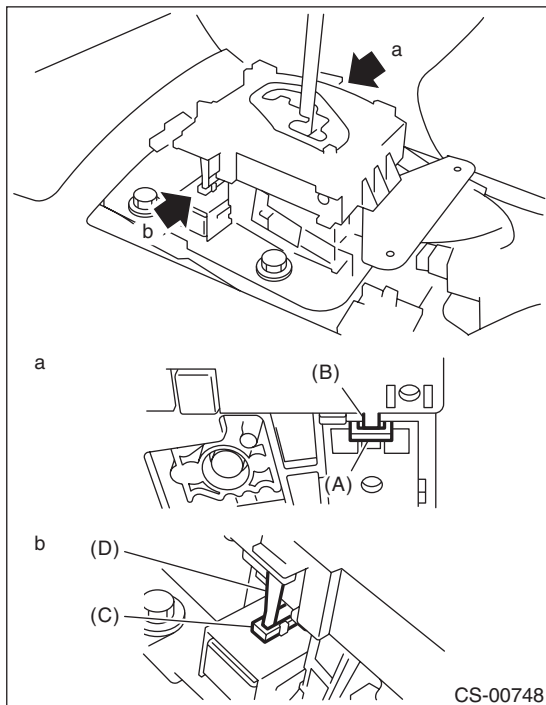
- (A) "P" range switch (color code: white)
- (B) "P" range switch (color code: black)
- (C) Shift lock solenoid (color code: blue/red)
- (D) Shift lock solenoid (color code: black)

B: INSTALLATION

Install in the reverse order of removal.

NOTE:

- Refer to "COMPONENT" for each tightening torque. <Ref. to CS-3, COMPONENT, General Description.>
- Set the select lever to "D" range (normal mode position) when installing the guide plate and be careful of the following.
 - Insert protrusion (B) of the guide plate into the hole on the shift lock solenoid unit (A).
 - Insert link (D) of the shift lock release into link (C) of the shift lock solenoid unit.



AT Shift Lock Solenoid and “P” Range Switch

CONTROL SYSTEMS

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C: INSPECTION

Step	Check	Yes	No
1 CHECK SHIFT LOCK SOLENOID. Measure the resistance of shift lock solenoid connector terminals. <i>Terminals</i> <i>No. 4 — No. 3:</i>	Is the resistance 19.8 — 24.2 Ω ?	Go to step 2.	Replace the shift lock solenoid.
2 CHECK SHIFT LOCK SOLENOID. Connect the battery to shift lock solenoid connector terminal, and then operate the solenoid. <i>Terminals</i> <i>No. 3 (+) — No. 4 (-):</i>	Does the shift lock solenoid operate normally?	Go to step 3.	Replace the shift lock solenoid.
3 CHECK “P” RANGE SWITCH. 1) Move the select lever to “P” range. 2) Measure the resistance between “P” range switch connector terminals. <i>Terminals</i> <i>No. 1 — No. 2:</i>	Is the resistance less than 1 Ω ?	Go to step 4.	Replace the “P” range switch.
4 CHECK “P” RANGE SWITCH. 1) Set the select lever to other than “P” range. 2) Measure the resistance between “P” range switch connector terminals. <i>Terminals</i> <i>No. 1 — No. 2:</i>	Is the resistance 1 M Ω or more?	Normal operation	Replace the “P” range switch.

6. Body Integrated Unit

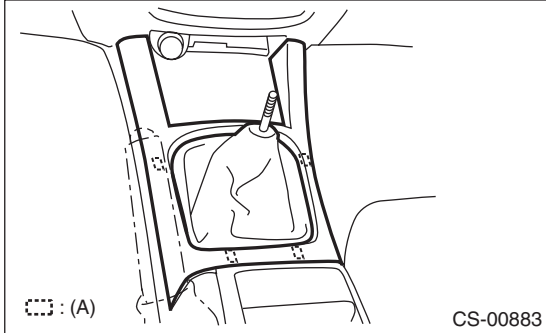
A: NOTE

Refer to “Body Integrated Unit” for removal and installation procedure. <Ref. to SL-53, Body Integrated Unit.>

7. MT Gear Shift Lever

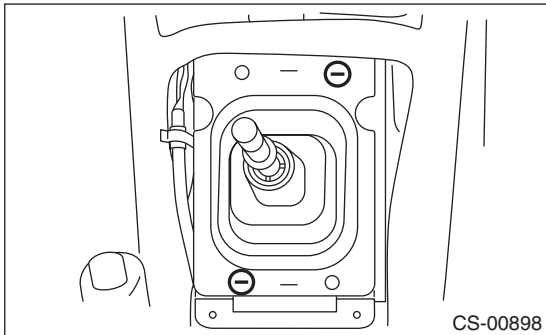
A: REMOVAL

- 1) Set the vehicle on a lift.
- 2) Disconnect the ground cable from the battery.
- 3) Remove the gear shift knob.
- 4) Remove the console front panel and console boot.

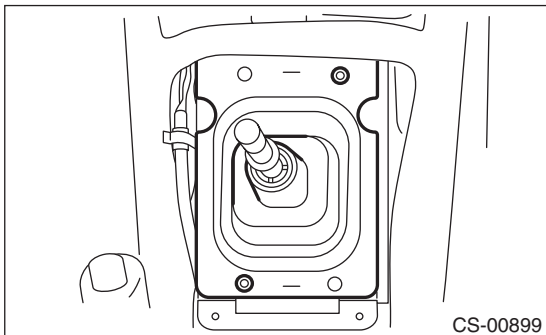


(A) Hook

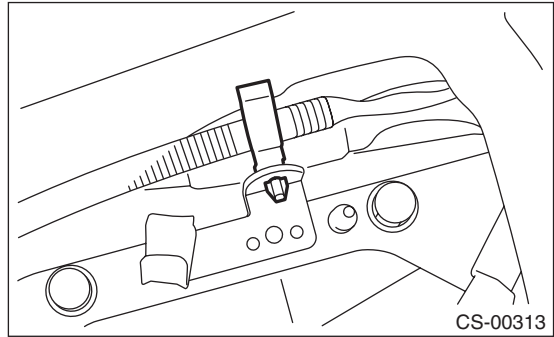
- 5) Remove the console cover and console box. <Ref. to EI-47, REMOVAL, Console Box.>
- 6) Remove the clamp.



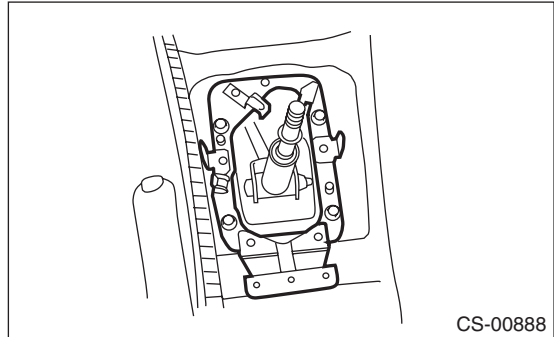
- 7) Remove the bushing and insulator assembly.



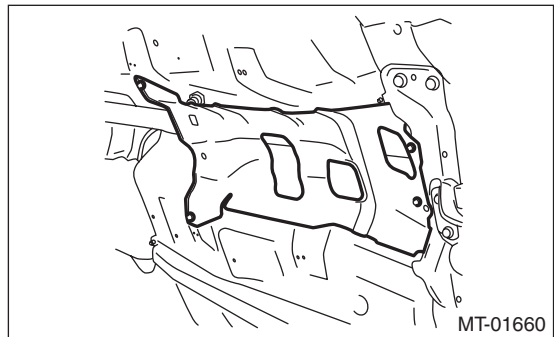
- 8) Remove the harness clamp from the plate assembly.



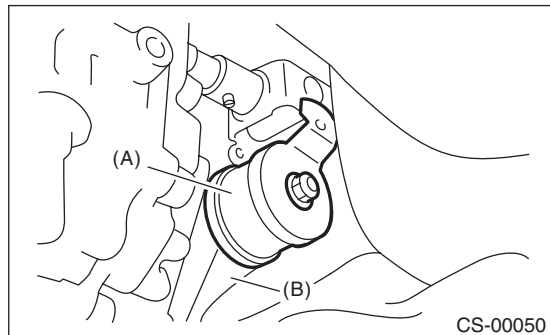
- 9) Remove the plate assembly from the vehicle body.



- 10) Lift up the vehicle.
- 11) Remove the rear exhaust pipe and muffler.
 - Non-turbo model
<Ref. to EX(H4SO)-10, REMOVAL, Rear Exhaust Pipe.> <Ref. to EX(H4SO)-12, REMOVAL, Muffler.>
 - Turbo model
<Ref. to EX(H4DOTC)-13, REMOVAL, Rear Exhaust Pipe.> <Ref. to EX(H4DOTC)-15, REMOVAL, Muffler.>
- 12) Remove the heat shield cover.

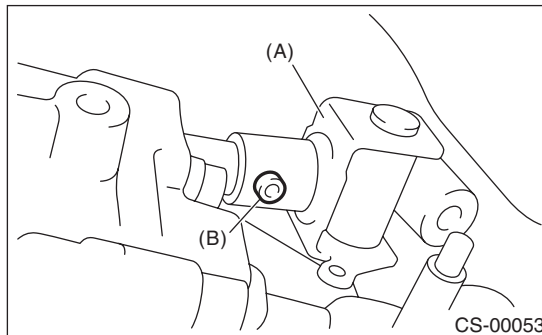


13) Remove the stay from transmission bracket.



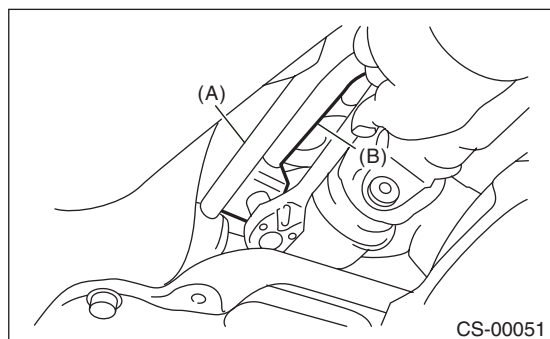
- (A) Stay
- (B) Transmission bracket

16) Extract the spring pin and remove the joint.



- (A) Joint
- (B) Spring pin

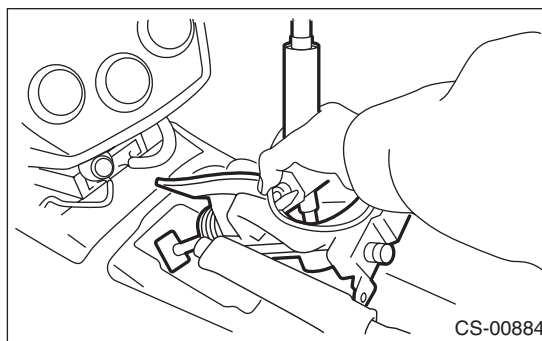
14) Remove the rod from joint.



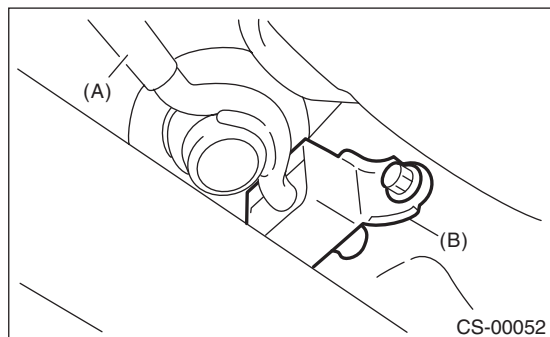
- (A) Stay
- (B) Rod

17) Lower the vehicle.

18) Remove the gear shift lever.



15) Remove the cushion rubber from the vehicle body.

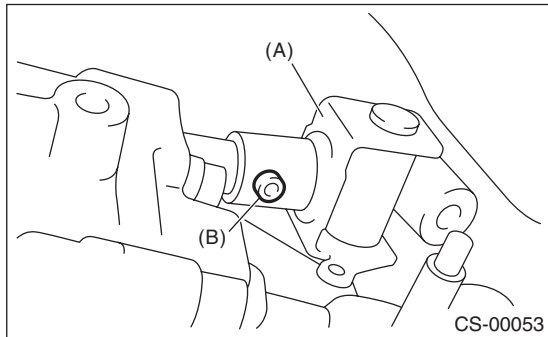


- (A) Stay
- (B) Cushion rubber

CONTROL SYSTEMS

B: INSTALLATION

1) Install the joint to the transmission and secure with a spring pin.

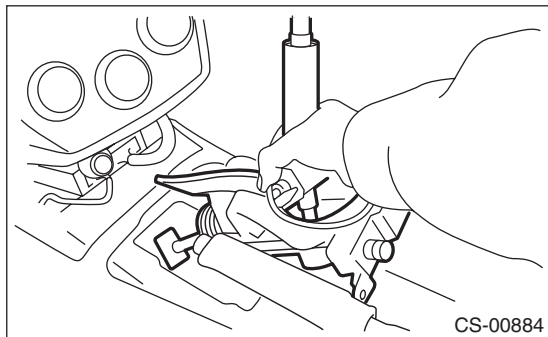


- (A) Joint
- (B) Spring pin

2) Insert the gear shift lever from the room side.

NOTE:

Insert the rod and the stay, and then temporarily set them onto the transmission mount.

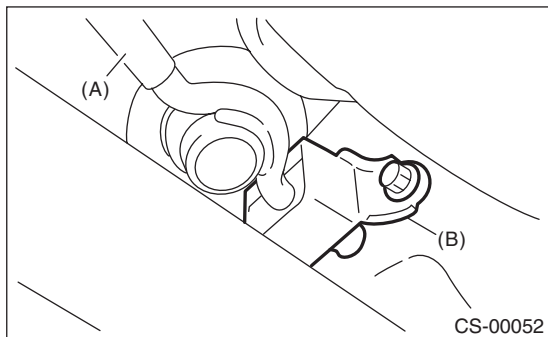


3) Lift up the vehicle.

4) Mount the cushion rubber on the vehicle body.

Tightening torque:

18 N·m (1.8 kgf-m, 13.3 ft-lb)

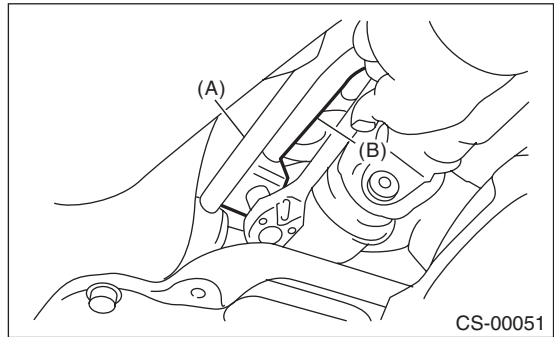


- (A) Stay
- (B) Cushion rubber

5) Using new self-locking nuts, connect the rod to the joint.

Tightening torque:

18 N·m (1.8 kgf-m, 13.3 ft-lb)

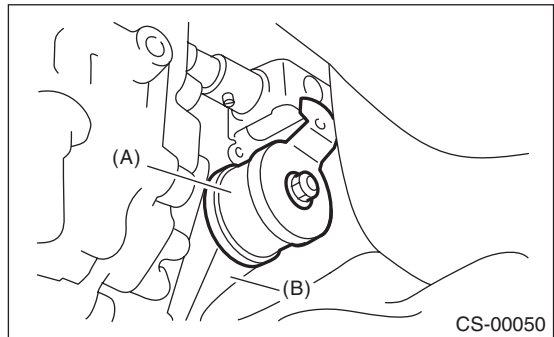


- (A) Stay
- (B) Rod

6) Using new self-locking nuts, connect the stay to the transmission bracket.

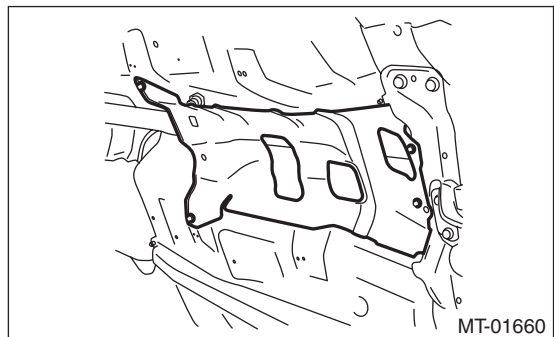
Tightening torque:

18 N·m (1.8 kgf-m, 13.3 ft-lb)



- (A) Stay
- (B) Transmission bracket

7) Install the heat shield cover.

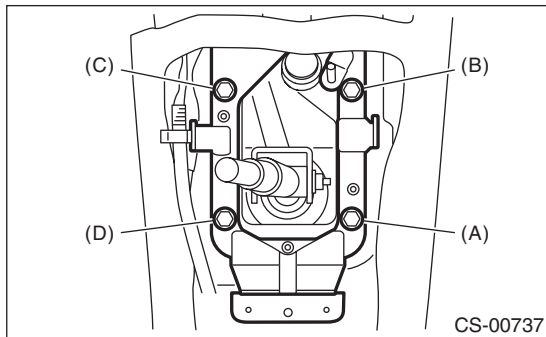


- 8) Install the rear exhaust pipe and muffler.
 - Non-turbo model
<Ref. to EX(H4SO)-10, INSTALLATION, Rear Exhaust Pipe.> <Ref. to EX(H4SO)-13, INSTALLATION, Muffler.>
 - Turbo model
<Ref. to EX(H4DOTC)-14, INSTALLATION, Rear Exhaust Pipe.> <Ref. to EX(H4DOTC)-16, INSTALLATION, Muffler.>
- 9) Install the plate assembly to the vehicle body.

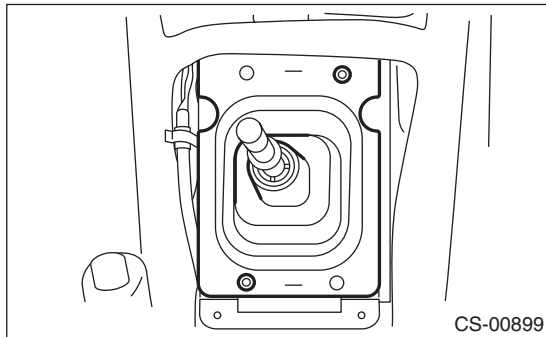
Tightening torque:

18 N·m (1.8 kgf-m, 13.3 ft-lb)

- (1) Set the plate assembly to the vehicle.
- (2) Temporarily tighten the bolt (A).
- (3) Tighten the bolt (B).
- (4) Tighten the bolt (A).
- (5) Tighten the bolts (C) and (D).



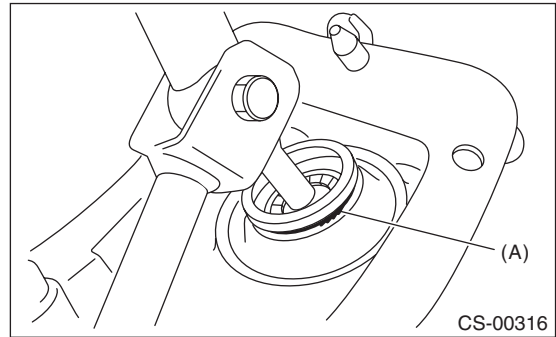
- 10) Install the harness clamp to the plate.
- 11) Install the boot and insulator assembly, and secure with a clamp.



- 12) Install the console cover and console box. <Ref. to EI-47, INSTALLATION, Console Box.>
- 13) Install the console front panel and console boot.
- 14) Install the gear shift knob.

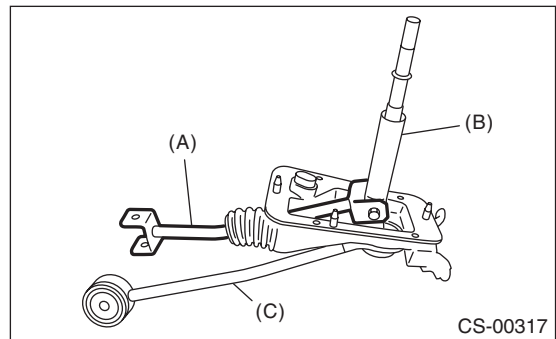
C: DISASSEMBLY

- 1) Remove the lock wires.



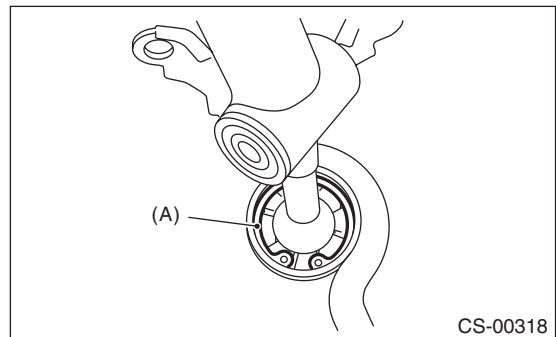
(A) Lock wire

- 2) Remove the rod from lever.



(A) Rod
(B) Lever
(C) Stay

- 3) Separate the rod and inner boot.
- 4) Remove the snap ring from the stay.



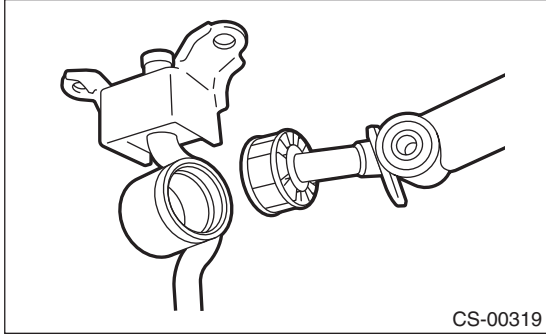
(A) Snap ring

MT Gear Shift Lever

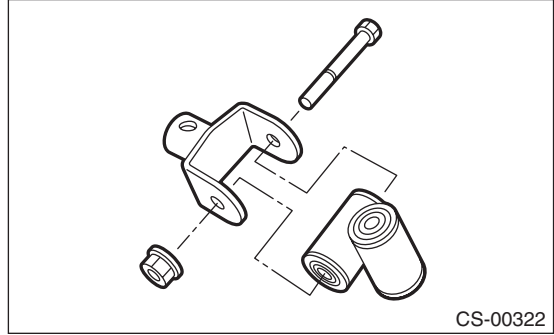
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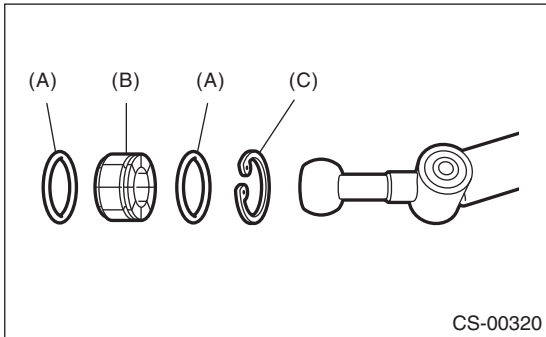
5) Separate the gear shift lever and the stay.



8) Remove the boss from the joint.

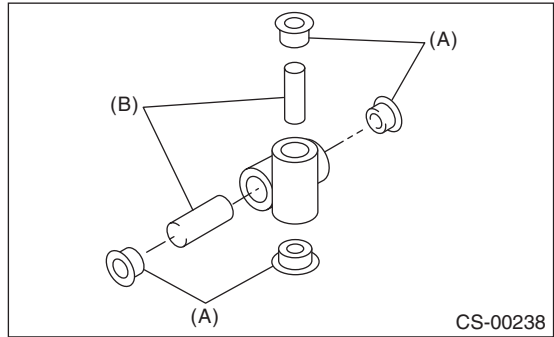


6) Remove the boot, bushing and snap ring from gear shift lever.



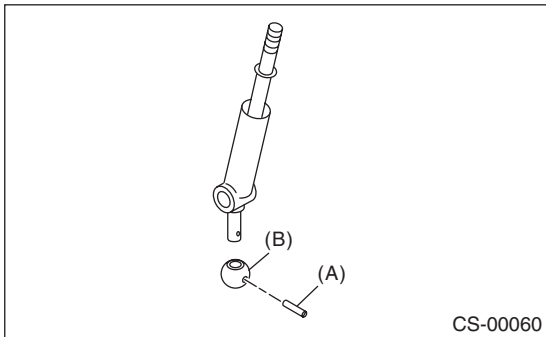
- (A) O-ring
- (B) Bushing
- (C) Snap ring

9) Remove the bushing and spacer from the boss.



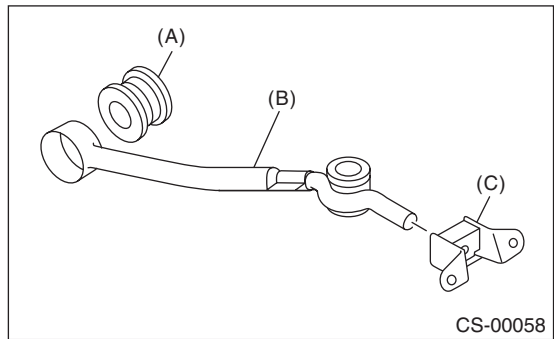
- (A) Bushing
- (B) Spacer

7) Remove the spring pin, and then remove the bushing and snap ring.



- (A) Spring pin
- (B) Bushing

10) Remove the bushing and cushion rubber from the stay.



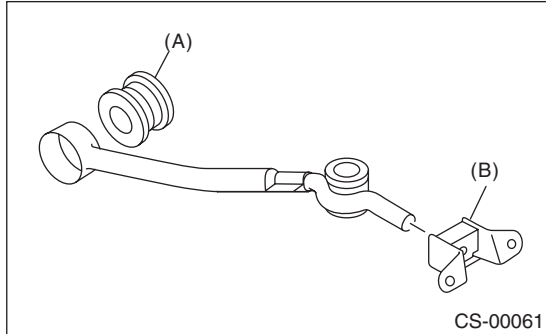
- (A) Bushing B
- (B) Stay
- (C) Cushion rubber

D: ASSEMBLY

NOTE:

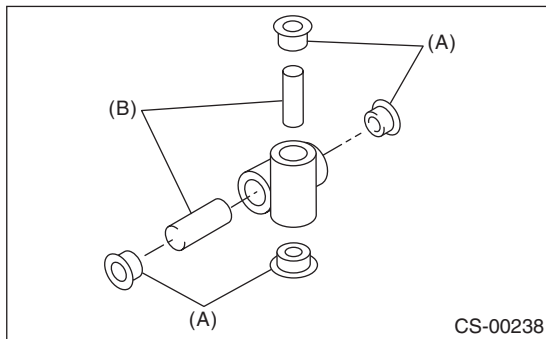
- Clean all the parts before assembly.
- Apply NIGTIGHT LYW No. 2 grease or equivalent to each part. <Ref. to CS-4, 5MT GEAR SHIFT LEVER, COMPONENT, General Description.>

1) Mount the bushing and cushion rubber to the stay.



- (A) Bushing
- (B) Cushion rubber

2) Install the bushing and spacer to boss.

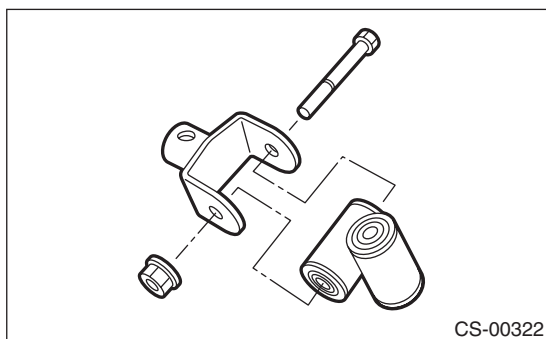


- (A) Bushing
- (B) Spacer

3) Using new self-locking nuts, install the boss to the joint.

Tightening torque:

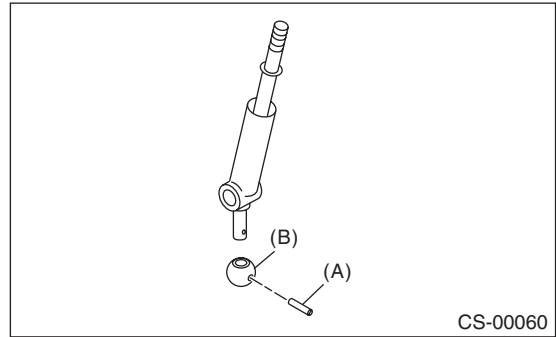
12 N·m (1.2 kgf·m, 8.9 ft·lb)



4) Install the snap ring to gear shift lever and install the bushing.

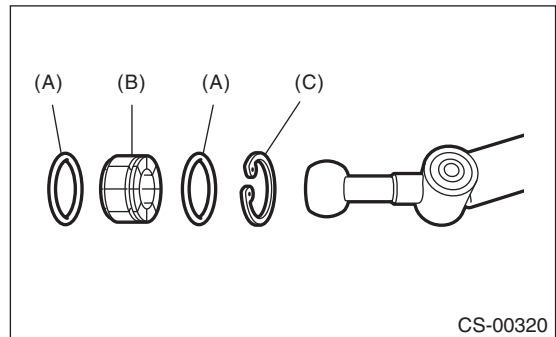
NOTE:

Apply grease to the bushing.



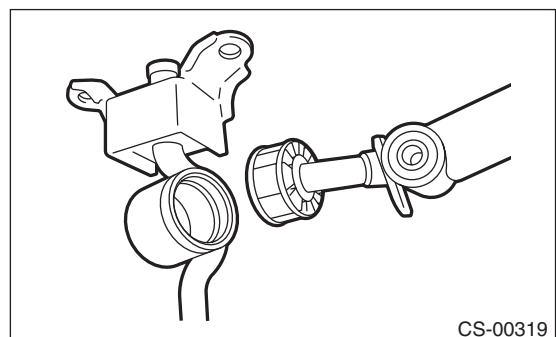
- (A) Spring pin
- (B) Bushing

5) Apply grease to the bushing and O-ring, and then install to gear shift lever.



- (A) O-ring
- (B) Bushing
- (C) Snap ring

6) Apply sufficient grease into boss, and then install the gear shift lever to the stay.

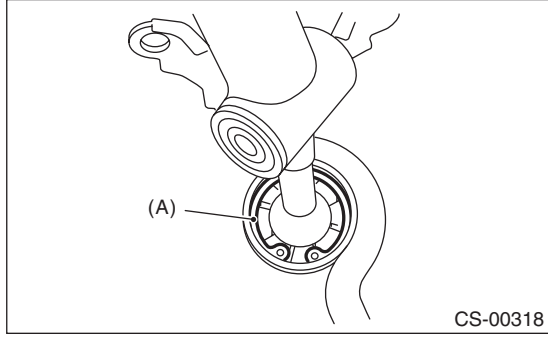


MT Gear Shift Lever

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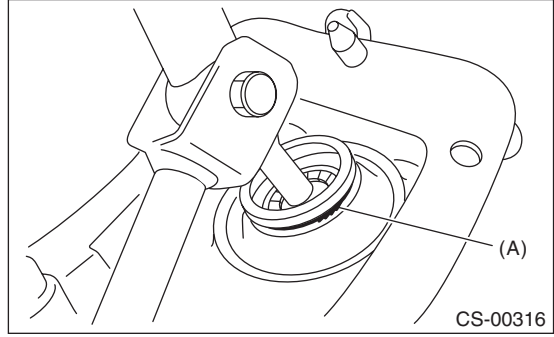
CONTROL SYSTEMS

7) Install the washer and snap ring.



(A) Snap ring

10) Install a new lock wire.



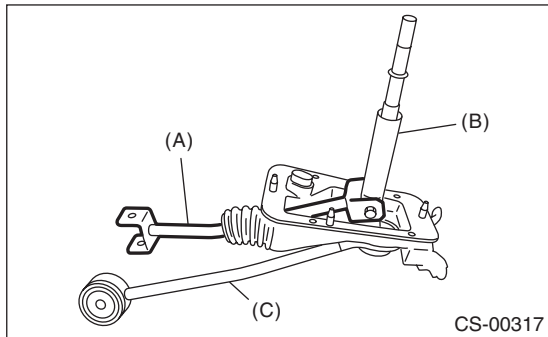
(A) Lock wire

8) Insert the gear shift lever and rod into boot hole.

9) Install the rod.

Tightening torque:

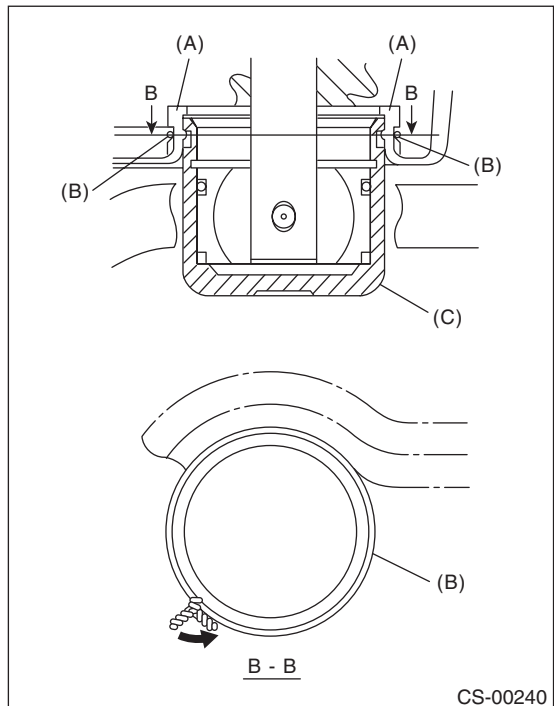
12 N·m (1.2 kgf-m, 8.9 ft-lb)



(A) Rod
(B) Lever
(C) Stay

NOTE:

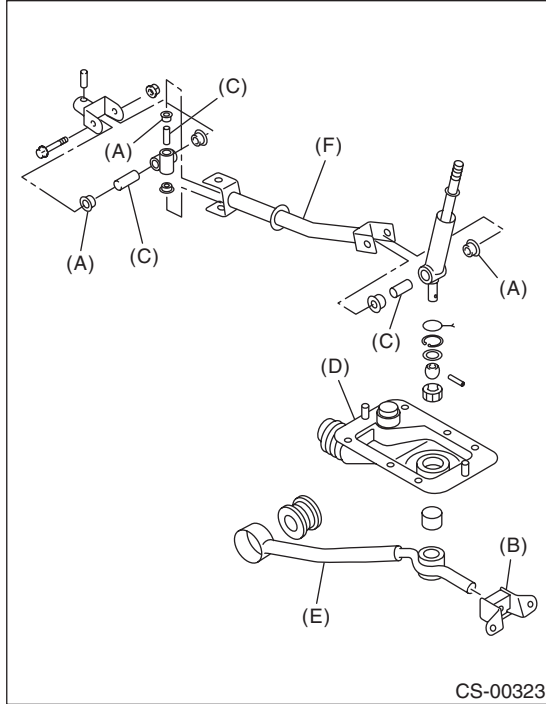
- Install the lock wire to the stay groove.
- Bend the extra wire to the same direction of lock wire winding.



(A) Inner boot
(B) Lock wire
(C) Stay

E: INSPECTION

1) Check the parts (bushing, cushion rubber, spacer, boot, stay and rod, etc.) for deformation, damage and wear. If necessary, correct or replace faulty parts. Compare the removed parts with new parts to judge if there are damages or not.

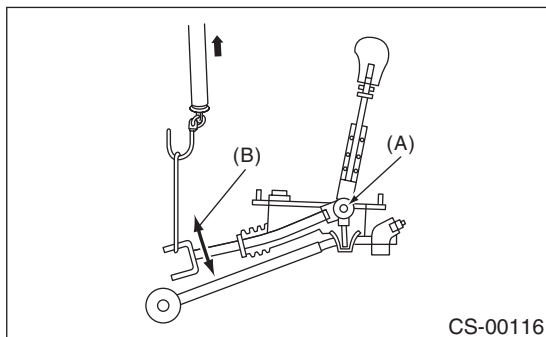


- (A) Bushing
- (B) Cushion rubber
- (C) Spacer
- (D) Boot
- (E) Stay
- (F) Rod

2) Check the swing torque of rod linked with the gear shift lever.
 If the torque exceeds the specifications, replace the bushing or retighten nuts.

Swing torque:

3.7 N (0.38 kgf, 0.83 lbf) or less



- (A) Pivot
- (B) Swing torque

General Diagnostic Table

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8. General Diagnostic Table

A: INSPECTION

Symptoms	Possible cause	Corrective action
Select lever	Starter does not run.	Adjust the select cable and inhibitor switch, or inspect the circuit.
	Back-up light does not illuminate.	Adjust the select cable and inhibitor switch, or inspect the circuit.
	AT shift lock system does not operate normally.	Adjust the select cable and inhibitor switch, or inspect the circuit.
	Manual mode can not be set.	Adjust the mode switch and select lever, or inspect the circuit.
	Up-shift is not engaged at manual mode.	Check the shift-up switch and circuit.
	Down-shift is not engaged at manual mode.	Check the shift-down switch and circuit.