

ON-BOARD DIAGNOSTICS II SYSTEM

2-7

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1. General

A: GENERAL DESCRIPTION

- The on-board diagnostics (OBD) system detects and indicates a fault in various inputs and outputs of the complex electronic control. CHECK ENGINE malfunction indicator lamp (MIL) in the combination meter indicates occurrence of a fault or trouble.
- Further, against such a failure or sensors as may disable the drive, the fail-safe function is provided to ensure the minimal driveability.
- The OBD system incorporated with the vehicles within this engine family complies with Section 1968.1, California Code of Regulations (OBD-II regulation). The OBD system monitors the components and the system malfunction listed in Engine Section which affects on emissions.
- When the system decides that a malfunction occurs, MIL illuminates. At the same time of the MIL illumination or blinking, a diagnostic trouble code (DTC) and a freeze frame engine conditions are stored into on-board computer.
- The OBD system stores freeze frame engine condition data (engine load, engine coolant temperature, fuel trim, engine speed and vehicle speed, etc.) into on-board computer when it detects a malfunction first.
- If the OBD system detects the various malfunctions including the fault of fuel trim or misfire, the OBD system first stores freeze frame engine conditions about the fuel trim or misfire.
- When the malfunction does not occur again for three consecutive driving cycles, MIL is turned off, but DTC remains at on-board computer.
- The OBD-II system is capable of communication with a general scan tool (OBD-II general scan tool) formed by ISO 9141 CARB.
- The OBD-II diagnostics procedure is different from the usual diagnostics procedure. When troubleshooting OBD-II vehicles, connect Subaru Select Monitor or the OBD-II general scan tool to the vehicle.

B: ENGINE

1. ENGINE AND EMISSION CONTROL SYSTEM

- The Multipoint Fuel Injection (MFI) system is a system that supplies the optimum air-fuel mixture

to the engine for all the various operating conditions through the use of the latest electronic technology.

With this system fuel, which is pressurized at a constant pressure, is injected into the intake air passage of the cylinder head. The injection quantity of fuel is controlled by an intermittent injection system where the electro-magnetic injection valve (fuel injector) opens only for a short period of time, depending on the quantity of air required for one cycle of operation. In actual operation, the injection quantity is determined by the duration of an electric pulse applied to the fuel injector and this permits simple, yet highly precise metering of the fuel.

- Further, all the operating conditions of the engine are converted into electric signals, and this results in additional features of the system, such as large improved adaptability, easier addition of compensating element, etc.

The MFI system also has the following features:

- Reduced emission of harmful exhaust gases.
- Reduced in fuel consumption.
- Increased engine output.
- Superior acceleration and deceleration.
- Superior startability and warm-up performance in cold weather since compensation is made for coolant and intake air temperature.

C: AUTOMATIC TRANSMISSION

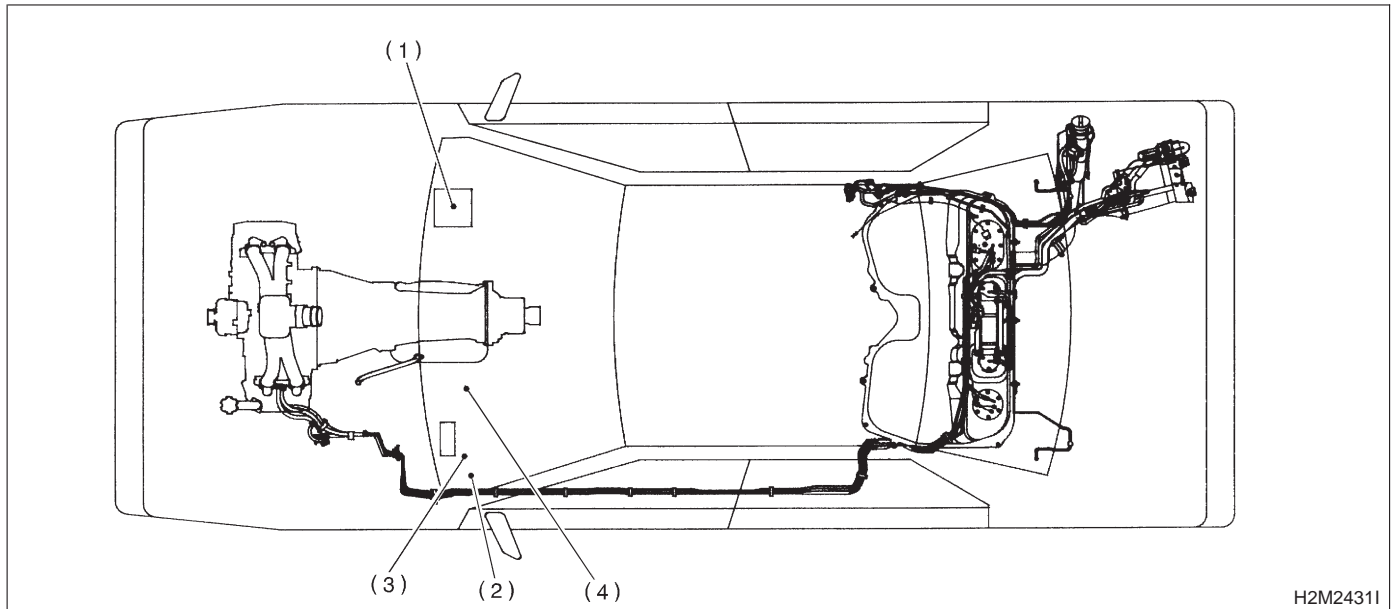
1. ELECTRONIC-HYDRAULIC CONTROL SYSTEM

The electronic-hydraulic control system consists of various sensors and switches, a transmission control module (TCM) and the hydraulic controller including solenoid valves. The system controls the transmission proper including shift control, lock-up control, overrunning clutch control, line pressure control and shift timing control. It also controls the AWD transfer clutch. In other words, the system detects various operating conditions from various input signals and sends output signals to shift solenoids 1, 2 and low clutch timing solenoid and 2-4 brake timing solenoid and duty solenoids A, B, C, D (a total of eight solenoids).

2. Electrical Components Location

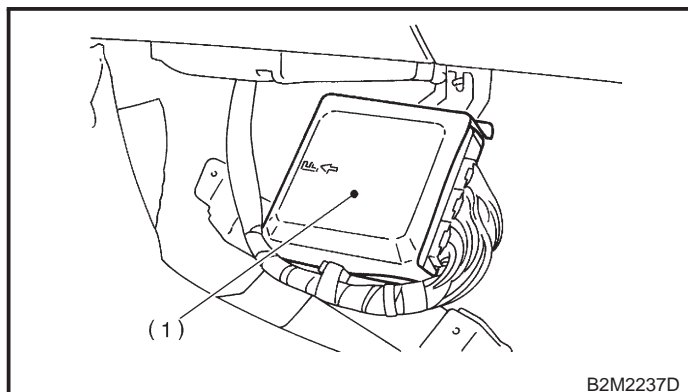
A: ENGINE (2200 cc CALIFORNIA SPEC. VEHICLES)

1. MODULE

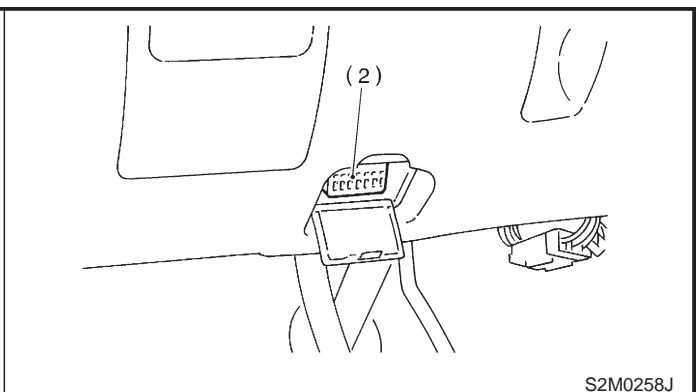


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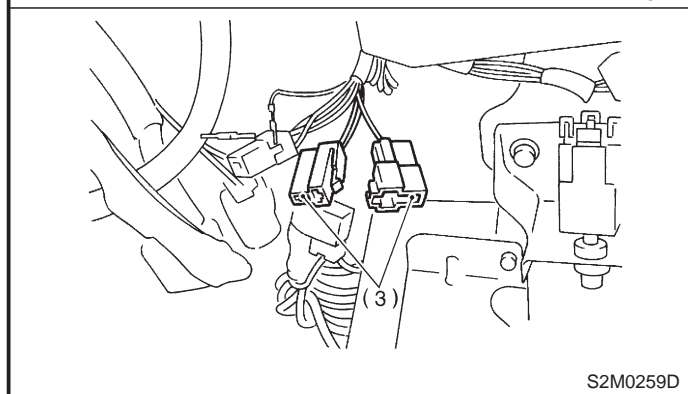
- | | |
|--|---|
| (1) Engine control module (ECM) | (3) Test mode connector |
| (2) Data link connector (for Subaru Select Monitor and OBD-II general scan tool) | (4) CHECK ENGINE malfunction indicator lamp (MIL) |



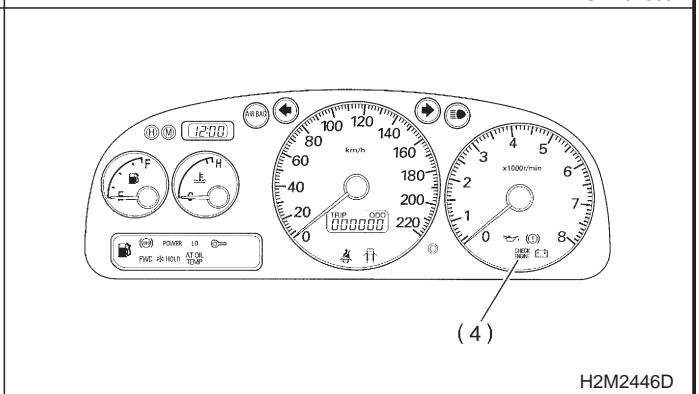
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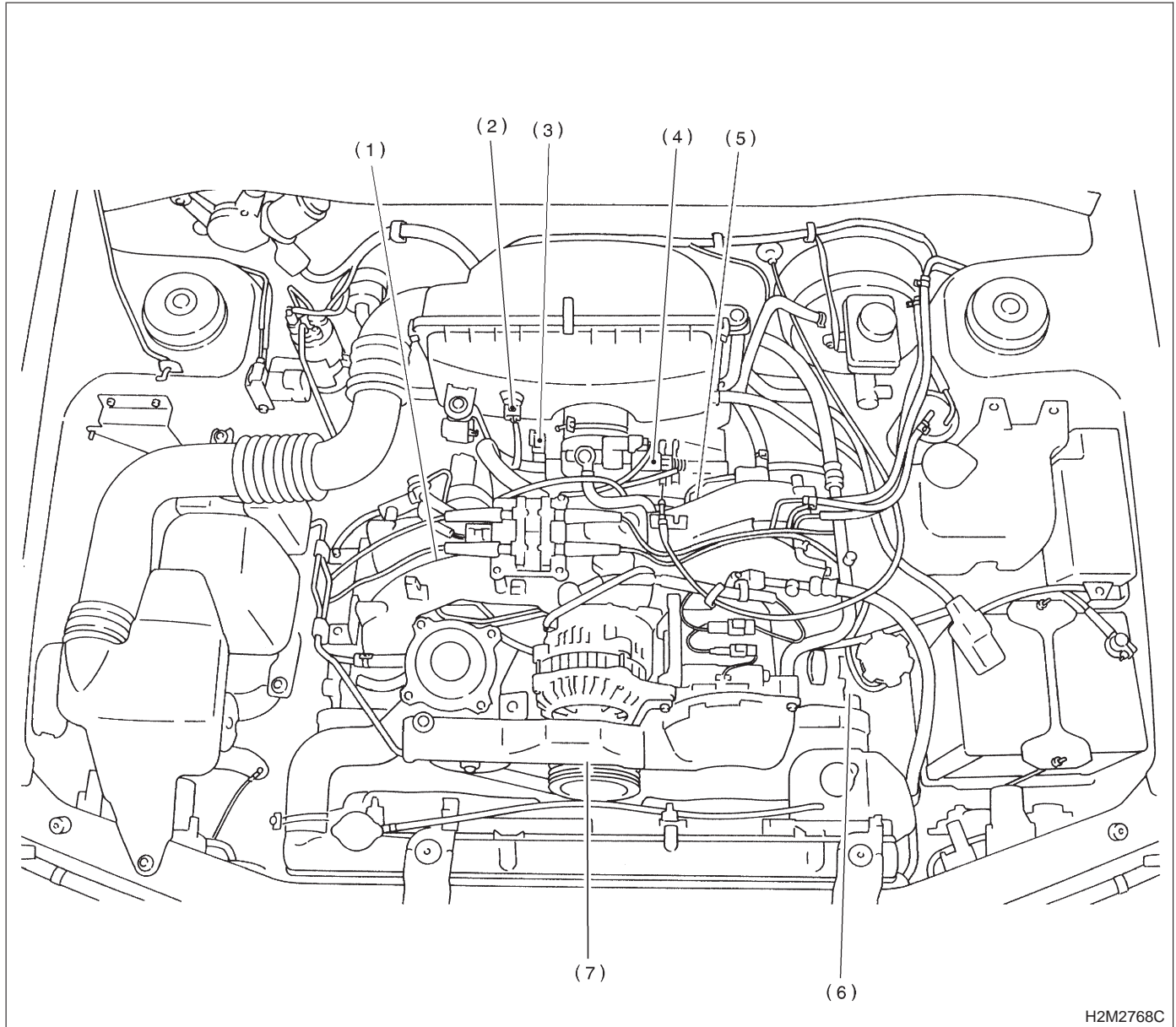


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2. SENSOR

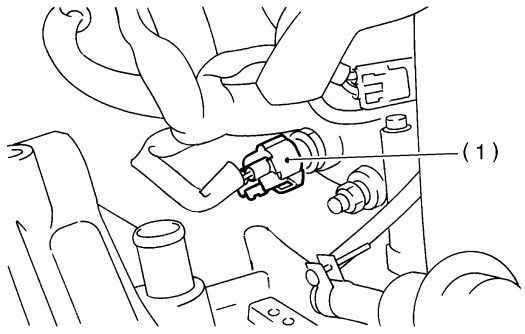
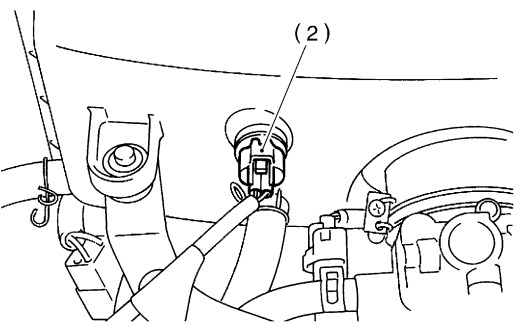
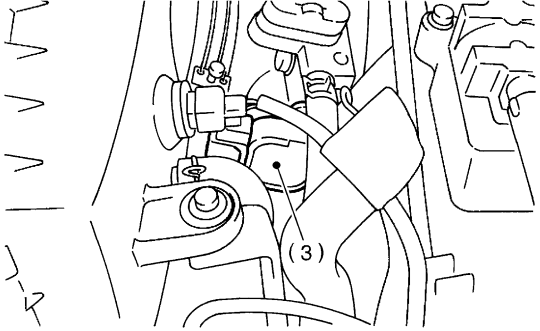
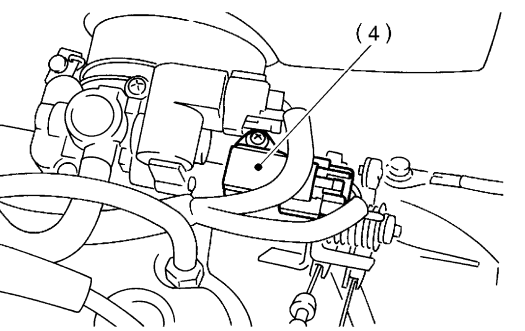
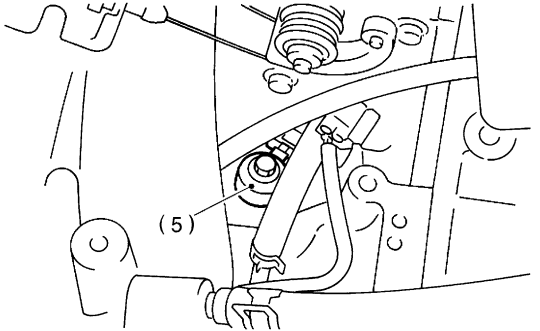
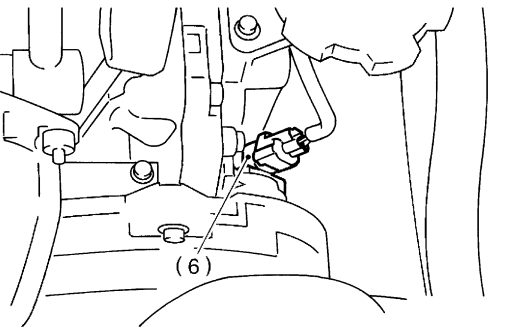
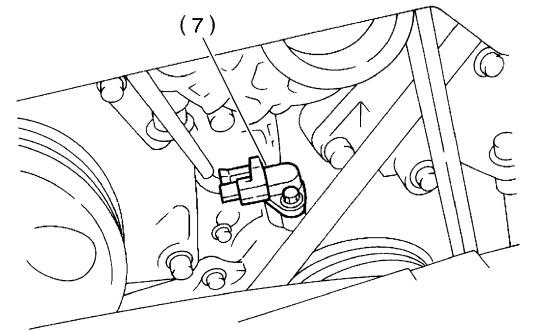


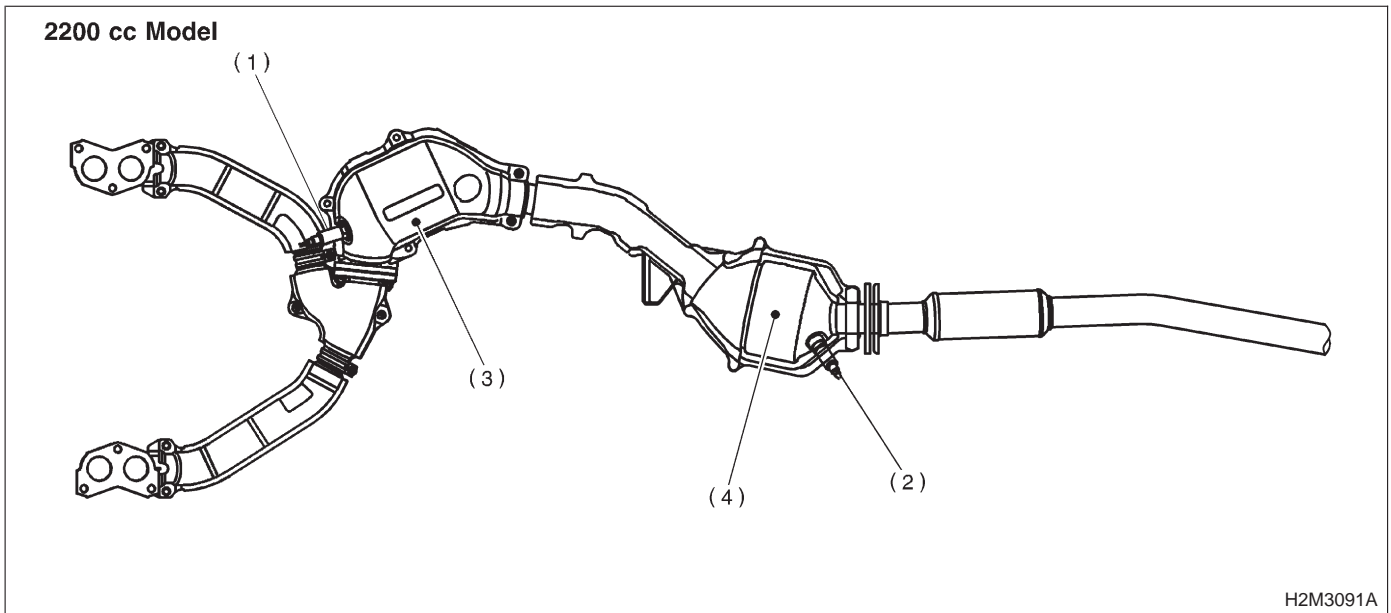
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- (1) Engine coolant temperature sensor
- (2) Intake air temperature sensor

- (3) Throttle position sensor
- (4) Intake manifold pressure sensor
- (5) Knock sensor

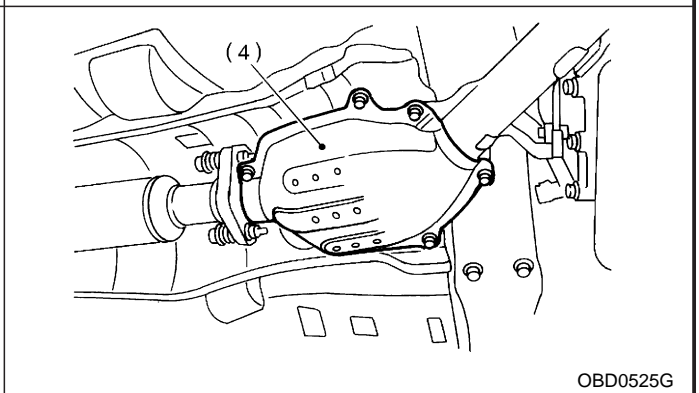
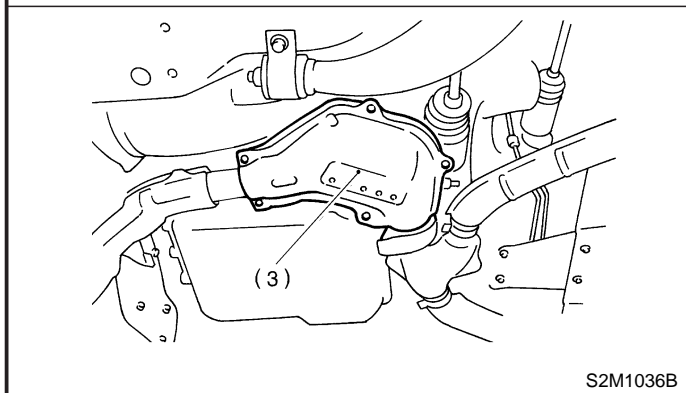
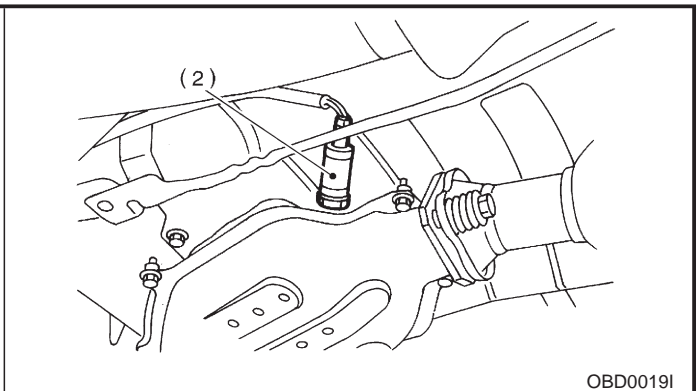
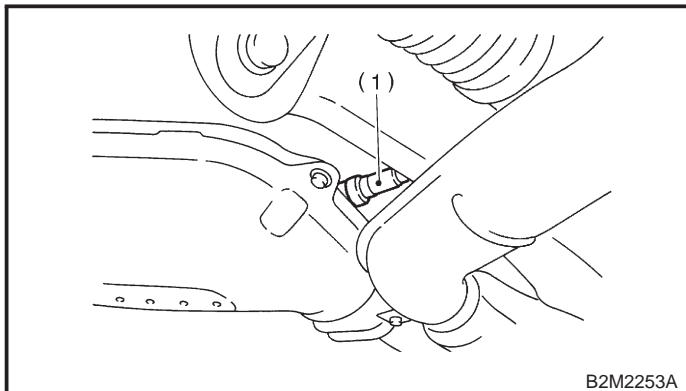
- (6) Camshaft position sensor
- (7) Crankshaft position sensor

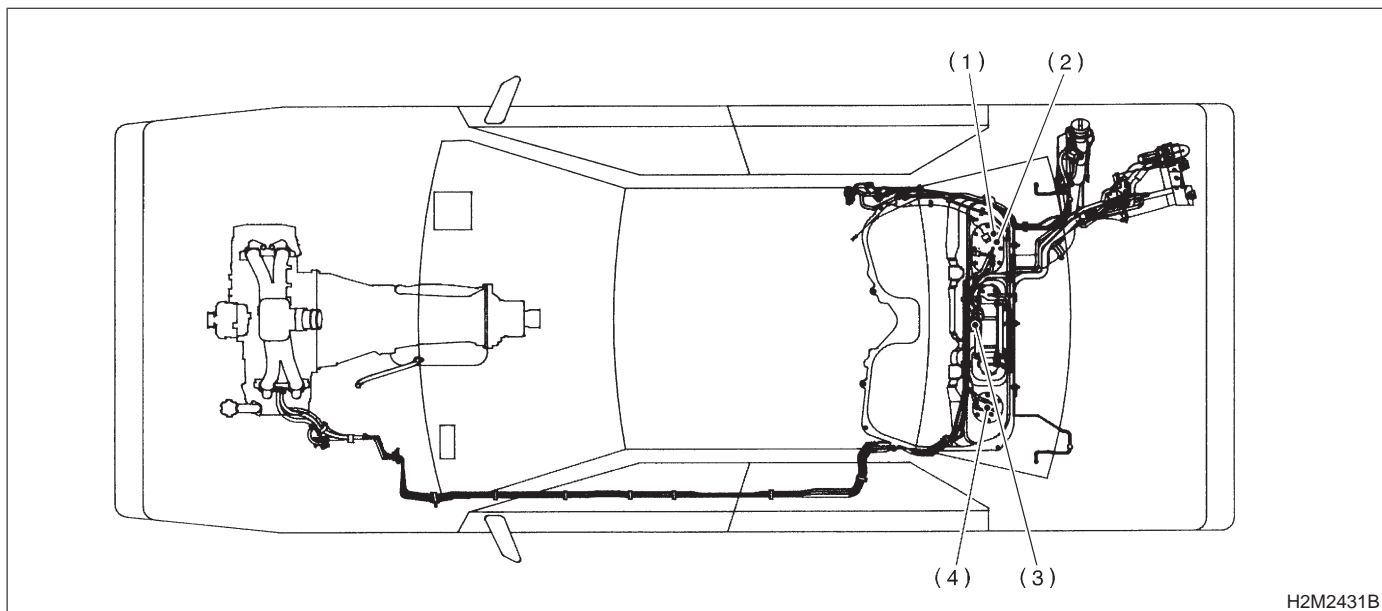
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 <p>B2M2251A</p>	 <p>B2M2252A</p>
 <p>B2M2241A</p>	 <p>B2M2242A</p>
 <p>B2M0213J</p>	<p>SUBARU.</p>



- (1) Front oxygen (A/F) sensor
- (2) Rear oxygen sensor

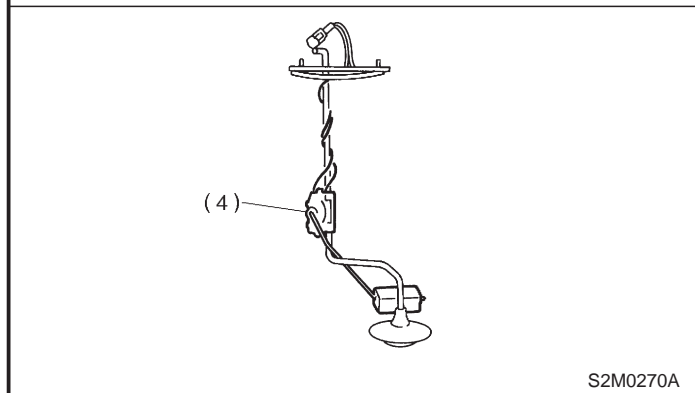
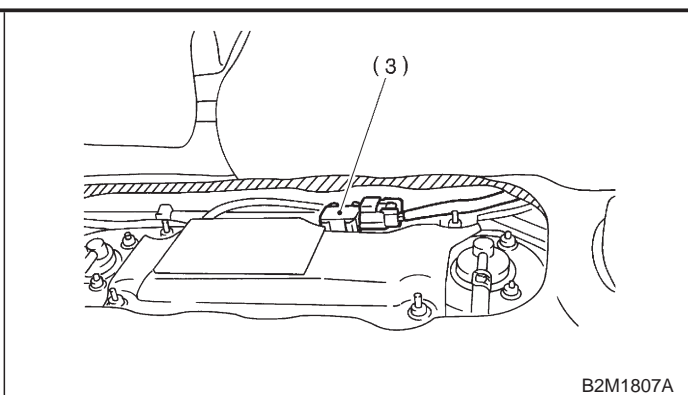
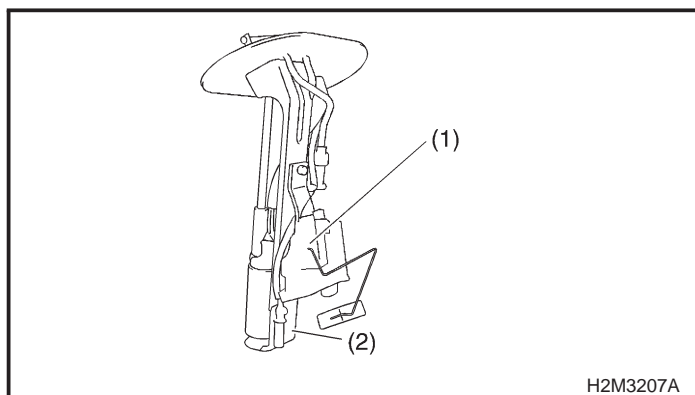
- (3) Front catalytic converter
- (4) Rear catalytic converter



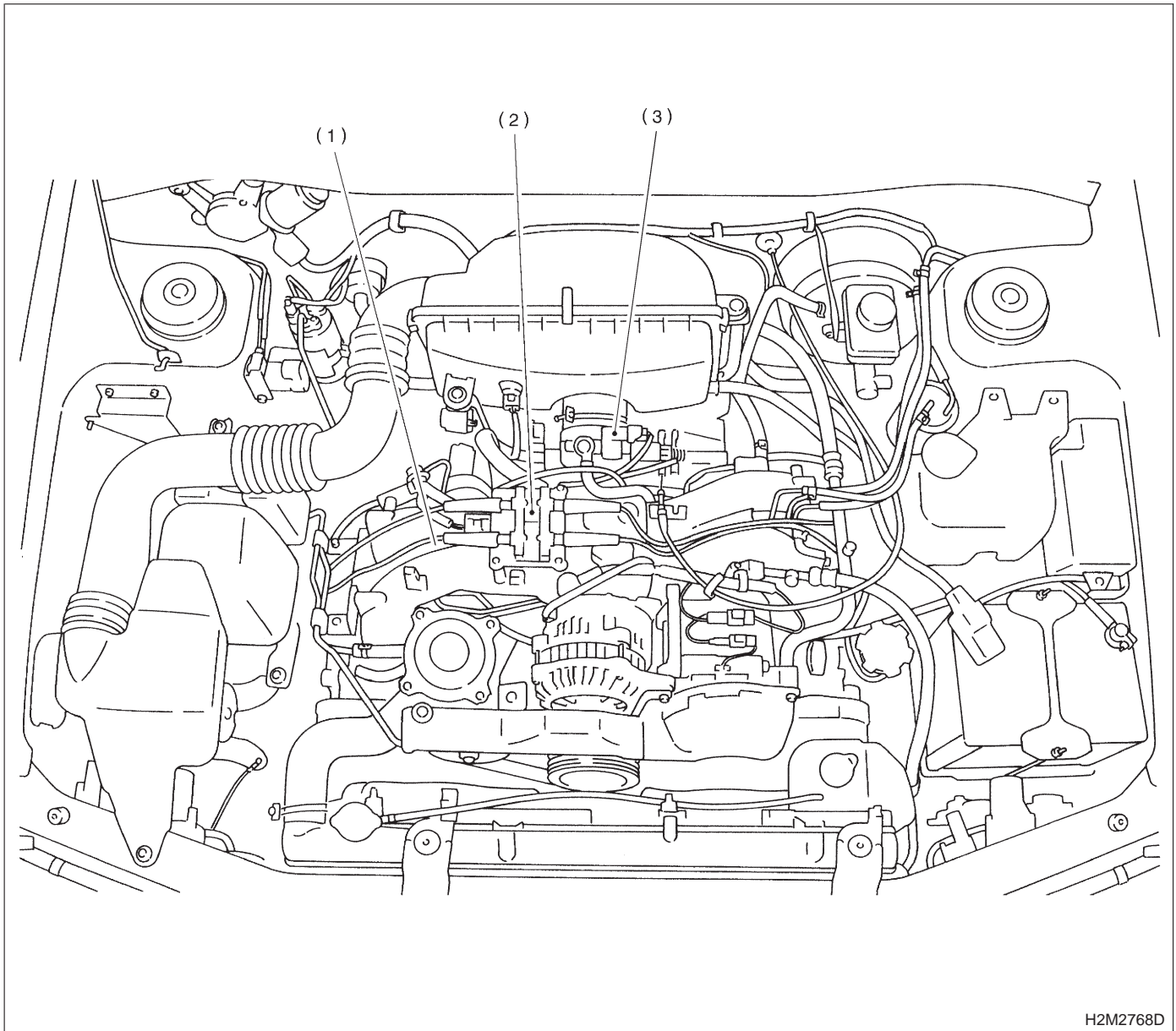


- (1) Fuel level sensor
- (2) Fuel temperature sensor

- (3) Fuel tank pressure sensor
- (4) Fuel sub level sensor



3. SOLENOID VALVE, EMISSION CONTROL SYSTEM PARTS AND IGNITION SYSTEM PARTS

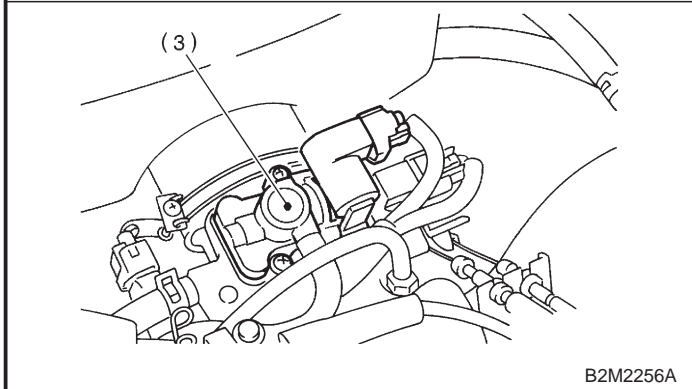
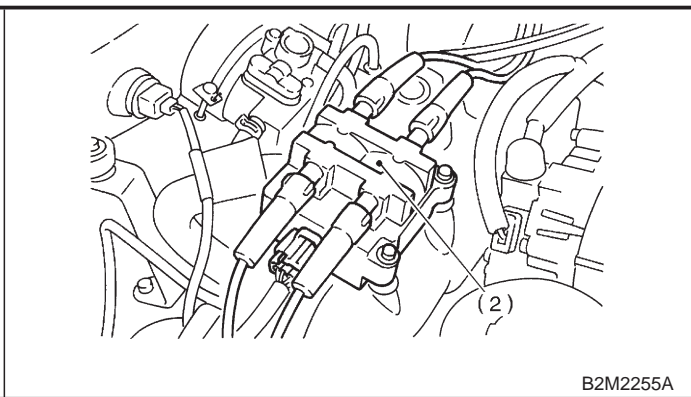
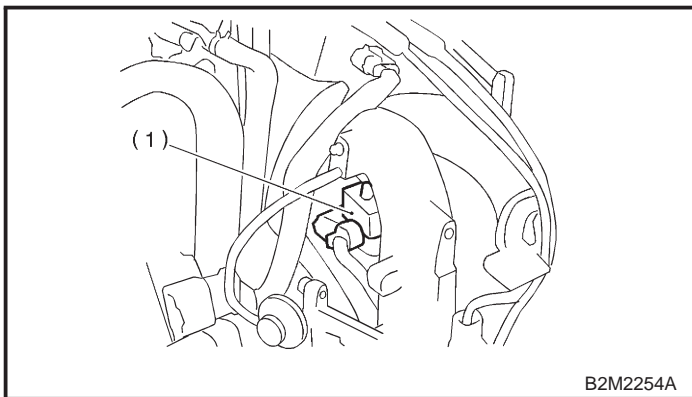


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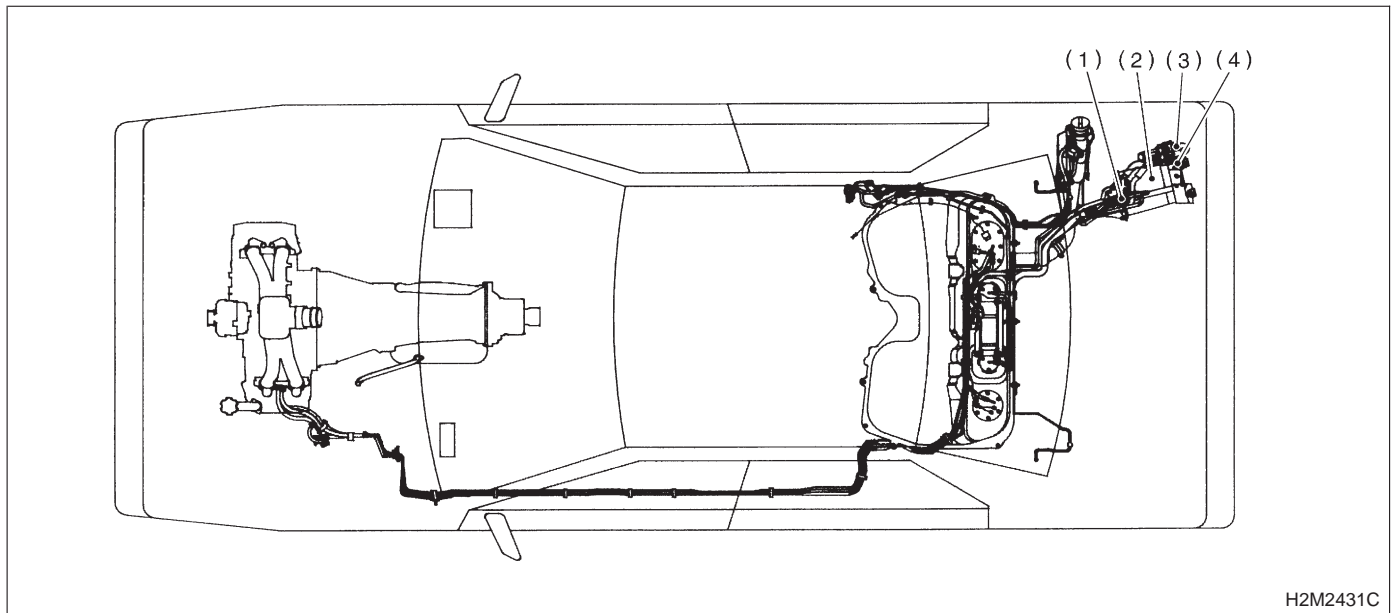
(1) Purge control solenoid valve

(2) Ignition coil & ignitor ASSY

(3) Idle air control solenoid valve

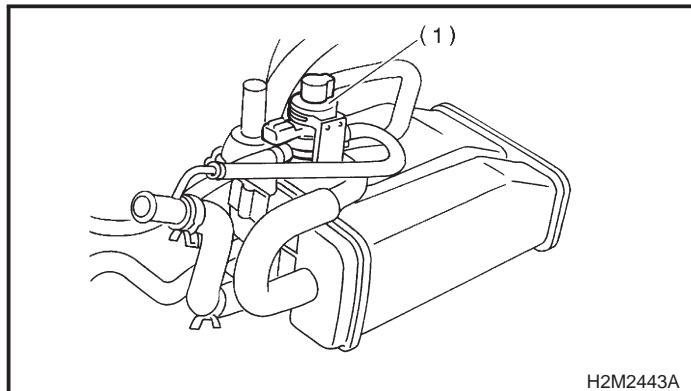


2. Electrical Components Location

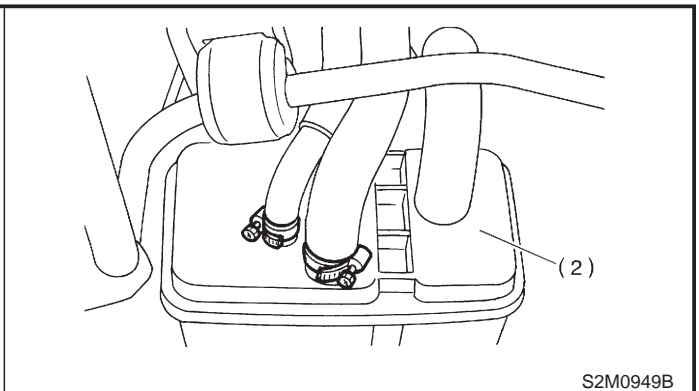


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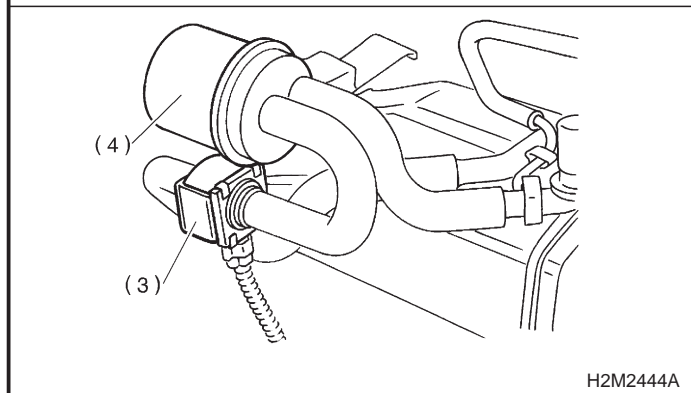
- (1) Pressure control solenoid valve
- (2) Canister
- (3) Drain valve
- (4) Air filter



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S2M0949B

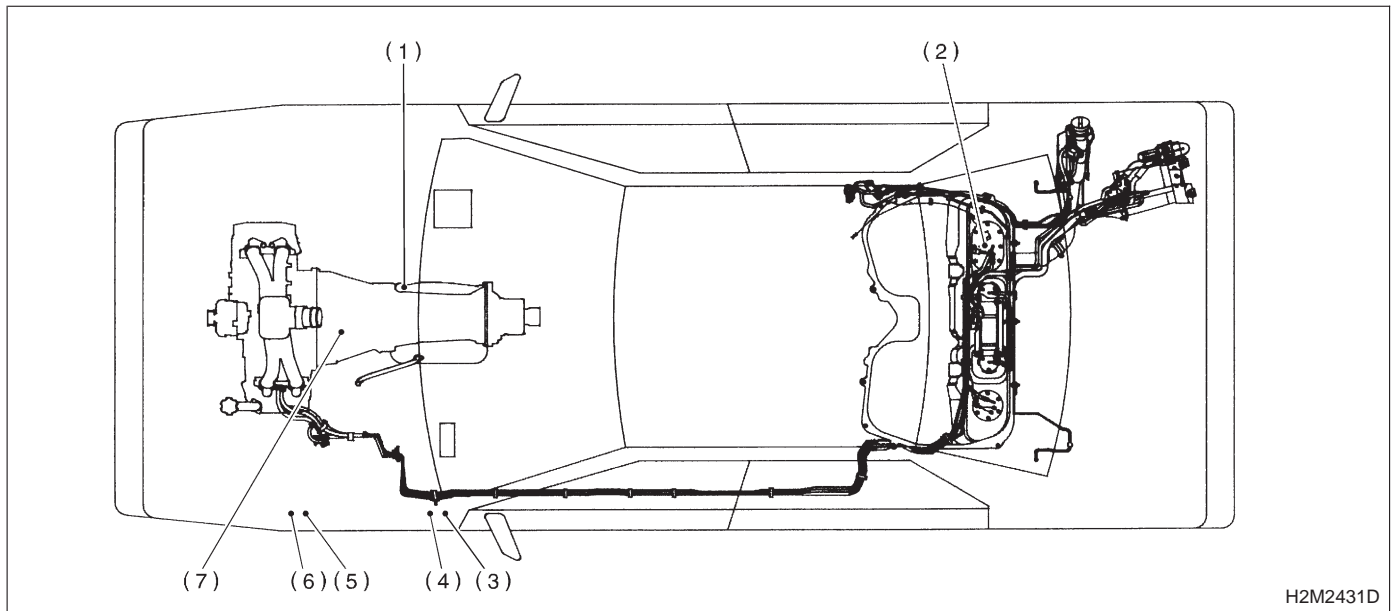


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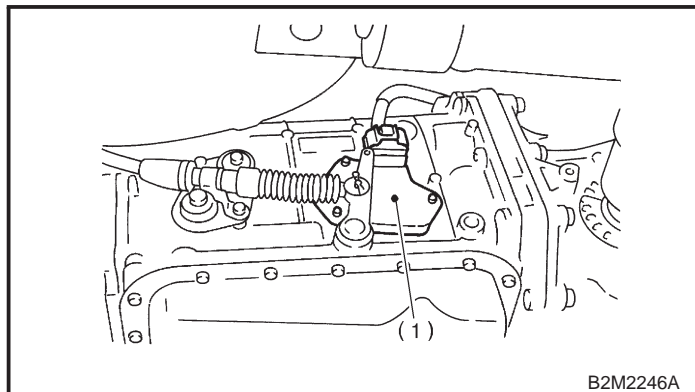
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2. Electrical Components Location

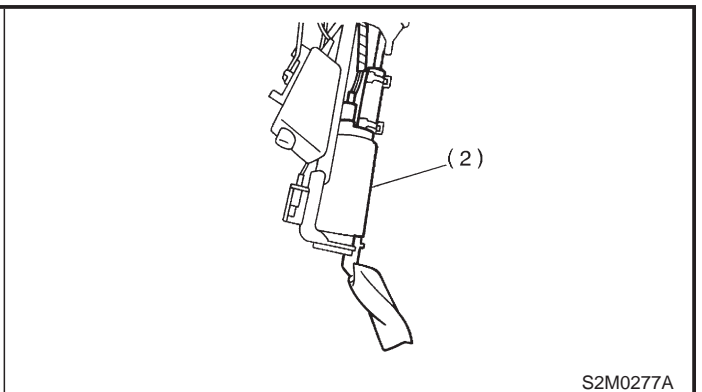


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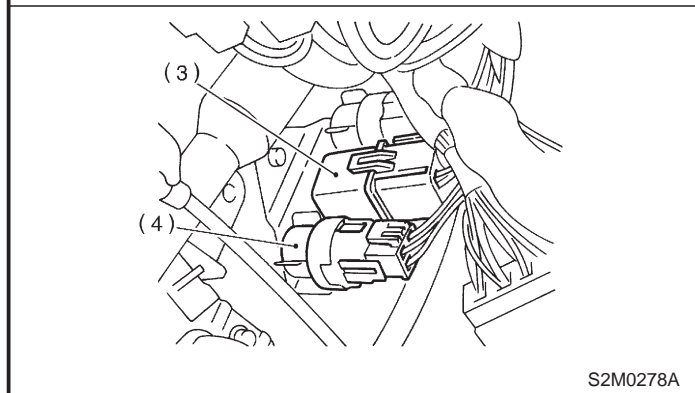
- | | | |
|---|-----------------------------|----------------------------|
| (1) Inhibitor switch (AT vehicles only) | (3) Main relay | (6) Radiator sub fan relay |
| (2) Fuel pump | (4) Fuel pump relay | (7) Starter |
| | (5) Radiator main fan relay | |



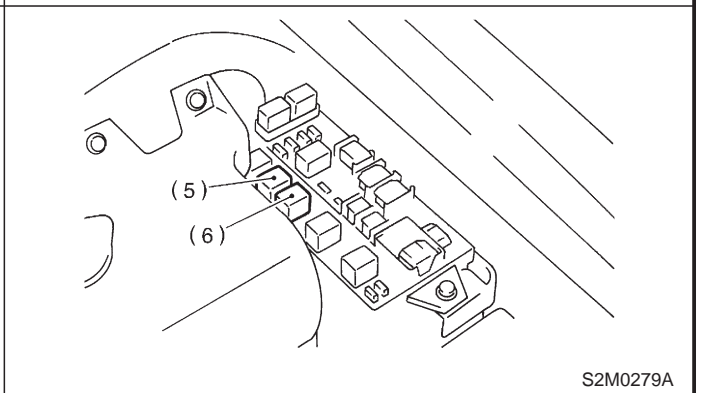
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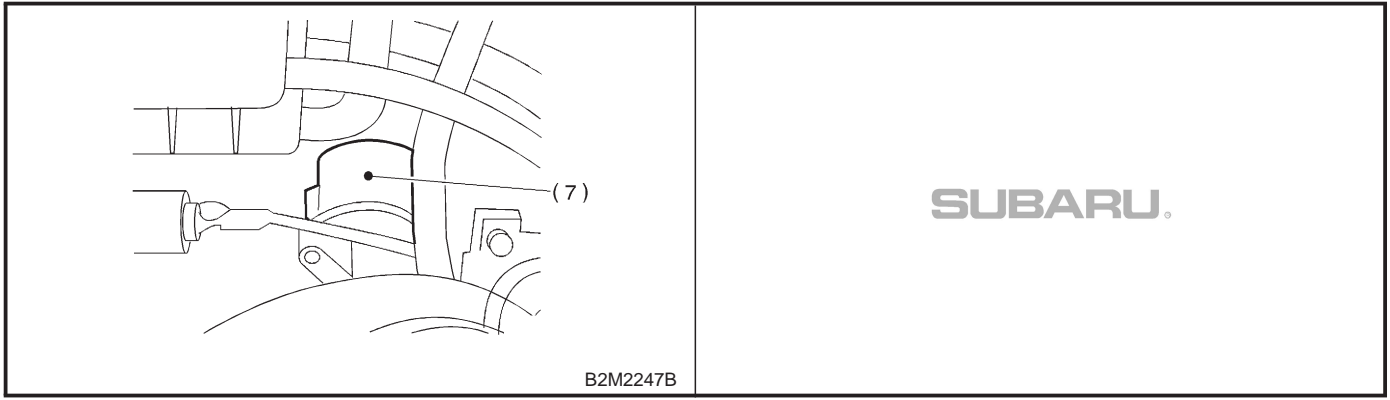
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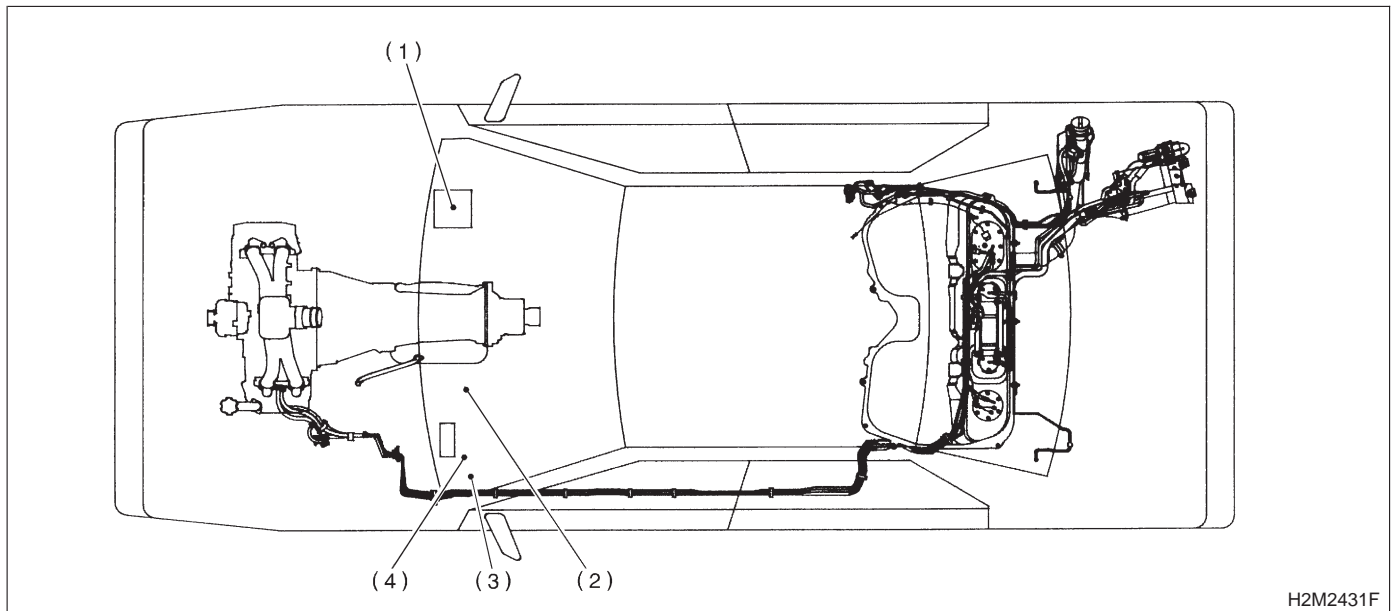


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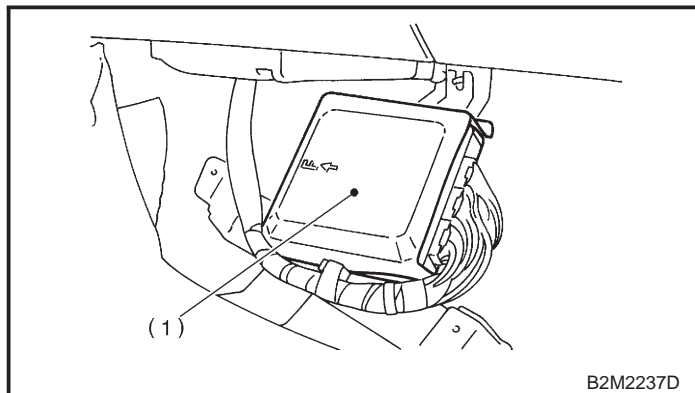
B: ENGINE (EXCEPT 2200 cc CALIFORNIA SPEC. VEHICLES)

1. MODULE

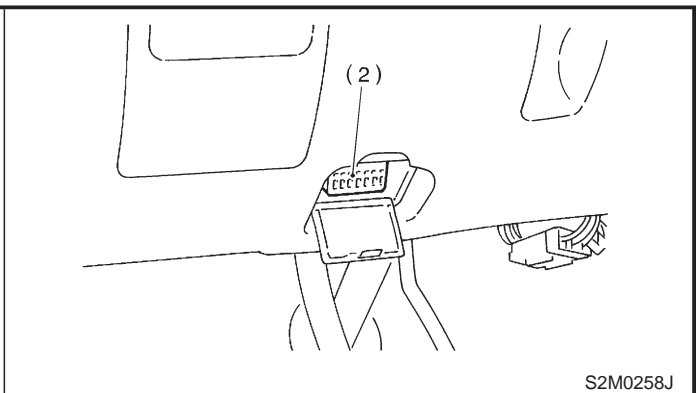


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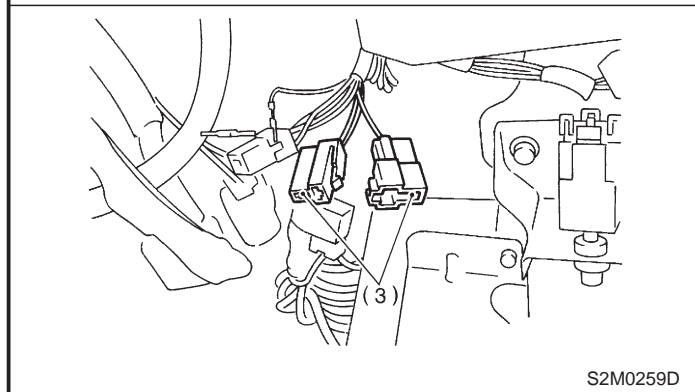
- | | |
|--|---|
| (1) Engine control module (ECM) | (3) Test mode connector |
| (2) Data link connector (for Subaru Select Monitor and OBD-II general scan tool) | (4) CHECK ENGINE malfunction indicator lamp (MIL) |



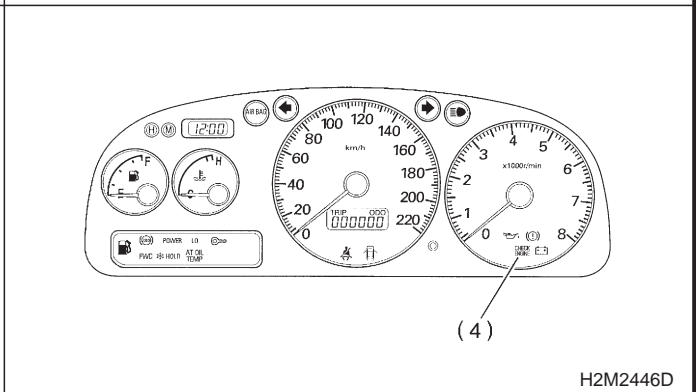
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S2M0258J



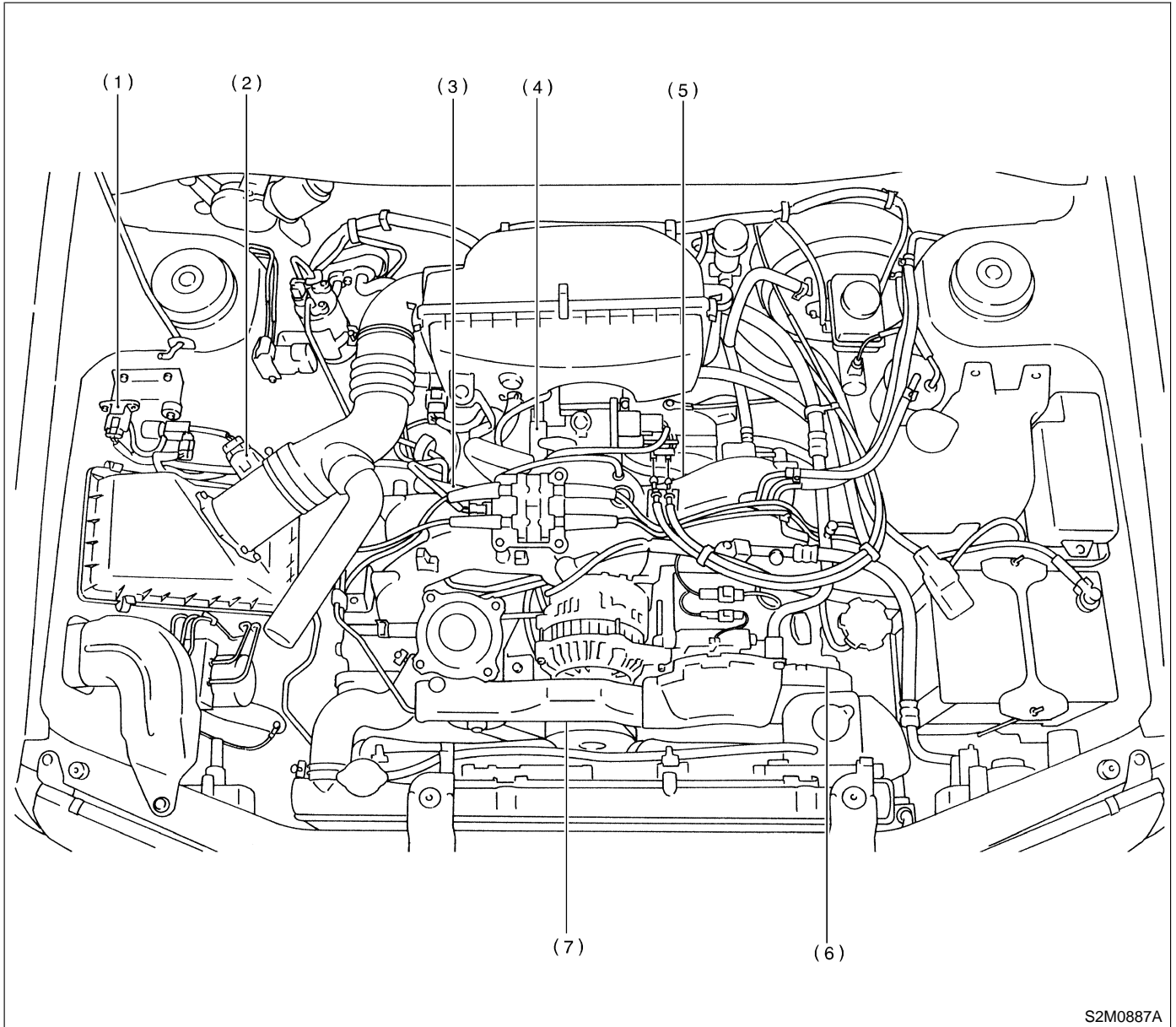
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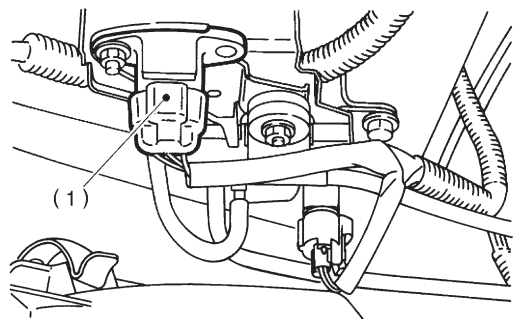
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2. SENSOR

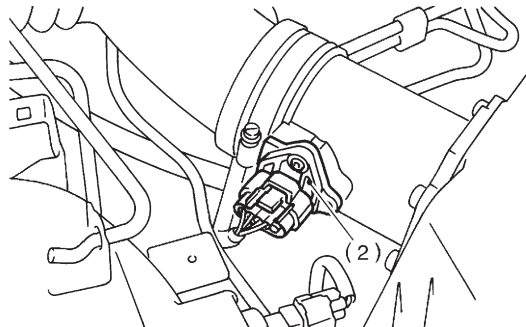


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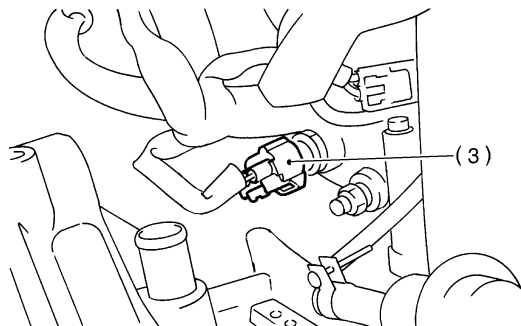
- | | |
|---------------------------------------|--------------------------------|
| (1) Pressure sensor | (4) Throttle position sensor |
| (2) Mass air flow sensor | (5) Knock sensor |
| (3) Engine coolant temperature sensor | (6) Camshaft position sensor |
| | (7) Crankshaft position sensor |



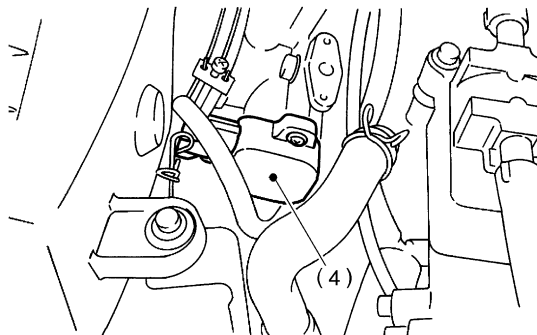
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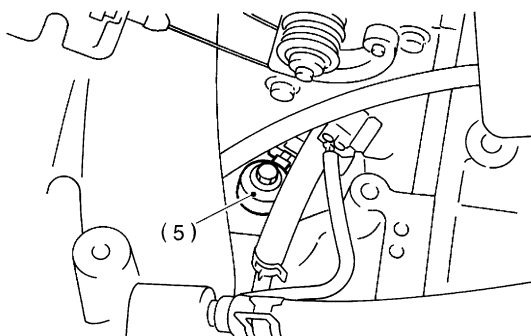
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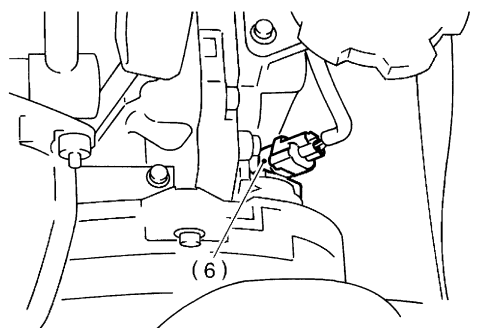
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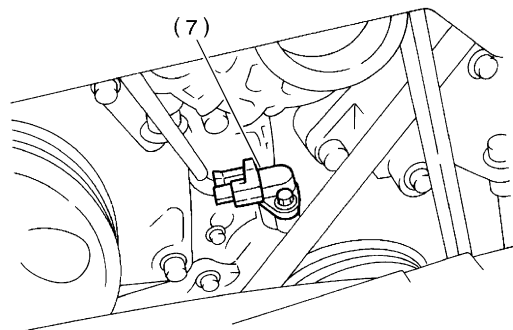
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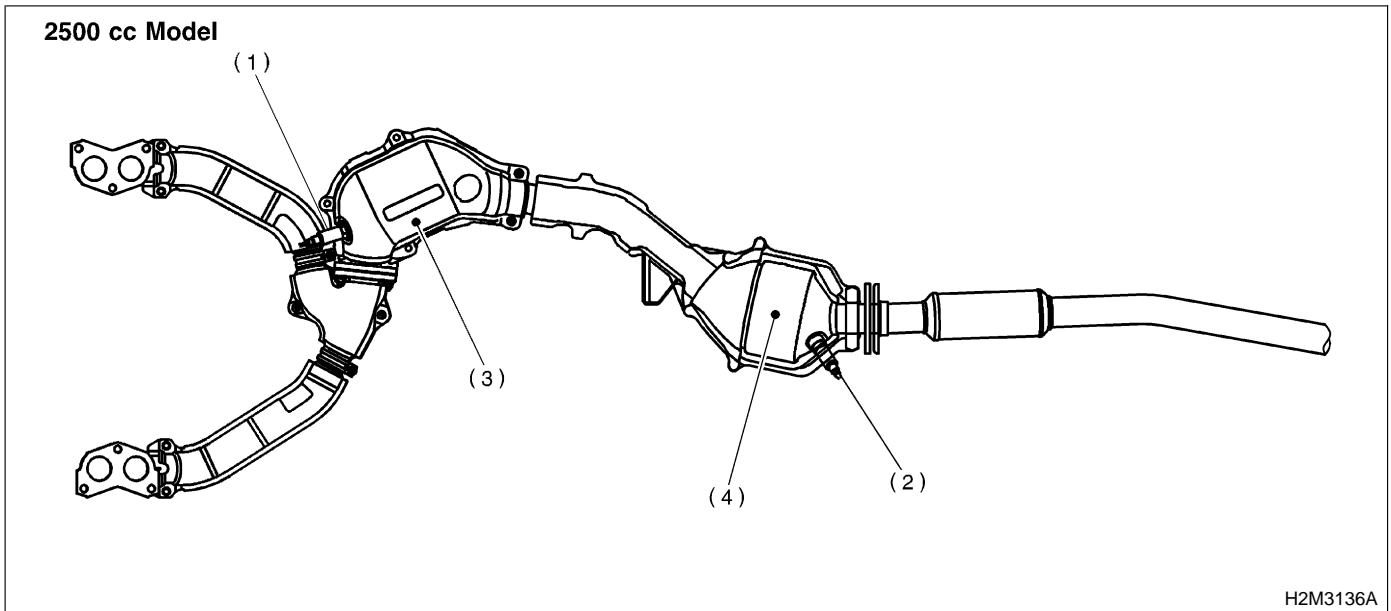
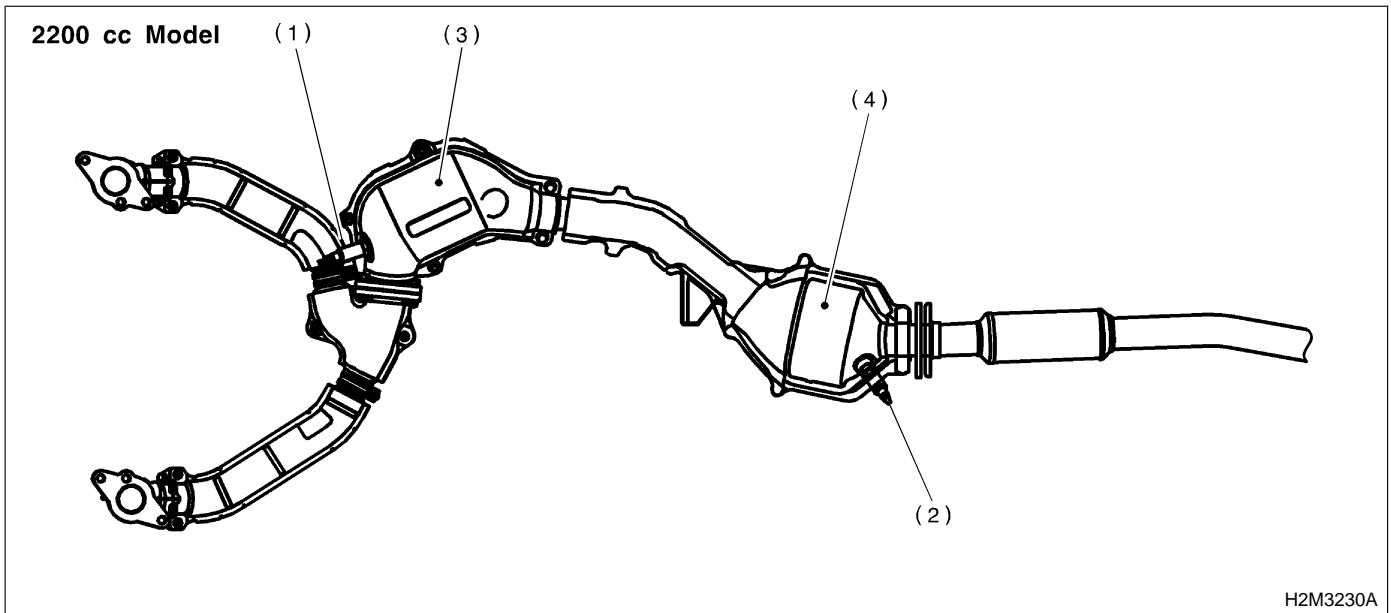


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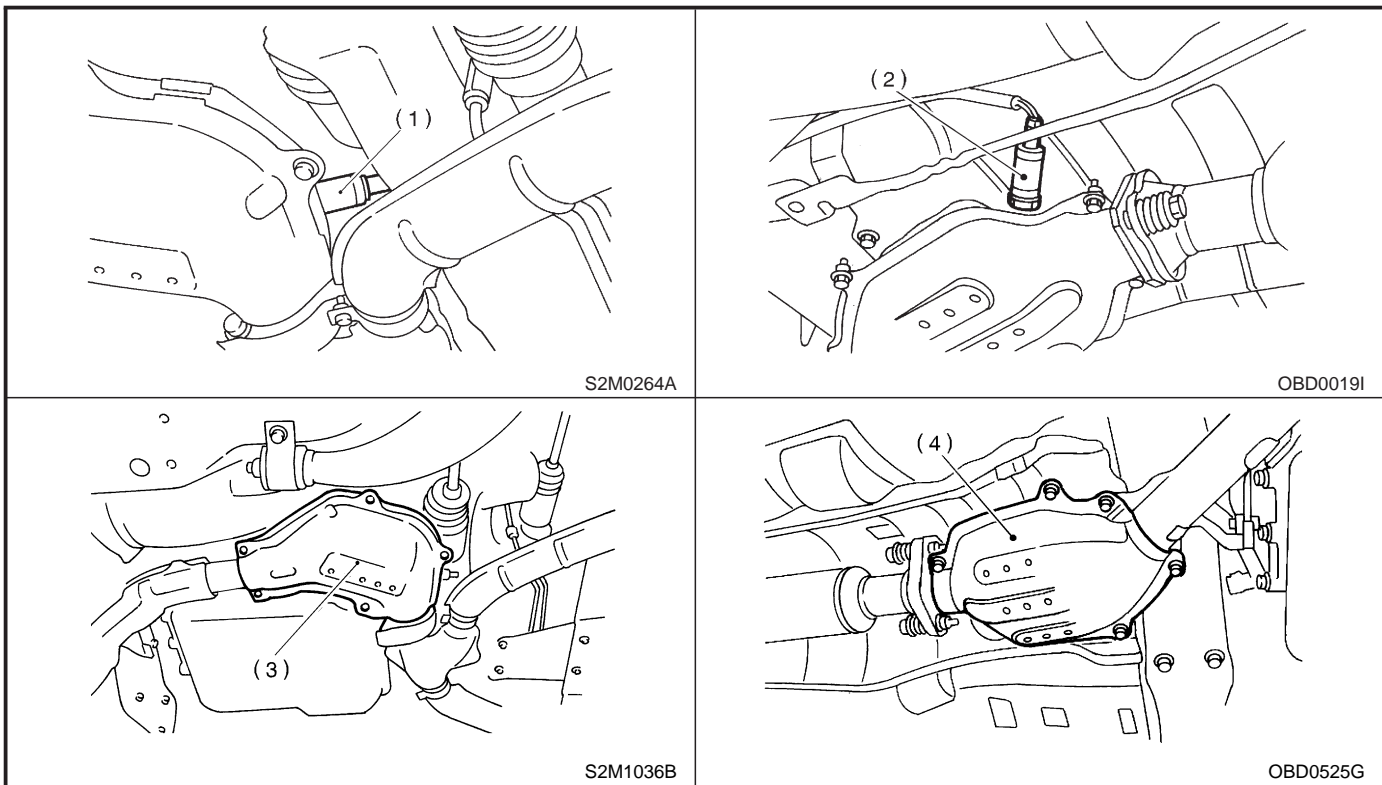
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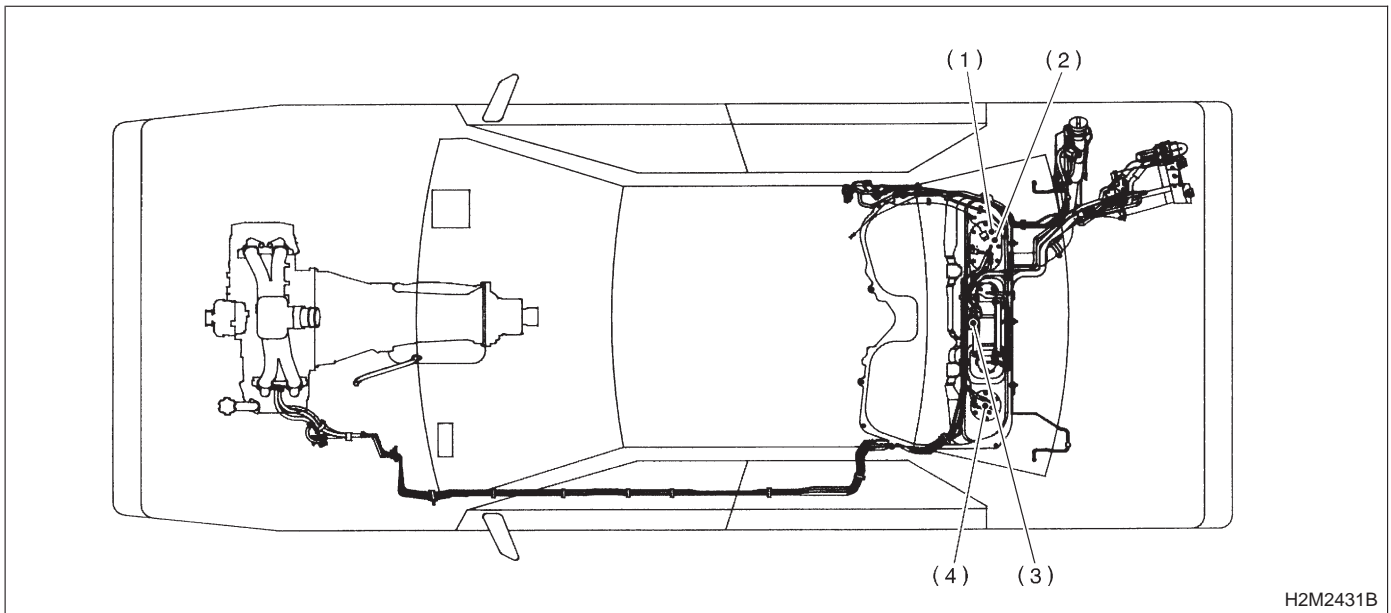


- (1) Front oxygen sensor
- (2) Rear oxygen sensor

- (3) Front catalytic converter
- (4) Rear catalytic converter

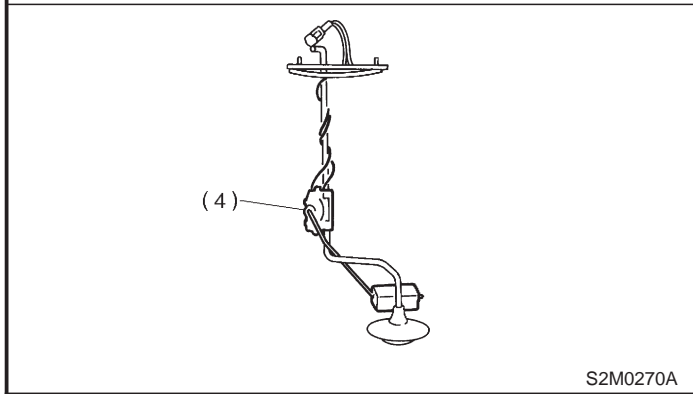
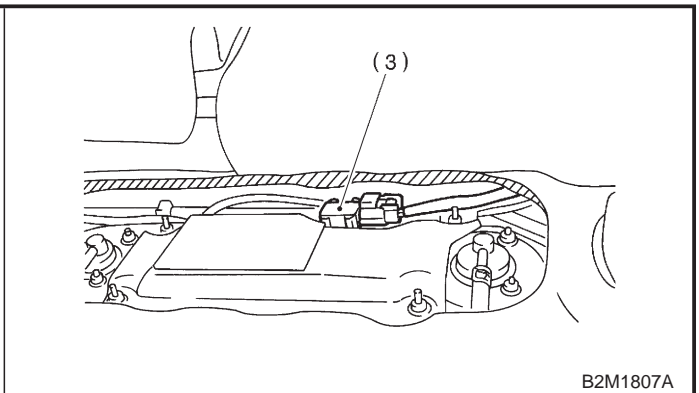
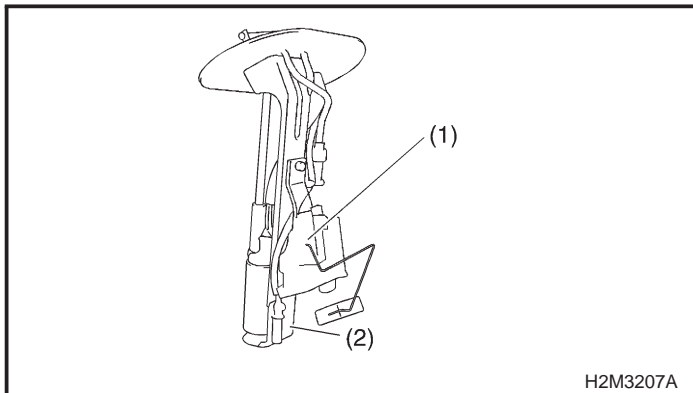


2. Electrical Components Location



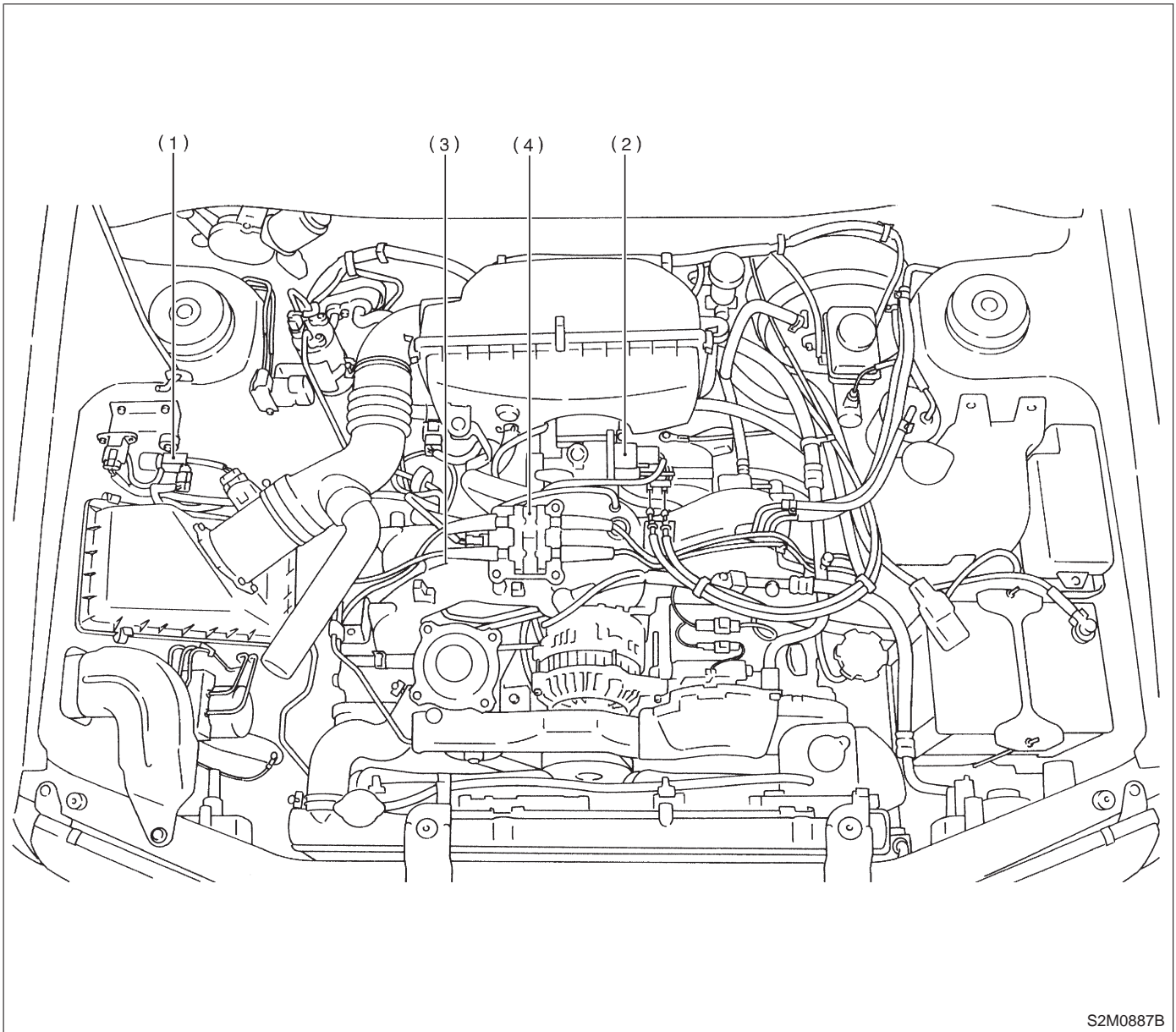
- (1) Fuel level sensor
- (2) Fuel temperature sensor

- (3) Fuel tank pressure sensor
- (4) Fuel sub level sensor



MEMO:

3. SOLENOID VALVE, EMISSION CONTROL SYSTEM PARTS AND IGNITION SYSTEM PARTS

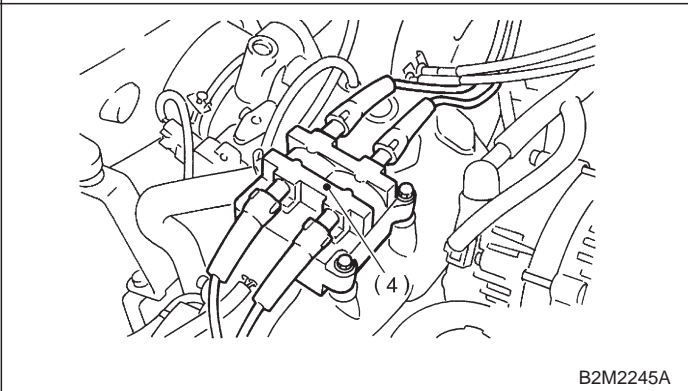
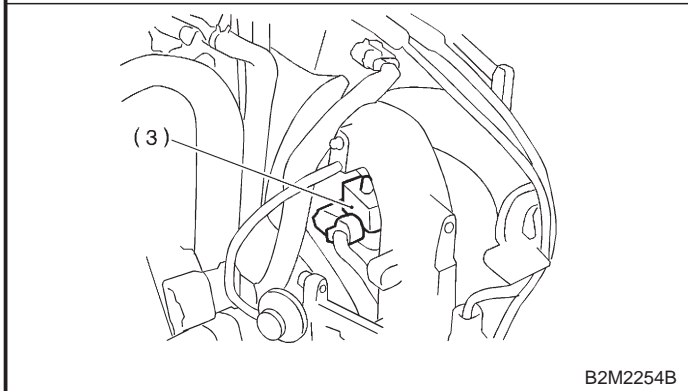
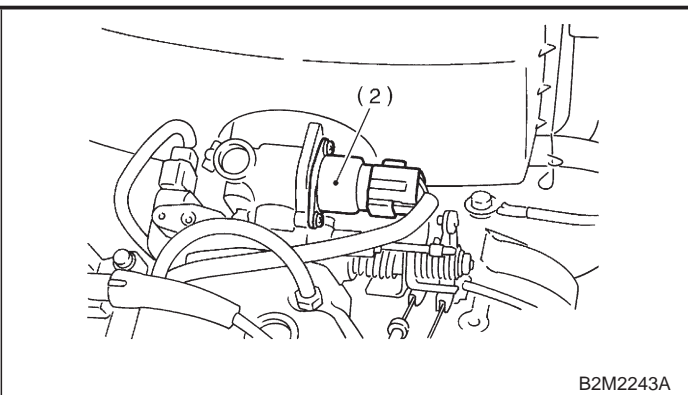
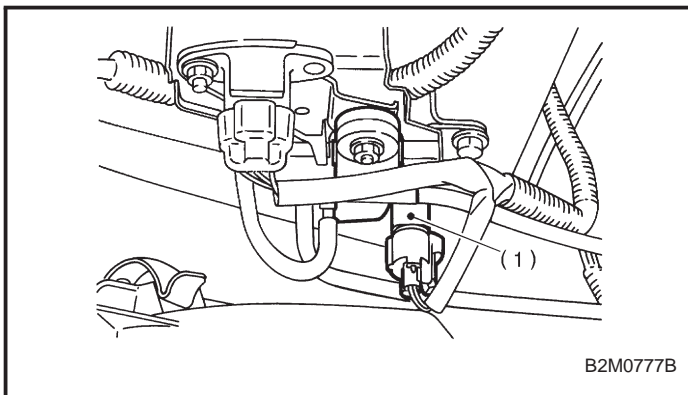


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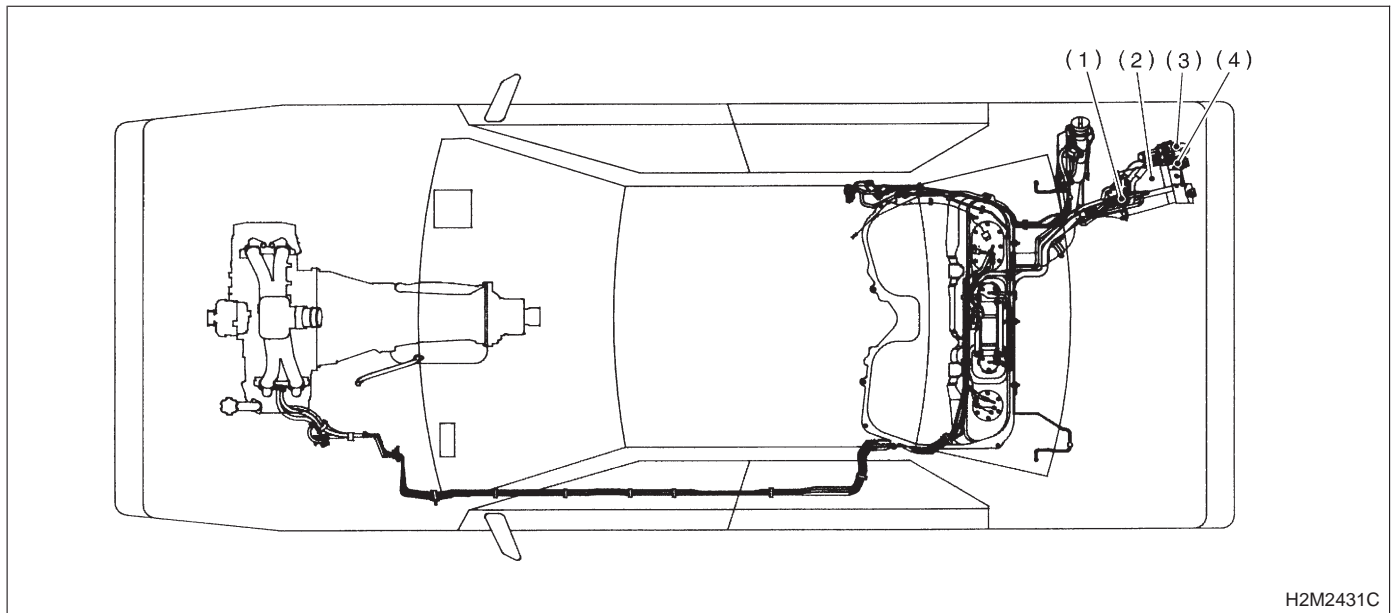
(1) Pressure sources switching solenoid valve

(2) Idle air control solenoid valve
(3) Purge control solenoid valve

(4) Ignition coil & ignitor ASSY



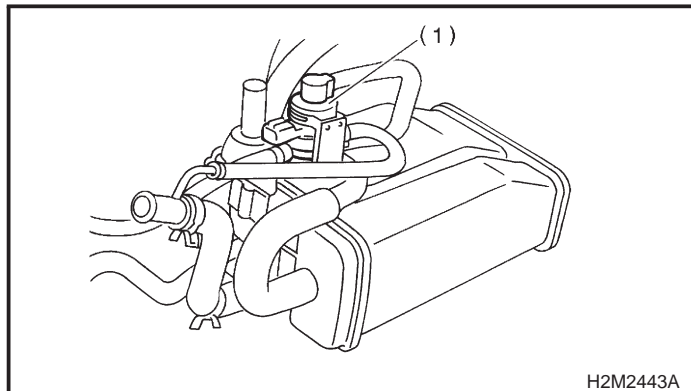
2. Electrical Components Location



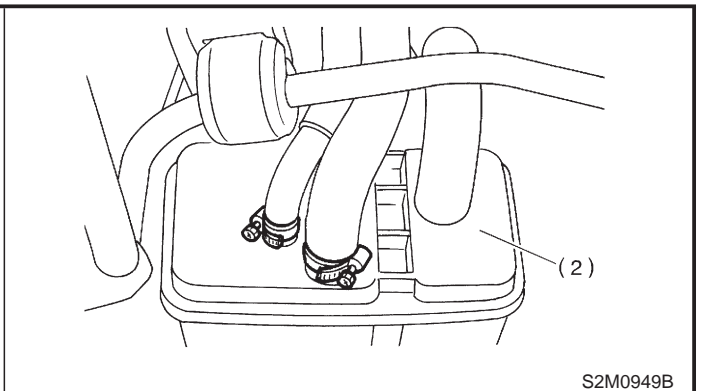
H2M2431C

- (1) Pressure control solenoid valve
- (2) Canister

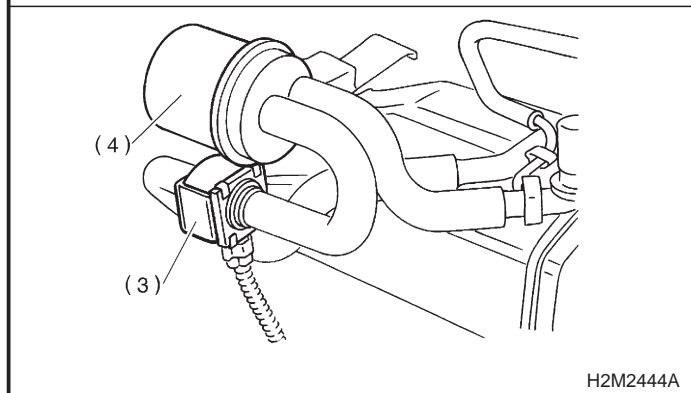
- (3) Drain valve
- (4) Air filter



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S2M0949B

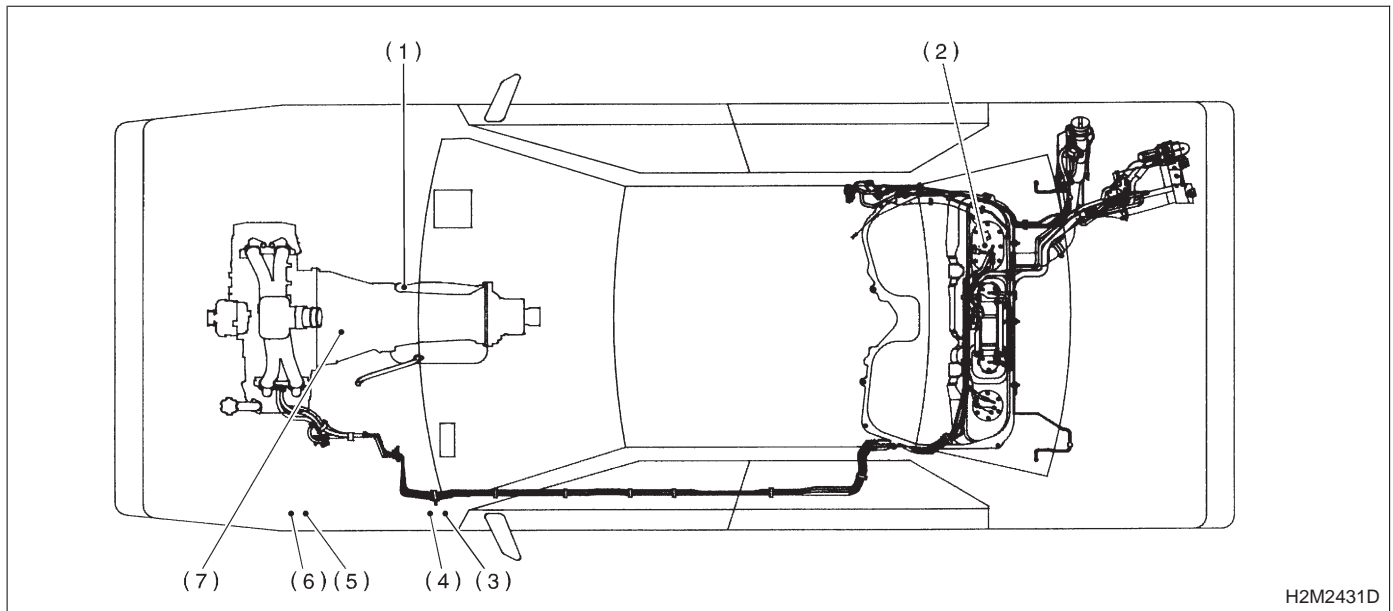


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SUBARU.

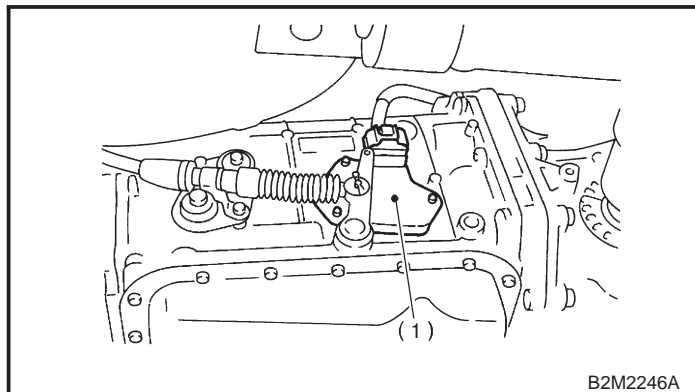
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2. Electrical Components Location

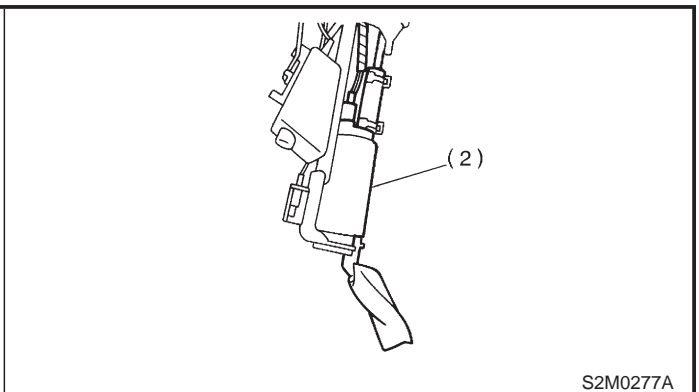


H2M2431D

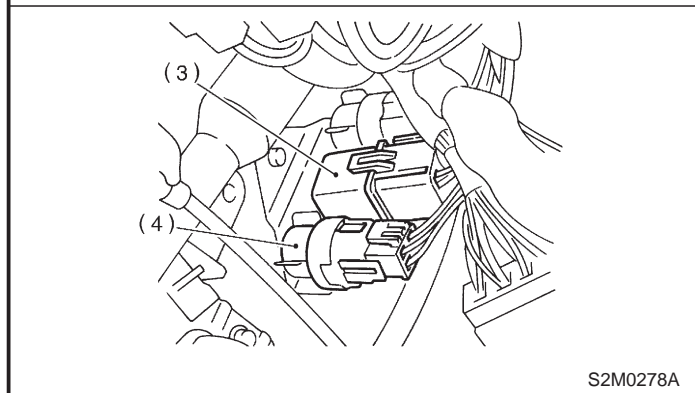
- | | | |
|---|-----------------------------|----------------------------|
| (1) Inhibitor switch (AT vehicles only) | (3) Main relay | (6) Radiator sub fan relay |
| (2) Fuel pump | (4) Fuel pump relay | (7) Starter |
| | (5) Radiator main fan relay | |



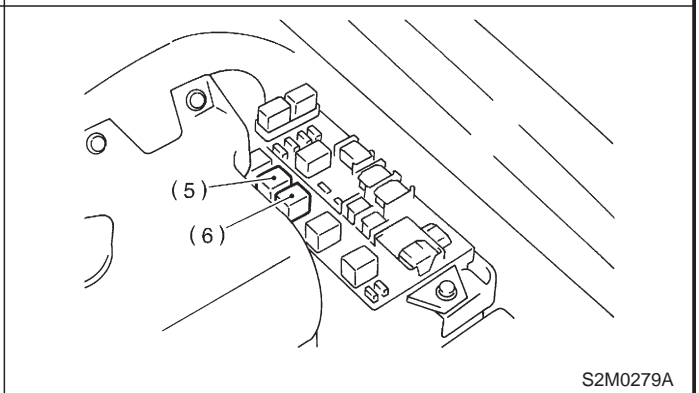
B2M2246A



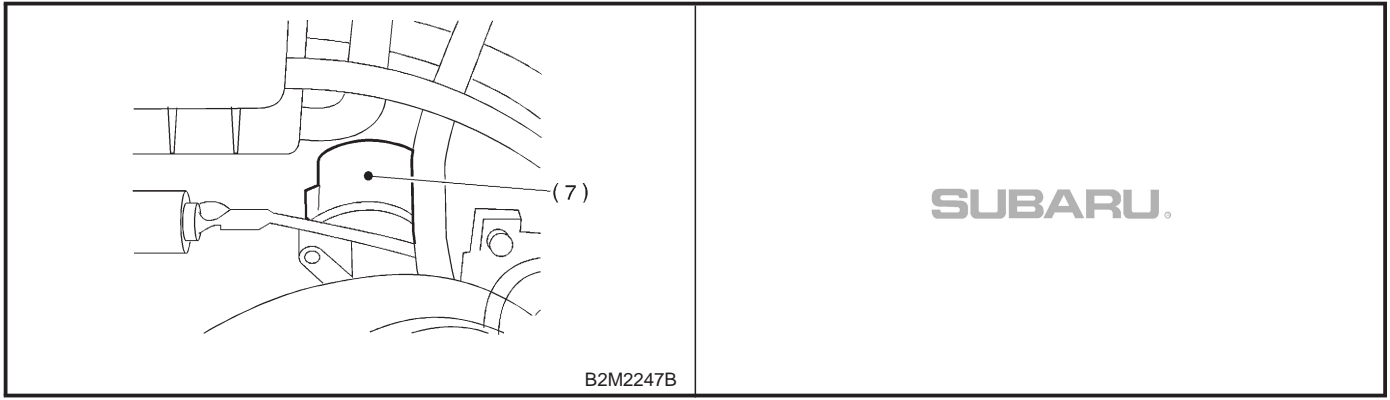
S2M0277A



S2M0278A

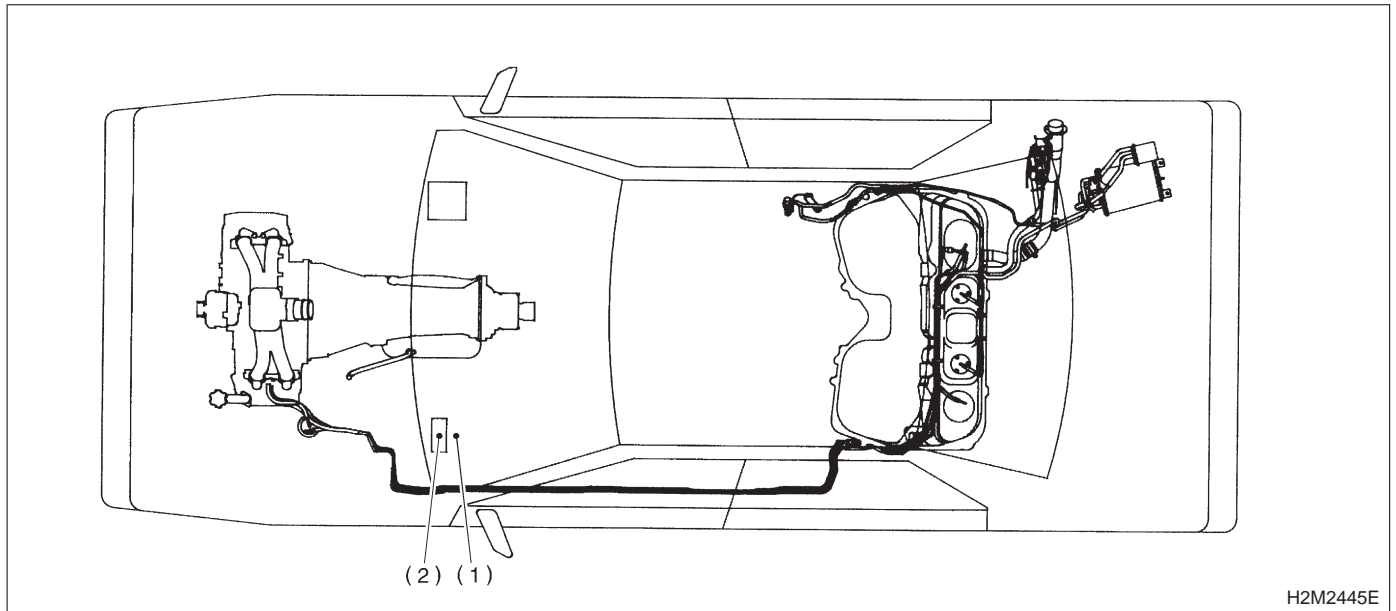


S2M0279A



C: TRANSMISSION

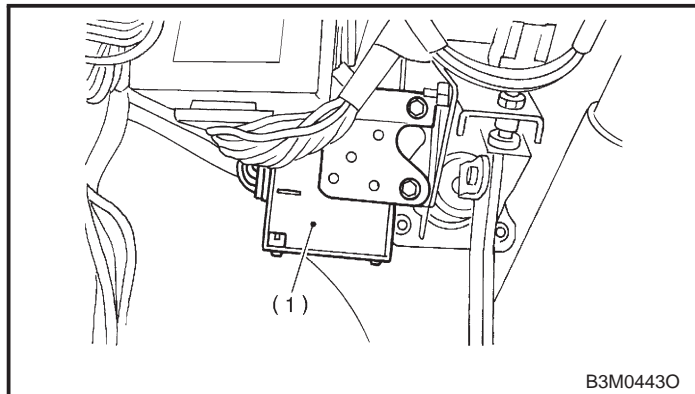
1. MODULE



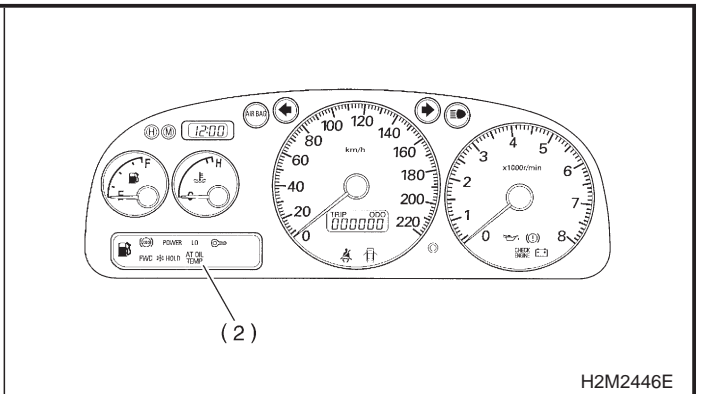
H2M2445E

(1) Transmission Control Module (TCM) (for AT vehicles)

(2) AT diagnostic indicator light (for AT vehicles)

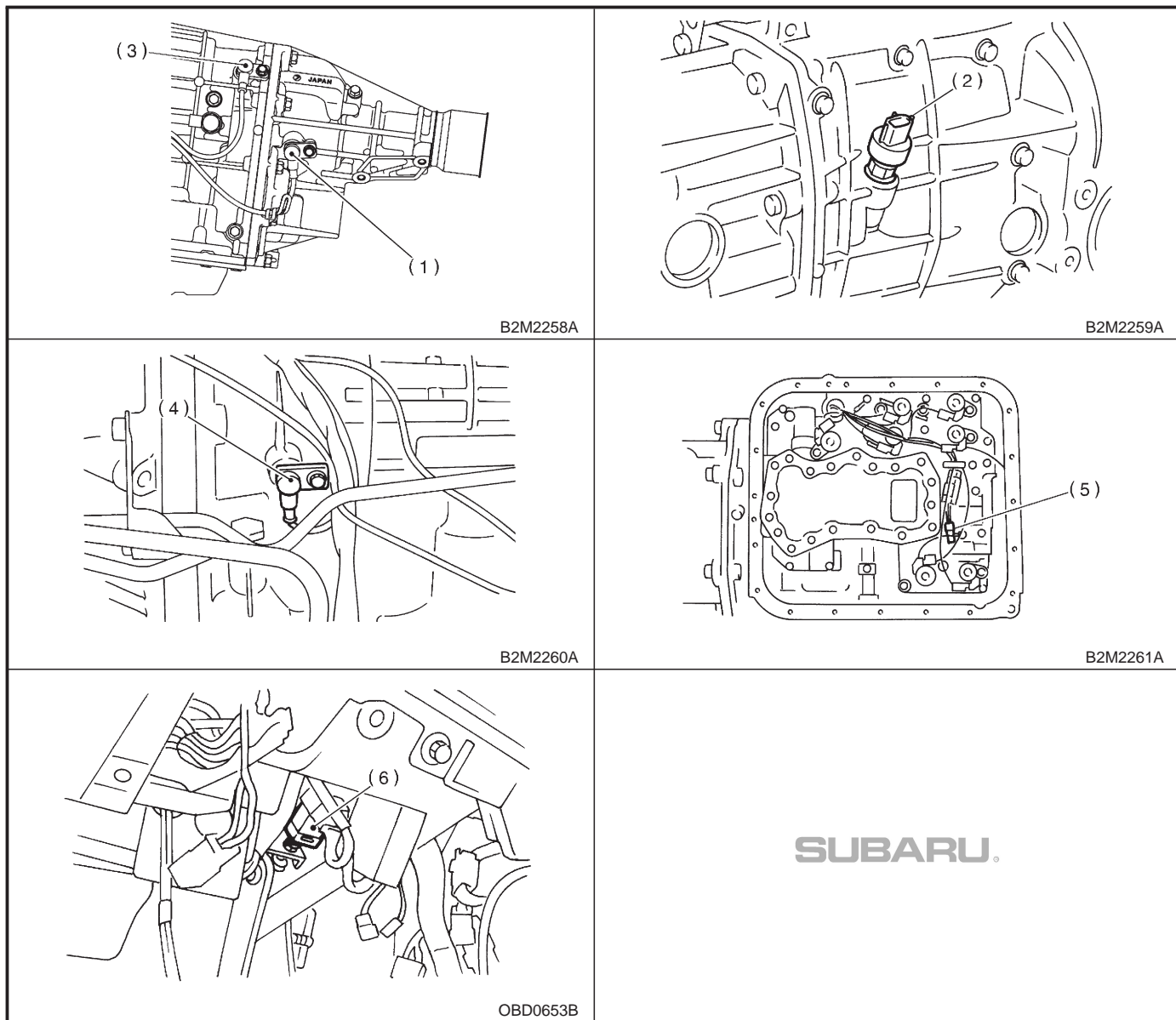


B3M0443O



H2M2446E

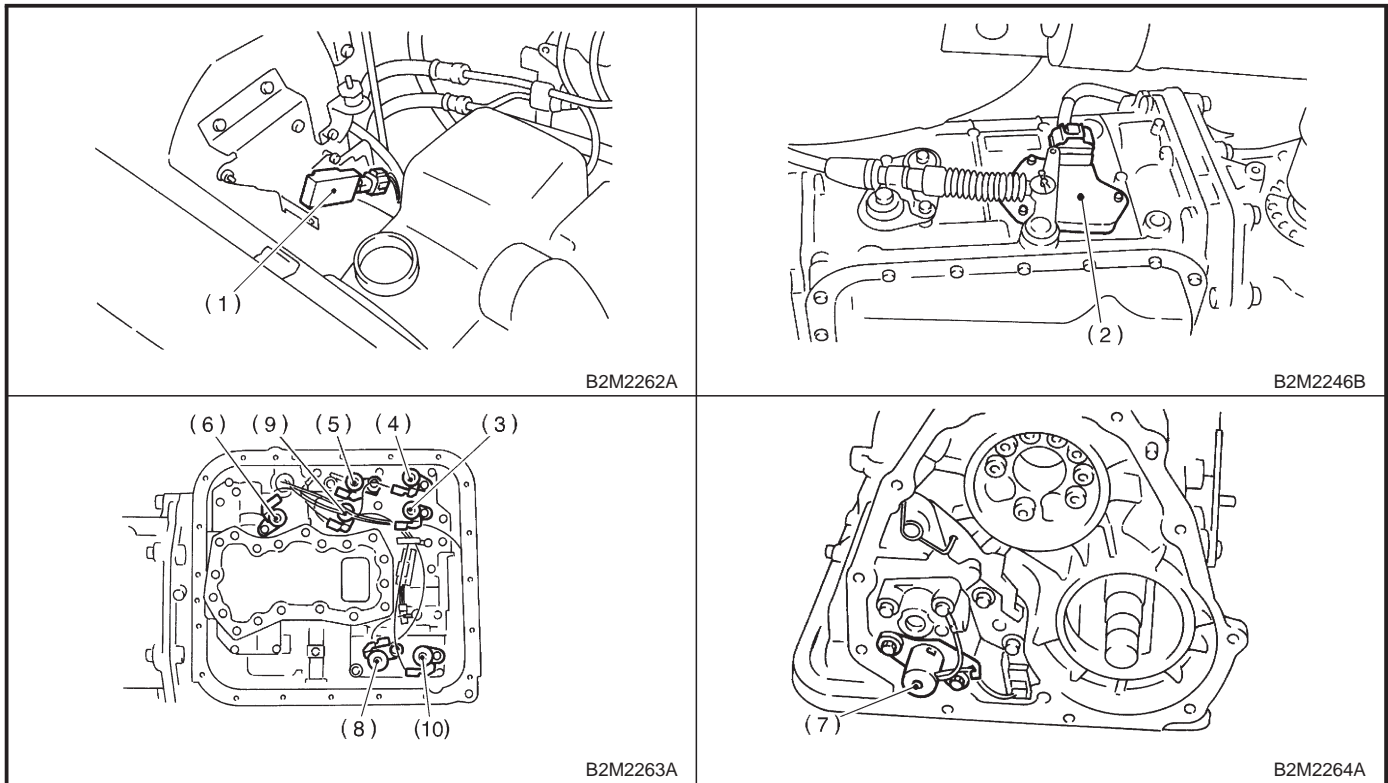
2. SENSOR



- (1) Vehicle speed sensor 1 (for AT AWD vehicles)
- (2) Vehicle speed sensor 2 (for MT vehicles)
- (3) Vehicle speed sensor 2 (for AT AWD vehicles)
- (4) Torque converter turbine speed sensor
- (5) ATF temperature sensor (for AT vehicles)
- (6) Brake light switch

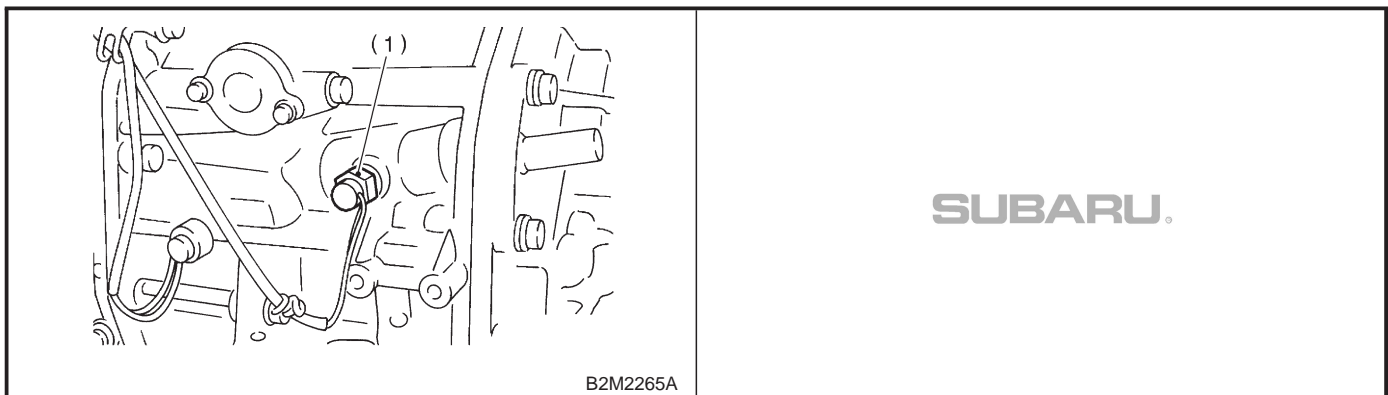
3. SOLENOID VALVE AND RELAY

● For AT vehicles



- (1) Dropping resistor
- (2) Inhibitor switch
- (3) Shift solenoid valve 1
- (4) Shift solenoid valve 2
- (5) Duty solenoid valve A
- (6) Duty solenoid valve B
- (7) Duty solenoid valve C
- (8) Duty solenoid valve D
- (9) Low clutch timing solenoid valve
- (10) 2-4 brake timing solenoid valve

● For MT vehicles



- (1) Neutral position switch

3. Diagnosis System

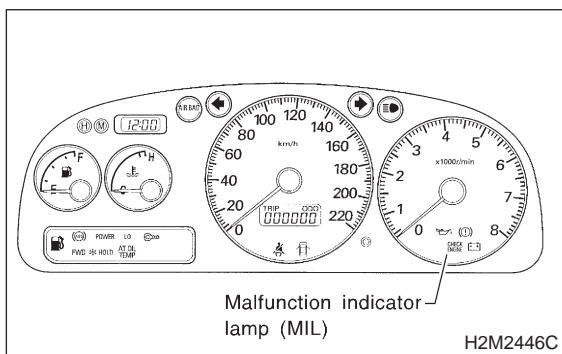
A: CHECK ENGINE MALFUNCTION INDICATOR LAMP (MIL)

1. ACTIVATION OF CHECK ENGINE MALFUNCTION INDICATOR LAMP (MIL)

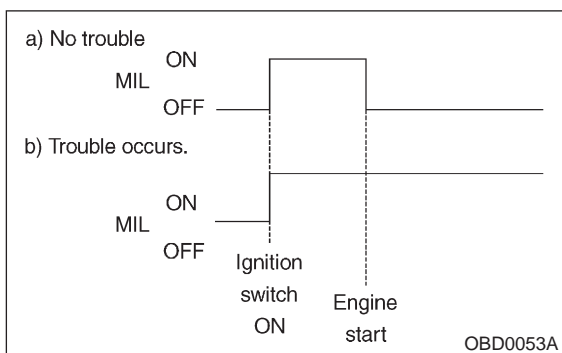
1) When ignition switch is turned to ON (engine off), the CHECK ENGINE malfunction indicator lamp (MIL) in the combination meter illuminates.

NOTE:

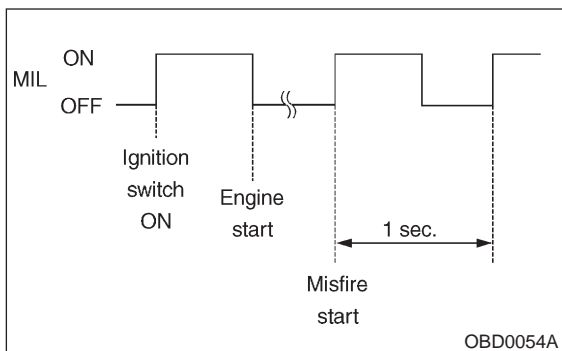
If the MIL does not illuminate, perform diagnostics of the CHECK ENGINE light circuit or the combination meter circuit. <Ref. to 2-7 [T700].>



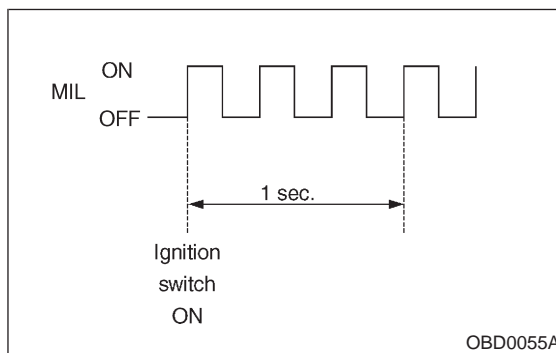
2) After starting the engine, the MIL goes out. If it does not, either the engine or the emission control system is malfunctioning.



3) If the diagnosis system senses a misfire which could damage the catalyzer, the MIL will blink at a cycle of 1 Hz.



4) When ignition switch is turned to ON (engine off) or to "START" with the test mode connector connected, the MIL blinks at a cycle of 3 Hz.

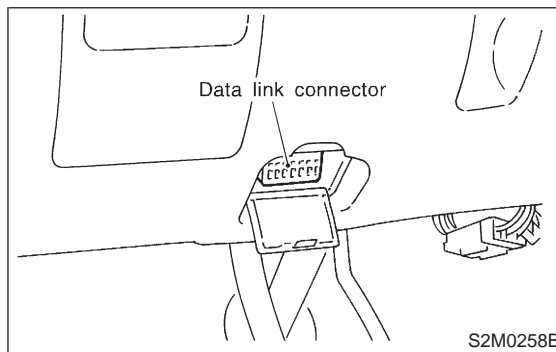


B: OBD-II GENERAL SCAN TOOL

1. HOW TO USE OBD-II GENERAL SCAN TOOL

1) Prepare a general scan tool (OBD-II general scan tool) required by SAE J1978.

2) Open the cover and connect the OBD-II general scan tool to the data link connector located in the lower portion of the instrument panel (on the driver's side), to the lower cover.



3) Using the OBD-II general scan tool, call up diagnostic trouble code(s) and freeze frame data.

OBD-II general scan tool functions consist of:

- (1) MODE \$01: Current powertrain diagnostic data
- (2) MODE \$02: Powertrain freeze frame data
- (3) MODE \$03: Emission-related powertrain diagnostic trouble codes
- (4) MODE \$04: Clear/Reset emission-related diagnostic information
- (5) MODE \$05: Oxygen sensor monitoring test results

Read out data according to repair procedures. (For detailed operation procedures, refer to the OBD-II General Scan Tool Operation Manual.)

NOTE:

For details concerning diagnostic trouble codes, refer to the DIAGNOSTIC TROUBLE CODE (DTC) LIST.

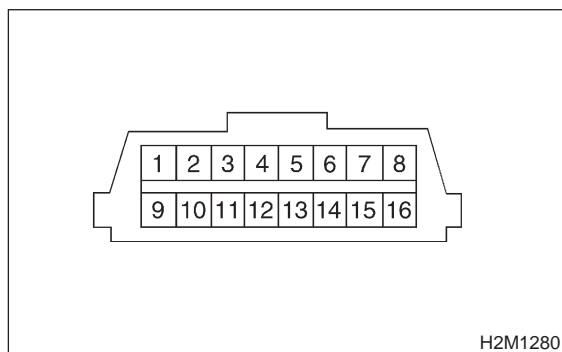
- 2200 cc California spec. vehicles: <Ref. to 2-7 [T10A0].>
- Except 2200 cc California spec. vehicles: <Ref. to 2-7 [T11A0].>

2. DATA LINK CONNECTOR (FOR OBD-II GENERAL SCAN TOOL AND SUBARU SELECT MONITOR)

- 1) This connector is used both for OBD-II general scan tools and the Subaru Select Monitor.
- 2) Terminal No. 4 to No. 6 of the data link connector is used for the Subaru Select Monitor signal.

CAUTION:

Do not connect any scan tools other than the OBD-II general scan tools and the Subaru Select Monitor, because the circuit for the Subaru Select Monitor may be damaged.



Terminal No.	Contents	Terminal No.	Contents
1	Power supply	9	Blank
2	Blank	10	K line of ISO 9141 CARB
3	Blank	11	Blank
4	Subaru Select Monitor signal (ECM to Subaru Select Monitor)*	12	Ground
5	Subaru Select Monitor signal (Subaru Select Monitor to ECM)*	13	Ground
6	Line end check signal 1	14	Blank
7	Blank	15	Blank
8	Line end check signal 2	16	Blank

*: Circuit only for Subaru Select Monitor

3. CURRENT POWERTRAIN DIAGNOSTIC DATA (MODE \$01)

Refers to data denoting the current operating condition of analog input/output, digital input/output and/or the powertrain system.

A list of the support data and PID (Parameter Identification) codes are shown in the following table.

PID	Data	Unit of measure
01	Number of emission-related powertrain trouble codes and MIL status	ON/OFF
03	Fuel system control status	—
04	Calculated engine load value	%
05	Engine coolant temperature	°C
06	Short term fuel trim	%
07	Long term fuel trim	%
0B	Intake manifold absolute pressure	kPa
0C	Engine revolution	rpm
0D	Vehicle speed	km/h
0E	Ignition timing advance	°
10	Air flow rate from mass air flow sensor*1	g/sec
10	Air flow rate from pressure sensor*2	g/sec
11	Throttle valve opening angle	%
13	Check whether oxygen sensor is installed.	—
14	Oxygen sensor output voltage and short term fuel trim associated with oxygen sensor—bank 1	V and %
15	Oxygen sensor output voltage and short term fuel trim associated with oxygen sensor—bank 2	V and %
1C	On-board diagnosis system	—

*1: Except 2200 cc California spec. vehicles

*2: 2200 cc California spec. vehicles

NOTE:

Refer to OBD-II general scan tool manufacturer's instruction manual to access generic OBD-II PIDs (MODE \$01).

4. POWERTRAIN FREEZE FRAME DATA (MODE \$02)

Refers to data denoting the operating condition when trouble is sensed by the on-board diagnosis system. A list of the support data and PID (Parameter Identification) codes are shown in the following table.

PID	Data	Unit of measure
02	Trouble code that caused CARB required freeze frame data storage	—
03	Fuel system control status	—
04	Calculated engine load value	%
05	Engine coolant temperature	°C
06	Short term fuel trim	%
07	Long term fuel trim	%
0B	Intake manifold absolute pressure	kPa
0C	Engine revolution	rpm
0D	Vehicle speed	km/h

NOTE:

Refer to OBD-II general scan tool manufacturer's instruction manual to access freeze frame data (MODE \$02).

5. EMISSION-RELATED POWERTRAIN DIAGNOSTIC TROUBLE CODE (MODE \$03)

Refers to data denoting emission-related powertrain diagnostic trouble codes.

For details concerning diagnostic trouble codes, refer to the DIAGNOSTIC TROUBLE CODE (DTC) LIST.

- 2200 cc California spec. vehicles: <Ref. to 2-7 [T10A0].>
- Except 2200 cc California spec. vehicles: <Ref. to 2-7 [T11A0].>

NOTE:

Refer to OBD-II general scan tool manufacturer's instruction manual to access emission-related powertrain diagnostic trouble codes (MODE \$03).

6. CLEAR/RESET EMISSION-RELATED DIAGNOSTIC INFORMATION (MODE \$04)

Refers to the mode used to clear or reset emission-related diagnostic information (OBD-II trouble diagnostic information).

NOTE:

Refer to OBD-II general scan tool manufacturer's instruction manual to clear or reset emission-related diagnostic information (MODE \$04).

7. OXYGEN SENSOR MONITORING TEST RESULTS (MODE \$05)

Refers to the mode using oxygen sensor output data while the on-board diagnosis system is performing diagnosis on the oxygen sensor.

A list of the support data of oxygen sensor output and test ID (identification) are shown in the following table.

NOTE:

This system is not applicable to the front oxygen (A/F) sensor of the 2200 cc California spec. vehicles.

Test ID	Data	Unit of measure
01	Rich to lean sensor threshold voltage (constant)	V
02	Lean to rich sensor threshold voltage (constant)	V
03	Low sensor voltage for switch time calculation (constant)	V
04	High sensor voltage for switch time calculation (constant)	V
05	Rich to lean sensor switch time (calculated)	sec.
06	Lean to rich sensor switch time (calculated)	sec.
07	Minimum sensor voltage for test cycle (calculated)	V
08	Maximum sensor voltage for test cycle (calculated)	V

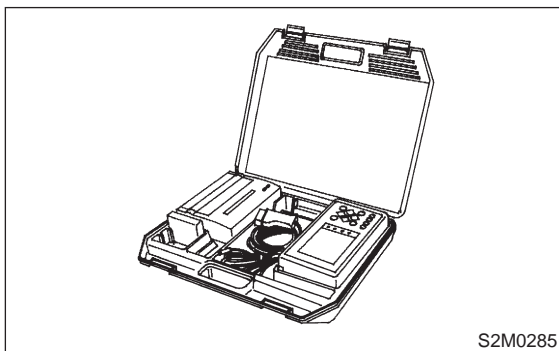
NOTE:

Refer to OBD-II general scan tool manufacturer's instruction manual to access oxygen sensor monitoring test results (MODE \$05).

C: SUBARU SELECT MONITOR

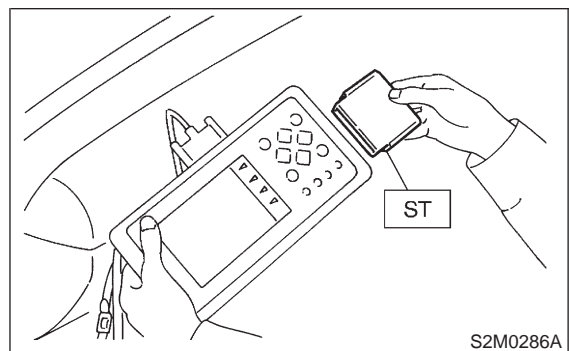
1. HOW TO USE SUBARU SELECT MONITOR

- 1) Prepare Subaru Select Monitor kit.



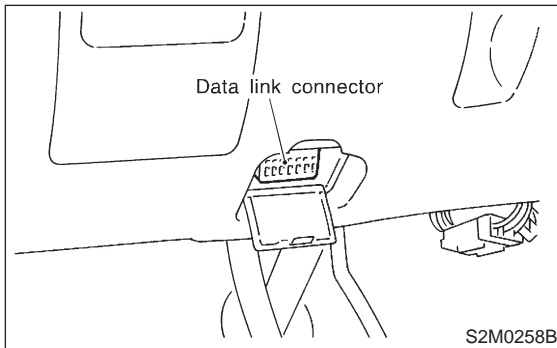
- 2) Connect diagnosis cable to Subaru Select Monitor.

- 3) Insert cartridge into Subaru Select Monitor. <Ref. to 1-6 [G1100].>



4) Connect Subaru Select Monitor to data link connector.

- (1) Open the cover data link connector located in the lower portion of the instrument panel (on the driver's side), to the lower cover.

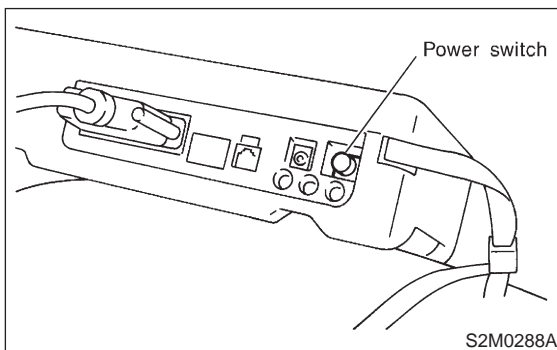


- (2) Connect diagnosis cable to data link connector.

CAUTION:

Do not connect scan tools except for Subaru Select Monitor and OBD-II general scan tool.

- 5) Turn ignition switch to ON (engine OFF) and Subaru Select Monitor switch to ON.



- 6) Using Subaru Select Monitor, call up diagnostic trouble code(s) and various data, then record them.

2. READ DIAGNOSTIC TROUBLE CODE (DTC) SHOWN ON DISPLAY FOR ENGINE. (NORMAL MODE)

- 1) On the 「Main Menu」 display screen, select the {1. All System Diagnosis} and press the [YES] key.
- 2) Make sure that a diagnostic trouble code (DTC) is shown on the {Engine Control System} display screen.

NOTE:

- For detailed operation procedure, refer to the SUBARU SELECT MONITOR OPERATION MANUAL.

- For detailed concerning diagnostic trouble codes, refer to the DIAGNOSTIC TROUBLE CODE (DTC) LIST.

- 2200 cc California spec. vehicles: <Ref. to 2-7 [T10A0].>
- Except 2200 cc California spec. vehicles: <Ref. to 2-7 [T11A0].>

3. READ DIAGNOSTIC TROUBLE CODE (DTC) SHOWN ON DISPLAY FOR ENGINE. (OBD MODE)

- 1) On the 「Main Menu」 display screen, select the {2. Each System Check} and press the [YES] key.
- 2) On the 「System Selection Menu」 display screen, select the {Engine Control System} and press the [YES] key.
- 3) Press the [YES] key after displayed the information of engine type.
- 4) On the 「Engine Control System Diagnosis」 display screen, select the {7. OBD System} and press the [YES] key.
- 5) On the 「OBD Menu」 display screen, select the {3. Diagnosis Code(s) Display} and press the [YES] key.
- 6) Make sure that a diagnostic trouble code (DTC) is shown on the display screen.

NOTE:

- For detailed operation procedure, refer to the SUBARU SELECT MONITOR OPERATION MANUAL.

- For detailed concerning diagnostic trouble codes, refer to the DIAGNOSTIC TROUBLE CODE (DTC) LIST.

- 2200 cc California spec. vehicles: <Ref. to 2-7 [T10A0].>
- Except 2200 cc California spec. vehicles: <Ref. to 2-7 [T11A0].>

4. READ CURRENT DATA SHOWN ON DISPLAY FOR ENGINE. (NORMAL MODE)

- 1) On the 「Main Menu」 display screen, select the {2. Each System Check} and press the [YES] key.
 - 2) On the 「System Selection Menu」 display screen, select the {Engine Control System} and press the [YES] key.
 - 3) Press the [YES] key after displayed the information of engine type.
 - 4) On the 「Engine Control System Diagnosis」 display screen, select the {1. Current Data Display & Save} and press the [YES] key.
 - 5) On the 「Data Display Menu」 display screen, select the {1. 12 Data Display} and press the [YES] key.
 - 6) Using the scroll key, move the display screen up or down until the desired data is shown.
- A list of the support data is shown in the following table.

Contents	Display	Unit of measure
Battery voltage	Battery Voltage	V
Vehicle speed signal	Vehicle Speed	km/h or MPH
Engine speed signal	Engine Speed	rpm
Engine coolant temperature signal	Coolant Temp.	°C or °F
Ignition timing signal	Ignition Timing	deg
Mass air flow signal*1	Mass Air Flow	g/s or lb/m
Mass air flow signal*1	Air Flow Sensor Voltage	V
Throttle position signal	Throttle Opening Angle	%
Throttle position signal	Throttle Sensor Voltage	V
Injection pulse width	Fuel Injection #1 Pulse	ms
Idle air control signal*2	ISC Valve Duty Ratio	%
Idle air control signal*1	ISC Valve Step	STEP
Engine load data	Engine Load	%
Front oxygen sensor output signal*1	Front O2 Sensor #1	V
Front oxygen (A/F) sensor output signal*2	A/F Sensor #1	—
Front oxygen (A/F) sensor resistance*2	A/F Sensor #1 Resistance	Ω
Rear oxygen sensor output signal	Rear O2 Sensor	V
Short term fuel trim	A/F Correction #1	%
Knock sensor signal	Knocking Correction	deg
Atmospheric absolute pressure signal	Atmosphere Pressure	mmHg or kPa or inHg or psi
Intake manifold relative pressure signal	Mani. Relative Pressure	mmHg or kPa or inHg or psi
Intake manifold absolute pressure signal	Mani. Absolute Pressure	mmHg or kPa or inHg or psi
A/F correction (short term fuel trim) by rear oxygen sensor	A/F Correction #3	%
Long term whole fuel trim	A/F Learning #1	%
Front oxygen sensor heater current*1	Front O2 Heater #1	A
Front oxygen (A/F) sensor heater current*2	A/F Heater #1	A
Rear oxygen sensor heater current*1	Rear O2 Heater Current	A
Rear oxygen sensor heater voltage*2	Rear O2 Heater Voltage	V
Canister purge control solenoid valve duty ratio	CPC Valve Duty Ratio	%
Fuel tank pressure signal	Fuel Tank Pressure	mmHg or kPa or inHg or psi
Fuel temperature signal	Fuel Temp.	°C or °F
Fuel level signal	Fuel Level	V
Intake air temperature signal*2	Intake Air Temp.	°C or °F
Ignition switch signal	Ignition Switch	ON or OFF
Automatic transmission vehicle identification signal*1	AT Vehicle ID Signal	ON or OFF
Test mode connector signal	Test Mode Signal	ON or OFF
Neutral position switch signal	Neutral Position Switch	ON or OFF
Air conditioning switch signal	A/C Switch	ON or OFF

Contents	Display	Unit of measure
Air conditioning relay signal	A/C Relay	ON or OFF
Radiator main fan relay signal	Radiator Fan Relay #1	ON or OFF
Fuel pump relay signal	Fuel Pump Relay	ON or OFF
Knocking signal	Knocking Signal	ON or OFF
Radiator sub fan relay signal	Radiator Fan Relay #2	ON or OFF
Engine torque control signal #1	Torque Control Signal #1	ON or OFF
Engine torque control signal #2	Torque Control Signal #2	ON or OFF
Engine torque control permission signal	Torque Control Permit	ON or OFF
Pressure sources switching solenoid valve*1	Pressure Sources Change	ON or OFF
Front oxygen sensor rich signal*1	Front O2 Rich Signal #1	ON or OFF
Rear oxygen sensor rich signal	Rear O2 Rich Signal	ON or OFF
Pressure control solenoid valve	PCV Solenoid Valve	ON or OFF
Drain valve	Vent. Solenoid Valve	ON or OFF
Starter switch signal	Starter Switch Signal	ON or OFF
Idle switch signal	Idle Switch Signal	ON or OFF
Crankshaft position sensor signal	Crankshaft Position Sig.	ON or OFF
Camshaft position sensor signal	Camshaft Position Sig.	ON or OFF

*1: Except 2200 cc California spec. vehicles

*2: 2200 cc California spec. vehicles

NOTE:

For detailed operation procedure, refer to the SUBARU SELECT MONITOR OPERATION MANUAL.

5. READ CURRENT DATA SHOWN ON DISPLAY FOR ENGINE. (OBD MODE)

- 1) On the 「Main Menu」 display screen, select the {2. Each System Check} and press the [YES] key.
 - 2) On the 「System Selection Menu」 display screen, select the {Engine Control System} and press the [YES] key.
 - 3) Press the [YES] key after displayed the information of engine type.
 - 4) On the 「Engine Control System Diagnosis」 display screen, select the {7. OBD System} and press the [YES] key.
 - 5) On the 「OBD Menu」 display screen, select the {1. Current Data Display & Save} and press the [YES] key.
 - 6) On the 「Data Display Menu」 display screen, select the {1. 12 Data Display} and press the [YES] key.
 - 7) Using the scroll key, move the display screen up or down until the desired data is shown.
- A list of the support data is shown in the following table.

Contents	Display	Unit of measure
Number of diagnosis code	Number of Diagnosis Code	—
Malfunction indicator lamp status	MIL Status	ON or OFF
Monitoring test of misfire	Misfire monitoring	ON or OFF
Monitoring test of fuel system	Fuel system monitoring	ON or OFF
Monitoring test of comprehensive component	Component monitoring	ON or OFF
Test of catalyst	Catalyst Diagnosis	ON or OFF
Test of heated catalyst	Heated catalyst	ON or OFF
Test of evaporative emission purge control system	Evaporative purge system	ON or OFF
Test of secondary air system	Secondary air system	ON or OFF
Test of air conditioning system refrigerant	A/C system refrigerant	ON or OFF
Test of oxygen sensor	Oxygen sensor	ON or OFF
Test of oxygen sensor heater	Oxygen sensor heater	ON or OFF
Test of exhaust gas recirculation system	EGR System Diagnosis	ON or OFF
Air fuel ratio control system for bank 1	Fuel System for Bank 1	ON or OFF
Engine load data	Engine Load	%
Engine coolant temperature signal	Coolant Temp.	°C or °F
Short term fuel trim by front oxygen (A/F) sensor	Short term fuel trim B1	%
Long term fuel trim by front oxygen (A/F) sensor	Long term fuel trim B1	%
Intake manifold absolute pressure signal	Mani. Absolute Pressure	mmHg or kPa or inHg or psi
Engine speed signal	Engine Speed	rpm
Vehicle speed signal	Vehicle Speed	km/h or MPH
Ignition timing advance for #1 cylinder	Ignition timing adv. #1	°
Intake air temperature signal*1	Intake Air Temp.	°C or °F
Mass air flow signal	Mass Air Flow	g/s or lb/m
Throttle position signal	Throttle Opening Angle	%
A/F sensor equipment*1	A/F sensor	ON or OFF
Front oxygen sensor output signal*2	Oxygen Sensor #11	V
Air fuel ratio correction by front oxygen sensor*2	Short term fuel trim #11	%
Rear oxygen sensor output signal	Oxygen Sensor #12	V
Air fuel ratio correction by rear oxygen sensor	Short term fuel trim #12	%
On-board diagnostic system	OBD System	—

*1: 2200 cc California spec. vehicles

*2: Except 2200 cc California spec. vehicles

NOTE:

For detailed operation procedure, refer to the SUBARU SELECT MONITOR OPERATION MANUAL.

6. READ FREEZE FRAME DATA SHOWN ON DISPLAY FOR ENGINE. (OBD MODE)

- 1) On the 「Main Menu」 display screen, select the {2. Each System Check} and press the [YES] key.
 - 2) On the 「System Selection Menu」 display screen, select the {Engine Control System} and press the [YES] key.
 - 3) Press the [YES] key after displayed the information of engine type.
 - 4) On the 「Engine Control System Diagnosis」 display screen, select the {7. OBD System} and press the [YES] key.
 - 5) On the 「OBD Menu」 display screen, select the {2. Freeze Frame Data} and press the [YES] key.
- A list of the support data is shown in the following table.

Contents	Display	Unit of measure
Diagnostic trouble code (DTC) for freeze frame data	Freeze frame data	DTC
Air fuel ratio control system for bank 1	Fuel system for Bank1	ON or OFF
Engine load data	Engine Load	%
Engine coolant temperature signal	Coolant Temp.	°C or °F
Short term fuel trim by front oxygen (A/F) sensor	Short term fuel trim B1	%
Long term fuel trim by front oxygen (A/F) sensor	Long term fuel trim B1	%
Intake manifold absolute pressure signal	Mani. Absolute Pressure	mmHg or kPa or inHg or psi
Engine speed signal	Engine Speed	rpm
Vehicle speed signal	Vehicle Speed	km/h or MPH

NOTE:

For detailed operation procedure, refer to the SUBARU SELECT MONITOR OPERATION MANUAL.

7. READ OXYGEN SENSOR MONITORING TEST RESULTS DATA SHOWN ON DISPLAY FOR ENGINE. (OBD MODE)

- 1) On the 「Main Menu」 display screen, select the {2. Each System Check} and press the [YES] key.
 - 2) On the 「System Selection Menu」 display screen, select the {Engine Control System} and press the [YES] key.
 - 3) Press the [YES] key after displayed the information of engine type.
 - 4) On the 「Engine Control System Diagnosis」 display screen, select the {7. OBD System} and press the [YES] key.
 - 5) On the 「OBD Menu」 display screen, select the {5. O2 Sensor Monitor} and press the [YES] key.
 - 6) On the 「O2 Sensor Select」 display screen, select the {Bank 1-Sensor1} or {Bank 1-Sensor2} and press the [YES] key.
- Bank 1-Sensor1 indicates the front oxygen or A/F sensor, and Bank 1-Sensor2 indicates the rear oxygen sensor.
 - A list of the support data is shown in the following table.

Contents	Display	Unit of measure
Oxygen sensor for monitoring test	<O2 Sensor Monitor (-----)>	—
Rich to lean oxygen sensor threshold voltage	Rich to lean sensor volt	V
Lean to rich oxygen sensor threshold voltage	Lean to rich sensor volt	V
Low oxygen sensor voltage for switch time calculation	Low sensor voltage	V
High oxygen sensor voltage for switch time calculation	High sensor voltage	V
Rich to lean oxygen sensor switch time	Rich to lean switch time	sec
Lean to rich oxygen sensor switch time	Lean to rich switch time	sec
Maximum oxygen sensor voltage for test cycle	Maximum sensor Voltage	V
Minimum oxygen sensor voltage for test cycle	Minimum sensor Voltage	V

NOTE:

For detailed operation procedure, refer to the SUBARU SELECT MONITOR OPERATION MANUAL.

8. LED OPERATION MODE FOR ENGINE

- 1) On the 「Main Menu」 display screen, select the {2. Each System Check} and press the [YES] key.
 - 2) On the 「System Selection Menu」 display screen, select the {Engine Control System} and press the [YES] key.
 - 3) Press the [YES] key after displayed the information of engine type.
 - 4) On the 「Engine Control System Diagnosis」 display screen, select the {1. Current Data Display & Save} and press the [YES] key.
 - 5) On the 「Data Display Menu」 display screen, select the {2. 6 Data & LED Display} and press the [YES] key.
 - 6) Using the scroll key, move the display screen up or down until the desired data is shown.
- A list of the support data is shown in the following table.

Contents	Display	Message	LED "ON" requirements
Ignition switch signal	Ignition Switch	ON or OFF	When ignition switch is turned ON.
Automatic transmission vehicle identification signal*	AT Vehicle ID Signal	ON or OFF	When AT identification signal is entered.
Test mode connector signal	Test Mode Signal	ON or OFF	When test mode connector is connected.
Neutral position switch signal	Neutral Position Switch	ON or OFF	When neutral position signal is entered.
Air conditioning switch signal	A/C Switch	ON or OFF	When air conditioning switch is turned ON.
Air conditioning relay signal	A/C Relay	ON or OFF	When air conditioning relay is in function.
Radiator main fan relay signal	Radiator Fan Relay #1	ON or OFF	When radiator main fan relay is in function.
Fuel pump relay signal	Fuel Pump Relay	ON or OFF	When fuel pump relay is in function.
Knocking signal	Knocking Signal	ON or OFF	When knocking signal is entered.
Radiator sub fan relay signal	Radiator Fan Relay #2	ON or OFF	When radiator sub fan relay is in function.
Engine torque control signal #1	Torque Control Signal #1	ON or OFF	When engine torque control signal 1 is entered.
Engine torque control signal #2	Torque Control Signal #2	ON or OFF	When engine torque control signal 2 is entered.
Engine torque control permission signal	Torque Control Permit	ON or OFF	When engine torque control permission signal is entered.
Pressure sources switching solenoid valve*	Pressure Sources Change	ON or OFF	When pressure sources switching solenoid valve is in function.
Front oxygen sensor rich signal*	Front O2 Rich Signal #1	ON or OFF	When front oxygen sensor mixture ratio is rich.
Rear oxygen sensor rich signal	Rear O2 Rich Signal	ON or OFF	When rear oxygen sensor mixture ratio is rich.
Pressure control solenoid valve	PCV Solenoid Valve	ON or OFF	When pressure control solenoid valve is in function.
Drain valve	Vent. Solenoid Valve	ON or OFF	When drain valve is in function.
Starter switch signal	Starter Switch Signal	ON or OFF	When starter switch signal is entered.
Idle switch signal	Idle Switch Signal	ON or OFF	When idle switch signal is entered.
Crankshaft position sensor signal	Crankshaft Position Sig.	ON or OFF	When crankshaft position sensor signal is entered.
Camshaft position sensor signal	Camshaft Position Sig.	ON or OFF	When camshaft position sensor signal is entered.

*: Except 2200 cc California spec. vehicles

NOTE:

For detailed operation procedure, refer to the SUBARU SELECT MONITOR OPERATION MANUAL.

9. READ CURRENT DATA SHOWN ON DISPLAY FOR AT.

- 1) On the 「Main Menu」 display screen, select the {2. Each System Check} and press the [YES] key.
 - 2) On the 「System Selection Menu」 display screen, select the {AT/ECVT} and press the [YES] key.
 - 3) Press the [YES] key after displayed the information of transmission type.
 - 4) On the 「E-4AT/ECVT Diagnosis」 display screen, select the {1. Current Data Display & Save} and press the [YES] key.
 - 5) On the 「Data Display Menu」 display screen, select the {1. 12 Data Display} and press the [YES] key.
 - 6) Using the scroll key, move the display screen up or down until the desired data is shown.
- A list of the support data is shown in the following table.

Contents	Display	Unit of measure
Battery voltage	Battery Voltage	V
Vehicle speed sensor 1 signal	Vehicle Speed #1	km/h or MPH
Vehicle speed sensor 2 signal	Vehicle Speed #2	km/h or MPH
Engine speed signal	Engine Speed	rpm
Automatic transmission fluid temperature signal	ATF Temp.	°C or °F
Throttle position signal	Throttle Sensor Voltage	V
Gear position	Gear Position	—
Line pressure control duty ratio	Line Pressure Duty Ratio	%
Lock up clutch control duty ratio	Lock Up Duty Ratio	%
Transfer clutch control duty ratio	Transfer Duty Ratio	%
Power supply for throttle position sensor	Throttle Sensor Power	V
Mass air flow signal*	Air Flow Sensor Voltage	V
Torque converter turbine speed signal	AT Turbine Speed	rpm
2-4 brake timing pressure control duty ratio	2-4B Duty Ratio	%
Intake manifold pressure sensor voltage	Mani. Pressure Voltage	V
2 wheel drive switch signal	2WD Switch	ON or OFF
Kick down switch signal	Kick Down Switch	ON or OFF
Stop lamp switch signal	Stop Lamp Switch	ON or OFF
Anti lock brake system signal	ABS Signal	ON or OFF
Cruise control system signal	Cruise Control Signal	ON or OFF
Neutral/Parking range signal	N/P Range Signal	ON or OFF
Reverse range signal	R Range Signal	ON or OFF
Drive range signal	D Range Signal	ON or OFF
3rd range signal	3rd Range Signal	ON or OFF
2nd range signal	2nd Range Signal	ON or OFF
1st range signal	1st Range Signal	ON or OFF
Shift control solenoid A	Shift Solenoid #1	ON or OFF
Shift control solenoid B	Shift Solenoid #2	ON or OFF
Torque control output signal #1	Torque Control Signal #1	ON or OFF
Torque control output signal #2	Torque Control Signal #2	ON or OFF
Torque control cut signal	Torque Control Cut Sig.	ON or OFF
2-4 brake timing control solenoid valve	2-4 Brake Timing Sol.	ON or OFF
Low clutch timing control solenoid valve	Low Clutch Timing Sol.	ON or OFF
Automatic transmission diagnosis indicator lamp	AT Diagnosis Lamp	ON or OFF

*: Except 2200 cc California spec. vehicles

NOTE:

For detailed operation procedure, refer to the SUBARU SELECT MONITOR OPERATION MANUAL.

D: CLEAR MEMORY MODE

1. SUBARU SELECT MONITOR (NORMAL MODE)

- 1) On the 「Main Menu」 display screen, select the {2. Each System Check} and press the [YES] key.
- 2) On the 「System Selection Menu」 display screen, select the {Engine Control System} and press the [YES] key.
- 3) Press the [YES] key after displayed the information of engine type.
- 4) On the 「Engine Control System Diagnosis」 display screen, select the {3. Clear Memory} and press the [YES] key.
- 5) When the 'Done' and 'Turn Ignition Switch OFF' are shown on the display screen, turn the Subaru Select Monitor and ignition switch to OFF.

NOTE:

- After the memory has been cleared, the ISC must be initialized. To do this, turn the ignition switch to the ON position. Wait 3 seconds before starting the engine. (Except 2200 cc California spec. vehicles only)
- For detailed operation procedure, refer to the SUBARU SELECT MONITOR OPERATION MANUAL.

2. SUBARU SELECT MONITOR (OBD MODE)

- 1) On the 「Main Menu」 display screen, select the {2. Each System Check} and press the [YES] key.
- 2) On the 「System Selection Menu」 display screen, select the {Engine Control System} and press the [YES] key.
- 3) Press the [YES] key after displayed the information of engine type.
- 4) On the 「Engine Control System Diagnosis」 display screen, select the {7. OBD System} and press the [YES] key.
- 5) On the 「OBD Menu」 display screen, select the {4. Diagnosis Code(s) Cleared} and press the [YES] key.
- 6) When the 'Clear Diagnostic Code?' is shown on the display screen, press the [YES] key.
- 7) Turn Subaru Select Monitor and ignition switch to OFF.

NOTE:

- After the memory has been cleared, the ISC must be initialized. To do this, turn the ignition switch to the ON position. Wait 3 seconds before starting the engine. (Except 2200 cc California spec. vehicles only)
- For detailed operation procedure, refer to the SUBARU SELECT MONITOR OPERATION MANUAL.

3. OBD-II GENERAL SCAN TOOL

For clear memory procedures using the OBD-II general scan tool, refer to the OBD-II General Scan Tool Instruction Manual.

After the memory has been cleared, the ISC must be initialized. To do this, turn the ignition switch to the ON position. Wait 3 seconds before starting the engine. (Except 2200 cc California spec. vehicles only)

E: INSPECTION MODE

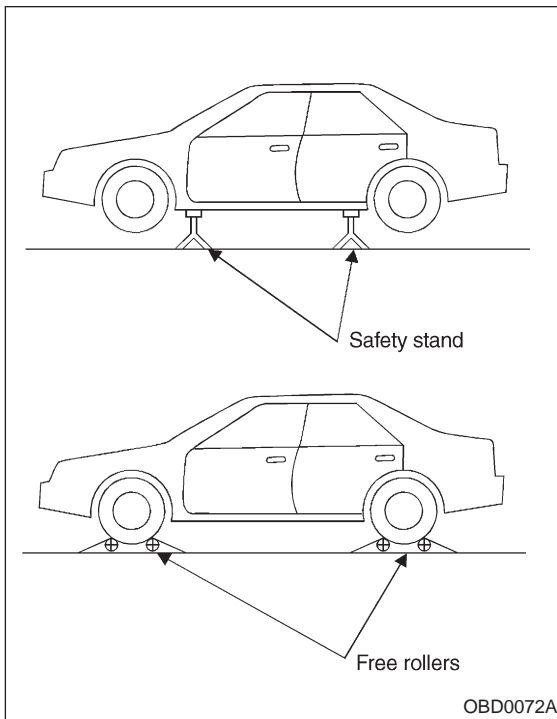
1. PREPARATIONS FOR THE INSPECTION MODE

Raise the vehicle using a garage jack and place on safety stands or drive the vehicle onto free rollers.

- FULL-TIME AWD MODELS

WARNING:

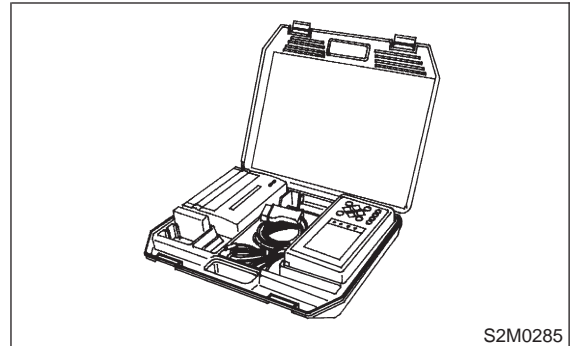
- Before raising the vehicle, ensure parking brakes are applied.
- Do not use a pantograph jack in place of a safety stand.
- Secure a rope or wire to the front and rear towing or tie-down hooks to prevent the lateral runout of front wheels.
- Do not abruptly depress/release clutch pedal or accelerator pedal during works even when engine is operating at low speeds since this may cause vehicle to jump off free rollers.
- In order to prevent the vehicle from slipping due to vibration, do not place any wooden blocks or similar items between the safety stands and the vehicle.
- Since the rear wheels will also rotate, do not place anything near them. Also, make sure that nobody goes in front of the vehicle.



2. SUBARU SELECT MONITOR

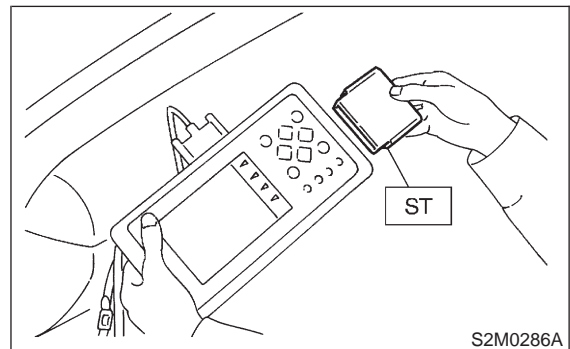
After performing diagnostics and clearing the memory, check for any remaining unresolved trouble data.

- 1) Prepare Subaru Select Monitor kit.

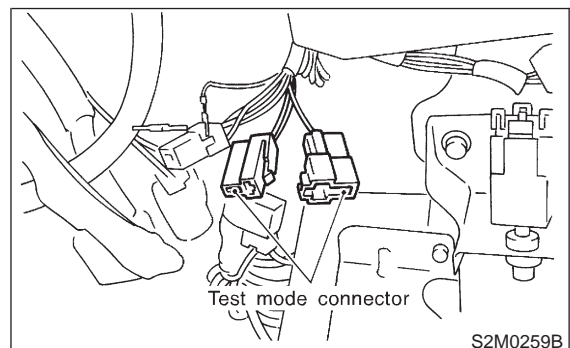


- 2) Connect diagnosis cable to Subaru Select Monitor.

- 3) Insert cartridge into Subaru Select Monitor. <Ref. to 1-6 [G1100].>

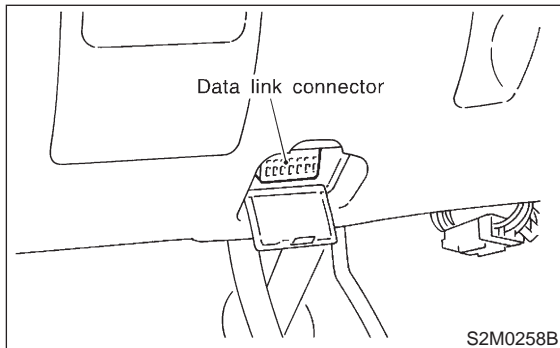


- 4) Connect test mode connector at the lower portion of instrument panel (on the driver's side), to the side of the center console box.



5) Connect Subaru Select Monitor to data link connector.

(1) Open the cover and connect Subaru Select Monitor to data link connector located in the lower portion of the instrument panel (on the driver's side), to the lower cover.

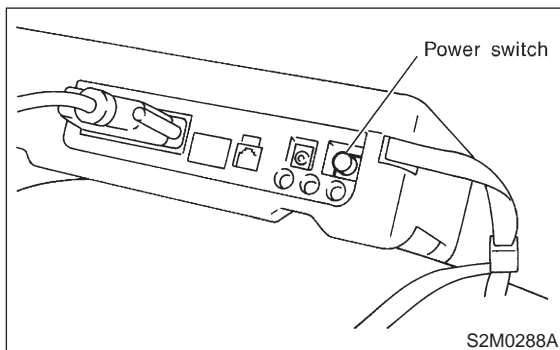


(2) Connect diagnosis cable to data link connector.

CAUTION:

Do not connect scan tools except for Subaru Select Monitor and OBD-II general scan tool.

6) Turn ignition switch to ON (engine OFF) and Subaru Select Monitor switch to ON.



7) On the 「Main Menu」 display screen, select the {2. Each System Check} and press the [YES] key.

8) On the 「System Selection Menu」 display screen, select the {Engine Control System} and press the [YES] key.

9) Press the [YES] key after displayed the information of engine type.

10) On the 「Engine Control System Diagnosis」 display screen, select the {6. Dealer Check Mode Procedure} and press the [YES] key.

11) When the "Perform Inspection (Dealer Check) Mode?" is shown on the display screen, press the [YES] key.

12) Perform subsequent procedures as instructed on the display screen.

- If trouble still remains in the memory, the corresponding diagnostic trouble code (DTC) appears on the display screen.

NOTE:

- For detailed operation procedure, refer to the SUBARU SELECT MONITOR OPERATION MANUAL.

- For detailed concerning diagnostic trouble codes, refer to the DIAGNOSTIC TROUBLE CODE (DTC) LIST.

- 2200 cc California spec. vehicles: <Ref. to 2-7 [T10A0].>

- Except 2200 cc California spec. vehicles: <Ref. to 2-7 [T11A0].>

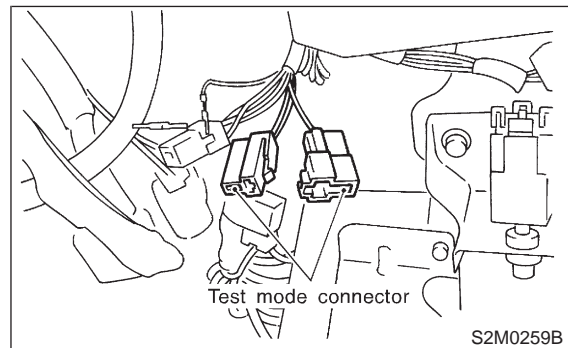
- On AWD vehicles, release the parking brake.

- The speed difference between front and rear wheels may light either the ABS warning light, but this indicates no malfunctions. When engine control diagnosis is finished, perform the ABS memory clearance procedure of self-diagnosis system.

3. OBD-II GENERAL SCAN TOOL

After performing diagnostics and clearing the memory, check for any remaining unresolved trouble data:

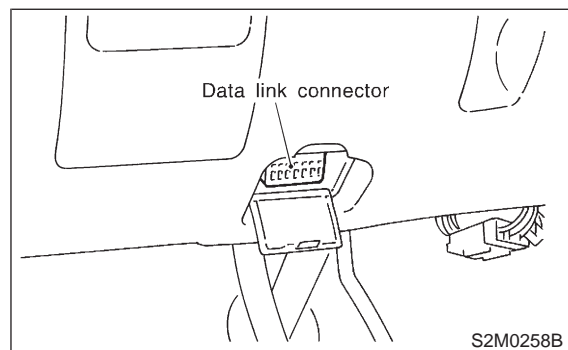
1) Connect test mode connector at the lower side of the instrument panel (on the driver's side), to the side of the center console box.



2) Open the cover and connect the OBD-II general scan tool to its data link connector in the lower portion of the instrument panel (on the driver's side), to the lower cover.

CAUTION:

Do not connect the scan tools except for Subaru Select Monitor and OBD-II general scan tool.



3) Start the engine.

NOTE:

- Ensure the selector lever is placed in the “P” position before starting. (AT vehicles)
- Depress clutch pedal when starting the engine. (MT vehicles)

4) Using the selector lever or shift lever, turn the “P” position switch and the “N” position switch to ON.

5) Depress the brake pedal to turn the brake switch ON. (AT vehicles)

6) Keep engine speed in the 2,500 — 3,000 rpm range for 40 seconds.

NOTE:

On models without tachometer, use the tachometer (Secondary pickup type).

7) Place the selector lever or shift lever in the “D” position (AT vehicles) or “1st” gear (MT vehicles) and drive the vehicle at 5 to 10 km/h (3 to 6 MPH).

NOTE:

- On AWD vehicles, release the parking brake.
- The speed difference between front and rear wheels may light the ABS warning light, but this indicates no malfunctions. When engine control diagnosis is finished, perform the ABS memory clearance procedure of self-diagnosis system.

8) Using the OBD-II general scan tool, check for diagnostic trouble code(s) and record the result(s).

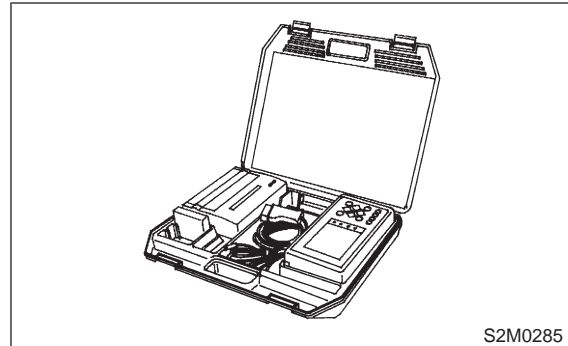
NOTE:

- For detailed operation procedures, refer to the OBD-II General Scan Tool Instruction Manual.
- For detailed concerning diagnostic trouble codes, refer to the DIAGNOSTIC TROUBLE CODE (DTC) LIST.
 - 2200 cc California spec. vehicles: <Ref. to 2-7 [T10A0].>
 - Except 2200 cc California spec. vehicles: <Ref. to 2-7 [T11A0].>

F: COMPULSORY VALVE OPERATION CHECK MODE

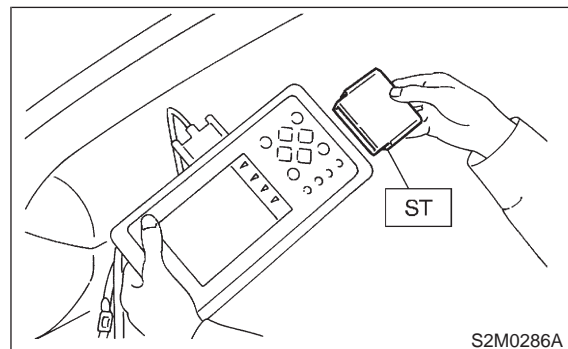
1. SUBARU SELECT MONITOR

1) Prepare Subaru Select Monitor kit.

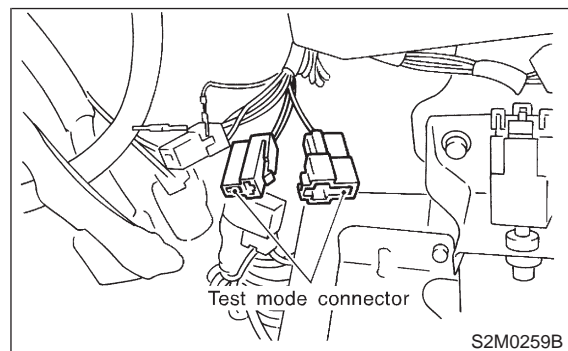


2) Connect diagnosis cable to Subaru Select Monitor.

3) Insert cartridge into Subaru Select Monitor. <Ref. to 1-6 [G1100].>

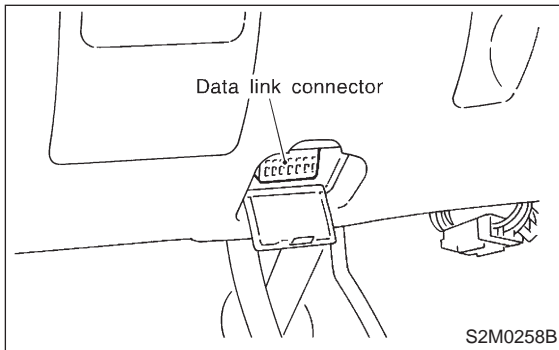


4) Connect test mode connector at the lower portion of instrument panel (on the driver's side), to the side of the center console box.



5) Connect Subaru Select Monitor to data link connector.

(1) Open the cover and connect Subaru Select Monitor to data link connector located in the lower portion of the instrument panel (on the driver's side), to the lower cover.

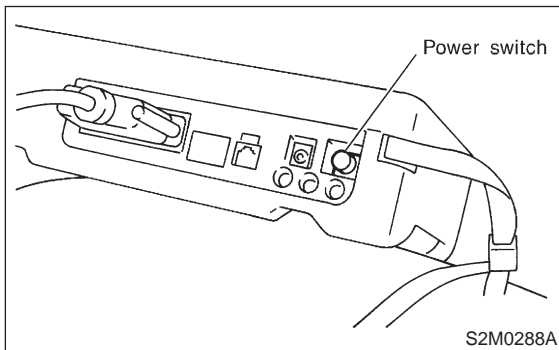


(2) Connect diagnosis cable to data link connector.

CAUTION:

Do not connect scan tools except for Subaru Select Monitor and OBD-II general scan tool.

6) Turn ignition switch to ON (engine OFF) and Subaru Select Monitor switch to ON.



- 7) On the 「Main Menu」 display screen, select the {2. Each System Check} and press the [YES] key.
- 8) On the 「System Selection Menu」 display screen, select the {Engine Control System} and press the [YES] key.
- 9) Press the [YES] key after displayed the information of engine type.
- 10) On the 「Engine Control System Diagnosis」 display screen, select the {4. System Operation Check Mode} and press the [YES] key.
- 11) On the 「System Operation Check Mode」 display screen, select the {Actuator ON/OFF Operation} and press the [YES] key.
- 12) Select the desired compulsory actuator on the 「Actuator ON/OFF Operation」 display screen and press the [YES] key.
- 13) Pressing the [NO] key completes the compulsory operation check mode. The display will then return to the 「Actuator ON/OFF Operation」 screen.

● A list of the support data is shown in the following table.

Contents	Display
Compulsory fuel pump relay operation check	Fuel Pump Relay
Compulsory radiator fan relay operation check	Radiator Fan Relay
Compulsory air conditioning relay operation check	A/C Relay
Compulsory pressure control solenoid valve operation check	PCV Solenoid Valve
Compulsory drain valve operation check	Vent Control Solenoid Valve
Compulsory pressure sources switching solenoid valve operation check*	Pressure Switching Sol.1

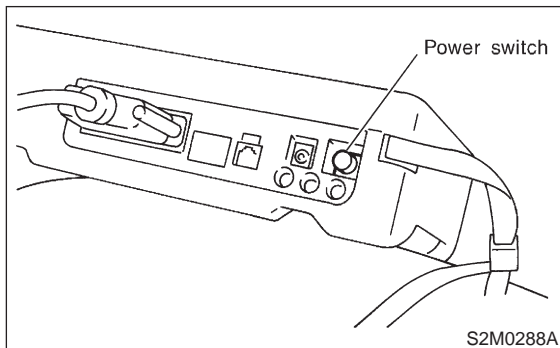
*: Except 2200 cc California spec. vehicles

NOTE:

- Because ASV solenoid valve, FICD solenoid valve and air injection system diagnosis solenoid valve are not installed, ASV Solenoid Valve, FICD Solenoid Valve and Pressure Switching Sol.2 will be displayed but non-functional.
- For detailed operation procedure, refer to the SUBARU SELECT MONITOR OPERATION MANUAL.

G: FINISHING DIAGNOSIS OPERATION**1. SUBARU SELECT MONITOR**

- 1) Turn ignition switch to OFF.
- 2) Turn Subaru Select Monitor switch to OFF.



- 3) Disconnect test mode connector at the lower portion of instrument panel (on the driver's side), to the side of the center console box.
- 4) Disconnect Subaru Select Monitor from its data link connector.

4. Cautions**A: SUPPLEMENTAL RESTRAINT SYSTEM "AIRBAG"**

Airbag system wiring harness is routed near the engine control module (ECM), main relay and fuel pump relay.

CAUTION:

- All Airbag system wiring harness and connectors are colored yellow. Do not use electrical test equipment on these circuit.
- Be careful not to damage Airbag system wiring harness when servicing the engine control module (ECM), transmission control module (TCM), main relay and fuel pump relay.

B: PRECAUTIONS

- 1) Never connect the battery in reverse polarity.
 - The ECM will be destroyed instantly.
 - The fuel injector and other part will be damaged in just a few minutes more.
- 2) Do not disconnect the battery terminals while the engine is running.
 - A large counter electromotive force will be generated in the alternator, and this voltage may damage electronic parts such as ECM, etc.
- 3) Before disconnecting the connectors of each sensor and the ECM, be sure to turn OFF the ignition switch.
- 4) Poor contact has been identified as a primary cause of this problem. To measure the voltage and/or resistance of individual sensors or all electrical control modules at the harness side connector, use a tapered pin with a diameter of less than 0.64 mm (0.025 in). Do not insert the pin more than 5 mm (0.20 in) into the part.
- 5) Before removing ECM from the located position, disconnect two cables on battery.
 - Otherwise, the ECM may be damaged.

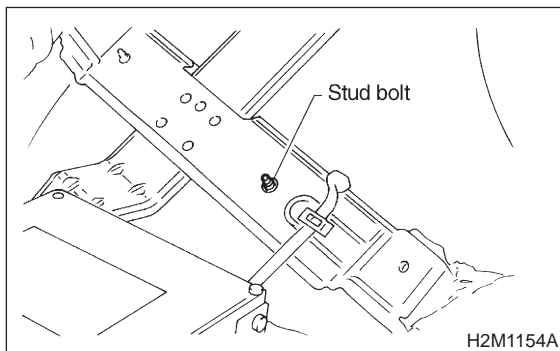
CAUTION:

When replacing ECM, be careful not to use the wrong spec. ECM to avoid any damage on fuel injection system.

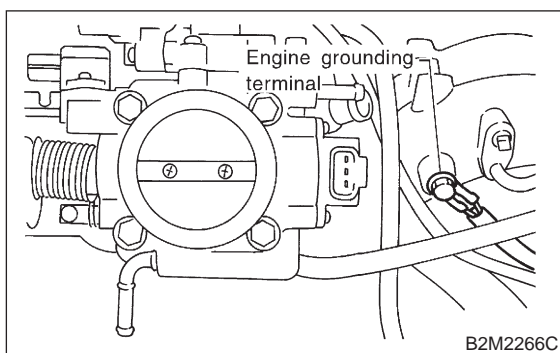
- 6) The connectors to each sensor in the engine compartment and the harness connectors on the engine side and body side are all designed to be waterproof. However, it is still necessary to take care not to allow water to get into the connectors when washing the vehicle, or when servicing the vehicle on a rainy day.

4. Cautions

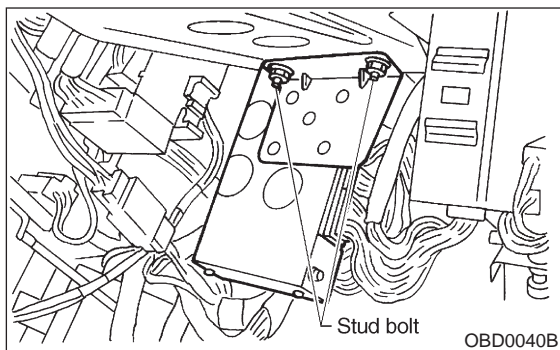
7) Use ECM mounting stud bolts at the body head grounding point when measuring voltage and resistance inside the passenger compartment.



8) Use engine grounding terminal or engine proper as the grounding point to the body when measuring voltage and resistance in the engine compartment.



9) Use TCM mounting stud bolts at the body head grounding point when measuring voltage and resistance inside the passenger compartment.



10) Every MFI-related part is a precision part. Do not drop them.

11) Observe the following cautions when installing a radio in MFI equipped models.

CAUTION:

● The antenna must be kept as far apart as possible from the control unit.
(The ECM is located under the steering column, inside of the instrument panel lower trim panel.)

● The antenna feeder must be placed as far apart as possible from the ECM and MFI harness.

● Carefully adjust the antenna for correct matching.

● When mounting a large power type radio, pay special attention to the three items above mentioned.

● Incorrect installation of the radio may affect the operation of the ECM.

12) Before disconnecting the fuel hose, disconnect the fuel pump connector and crank the engine for more than five seconds to release pressure in the fuel system. If engine starts during this operation, run it until it stops.

13) Problems in the electronic-controlled automatic transmission may be caused by failure of the engine, the electronic control system, the transmission proper, or by a combination of these. These three causes must be distinguished clearly when performing diagnostics.

14) Diagnostics should be conducted by rotating with simple, easy operations and proceeding to complicated, difficult operations. The most important thing in diagnostics is to understand the customer's complaint, and distinguish between the three causes.

15) In AT vehicles, do not continue the stall for more than five seconds at a time (from closed throttle, fully open throttle to stall engine speed).

16) On ABS vehicle, when performing driving test in jacked-up or lifted-up position, sometimes the warning light may be lit, but this is not a malfunction of the system. The reason for this is the speed difference between the front and rear wheels. After diagnosis of engine control system, perform the ABS memory clearance procedure of self-diagnosis system.

C: PRE-INSPECTION

Before performing diagnostics, check the following items which might affect engine problems:

1. POWER SUPPLY

1) Measure battery voltage and specific gravity of electrolyte.

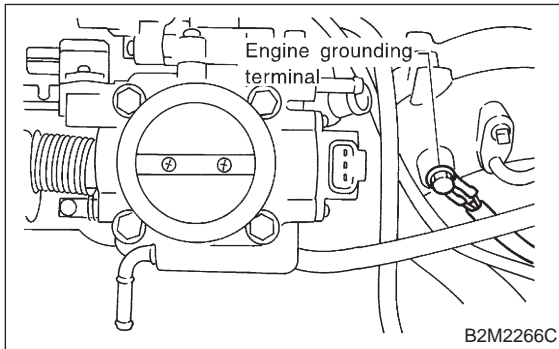
Standard voltage: 12 V

Specific gravity: Above 1.260

2) Check the condition of the main and other fuses, and harnesses and connectors. Also check for proper grounding.

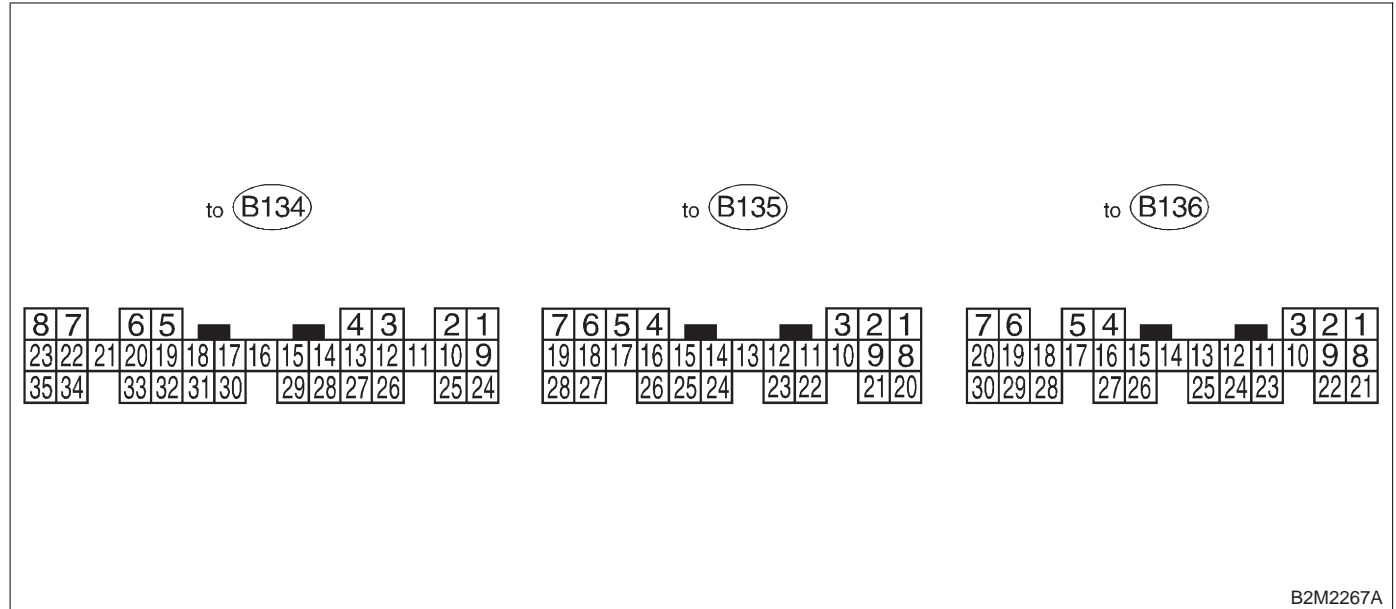
2. ENGINE GROUNDING

Make sure the engine grounding terminal is properly connected to the engine.



5. Specified Data

A: ENGINE CONTROL MODULE (ECM) I/O SIGNAL FOR 2200 cc CALIFORNIA SPEC. VEHICLES



B2M2267A

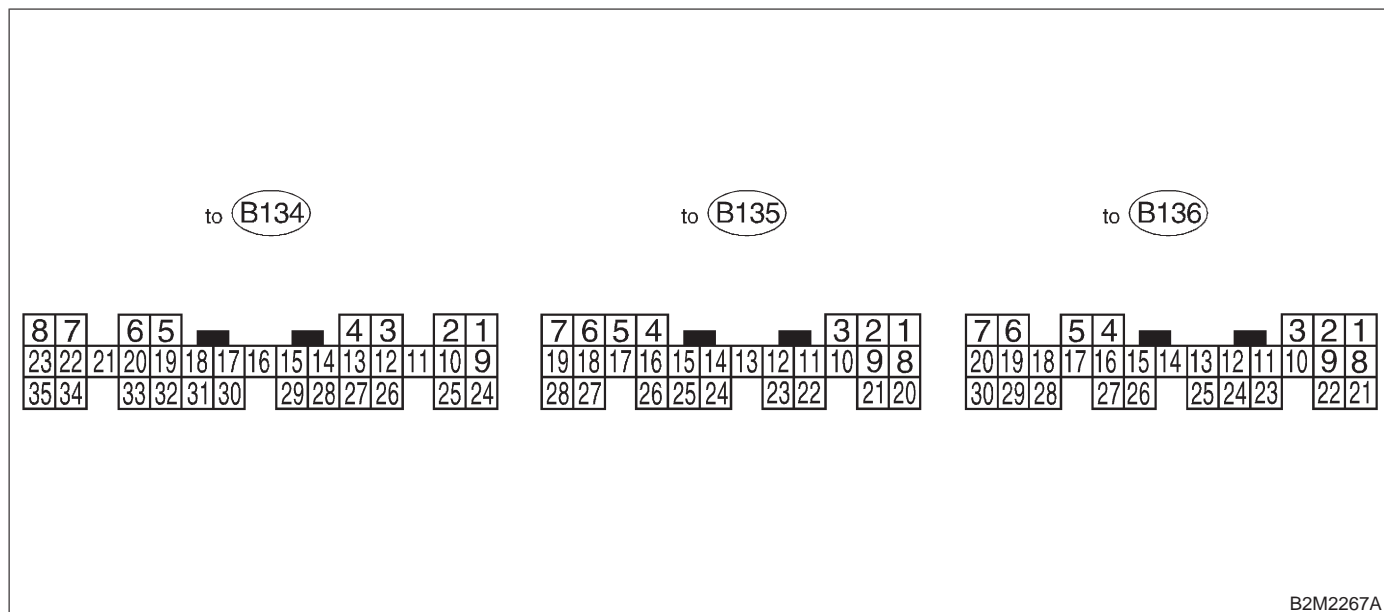
Content	Conne- ctor No.	Terminal No.	Signal (V)		Note	
			Ignition SW ON (Engine OFF)	Engine ON (Idling)		
Crankshaft position sensor	Signal (+)	B135	1	0	-7 — +7	Sensor output waveform
	Signal (-)	B135	8	0	0	—
	Shield	B135	10	0	0	—
Camshaft position sensor	Signal (+)	B135	2	0	-7 — +7	Sensor output waveform
	Signal (-)	B135	9	0	0	—
	Shield	B135	10	0	0	—
Throttle position sensor	Signal	B136	17	Fully closed: 0.2 — 1.0 Fully opened: 4.2 — 4.7		—
	Power supply	B136	15	5	5	—
	GND (sen- sor)	B136	16	0	0	—
Rear oxy- gen sen- sor	Signal	B136	18	0	0 — 0.9	—
	Shield	B136	24	0	0	—
	GND sen- sor	B136	16	0	0	—
Front oxy- gen sen- sor heater	Signal 1	B134	22	0.5 — 13	0.5 — 14	Waveform
	Signal 2	B134	23	0.5 — 13	0.5 — 14	Waveform
	Power supply monitor	B136	3	10 — 13	13 — 14	—
Rear oxy- gen sen- sor heater	Signal	B134	21	0.5 — 13	0.5 — 14	Waveform
	Power supply monitor	B136	3	10 — 13	13 — 14	—

Content		Connector No.	Terminal No.	Signal (V)		Note
				Ignition SW ON (Engine OFF)	Engine ON (Idling)	
Engine coolant temperature sensor	Signal	B136	14	1.0 — 1.4	1.0 — 1.4	After warm-up the engine.
	GND (sensor)	B136	16	0	0	After warm-up the engine.
Vehicle speed signal		B135	24	0 or 5	0 or 5	"5" and "0" are repeatedly displayed when vehicle is driven.
Starter switch		B135	28	0	0	Cranking: 8 — 14
A/C switch		B135	27	ON: 10 — 13 OFF: 0	ON: 13 — 14 OFF: 0	—
Ignition switch		B135	7	10 — 13	13 — 14	—
Neutral position switch (MT)		B135	26	ON: 5.0±0.5 OFF: 0		On MT vehicle; switch is ON when gear is in neutral position.
Neutral position switch (AT)		B135	26	ON: 0 OFF: 5.0±0.5		On AT vehicle; switch is ON when shift is in "N" or "P" position.
Test mode connector		B135	14	5	5	When connected: 0
Knock sensor	Signal	B136	4	2.5	2.5	—
	Shield	B136	25	0	0	—
Back-up power supply		B136	9	10 — 13	13 — 14	Ignition switch "OFF": 10 — 13
Control unit power supply		B136	1	10 — 13	13 — 14	—
		B136	2	10 — 13	13 — 14	—
Sensor power supply		B136	15	5	5	—
Line end check 1		B135	20	0	0	—
Ignition control	#1, #2	B134	25	0	1 — 3.4	Waveform
	#3, #4	B134	26	0	1 — 3.4	Waveform
Fuel injector	#1	B134	4	10 — 13	1 — 14	Waveform
	#2	B134	13	10 — 13	1 — 14	Waveform
	#3	B134	14	10 — 13	1 — 14	Waveform
	#4	B134	15	10 — 13	1 — 14	Waveform
Idle air control solenoid valve	Signal	B134	5	—	1 — 13	Waveform
	Power supply	B136	2	10 — 13	13 — 14	—
	GND (power)	B134	8	0	0	—
Fuel pump relay control		B134	16	ON: 0.5, or less OFF: 10 — 13	0.5, or less	—
A/C relay control		B134	17	ON: 0.5, or less OFF: 10 — 13	ON: 0.5, or less OFF: 13 — 14	—
Radiator fan relay 1 control		B134	3	ON: 0.5, or less OFF: 10 — 13	ON: 0.5, or less OFF: 13 — 14	—
Radiator fan relay 2 control		B134	2	ON: 0.5, or less OFF: 10 — 13	ON: 0.5, or less OFF: 13 — 14	With A/C vehicles only
Self-shutoff control		B135	19	10 — 13	13 — 14	—
Malfunction indicator lamp		B134	11	—	—	Light "ON": 1, or less Light "OFF": 10 — 14
Engine speed output		B134	30	—	0 — 13, or more	Waveform
Torque control 1 signal		B135	16	5	5	—
Torque control 2 signal		B135	17	5	5	—
Torque control cut signal		B134	31	8	8	—

5. Specified Data

Content	Connector No.	Terminal No.	Signal (V)		Note	
			Ignition SW ON (Engine OFF)	Engine ON (Idling)		
Intake manifold pressure signal for AT	B136	11	3.5 — 3.8	1.2 — 1.8	—	
Purge control solenoid valve	B134	2	ON: 1, or less OFF: 10 — 13	ON: 1, or less OFF: 13 — 14	—	
Power steering switch	B135	13	10 — 13	ON: 0 OFF: 13 — 14	Switch is ON when turning steering wheel.	
Intake manifold pressure sensor	Signal	B136	5	3.5 — 3.8	1.2 — 1.8	—
	Power supply	B136	15	5	5	—
	GND (sensor)	B136	16	0	0	—
Fuel temperature sensor	B136	26	2.5 — 3.8	2.5 — 3.8	Ambient temperature: 25°C (75°F)	
Fuel level sensor	B136	27	0.12 — 4.75	0.12 — 4.75	—	
Fuel tank pressure sensor	Signal	B136	12	2.3 — 2.7	2.3 — 2.7	The value obtained after the fuel filler cap was removed once and recapped.
	Power supply	B136	15	5	5	—
	GND (sensor)	B136	16	0	0	—
Fuel tank pressure control solenoid valve	B134	1	ON: 1, or less OFF: 10 — 13	ON: 1, or less OFF: 13 — 14	—	
Drain valve	B134	10	ON: 1, or less OFF: 10 — 13	ON: 1, or less OFF: 13 — 14	—	
AT diagnosis input signal	B135	4	Less than 1 ↔ More than 4	Less than 1 ↔ More than 4	Waveform	
Intake air temperature sensor	B136	13	3.0 — 3.4	3.0 — 3.4	Intake air temperature: 25°C (75°F)	
Line end check 2	B135	21	5	5	—	
GND (sensors)	B136	16	0	0	—	
GND (injectors)	B134	7	0	0	—	
GND (ignition system)	B134	27	0	0	—	
GND (power supply)	B134	8	0	0	—	
GND (control systems)	B136	21	0	0	—	
	B136	22	0	0	—	
GND (oxygen sensor heater 1)	B134	35	0	0	—	
GND (oxygen sensor heater 2)	B134	34	0	0	—	

B: ENGINE CONTROL MODULE (ECM) I/O SIGNAL FOR EXCEPT 2200 cc CALIFORNIA SPEC. VEHICLES



B2M2267A

Content		Conne- ctor No.	Terminal No.	Signal (V)		Note
				Ignition SW ON (Engine OFF)	Engine ON (Idling)	
Crankshaft position sensor	Signal (+)	B135	1	0	-7 — +7	Sensor output waveform
	Signal (-)	B135	8	0	0	—
	Shield	B135	10	0	0	—
Camshaft position sensor	Signal (+)	B135	2	0	-7 — +7	Sensor output waveform
	Signal (-)	B135	9	0	0	—
	Shield	B135	10	0	0	—
Mass air flow sen- sor	Signal	B136	5	0 — 0.3	0.8 — 1.2	—
	Power supply	B136	15	5	5	—
	Shield	B136	25	0	0	—
	GND	B136	8	0	0	—
Throttle position sensor	Signal	B136	17	Fully closed: 0.2 — 1.0 Fully opened: 4.2 — 4.7		—
	Power supply	B136	15	5	5	—
	GND (sen- sor)	B136	16	0	0	—
Front oxy- gen sen- sor	Signal (+)	B136	7	0	0 — 0.9	—
	Signal (-)	B136	20	0	—	—
	Shield	B136	23	0	0	—
Rear oxy- gen sen- sor	Signal	B136	18	0	0 — 0.9	—
	Shield	B136	24	0	0	—
	GND (sen- sor)	B136	16	0	0	—
Front oxy- gen sen- sor heater	Signal 1	B134	22	0 — 1.0	0 — 1.0	—
	Signal 2	B134	23	0 — 1.0	0 — 1.0	—
Rear oxygen sensor heater signal		B134	21	0 — 1.0	0 — 1.0	—

5. Specified Data

Content		Connector No.	Terminal No.	Signal (V)		Note
				Ignition SW ON (Engine OFF)	Engine ON (Idling)	
Engine coolant temperature sensor	Signal	B136	14	1.0 — 1.4	1.0 — 1.4	After warm-up the engine.
	GND (sensor)	B136	16	0	0	After warm-up the engine.
Vehicle speed signal		B135	24	0 or 5	0 or 5	"5" and "0" are repeatedly displayed when vehicle is driven.
Starter switch		B135	28	0	0	Cranking: 8 — 14
A/C switch		B135	27	ON: 10 — 13 OFF: 0	ON: 13 — 14 OFF: 0	—
Ignition switch		B135	7	10 — 13	13 — 14	—
Neutral position switch (MT)		B135	26	ON: 5.0±0.5 OFF: 0		On MT vehicle; switch is ON when gear is in neutral position.
Neutral position switch (AT)		B135	26	ON: 0 OFF: 5.0±0.5		On AT vehicle; switch is ON when shift is in "N" or "P" position.
Test mode connector		B135	14	5	5	When connected: 0
Knock sensor	Signal	B136	4	2.8	2.8	—
	Shield	B136	25	0	0	—
AT/MT identification		B135	25	AT: 5 MT: 0	AT: 5 MT: 0	When measuring voltage between ECM and chassis ground.
Back-up power supply		B136	9	10 — 13	13 — 14	Ignition switch "OFF": 10 — 13
Control unit power supply		B136	1	10 — 13	13 — 14	—
		B136	2	10 — 13	13 — 14	—
Sensor power supply		B136	15	5	5	—
Line end check 1		B135	20	0	0	—
Ignition control	#1, #2	B134	25	0	1 — 3.4	Waveform
	#3, #4	B134	26	0	1 — 3.4	Waveform
Fuel injector	#1	B134	4	10 — 13	1 — 14	Waveform
	#2	B134	13	10 — 13	1 — 14	Waveform
	#3	B134	14	10 — 13	1 — 14	Waveform
	#4	B134	15	10 — 13	1 — 14	Waveform
Idle air control solenoid valve	Signal 1	B134	5	—	1 — 13	Waveform
	Signal 2	B134	6	—	1 — 13	Waveform
	Signal 3	B134	19	—	1 — 13	Waveform
	Signal 4	B134	20	—	1 — 13	Waveform
	Power supply	B136	2	10 — 13	13 — 14	—
Fuel pump relay control		B134	16	ON: 0.5, or less OFF: 10 — 13	0.5, or less	—
A/C relay control		B134	17	ON: 0.5, or less OFF: 10 — 13	ON: 0.5, or less OFF: 13 — 14	—
Radiator fan relay 1 control		B134	3	ON: 0.5, or less OFF: 10 — 13	ON: 0.5, or less OFF: 13 — 14	—
Radiator fan relay 2 control		B134	2	ON: 0.5, or less OFF: 10 — 13	ON: 0.5, or less OFF: 13 — 14	With A/C vehicles only
Self-shutoff control		B135	19	10 — 13	13 — 14	—
Malfunction indicator lamp		B134	11	—	—	Light "ON": 1, or less Light "OFF": 10 — 14
Engine speed output		B134	30	—	0 — 13, or more	Waveform

Content	Connector No.	Terminal No.	Signal (V)		Note
			Ignition SW ON (Engine OFF)	Engine ON (Idling)	
Torque control 1 signal	B135	16	5	5	—
Torque control 2 signal	B135	17	5	5	—
Torque control cut signal	B134	31	8	8	—
Mass air flow signal for AT	B136	11	0 — 0.3	0.8 — 1.2	—
Purge control solenoid valve	B134	2	ON: 1, or less OFF: 10 — 13	ON: 1, or less OFF: 13 — 14	—
Power steering switch	B135	13	10 — 13	ON: 0 OFF: 13 — 14	Switch is ON when turning steering wheel.
Atmospheric pressure sensor	Signal	B136	29	3.5 — 3.8	—
	Power supply	B136	15	5	
	GND (sensor)	B136	16	0	
Pressure sources switching solenoid valve	B134	9	ON: 1, or less OFF: 10 — 13	ON: 1, or less OFF: 13 — 14	—
Fuel temperature sensor	B136	26	2.5 — 3.8	2.5 — 3.8	Ambient temperature: 25°C (75°F)
Fuel level sensor	B136	27	0.12 — 4.75	0.12 — 4.75	—
Fuel tank pressure sensor	Signal	B136	12	2.3 — 2.7	The value obtained after the fuel filler cap was removed once and recapped.
	Power supply	B136	15	5	—
	GND (sensor)	B136	16	0	—
Fuel tank pressure control solenoid valve	B134	1	ON: 1, or less OFF: 10 — 13	ON: 1, or less OFF: 13 — 14	—
Drain valve	B134	10	ON: 1, or less OFF: 10 — 13	ON: 1, or less OFF: 13 — 14	—
AT diagnosis input signal	B135	4	Less than 1 ↔ More than 4	Less than 1 ↔ More than 4	Waveform
Line end check 2	B135	21	5	5	—
GND (sensors)	B136	16	0	0	—
GND (injectors)	B134	7	0	0	—
GND (ignition system)	B134	27	0	0	—
GND (power supply)	B134	8	0	0	—
GND (control systems)	B136	21	0	0	—
	B136	22	0	0	—
GND (oxygen sensor heater 1)	B134	35	0	0	—
GND (oxygen sensor heater 2)	B134	34	0	0	—

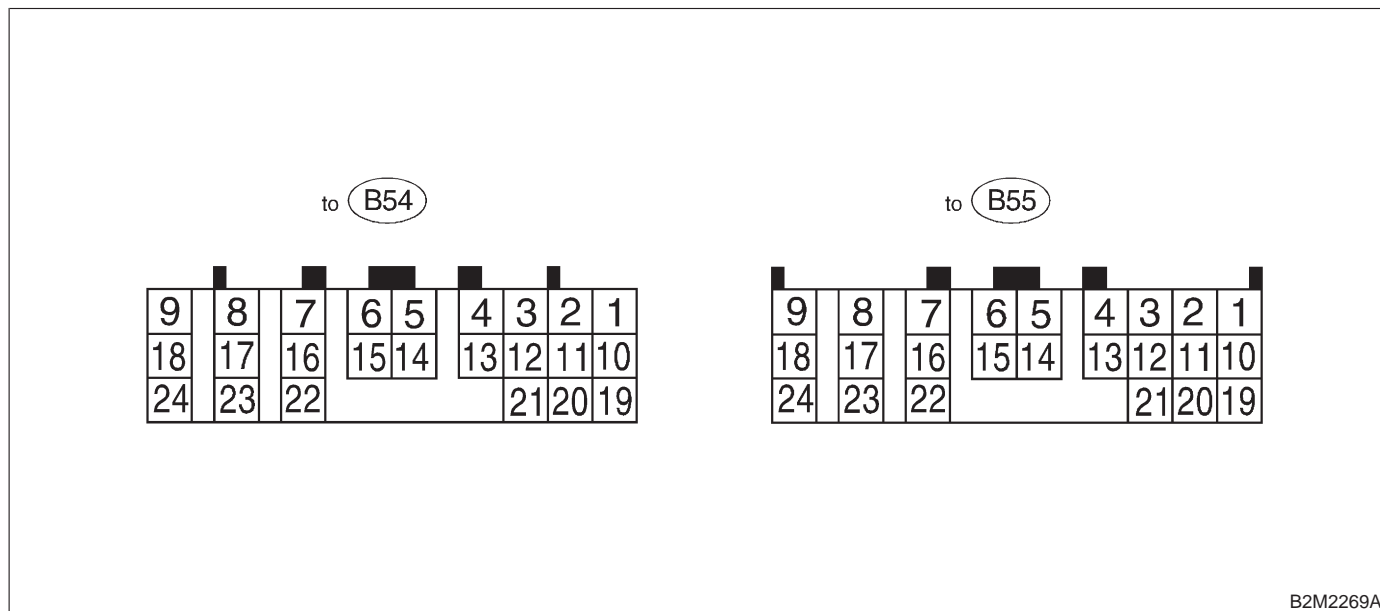
C: ENGINE CONDITION DATA

Content	Model	Specified data
Mass air flow	2200 cc except California spec. vehicles	1.7 — 3.3 (g/sec): Idling
		7.1 — 14.2 (g/sec): 2,500 rpm racing
	2500 cc	2.2 — 4.2 (g/sec): Idling
		8.6 — 14.2 (g/sec): 2,500 rpm racing
Engine load	2200 cc California spec. vehicles	1.6 — 2.9 (%): Idling
		6.4 — 12.8 (%): 2,500 rpm racing
	2200 cc except California spec. vehicles	1.6 — 2.9 (%): Idling
		6.4 — 12.8 (%): 2,500 rpm racing
	2500 cc	1.9 — 3.5 (%): Idling
		7.2 — 12.1 (%): 2,500 rpm racing

Measuring condition:

- After warm-up the engine.
- Gear position is in “N” or “P” position.
- A/C is turned OFF.
- All accessory switches are turned OFF.

D: TRANSMISSION CONTROL MODULE (TCM) I/O SIGNAL



B2M2269A

NOTE:
Check with ignition switch ON.

Content		Connector No.	Terminal No.	Measuring conditions	Voltage (V)
Back-up power supply		B55	6	Ignition switch OFF	10 — 16
Ignition power supply		B54	23	Ignition switch ON (with engine OFF)	10 — 16
		B54	24		
Inhibitor switch	"P" range switch	B55	23	Selector lever in "P" range	Less than 1
				Selector lever in any other than "P" range	More than 8
	"N" range switch	B55	22	Selector lever in "N" range	Less than 1
				Selector lever in any other than "N" range	More than 8
	"R" range switch	B55	17	Selector lever in "R" range	Less than 1
				Selector lever in any other than "R" range	More than 9.5
	"D" range switch	B55	8	Selector lever in "D" range	Less than 1
				Selector lever in any other than "D" range	More than 9.5
"3" range switch	B55	18	Selector lever in "3" range	Less than 1	
			Selector lever in any other than "3" range	More than 9.5	
"2" range switch	B54	10	Selector lever in "2" range	Less than 1	
			Selector lever in any other than "2" range	More than 9.5	
"1" range switch	B54	1	Selector lever in "1" range	Less than 1	
			Selector lever in any other than "1" range	More than 9.5	
Brake switch		B55	24	Brake pedal depressed	More than 10.5
				Brake pedal released	Less than 1
ABS signal		B54	19	ABS switch ON	Less than 1
				ABS switch OFF	More than 6.5

Content	Connector No.	Terminal No.	Measuring conditions	Voltage (V)	Resistance to body (ohms)
Throttle position sensor	B55	1	Throttle fully closed.	0.3 — 0.7	—
			Throttle fully open.	4.3 — 4.9	
Throttle position sensor power supply	B55	2	Ignition switch ON (with engine OFF)	4.8 — 5.3	—
ATF temperature sensor	B55	11	ATF temperature 20°C (68°F)	2.9 — 4.0	2.1 k — 2.9 k
			ATF temperature 80°C (176°F)	1.0 — 1.4	275 — 375
Vehicle speed sensor 1	B55	3	Vehicle stopped.	0	450 — 650
			Vehicle speed at least 20 km/h (12 MPH)	More than 1 (AC range)	
Vehicle speed sensor 2	B55	5	Vehicle speed at most 10 km/h (6 MPH)	Less than 1 ← → More than 4	—
Torque converter turbine speed sensor	B55	12	Vehicle stopped.	0	450 — 650
			Vehicle speed at least 20 km/h (12 MPH)	More than 1 (AC range)	
Vehicle speed output signal	B55	13	Vehicle speed at most 10 km/h (6 MPH)	Less than 1 ← → More than 4	—
Engine speed signal	B55	4	Ignition switch ON (with engine OFF).	More than 10.5	—
			Ignition switch ON (with engine ON).	8 — 11	
Cruise set signal	B54	11	When cruise control is set (SET lamp ON).	Less than 1	—
			When cruise control is not set (SET lamp OFF).	More than 6.5	
Torque control 1 signal	B54	13	Ignition switch ON (with engine ON)	More than 9	—
Torque control 2 signal	B54	21	Ignition switch ON (with engine ON)	More than 9	—
Torque control cut signal	B54	2	Ignition switch ON	8	—
AT load signal	B55	20	Engine idling after warm-up	1.2 — 1.8*1	—
				0.5 — 1.2*2	
Shift solenoid 1	B54	7	1st or 4th gear	More than 9	10 — 16
			2nd or 3rd gear	Less than 1	
Shift solenoid 2	B54	6	1st or 2nd gear	More than 9	10 — 16
			3rd or 4th gear	Less than 1	
Duty solenoid A	B54	9	Throttle fully closed (with engine OFF) after warm-up.	1.5 — 4.0	2.0 — 4.5
			Throttle fully open (with engine OFF) after warm-up.	Less than 0.5	
Dropping resistor	B54	18	Throttle fully closed (with engine OFF) after warm-up.	More than 8.5	9 — 15
			Throttle fully open (with engine OFF) after warm-up.	Less than 0.5	
Duty solenoid B	B54	16	When lock up occurs.	More than 8.5	10 — 17
			When lock up is released.	Less than 0.5	
Duty solenoid C (AWD models only)	B54	15	Fuse on FWD switch	More than 8.5	10 — 17
			Fuse removed from FWD switch (with throttle fully open and with select lever in 1st gear).	Less than 0.5	

Content	Connector No.	Terminal No.	Measuring conditions	Voltage (V)	Resistance to body (ohms)
Duty solenoid D	B54	8	Throttle fully closed (with engine OFF) after warm-up.	1.5 — 4.0	2.0 — 4.5
			Throttle fully open (with engine OFF) after warm-up.	Less than 0.5	
2-4 brake duty solenoid resistor	B54	17	Throttle fully closed (with engine OFF) after warm-up.	More than 8.5	9 — 15
			Throttle fully open (with engine OFF) after warm-up.	Less than 0.5	
2-4 brake timing solenoid	B54	5	3rd gear	More than 9	10 — 16
			1st gear	Less than 1	
Low clutch timing solenoid	B54	14	2nd gear	Less than 1	10 — 16
			4th gear	More than 9	
Sensor ground line 1	B55	10	—	0	Less than 1
Sensor ground line 2	B55	21	—	0	Less than 1
System ground line	B55	9	—	0	Less than 1
		19			
FWD switch	B55	14	Fuse removed.	6 — 9.1	—
			Fuse installed.	Less than 1	
FWD indicator lamp	B54	12	Fuse on FWD switch	Less than 1	—
			Fuse removed from FWD switch.	More than 9	
Data link signal (Subaru Select Monitor)	B55	7	—	—	—
		16	—	—	
AT diagnosis signal	B54	4	Ignition switch ON	Less than 1 ↔ More than 4	—

6. Basic Diagnostic Procedure

A: BASIC DIAGNOSTIC PROCEDURE FOR ENGINE

6A1 : CHECK ENGINE START FAILURE.

- 1) Ask the customer when and how the trouble occurred using the interview check list. <Ref. to 2-7 [T6C0].>
- 2) Start the engine.

CHECK : **Does the engine start?**

YES : Go to step **6A2**.

NO : Inspection using "Diagnostics for Engine Start Failure". <Ref. to 2-7 [T800].>

6A2 : CHECK ILLUMINATION OF CHECK ENGINE MALFUNCTION INDICATOR LAMP (MIL).

CHECK : **Does CHECK ENGINE malfunction indicator lamp illuminate?**

YES : Go to step **6A3**.

NO : Inspection using "9. General Diagnostics Table". <Ref. to 2-7 [T900].>

6A3 : CHECK INDICATION OF DTC ON DISPLAY.

- 1) Turn ignition switch to OFF.
- 2) Connect the Subaru Select Monitor or the OBD-II general scan tool to data link connector.
- 3) Turn ignition switch to ON and the Subaru Select Monitor or OBD-II general scan tool switch to ON.
- 4) Read DTC on the Subaru Select Monitor or OBD-II general scan tool.

CHECK : **Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC?**

YES : Go to step **6A4**.

NO : Repair the related parts.

NOTE:

If DTC is not shown on display although the MIL illuminates, perform diagnostics of MIL (CHECK ENGINE malfunction indicator lamp) circuit or combination meter. <Ref. to 2-7 [T800].>

6A4 : PERFORM THE DIAGNOSIS.

- 1) Inspect using "Diagnostics Chart with Trouble Code (DTC)".

NOTE:

● 2200 cc California spec. vehicles: <Ref. to 2-7 [T10A0].>

● Except 2200 cc California spec. vehicles: <Ref. to 2-7 [T11A0].>

NOTE:

Carry out the basic check, only when DTC about automatic transmission is shown on display. <Ref. to 2-7 [T6B0].>

- 2) Repair the trouble cause.

- 3) Perform the clear memory mode. <Ref. to 2-7 [T3D0].>

- 4) Perform the inspection mode. <Ref. to 2-7 [T3E0].>

CHECK : **Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC?**

YES : Inspect using "Diagnostics Chart with Trouble Code (DTC)".

NOTE:

● 2200 cc California spec. vehicles: <Ref. to 2-7 [T10A0].>

● Except 2200 cc California spec. vehicles: <Ref. to 2-7 [T11A0].>

NO : Complete the diagnosis.

B: BASIC CHECK ITEMS FOR AT

When trouble code about automatic transmission is shown on display, carry out the following basic check. After that, carry out the replacement or repair work.

- 1) ATF level check <Ref. to 3-2 [W1B1].>

- 2) Differential gear oil level check <Ref. to 3-2 [W1B2].>

- 3) ATF leak check <Ref. to 3-2 [W1B3].>

- 4) Differential gear oil leak check <Ref. to 3-2 [W1B3].>

- 5) Stall test <Ref. to 3-2 [W7A0].>

- 6) Line pressure test <Ref. to 3-2 [W9A0].>

- 7) Transfer clutch pressure test <Ref. to 3-2 [W10A0].>

- 8) Time lag test <Ref. to 3-2 [W8A0].>

- 9) Road test <Ref. to 3-2 [W6A0].>

- 10) Shift characteristics <Ref. to 3-2 [W6A0].>

C: CHECK LIST FOR INTERVIEW

1. CHECK LIST NO. 1

Check the following items when problem has occurred.

NOTE:

Use copies of this page for interviewing customers.

Customer's name		Engine no.	
Date of sale		Fuel brand	
Date of repair		Odometer reading	km
Vin no.			miles
Weather	<input type="checkbox"/> Fine <input type="checkbox"/> Cloudy <input type="checkbox"/> Rainy <input type="checkbox"/> Snowy <input type="checkbox"/> Various/Others:		
Outdoor temperature	°F (°C)		
	<input type="checkbox"/> Hot <input type="checkbox"/> Warm <input type="checkbox"/> Cool <input type="checkbox"/> Cold		
Place	<input type="checkbox"/> Highway <input type="checkbox"/> Suburbs <input type="checkbox"/> Inner city <input type="checkbox"/> Uphill <input type="checkbox"/> Downhill <input type="checkbox"/> Rough road <input type="checkbox"/> Others:		
Engine temperature	<input type="checkbox"/> Cold <input type="checkbox"/> Warming-up <input type="checkbox"/> After warming-up <input type="checkbox"/> Any temperature <input type="checkbox"/> Others:		
Engine speed	rpm		
Vehicle speed	MPH		
Driving conditions	<input type="checkbox"/> Not affected <input type="checkbox"/> At starting <input type="checkbox"/> While idling <input type="checkbox"/> At racing <input type="checkbox"/> While accelerating <input type="checkbox"/> While cruising <input type="checkbox"/> While decelerating <input type="checkbox"/> While turning (RH/LH)		
Headlight	<input type="checkbox"/> ON/ <input type="checkbox"/> OFF	Rear defogger	<input type="checkbox"/> ON/ <input type="checkbox"/> OFF
Blower	<input type="checkbox"/> ON/ <input type="checkbox"/> OFF	Radio	<input type="checkbox"/> ON/ <input type="checkbox"/> OFF
A/C compressor	<input type="checkbox"/> ON/ <input type="checkbox"/> OFF	CD/Cassette	<input type="checkbox"/> ON/ <input type="checkbox"/> OFF
Cooling fan	<input type="checkbox"/> ON/ <input type="checkbox"/> OFF	Car phone	<input type="checkbox"/> ON/ <input type="checkbox"/> OFF
Front wiper	<input type="checkbox"/> ON/ <input type="checkbox"/> OFF	CB	<input type="checkbox"/> ON/ <input type="checkbox"/> OFF
Rear wiper	<input type="checkbox"/> ON/ <input type="checkbox"/> OFF		

2. CHECK LIST NO. 2

Check the following items about the vehicle's state when MIL turns on.

NOTE:

Use copies of this page for interviewing customers.

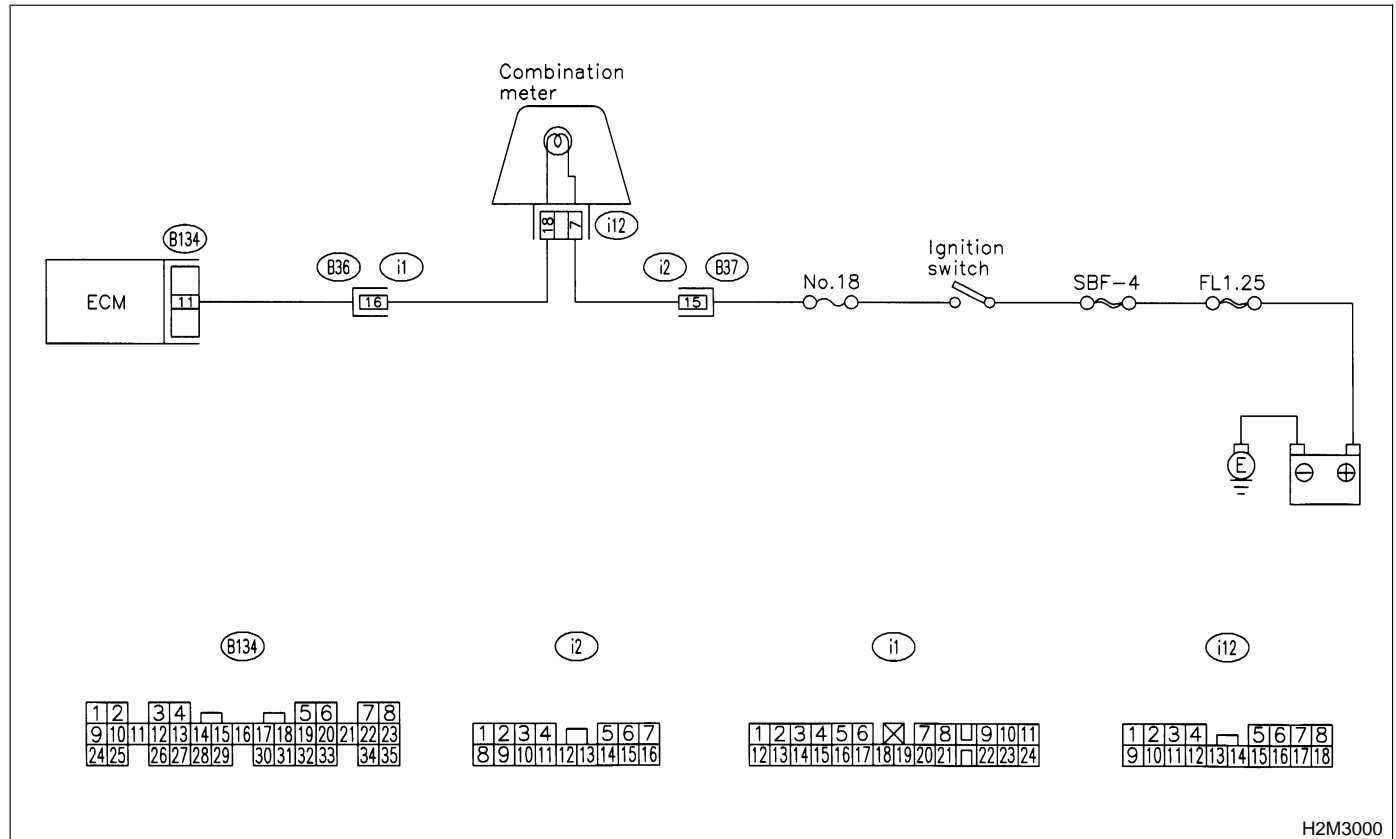
a) Other warning lights or indicators turn on. <input type="checkbox"/> Yes/ <input type="checkbox"/> No
<input type="checkbox"/> Low fuel warning light <input type="checkbox"/> Charge indicator light <input type="checkbox"/> AT diagnostics indicator light <input type="checkbox"/> ABS warning light <input type="checkbox"/> TCS warning light <input type="checkbox"/> Engine oil pressure warning light
b) Fuel level
<ul style="list-style-type: none"> ● Lack of gasoline: <input type="checkbox"/> Yes/<input type="checkbox"/> No ● Indicator position of fuel gauge:
c) Intentional connecting or disconnecting of harness connectors or spark plug cords: <input type="checkbox"/> Yes/ <input type="checkbox"/> No
<ul style="list-style-type: none"> ● What:
d) Intentional connecting or disconnecting of hoses: <input type="checkbox"/> Yes/ <input type="checkbox"/> No
<ul style="list-style-type: none"> ● What:
e) Installing of parts other than genuine parts: <input type="checkbox"/> Yes/ <input type="checkbox"/> No
<ul style="list-style-type: none"> ● What: ● Where:
f) Occurrence of noise: <input type="checkbox"/> Yes/ <input type="checkbox"/> No
<ul style="list-style-type: none"> ● From where: ● What kind:
g) Occurrence of smell: <input type="checkbox"/> Yes/ <input type="checkbox"/> No
<ul style="list-style-type: none"> ● From where: ● What kind:
h) Intrusion of water into engine compartment or passenger compartment: <input type="checkbox"/> Yes/ <input type="checkbox"/> No
i) Troubles occurred
<input type="checkbox"/> Engine does not start. <input type="checkbox"/> Engine stalls during idling. <input type="checkbox"/> Engine stalls while driving. <input type="checkbox"/> Engine speed decreases. <input type="checkbox"/> Engine speed does not decrease. <input type="checkbox"/> Rough idling <input type="checkbox"/> Poor acceleration <input type="checkbox"/> Back fire <input type="checkbox"/> After fire <input type="checkbox"/> No shift <input type="checkbox"/> Excessive shift shock

MEMO:

7. Diagnostics for CHECK ENGINE Malfunction Indicator Lamp (MIL)

A: CHECK ENGINE MALFUNCTION INDICATOR LAMP (MIL) DOES NOT COME ON.

- **DIAGNOSIS:**
 - The CHECK ENGINE malfunction indicator lamp (MIL) circuit is open or shorted.
- **TROUBLE SYMPTOM:**
 - When ignition switch is turned ON (engine OFF), MIL does not come on.
- **WIRING DIAGRAM:**

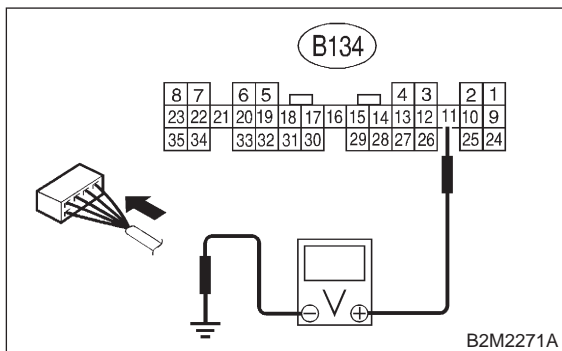


H2M3000

7A1 : CHECK OUTPUT SIGNAL FROM ECM.

- 1) Turn ignition switch to ON.
- 2) Measure voltage between ECM connector and chassis ground.

Connector & terminal
(B134) No. 11 (+) — Chassis ground (-):



- CHECK** : Is the voltage less than 1 V?
YES : Go to step 7A2.
NO : Go to step 7A4.

7A2 : CHECK POOR CONTACT.

- CHECK** : Does the MIL come on when shaking or pulling ECM connector and harness?
YES : Repair poor contact in ECM connector.
NO : Go to step 7A3.

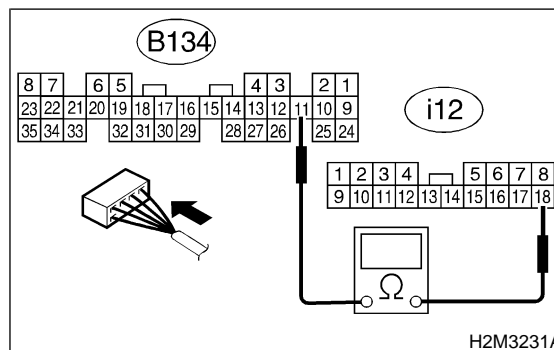
7A3 : CHECK ECM CONNECTOR.

- CHECK** : Is ECM connector correctly connected?
YES : Replace ECM. <Ref. to 2-7 [W15A0].>
NO : Repair connection of ECM connector.

7A4 : CHECK HARNESS BETWEEN COMBINATION METER AND ECM CONNECTOR.

- 1) Turn ignition switch to OFF.
- 2) Remove combination meter. <Ref. to 6-2 [W8A0].>
- 3) Disconnect connector from ECM and combination meter.
- 4) Measure resistance of harness between ECM and combination meter connector.

Connector & terminal
(B134) No. 11 — (i12) No. 18:



- CHECK** : Is resistance less than 1 Ω?
YES : Go to step 7A5.
NO : Repair harness and connector.

NOTE:
 In this case, repair the following:
 ● Open circuit in harness between ECM and combination meter connector
 ● Poor contact in coupling connector (i1)

7A5 : CHECK POOR CONTACT.

Check poor contact in combination meter connector.
 <Ref. to FOREWORD [T3C1].>

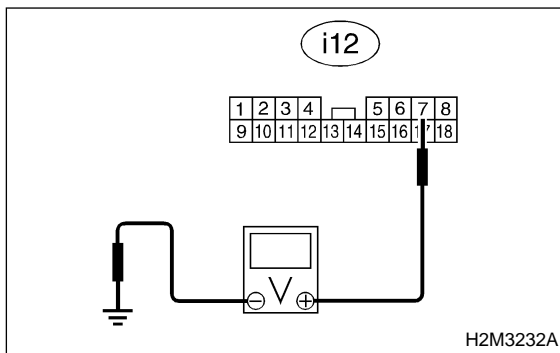
- CHECK** : Is there poor contact in combination meter connector?
YES : Repair poor contact in combination meter connector.
NO : Go to step 7A6.

7A6 : CHECK HARNESS BETWEEN COMBINATION METER AND IGNITION SWITCH CONNECTOR.

- 1) Turn ignition switch to ON.
- 2) Measure voltage between combination meter connector and chassis ground.

Connector & terminal

(i12) No. 7 (+) — Chassis ground (-):



- CHECK** : **Is voltage more than 10 V?**
- YES** : Go to step **7A7**.
- NO** : Check the following and repair if necessary.

NOTE:

- Blown out fuse (No. 18).
- If replaced fuse (No. 18) is blown easily, check the harness for short circuit of harness between fuse (No. 18) and combination meter connector.
 - Open or short circuit in harness between fuse (No. 18) and combination meter connector
 - Open or short circuit in harness between fuse (No. 18) and ignition switch connector
 - Poor contact in ignition switch connector

7A7 : CHECK POOR CONTACT.

Check poor contact in combination meter connector.

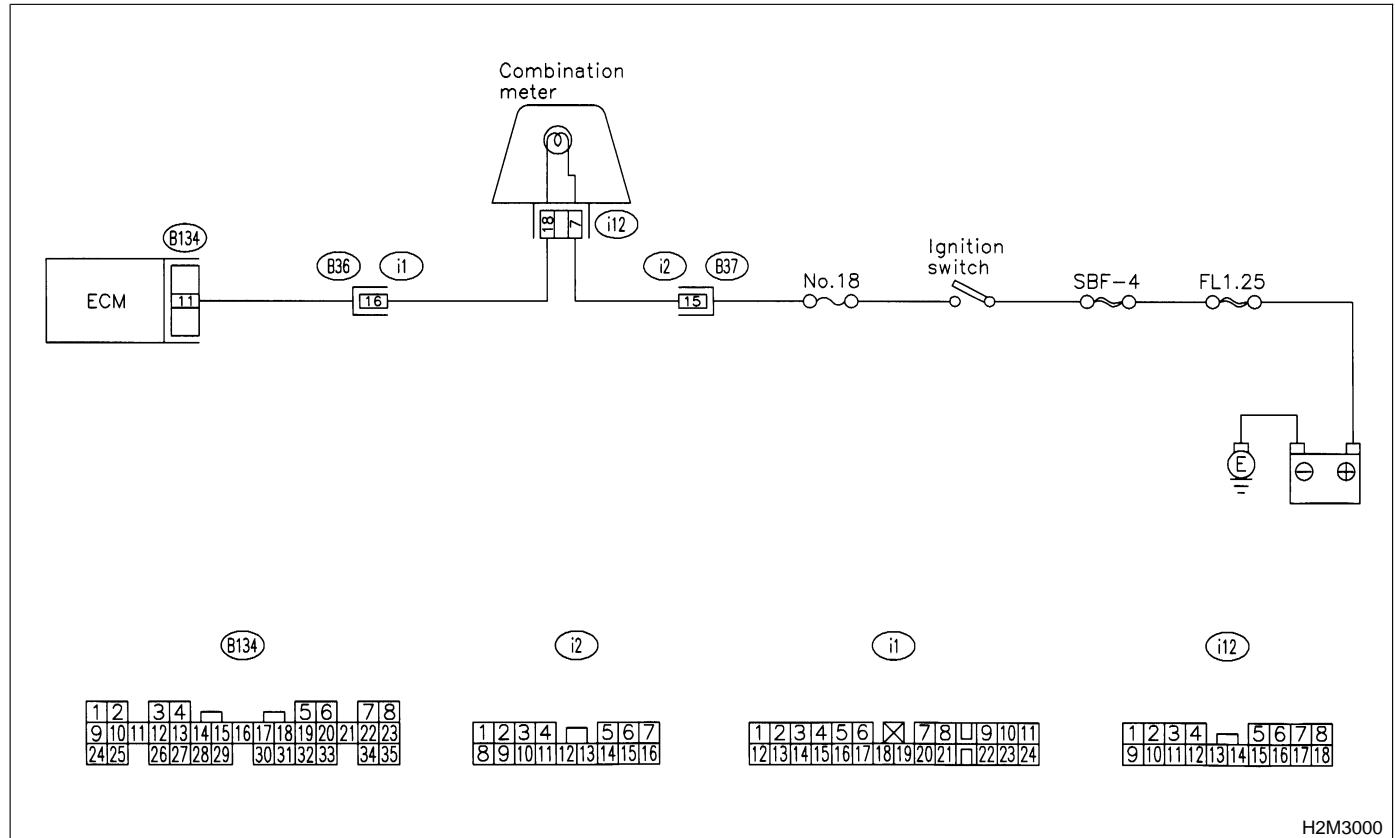
<Ref. to FOREWORD [T3C1].>

- CHECK** : **Is there poor contact in combination meter connector?**
- YES** : Repair poor contact in combination meter connector.
- NO** : Replace bulb or combination meter. <Ref. to 6-2 [W800].>

MEMO:

B: CHECK ENGINE MALFUNCTION INDICATOR LAMP (MIL) DOES NOT GO OFF.

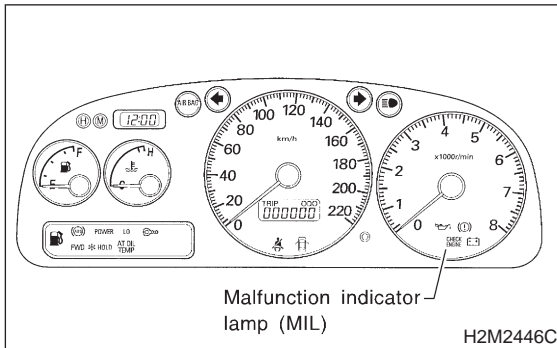
- **DIAGNOSIS:**
 - The CHECK ENGINE malfunction indicator lamp (MIL) circuit is shorted.
- **TROUBLE SYMPTOM:**
 - Although MIL comes on when engine runs, trouble code is not shown on Subaru Select Monitor or OBD-II general scan tool display.
- **WIRING DIAGRAM:**



H2M3000

7B1 : CHECK HARNESS BETWEEN COMBINATION METER AND ECM CONNECTOR.

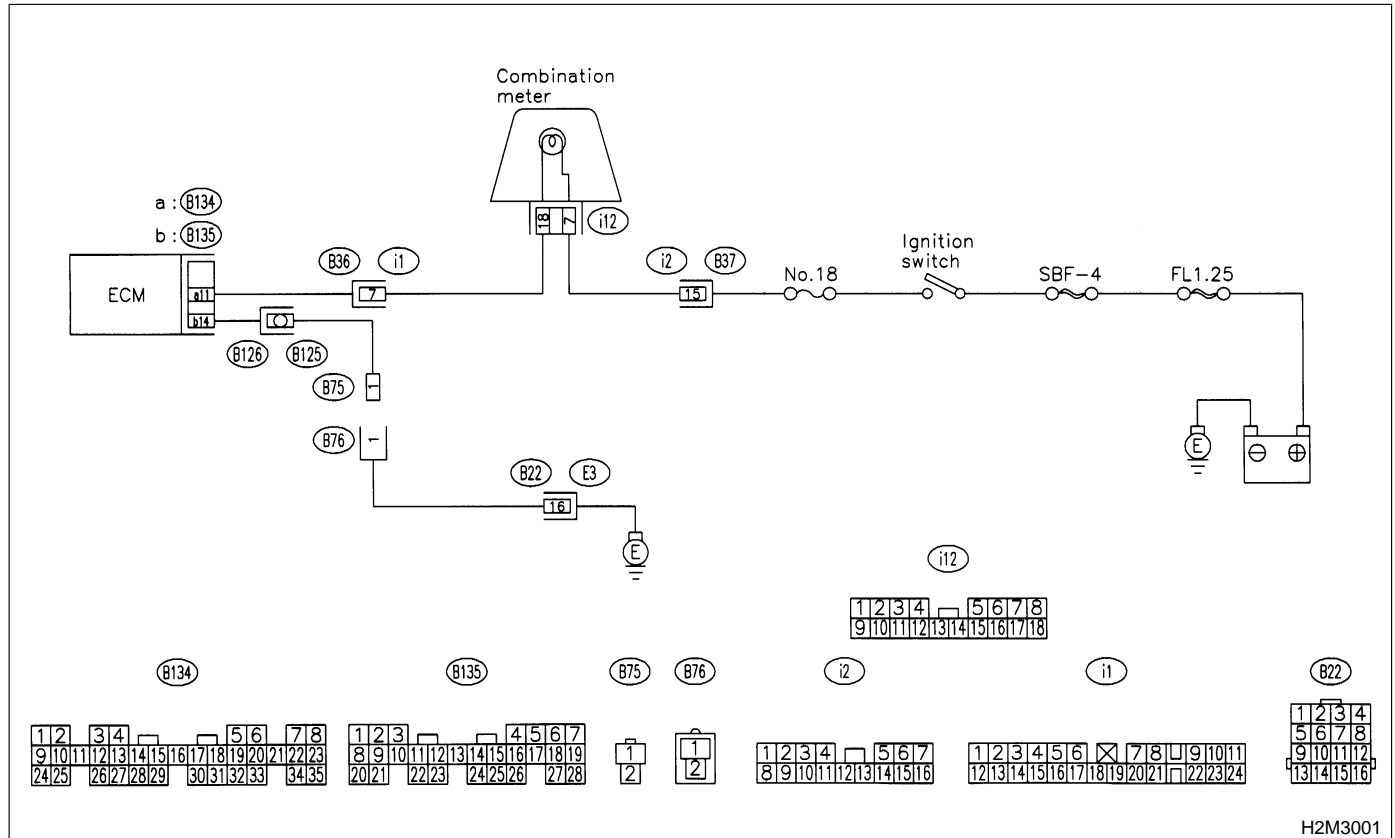
- 1) Turn ignition switch to OFF.
- 2) Disconnect connector from ECM.
- 3) Turn ignition switch to ON.



- CHECK** : **Does the MIL come on?**
- YES** : Repair ground short circuit in harness between combination meter and ECM connector.
- NO** : Replace ECM. <Ref. to 2-7 [W15A0].>

C: CHECK ENGINE MALFUNCTION INDICATOR LAMP (MIL) DOES NOT BLINK AT A CYCLE OF 3 Hz.

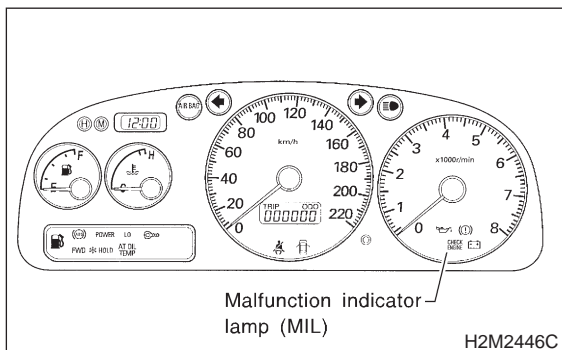
- **DIAGNOSIS:**
 - The CHECK ENGINE malfunction indicator lamp (MIL) circuit is open or shorted.
 - Test mode connector circuit is in open.
- **TROUBLE SYMPTOM:**
 - When inspection mode, MIL does not blink at a cycle of 3 Hz.
- **WIRING DIAGRAM:**



H2M3001

7C1 : CHECK OPERATION OF CHECK ENGINE MALFUNCTION INDICATOR LAMP (MIL).

- 1) Turn ignition switch to OFF.
- 2) Disconnect test mode connector.
- 3) Turn ignition switch to ON.

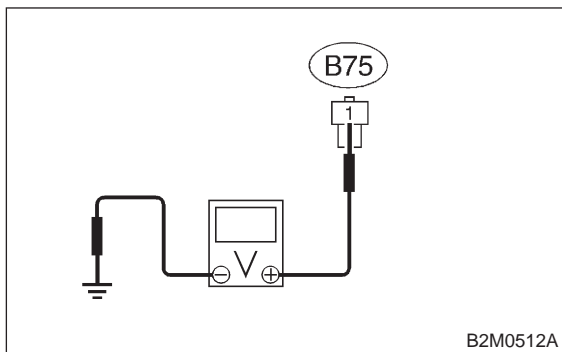


- CHECK** : *Does the MIL come on?*
- YES** : Go to step **7C2**.
- NO** : Repair the MIL circuit. <Ref. to 2-7 [T7A0].>

7C2 : CHECK OUTPUT SIGNAL FROM ECM.

Measure voltage between test mode connector and chassis ground.

Connector & terminal
(B75) No. 1 (+) — Chassis ground (-):

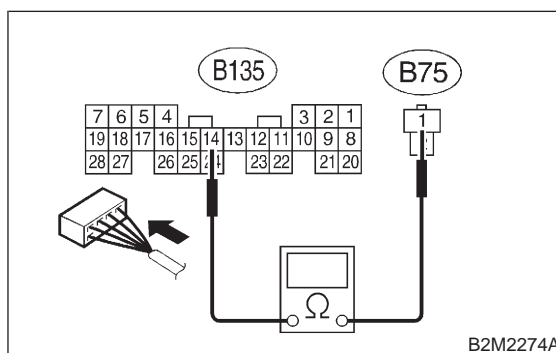


- CHECK** : *Is voltage less than 1 V?*
- YES** : Go to step **7C3**.
- NO** : Go to step **7C5**.

7C3 : CHECK HARNESS BETWEEN ECM AND TEST MODE CONNECTOR.

- 1) Turn ignition switch to OFF.
- 2) Disconnect connector from ECM.
- 3) Measure resistance of harness between ECM and test mode connector.

Connector & terminal
(B135) No. 14 — (B75) No. 1:



- CHECK** : *Is resistance less than 1 Ω?*
- YES** : Go to step **7C4**.
- NO** : Repair open circuit in harness between ECM and test mode connector.

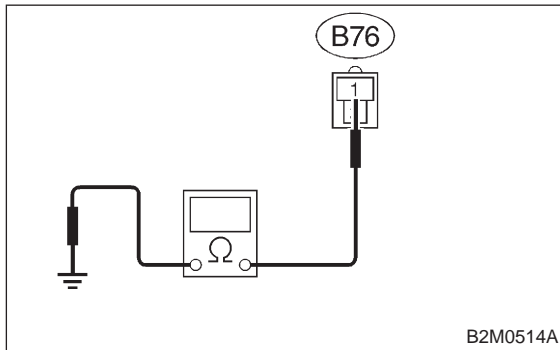
7C4 : CHECK POOR CONTACT.

Check poor contact in ECM connector.
<Ref. to FOREWORD [T3C1].>

- CHECK** : *Is there poor contact in ECM connector?*
- YES** : Repair poor contact in ECM connector.
- NO** : Replace ECM. <Ref. to 2-7 [W15A0].>

7C5 : CHECK GROUND CIRCUIT.

- 1) Turn ignition switch to OFF.
- 2) Measure resistance of harness between test mode connector and chassis ground.

Connector & terminal**(B76) No. 1 — Chassis ground:****CHECK** : **Is resistance less than 5 Ω?****YES** : Repair poor contact in test mode connector.**NO** : Repair harness and connector.**NOTE:**

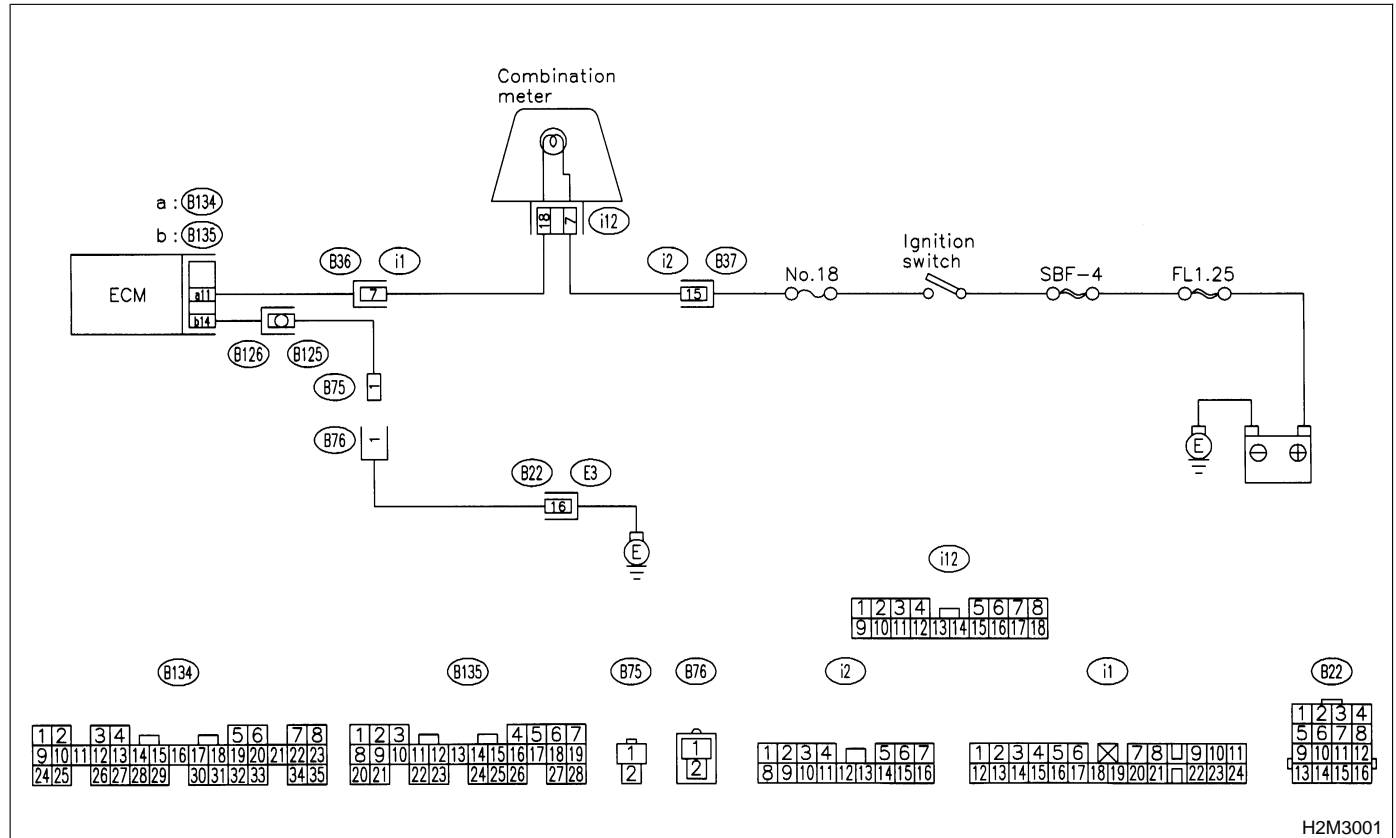
In this case, repair the following:

- Open circuit in harness between test mode and coupling connector (B22)
- Open circuit in harness between coupling connector (B22) and engine grounding terminal
- Poor contact in coupling connector (B22)

MEMO:

D: CHECK ENGINE MALFUNCTION INDICATOR LAMP (MIL) REMAINS BLINKING AT A CYCLE OF 3 Hz.

- **DIAGNOSIS:**
 - Test mode connector circuit is shorted.
- **TROUBLE SYMPTOM:**
 - Even though test mode connector is disconnected, MIL blinks at a cycle of 3 Hz when ignition switch is turned to ON.
- **WIRING DIAGRAM:**

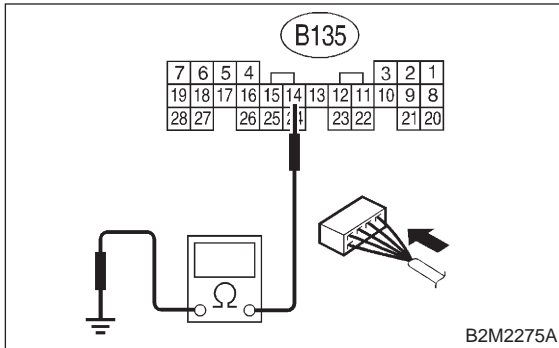


7D1 : CHECK HARNESS BETWEEN ECM CONNECTOR AND ENGINE GROUNDING TERMINAL.

- 1) Turn ignition switch to OFF.
- 2) Disconnect connector from ECM.
- 3) Measure resistance of harness between ECM connector and chassis ground.

Connector & terminal

(B135) No. 14 — Chassis ground:



- CHECK** : **Is resistance less than 5 Ω?**
- YES** : Repair short circuit in harness between ECM and test mode connector.
- NO** : Replace ECM. <Ref. to 2-7 [W15A0].>

MEMO:

8. Diagnostics for Engine Starting Failure

A: BASIC DIAGNOSTICS CHART

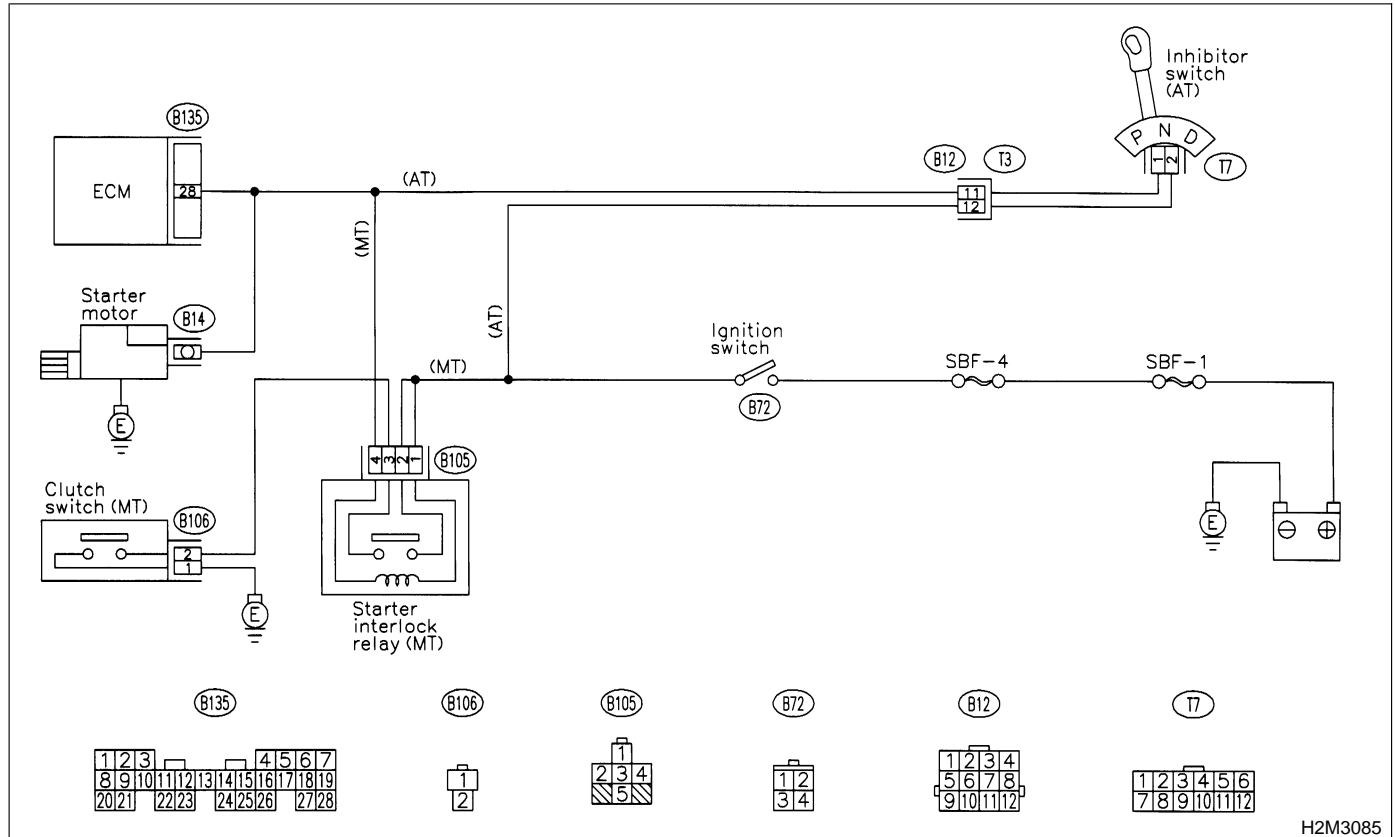
1. Inspection of starter motor circuit. <Ref. to 2-7 [T8B0].>	↓
2. Inspection of ECM power supply and ground line. <Ref. to 2-7 [T8C0].>	↓
3. Inspection of ignition control system. <Ref. to 2-7 [T8D0].>	↓
4. Inspection of fuel pump circuit. <Ref. to 2-7 [T8E0].>	↓
5. Inspection of fuel injector circuit. <Ref. to 2-7 [T8F0].>	↓
6. Inspection of crankshaft position sensor circuit. <Ref. to 2-7 [T8G0].> or <Ref. to 2-7 [T8H0].>	↓
7. Inspection of camshaft position sensor circuit. <Ref. to 2-7 [T8I0].>	↓
8. Inspection using Subaru Select Monitor or OBD-II general scan tool (California spec. vehicles: <Ref. to 2-7 [T10A0].>, and except 2200 cc California spec. vehicles: <Ref. to 2-7 [T11A0].> or inspection using "9. General Diagnostics Table". <Ref. to 2-7 [T900].>	

B: STARTER MOTOR CIRCUIT

CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to 2-7 [T3D0].> and INSPECTION MODE <Ref. to 2-7 [T3E0].>

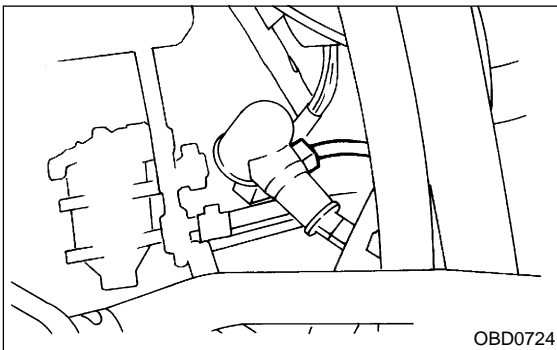
● **WIRING DIAGRAM:**



H2M3085

8B1 : CHECK INPUT SIGNAL FOR STARTER MOTOR.

- 1) Turn ignition switch to OFF.
- 2) Disconnect connector from starter motor.

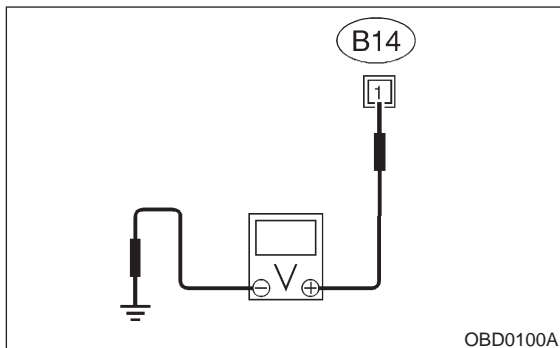


- 3) Turn ignition switch to ST.

4) Measure power supply voltage between starter motor connector terminal and engine ground.

Connector & terminal

(B14) No. 1 (+) — Engine ground (-):



NOTE:

- On AT vehicles, place the selector lever in the “P” or “N” position.
- On MT vehicles, depress the clutch pedal.

CHECK : **Is the voltage more than 10 V?**

YES : Go to step **8B2**.

NO : Go to step **8B3**.

8B2 : CHECK GROUND CIRCUIT OF STARTER MOTOR.

- 1) Turn ignition switch to OFF.
- 2) Disconnect terminal from starter motor.



3) Measure resistance of ground cable between ground cable terminal and engine ground.

CHECK : **Is resistance less than 5 Ω?**

YES : Check starter motor. <Ref. to 6-1 [K100].>

NO : Repair open circuit of ground cable.

8B3 : CHECK HARNESS BETWEEN BATTERY AND IGNITION SWITCH CONNECTOR.

- 1) Turn ignition switch to OFF.
- 2) Remove SBF No. 4 from main fuse box.
- 3) Measure resistance of fuse.

CHECK : **Is resistance less than 1 Ω?**

YES : Replace SBF No. 4. <Ref. to 6-3 [D5A0].>

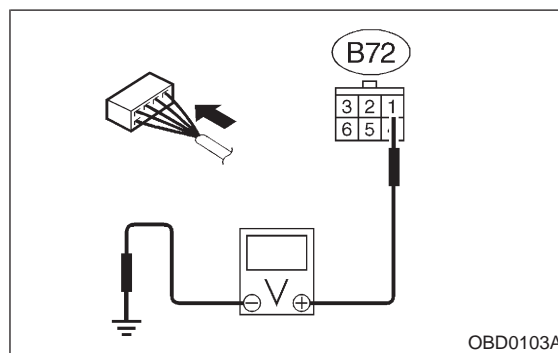
NO : Go to step **8B4**.

8B4 : CHECK HARNESS BETWEEN BATTERY AND IGNITION SWITCH CONNECTOR.

- 1) Install SBF No. 4 to main fuse box.
- 2) Turn ignition switch to ON.
- 3) Measure power supply voltage between ignition switch connector and chassis ground.

Connector & terminal

(B72) No. 1 (+) — Chassis ground (-):



CHECK : **Is the voltage more than 10 V?**

YES : Go to step **8B5**.

NO : Repair open circuit in harness between ignition switch and SBF No. 4 connector.

8B5 : CHECK TRANSMISSION TYPE.

CHECK : **Is transmission type AT?**

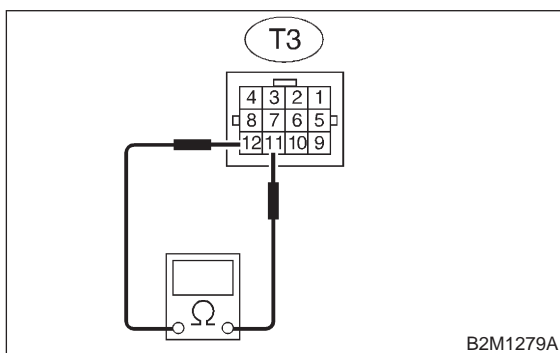
YES : Go to step **8B6**.

NO : Go to step **8B10**.

8B6 : CHECK INHIBITOR SWITCH CIRCUIT.

- 1) Turn ignition switch to OFF.
- 2) Place the selector lever in the "P" or "N" position.
- 3) Measure resistance between transmission harness connector receptacle's terminals.

Connector & terminal
(T3) No. 11 — No. 12:

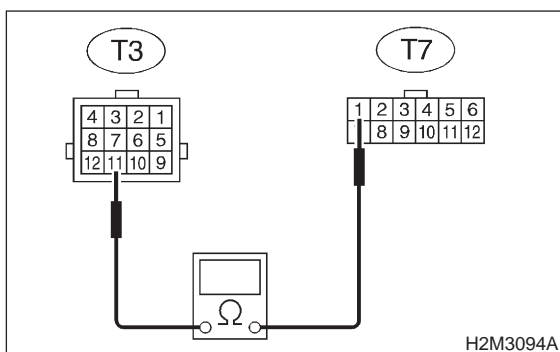


- CHECK** : **Is the resistance less than 1 Ω?**
- YES** : Repair open circuit in harness between starter motor and ignition switch connector.
- NO** : Go to step 8B7.

8B7 : CHECK TRANSMISSION HARNESS.

- 1) Disconnect connector from inhibitor switch.
- 2) Measure resistance of harness between transmission harness and inhibitor switch connector.

Connector & terminal
(T3) No. 11 — (T7) No. 1:

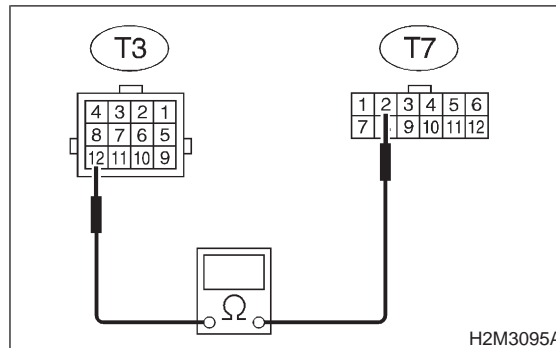


- CHECK** : **Is the resistance less than 1 Ω?**
- YES** : Go to step 8B8.
- NO** : Repair open circuit in harness between transmission harness and inhibitor switch connector.

8B8 : CHECK TRANSMISSION HARNESS.

Measure resistance of harness between transmission harness and inhibitor switch connector.

Connector & terminal
(T3) No. 12 — (T7) No. 2:



- CHECK** : **Is the resistance less than 1 Ω?**
- YES** : Go to step 8B9.
- NO** : Repair open circuit in harness between transmission harness and inhibitor switch connector.

8B9 : CHECK POOR CONTACT.

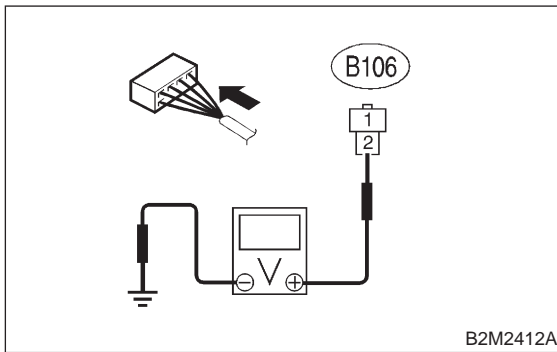
Check poor contact in inhibitor switch connector.
 <Ref. to FOREWORD [T3C1].>

- CHECK** : **Is there poor contact in inhibitor switch connector?**
- YES** : Repair poor contact in inhibitor switch connector.
- NO** : Replace inhibitor switch. <Ref. to 3-2 [W2C0].>

8B10 : CHECK STARTER INTERLOCK CIRCUIT.

- 1) Turn ignition switch to "ST".
- 2) Measure voltage between clutch switch connector and chassis ground.

Connector & terminal
(B106) No. 2 (+) — Chassis ground (-):

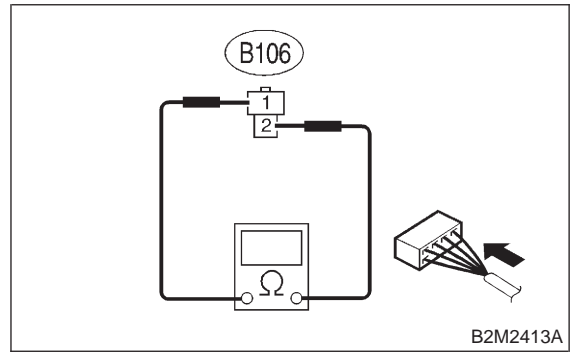


- CHECK** : **Is the voltage more than 10 V?**
- YES** : Replace starter interlock relay. <Ref. to 6-3 [D6D0].>
- NO** : Go to step **8B11**.

8B11 : CHECK STARTER INTERLOCK CIRCUIT.

- 1) Turn ignition switch to OFF.
- 2) Measure resistance between clutch switch connector terminals while depressing the clutch pedal.

Connector & terminal
(B106) No. 1 — No. 2:



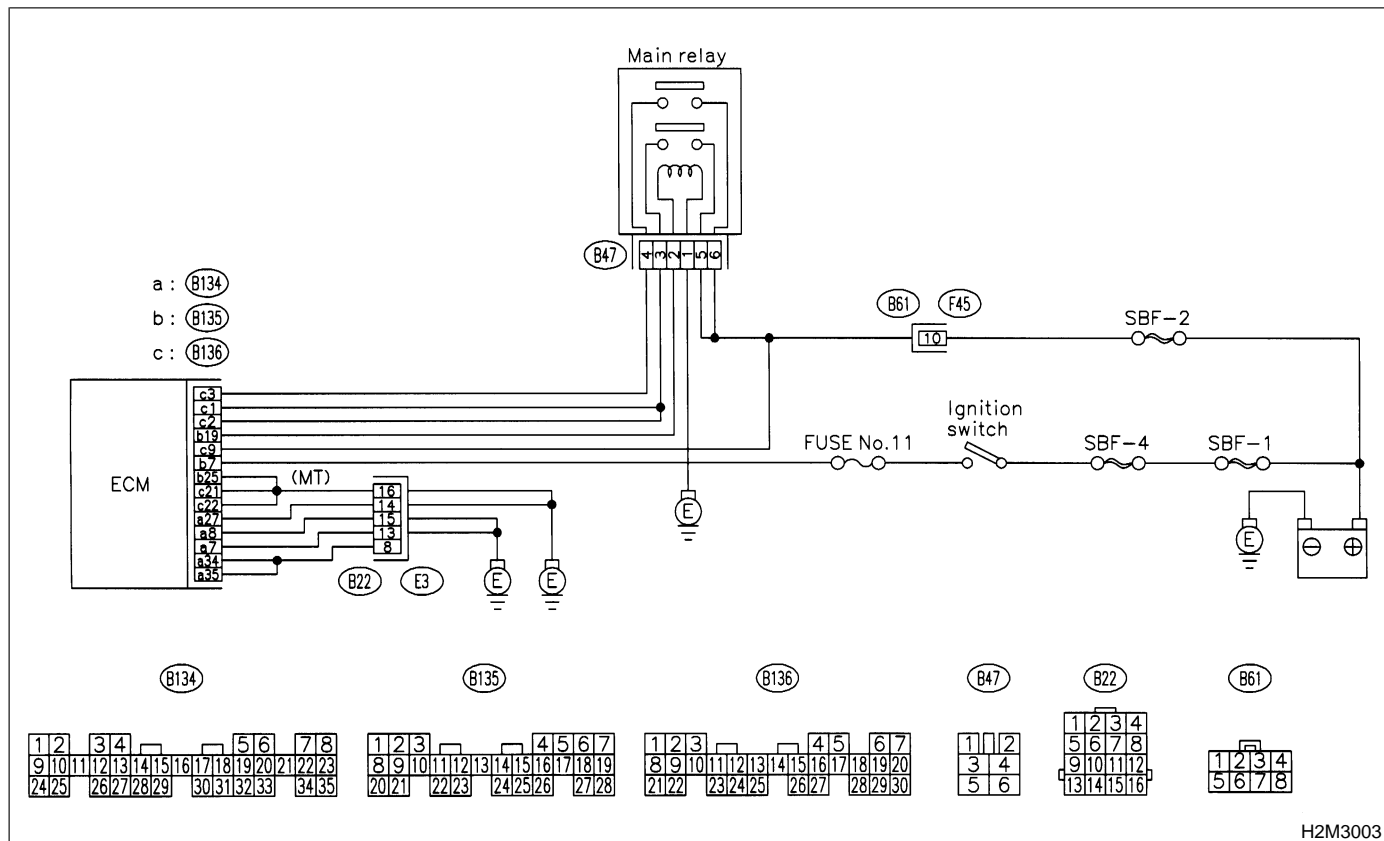
- CHECK** : **Is the resistance less than 10 Ω?**
- YES** : Repair open circuit in harness between starter motor and ignition switch connector.
- NO** : Replace clutch switch. <Ref. to 4-5 [C1A0].>

C: CONTROL MODULE POWER SUPPLY AND GROUND LINE

CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to 2-7 [T3D0].> and INSPECTION MODE <Ref. to 2-7 [T3E0].>

● **WIRING DIAGRAM:**



H2M3003

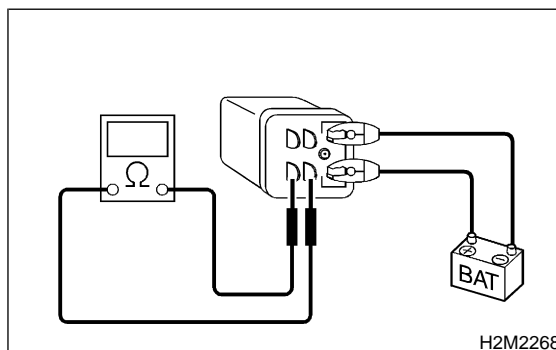
8C1 : CHECK MAIN RELAY.

- 1) Turn the ignition switch to OFF.
- 2) Remove main relay.
- 3) Connect battery to main relay terminals No. 1 and No. 2.

4) Measure resistance between main relay terminals.

Terminals

No. 3 — No. 5:



H2M2268

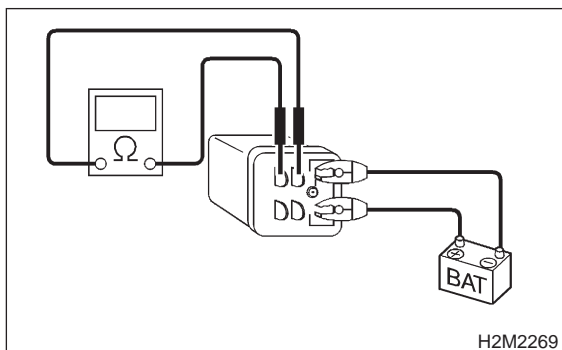
- CHECK** : Is the resistance less than 10 Ω?
- YES** : Go to step 8C2.
- NO** : Replace main relay. <Ref. to 2-7 [W16A0].>

8C2 : CHECK MAIN RELAY.

Measure resistance between main relay terminals.

Terminals

No. 4 — No. 6:



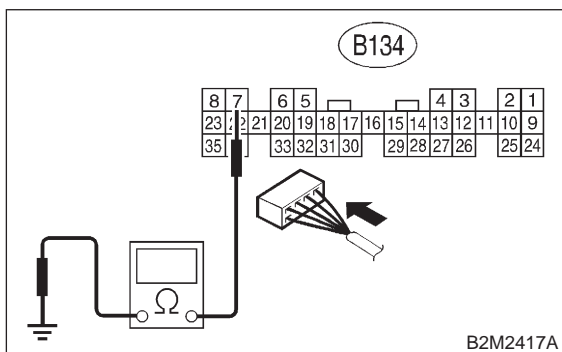
- CHECK** : Is the resistance less than 10 Ω?
- YES** : Go to step 8C3.
- NO** : Replace main relay. <Ref. to 2-7 [W16A0].>

8C3 : CHECK GROUND CIRCUIT OF ECM.

- 1) Turn ignition switch to OFF.
- 2) Measure resistance of harness connector between ECM and chassis ground.

Connector & terminal

(B134) No. 7 — Chassis ground:



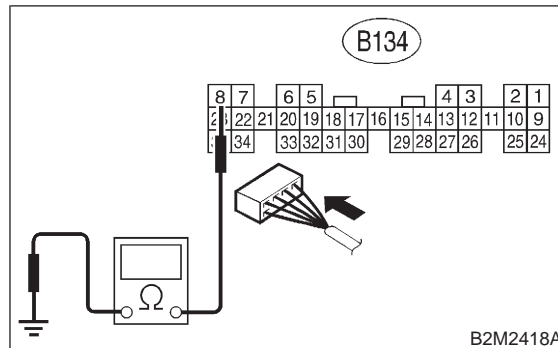
- CHECK** : Is the resistance less than 5 Ω?
- YES** : Go to step 8C4.
- NO** : Repair open circuit in harness between ECM connector and engine grounding terminal.

8C4 : CHECK GROUND CIRCUIT OF ECM.

Measure resistance of harness between ECM and chassis ground.

Connector & terminal

(B134) No. 8 — Chassis ground:



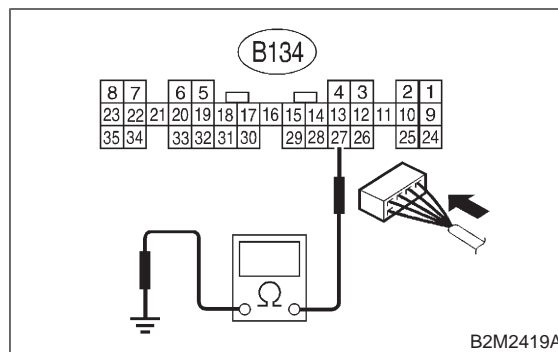
- CHECK** : Is the resistance less than 5 Ω?
- YES** : Go to step 8C5.
- NO** : Repair open circuit in harness between ECM connector and engine grounding terminal.

8C5 : CHECK GROUND CIRCUIT OF ECM.

Measure resistance of harness between ECM and chassis ground.

Connector & terminal

(B134) No. 27 — Chassis ground:

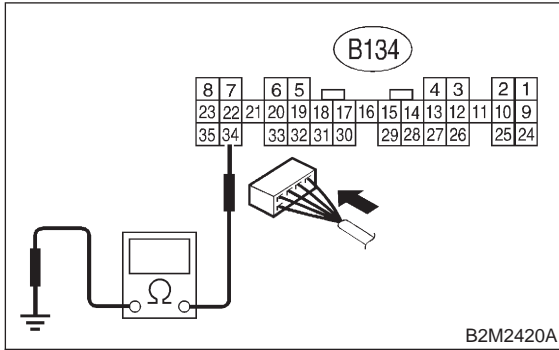


- CHECK** : Is the resistance less than 5 Ω?
- YES** : Go to step 8C6.
- NO** : Repair open circuit in harness between ECM connector and engine grounding terminal.

8C6 : CHECK GROUND CIRCUIT OF ECM.

Measure resistance of harness between ECM and chassis ground.

Connector & terminal
(B134) No. 34 — Chassis ground:

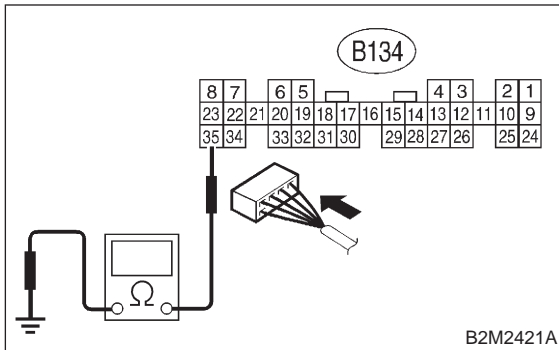


- CHECK** : Is the resistance less than 5 Ω?
- YES** : Go to step 8C7.
- NO** : Repair open circuit in harness between ECM connector and engine grounding terminal.

8C7 : CHECK GROUND CIRCUIT OF ECM.

Measure resistance of harness between ECM and chassis ground.

Connector & terminal
(B134) No. 35 — Chassis ground:

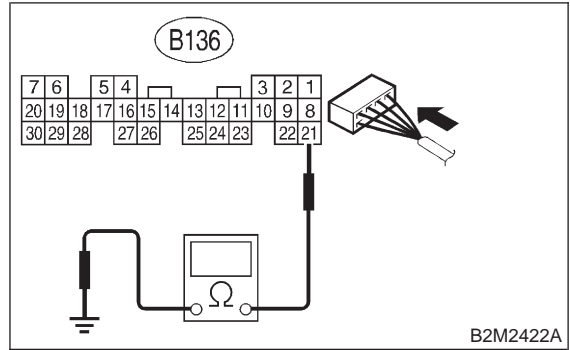


- CHECK** : Is the resistance less than 5 Ω?
- YES** : Go to step 8C8.
- NO** : Repair open circuit in harness between ECM connector and engine grounding terminal.

8C8 : CHECK GROUND CIRCUIT OF ECM.

Measure resistance of harness between ECM and chassis ground.

Connector & terminal
(B136) No. 21 — Chassis ground:

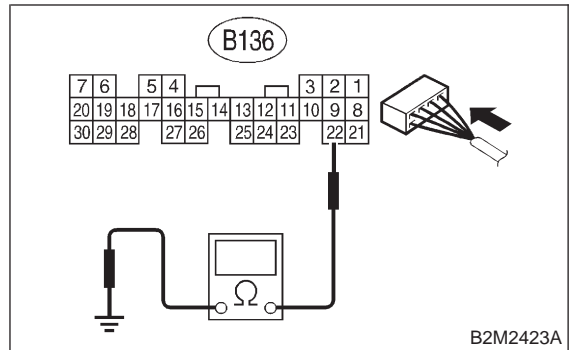


- CHECK** : Is the resistance less than 5 Ω?
- YES** : Go to step 8C9.
- NO** : Repair open circuit in harness between ECM connector and engine grounding terminal.

8C9 : CHECK GROUND CIRCUIT OF ECM.

Measure resistance of harness between ECM and chassis ground.

Connector & terminal
(B136) No. 22 — Chassis ground:



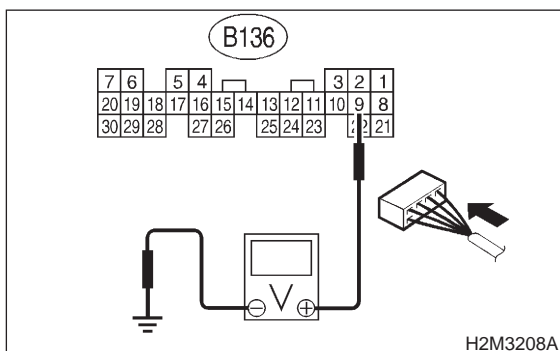
- CHECK** : Is the resistance less than 5 Ω?
- YES** : Go to step 8C10.
- NO** : Repair open circuit in harness between ECM connector and engine grounding terminal.

8C10 : CHECK INPUT VOLTAGE OF ECM.

- 1) Disconnect connector from ECM.
- 2) Measure voltage between ECM connector and chassis ground.

Connector & terminal

(B136) No. 9 (+) — Chassis ground (-):



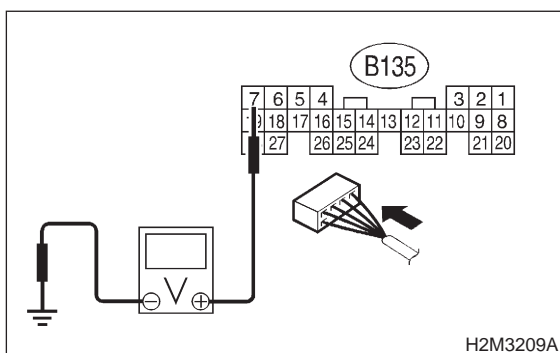
- CHECK** : Is the voltage more than 10 V?
- YES** : Go to step 8C11.
- NO** : Repair open or ground short circuit of power supply circuit.

8C11 : CHECK INPUT VOLTAGE OF ECM.

- 1) Ignition switch to ON.
- 2) Measure voltage between ECM connector and chassis ground.

Connector & terminal

(B135) No. 7 (+) — Chassis ground (-):



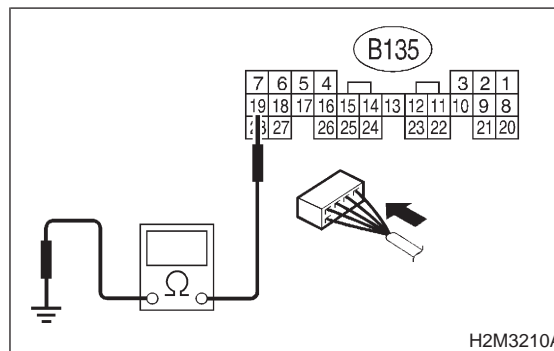
- CHECK** : Is the voltage more than 10 V?
- YES** : Go to step 8C12.
- NO** : Repair open or ground short circuit of power supply circuit.

8C12 : CHECK HARNESS BETWEEN ECM AND MAIN RELAY CONNECTOR.

- 1) Ignition switch to OFF.
- 2) Measure resistance between ECM and chassis ground.

Connector & terminal

(B135) No. 19 — Chassis ground:



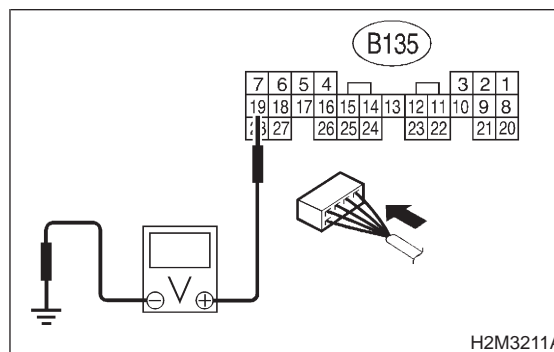
- CHECK** : Is the resistance more than 1 MΩ?
- YES** : Go to step 8C13.
- NO** : Repair ground short circuit in harness between ECM connector and main relay connector, then replace ECM.

8C13 : CHECK OUTPUT VOLTAGE FROM ECM.

- 1) Connect connector to ECM.
- 2) Ignition switch to ON.
- 3) Measure voltage between ECM connector and chassis ground.

Connector & terminal

(B135) No. 19 (+) — Chassis ground (-):



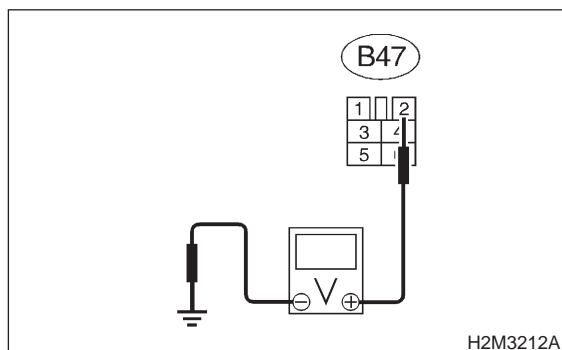
- CHECK** : Is the voltage more than 10 V?
- YES** : Go to step 8C14.
- NO** : Replace ECM.

8C14 : CHECK INPUT VOLTAGE OF MAIN RELAY.

Check voltage between main relay connector and chassis ground.

Connector & terminal

(B47) No. 2 (+) — Chassis ground (-):



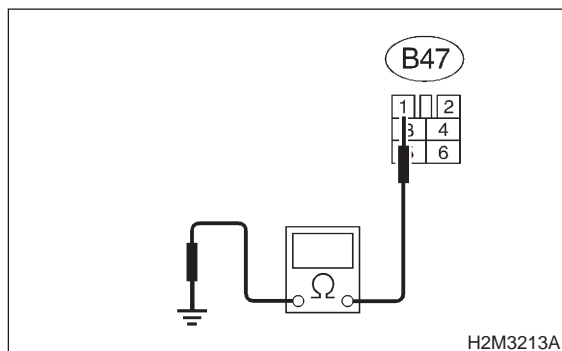
- CHECK** : Is the voltage more than 10 V?
YES : Go to step 8C15.
NO : Repair open circuit in harness between ECM connector and main relay connector.

8C15 : CHECK GROUND CIRCUIT OF MAIN RELAY.

- 1) Ignition switch to OFF.
- 2) Measure resistance between main relay connector and chassis ground.

Connector & terminal

(B47) No. 1 — Chassis ground:



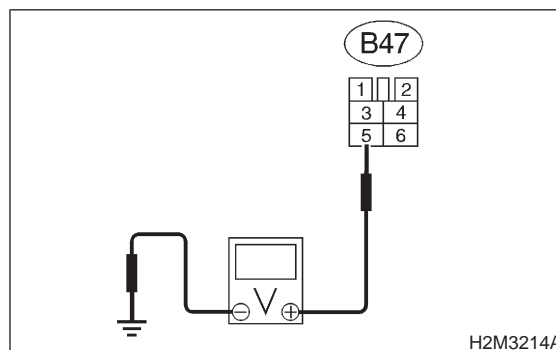
- CHECK** : Is the resistance less than 5 Ω?
YES : Go to step 8C16.
NO : Repair open circuit between main relay and chassis ground.

8C16 : CHECK INPUT VOLTAGE OF MAIN RELAY.

Measure voltage between main relay connector and chassis ground.

Connector & terminal

(B47) No. 5 (+) — Chassis ground (-):



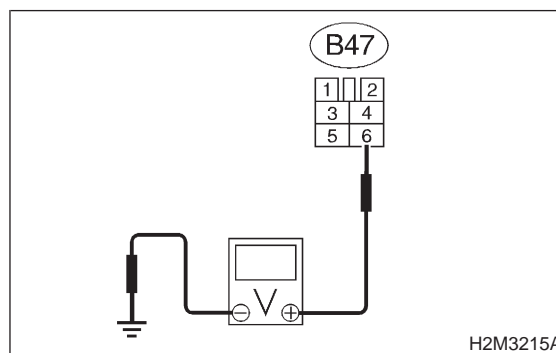
- CHECK** : Is the voltage more than 10 V?
YES : Go to step 8C17.
NO : Repair open or ground short circuit in harness of power supply circuit.

8C17 : CHECK INPUT VOLTAGE OF MAIN RELAY.

Measure voltage between main relay connector and chassis ground.

Connector & terminal

(B47) No. 6 (+) — Chassis ground (-):



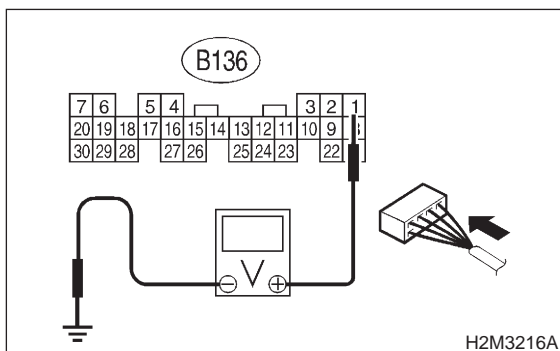
- CHECK** : Is the voltage more than 10 V?
YES : Go to step 8C18.
NO : Repair open or ground short circuit in harness of power supply circuit.

8C18 : CHECK INPUT VOLTAGE OF ECM.

- 1) Connect main relay connector.
- 2) Ignition switch to ON.
- 3) Measure voltage between ECM connector and chassis ground.

Connector & terminal

(B136) No. 1 (+) — Chassis ground (-):



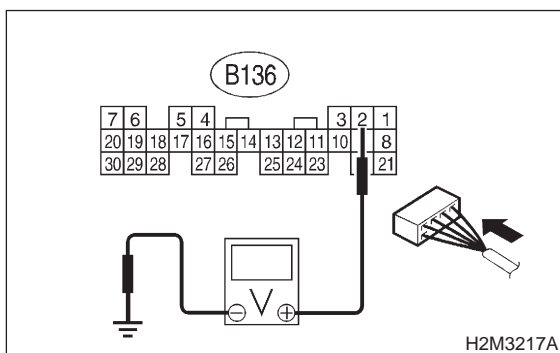
- CHECK** : *Is the voltage more than 10 V?*
- YES** : Go to step **8C19**.
- NO** : Repair open or ground short circuit in harness between ECM connector and main relay connector.

8C19 : CHECK INPUT VOLTAGE OF ECM.

Measure voltage between ECM connector and chassis ground.

Connector & terminal

(B136) No. 2 (+) — Chassis ground (-):



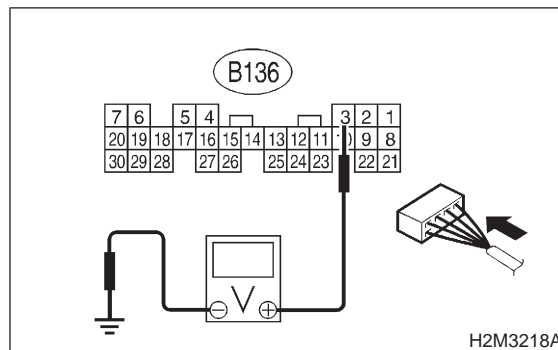
- CHECK** : *Is the voltage more than 10 V?*
- YES** : Go to step **8C20**.
- NO** : Repair open or ground short circuit in harness between ECM connector and main relay connector.

8C20 : CHECK INPUT VOLTAGE OF ECM.

Measure voltage between ECM connector and chassis ground.

Connector & terminal

(B136) No. 3 (+) — Chassis ground (-):



- CHECK** : *Is the voltage more than 10 V?*
- YES** : Go to step **8C21**.
- NO** : Repair open or ground short circuit in harness between ECM connector and main relay connector.

8C21 : CHECK TRANSMISSION TYPE.

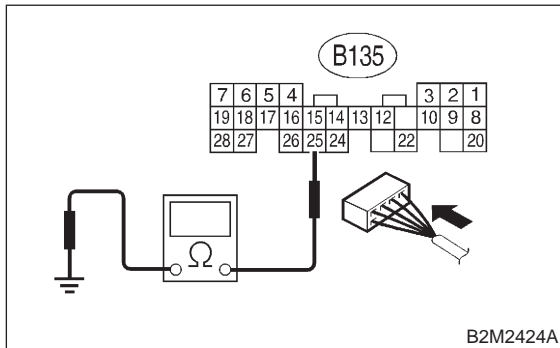
- CHECK** : *Is transmission type AT?*
- YES** : Check ignition control system. <Ref. to 2-7 [T8D0].>
- NO** : Go to step **8C22**.

8C22 : CHECK GROUND CIRCUIT OF ECM.

Measure resistance of harness between ECM and chassis ground.

Connector & terminal

(B135) No. 25 — Chassis ground:



- CHECK** : **Is the resistance less than 5 Ω ?**
- YES** : Check ignition control system. <Ref. to 2-7 [T8D0].>
- NO** : Repair open circuit in harness between ECM connector and engine grounding terminal.

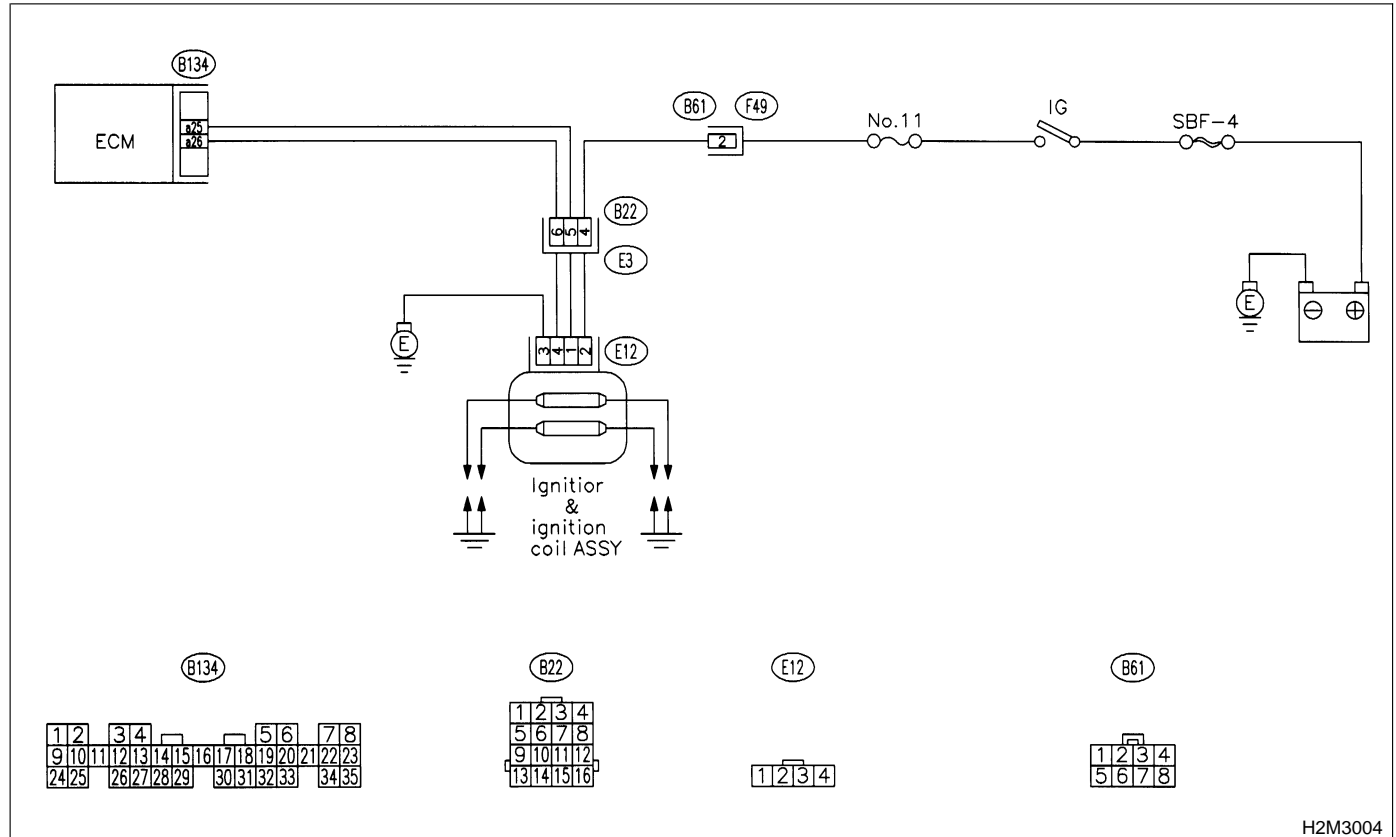
MEMO:

D: IGNITION CONTROL SYSTEM

CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to 2-7 [T3D0].> and INSPECTION MODE <Ref. to 2-7 [T3E0].>

● WIRING DIAGRAM:



H2M3004

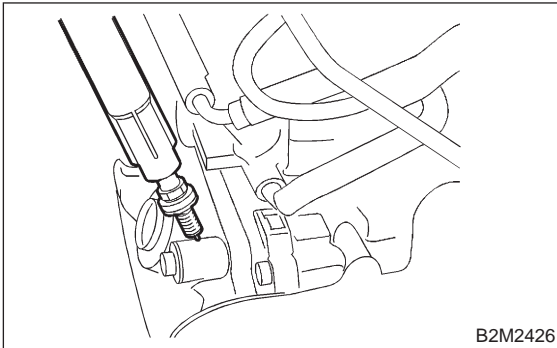
8D1 : CHECK IGNITION SYSTEM FOR SPARKS.

- 1) Remove plug cord cap from each spark plug.
- 2) Install new spark plug on plug cord cap.

CAUTION:

Do not remove spark plug from engine.

- 3) Contact spark plug's thread portion on engine.
- 4) While opening throttle valve fully, crank engine to check that spark occurs at each cylinder.



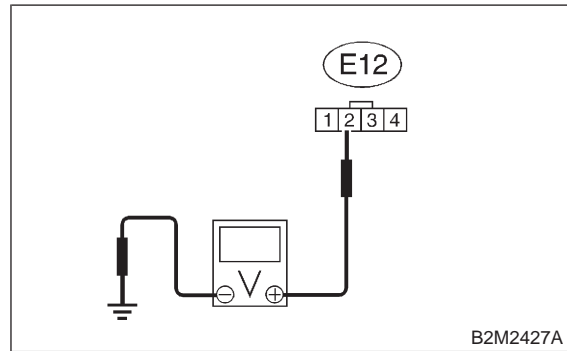
- CHECK** : **Does spark occur at each cylinder?**
- YES** : Check fuel pump system. <Ref. to 2-7 [T8E0].>
- NO** : Go to step **8D2**.

8D2 : CHECK POWER SUPPLY CIRCUIT FOR IGNITION COIL & IGNITOR ASSEMBLY.

- 1) Turn ignition switch to OFF.
- 2) Disconnect connector from ignition coil & ignitor assembly.
- 3) Turn ignition switch to ON.
- 4) Measure power supply voltage between ignition coil & ignitor assembly connector and engine ground.

Connector & terminal

(E12) No. 2 (+) — Engine ground (-):



- CHECK** : **Is the voltage more than 10 V?**
- YES** : Go to step **8D3**.
- NO** : Repair harness and connector.

NOTE:

In this case, repair the following:

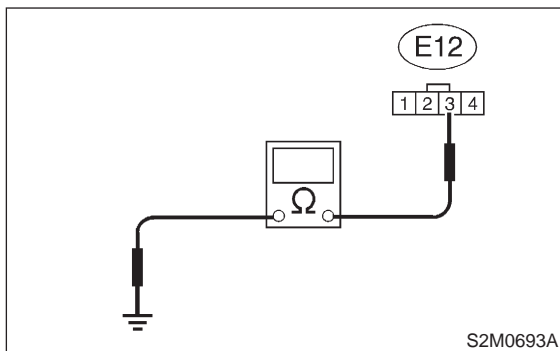
- Open circuit in harness between ignition coil & ignitor assembly, and ignition switch connector
- Poor contact in coupling connectors (B22) and (F44)

8D3 : CHECK HARNESS OF IGNITION COIL & IGNITOR ASSEMBLY GROUND CIRCUIT.

- 1) Turn ignition switch to OFF.
- 2) Measure resistance between ignition coil & ignitor assembly connector and engine ground.

Connector & terminal

(E12) No. 3 — Engine ground:



CHECK : Is the resistance between less than 5 Ω ?

YES : Go to step 8D4.

NO : Repair harness and connector.

NOTE:

In this case, repair the following:

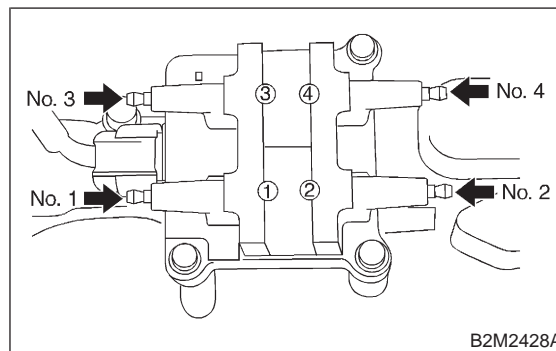
- Open circuit in harness between ignition coil & ignitor assembly connector and engine grounding terminal

8D4 : CHECK IGNITION COIL & IGNITOR ASSEMBLY.

- 1) Remove spark plug cords.
- 2) Measure resistance between spark plug cord contact portions to check secondary coil.

Terminals

No. 1 — No. 2:



CHECK : Is the resistance between 10 and 15 $k\Omega$?

YES : Go to step 8D5.

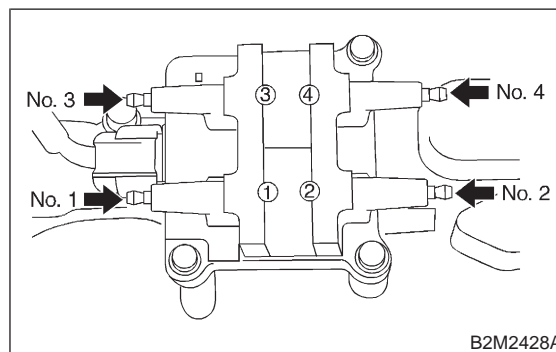
NO : Replace ignition coil & ignitor assembly. <Ref. to 6-1 [W4A0].>

8D5 : CHECK IGNITION COIL & IGNITOR ASSEMBLY.

Measure resistance between spark plug cord contact portions to check secondary coil.

Terminals

No. 3 — No. 4:



CHECK : Is the resistance between 10 and 15 $k\Omega$?

YES : Go to step 8D6.

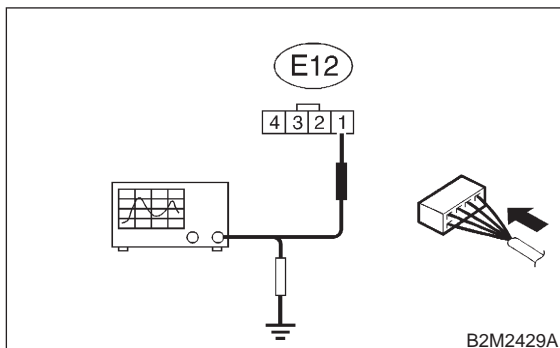
NO : Replace ignition coil & ignitor assembly. <Ref. to 6-1 [W4A0].>

8D6 : CHECK INPUT SIGNAL FOR IGNITION COIL & IGNITOR ASSEMBLY.

- 1) Connect connector to ignition coil & ignitor assembly.
- 2) Check if voltage varies synchronously with engine speed when cranking, while monitoring voltage between ignition coil & ignitor assembly connector and engine ground.

Connector & terminal

(E12) No. 1 (+) — Engine ground (-):



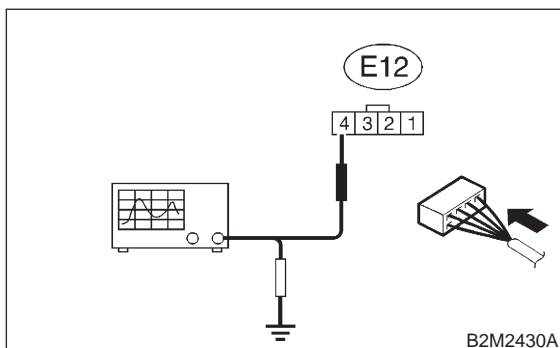
- CHECK** : Is the voltage more than 10 V?
- YES** : Go to step 8D7.
- NO** : Replace ignition coil & ignitor assembly.
<Ref. to 6-1 [W4A0].>

8D7 : CHECK INPUT SIGNAL FOR IGNITION COIL & IGNITOR ASSEMBLY.

Check if voltage varies synchronously with engine speed when cranking, while monitoring voltage between ignition coil & ignitor assembly connector and engine ground.

Connector & terminal

(E12) No. 4 (+) — Engine ground (-):



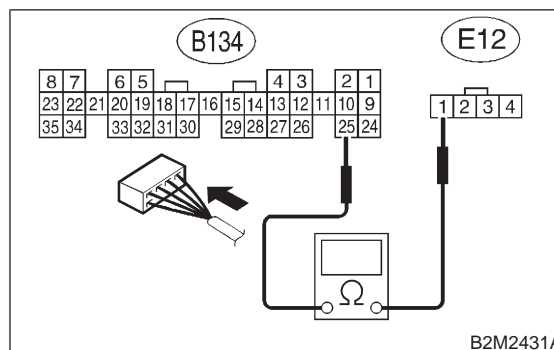
- CHECK** : Is the voltage more than 10 V?
- YES** : Go to step 8D8.
- NO** : Replace ignition coil & ignitor assembly.
<Ref. to 6-1 [W4A0].>

8D8 : CHECK HARNESS BETWEEN ECM AND IGNITION COIL & IGNITOR ASSEMBLY CONNECTOR.

- 1) Turn ignition switch to OFF.
- 2) Disconnect connector from ECM.
- 3) Disconnect connector from ignition coil & ignitor assembly.
- 4) Measure resistance of harness between ECM and ignition coil & ignitor assembly connector.

Connector & terminal

(B134) No. 25 — (E12) No. 1:



- CHECK** : Is the resistance less than 1 Ω?
- YES** : Go to step 8D9.
- NO** : Repair harness and connector.

NOTE:

In this case, repair the following:

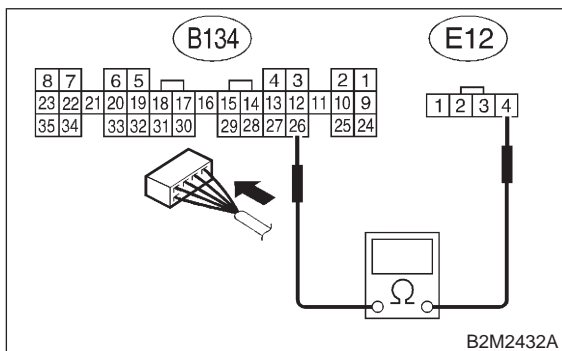
- Open circuit in harness between ECM and ignition coil & ignitor assembly connector
- Poor contact in coupling connector (B22)

8D9 : CHECK HARNESS BETWEEN ECM AND IGNITION COIL & IGNITOR ASSEMBLY CONNECTOR.

Measure resistance of harness between ECM and ignition coil & ignitor assembly connector.

Connector & terminal

(B134) No. 26 — (E12) No. 4:



- CHECK** : Is the resistance less than 1 Ω?
- YES** : Go to step 8D10.
- NO** : Repair harness and connector.

NOTE:

In this case, repair the following:

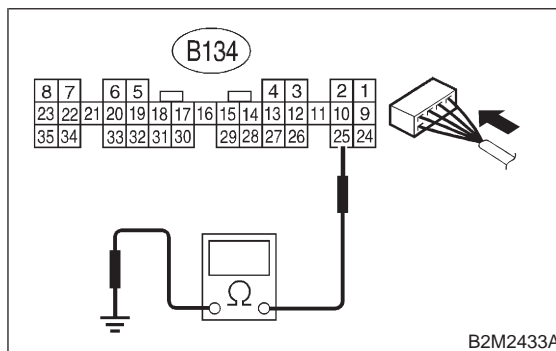
- Open circuit in harness between ECM and ignition coil & ignitor assembly connector
- Poor contact in coupling connector (B22)

8D10 : CHECK HARNESS BETWEEN ECM AND IGNITION COIL & IGNITOR ASSEMBLY CONNECTOR.

Measure resistance of harness between ECM and engine ground.

Connector & terminal:

(B134) No. 25 — Engine ground:



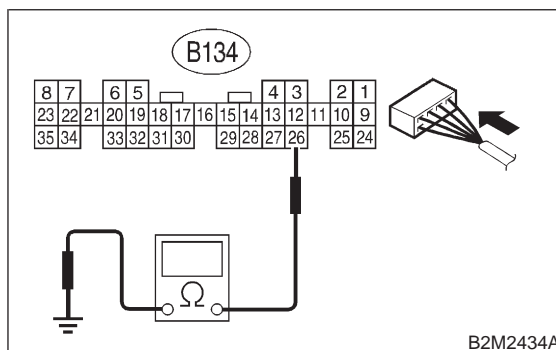
- CHECK** : Is the resistance more than 1 MΩ?
- YES** : Go to step 8D11.
- NO** : Repair ground short circuit in harness between ECM and ignition coil & ignitor assembly connector.

8D11 : CHECK HARNESS BETWEEN ECM AND IGNITION COIL & IGNITOR ASSEMBLY CONNECTOR.

Measure resistance of harness between ECM and engine ground.

Connector & terminal

(B134) No. 26 — Engine ground:



- CHECK** : Is the resistance more than 1 MΩ?
- YES** : Go to step 8D12.
- NO** : Repair ground short circuit in harness between ECM and ignition coil & ignitor assembly connector.

8D12 : CHECK POOR CONTACT.

Check poor contact in ECM connector. <Ref. to FOREWORD [T3C1].>

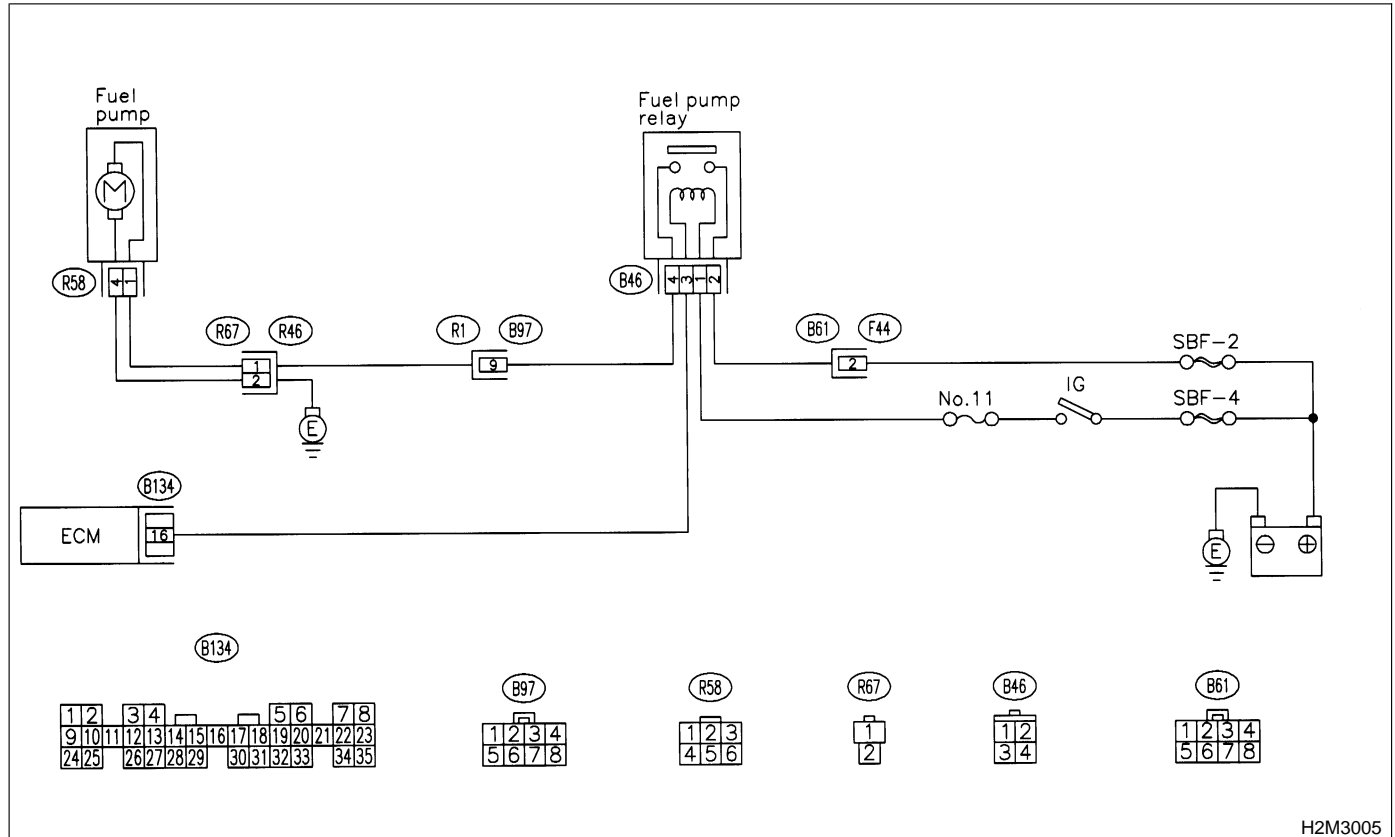
- CHECK** : *Is there poor contact in ECM connector?*
- YES** : Repair poor contact in ECM connector.
- NO** : Check fuel pump circuit. <Ref. to 2-7 [T8E0].>

E: FUEL PUMP CIRCUIT

CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to 2-7 [T3D0].> and INSPECTION MODE <Ref. to 2-7 [T3E0].>

● **WIRING DIAGRAM:**



8E1 : CHECK OPERATING SOUND OF FUEL PUMP.

Make sure that fuel pump is in operation for two seconds when turning ignition switch to ON.

NOTE:

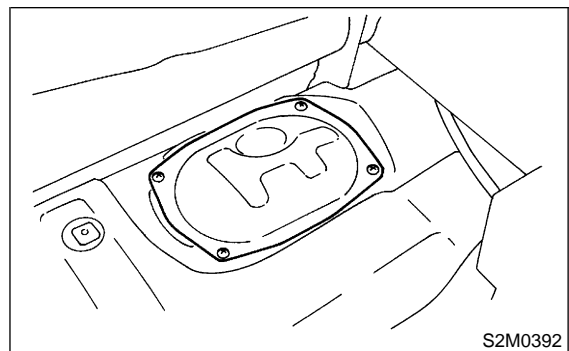
Fuel pump operation check can also be executed using Subaru Select Monitor (Function mode: FD01).

For the procedure, refer to "COMPULSORY VALVE OPERATION CHECK MODE". <Ref. to 2-7 [T3F0].>

- CHECK** : Does fuel pump produce operating sound?
- YES** : Check fuel injector circuit. <Ref. to 2-7 [T8F0].>
- NO** : Go to step **8E2**.

8E2 : CHECK GROUND CIRCUIT OF FUEL PUMP.

- 1) Turn ignition switch to OFF.
- 2) Remove fuel pump access hole lid located on the right rear of trunk compartment floor (Sedan) or luggage compartment floor (Wagon).

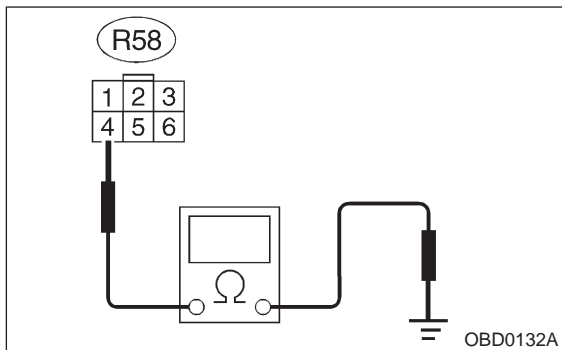


- 3) Disconnect connector from fuel pump.

4) Measure resistance of harness connector between fuel pump and chassis ground.

Connector & terminal

(R58) No. 4 — Chassis ground:



- CHECK** : Is the resistance less than 5 Ω?
- YES** : Go to step 8E3.
- NO** : Repair harness and connector.

NOTE:

In this case, repair the following:

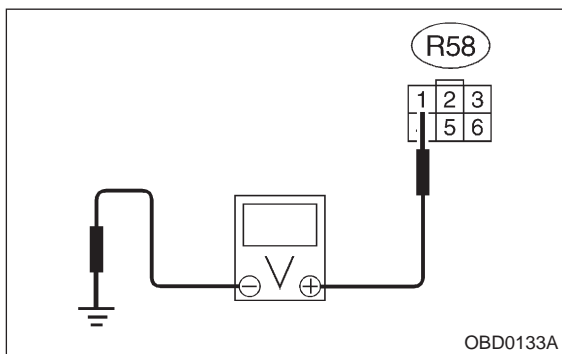
- Open circuit in harness between fuel pump connector and chassis grounding terminal
- Poor contact in coupling connector (R67)

8E3 : CHECK POWER SUPPLY TO FUEL PUMP.

1) Turn ignition switch to ON.
2) Measure voltage of power supply circuit between fuel pump connector and chassis ground.

Connector & terminal

(R58) No. 1 (+) — Chassis ground (-):



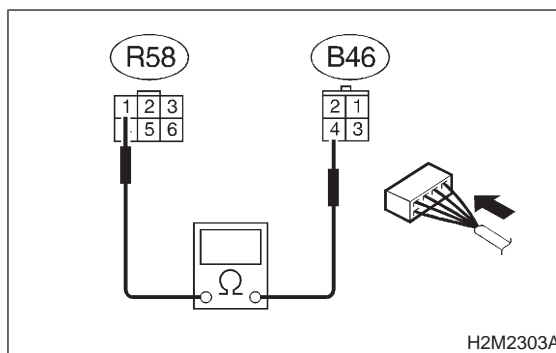
- CHECK** : Is the voltage more than 10 V?
- YES** : Replace fuel pump. <Ref. to 2-8 [W5A0].>
- NO** : Go to step 8E4.

8E4 : CHECK HARNESS BETWEEN FUEL PUMP AND FUEL PUMP RELAY CONNECTOR.

1) Turn ignition switch to OFF.
2) Measure resistance of harness connector between fuel pump and fuel pump relay.

Connector & terminal

(R58) No. 1 — (B46) No. 4:



- CHECK** : Is the resistance less than 1 Ω?
- YES** : Go to step 8E5.
- NO** : Repair harness and connector.

NOTE:

In this case, repair the following:

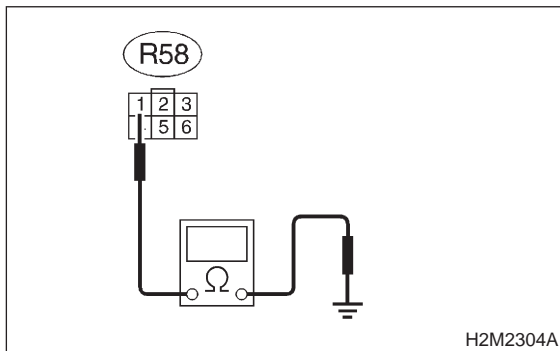
- Open circuit in harness between fuel pump connector and chassis grounding terminal
- Poor contact in coupling connectors (R67) and (B97)

8E5 : CHECK HARNESS BETWEEN FUEL PUMP AND FUEL PUMP RELAY CONNECTOR.

Measure resistance of harness between fuel pump and fuel pump relay connector.

Connector & terminal

(R58) No. 1 — Chassis ground:



CHECK : **Is the resistance more than 1 MΩ?**

YES : Go to step **8E6**.

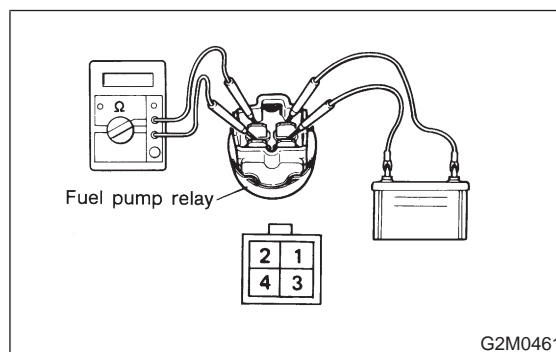
NO : Repair short circuit in harness between fuel pump and fuel pump relay connector.

8E6 : CHECK FUEL PUMP RELAY.

- 1) Disconnect connectors from fuel pump relay and main relay.
- 2) Remove fuel pump relay and main relay with bracket.
- 3) Connect battery to fuel pump relay connector terminals No. 1 and No. 3.
- 4) Measure resistance between connector terminals of fuel pump relay.

Terminals

No. 2 — No. 4:



CHECK : **Is the resistance less than 10 Ω?**

YES : Go to step **8E7**.

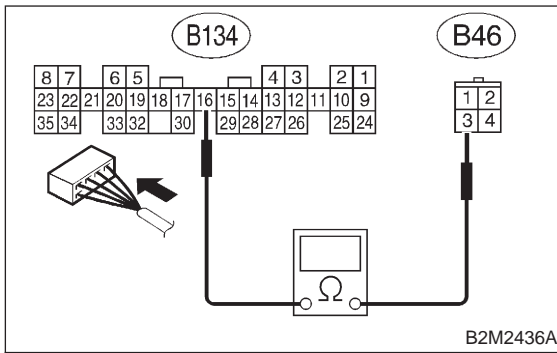
NO : Replace fuel pump relay. <Ref. to 2-7 [W17A0].>

8E7 : CHECK HARNESS BETWEEN ECM AND FUEL PUMP RELAY CONNECTOR.

- 1) Disconnect connectors from ECM.
- 2) Measure resistance of harness between ECM and fuel pump relay connector.

Connector & terminal

(B134) No. 16 — (B46) No. 3:



- CHECK** : *Is the resistance less than 1 Ω?*
- YES** : Go to step **8E8**.
- NO** : Repair open circuit in harness between ECM and fuel pump relay connector.

8E8 : CHECK POOR CONTACT.

Check poor contact in ECM connector.
 <Ref. to FOREWORD [T3C1].>

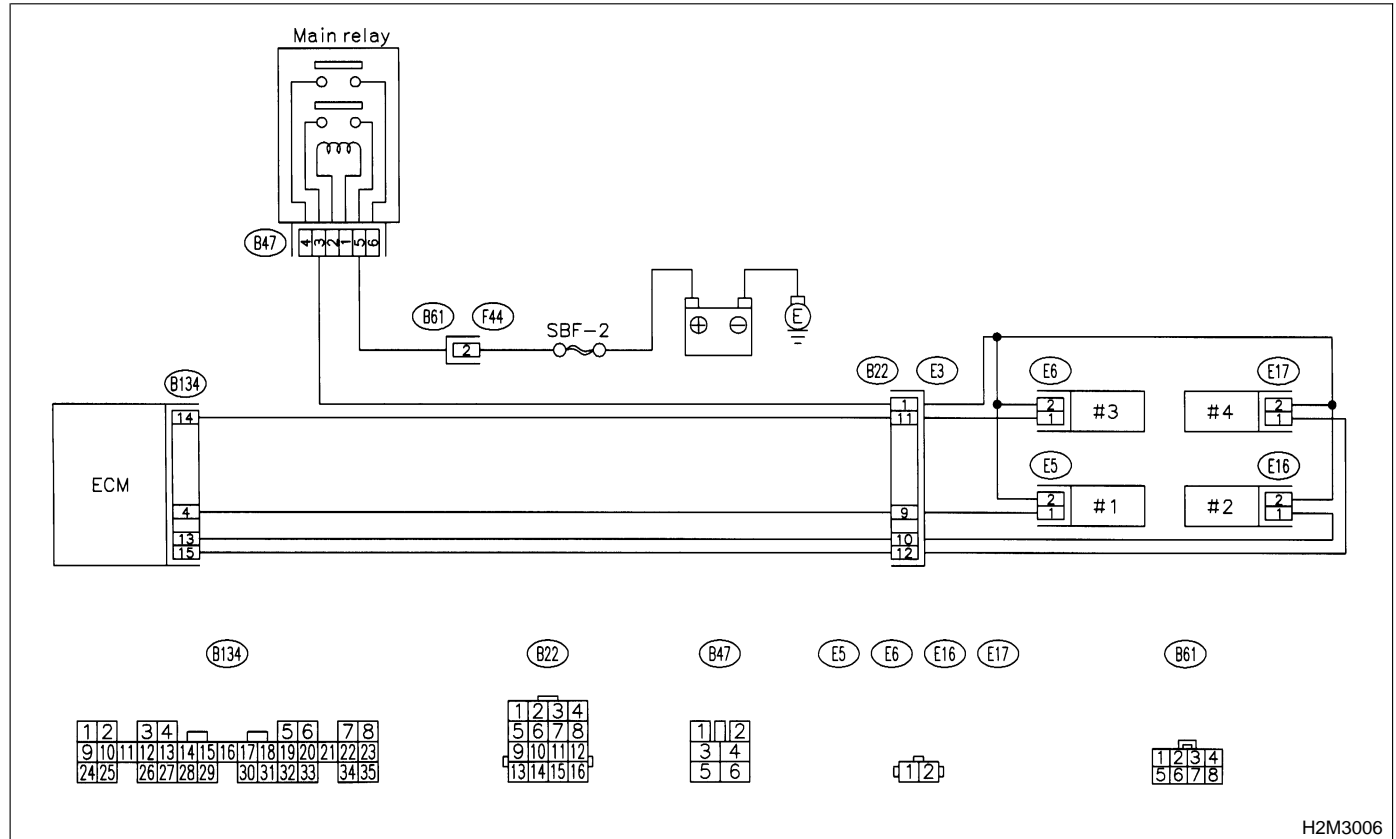
- CHECK** : *Is there poor contact in ECM connector?*
- YES** : Repair poor contact in ECM connector.
- NO** : Check fuel injector circuit. <Ref. to 2-7 [T8F0].>

F: FUEL INJECTOR CIRCUIT

CAUTION:

- Check or repair only faulty parts.
- After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to 2-7 [T3D0].> and INSPECTION MODE <Ref. to 2-7 [T3E0].>

• WIRING DIAGRAM:



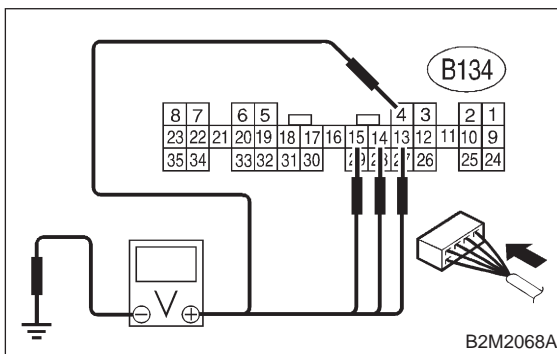
H2M3006

8F1 : CHECK OUTPUT SIGNAL FROM ECM.

- 1) Turn ignition switch to ON.
- 2) Measure voltage between ECM connector and chassis ground on faulty cylinders.

Connector & terminal

- #1 (B134) No. 4 (+) — Chassis ground (-):
- #2 (B134) No. 13 (+) — Chassis ground (-):
- #3 (B134) No. 14 (+) — Chassis ground (-):
- #4 (B134) No. 15 (+) — Chassis ground (-):



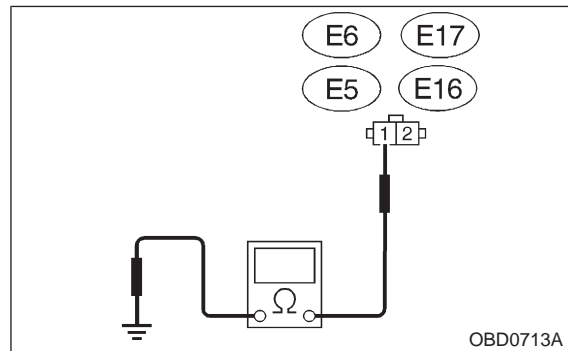
- CHECK** : Is the voltage more than 10 V?
- YES** : Go to step 8F6.
- NO** : Go to step 8F2.

8F2 : CHECK HARNESS BETWEEN FUEL INJECTOR AND ECM CONNECTOR.

- 1) Turn ignition switch to OFF.
- 2) Disconnect connector from fuel injector on faulty cylinders.
- 3) Measure voltage between ECM connector and engine ground on faulty cylinders.

Connector & terminal

- #1 (E5) No. 1 — Engine ground:
- #2 (E16) No. 1 — Engine ground:
- #3 (E6) No. 1 — Engine ground:
- #4 (E17) No. 1 — Engine ground:



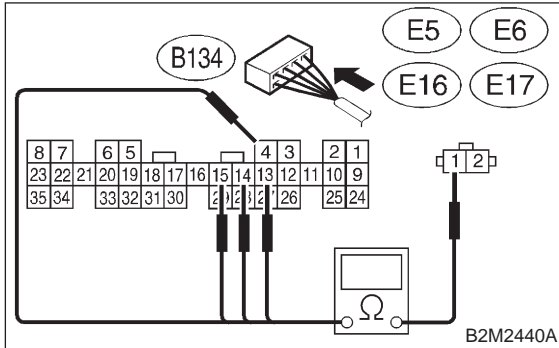
- CHECK** : Is the resistance less than 10 Ω?
- YES** : Repair ground short circuit in harness between fuel injector and ECM connector.
- NO** : Go to step 8F3.

8F3 : CHECK HARNESS BETWEEN FUEL INJECTOR AND ECM CONNECTOR.

Measure resistance of harness connector between ECM connector and fuel injector on faulty cylinders.

Connector & terminal

- #1 (B134) No. 4 — (E5) No. 1:
- #2 (B134) No. 13 — (E16) No. 1:
- #3 (B134) No. 14 — (E6) No. 1:
- #4 (B134) No. 15 — (E17) No. 1:



- CHECK** : Is the resistance less than 1 Ω?
- YES** : Go to step 8F4.
- NO** : Repair harness and connector.

NOTE:

In this case, repair the following:

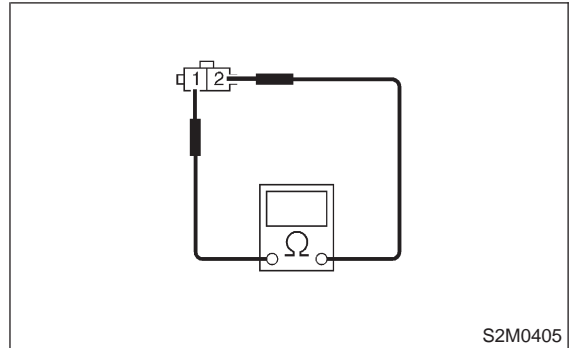
- Open circuit in harness between ECM and fuel injector connector
- Poor contact in coupling connector (B22)

8F4 : CHECK FUEL INJECTOR.

Measure resistance between fuel injector terminals on faulty cylinder.

Terminals

No. 1 — No. 2:



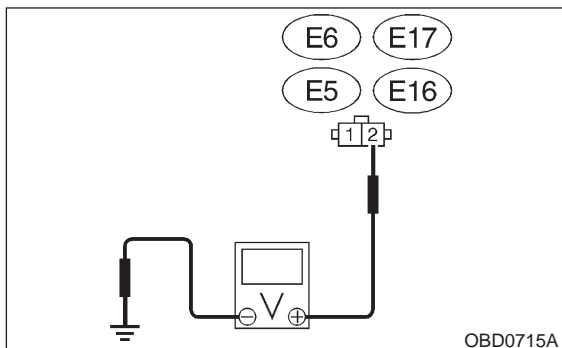
- CHECK** : Is the resistance between 5 and 20 Ω?
- YES** : Go to step 8F5.
- NO** : Replace faulty fuel injector. <Ref. to 2-7 [W14A0].>

8F5 : CHECK POWER SUPPLY LINE.

- 1) Turn ignition switch to ON.
- 2) Measure voltage between fuel injector and engine ground on faulty cylinders.

Connector & terminal

- #1 (E5) No. 2 (+) — Engine ground (-):
- #2 (E16) No. 2 (+) — Engine ground (-):
- #3 (E6) No. 2 (+) — Engine ground (-):
- #4 (E17) No. 2 (+) — Engine ground (-):



- CHECK** : *Is the voltage more than 10 V?*
- YES** : Repair poor contact in all connectors in fuel injector circuit.
- NO** : Repair harness and connector.

NOTE:

In this case, repair the following:

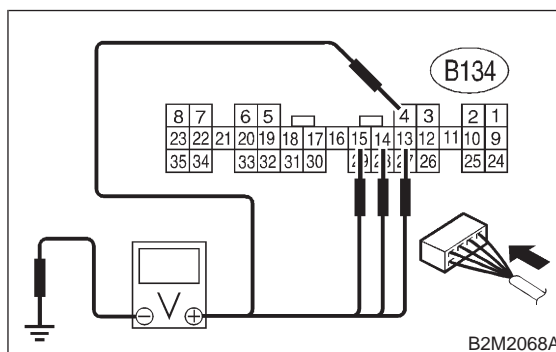
- Open circuit in harness between main relay and fuel injector connector on faulty cylinders
- Poor contact in coupling connector (B22)
- Poor contact in main relay connector
- Poor contact in fuel injector connector on faulty cylinders

8F6 : CHECK HARNESS BETWEEN FUEL INJECTOR AND ECM CONNECTOR.

- 1) Turn ignition switch to OFF.
- 2) Disconnect connector from fuel injector on faulty cylinder.
- 3) Turn ignition switch to ON.
- 4) Measure voltage between ECM connector and chassis ground on faulty cylinders.

Connector & terminal

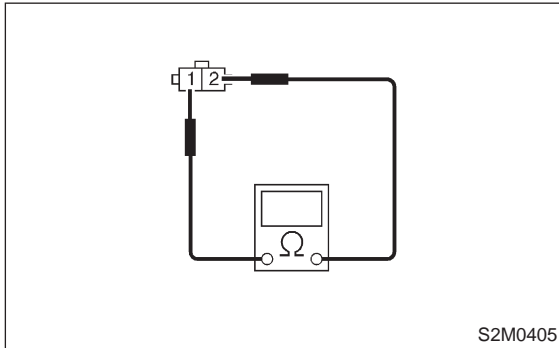
- #1 (B134) No. 4 (+) — Chassis ground (-):
- #2 (B134) No. 13 (+) — Chassis ground (-):
- #3 (B134) No. 14 (+) — Chassis ground (-):
- #4 (B134) No. 15 (+) — Chassis ground (-):



- CHECK** : *Is the voltage more than 10 V?*
- YES** : Repair battery short circuit in harness between ECM and fuel injector. After repair, replace ECM. <Ref. to 2-7 [W15A0].>
- NO** : Go to step **8F7**.

8F7 : CHECK FUEL INJECTOR.

- 1) Turn ignition switch to OFF.
- 2) Measure resistance between fuel injector terminals on faulty cylinder.

Terminals**No. 1 — No. 2:**

- CHECK** : **Is the resistance less than 1 Ω?**
- YES** : Replace faulty fuel injector <Ref. to 2-7 [W14A0].> and ECM <Ref. to 2-7 [W15A0].>.
- NO** : Go to step **8F8**.

8F8 : CHECK POOR CONTACT.

Check poor contact in ECM connector. <Ref. to FOREWORD [T3C1].>

- CHECK** : **Is there poor contact in ECM connector?**
- YES** : Repair poor contact in ECM connector.
- NO** : Check crankshaft position sensor circuit. <Ref. to 2-7 [T8G0].>

G: CRANKSHAFT POSITION SENSOR CIRCUIT (2200 cc CALIFORNIA SPEC. VEHICLES)

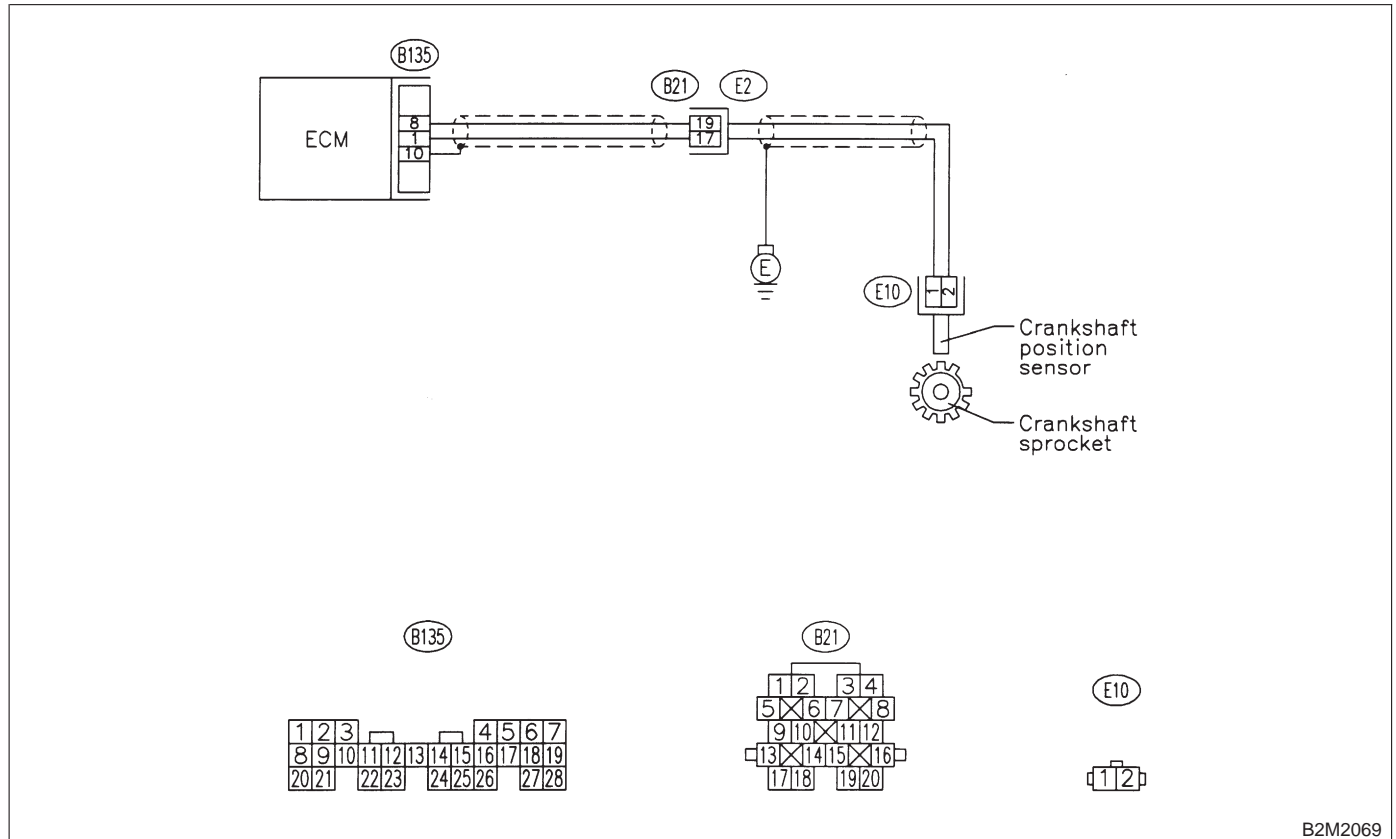
CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to 2-7 [T3D0].> and INSPECTION MODE <Ref. to 2-7 [T3E0].>

NOTE:

Check crankshaft position sensor circuit. <Ref. to 2-7 [T10AD0].>

● **WIRING DIAGRAM:**



B2M2069

H: CRANKSHAFT POSITION SENSOR CIRCUIT (EXCEPT 2200 cc CALIFORNIA SPEC. VEHICLES)

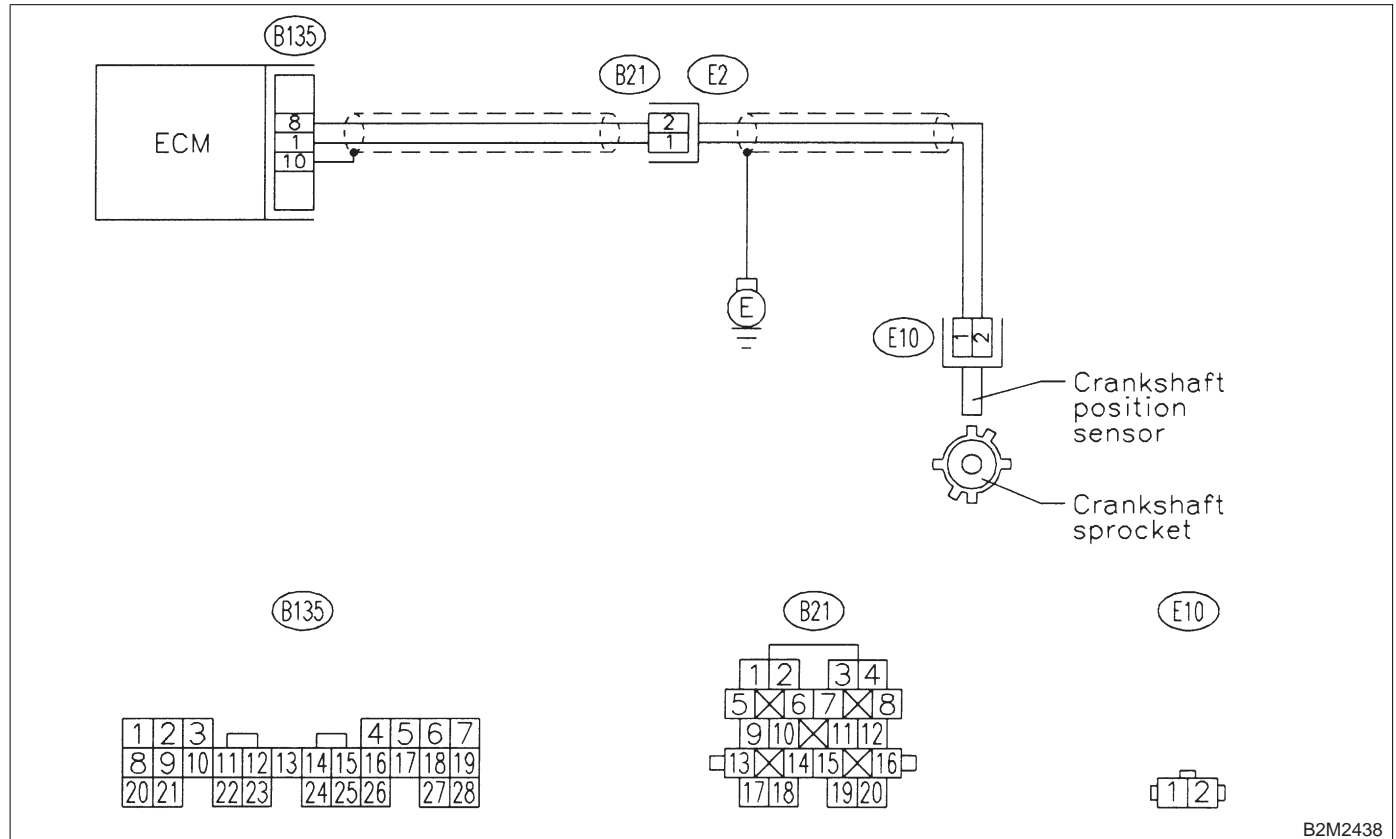
CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to 2-7 [T3D0].> and INSPECTION MODE <Ref. to 2-7 [T3E0].>

NOTE:

Check crankshaft position sensor circuit. <Ref. to 2-7 [T11AC0].>

● **WIRING DIAGRAM:**



B2M2438

I: CAMSHAFT POSITION SENSOR CIRCUIT

CAUTION:

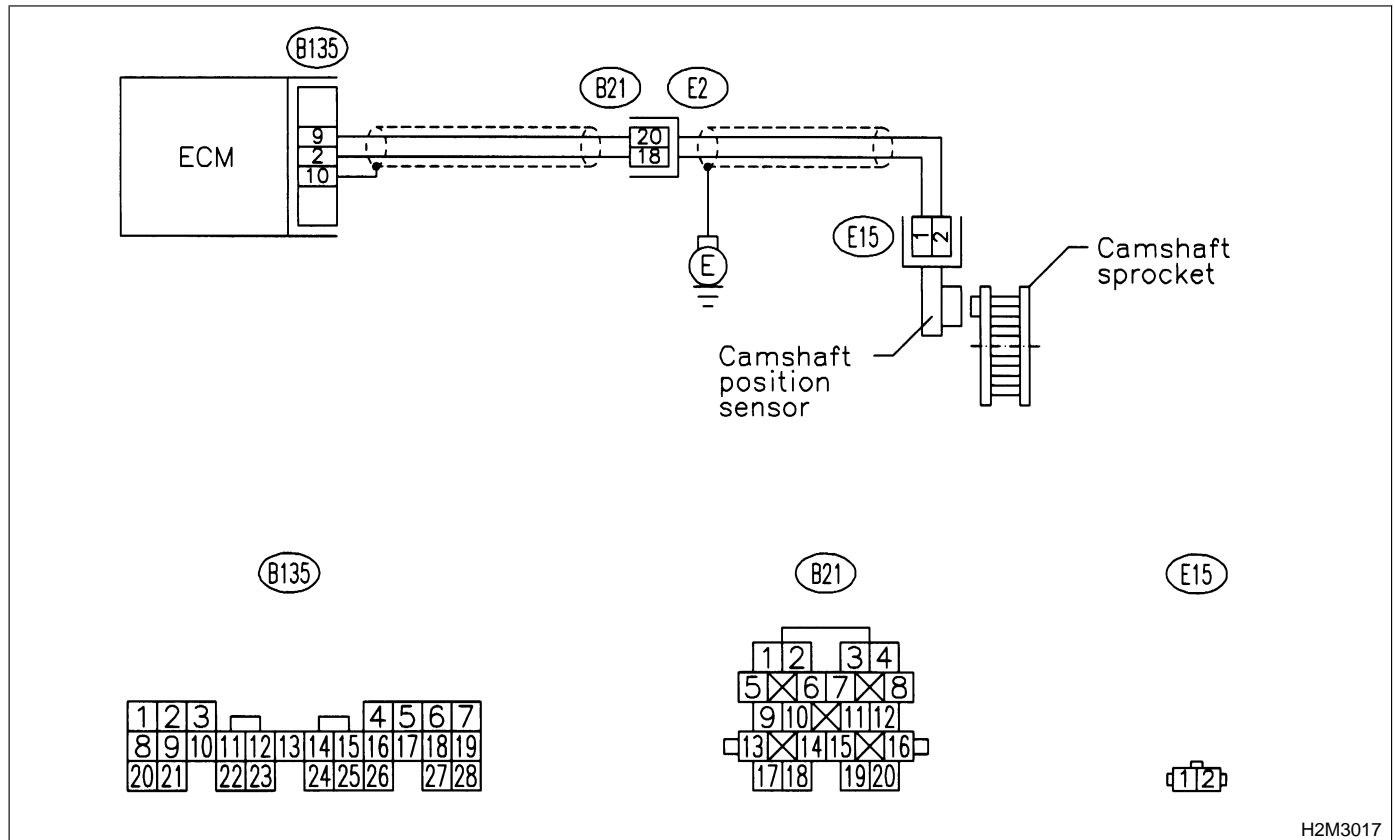
After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to 2-7 [T3D0].> and INSPECTION MODE <Ref. to 2-7 [T3E0].>

NOTE:

Check camshaft position sensor circuit.

- 2200 cc California spec. vehicles: <Ref. to 2-7 [T10AF0].>
- Except 2200 cc California spec. vehicles: <Ref. to 2-7 [T11AE0].>

● WIRING DIAGRAM:



H2M3017

9. General Diagnostic Table

A: GENERAL DIAGNOSTICS TABLE WITH NON-CONFORMITY SYMPTOM FOR ENGINE

NOTE:

Malfunction of parts other than those listed is also possible. <Ref. to 2-3 [K100].>

Symptom	Problem parts
1. Engine stalls during idling.	1) Idle air control solenoid valve 2) Mass air flow sensor 3) Intake manifold pressure sensor 4) Intake air temperature sensor 5) Ignition parts (*1) 6) Engine coolant temperature sensor (*2) 7) Crankshaft position sensor (*3) 8) Camshaft position sensor (*3) 9) Fuel injection parts (*4)
2. Rough idling	1) Idle air control solenoid valve 2) Mass air flow sensor 3) Intake manifold pressure sensor 4) Intake air temperature sensor 5) Engine coolant temperature sensor (*2) 6) Ignition parts (*1) 7) Air intake system (*5) 8) Fuel injection parts (*4) 9) Throttle position sensor 10) Crankshaft position sensor (*3) 11) Camshaft position sensor (*3) 12) Oxygen sensor 13) Fuel pump and fuel pump relay
3. Engine does not return to idle.	1) Idle air control solenoid valve 2) Engine coolant temperature sensor 3) Accelerator cable (*6) 4) Throttle position sensor 5) Mass air flow sensor 6) Intake manifold pressure sensor 7) Intake air temperature sensor
4. Poor acceleration	1) Mass air flow sensor 2) Intake manifold pressure sensor 3) Intake air temperature sensor 4) Throttle position sensor 5) Fuel injection parts (*4) 6) Fuel pump and fuel pump relay 7) Engine coolant temperature sensor (*2) 8) Crankshaft position sensor (*3) 9) Camshaft position sensor (*3) 10) A/C switch and A/C cut relay 11) Engine torque control signal circuit 12) Ignition parts (*1)
5. Engine stalls or engine sags or hesitates at acceleration.	1) Mass air flow sensor 2) Intake manifold pressure sensor 3) Intake air temperature sensor 4) Engine coolant temperature sensor (*2) 5) Crankshaft position sensor (*3) 6) Camshaft position sensor (*3) 7) Purge control solenoid valve 8) Fuel injection parts (*4) 9) Throttle position sensor 10) Fuel pump and fuel pump relay

Symptom	Problem parts
6. Surge	1) Mass air flow sensor 2) Intake manifold pressure sensor 3) Intake air temperature sensor 4) Engine coolant temperature sensor (*2) 5) Crankshaft position sensor (*3) 6) Camshaft position sensor (*3) 7) Fuel injection parts (*4) 8) Throttle position sensor 9) Fuel pump and fuel pump relay
7. Spark knock	1) Mass air flow sensor 2) Intake manifold pressure sensor 3) Intake air temperature sensor 4) Engine coolant temperature sensor 5) Knock sensor 6) Fuel injection parts (*4) 7) Fuel pump and fuel pump relay
8. After burning in exhaust system	1) Mass air flow sensor 2) Intake manifold pressure sensor 3) Intake air temperature sensor 4) Engine coolant temperature sensor (*2) 5) Fuel injection parts (*4) 6) Fuel pump and fuel pump relay

*1: Check ignition coil & ignitor assembly and spark plug.

*2: Indicate the symptom occurring only in cold temperatures.

*3: Ensure the secure installation.

*4: Check fuel injector, fuel pressure regulator and fuel filter.

*5: Inspect air leak in air intake system.

*6: Adjust accelerator cable.

B: GENERAL DIAGNOSTICS TABLE WITH NON-CONFORMITY SYMPTOM FOR AUTOMATIC TRANSMISSION

NOTE:

Check general diagnostics table with non-conformity symptom for automatic transmission. <Ref. to 3-2 [T1000].>

10. Diagnostics Chart with Trouble Code for 2200 cc California Spec. Vehicles

A: DIAGNOSTIC TROUBLE CODE (DTC) LIST

DTC No.	Item	Index
P0106	Intake manifold pressure sensor circuit range/performance problem	<Ref. to 2-7 [T10B0].>
P0107	Intake manifold pressure sensor circuit low input	<Ref. to 2-7 [T10C0].>
P0108	Intake manifold pressure sensor circuit high input	<Ref. to 2-7 [T10D0].>
P0111	Intake air temperature sensor circuit range/performance problem	<Ref. to 2-7 [T10E0].>
P0112	Intake air temperature sensor circuit low input	<Ref. to 2-7 [T10F0].>
P0113	Intake air temperature sensor circuit high input	<Ref. to 2-7 [T10G0].>
P0116	Engine coolant temperature sensor circuit low input	<Ref. to 2-7 [T10H0].>
P0117	Engine coolant temperature sensor circuit high input	<Ref. to 2-7 [T10I0].>
P0121	Throttle position sensor circuit range/performance problem (high input)	<Ref. to 2-7 [T10J0].>
P0122	Throttle position sensor circuit low input	<Ref. to 2-7 [T10K0].>
P0123	Throttle position sensor circuit high input	<Ref. to 2-7 [T10L0].>
P0125	Insufficient coolant temperature for closed loop fuel control	<Ref. to 2-7 [T10M0].>
P0131	Front oxygen (A/F) sensor circuit range/performance problem (low input)	<Ref. to 2-7 [T10N0].>
P0132	Front oxygen (A/F) sensor circuit range/performance problem (high input)	<Ref. to 2-7 [T10O0].>
P0133	Front oxygen (A/F) sensor circuit slow response	<Ref. to 2-7 [T10P0].>
P0136	Rear oxygen sensor circuit malfunction	<Ref. to 2-7 [T10Q0].>
P0139	Rear oxygen sensor circuit slow response	<Ref. to 2-7 [T10R0].>
P0141	Rear oxygen sensor heater circuit low input	<Ref. to 2-7 [T10S0].>
P0171	Fuel trim malfunction (A/F too lean)	<Ref. to 2-7 [T10T0].>
P0172	Fuel trim malfunction (A/F too rich)	<Ref. to 2-7 [T10U0].>
P0181	Fuel temperature sensor A circuit range/performance problem	<Ref. to 2-7 [T10V0].>
P0182	Fuel temperature sensor A circuit low input	<Ref. to 2-7 [T10W0].>
P0183	Fuel temperature sensor A circuit high input	<Ref. to 2-7 [T10X0].>
P0301	Cylinder 1 misfire detected	<Ref. to 2-7 [T10Y0].>
P0302	Cylinder 2 misfire detected	<Ref. to 2-7 [T10Z0].>

ON-BOARD DIAGNOSTICS II SYSTEM**[T10A0] 2-7**

10. Diagnostics Chart with Trouble Code for 2200 cc California Spec. Vehicles

DTC No.	Item	Index
P0303	Cylinder 3 misfire detected	<Ref. to 2-7 [T10AA0].>
P0304	Cylinder 4 misfire detected	<Ref. to 2-7 [T10AB0].>
P0325	Knock sensor circuit malfunction	<Ref. to 2-7 [T10AC0].>
P0335	Crankshaft position sensor circuit malfunction	<Ref. to 2-7 [T10AD0].>
P0336	Crankshaft position sensor circuit range/performance problem	<Ref. to 2-7 [T10AE0].>
P0340	Camshaft position sensor circuit malfunction	<Ref. to 2-7 [T10AF0].>
P0341	Camshaft position sensor circuit range/performance problem	<Ref. to 2-7 [T10AG0].>
P0420	Catalyst system efficiency below threshold	<Ref. to 2-7 [T10AH0].>
P0440	Evaporative emission control system malfunction	<Ref. to 2-7 [T10AI0].>
P0443	Evaporative emission control system purge control valve circuit low input	<Ref. to 2-7 [T10AJ0].>
P0446	Evaporative emission control system vent control low input	<Ref. to 2-7 [T10AK0].>
P0451	Evaporative emission control system pressure sensor range/performance problem	<Ref. to 2-7 [T10AL0].>
P0452	Evaporative emission control system pressure sensor low input	<Ref. to 2-7 [T10AM0].>
P0453	Evaporative emission control system pressure sensor high input	<Ref. to 2-7 [T10AN0].>
P0461	Fuel level sensor circuit range/performance problem	<Ref. to 2-7 [T10AO0].>
P0462	Fuel level sensor circuit low input	<Ref. to 2-7 [T10AP0].>
P0463	Fuel level sensor circuit high input	<Ref. to 2-7 [T10AQ0].>
P0480	Cooling fan relay 1 circuit low input	<Ref. to 2-7 [T10AR0].>
P0483	Cooling fan function problem	<Ref. to 2-7 [T10AS0].>
P0500	Vehicle speed sensor malfunction	<Ref. to 2-7 [T10AT0].>
P0505	Idle control system circuit low input	<Ref. to 2-7 [T10AU0].>
P0506	Idle control system RPM lower than expected	<Ref. to 2-7 [T10AV0].>
P0507	Idle control system RPM higher than expected	<Ref. to 2-7 [T10AW0].>
P0601	Internal control module memory check sum error	<Ref. to 2-7 [T10AX0].>
P0703	Brake switch input malfunction	<Ref. to 2-7 [T10AY0].>
P0705	Transmission range sensor circuit malfunction	<Ref. to 2-7 [T10AZ0].>
P0710	Transmission fluid temperature sensor circuit malfunction	<Ref. to 2-7 [T10BA0].>

DTC No.	Item	Index
P0715	Torque converter turbine speed sensor circuit malfunction	<Ref. to 2-7 [T10BB0].>
P0720	Output speed sensor (vehicle speed sensor 2) circuit malfunction	<Ref. to 2-7 [T10BC0].>
P0725	Engine speed input circuit malfunction	<Ref. to 2-7 [T10BD0].>
P0731	Gear 1 incorrect ratio	<Ref. to 2-7 [T10BE0].>
P0732	Gear 2 incorrect ratio	<Ref. to 2-7 [T10BF0].>
P0733	Gear 3 incorrect ratio	<Ref. to 2-7 [T10BG0].>
P0734	Gear 4 incorrect ratio	<Ref. to 2-7 [T10BH0].>
P0740	Torque converter clutch system malfunction	<Ref. to 2-7 [T10BI0].>
P0743	Torque converter clutch system (Duty solenoid B) electrical	<Ref. to 2-7 [T10BJ0].>
P0748	Pressure control solenoid (Duty solenoid A) electrical	<Ref. to 2-7 [T10BK0].>
P0753	Shift solenoid A (shift solenoid 1) electrical	<Ref. to 2-7 [T10BL0].>
P0758	Shift solenoid B (shift solenoid 2) electrical	<Ref. to 2-7 [T10BM0].>
P1100	Starter switch circuit low input	<Ref. to 2-7 [T10BN0].>
P1101	Neutral position switch circuit low input [MT vehicles]	<Ref. to 2-7 [T10BO0].>
P1101	Neutral position switch circuit high input [AT vehicles]	<Ref. to 2-7 [T10BP0].>
P1103	Engine torque control signal 1 circuit malfunction	<Ref. to 2-7 [T10BQ0].>
P1106	Engine torque control signal 2 circuit malfunction	<Ref. to 2-7 [T10BR0].>
P1110	Atmospheric pressure sensor circuit low input	<Ref. to 2-7 [T10BS0].>
P1111	Atmospheric pressure sensor circuit high input	<Ref. to 2-7 [T10BT0].>
P1112	Atmospheric pressure sensor circuit range/performance problem	<Ref. to 2-7 [T10BU0].>
P1115	Engine torque control cut signal circuit high input	<Ref. to 2-7 [T10BV0].>
P1116	Engine torque control cut signal circuit low input	<Ref. to 2-7 [T10BW0].>
P1120	Starter switch circuit high input	<Ref. to 2-7 [T10BX0].>
P1121	Neutral position switch circuit high input [MT vehicles]	<Ref. to 2-7 [T10BY0].>
P1121	Neutral position switch circuit low input [AT vehicles]	<Ref. to 2-7 [T10BZ0].>
P1130	Front oxygen (A/F) sensor circuit malfunction (open circuit)	<Ref. to 2-7 [T10CA0].>
P1131	Front oxygen (A/F) sensor circuit malfunction (short circuit)	<Ref. to 2-7 [T10CB0].>

DTC No.	Item	Index
P1132	Front oxygen (A/F) sensor heater circuit low input	<Ref. to 2-7 [T10CC0].>
P1133	Front oxygen (A/F) sensor heater circuit high input	<Ref. to 2-7 [T10CD0].>
P1134	Front oxygen (A/F) sensor micro-computer problem	<Ref. to 2-7 [T10CE0].>
P1139	Front oxygen (A/F) sensor #1 heater circuit range/performance problem	<Ref. to 2-7 [T10CF0].>
P1142	Throttle position sensor circuit range/performance problem (low input)	<Ref. to 2-7 [T10CG0].>
P1151	Rear oxygen sensor heater circuit high input	<Ref. to 2-7 [T10CH0].>
P1400	Fuel tank pressure control solenoid valve circuit low input	<Ref. to 2-7 [T10CI0].>
P1420	Fuel tank pressure control solenoid valve circuit high input	<Ref. to 2-7 [T10CJ0].>
P1422	Evaporative emission control system purge control valve circuit high input	<Ref. to 2-7 [T10CK0].>
P1423	Evaporative emission control system vent control high input	<Ref. to 2-7 [T10CL0].>
P1443	Evaporative emission control system vent control function problem	<Ref. to 2-7 [T10CM0].>
P1505	Idle control system circuit high input	<Ref. to 2-7 [T10CN0].>
P1507	Idle control system malfunction (fail-safe)	<Ref. to 2-7 [T10CO0].>
P1520	Cooling fan relay 1 circuit high input	<Ref. to 2-7 [T10CP0].>
P1560	Back-up voltage circuit malfunction	<Ref. to 2-7 [T10CQ0].>
P1700	Throttle position sensor circuit malfunction for automatic transmission	<Ref. to 2-7 [T10CR0].>
P1701	Cruise control set signal circuit malfunction for automatic transmission	<Ref. to 2-7 [T10CS0].>
P1702	Automatic transmission diagnosis input signal circuit low input	<Ref. to 2-7 [T10CT0].>
P1703	Low clutch timing control solenoid valve circuit malfunction	<Ref. to 2-7 [T10CU0].>
P1704	2-4 brake timing control solenoid valve circuit malfunction	<Ref. to 2-7 [T10CV0].>
P1705	2-4 brake pressure control solenoid valve (Duty solenoid D) circuit malfunction	<Ref. to 2-7 [T10CW0].>
P1722	Automatic transmission diagnosis input signal circuit high input	<Ref. to 2-7 [T10CX0].>
P1742	Automatic transmission diagnosis input signal circuit malfunction	<Ref. to 2-7 [T10CY0].>

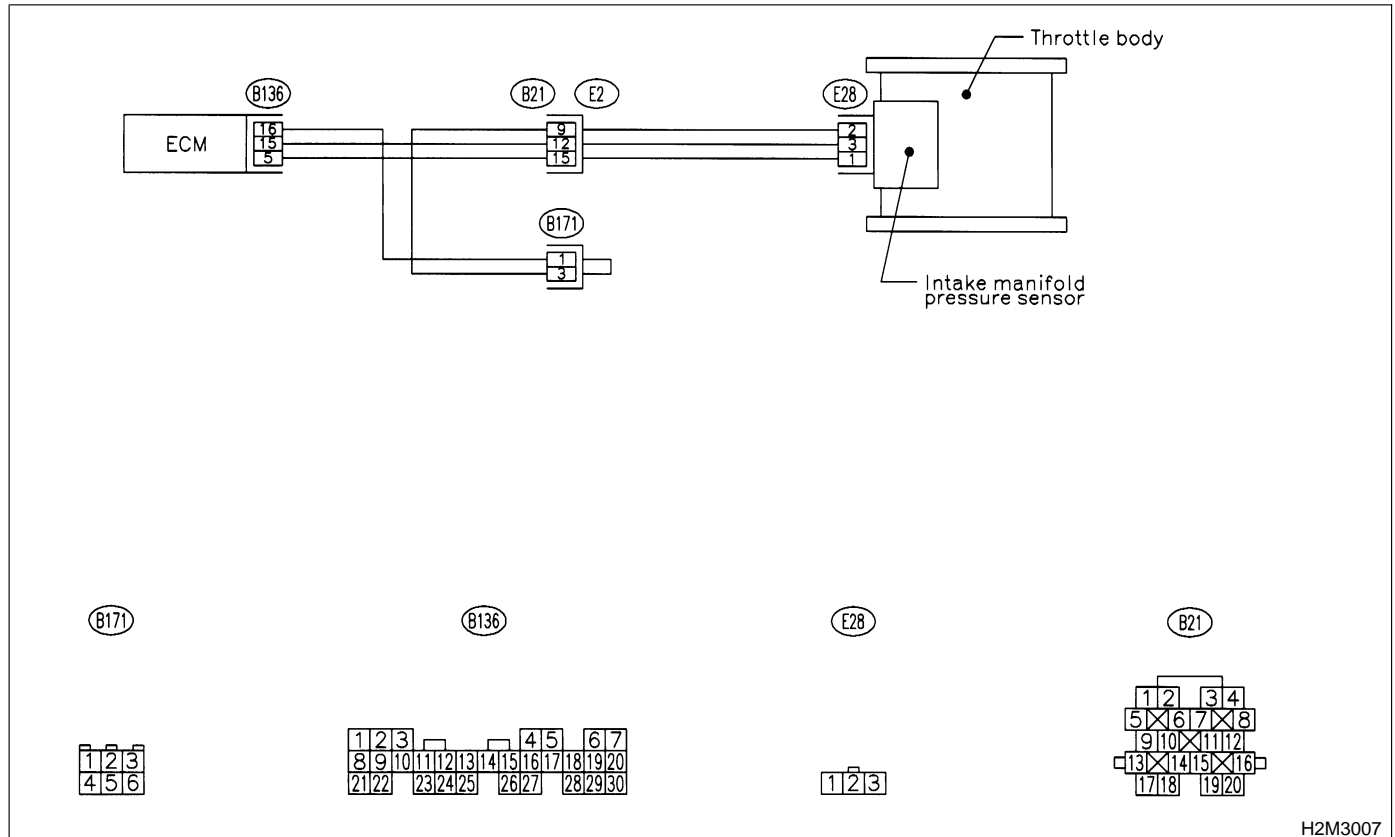
B: DTC P0106 — INTAKE MANIFOLD PRESSURE SENSOR CIRCUIT RANGE/ PERFORMANCE PROBLEM —

- DTC DETECTING CONDITION:
 - Two consecutive driving cycles with fault

CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to 2-7 [T3D0].> and INSPECTION MODE <Ref. to 2-7 [T3E0].>

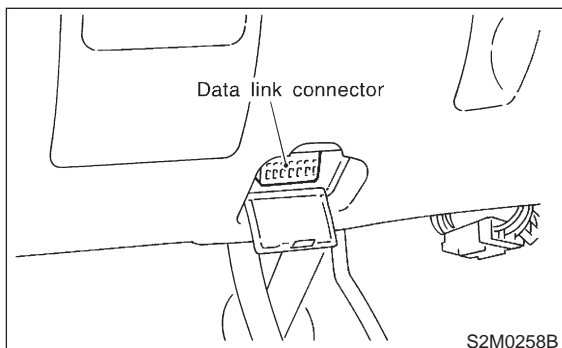
● WIRING DIAGRAM:



H2M3007

10B1 : CHECK IDLE SWITCH SIGNAL.

- 1) Turn ignition switch to OFF.
- 2) Connect Subaru Select Monitor to data link connector.



- 3) Turn ignition switch to ON and Subaru Select Monitor switch to ON.
- 4) Operate the LED operation mode for engine using Subaru Select Monitor.

NOTE:

- Subaru Select Monitor

For detailed operation procedure, refer to the "LED OPERATION MODE FOR ENGINE". <Ref. to 2-7 [T3C8].>

CHECK : *Does the LED of {Idle Switch Signal} come on?*

YES : Go to step **10B2**.

NO : Check throttle position sensor circuit. <Ref. to 2-7 [T10K0].>

NOTE:

In this case, it is not necessary to inspect DTC P0106.

10B2 : CHECK ANY OTHER DTC ON DISPLAY.

CHECK : *Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0107 or P0108?*

YES : Inspect DTC P0107 or P0108 using "10. Diagnostics Chart with Trouble Code for 2200 cc California Spec. Vehicles". <Ref. to 2-7 [T10A0].>

NOTE:

In this case, it is not necessary to inspect DTC P0106.

NO : Go to step **10B3**.

10B3 : CHECK CONDITION OF INTAKE MANIFOLD PRESSURE SENSOR.

CHECK : *Is the intake manifold pressure sensor installation bolt tightened securely?*

YES : Go to step **10B4**.

NO : Tighten intake manifold pressure sensor installation bolt securely.

10B4 : CHECK CONDITION OF THROTTLE BODY.

CHECK : *Is the throttle body installation bolt tightened securely?*

YES : Replace intake manifold pressure sensor. <Ref. to 2-7 [W20A0].>

NO : Tighten throttle body installation bolt securely.

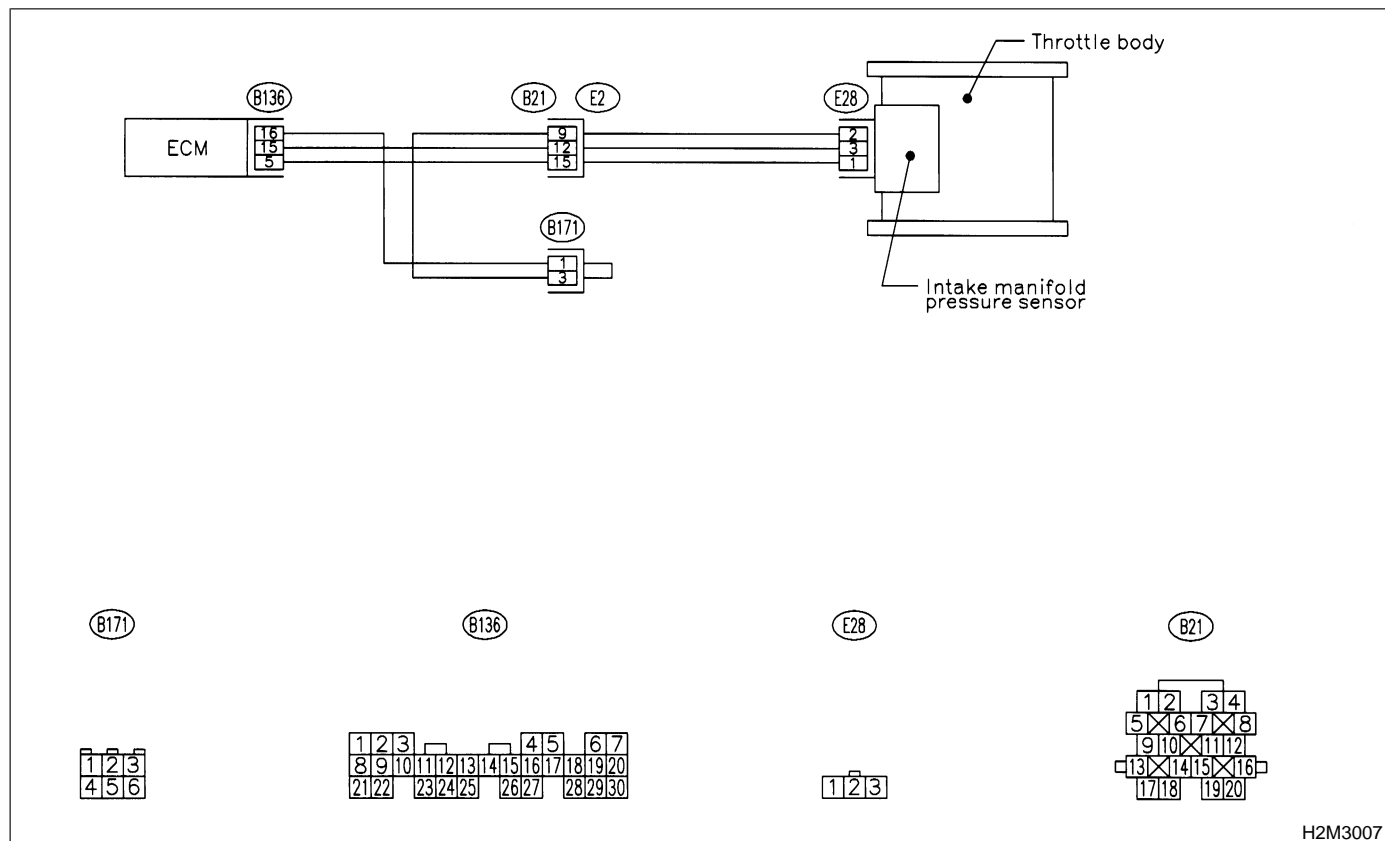
C: DTC P0107 — INTAKE MANIFOLD PRESSURE SENSOR CIRCUIT LOW INPUT —

- **DTC DETECTING CONDITION:**
 - Immediately at fault recognition

CAUTION:

After repair or replacement of faulty parts, conduct **CLEAR MEMORY MODE** <Ref. to 2-7 [T3D0].> and **INSPECTION MODE** <Ref. to 2-7 [T3E0].>

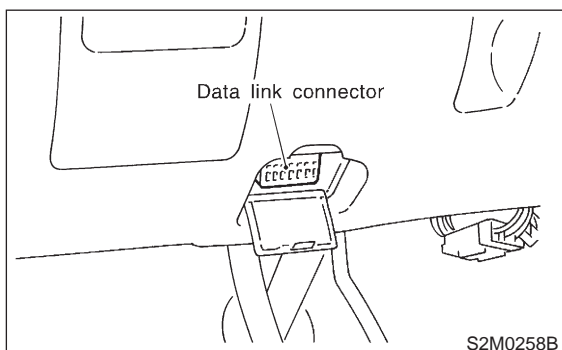
● **WIRING DIAGRAM:**



H2M3007

10C1 : CONNECT SUBARU SELECT MONITOR OR THE OBD-II GENERAL SCAN TOOL, AND READ DATA.

- 1) Turn ignition switch to OFF.
- 2) Connect Subaru Select Monitor or the OBD-II general scan tool to data link connector.



- 3) Turn ignition switch to ON and Subaru Select Monitor or the OBD-II general scan tool switch to ON.
- 4) Start engine.
- 5) Read the data of intake manifold absolute pressure signal using Subaru Select Monitor or OBD-II general scan tool.

NOTE:

- Subaru Select Monitor

For detailed operation procedure, refer to the "READ CURRENT DATA SHOWN ON DISPLAY FOR ENGINE". <Ref. to 2-7 [T3C4].>

- OBD-II general scan tool

For detailed operation procedures, refer to the OBD-II General Scan Tool Instruction Manual.

CHECK : *Is the value less than 3.3 kPa (25 mmHg, 0.98 inHg)?*

YES : Go to step 10C3.

NO : Go to step 10C2.

10C2 : CHECK POOR CONTACT.

Check poor contact in ECM and pressure sensor connector. <Ref. to FOREWORD [T3C1].>

CHECK : *Is there poor contact in ECM or pressure sensor connector?*

YES : Repair poor contact in ECM or pressure sensor connector.

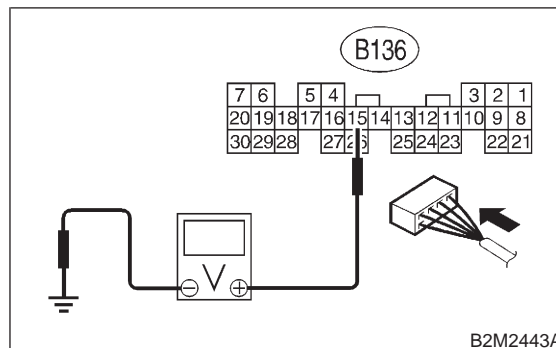
NO : Even if MIL lights up, the circuit has returned to a normal condition at this time.

10C3 : CHECK INPUT SIGNAL FOR ECM.

Measure voltage between ECM connector and chassis ground.

Connector & terminal

(B136) No. 15 (+) — Chassis ground (-):



CHECK : *Is the voltage more than 4.5 V?*

YES : Go to step 10C5.

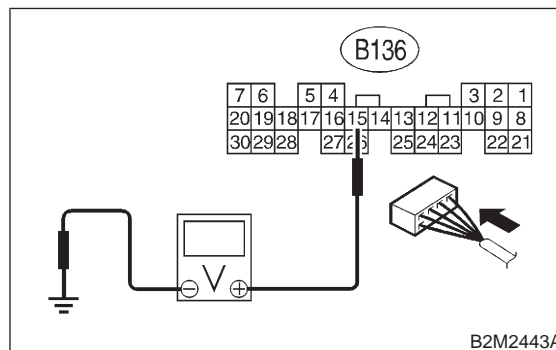
NO : Go to step 10C4.

10C4 : CHECK INPUT SIGNAL FOR ECM.

Measure voltage between ECM connector and chassis ground.

Connector & terminal

(B136) No. 15 (+) — Chassis ground (-):



CHECK : *Does the voltage change more than 4.5 V by shaking harness and connector of ECM while monitoring the value with voltage meter?*

YES : Repair poor contact in ECM connector.

NO : Contact with SOA service.

NOTE:

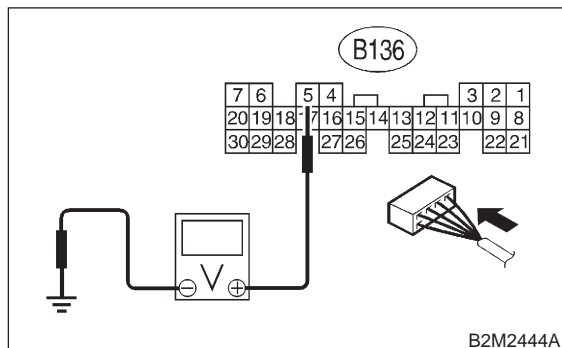
Inspection by DTM is required, because probable cause is deterioration of multiple parts.

10C5 : CHECK INPUT SIGNAL FOR ECM.

Measure voltage between ECM and chassis ground.

Connector & terminal

(B136) No. 5 (+) — Chassis ground (-):



CHECK : *Is the voltage less than 0.7 V?*

YES : Go to step 10C7.

NO : Go to step 10C6.

10C6 : CHECK INPUT SIGNAL FOR ECM. (USING SUBARU SELECT MONITOR.)

Read data of atmospheric absolute pressure signal using Subaru Select Monitor.

NOTE:

- Subaru Select Monitor

For detailed operation procedure, refer to the "READ CURRENT DATA SHOWN ON DISPLAY FOR ENGINE". <Ref. to 2-7 [T3C4].>

CHECK : *Does the value change more than 3.3 kPa (25 mmHg, 0.98 inHg) by shaking harness and connector of ECM while monitoring the value with Subaru Select Monitor?*

YES : Repair poor contact in ECM connector.

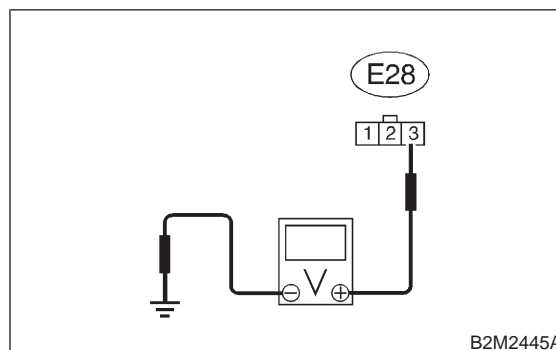
NO : Go to step 10C7.

10C7 : CHECK HARNESS BETWEEN ECM AND INTAKE MANIFOLD PRESSURE SENSOR CONNECTOR.

- 1) Turn ignition switch to OFF.
- 2) Disconnect connector from intake manifold pressure sensor.
- 3) Turn ignition switch to ON.
- 4) Measure voltage between intake manifold pressure sensor connector and engine ground.

Connector & terminal

(E28) No. 3 (+) — Engine ground (-):



CHECK : *Is the voltage more than 4.5 V?*

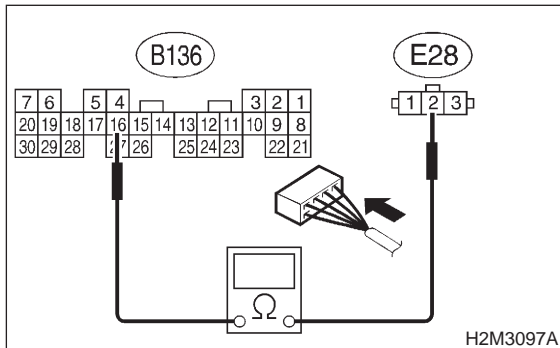
YES : Go to step 10C8.

NO : Repair open circuit in harness between ECM and intake manifold pressure sensor connector.

10C8 : CHECK HARNESS BETWEEN ECM AND INTAKE MANIFOLD PRESSURE SENSOR CONNECTOR.

- 1) Turn ignition switch to OFF.
- 2) Disconnect connector from ECM.
- 3) Measure resistance of harness between ECM and intake manifold pressure sensor connector.

Connector & terminal
(B136) No. 16 — (E28) No. 2:

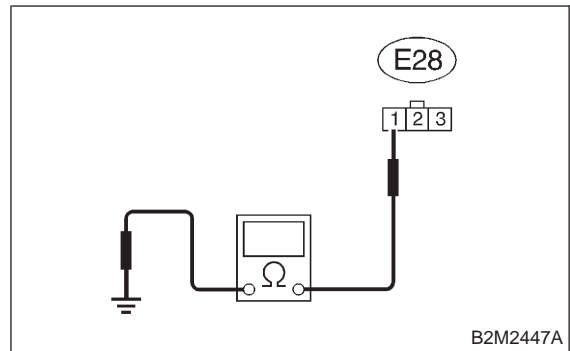


- CHECK** : *Is the resistance less than 1 Ω?*
- YES** : Go to step **10C9**.
- NO** : Repair open circuit in harness between ECM and intake manifold pressure sensor connector.

10C9 : CHECK HARNESS BETWEEN ECM AND INTAKE MANIFOLD PRESSURE SENSOR CONNECTOR.

Measure resistance of harness between intake manifold pressure sensor connector and engine ground.

Connector & terminal
(E28) No. 1 — Engine ground:



- CHECK** : *Is the resistance more than 500 kΩ?*
- YES** : Go to step **10C10**.
- NO** : Repair ground short circuit in harness between ECM and intake manifold pressure sensor connector.

10C10 : CHECK POOR CONTACT.

Check poor contact in intake manifold pressure sensor connector. <Ref. to FOREWORD [T3C1].>

- CHECK** : *Is there poor contact in intake manifold pressure sensor connector?*
- YES** : Repair poor contact in intake manifold pressure sensor connector.
- NO** : Replace intake manifold pressure sensor. <Ref. to 2-7 [W20A0].>

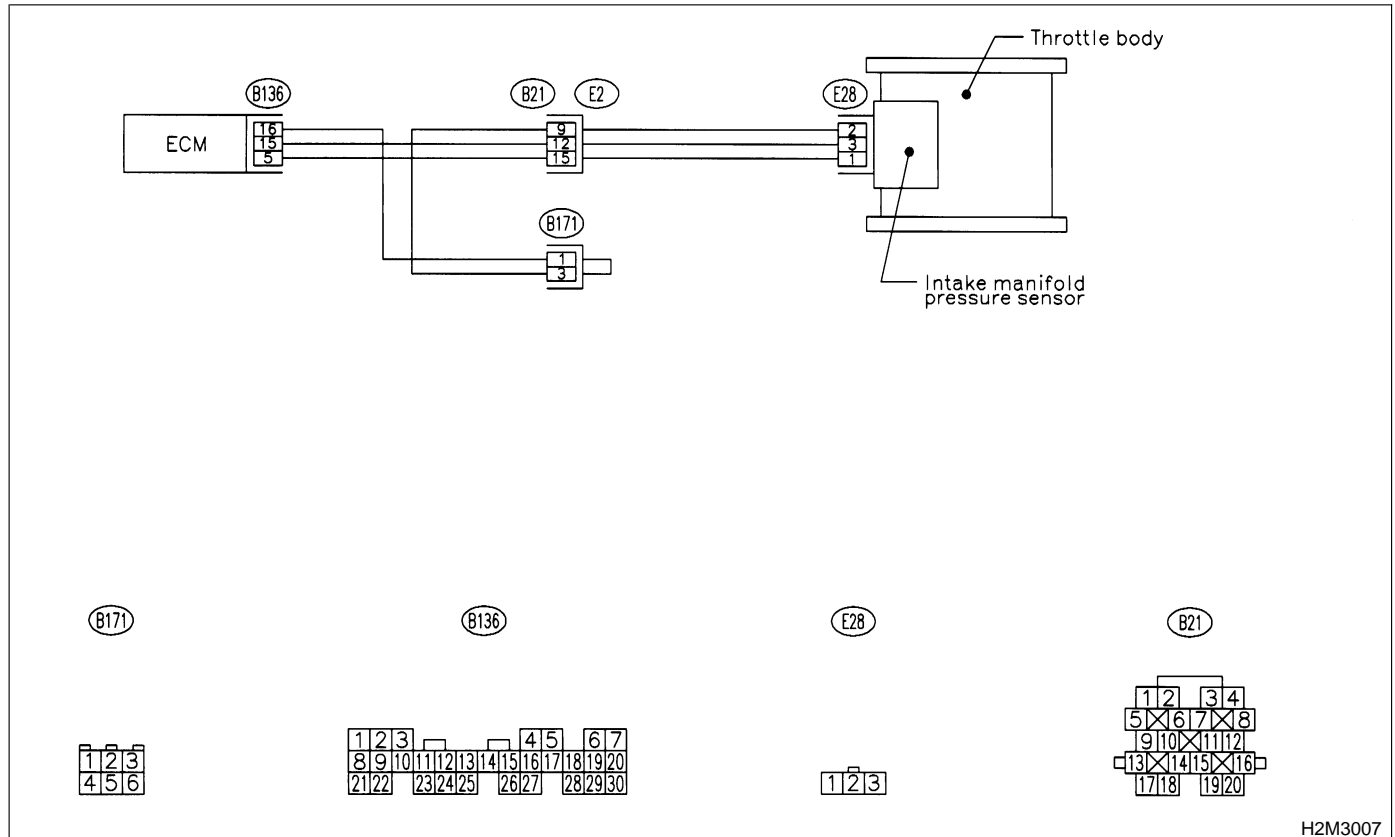
D: DTC P0108 — INTAKE MANIFOLD PRESSURE SENSOR CIRCUIT HIGH INPUT —

- **DTC DETECTING CONDITION:**
 - Immediately at fault recognition

CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to 2-7 [T3D0].> and INSPECTION MODE <Ref. to 2-7 [T3E0].>

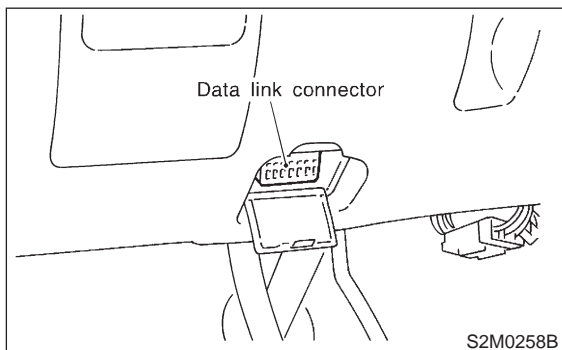
● **WIRING DIAGRAM:**



H2M3007

10D1 : CONNECT SUBARU SELECT MONITOR OR THE OBD-II GENERAL SCAN TOOL, AND READ DATA.

- 1) Turn ignition switch to OFF.
- 2) Connect Subaru Select Monitor or the OBD-II general scan tool to data link connector.



- 3) Turn ignition switch to ON and Subaru Select Monitor or the OBD-II general scan tool switch to ON.
- 4) Start engine.
- 5) Read the data of intake manifold absolute pressure signal using Subaru Select Monitor or OBD-II general scan tool.

NOTE:

- Subaru Select Monitor

For detailed operation procedure, refer to the "READ CURRENT DATA SHOWN ON DISPLAY FOR ENGINE". <Ref. to 2-7 [T3C4].>

- OBD-II general scan tool

For detailed operation procedures, refer to the OBD-II General Scan Tool Instruction Manual.

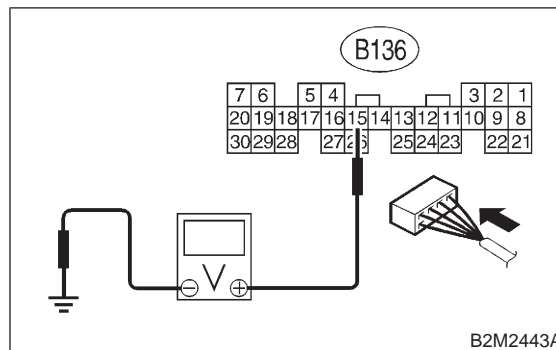
- CHECK** : *Is the value more than 130 kPa (975 mmHg, 38.39 inHg)?*
- YES** : Go to step 10D10.
- NO** : Go to step 10D2.

10D2 : CHECK INPUT SIGNAL FOR ECM.

Measure voltage between ECM connector and chassis ground.

Connector & terminal

(B136) No. 15 (+) — Chassis ground (-):



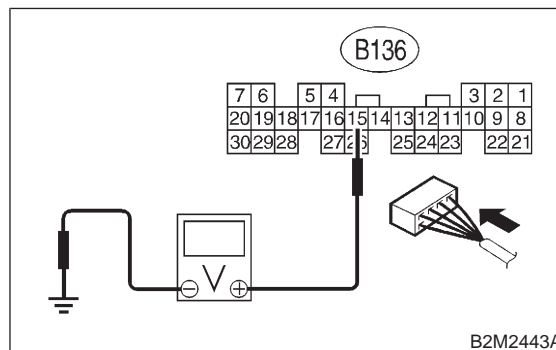
- CHECK** : *Is the voltage more than 4.5 V?*
- YES** : Go to step 10D4.
- NO** : Go to step 10D3.

10D3 : CHECK INPUT SIGNAL FOR ECM.

Measure voltage between ECM connector and chassis ground.

Connector & terminal

(B136) No. 15 (+) — Chassis ground (-):



- CHECK** : *Does the voltage change more than 4.5 V by shaking harness and connector of ECM while monitoring the value with voltage meter?*
- YES** : Repair poor contact in ECM connector.
- NO** : Contact with SOA service.

NOTE:

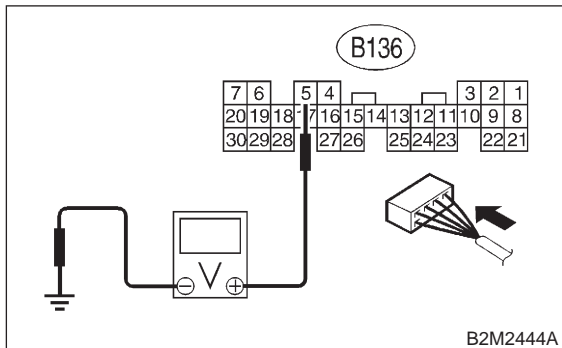
Inspection by DTM is required, because probable cause is deterioration of multiple parts.

10D4 : CHECK INPUT SIGNAL FOR ECM.

Measure voltage between ECM connector and chassis ground.

Connector & terminal

(B136) No. 5 (+) — Chassis ground (-):



- CHECK** : *Is the voltage less than 0.7 V?*
- YES** : Go to step 10D6.
- NO** : Go to step 10D5.

10D5 : CHECK INPUT SIGNAL FOR ECM. (USING SUBARU SELECT MONITOR.)

Read data of atmospheric absolute pressure signal using Subaru Select Monitor.

NOTE:

- Subaru Select Monitor

For detailed operation procedure, refer to the "READ CURRENT DATA SHOWN ON DISPLAY FOR ENGINE". <Ref. to 2-7 [T3C4].>

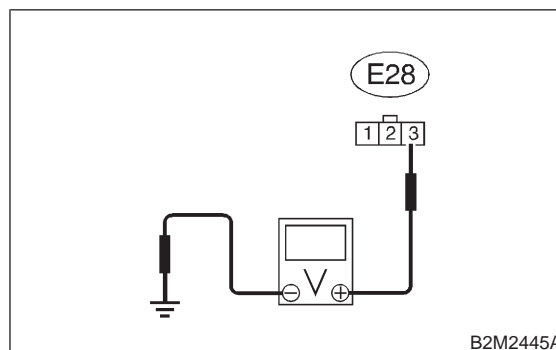
- CHECK** : *Does the value change more than 3.3 kPa (25 mmHg, 0.98 inHg) by shaking harness and connector of ECM while monitoring the value with Subaru Select Monitor?*
- YES** : Repair poor contact in ECM connector.
- NO** : Go to step 10D6.

10D6 : CHECK HARNESS BETWEEN ECM AND INTAKE MANIFOLD PRESSURE SENSOR CONNECTOR.

- 1) Turn ignition switch to OFF.
- 2) Disconnect connector from intake manifold pressure sensor.
- 3) Turn ignition switch to ON.
- 4) Measure voltage between intake manifold pressure sensor connector and engine ground.

Connector & terminal

(E28) No. 3 (+) — Engine ground (-):



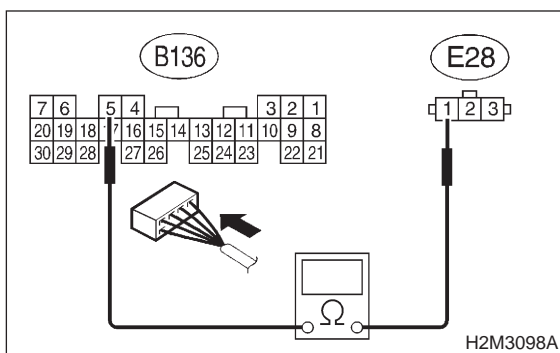
- CHECK** : *Is the voltage more than 4.5 V?*
- YES** : Go to step 10D7.
- NO** : Repair open circuit in harness between ECM and intake manifold pressure sensor connector.

10D7 : CHECK HARNESS BETWEEN ECM AND INTAKE MANIFOLD PRESSURE SENSOR CONNECTOR.

- 1) Turn ignition switch to OFF.
- 2) Disconnect connector from ECM.
- 3) Measure resistance of harness between ECM and intake manifold pressure sensor connector.

Connector & terminal

(B136) No. 5 — (E28) No. 1:



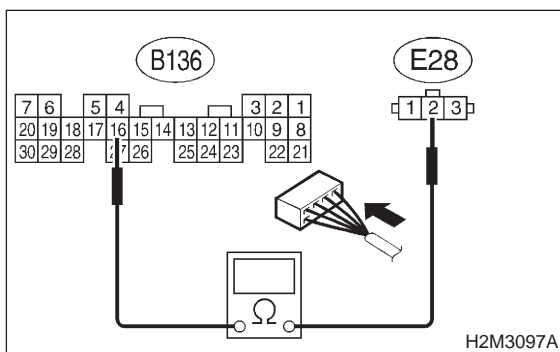
- CHECK** : *Is the resistance less than 1 Ω?*
- YES** : Go to step 10D8.
- NO** : Repair open circuit in harness between ECM and intake manifold pressure sensor connector.

10D8 : CHECK HARNESS BETWEEN ECM AND INTAKE MANIFOLD PRESSURE SENSOR CONNECTOR.

Measure resistance of harness between ECM and intake manifold pressure sensor connector.

Connector & terminal

(B136) No. 16 — (E28) No. 2:



- CHECK** : *Is the resistance less than 1 Ω?*
- YES** : Go to step 10D9.
- NO** : Repair open circuit in harness between ECM and intake manifold pressure sensor connector.

10D9 : CHECK POOR CONTACT.

Check poor contact in intake manifold pressure sensor connector. <Ref. to FOREWORD [T3C1].>

- CHECK** : *Is there poor contact in intake manifold pressure sensor connector?*
- YES** : Repair poor contact in intake manifold pressure sensor connector.
- NO** : Replace intake manifold pressure sensor. <Ref. to 2-7 [W20A0].>

10D10 : CHECK HARNESS BETWEEN ECM AND PRESSURE SENSOR CONNECTOR.

- 1) Turn ignition switch to OFF and Subaru Select Monitor or the OBD-II general scan tool switch to OFF.
- 2) Disconnect connector from pressure sensor.
- 3) Turn ignition switch to ON and Subaru Select Monitor or the OBD-II general scan tool switch to ON.
- 4) Read data of intake manifold absolute pressure signal using Subaru Select Monitor or OBD-II general scan tool.

NOTE:

- Subaru Select Monitor
For detailed operation procedure, refer to the "READ CURRENT DATA SHOWN ON DISPLAY FOR ENGINE". <Ref. to 2-7 [T3C4].>
- OBD-II general scan tool
For detailed operation procedures, refer to the OBD-II General Scan Tool Instruction Manual.

- CHECK** : *Is the value more than 130 kPa (975 mmHg, 38.39 inHg)?*
- YES** : Repair battery short circuit in harness between ECM and intake manifold pressure sensor connector.
- NO** : Replace intake manifold pressure sensor. <Ref. to 2-7 [W20A0].>

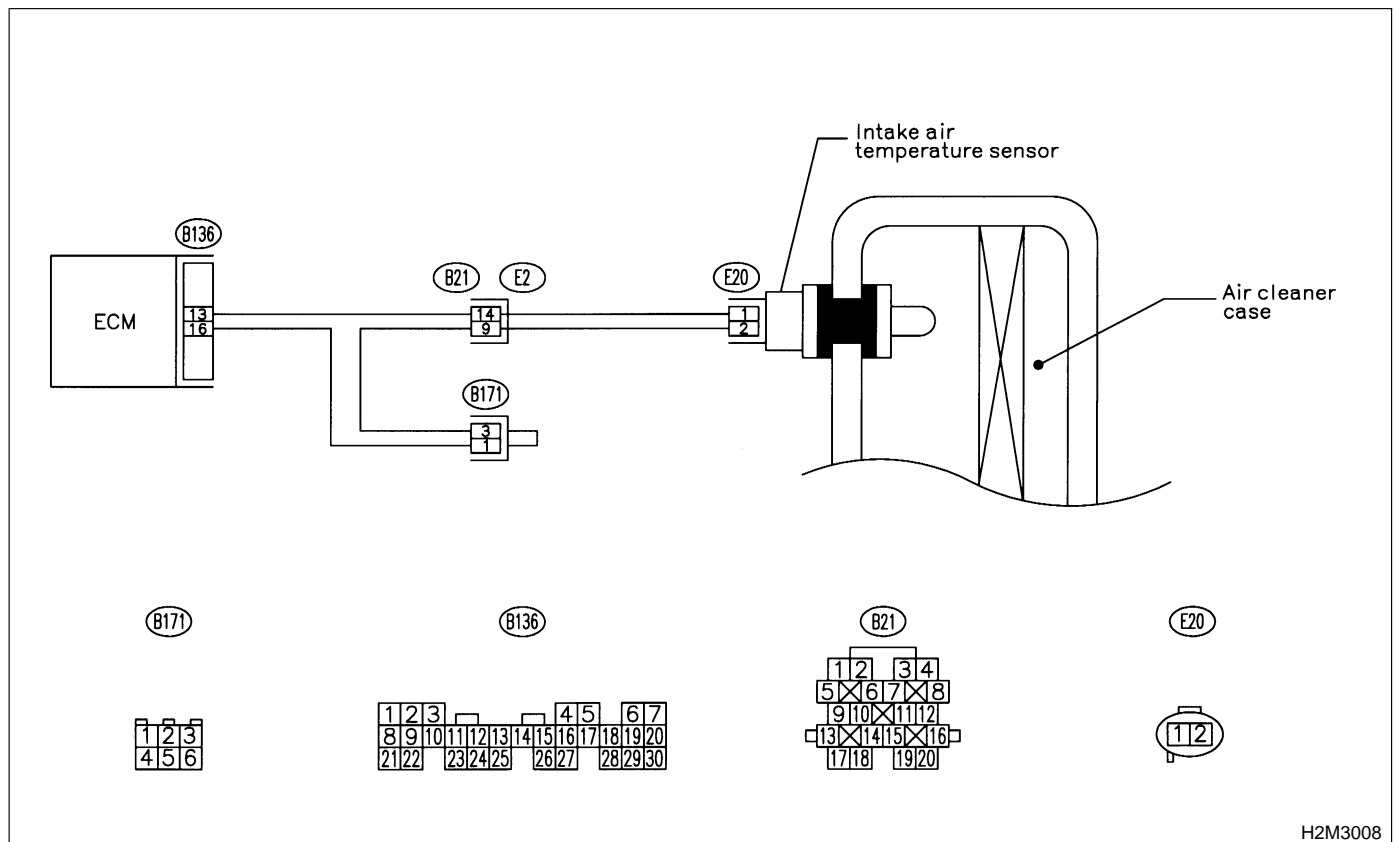
E: DTC P0111 — INTAKE AIR TEMPERATURE SENSOR CIRCUIT RANGE/ PERFORMANCE PROBLEM —

- **DTC DETECTING CONDITION:**
 - Immediately at fault recognition
- **TROUBLE SYMPTOM:**
 - Erroneous idling
 - Poor driving performance

CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to 2-7 [T3D0].> and INSPECTION MODE <Ref. to 2-7 [T3E0].>

● **WIRING DIAGRAM:**



H2M3008

10E1 : CHECK ANY OTHER DTC ON DISPLAY.

CHECK : *Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0112 or P0113?*

YES : Inspect DTC P0112 or P0113 using "10. Diagnostics Chart with Trouble Code for 2200 cc California Spec. Vehicles".
<Ref. to 2-7 [T10A0].>

NOTE:

In this case, it is not necessary to inspect DTC P0111.

NO : Replace intake air temperature sensor.
<Ref. to 2-7 [W21A0].>

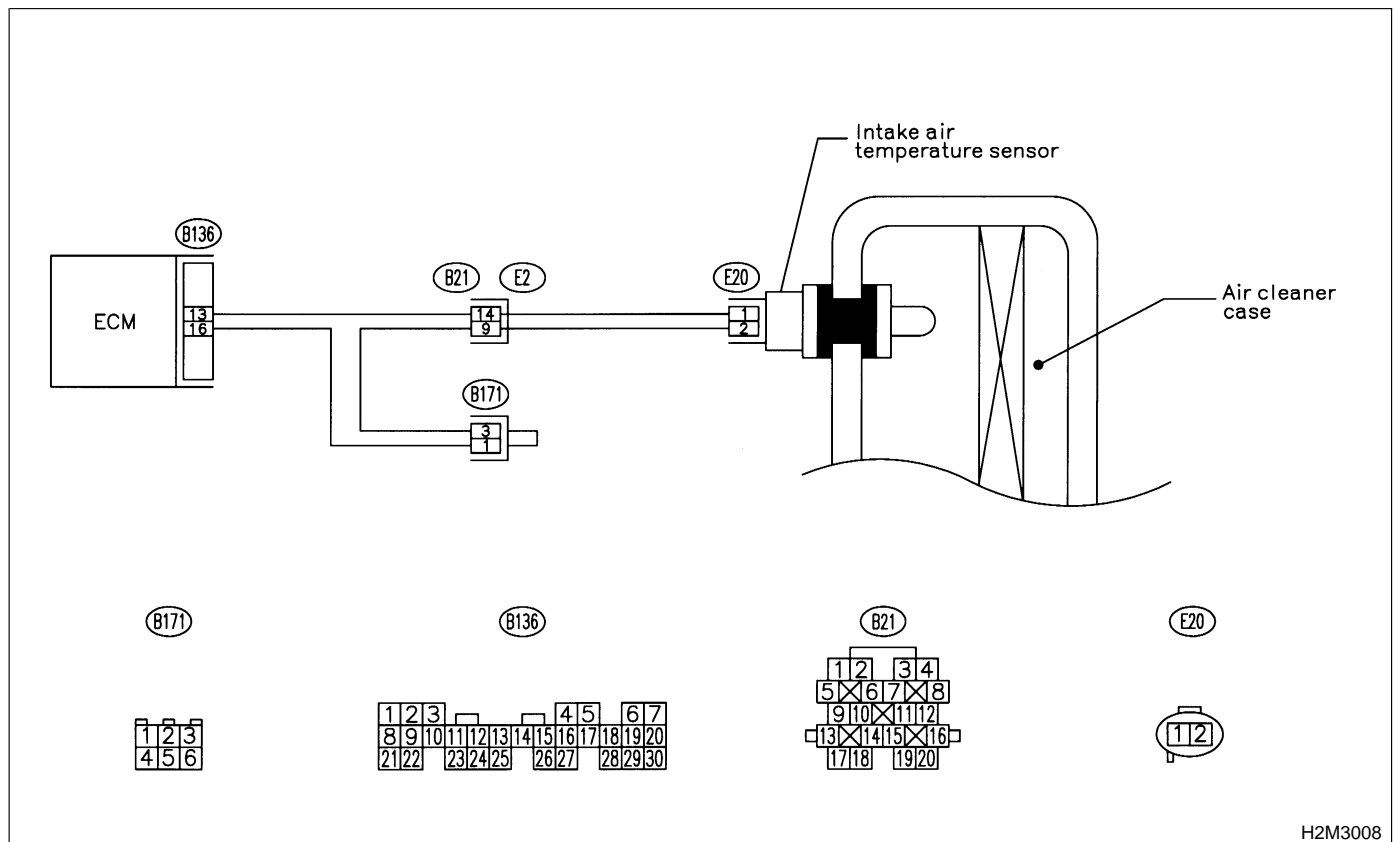
F: DTC P0112 — INTAKE AIR TEMPERATURE SENSOR CIRCUIT LOW INPUT

- **DTC DETECTING CONDITION:**
 - Immediately at fault recognition
- **TROUBLE SYMPTOM:**
 - Erroneous idling
 - Poor driving performance

CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to 2-7 [T3D0].> and INSPECTION MODE <Ref. to 2-7 [T3E0].>

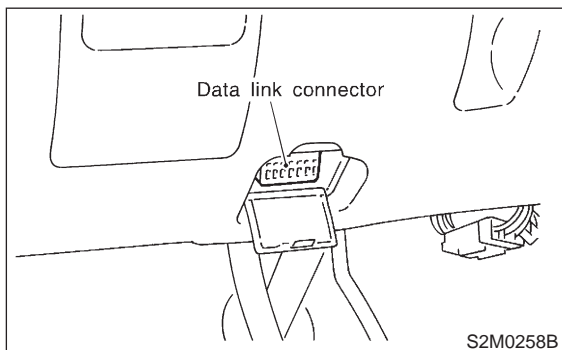
● **WIRING DIAGRAM:**



H2M3008

10F1 : CONNECT SUBARU SELECT MONITOR OR THE OBD-II GENERAL SCAN TOOL, AND READ DATA.

- 1) Turn ignition switch to OFF.
- 2) Connect Subaru Select Monitor or the OBD-II general scan tool to data link connector.



- 3) Turn ignition switch to ON.
- 4) Start engine.
- 5) Read data of intake air temperature sensor signal using Subaru Select Monitor or the OBD-II general scan tool.

NOTE:

- Subaru Select Monitor

For detailed operation procedure, refer to the "READ CURRENT DATA SHOWN ON DISPLAY FOR ENGINE". <Ref. to 2-7 [T3C4].>

- OBD-II general scan tool

For detailed operation procedure, refer to the OBD-II General Scan Tool Instruction Manual.

CHECK : *Is the value greater than 120°C (248°F)?*

YES : Go to step **10F2**.

NO : Repair poor contact.

NOTE:

In this case, repair the following:

- Poor contact in intake air temperature sensor
- Poor contact in ECM
- Poor contact in coupling connector (B21) and (B171)

10F2 : CHECK HARNESS BETWEEN INTAKE AIR TEMPERATURE SENSOR AND ECM CONNECTOR.

- 1) Turn ignition switch to OFF.
- 2) Disconnect connector from intake air temperature sensor.
- 3) Turn ignition switch and Subaru Select Monitor or OBD-II general scan tool switch to ON.
- 4) Read data of intake air temperature sensor signal using Subaru Select Monitor or the OBD-II general scan tool.

NOTE:

- Subaru Select Monitor

For detailed operation procedure, refer to the "READ CURRENT DATA SHOWN ON DISPLAY FOR ENGINE". <Ref. to 2-7 [T3C4].>

- OBD-II general scan tool

For detailed operation procedure, refer to the OBD-II General Scan Tool Instruction Manual.

CHECK : *Is the value less than -40°C (-40°F)?*

YES : Replace intake air temperature sensor. <Ref. to 2-7 [W21A0].>

NO : Repair ground short circuit in harness between intake air temperature sensor and ECM connector.

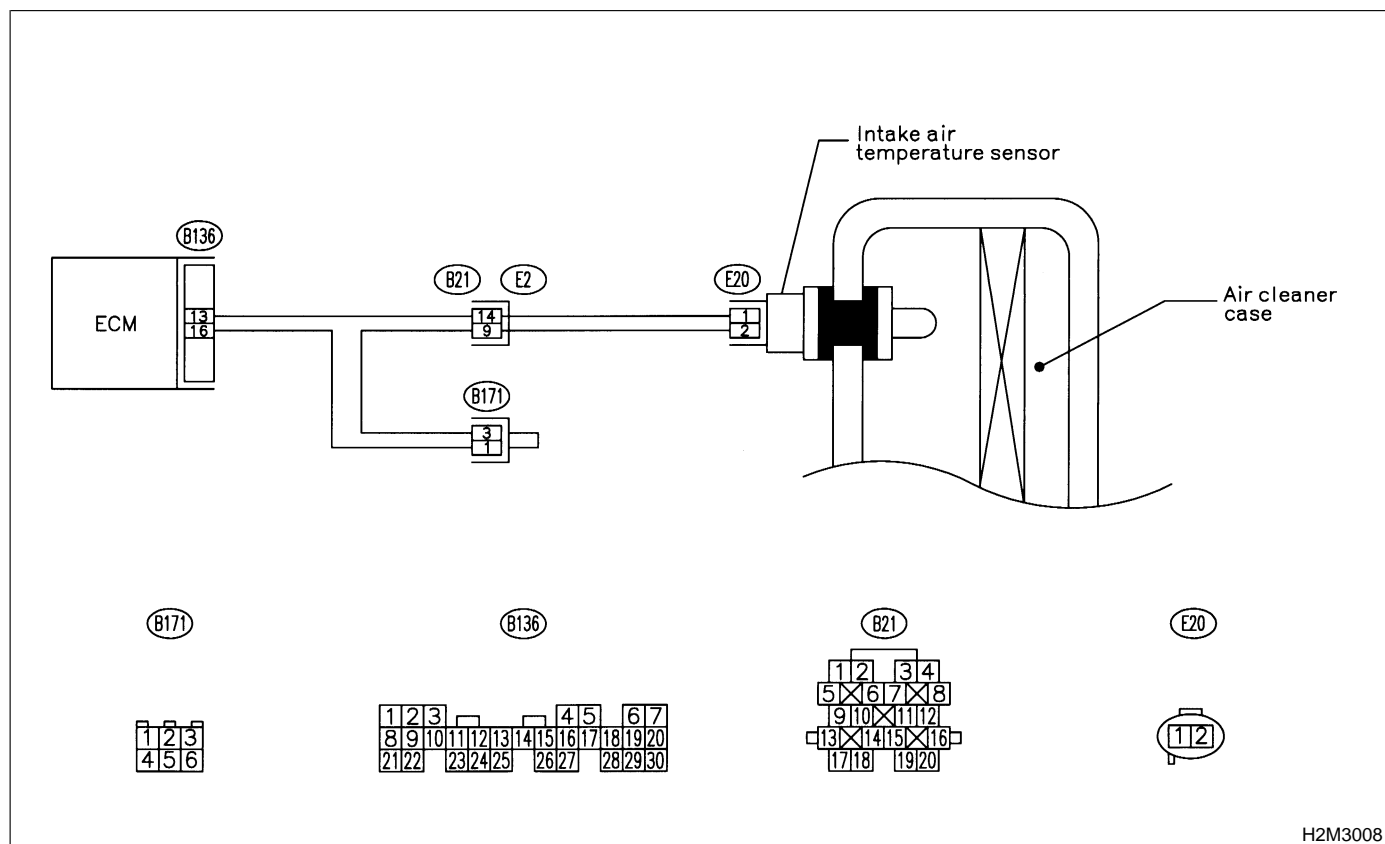
G: DTC P0113 — INTAKE AIR TEMPERATURE SENSOR CIRCUIT HIGH INPUT —

- **DTC DETECTING CONDITION:**
 - Immediately at fault recognition
- **TROUBLE SYMPTOM:**
 - Erroneous idling
 - Poor driving performance

CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to 2-7 [T3D0].> and INSPECTION MODE <Ref. to 2-7 [T3E0].>

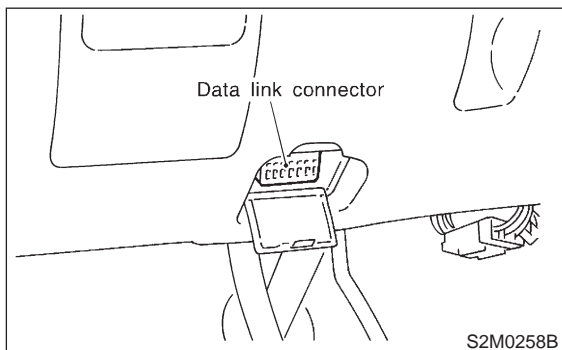
● **WIRING DIAGRAM:**



H2M3008

10G1 : CONNECT SUBARU SELECT MONITOR OR THE OBD-II GENERAL SCAN TOOL, AND READ DATA.

- 1) Turn ignition switch to OFF.
- 2) Connect Subaru Select Monitor or the OBD-II general scan tool to data link connector.



- 3) Turn ignition switch to ON.
- 4) Start engine.
- 5) Read data of intake air temperature sensor signal using Subaru Select Monitor or the OBD-II general scan tool.

NOTE:

- Subaru Select Monitor
For detailed operation procedure, refer to the "READ CURRENT DATA SHOWN ON DISPLAY FOR ENGINE". <Ref. to 2-7 [T3C4].>
- OBD-II general scan tool
For detailed operation procedure, refer to the OBD-II General Scan Tool Instruction Manual.

CHECK : *Is the value less than -40°C (-40°F)?*

YES : Go to step **10G2**.

NO : Repair poor contact.

NOTE:

In this case, repair the following:

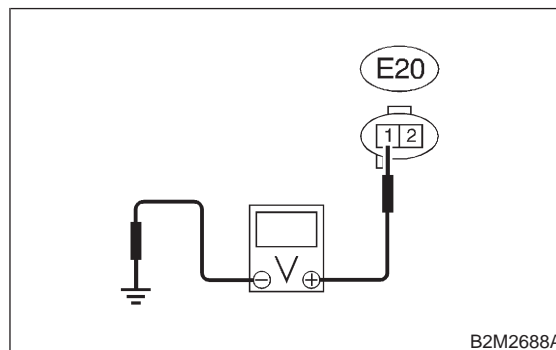
- Poor contact in intake air temperature sensor
- Poor contact in ECM
- Poor contact in coupling connector (B21) and (B171)

10G2 : CHECK HARNESS BETWEEN INTAKE AIR TEMPERATURE SENSOR AND ECM CONNECTOR.

- 1) Turn ignition switch to OFF.
- 2) Disconnect connector from intake air temperature sensor.
- 3) Measure voltage between intake air temperature sensor connector and engine ground.

Connector & terminal

(E20) No. 1 (+) — Engine ground (-):



CHECK : *Is the voltage more than 10 V?*

YES : Repair battery short circuit in harness between intake air temperature sensor and ECM connector.

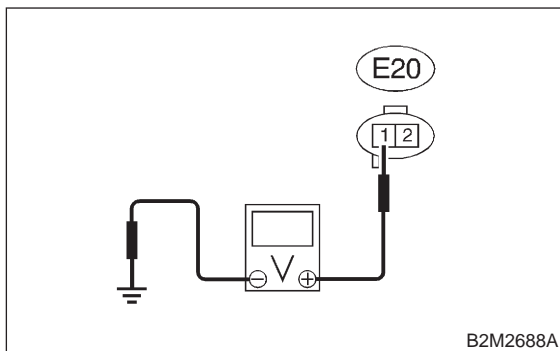
NO : Go to step **10G3**.

10G3 : CHECK HARNESS BETWEEN INTAKE AIR TEMPERATURE SENSOR AND ECM CONNECTOR.

- 1) Turn ignition switch to ON.
- 2) Measure voltage between intake air temperature sensor connector and engine ground.

Connector & terminal

(E20) No. 1 (+) — Engine ground (-):



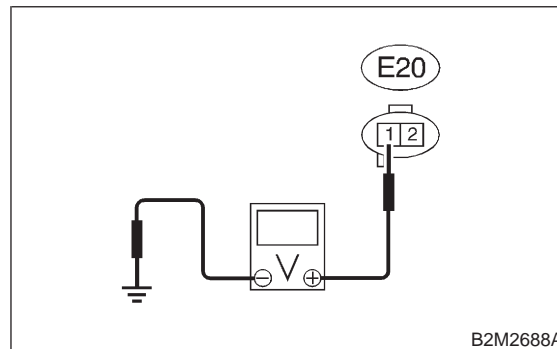
- CHECK** : **Is the voltage more than 10 V?**
- YES** : Repair battery short circuit in harness between intake air temperature sensor and ECM connector.
- NO** : Go to step **10G4**.

10G4 : CHECK HARNESS BETWEEN INTAKE AIR TEMPERATURE SENSOR AND ECM CONNECTOR.

Measure voltage between intake air temperature sensor connector and engine ground.

Connector & terminal

(E20) No. 1 (+) — Engine ground (-):



- CHECK** : **Is the voltage more than 3 V?**
- YES** : Go to step **10G5**.
- NO** : Repair harness and connector.

NOTE:

In this case, repair the following:

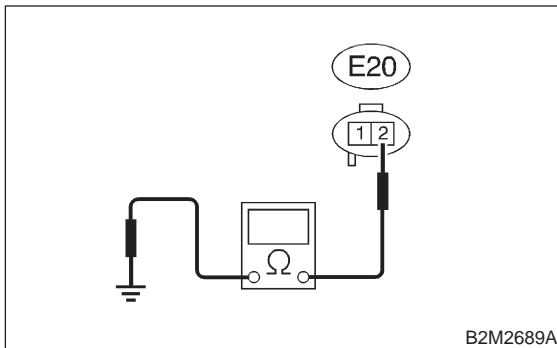
- Open circuit in harness between intake air temperature sensor and ECM connector
- Poor contact in intake air temperature sensor
- Poor contact in ECM
- Poor contact in coupling connector (B21)

10G5 : CHECK HARNESS BETWEEN INTAKE AIR TEMPERATURE SENSOR AND ECM CONNECTOR.

- 1) Turn ignition switch to OFF.
- 2) Measure resistance of harness between intake air temperature sensor connector and engine ground.

Connector & terminal

(E20) No. 2 — Engine ground:



CHECK : **Is the resistance less than 5 Ω?**

YES : Replace intake air temperature sensor.
<Ref. to 2-7 [W21A0].>

NO : Repair harness and connector.

NOTE:

In this case, repair the following:

- Open circuit in harness between intake air temperature sensor and ECM connector
- Poor contact in intake air temperature sensor
- Poor contact in ECM
- Poor contact in coupling connector (B21) and (B171)

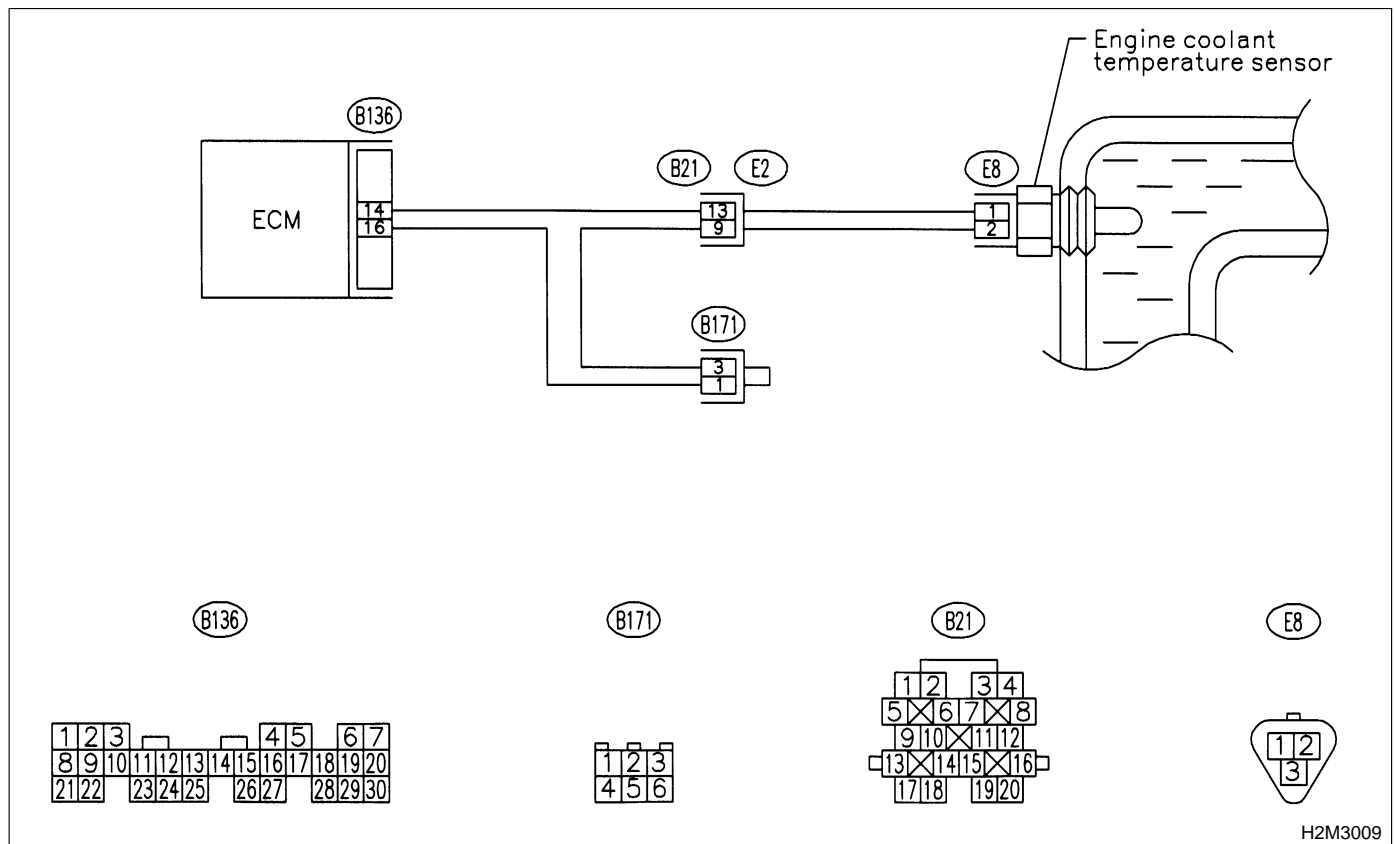
H: DTC P0116 — ENGINE COOLANT TEMPERATURE SENSOR CIRCUIT LOW INPUT —

- **DTC DETECTING CONDITION:**
 - Immediately at fault recognition
- **TROUBLE SYMPTOM:**
 - Hard to start
 - Erroneous idling
 - Poor driving performance

CAUTION:

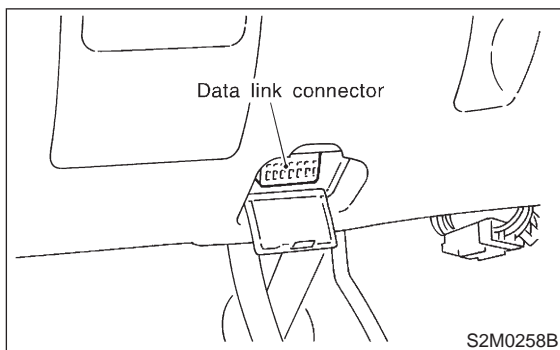
After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to 2-7 [T3D0].> and INSPECTION MODE <Ref. to 2-7 [T3E0].>

● **WIRING DIAGRAM:**



10H1 : CONNECT SUBARU SELECT MONITOR OR THE OBD-II GENERAL SCAN TOOL, AND READ DATA.

- 1) Turn ignition switch to OFF.
- 2) Connect Subaru Select Monitor or the OBD-II general scan tool to data link connector.



- 3) Turn ignition switch to ON and Subaru Select Monitor or OBD-II general scan tool switch to ON.
- 4) Start engine.
- 5) Read data of engine coolant temperature sensor signal using Subaru Select Monitor or OBD-II general scan tool.

NOTE:

- Subaru Select Monitor

For detailed operation procedure, refer to the "READ CURRENT DATA SHOWN ON DISPLAY FOR ENGINE". <Ref. to 2-7 [T3C4].>

- OBD-II general scan tool

For detailed operation procedures, refer to the OBD-II General Scan Tool Instruction Manual.

CHECK : *Is the value greater than 120°C (248°F)?*

YES : Go to step 10H2.

NO : Repair poor contact.

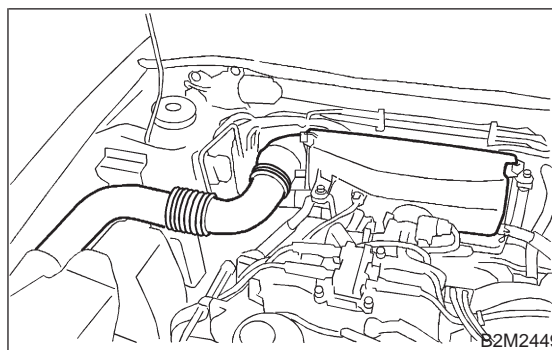
NOTE:

In this case, repair the following:

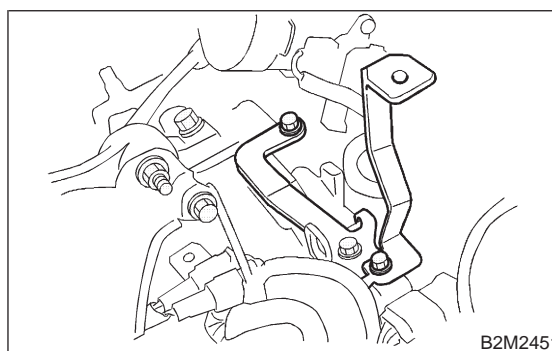
- Poor contact in engine coolant temperature sensor
- Poor contact in ECM
- Poor contact in coupling connector (B21) and (B171)

10H2 : CHECK HARNESS BETWEEN ENGINE COOLANT TEMPERATURE SENSOR AND ECM CONNECTOR.

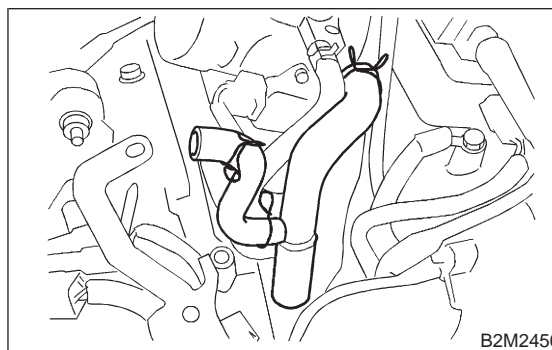
- 1) Turn ignition switch to OFF.
- 2) Remove air intake duct and air cleaner case assembly as a unit.



- 3) Remove engine harness connector bracket from cylinder block.



- 4) Remove blow-by hoses.



- 5) Disconnect connector from engine coolant temperature sensor.
- 6) Turn ignition switch and Subaru Select Monitor or OBD-II general scan tool switch to ON.
- 7) Read data of engine coolant temperature sensor signal using Subaru Select Monitor or OBD-II general scan tool.

NOTE:

- Subaru Select Monitor

For detailed operation procedure, refer to the "READ CURRENT DATA SHOWN ON DISPLAY FOR ENGINE". <Ref. to 2-7 [T3C4].>

- OBD-II general scan tool

For detailed operation procedures, refer to the OBD-II General Scan Tool Instruction Manual.

- CHECK** : ***Is the value less than -40°C (-40°F)?***
- YES** : Replace engine coolant temperature sensor. <Ref. to 2-7 [W5A1].>
- NO** : Repair ground short circuit in harness between engine coolant temperature sensor and ECM connector.

MEMO:

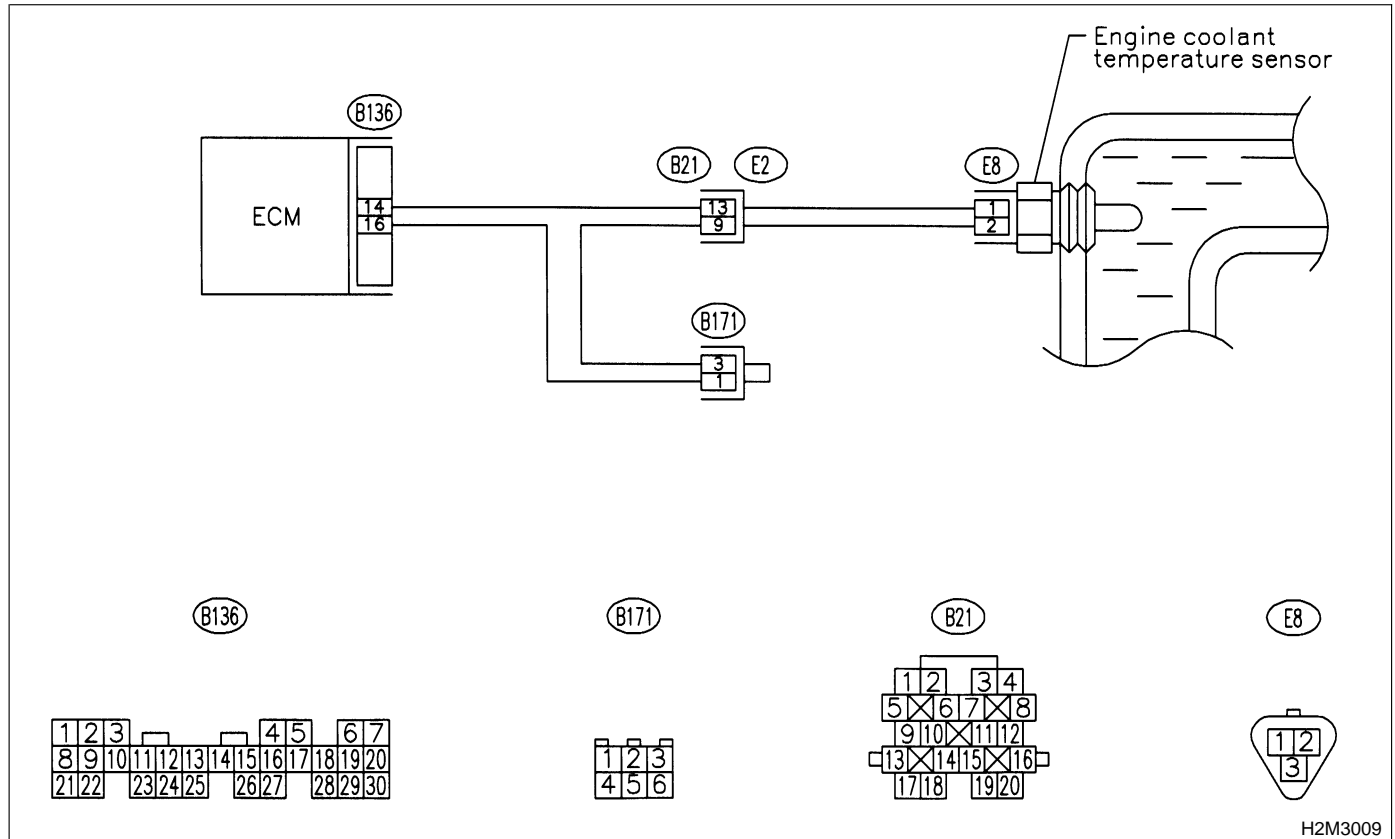
I: DTC P0117 — ENGINE COOLANT TEMPERATURE SENSOR CIRCUIT HIGH INPUT —

- **DTC DETECTING CONDITION:**
 - Immediately at fault recognition
- **TROUBLE SYMPTOM:**
 - Hard to start
 - Erroneous idling
 - Poor driving performance

CAUTION:

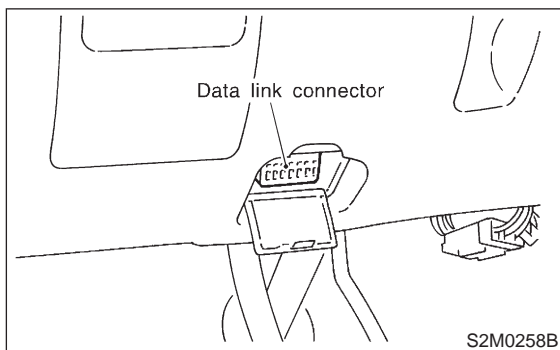
After repair or replacement of faulty parts, conduct **CLEAR MEMORY MODE** <Ref. to 2-7 [T3D0].> and **INSPECTION MODE** <Ref. to 2-7 [T3E0].>

● **WIRING DIAGRAM:**



1011 : CONNECT SUBARU SELECT MONITOR OR THE OBD-II GENERAL SCAN TOOL, AND READ DATA.

- 1) Turn ignition switch to OFF.
- 2) Connect Subaru Select Monitor or the OBD-II general scan tool to data link connector.



- 3) Turn ignition switch to ON and Subaru Select Monitor or OBD-II general scan tool switch to ON.
- 4) Start engine.
- 5) Read data of engine coolant temperature sensor signal using Subaru Select Monitor or OBD-II general scan tool.

NOTE:

- Subaru Select Monitor

For detailed operation procedure, refer to the "READ CURRENT DATA SHOWN ON DISPLAY FOR ENGINE". <Ref. to 2-7 [T3C4].>

- OBD-II general scan tool

For detailed operation procedures, refer to the OBD-II General Scan Tool Instruction Manual.

CHECK : *Is the value less than -40°C (-40°F)?*

YES : Go to step 1012.

NO : Repair poor contact.

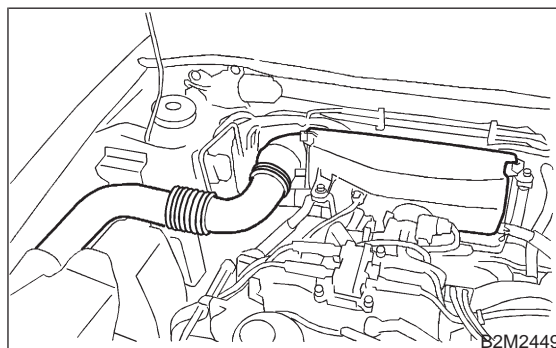
NOTE:

In this case, repair the following:

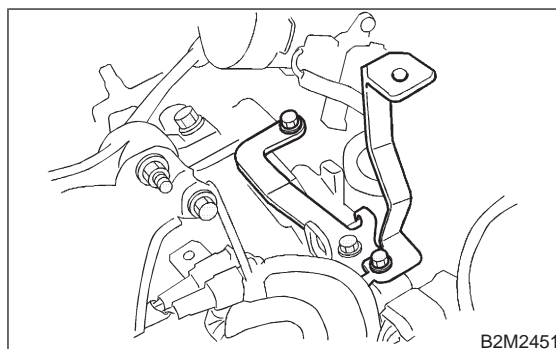
- Poor contact in engine coolant temperature sensor
- Poor contact in ECM
- Poor contact in coupling connector (B21) and (B171)

1012 : CHECK HARNESS BETWEEN ENGINE COOLANT TEMPERATURE SENSOR AND ECM CONNECTOR.

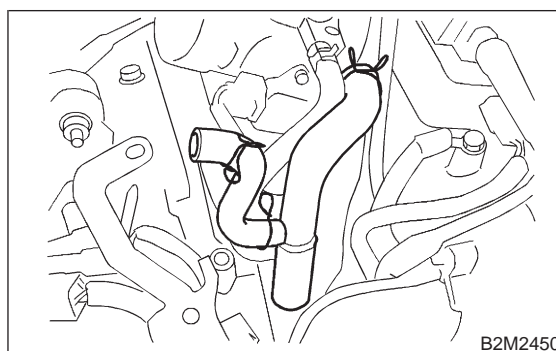
- 1) Turn ignition switch to OFF.
- 2) Remove air intake duct and air cleaner case assembly as a unit.



- 3) Remove engine harness connector bracket from cylinder block.



- 4) Remove blow-by hoses.

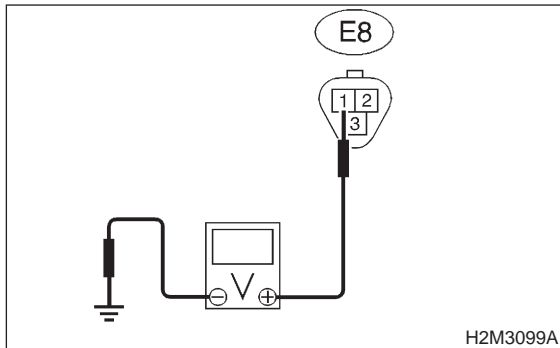


- 5) Disconnect connector from engine coolant temperature sensor.

6) Measure voltage between engine coolant temperature sensor connector and engine ground.

Connector & terminal

(E8) No. 1 (+) — Engine ground (-):



CHECK : **Is the voltage more than 10 V?**

YES : Repair battery short circuit in harness between ECM and engine coolant temperature sensor connector.

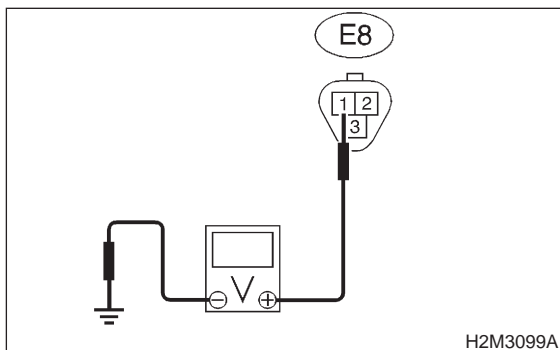
NO : Go to step 1013.

1013 : CHECK HARNESS BETWEEN ENGINE COOLANT TEMPERATURE SENSOR AND ECM CONNECTOR.

1) Turn ignition switch to ON.
2) Measure voltage between engine coolant temperature sensor connector and engine ground.

Connector & terminal

(E8) No. 1 (+) — Engine ground (-):



CHECK : **Is the voltage more than 10 V?**

YES : Repair battery short circuit in harness between ECM and engine coolant temperature sensor connector.

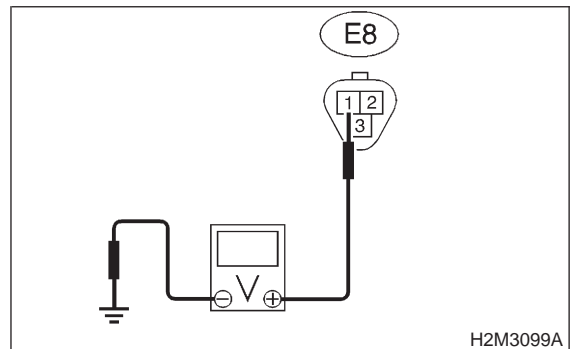
NO : Go to step 1014.

1014 : CHECK HARNESS BETWEEN ENGINE COOLANT TEMPERATURE SENSOR AND ECM CONNECTOR.

Measure voltage between engine coolant temperature sensor connector and engine ground.

Connector & terminal

(E8) No. 1 (+) — Engine ground (-):



CHECK : **Is the voltage more than 4 V?**

YES : Go to step 1015.

NO : Repair harness and connector.

NOTE:

In this case, repair the following:

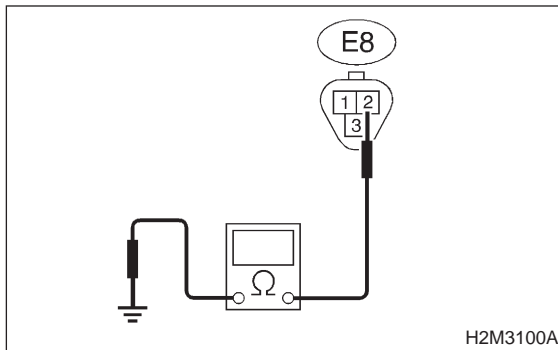
- Open circuit in harness between ECM and engine coolant temperature sensor connector
- Poor contact in engine coolant temperature sensor connector
- Poor contact in ECM connector
- Poor contact in coupling connector (B21)

1015 : CHECK HARNESS BETWEEN ENGINE COOLANT TEMPERATURE SENSOR AND ECM CONNECTOR.

- 1) Turn ignition switch to OFF.
- 2) Measure resistance of harness between engine coolant temperature sensor connector and engine ground.

Connector & terminal

(E8) No. 2 — Engine ground:



CHECK : **Is the resistance less than 5 Ω?**

YES : Replace engine coolant temperature sensor. <Ref. to 2-7 [W5A1].>

NO : Repair harness and connector.

NOTE:

In this case, repair the following:

- Open circuit in harness between ECM and engine coolant temperature sensor connector
- Poor contact in engine coolant temperature sensor connector
- Poor contact in ECM connector
- Poor contact in coupling connector (B21) and (B171)

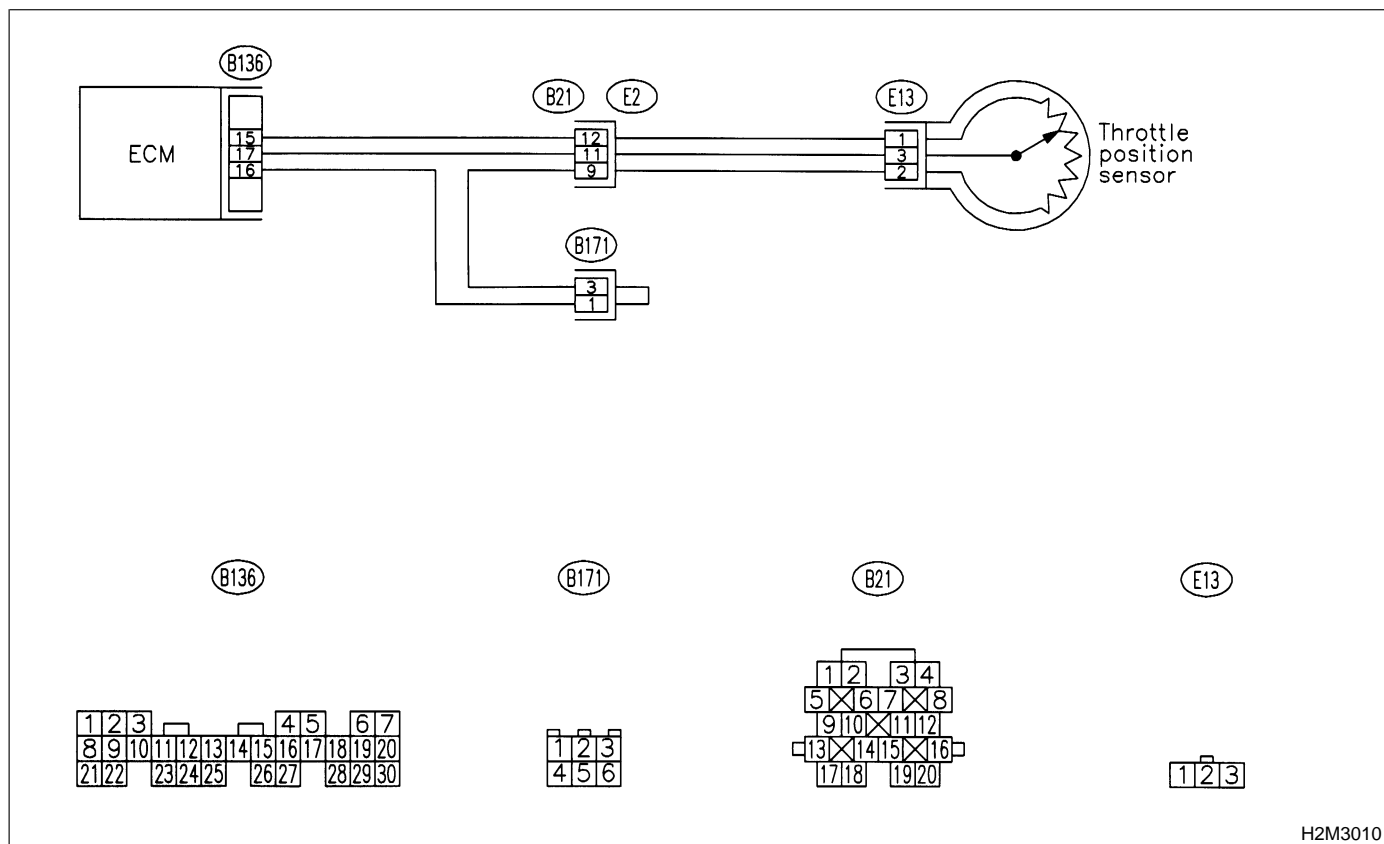
J: DTC P0121 — THROTTLE POSITION SENSOR CIRCUIT RANGE/PERFORMANCE PROBLEM (HIGH INPUT) —

- **DTC DETECTING CONDITION:**
 - Two consecutive driving cycles with fault
- **TROUBLE SYMPTOM:**
 - Erroneous idling
 - Engine stalls.
 - Poor driving performance

CAUTION:

After repair or replacement of faulty parts, conduct **CLEAR MEMORY MODE** <Ref. to 2-7 [T3D0].> and **INSPECTION MODE** <Ref. to 2-7 [T3E0].>

● **WIRING DIAGRAM:**



H2M3010

10J1 : CHECK ANY OTHER DTC ON DISPLAY.

- CHECK** : Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0107, P0108, P0122 or P0123?
- YES** : Inspect DTC P0107, P0108, P0122 or P0123 using "10. Diagnostics Chart with Trouble Code for 2200 cc California Spec. Vehicles". <Ref. to 2-7 [T10A0].>

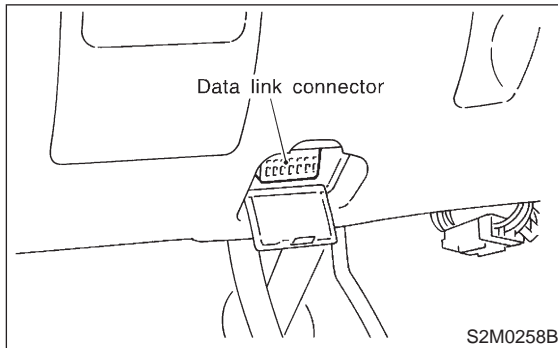
NOTE:

In this case, it is not necessary to inspect DTC P0121.

- NO** : Go to step **10J2**.

10J2 : CONNECT SUBARU SELECT MONITOR OR THE OBD-II GENERAL SCAN TOOL, AND READ DATA.

- 1) Turn ignition switch to OFF.
- 2) Connect Subaru Select Monitor or the OBD-II general scan tool to data link connector.



- 3) Turn ignition switch to ON and Subaru Select Monitor or the OBD-II general scan tool switch to ON.
- 4) Start engine.
- 5) Read the data of intake manifold absolute pressure signal using Subaru Select Monitor or OBD-II general scan tool.

NOTE:

● Subaru Select Monitor

For detailed operation procedure, refer to the "READ CURRENT DATA SHOWN ON DISPLAY FOR ENGINE". <Ref. to 2-7 [T3C4].>

● OBD-II general scan tool

For detailed operation procedures, refer to the OBD-II General Scan Tool Instruction Manual.

CHECK : ***Is the value more than 53.3 kPa (400 mmHg, 15.75 inHg)?***

YES : Replace intake manifold pressure sensor. <Ref. to 2-7 [W20A0].>

NO : Replace throttle position sensor. <Ref. to 2-7 [W9A1].>

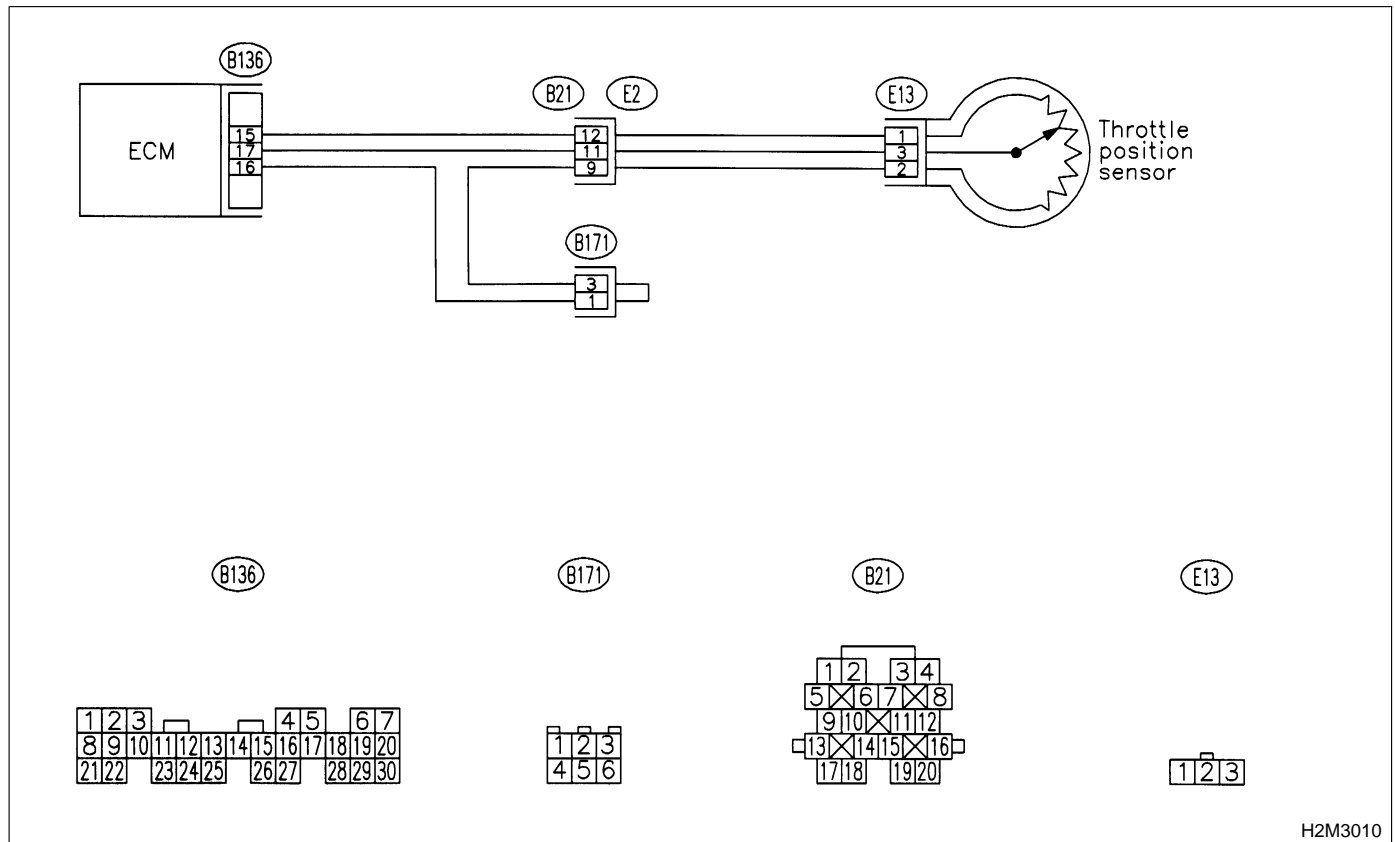
K: DTC P0122 — THROTTLE POSITION SENSOR CIRCUIT LOW INPUT —

- **DTC DETECTING CONDITION:**
 - Immediately at fault recognition
- **TROUBLE SYMPTOM:**
 - Erroneous idling
 - Engine stalls.
 - Poor driving performance

CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to 2-7 [T3D0].> and INSPECTION MODE <Ref. to 2-7 [T3E0].>

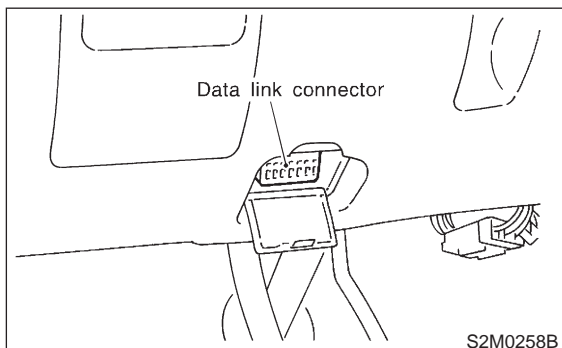
● **WIRING DIAGRAM:**



H2M3010

10K1 : CONNECT SUBARU SELECT MONITOR OR THE OBD-II GENERAL SCAN TOOL, AND READ DATA.

- 1) Turn ignition switch to OFF.
- 2) Connect Subaru Select Monitor or the OBD-II general scan tool to data link connector.



- 3) Turn ignition switch to ON and Subaru Select Monitor or OBD-II general scan tool switch to ON.
- 4) Start engine.
- 5) Read data of throttle position sensor signal using Subaru Select Monitor or OBD-II general scan tool.

NOTE:

- Subaru Select Monitor
For detailed operation procedure, refer to the "READ CURRENT DATA SHOWN ON DISPLAY FOR ENGINE". <Ref. to 2-7 [T3C4].>
- OBD-II general scan tool
For detailed operation procedures, refer to the OBD-II General Scan Tool Instruction Manual.

CHECK : *Is the value less than 0.1 V?*

YES : Go to step **10K2**.

NO : Even if MIL lights up, the circuit has returned to a normal condition at this time. A temporary poor contact of the connector may be the cause.

NOTE:

In this case, repair the following:

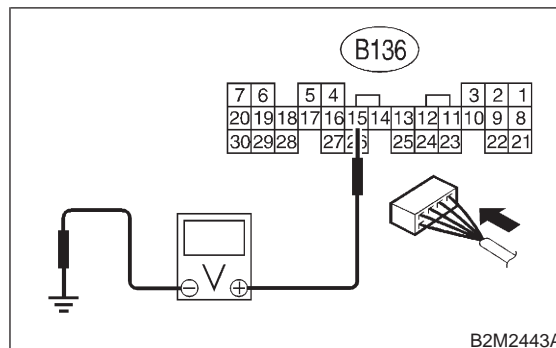
- Poor contact in throttle position sensor connector
- Poor contact in ECM connector
- Poor contact in coupling connector (B21) and (B171)

10K2 : CHECK INPUT SIGNAL FOR ECM.

Measure voltage between ECM connector and chassis ground while throttle valve is fully closed.

Connector & terminal

(B136) No. 15 (+) — Chassis ground (-):



CHECK : *Is the voltage more than 4.5 V?*

YES : Go to step **10K4**.

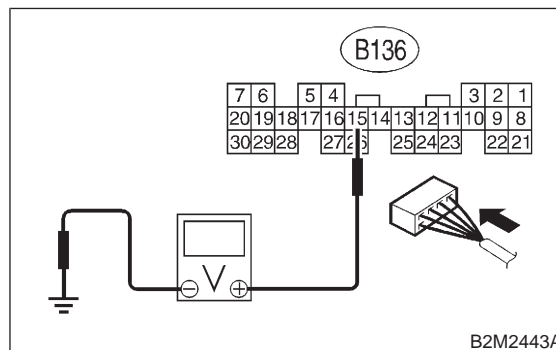
NO : Go to step **10K3**.

10K3 : CHECK INPUT SIGNAL FOR ECM.

Measure voltage between ECM connector and chassis ground.

Connector & terminal

(B136) No. 15 (+) — Chassis ground (-):



CHECK : *Does the voltage change more than 4.5 V by shaking harness and connector of ECM while monitoring the value with voltage meter?*

YES : Repair poor contact in ECM connector.

NO : Contact with SOA service.

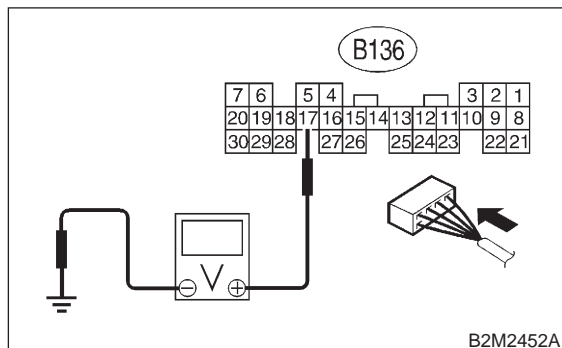
NOTE:

Inspection by DTM is required, because probable cause is deterioration of multiple parts.

10K4 : CHECK INPUT SIGNAL FOR ECM.

Measure voltage between ECM connector and chassis ground.

Connector & terminal
(B136) No. 17 (+) — Chassis ground (-):



- CHECK** : Is the voltage less than 0.1 V?
YES : Go to step 10K6.
NO : Go to step 10K5.

10K5 : CHECK INPUT SIGNAL FOR ECM. (USING SUBARU SELECT MONITOR.)

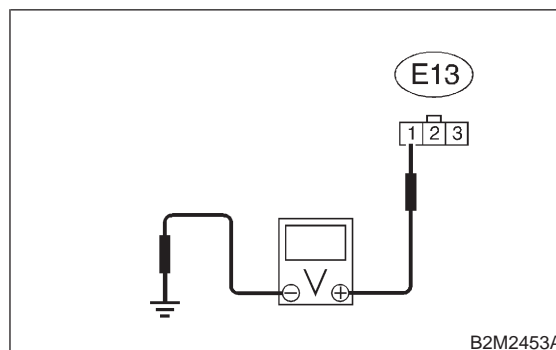
Measure voltage between ECM connector and chassis ground.

- CHECK** : Does the voltage change more than 0.1 V by shaking harness and connector of ECM while monitoring the value with Subaru Select Monitor?
YES : Repair poor contact in ECM connector.
NO : Go to step 10K6.

10K6 : CHECK HARNESS BETWEEN ECM AND THROTTLE POSITION SENSOR CONNECTOR.

- 1) Turn ignition switch to OFF.
- 2) Disconnect connectors from throttle position sensor.
- 3) Turn ignition switch to ON.
- 4) Measure voltage between throttle position sensor connector and engine ground.

Connector & terminal
(E13) No. 1 (+) — Engine ground (-):



- CHECK** : Is the voltage more than 4.5 V?
YES : Go to step 10K7.
NO : Repair harness and connector.

NOTE:

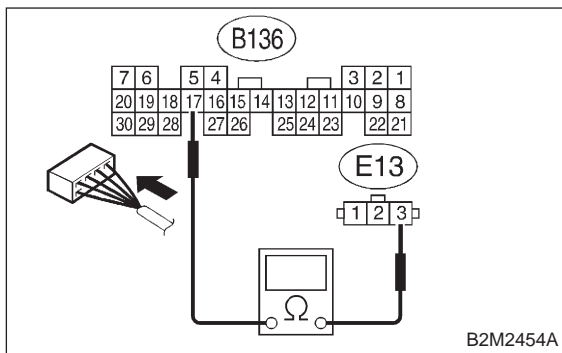
In this case, repair the following:

- Open circuit in harness between throttle position sensor and ECM connector
- Poor contact in throttle position sensor connector
- Poor contact in ECM connector
- Poor contact in coupling connector (B21)

10K7 : CHECK HARNESS BETWEEN ECM AND THROTTLE POSITION SENSOR CONNECTOR.

- 1) Turn ignition switch to OFF.
- 2) Measure resistance of harness between ECM connector and throttle position sensor connector.

Connector & terminal
(B136) No. 17 — (E13) No. 3:



- CHECK** : Is the resistance less than 1 Ω?
- YES** : Go to step 10K8.
- NO** : Repair harness and connector.

NOTE:

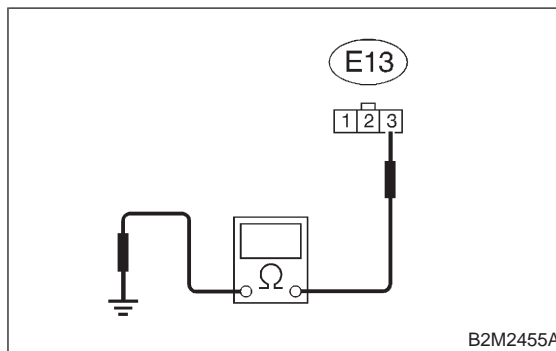
In this case, repair the following:

- Open circuit in harness between throttle position sensor and ECM connector
- Poor contact in ECM connector
- Poor contact in throttle position sensor connector
- Poor contact in coupling connector (B21) and (B171)

10K8 : CHECK HARNESS BETWEEN ECM AND THROTTLE POSITION SENSOR CONNECTOR.

Measure resistance of harness between throttle position sensor connector and engine ground.

Connector & terminal
(E13) No. 3 — Engine ground:



- CHECK** : Is the resistance less than 10 Ω?
- YES** : Repair ground short circuit in harness between throttle position sensor and ECM connector.
- NO** : Go to step 10K9.

10K9 : CHECK POOR CONTACT.

Check poor contact in throttle position sensor connector. <Ref. to FOREWORD [T3C1].>

- CHECK** : Is there poor contact in throttle position sensor connector?
- YES** : Repair poor contact in throttle position sensor connector.
- NO** : Replace throttle position sensor. <Ref. to 2-7 [W9A1].>

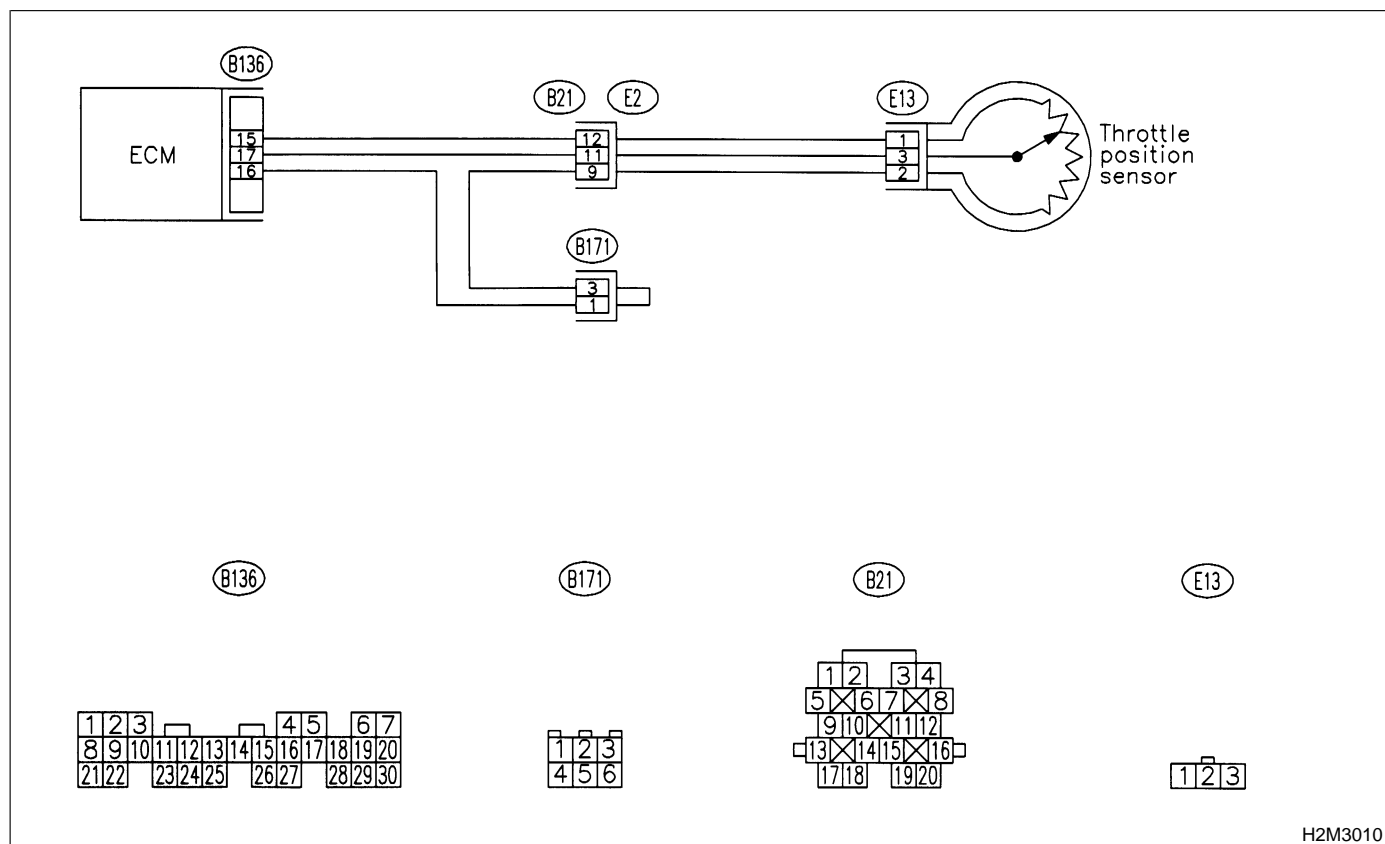
L: DTC P0123 — THROTTLE POSITION SENSOR CIRCUIT HIGH INPUT —

- **DTC DETECTING CONDITION:**
 - Immediately at fault recognition
- **TROUBLE SYMPTOM:**
 - Erroneous idling
 - Engine stalls.
 - Poor driving performance

CAUTION:

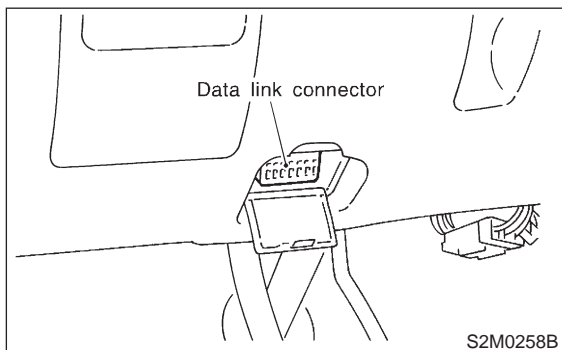
After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to 2-7 [T3D0].> and INSPECTION MODE <Ref. to 2-7 [T3E0].>

● **WIRING DIAGRAM:**



10L1 : CONNECT SUBARU SELECT MONITOR OR THE OBD-II GENERAL SCAN TOOL, AND READ DATA.

- 1) Turn ignition switch to OFF.
- 2) Connect Subaru Select Monitor or the OBD-II general scan tool to data link connector.



- 3) Turn ignition switch to ON and Subaru Select Monitor or OBD-II general scan tool switch to ON.
- 4) Start engine.
- 5) Read data of throttle position sensor signal using Subaru Select Monitor or OBD-II general scan tool.

NOTE:

- Subaru Select Monitor
For detailed operation procedure, refer to the "READ CURRENT DATA SHOWN ON DISPLAY FOR ENGINE". <Ref. to 2-7 [T3C4].>
- OBD-II general scan tool
For detailed operation procedures, refer to the OBD-II General Scan Tool Instruction Manual.

- CHECK** : *Is the value more than 4.9 V?*
- YES** : Go to step **10L2**.
- NO** : Even if MIL lights up, the circuit has returned to a normal condition at this time. A temporary poor contact of the connector may be the cause.

NOTE:

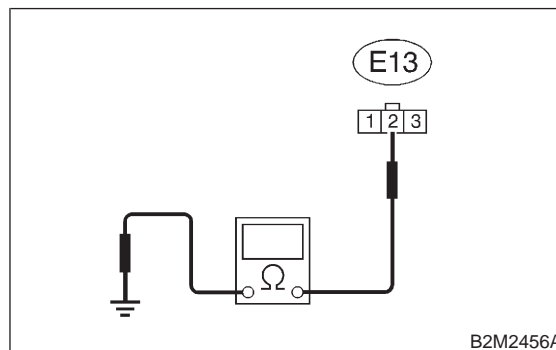
- In this case, repair the following:
- Poor contact in throttle position sensor connector
 - Poor contact in ECM connector
 - Poor contact in coupling connector (B21) and (B171)

10L2 : CHECK HARNESS BETWEEN THROTTLE POSITION SENSOR AND ECM CONNECTOR.

- 1) Turn ignition switch to OFF.
- 2) Disconnect connector from throttle position sensor.
- 3) Measure resistance of harness between throttle position sensor connector and engine ground.

Connector & terminal

(E13) No. 2 — Engine ground:



- CHECK** : *Is the resistance less than 5 Ω?*
- YES** : Go to step **10L3**.
- NO** : Repair harness and connector.

NOTE:

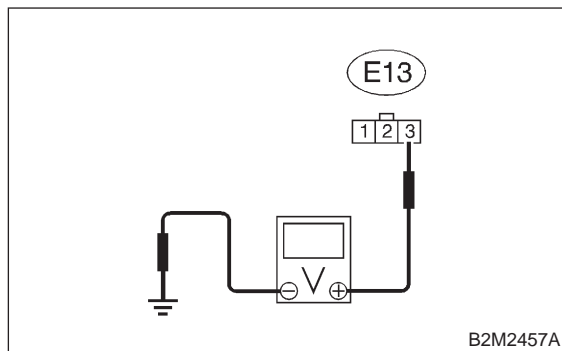
- In this case, repair the following:
- Open circuit in harness between throttle position sensor and ECM connector
 - Poor contact in coupling connector (B21) and (B171)

10L3 : CHECK HARNESS BETWEEN THROTTLE POSITION SENSOR AND ECM CONNECTOR.

- 1) Turn ignition switch to ON.
- 2) Measure voltage between throttle position sensor connector and engine ground.

Connector & terminal

(E13) No. 3 (+) — Engine ground (-):



- CHECK** : **Is the voltage more than 4.9 V?**
- YES** : Repair battery short circuit in harness between throttle position sensor and ECM connector. After repair, replace ECM. <Ref. to 2-7 [W15A0].>
- NO** : Replace throttle position sensor. <Ref. to 2-7 [W9A1].>

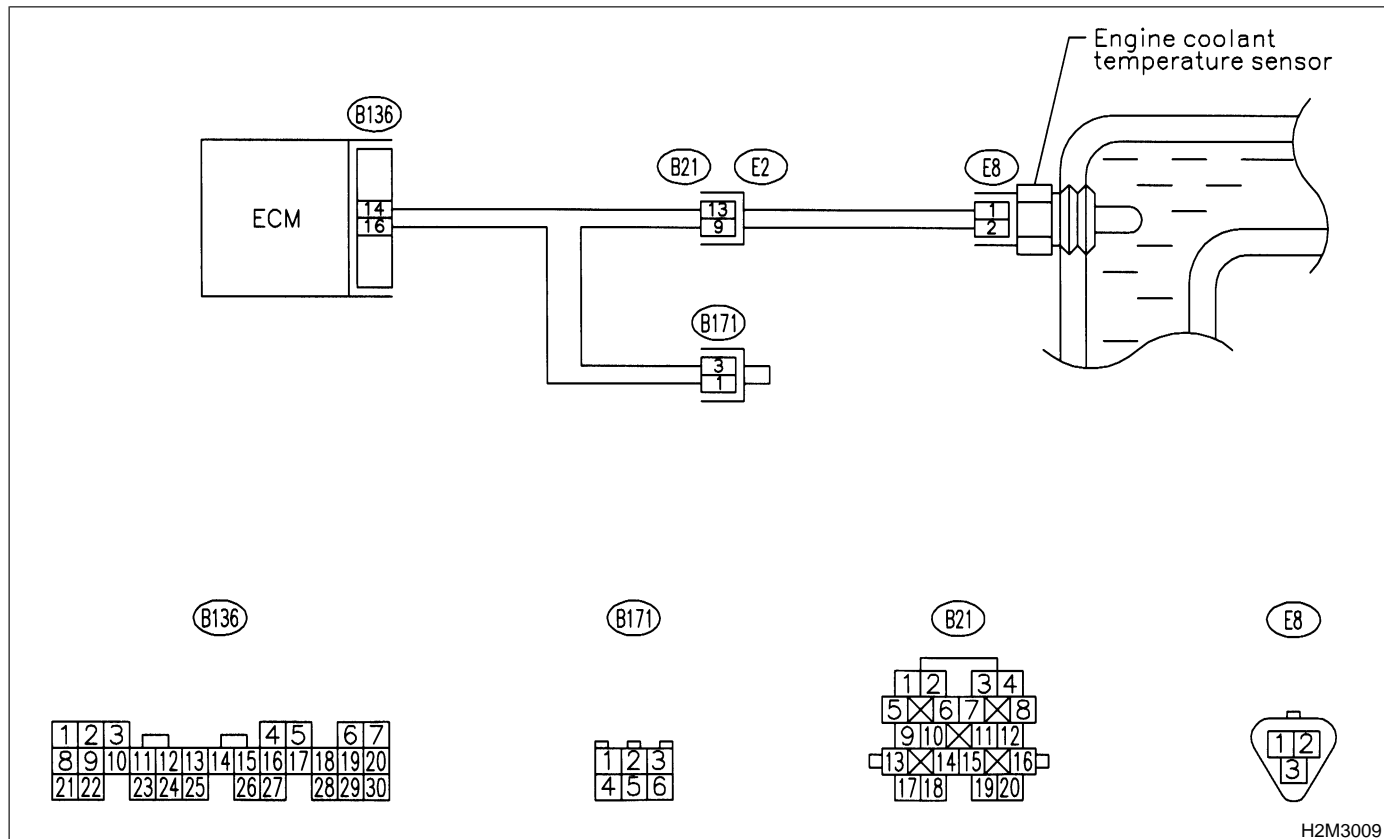
M: DTC P0125 — INSUFFICIENT COOLANT TEMPERATURE FOR CLOSED LOOP FUEL CONTROL —

- **DTC DETECTING CONDITION:**
 - Two consecutive driving cycles with fault
- **TROUBLE SYMPTOM:**
 - Engine would not return to idling.

CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to 2-7 [T3D0].> and INSPECTION MODE <Ref. to 2-7 [T3E0].>

● **WIRING DIAGRAM:**



H2M3009

10M1 : CHECK ANY OTHER DTC ON DISPLAY.

- CHECK** : Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0116 or P0117?
- YES** : Inspect DTC P0116 or P0117 using "10. Diagnostics Chart with Trouble Code for 2200 cc California Spec. Vehicles". <Ref. to 2-7 [T10A0].>

NOTE:

In this case, it is not necessary to inspect DTC P0125.

- NO** : Replace engine coolant temperature sensor. <Ref. to 2-7 [W5A1].>

N: DTC P0131 — FRONT OXYGEN (A/F) SENSOR CIRCUIT RANGE/PERFORMANCE PROBLEM (LOW INPUT) —

NOTE:

For the diagnostic procedure, refer to 2-7 [T10O0]. <Ref. to 2-7 [T10O0].>

O: DTC P0132 — FRONT OXYGEN (A/F) SENSOR CIRCUIT RANGE/PERFORMANCE PROBLEM (HIGH INPUT) —

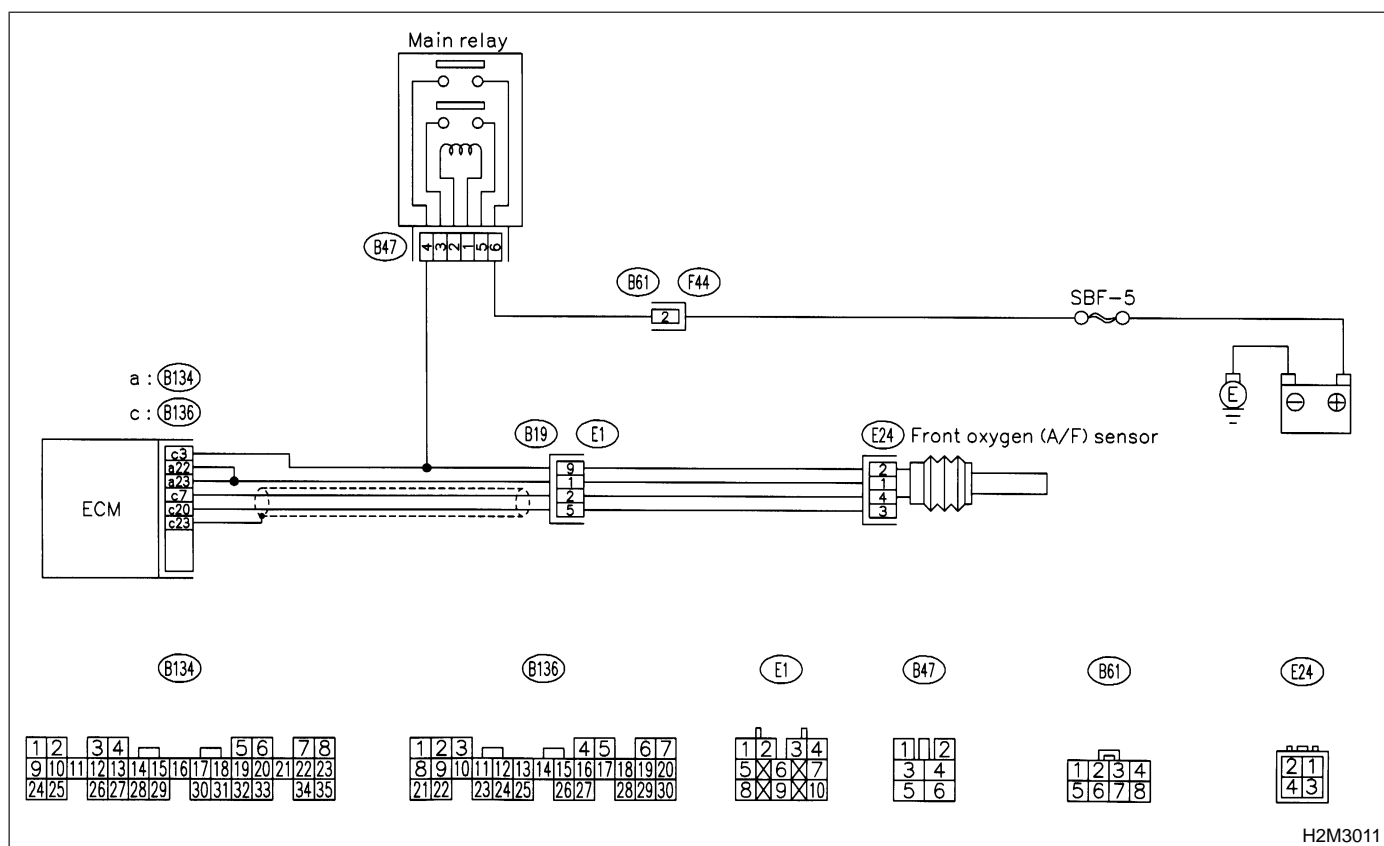
● **DTC DETECTING CONDITION:**

- Two consecutive driving cycles with fault

CAUTION:

After repair or replacement of faulty parts, conduct **CLEAR MEMORY MODE** <Ref. to 2-7 [T3D0].> and **INSPECTION MODE** <Ref. to 2-7 [T3E0].>.

● **WIRING DIAGRAM:**



H2M3011

1001 : CHECK ANY OTHER DTC ON DISPLAY.

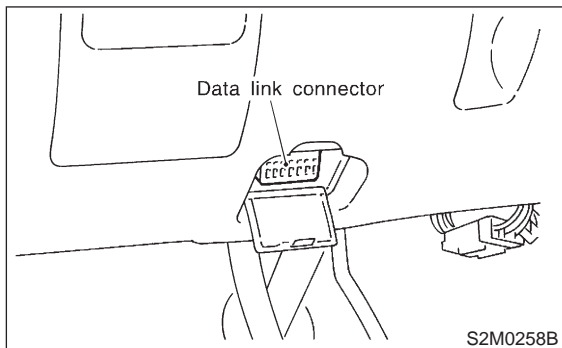
CHECK : Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P1130 or P1131?

YES : Inspect DTC P1130 or P1131 using "10. Diagnostics Chart with Trouble Code for 2200 cc California Spec. Vehicles". <Ref. to 2-7 [T10A0].>

NO : Go to step 1002.

1002 : CHECK FRONT (A/F) OXYGEN SENSOR DATA.

- 1) Turn ignition switch to OFF.
- 2) Connect the Subaru Select Monitor or the OBD-II general scan tool to data link connector.



- 3) Start engine and Turn the Subaru Select Monitor and the OBD-II general scan tool switch to ON.
- 4) Warm-up the engine until coolant temperature is above 70°C (160°F).
- 5) Read data of front oxygen (A/F) sensor signal using Subaru Select Monitor or OBD-II general scan tool.

NOTE:

- Subaru Select Monitor
For detailed operation procedure, refer to the "READ CURRENT DATA SHOWN ON DISPLAY FOR ENGINE". <Ref. to 2-7 [T3C4].>
- OBD-II general scan tool
For detailed operation procedures, refer to the OBD-II General Scan Tool Instruction Manual.

- CHECK** : **Is the value equal to or more than 0.85 and equal to less than 1.15?**
- YES** : Go to step **1003**.
- NO** : Go to step **1004**.

1003 : CHECK REAR OXYGEN SENSOR SIGNAL.

- 1) Race engine at speeds from idling to 5,000 rpm for a total of 5 cycles.
- 2) Operate the LED operation mode for engine.

NOTE:

- Subaru Select Monitor
For detailed operation procedure, refer to the "LED OPERATION MODE FOR ENGINE". <Ref. to 2-7 [T3C8].>

- CHECK** : **Does the LED of {Rear O2 Rich Signal} blink?**
- YES** : Repair poor contact in front oxygen (A/F) sensor and rear oxygen sensor connector.
- NO** : Check rear oxygen sensor circuit. <Ref. to 2-7 [T10Q0].>

1004 : CHECK EXHAUST SYSTEM.

Check exhaust system parts.

NOTE:

- Check the following items.
- Loose installation of portions
 - Damage (crack, hole etc.) of parts
 - Looseness of front oxygen (A/F) sensor
 - Looseness and ill fitting of parts between front oxygen (A/F) sensor and rear oxygen sensor

- CHECK** : **Is there a fault in exhaust system?**
- YES** : Repair or replace faulty parts.
- NO** : Replace front oxygen (A/F) sensor. <Ref. to 2-7 [W7A0].>

P: DTC P0133 — FRONT OXYGEN (A/F) SENSOR CIRCUIT SLOW RESPONSE —

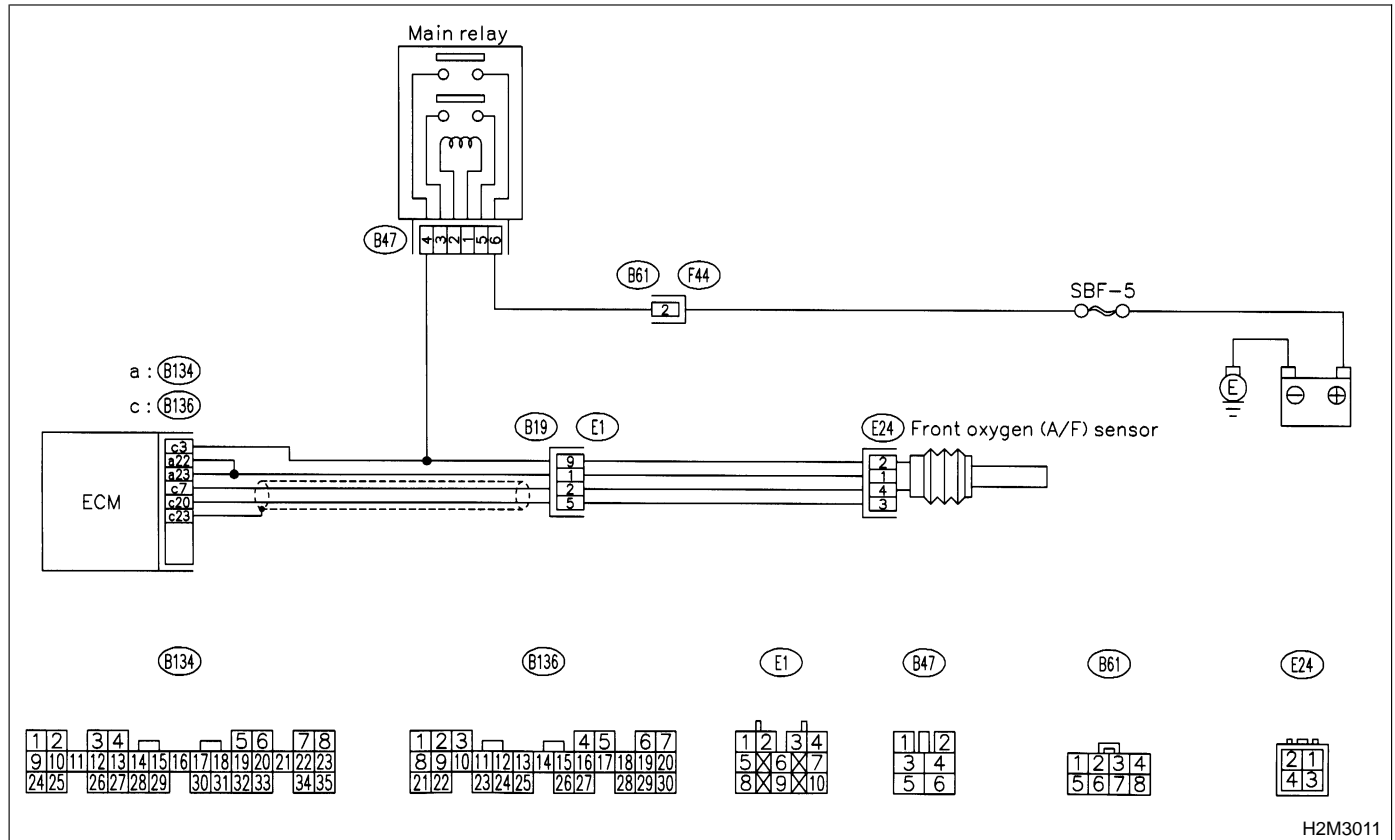
● DTC DETECTING CONDITION:

- Two consecutive driving cycles with fault

CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to 2-7 [T3D0].> and INSPECTION MODE <Ref. to 2-7 [T3E0].>

● WIRING DIAGRAM:



H2M3011

10P1 : CHECK ANY OTHER DTC ON DISPLAY.

10P2 : CHECK EXHAUST SYSTEM.

CHECK : Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P1130 or P1131?

YES : Inspect DTC P1130 or P1131 using "10. Diagnostics Chart with Trouble Code for 2200 cc California Spec. Vehicles". <Ref. to 2-7 [T10A0].>

NOTE:
In this case, it is not necessary to inspect DTC P0133.

NO : Go to step 10P2.

NOTE:

Check the following items.

- Loose installation of front portion of exhaust pipe onto cylinder heads
- Loose connection between front exhaust pipe and front catalytic converter
- Damage of exhaust pipe resulting in a hole

CHECK : Is there a fault in exhaust system?

YES : Repair exhaust system.

NO : Replace front oxygen (A/F) sensor. <Ref. to 2-7 [W7A0].>

MEMO:

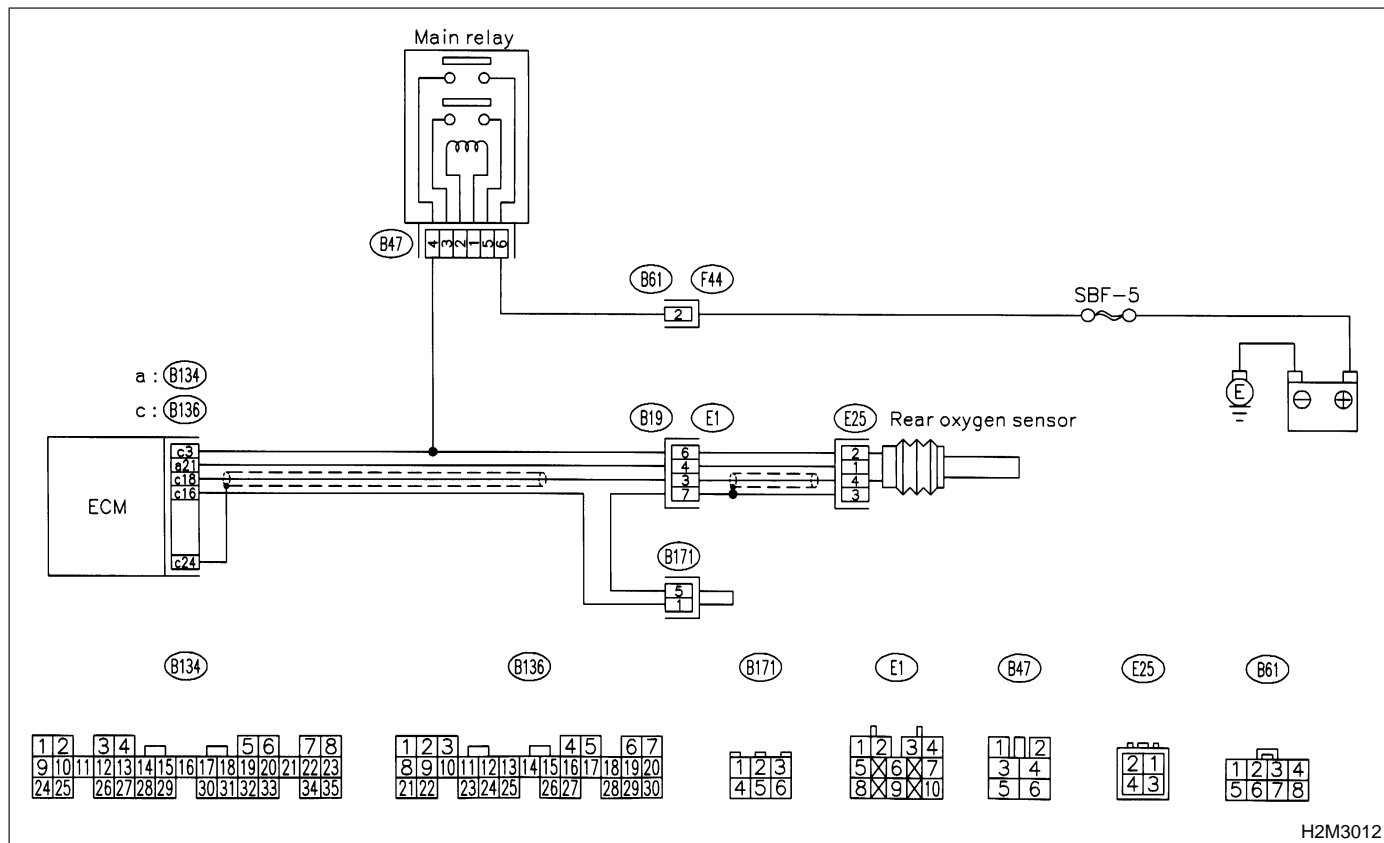
Q: DTC P0136 — REAR OXYGEN SENSOR CIRCUIT MALFUNCTION —

- **DTC DETECTING CONDITION:**
 - Two consecutive driving cycles with fault

CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to 2-7 [T3D0].> and INSPECTION MODE <Ref. to 2-7 [T3E0].>

● **WIRING DIAGRAM:**



H2M3012

10Q1 : CHECK ANY OTHER DTC ON DISPLAY.

10Q2 : CHECK FAILURE CAUSE OF P1130 OR P1131.

- CHECK** : Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P1130 or P1131?
- YES** : Go to step 10Q2.
- NO** : Go to step 10Q3.

Inspect DTC P1130 or P1131 using "10. Diagnostics Chart with Trouble Code for 2200 cc California Spec. Vehicles". <Ref. to 2-7 [T10A0].>

- CHECK** : Is the failure cause of P1130 or P1131 in the fuel system?
- YES** : Check fuel system.

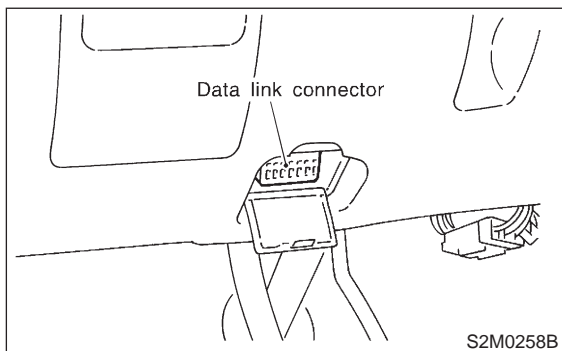
NOTE:

In this case, it is not necessary to inspect DTC P0136.

- NO** : Go to step 10Q3.

10Q3 : CHECK REAR OXYGEN SENSOR DATA.

- 1) Turn ignition switch to OFF.
- 2) Connect Subaru Select Monitor or OBD-II general scan tool to data link connector.



- 3) Start the engine, and turn Subaru Select Monitor or OBD-II general scan tool switch to ON.
- 4) Warm-up the engine until engine coolant temperature is above 70°C (160°F), and keep the engine speed at 2,000 rpm to 3,000 rpm for two minutes.
- 5) Read data of rear oxygen sensor signal using Subaru Select Monitor or OBD-II general scan tool.

NOTE:

- Subaru Select Monitor
For detailed operation procedure, refer to the "READ CURRENT DATA SHOWN ON DISPLAY FOR ENGINE". <Ref. to 2-7 [T3C4].>
- OBD-II general scan tool
For detailed operation procedures, refer to the OBD-II General Scan Tool Instruction Manual.

- CHECK** : Does the value fluctuate?
- YES** : Go to step 10Q7.
- NO** : Go to step 10Q4.

10Q4 : CHECK REAR OXYGEN SENSOR DATA.

Read data of rear oxygen sensor signal using Subaru Select Monitor or OBD-II General Scan Tool.

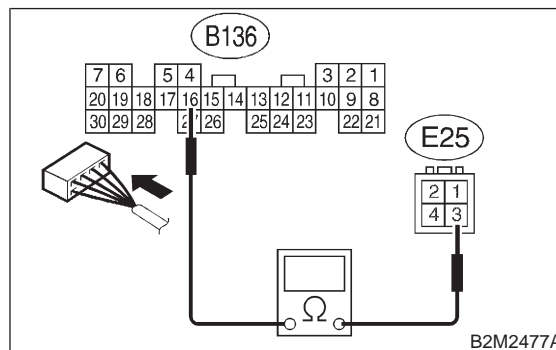
- CHECK** : Is the value fixed between 0.2 and 0.4 V?
- YES** : Go to step 10Q5.
- NO** : Replace rear oxygen sensor. <Ref. to 2-7 [W8A0].>

10Q5 : CHECK HARNESS BETWEEN ECM AND REAR OXYGEN SENSOR CONNECTOR.

- 1) Turn ignition switch to OFF.
- 2) Disconnect connectors from ECM and rear oxygen sensor.
- 3) Measure resistance of harness between ECM and rear oxygen sensor connector.

Connector & terminal

(B136) No. 16 — (E25) No. 3:



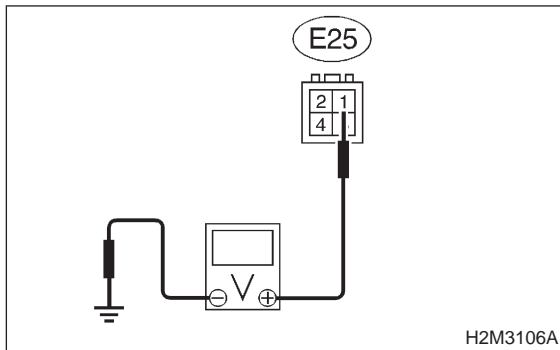
- CHECK** : Is the resistance more than 3 Ω?
- YES** : Repair open circuit in harness between ECM and rear oxygen sensor connector.
- NO** : Go to step 10Q6.

10Q6 : CHECK HARNESS BETWEEN REAR OXYGEN SENSOR AND ECM CONNECTOR.

- 1) Connect connector to ECM.
- 2) Turn ignition switch to ON.
- 3) Measure voltage between rear oxygen sensor harness connector and engine ground or chassis ground.

Connector & terminal

(E25) No. 1 (+) — Engine ground (-):



- CHECK** : **Is the voltage more than 0.2 V?**
- YES** : Replace rear oxygen sensor. <Ref. to 2-7 [W8A0].>
- NO** : Repair harness and connector.

NOTE:

In this case, repair the following:

- Open circuit in harness between rear oxygen sensor and ECM connector
- Poor contact in rear oxygen sensor connector
- Poor contact in ECM connector

10Q7 : CHECK EXHAUST SYSTEM.

Check exhaust system parts.

NOTE:

Check the following items.

- Loose installation of portions
- Damage (crack, hole etc.) of parts
- Looseness and ill fitting of parts between front oxygen sensor and rear oxygen sensor

- CHECK** : **Is there a fault in exhaust system?**
- YES** : Repair or replace faulty parts.
- NO** : Replace rear oxygen sensor. <Ref. to 2-7 [W8A0].>

R: DTC P0139 — REAR OXYGEN SENSOR CIRCUIT SLOW RESPONSE —

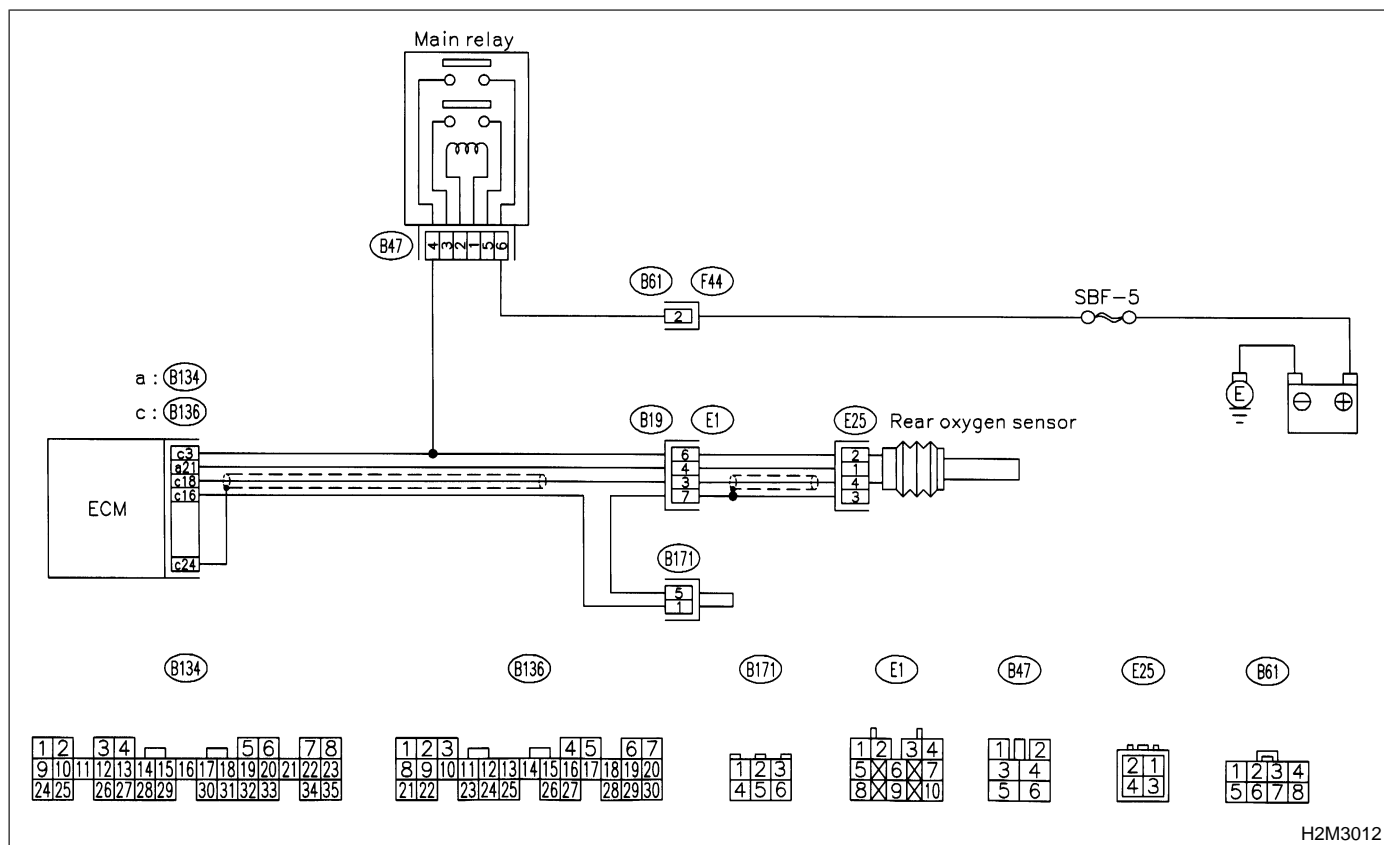
● DTC DETECTING CONDITION:

- Two consecutive driving cycles with fault

CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to 2-7 [T3D0].> and INSPECTION MODE <Ref. to 2-7 [T3E0].>

● WIRING DIAGRAM:



H2M3012

10R1 : CHECK ANY OTHER DTC ON DISPLAY.

CHECK : Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0136?

YES : Inspect DTC P0136 using "10. Diagnostics Chart with Trouble Code for 2200 cc California Spec. Vehicles". <Ref. to 2-7 [T10A0].>

NOTE:
In this case, it is not necessary to inspect DTC P0139.

NO : Replace rear oxygen sensor. <Ref. to 2-7 [W8A0].>

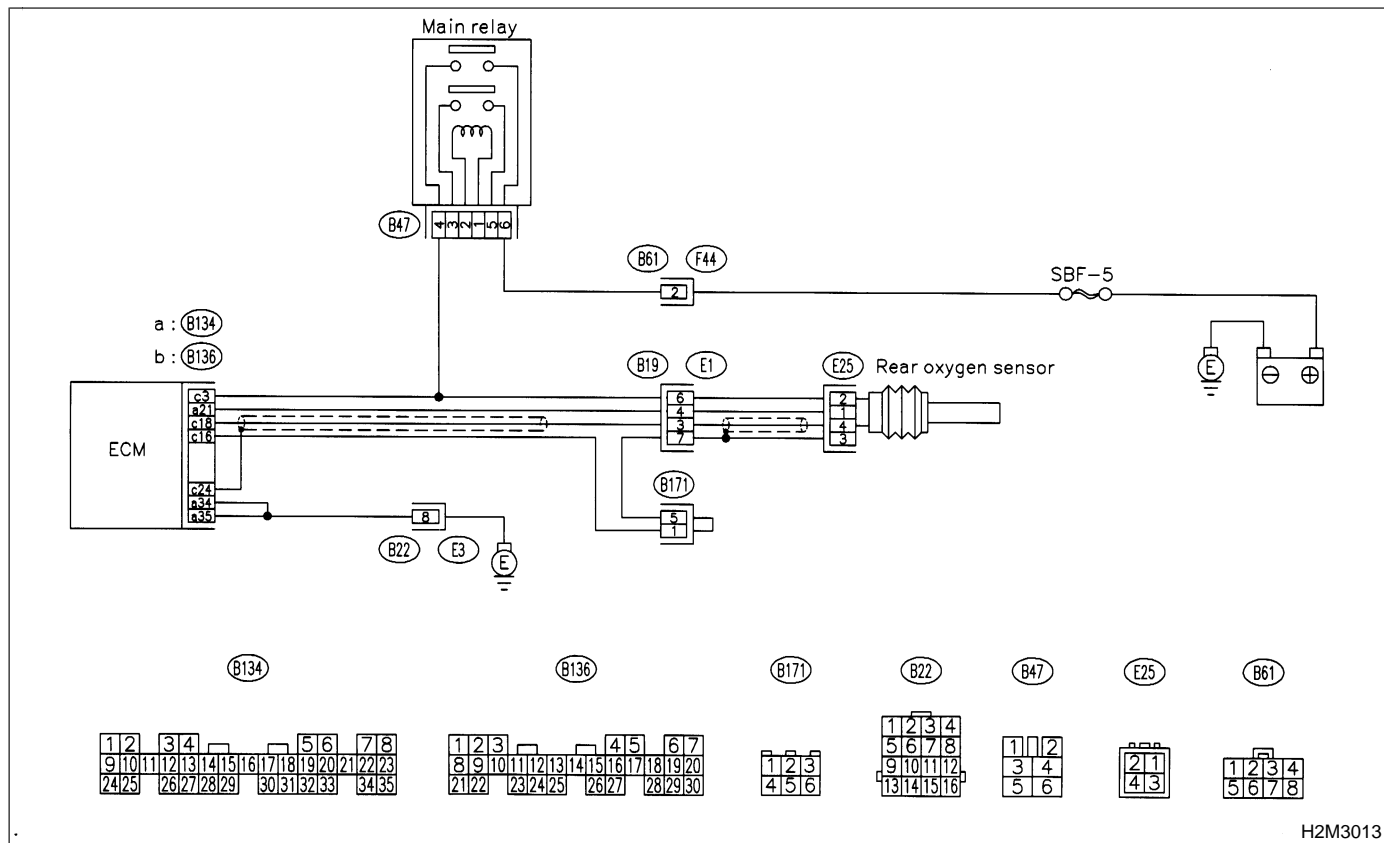
S: DTC P0141 — REAR OXYGEN SENSOR HEATER CIRCUIT LOW INPUT —

- **DTC DETECTING CONDITION:**
 - Two consecutive driving cycles with fault

CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to 2-7 [T3D0].> and INSPECTION MODE <Ref. to 2-7 [T3E0].>

● **WIRING DIAGRAM:**



H2M3013

10S1 : CHECK ANY OTHER DTC ON DISPLAY.

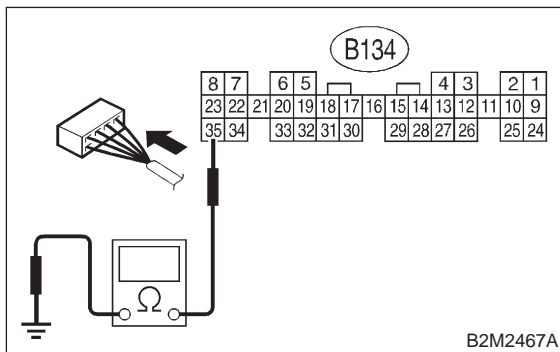
- CHECK** : Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0141 and P0135 at the same time?
- YES** : Go to step 10S2.
- NO** : Go to step 10S3.

10S2 : CHECK GROUND CIRCUIT OF ECM.

- 1) Turn ignition switch to OFF.
- 2) Disconnect connector from ECM.
- 3) Measure resistance of harness between ECM connector and chassis ground.

Connector & terminal

(B134) No. 35 — Chassis ground:



B2M2467A

- CHECK** : *Is the resistance less than 10 Ω?*
- YES** : Go to step 10S4.
- NO** : Go to step 10S3.

10S3 : CHECK GROUND CIRCUIT OF ECM.

- 1) Repair harness and connector.

NOTE:

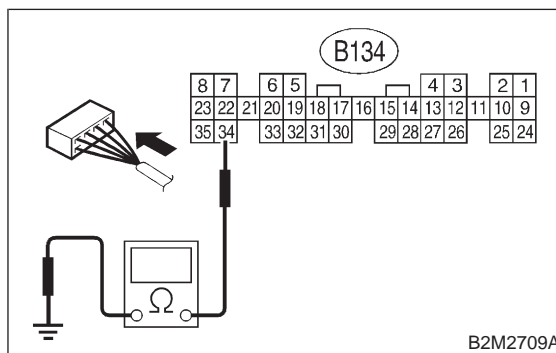
In this case, repair the following:

- Open circuit in harness between ECM and engine ground terminal
- Poor contact in ECM connector
- Poor contact in coupling connector (B22)

- 2) Measure resistance of harness between ECM connector and chassis ground.

Connector & terminal

(B134) No. 34 — Chassis ground:



B2M2709A

- CHECK** : *Is the resistance less than 5 Ω?*
- YES** : Go to step 10S4.
- NO** : Repair harness and connector.

NOTE:

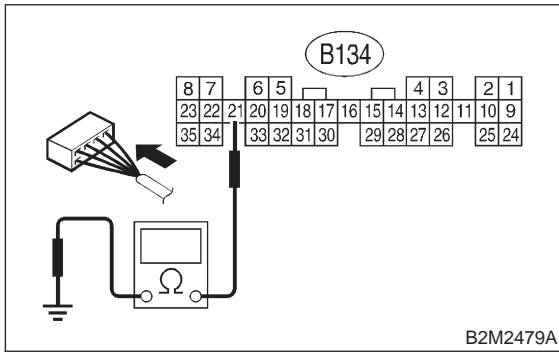
In this case, repair the following:

- Open circuit in harness between ECM and engine ground terminal
- Poor contact in ECM connector
- Poor contact in coupling connector (B22)

10S4 : CHECK HARNESS BETWEEN ECM AND REAR OXYGEN SENSOR CONNECTOR.

Measure resistance of harness between ECM connector and chassis ground.

Connector & terminal
(B134) No. 21 — Chassis ground:

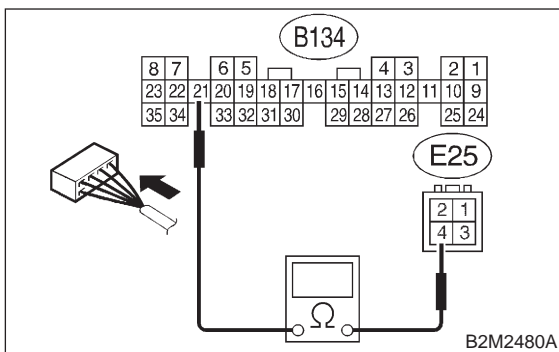


- CHECK** : **Is the resistance less than 10 Ω?**
- YES** : Repair ground short circuit in harness between ECM and rear oxygen sensor connector.
- NO** : Go to step 10S5.

10S5 : CHECK HARNESS BETWEEN ECM AND REAR OXYGEN SENSOR CONNECTOR.

- 1) Disconnect connector from rear oxygen sensor.
- 2) Measure resistance of harness between ECM and rear oxygen sensor connector.

Connector & terminal
(B134) No. 21 — (E25) No. 4:

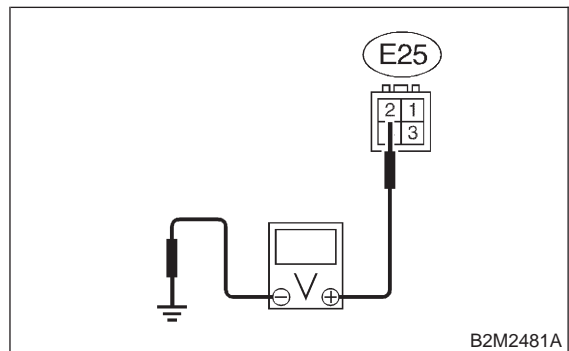


- CHECK** : **Is the resistance less than 3 Ω?**
- YES** : Go to step 10S6.
- NO** : Repair open circuit in harness between ECM and rear oxygen sensor connector.

10S6 : CHECK POWER SUPPLY TO REAR OXYGEN SENSOR.

- 1) Connect connector to ECM.
- 2) Turn ignition switch to ON.
- 3) Measure voltage between rear oxygen sensor connector and engine ground or chassis ground.

Connector & terminal
(E25) No. 2 (+) — Engine ground (-):



- CHECK** : **Is the voltage more than 10 V?**
- YES** : Go to step 10S7.
- NO** : Repair power supply line.

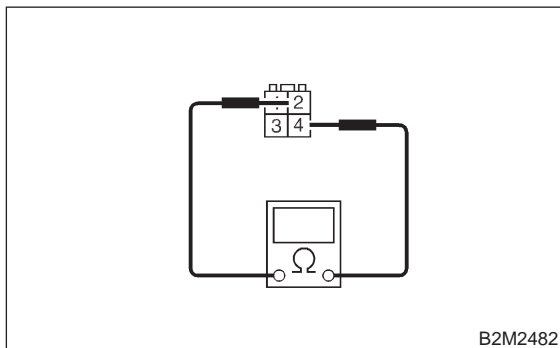
NOTE:

In this case, repair the following:

- Open circuit in harness between main relay and rear oxygen sensor connector
- Poor contact in rear oxygen sensor connector
- Poor contact in coupling connector (E1)

10S7 : CHECK REAR OXYGEN SENSOR.

- 1) Turn ignition switch to OFF.
- 2) Measure resistance between rear oxygen sensor connector terminals.

Terminals**No. 2 — No. 4:****CHECK** : *Is the resistance less than 30 Ω ?***YES** : Repair harness and connector.**NOTE:**

In this case, repair the following:

- Open circuit in harness between rear oxygen sensor and ECM connector
- Poor contact in rear oxygen sensor connector
- Poor contact in ECM connector
- Poor contact in coupling connector (E1)

NO : Replace rear oxygen sensor. <Ref. to 2-7 [W8A0].>

T: DTC P0171 — FUEL TRIM MALFUNCTION (A/F TOO LEAN) —**NOTE:**

For the diagnostic procedure, refer to 2-7 [T10U0]. <Ref. to 2-7 [T10U0].>

U: DTC P0172 — FUEL TRIM MALFUNCTION (A/F TOO RICH) —**• DTC DETECTING CONDITION:**

- Two consecutive driving cycles with fault

• TROUBLE SYMPTOM:

- Erroneous idling
- Engine stalls.
- Poor driving performance

CAUTION:

After repair or replacement of faulty parts, conduct **CLEAR MEMORY MODE** <Ref. to 2-7 [T3D0].> and **INSPECTION MODE** <Ref. to 2-7 [T3E0].>.

10U1 : CHECK EXHAUST SYSTEM.

CHECK : *Are there holes or loose bolts on exhaust system?*

YES : Repair exhaust system.

NO : Go to step 10U2.

10U2 : CHECK AIR INTAKE SYSTEM.

CHECK : *Are there holes, loose bolts or disconnection of hose on air intake system?*

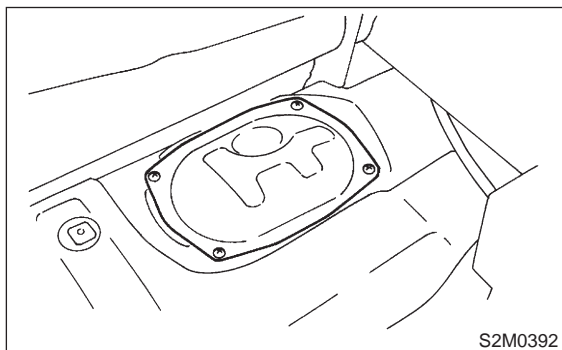
YES : Repair air intake system.

NO : Go to step 10U3.

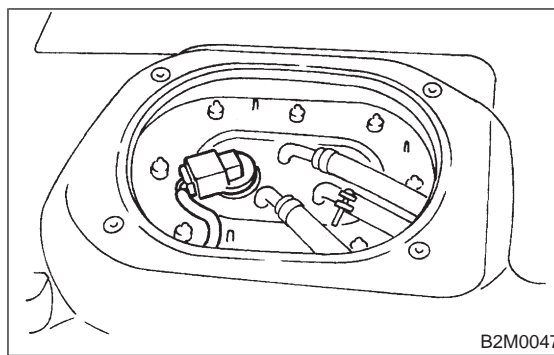
10U3 : CHECK FUEL PRESSURE.

1) Release fuel pressure.

(1) Remove fuel pump access hole lid located on the right rear of trunk compartment floor (Sedan) or luggage compartment floor (Wagon).



2) Disconnect connector from fuel tank.



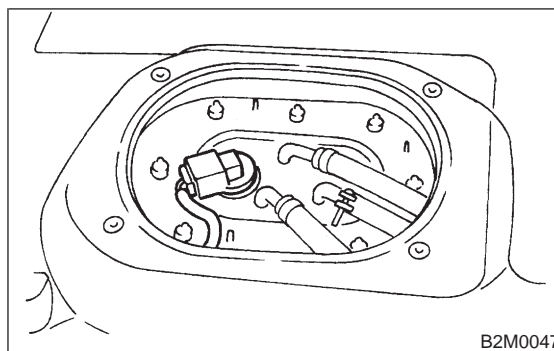
(3) Start the engine, and run it until it stalls.

(4) After stopping the engine, crank the engine for 5 to 7 seconds to reduce fuel pressure.

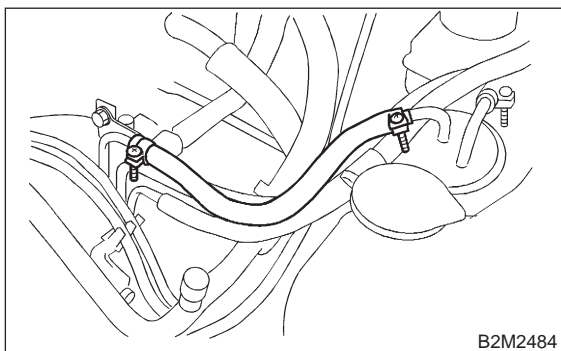
(5) Turn ignition switch to OFF.

(6) Remove fuel filler cap.

2) Connect connector to fuel tank.



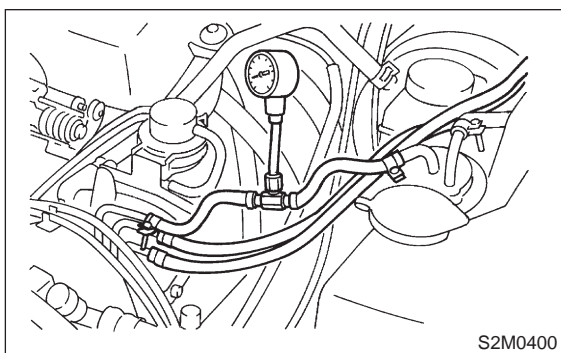
3) Disconnect fuel delivery hose from fuel filter, and connect fuel pressure gauge.



4) Install fuel filler cap.
 5) Start the engine and idle while gear position is neutral.
 6) Measure fuel pressure while disconnecting pressure regulator vacuum hose from intake manifold.

WARNING:
 Before removing fuel pressure gauge, release fuel pressure.

NOTE:
 If fuel pressure does not increase, squeeze fuel return hose 2 to 3 times, then measure fuel pressure again.



CHECK : *Is fuel pressure between 284 and 314 kPa (2.9 — 3.2 kg/cm², 41 — 46 psi)?*

YES : Go to step 10U4.

NO : Repair the following items.

Fuel pressure too high	<ul style="list-style-type: none"> ● Clogged fuel return line or bent hose
Fuel pressure too low	<ul style="list-style-type: none"> ● Improper fuel pump discharge ● Clogged fuel supply line

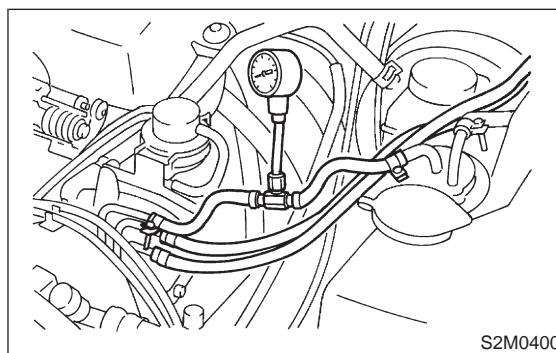
10U4 : CHECK FUEL PRESSURE.

After connecting pressure regulator vacuum hose, measure fuel pressure.

WARNING:
 Before removing fuel pressure gauge, release fuel pressure.

NOTE:

- If fuel pressure does not increase, squeeze fuel return hose 2 to 3 times, then measure fuel pressure again.
- If out of specification as measured at this step, check or replace pressure regulator and pressure regulator vacuum hose.



CHECK : *Is fuel pressure between 206 and 235 kPa (2.1 — 2.4 kg/cm², 30 — 34 psi)?*

YES : Go to step 10U5.

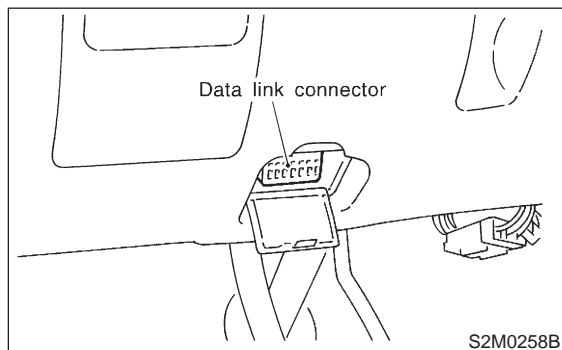
NO : Repair the following items.

Fuel pressure too high	<ul style="list-style-type: none"> ● Faulty pressure regulator ● Clogged fuel return line or bent hose
Fuel pressure too low	<ul style="list-style-type: none"> ● Faulty pressure regulator ● Improper fuel pump discharge ● Clogged fuel supply line

NOTE:
 The fuel pressure gauge registers 10 to 20 kPa (0.1 to 0.2 kg/cm², 1.4 to 2.8 psi) higher than standard values during high-altitude operations.

10U5 : CHECK ENGINE COOLANT TEMPERATURE SENSOR. < REF. TO 2-7 [T10H0].> OR <REF. TO 2-7 [T10I0].>

- 1) Turn ignition switch to OFF.
- 2) Connect the Subaru Select Monitor or the OBD-II general scan tool to data link connector.



- 3) Start the engine and warm-up completely.
- 4) Read data of engine coolant temperature sensor signal using Subaru Select Monitor or OBD-II general scan tool.

NOTE:

- Subaru Select Monitor

For detailed operation procedure, refer to the "READ CURRENT DATA SHOWN ON DISPLAY FOR ENGINE". <Ref. to 2-7 [T3C4].>

- OBD-II general scan tool

For detailed operation procedures, refer to the OBD-II General Scan Tool Instruction Manual.

CHECK : **Is temperature greater than 60°C (140°F)?**

YES : Go to step **10U6**.

NO : Replace engine coolant temperature sensor. <Ref. to 2-7 [W5A1].>

10U6 : CHECK INTAKE MANIFOLD PRESSURE SENSOR.

- 1) Start the engine and warm-up engine until coolant temperature is greater than 60°C (140°F).
- 2) Place the shift lever in neutral position (MT vehicles) or the selector lever in "N" or "P" position (AT vehicles).
- 3) Turn A/C switch to OFF.
- 4) Turn all accessory switches to OFF.
- 5) Read data of intake manifold pressure sensor signal using Subaru Select Monitor or OBD-II general scan tool.

NOTE:

- Subaru Select Monitor

For detailed operation procedure, refer to the "READ CURRENT DATA SHOWN ON DISPLAY FOR ENGINE". <Ref. to 2-7 [T3C4].>

- OBD-II general scan tool

For detailed operation procedure, refer to the OBD-II General Scan Tool Instruction Manual.

Specification:

- Intake manifold absolute pressure

Engine speed	Specified value
Idling	20.0 — 46.7 kPa (150 — 350 mmHg, 5.91 — 13.78 inHg)
2,500 rpm	20.0 — 46.7 kPa (150 — 350 mmHg, 5.91 — 13.78 inHg)

CHECK : **Is the value within the specifications?**

YES : Go to step **10U7**.

NO : Replace intake manifold pressure sensor. <Ref. to 2-7 [W20A0].>

10U7 : CHECK INTAKE AIR TEMPERATURE SENSOR.

- 1) Start the engine and warm-up engine until coolant temperature is greater than 60°C (140°F).
- 2) Place the shift lever in neutral position (MT vehicles) or the selector lever in "N" or "P" position (AT vehicles).
- 3) Turn A/C switch to OFF.
- 4) Turn all accessory switches to OFF.
- 5) Open front hood.
- 6) Measure ambient temperature.
- 7) Read data of intake manifold pressure sensor signal using Subaru Select Monitor or OBD-II general scan tool.

NOTE:

- Subaru Select Monitor

For detailed operation procedure, refer to the "READ CURRENT DATA SHOWN ON DISPLAY FOR ENGINE". <Ref. to 2-7 [T3C4].>

- OBD-II general scan tool

For detailed operation procedure, refer to the OBD-II General Scan Tool Instruction Manual.

CHECK : ***Is value obtained when ambient temperature is subtracted from intake air temperature greater than -10°C (14°F) and less than 50°C (122°F)?***

YES : Contact with SOA service.

NOTE:

Inspection by DTM is required, because probable cause is deterioration of multiple parts.

NO : Check intake air temperature sensor.
<Ref. to 2-7 [T10E0].>

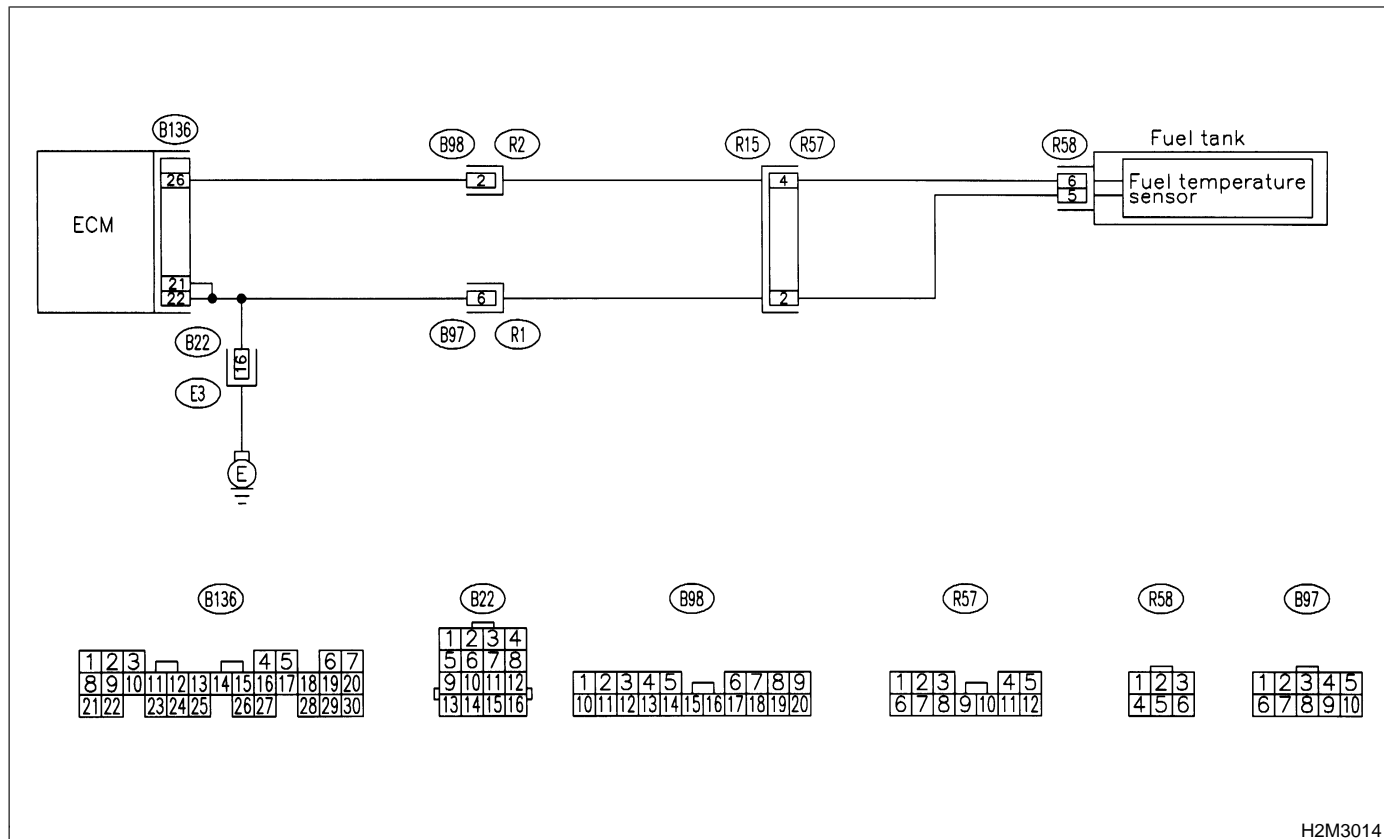
V: DTC P0181 — FUEL TEMPERATURE SENSOR A CIRCUIT RANGE/PERFORMANCE PROBLEM —

- **DTC DETECTING CONDITION:**
 - Two consecutive driving cycles with fault

CAUTION:

After repair or replacement of faulty parts, conduct **CLEAR MEMORY MODE** <Ref. to 2-7 [T3D0].> and **INSPECTION MODE** <Ref. to 2-7 [T3E0].>

● **WIRING DIAGRAM:**



10V1 : CHECK ANY OTHER DTC ON DISPLAY.

- CHECK** : *Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0182 or P0183?*
- YES** : Inspect DTC P0182 or P0183 using "10. Diagnostics Chart with Trouble Code for 2200 cc California Spec. Vehicles". <Ref. to 2-7 [T10A0].>

NOTE:

In this case, it is not necessary to inspect DTC P0181.

- NO** : Replace fuel temperature sensor. <Ref. to 2-1 [W5A0].>

MEMO:

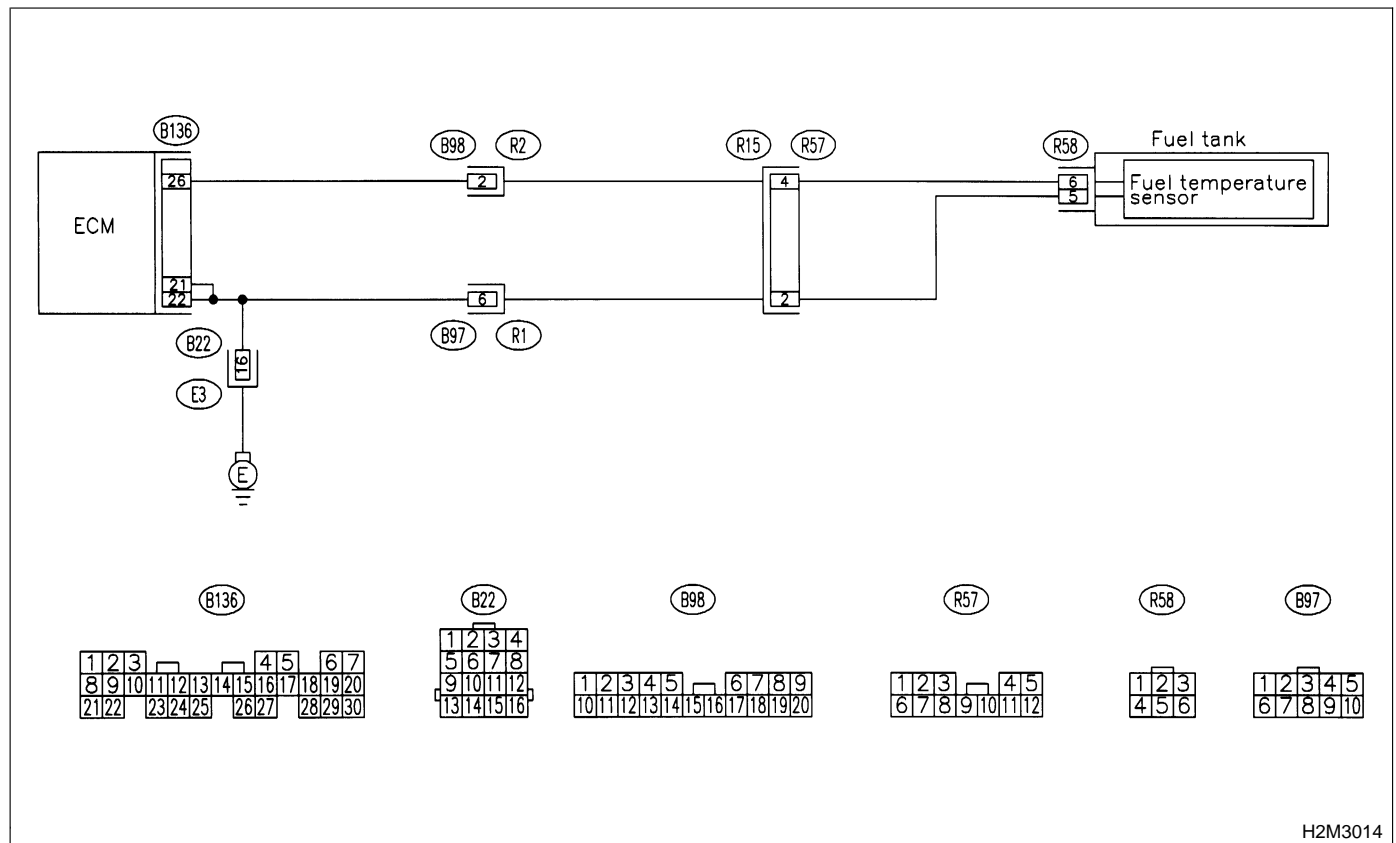
W: DTC P0182 — FUEL TEMPERATURE SENSOR A CIRCUIT LOW INPUT —

- **DTC DETECTING CONDITION:**
 - Immediately at fault recognition

CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to 2-7 [T3D0].> and INSPECTION MODE <Ref. to 2-7 [T3E0].>

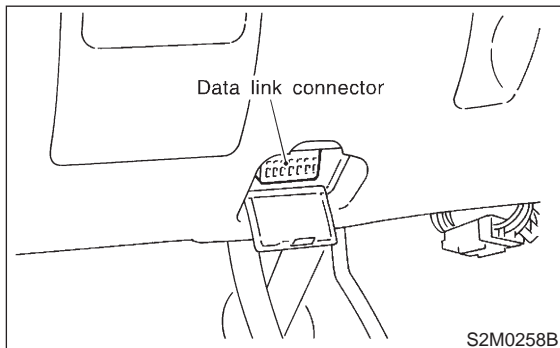
● **WIRING DIAGRAM:**



H2M3014

10W1 : CONNECT SUBARU SELECT MONITOR OR THE OBD-II GENERAL SCAN TOOL, AND READ DATA.

- 1) Turn ignition switch to OFF.
- 2) Connect Subaru Select Monitor or the OBD-II general scan tool to data link connector.



- 3) Turn ignition switch to ON and Subaru Select Monitor or OBD-II general scan tool switch to ON.
- 4) Start engine.
- 5) Read data of fuel temperature sensor signal using Subaru Select Monitor or OBD-II general scan tool.

NOTE:

- Subaru Select Monitor

For detailed operation procedure, refer to the "READ CURRENT DATA SHOWN ON DISPLAY FOR ENGINE". <Ref. to 2-7 [T3C4].>

- OBD-II general scan tool

For detailed operation procedures, refer to the OBD-II General Scan Tool Instruction Manual.

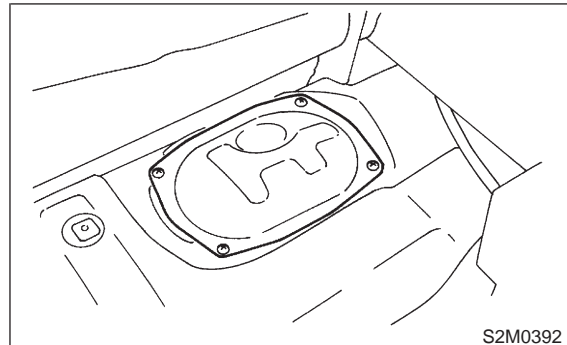
CHECK : *Is the value greater than 150°C (300°F)?*

YES : Go to step 10W2.

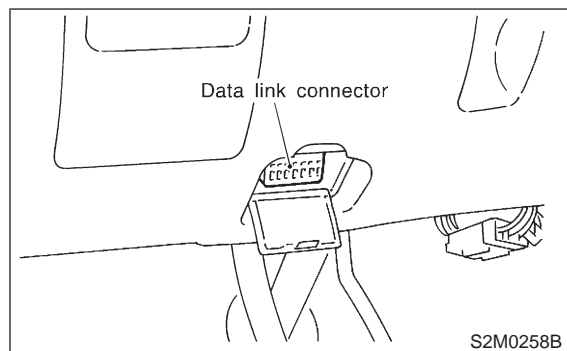
NO : Even if MIL lights up, the circuit has returned to a normal condition at this time.

10W2 : CHECK HARNESS BETWEEN FUEL TEMPERATURE SENSOR AND ECM CONNECTOR.

- 1) Turn ignition switch to OFF.
- 2) Remove access hole lid.



- 3) Disconnect connector from fuel pump.
- 4) Connect Subaru Select Monitor or the OBD-II general scan tool to data link connector.



- 5) Turn ignition switch and Subaru Select Monitor or OBD-II general scan tool switch to ON.
- 6) Read data of fuel temperature sensor signal using Subaru Select Monitor or the OBD-II general scan tool.

NOTE:

- Subaru Select Monitor

For detailed operation procedure, refer to the "READ CURRENT DATA SHOWN ON DISPLAY FOR ENGINE". <Ref. to 2-7 [T3C4].>

- OBD-II general scan tool

For detailed operation procedures, refer to the OBD-II General Scan Tool Instruction Manual.

CHECK : *Is the value less than -40°C (-40°F)?*

YES : Replace fuel temperature sensor. <Ref. to 2-1 [W5A0].>

NO : Repair ground short circuit in harness between fuel pump and ECM connector.

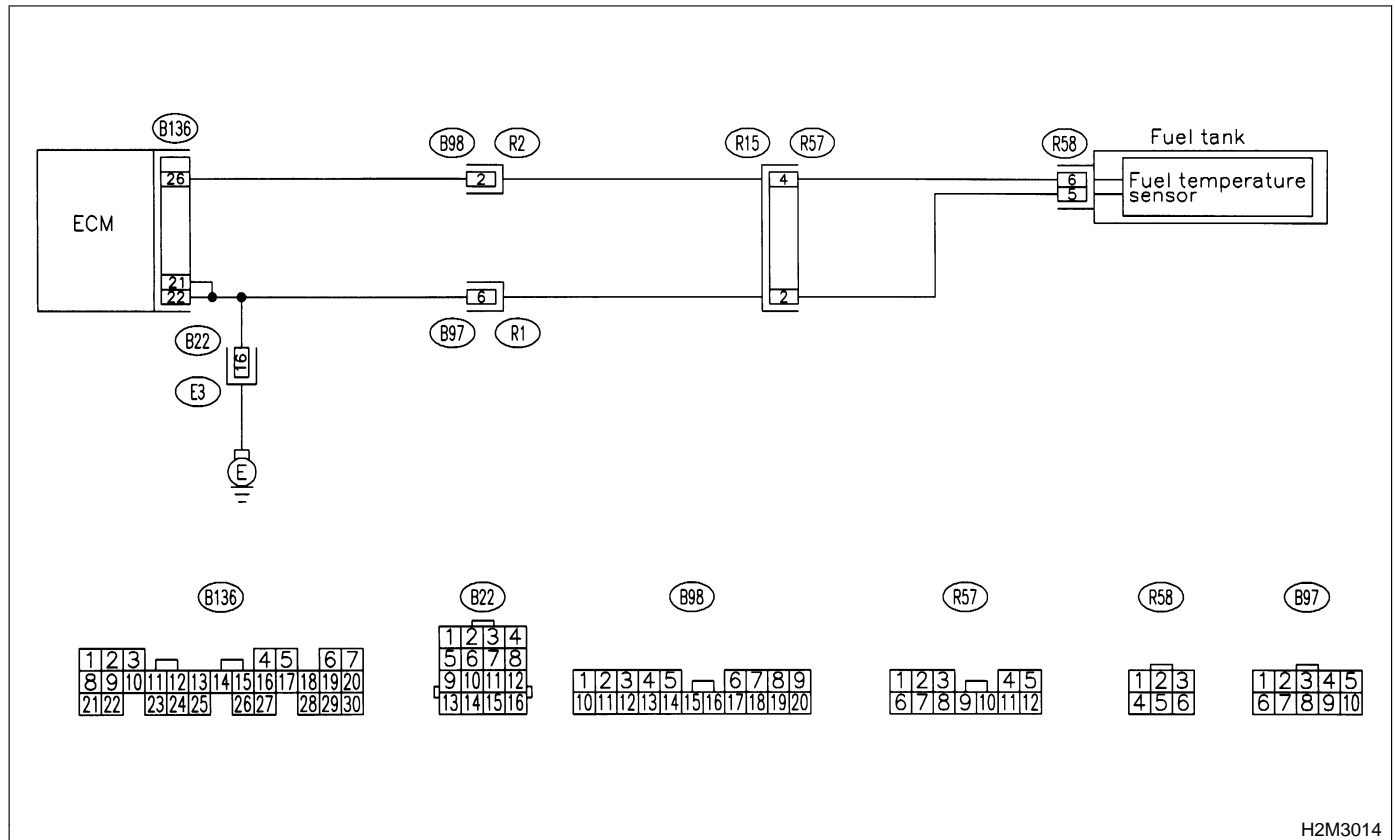
X: DTC P0183 — FUEL TEMPERATURE SENSOR A CIRCUIT HIGH INPUT —

- **DTC DETECTING CONDITION:**
 - Immediately at fault recognition

CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to 2-7 [T3D0].> and INSPECTION MODE <Ref. to 2-7 [T3E0].>

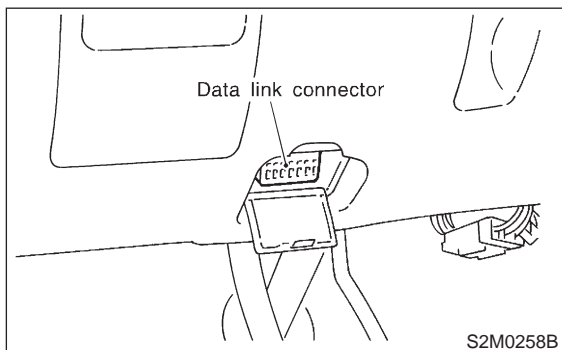
● **WIRING DIAGRAM:**



H2M3014

10X1 : CONNECT SUBARU SELECT MONITOR OR THE OBD-II GENERAL SCAN TOOL, AND READ DATA.

- 1) Turn ignition switch to OFF.
- 2) Connect Subaru Select Monitor or the OBD-II general scan tool to data link connector.



- 3) Turn ignition switch to ON and Subaru Select Monitor or OBD-II general scan tool switch to ON.
- 4) Start engine.
- 5) Read data of fuel temperature sensor signal using Subaru Select Monitor or OBD-II general scan tool.

NOTE:

- Subaru Select Monitor
For detailed operation procedure, refer to the "READ CURRENT DATA SHOWN ON DISPLAY FOR ENGINE". <Ref. to 2-7 [T3C4].>
- OBD-II general scan tool
For detailed operation procedures, refer to the OBD-II General Scan Tool Instruction Manual.

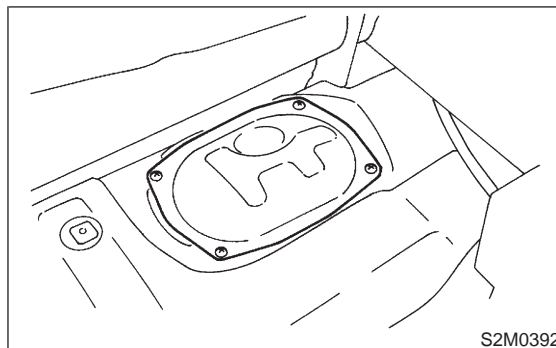
- CHECK** : *Is the value less than -40°C (-40°F)?*
- YES** : Go to step **10X2**.
- NO** : Repair poor contact.

NOTE:

- In this case, repair the following:
- Poor contact in fuel pump connector
 - Poor contact in ECM connector
 - Poor contact in coupling connectors (B22), (B98), (B97) and (R57)

10X2 : CHECK HARNESS BETWEEN FUEL TEMPERATURE SENSOR AND ECM CONNECTOR.

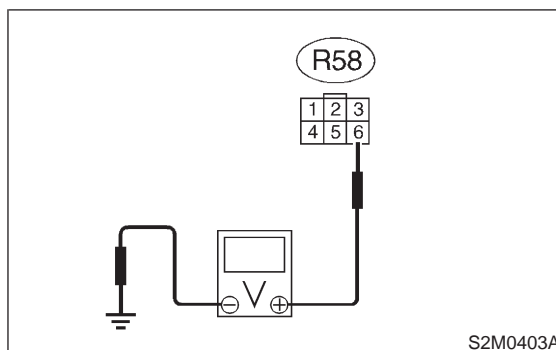
- 1) Turn ignition switch to OFF.
- 2) Remove access hole lid.



- 3) Disconnect connector from fuel pump.
- 4) Measure voltage between fuel pump connector and chassis ground.

Connector & terminal

(R58) No. 6 (+) — Chassis ground (-):



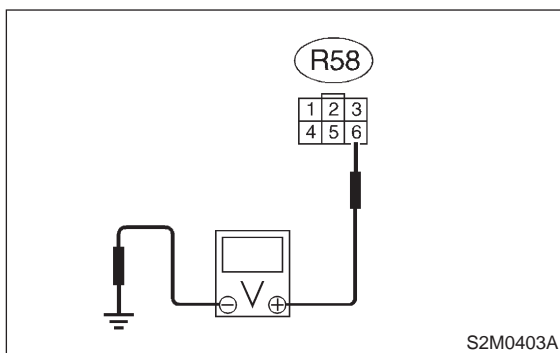
- CHECK** : *Is the voltage more than 10 V?*
- YES** : Repair battery short circuit in harness between ECM and fuel pump connector.
- NO** : Go to step **10X3**.

10X3 : CHECK HARNESS BETWEEN FUEL TEMPERATURE SENSOR AND ECM CONNECTOR.

- 1) Turn ignition switch to ON.
- 2) Measure voltage between fuel pump connector and chassis ground.

Connector & terminal

(R58) No. 6 (+) — Chassis ground (-):



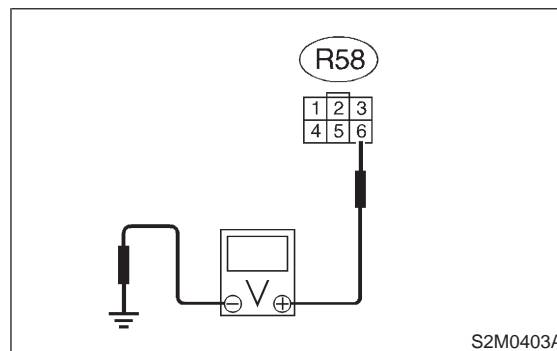
- CHECK** : **Is the voltage more than 10 V?**
- YES** : Repair battery short circuit in harness between ECM and fuel pump connector.
- NO** : Go to step **10X4**.

10X4 : CHECK HARNESS BETWEEN FUEL TEMPERATURE SENSOR AND ECM CONNECTOR.

Measure voltage between fuel pump connector and chassis ground.

Connector & terminal

(R58) No. 6 (+) — Chassis ground (-):



- CHECK** : **Is the voltage more than 4 V?**
- YES** : Go to step **10X5**.
- NO** : Repair harness and connector.

NOTE:

In this case, repair the following:

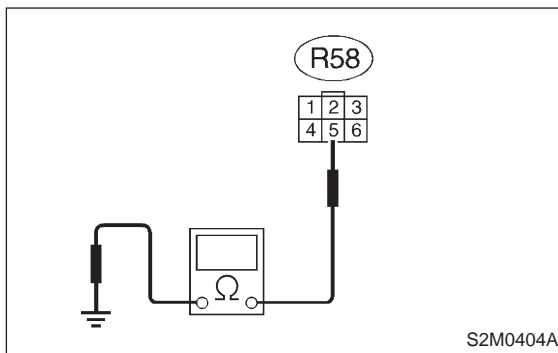
- Open circuit in harness between ECM and fuel pump connector
- Poor contact in fuel pump connector
- Poor contact in ECM connector
- Poor contact in coupling connectors (B98) and (R57)

10X5 : CHECK HARNESS BETWEEN FUEL TEMPERATURE SENSOR AND ECM CONNECTOR.

- 1) Turn ignition switch to OFF.
- 2) Measure resistance of harness between fuel pump connector and chassis ground.

Connector & terminal

(R58) No. 5 — Chassis ground:



CHECK : **Is the resistance less than 5 Ω?**

YES : Replace fuel temperature sensor. <Ref. to 2-1 [W5A0].>

NO : Repair harness and connector.

NOTE:

In this case, repair the following:

- Open circuit in harness between ECM and fuel pump connector
- Poor contact in fuel pump connector
- Poor contact in ECM connector
- Poor contact in coupling connectors (B22), (B98), (B97) and (R57)

Y: DTC P0301 — CYLINDER 1 MISFIRE DETECTED —

NOTE:

For the diagnostic procedure, refer to 2-7 [T10AB1]. <Ref. to 2-7 [T10AB1].>

Z: DTC P0302 — CYLINDER 2 MISFIRE DETECTED —

NOTE:

For the diagnostic procedure, refer to 2-7 [T10AB1]. <Ref. to 2-7 [T10AB1].>

AA: DTC P0303 — CYLINDER 3 MISFIRE DETECTED —

NOTE:

For the diagnostic procedure, refer to 2-7 [T10AB1]. <Ref. to 2-7 [T10AB1].>

AB: DTC P0304 — CYLINDER 4 MISFIRE DETECTED —

• DTC DETECTING CONDITION:

- Two consecutive driving cycles with fault
- Immediately at fault recognition (A misfire which could damage catalyst occurs.)

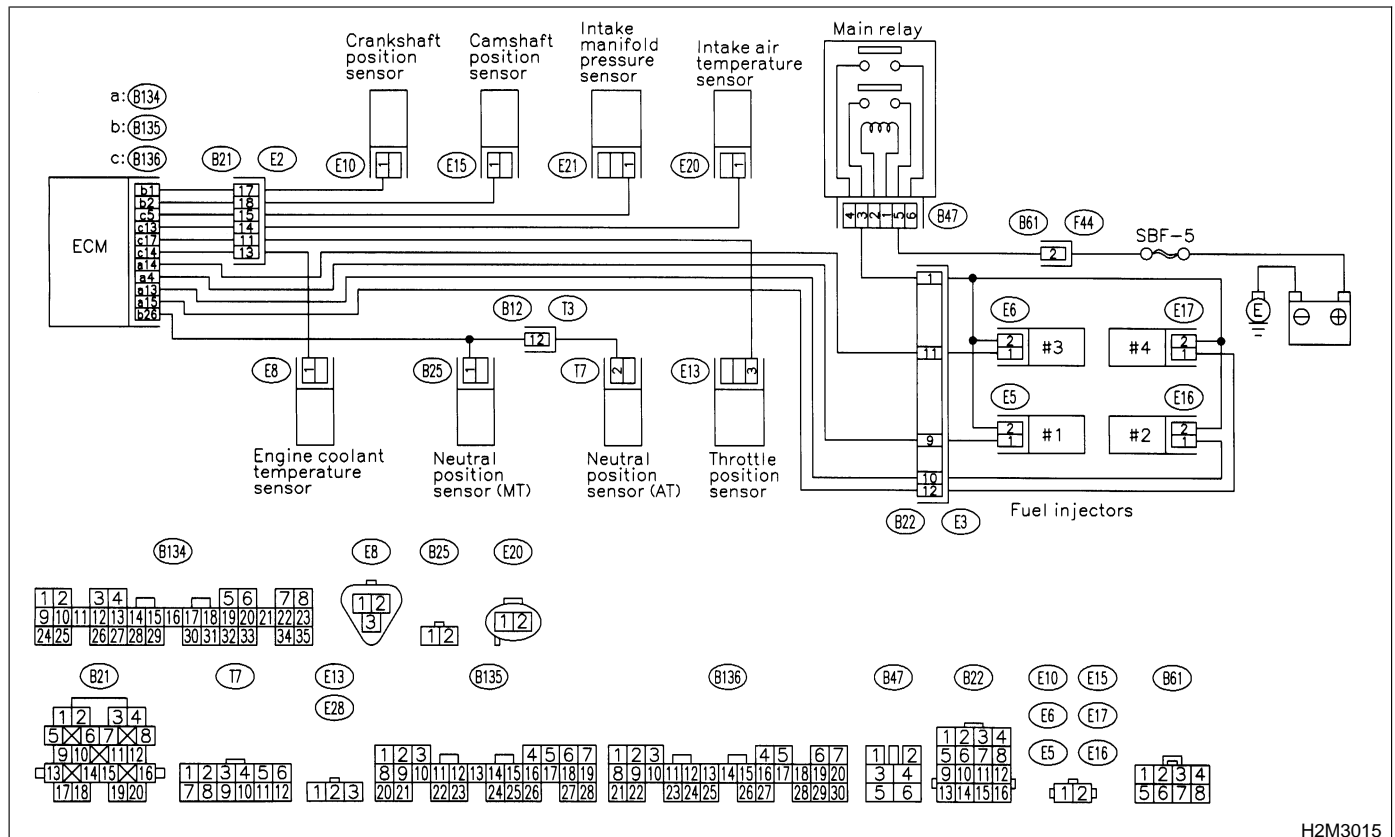
• TROUBLE SYMPTOM:

- Engine stalls.
- Erroneous idling
- Rough driving

CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to 2-7 [T3D0].> and INSPECTION MODE <Ref. to 2-7 [T3E0].>

• WIRING DIAGRAM:



H2M3015

10AB1 : CHECK ANY OTHER DTC ON DISPLAY.

CHECK : Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0106, P0107, P0108, P0116, P0117 or P0125?

YES : Inspect DTC P0106, P0107, P0108, P0116, P0117 or P0125 using "10. Diagnostics Chart with Trouble Code for 2200 cc California Spec. Vehicles". <Ref. to 2-7 [T10A0].>

NOTE:

In this case, it is not necessary to inspect DTC P0301, P0302, P0303 and P0304.

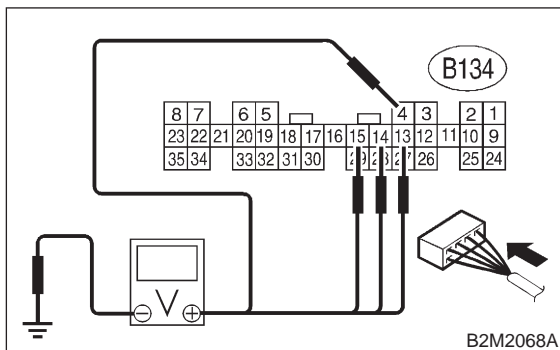
NO : Go to step 10AB2.

10AB2 : CHECK OUTPUT SIGNAL FROM ECM.

- 1) Turn ignition switch to ON.
- 2) Measure voltage between ECM connector and chassis ground on faulty cylinders.

Connector & terminal

- #1 (B134) No. 4 (+) — Chassis ground (-):
- #2 (B134) No. 13 (+) — Chassis ground (-):
- #3 (B134) No. 14 (+) — Chassis ground (-):
- #4 (B134) No. 15 (+) — Chassis ground (-):



CHECK : Is the voltage more than 10 V?

YES : Go to step 10AB7.

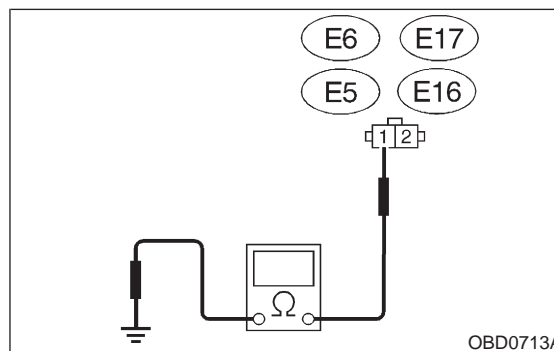
NO : Go to step 10AB3.

10AB3 : CHECK HARNESS BETWEEN FUEL INJECTOR AND ECM CONNECTOR.

- 1) Turn ignition switch to OFF.
- 2) Disconnect connector from fuel injector on faulty cylinders.
- 3) Measure voltage between ECM connector and engine ground on faulty cylinders.

Connector & terminal

- #1 (E5) No. 1 — Engine ground:
- #2 (E16) No. 1 — Engine ground:
- #3 (E6) No. 1 — Engine ground:
- #4 (E17) No. 1 — Engine ground:



CHECK : Is the resistance less than 10 Ω?

YES : Repair ground short circuit in harness between fuel injector and ECM connector.

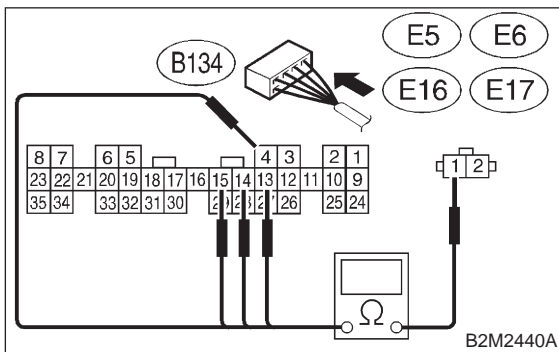
NO : Go to step 10AB4.

10AB4 : CHECK HARNESS BETWEEN FUEL INJECTOR AND ECM CONNECTOR.

Measure resistance of harness connector between ECM connector and fuel injector on faulty cylinders.

Connector & terminal

- #1 (B134) No. 4 — (E5) No. 1:
- #2 (B134) No. 13 — (E16) No. 1:
- #3 (B134) No. 14 — (E6) No. 1:
- #4 (B134) No. 15 — (E17) No. 1:



- CHECK** : Is the resistance less than 1 Ω?
- YES** : Go to step 10AB5.
- NO** : Repair harness and connector.

NOTE:

In this case, repair the following:

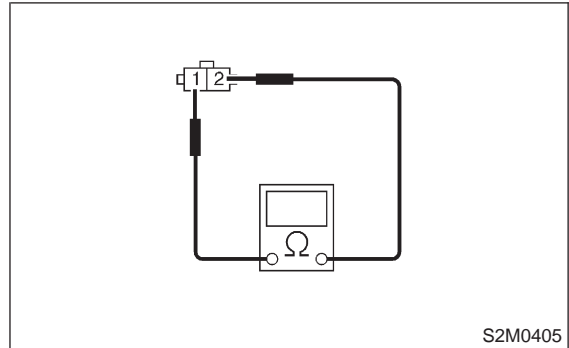
- Open circuit in harness between ECM and fuel injector connector
- Poor contact in coupling connector (B22)

10AB5 : CHECK FUEL INJECTOR.

Measure resistance between fuel injector terminals on faulty cylinder.

Terminals

No. 1 — No. 2:



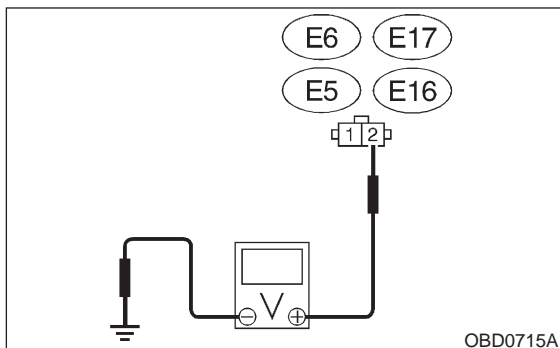
- CHECK** : Is the resistance between 5 and 20 Ω?
- YES** : Go to step 10AB6.
- NO** : Replace faulty fuel injector. <Ref. to 2-7 [W14A0].>

10AB6 : CHECK POWER SUPPLY LINE.

- 1) Turn ignition switch to ON.
- 2) Measure voltage between fuel injector and engine ground on faulty cylinders.

Connector & terminal

- #1 (E5) No. 2 (+) — Engine ground (-):
- #2 (E16) No. 2 (+) — Engine ground (-):
- #3 (E6) No. 2 (+) — Engine ground (-):
- #4 (E17) No. 2 (+) — Engine ground (-):



- CHECK** : *Is the voltage more than 10 V?*
- YES** : Repair poor contact in all connectors in fuel injector circuit.
- NO** : Repair harness and connector.

NOTE:

In this case, repair the following:

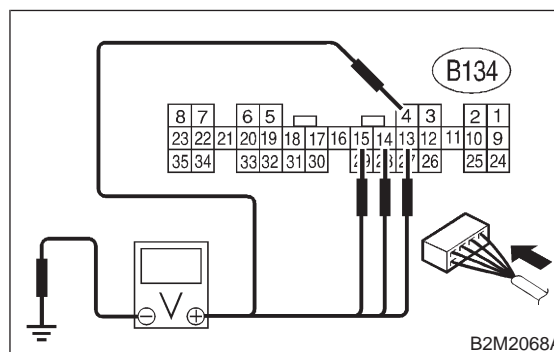
- Open circuit in harness between main relay and fuel injector connector on faulty cylinders
- Poor contact in coupling connector (B22)
- Poor contact in main relay connector
- Poor contact in fuel injector connector on faulty cylinders

10AB7 : CHECK HARNESS BETWEEN FUEL INJECTOR AND ECM CONNECTOR.

- 1) Turn ignition switch to OFF.
- 2) Disconnect connector from fuel injector on faulty cylinder.
- 3) Turn ignition switch to ON.
- 4) Measure voltage between ECM connector and chassis ground on faulty cylinders.

Connector & terminal

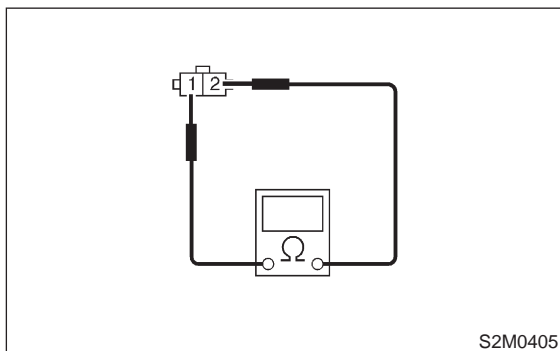
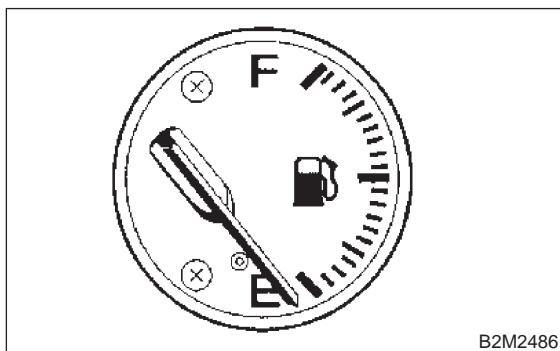
- #1 (B134) No. 4 (+) — Chassis ground (-):
- #2 (B134) No. 13 (+) — Chassis ground (-):
- #3 (B134) No. 14 (+) — Chassis ground (-):
- #4 (B134) No. 15 (+) — Chassis ground (-):



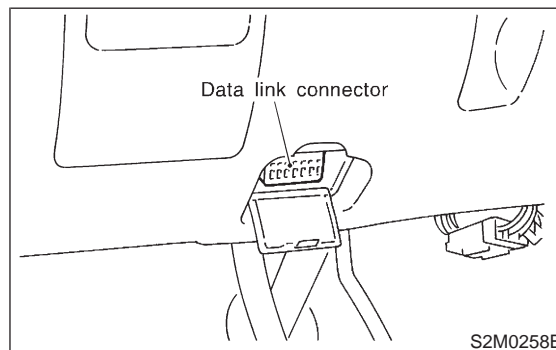
- CHECK** : *Is the voltage more than 10 V?*
- YES** : Repair battery short circuit in harness between ECM and fuel injector. After repair, replace ECM. <Ref. to 2-7 [W15A0].>
- NO** : Go to step **10AB8**.

10AB8 : CHECK FUEL INJECTOR.

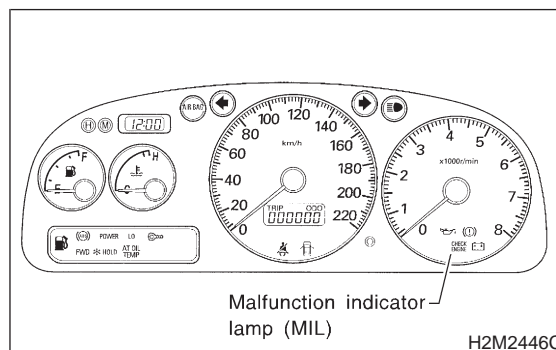
- 1) Turn ignition switch to OFF.
- 2) Measure resistance between fuel injector terminals on faulty cylinder.

Terminals**No. 1 — No. 2:****CHECK** : **Is the resistance less than 1 Ω?****YES** : Replace faulty fuel injector <Ref. to 2-7 [W14A1].> and ECM <Ref. to 2-7 [W15A0].>.**NO** : Go to step **10AB9**.**10AB9 : CHECK FUEL LEVEL.****CHECK** : **Is the fuel meter indication higher than the “Lower” level?****YES** : Go to step **10AB10**.**NO** : Replenish fuel so fuel meter indication is higher than the “Lower” level. After replenishing fuel, Go to step **10AB10**. <Ref. to 2-7 [T10AB10].>**10AB10 : CHECK STATUS OF CHECK ENGINE MALFUNCTION INDICATOR LAMP (MIL).**

- 1) Turn ignition switch to OFF.
- 2) Connect Subaru Select Monitor to the data link connector.



- 3) Clear memory using Subaru Select Monitor. <Ref. to 2-7 [T3D0].>
- 4) Start engine, and drive the vehicle more than 10 minutes.

**CHECK** : **Is the MIL coming on or blinking?****YES** : Go to step **10AB12**.**NO** : Go to step **10AB11**.

10AB11 : CHECK CAUSE OF MISFIRE DIAGNOSED.

CHECK : *Was the cause of misfire diagnosed when the engine is running?*

YES : Finish diagnostics operation, if the engine has no abnormality.

NOTE:

Ex. Remove spark plug cord, etc.

NO : Repair poor contact.

NOTE:

In this case, repair the following:

- Poor contact in ignitor connector
- Poor contact in ignition coil connector
- Poor contact in fuel injector connector on faulty cylinders
- Poor contact in ECM connector
- Poor contact in coupling connector (B22)

10AB12 : CHECK AIR INTAKE SYSTEM.

CHECK : *Is there a fault in air intake system?*

YES : Repair air intake system.

NOTE:

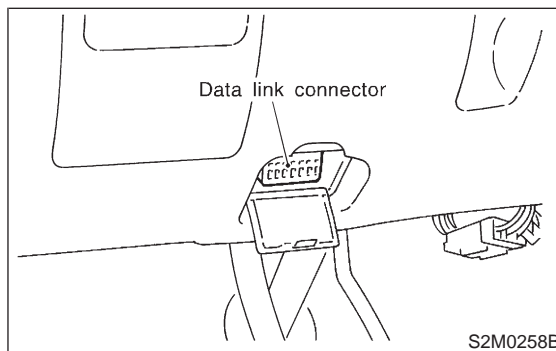
Check the following items:

- Are there air leaks or air suction caused by loose or dislocated nuts and bolts?
- Are there cracks or any disconnection of hoses?

NO : Go to step 10AB13.

10AB13 : CHECK MISFIRE SYMPTOM.

- 1) Turn ignition switch to OFF.
- 2) Connect the Subaru Select Monitor or the OBD-II general scan tool to data link connector.



- 3) Turn ignition switch to ON, and turn Subaru Select Monitor or OBD-II general scan tool switch to ON.
- 4) Read diagnostic trouble code (DTC).

- Subaru Select Monitor <Ref. to 2-7 [T3C2].>
 - OBD-II general scan tool
- For detailed operation procedures, refer to the OBD-II General Scan Tool Operation Manual.

NOTE:

Perform diagnosis according to the items listed below.

CHECK : *Does the Subaru Select Monitor or OBD-II general scan tool indicate only one DTC?*

YES : Go to step 10AB18.

NO : Go to step 10AB14.

10AB14 : CHECK DIAGNOSTIC TROUBLE CODE (DTC) ON DISPLAY.

CHECK : *Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0301 and P0302?*

YES : Go to step 10AB19.

NO : Go to step 10AB15.

10AB15 : CHECK DIAGNOSTIC TROUBLE CODE (DTC) ON DISPLAY.

CHECK : *Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0303 and P0304?*

YES : Go to step 10AB20.

NO : Go to step 10AB16.

10AB16 : CHECK DIAGNOSTIC TROUBLE CODE (DTC) ON DISPLAY.

CHECK : *Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0301 and P0303?*

YES : Go to step 10AB21.

NO : Go to step 10AB17.

10AB17 : CHECK DIAGNOSTIC TROUBLE CODE (DTC) ON DISPLAY.

CHECK : *Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0302 and P0304?*

YES : Go to step 10AB22.

NO : Go to step 10AB23.

10AB18 : ONLY ONE CYLINDER

CHECK : *Is there a fault in that cylinder?*

YES : Repair or replace faulty parts.

NOTE:

Check the following items.

- Spark plug
- Spark plug cord
- Fuel injector
- Compression ratio

NO : Go to DTC P0171 <Ref. to 2-7 [T10T0].> and P0172. <Ref. to 2-7 [T10U0].>

10AB19 : GROUP OF #1 AND #2 CYLINDERS

CHECK : *Are there faults in #1 and #2 cylinders?*

YES : Repair or replace faulty parts.

NOTE:

● Check the following items.

- Spark plugs
- Fuel injectors
- Ignition coil
- Compression ratio

● If no abnormal is discovered, check for "9. D: IGNITION CONTROL SYSTEM" of #1 and #2 cylinders side. <Ref. to 2-7 [T8D0].>

NO : Go to DTC P0171 <Ref. to 2-7 [T10T0].> and P0172. <Ref. to 2-7 [T10U0].>

10AB20 : GROUP OF #3 AND #4 CYLINDERS

CHECK : *Are there faults in #3 and #4 cylinders?*

YES : Repair or replace faulty parts.

NOTE:

● Check the following items.

- Spark plugs
- Fuel injectors
- Ignition coil

● If no abnormal is discovered, check for "9. D: IGNITION CONTROL SYSTEM" of #3 and #4 cylinders side. <Ref. to 2-7 [T8D0].>

NO : Go to DTC P0171 <Ref. to 2-7 [T10T0].> and P0172. <Ref. to 2-7 [T10U0].>

10AB21 : GROUP OF #1 AND #3 CYLINDERS

CHECK : *Are there faults in #1 and #3 cylinders?*

YES : Repair or replace faulty parts.

NOTE:

Check the following items.

- Spark plugs
- Fuel injectors
- Skipping timing belt teeth

NO : Go to DTC P0171 <Ref. to 2-7 [T10T0].> and P0172. <Ref. to 2-7 [T10U0].>

10AB22 : GROUP OF #2 AND #4 CYLINDERS

CHECK : *Are there faults in #2 and #4 cylinders?*

YES : Repair or replace faulty parts.

NOTE:

Check the following items.

- Spark plugs
- Fuel injectors
- Compression ratio
- Skipping timing belt teeth

NO : Go to DTC P0171 <Ref. to 2-7 [T10T0].> and P0172. <Ref. to 2-7 [T10U0].>

10AB23 : CYLINDER AT RANDOM

CHECK : *Is the engine idle rough?*

YES : Go to DTC P0171 <Ref. to 2-7 [T10T0].> and P0172. <Ref. to 2-7 [T10U0].>

NO : Repair or replace faulty parts.

NOTE:

Check the following items.

- Spark plugs
- Fuel injectors
- Compression ratio

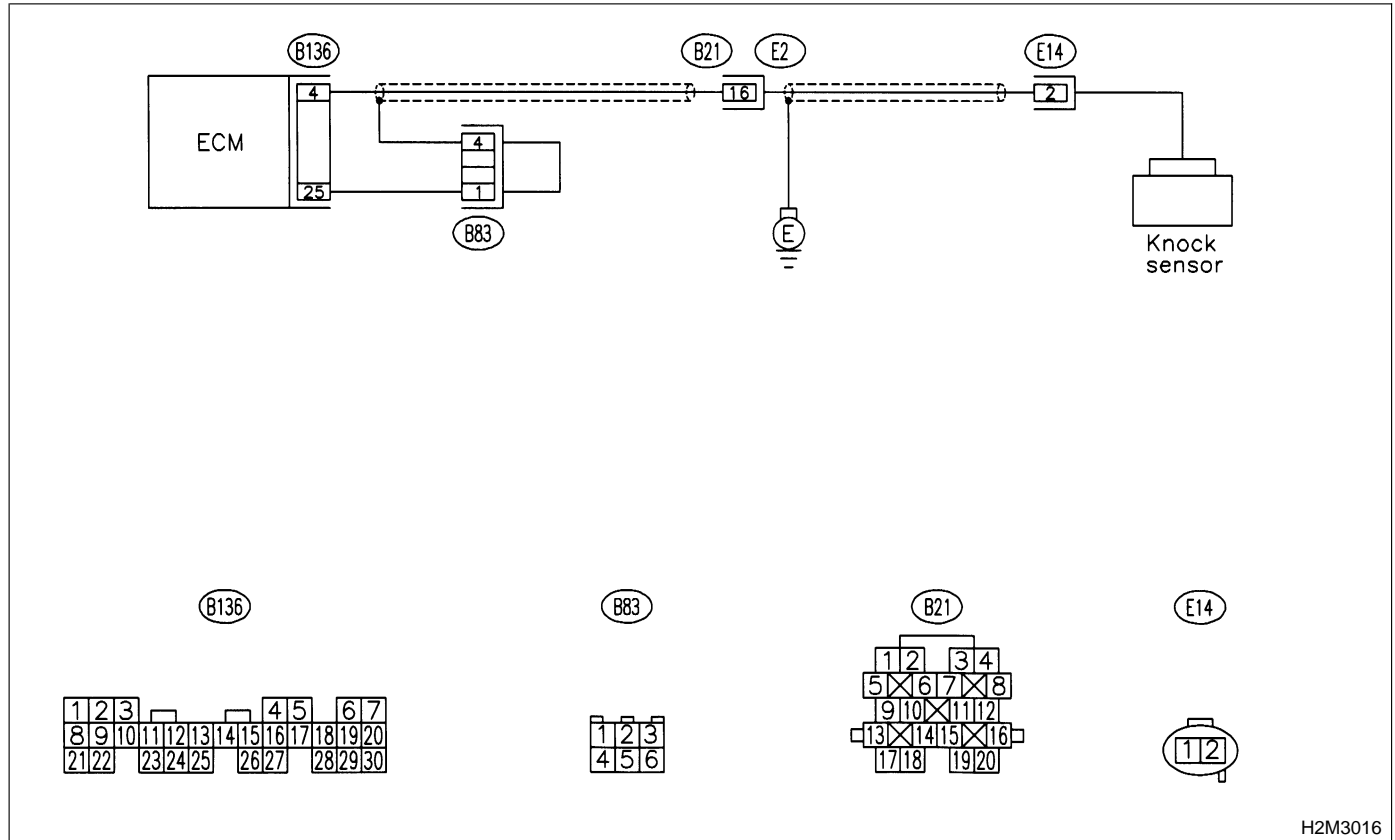
AC: DTC P0325 — KNOCK SENSOR CIRCUIT MALFUNCTION —

- **DTC DETECTING CONDITION:**
 - Immediately at fault recognition
- **TROUBLE SYMPTOM:**
 - Poor driving performance
 - Knocking occurs.

CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to 2-7 [T3D0].> and INSPECTION MODE <Ref. to 2-7 [T3E0].>

● **WIRING DIAGRAM:**

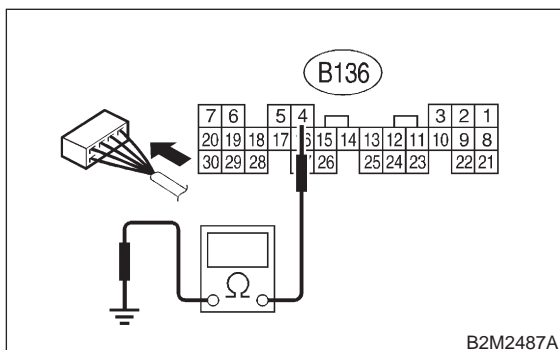


H2M3016

10AC1 : CHECK HARNESS BETWEEN KNOCK SENSOR AND ECM CONNECTOR.

- 1) Turn ignition switch to OFF.
- 2) Disconnect connector from ECM.
- 3) Measure resistance between ECM harness connector and chassis ground.

Connector & terminal
(B136) No. 4 — Chassis ground:

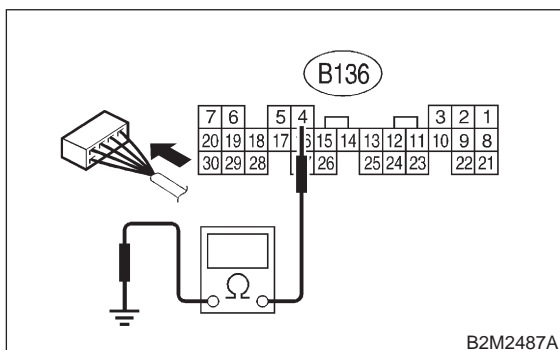


- CHECK** : *Is the resistance more than 700 kΩ?*
YES : Go to step 10AC3.
NO : Go to step 10AC2.

10AC2 : CHECK HARNESS BETWEEN KNOCK SENSOR AND ECM CONNECTOR.

Measure resistance of harness between ECM connector and chassis ground.

Connector & terminal
(B136) No. 4 — Chassis ground:

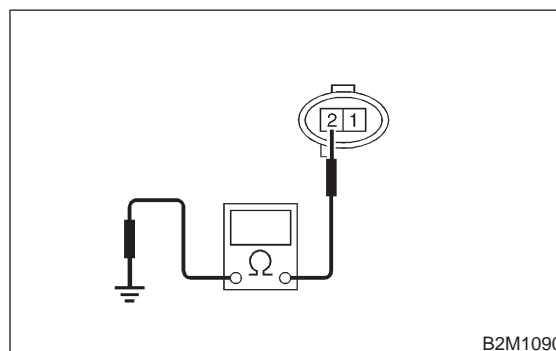


- CHECK** : *Is the resistance less than 400 kΩ?*
YES : Go to step 10AC5.
NO : Go to step 10AC6.

10AC3 : CHECK KNOCK SENSOR.

- 1) Disconnect connector from knock sensor.
- 2) Measure resistance between knock sensor connector terminal and engine ground.

Terminal
No. 2 — Engine ground:



- CHECK** : *Is the resistance more than 700 kΩ?*
YES : Go to step 10AC4.
NO : Repair harness and connector.

NOTE:

In this case, repair the following:

- Open circuit in harness between knock sensor and ECM connector
- Poor contact in knock sensor connector
- Poor contact in coupling connector (B21) and (B83)

10AC4 : CHECK CONDITION OF KNOCK SENSOR INSTALLATION.

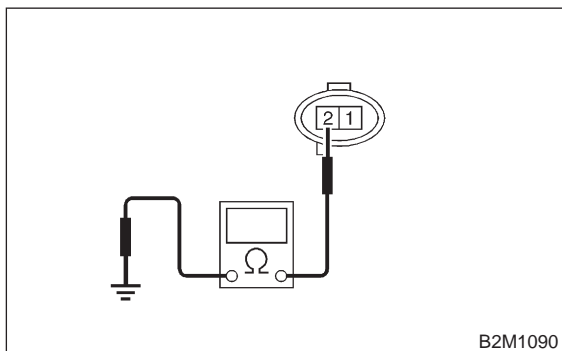
- CHECK** : *Is the knock sensor installation bolt tightened securely?*
YES : Replace knock sensor. <Ref. to 2-7 [W19A0].>
NO : Tighten knock sensor installation bolt securely.

10AC5 : CHECK KNOCK SENSOR.

- 1) Disconnect connector from knock sensor.
- 2) Measure resistance between knock sensor connector terminal and engine ground.

Terminal

No. 2 — Engine ground:



- CHECK** : **Is the resistance less than 400 kΩ?**
- YES** : Replace knock sensor. <Ref. to 2-7 [W19A0].>
- NO** : Repair ground short circuit in harness between knock sensor connector and ECM connector.

NOTE:

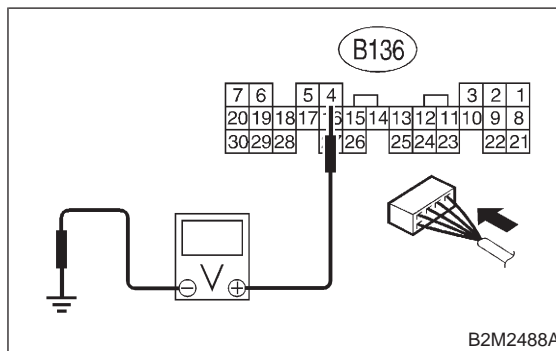
The harness between both connectors is shielded. Repair short circuit of harness together with shield.

10AC6 : CHECK INPUT SIGNAL FOR ECM.

- 1) Connect connectors to ECM and knock sensor.
- 2) Turn ignition switch to ON.
- 3) Measure voltage between ECM and chassis ground.

Connector & terminal

(B136) No. 4 (+) — Chassis ground (-):



- CHECK** : **Is the voltage more than 2 V?**
- YES** : Even if MIL lights up, the circuit has returned to a normal condition at this time. (However, the possibility of poor contact still remains.)

NOTE:

In this case, repair the following:

- Poor contact in knock sensor connector
- Poor contact in ECM connector
- Poor contact in coupling connector (B21) and (B83)
- NO** : Repair poor contact in ECM connector.

MEMO:

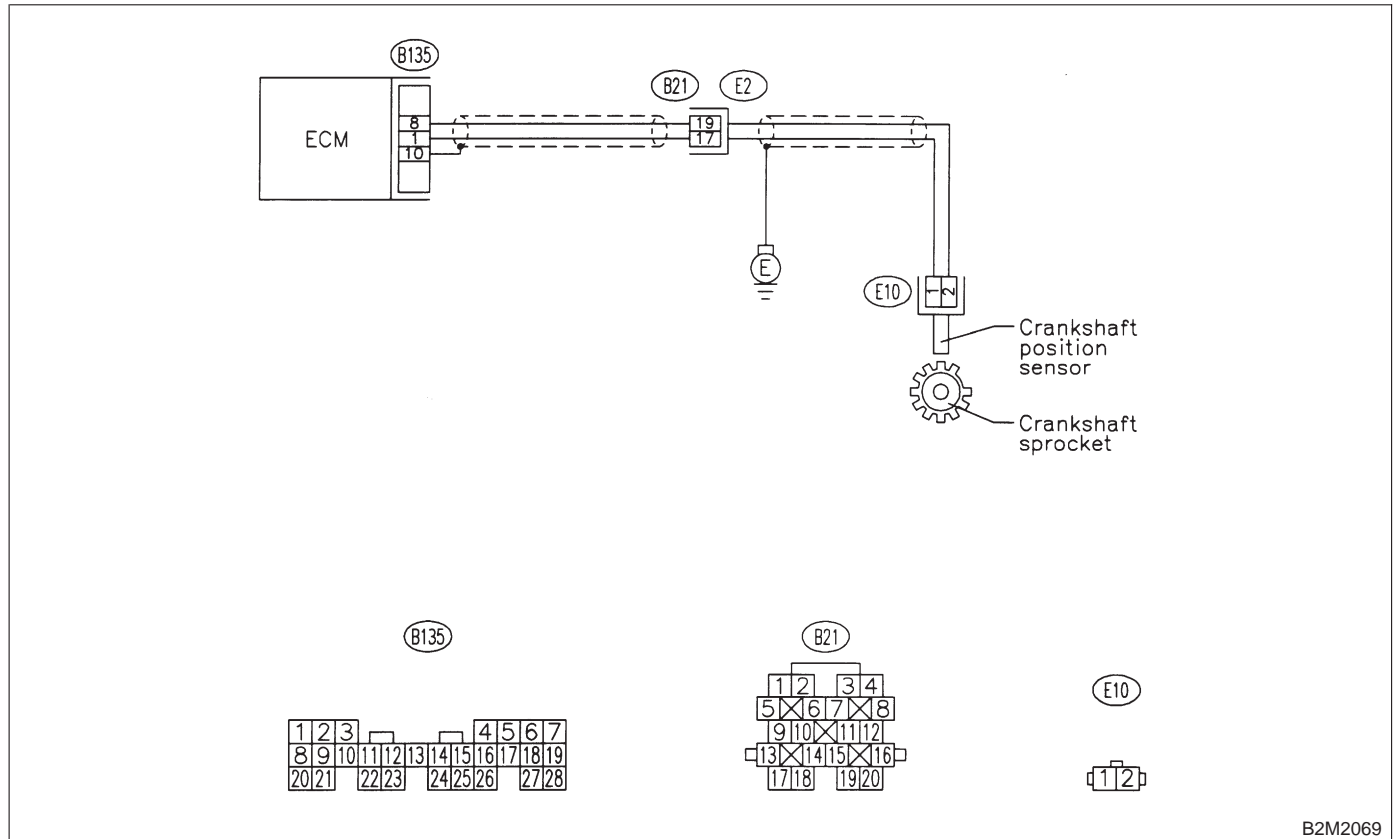
AD: DTC P0335 — CRANKSHAFT POSITION SENSOR CIRCUIT MALFUNCTION —

- **DTC DETECTING CONDITION:**
 - Immediately at fault recognition
- **TROUBLE SYMPTOM:**
 - Engine stalls.
 - Failure of engine to start

CAUTION:

After repair or replacement of faulty parts, conduct **CLEAR MEMORY MODE** <Ref. to 2-7 [T3D0].> and **INSPECTION MODE** <Ref. to 2-7 [T3E0].>

● **WIRING DIAGRAM:**

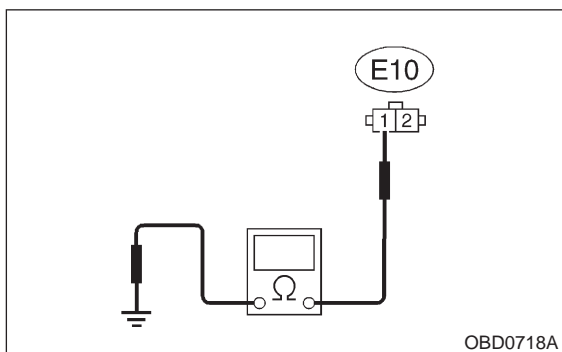


B2M2069

10AD1 : CHECK HARNESS BETWEEN CRANKSHAFT POSITION SENSOR AND ECM CONNECTOR.

- 1) Turn ignition switch to OFF.
- 2) Disconnect connector from crankshaft position sensor.
- 3) Measure resistance of harness between crankshaft position sensor connector and engine ground.

**Connector & terminal
(E10) No. 1 — Engine ground:**



- CHECK** : *Is the resistance more than 100 kΩ?*
- YES** : Repair harness and connector.

NOTE:

In this case, repair the following:

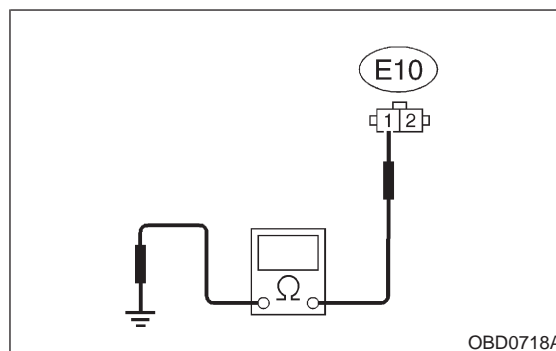
- Open circuit in harness between crankshaft position sensor and ECM connector
- Poor contact in ECM connector
- Poor contact in coupling connector (B21)

- NO** : Go to step **10AD2**.

10AD2 : CHECK HARNESS BETWEEN CRANKSHAFT POSITION SENSOR AND ECM CONNECTOR.

Measure resistance of harness between crankshaft position sensor connector and engine ground.

**Connector & terminal
(E10) No. 1 — Engine ground:**



- CHECK** : *Is the resistance less than 10 Ω?*
- YES** : Repair ground short circuit in harness between crankshaft position sensor and ECM connector.

NOTE:

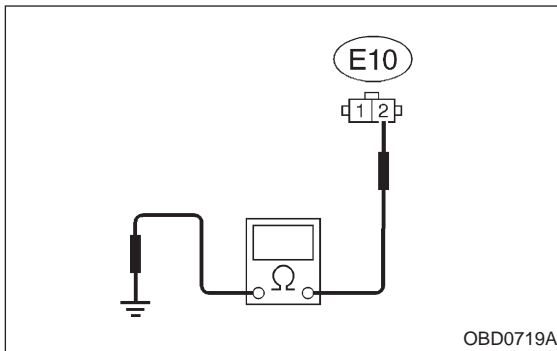
The harness between both connectors are shielded. Repair ground short circuit in harness together with shield.

- NO** : Go to step **10AD3**.

10AD3 : CHECK HARNESS BETWEEN CRANKSHAFT POSITION SENSOR AND ECM CONNECTOR.

Measure resistance of harness between crankshaft position sensor connector and engine ground.

Connector & terminal
(E10) No. 2 — Engine ground:



CHECK : *Is the resistance less than 5 Ω?*

YES : Go to step **10AD4**.

NO : Repair harness and connector.

NOTE:

In this case, repair the following:

- Open circuit in harness between crankshaft position sensor and ECM connector
- Poor contact in ECM connector
- Poor contact in coupling connector (B21)

10AD4 : CHECK CONDITION OF CRANKSHAFT POSITION SENSOR.

CHECK : *Is the crankshaft position sensor installation bolt tightened securely?*

YES : Go to step **10AD5**.

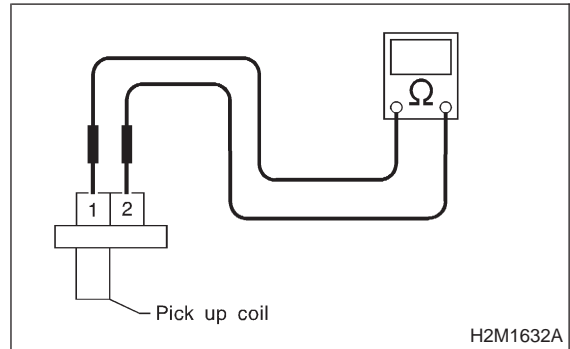
NO : Tighten crankshaft position sensor installation bolt securely.

10AD5 : CHECK CRANKSHAFT POSITION SENSOR.

- 1) Remove crankshaft position sensor.
- 2) Measure resistance between connector terminals of crankshaft position sensor.

Terminals

No. 1 — No. 2:



CHECK : *Is the resistance between 1 and 4 kΩ?*

YES : Repair poor contact in crankshaft position sensor connector.

NO : Replace crankshaft position sensor.
<Ref. to 2-7 [W6A0].>

MEMO:

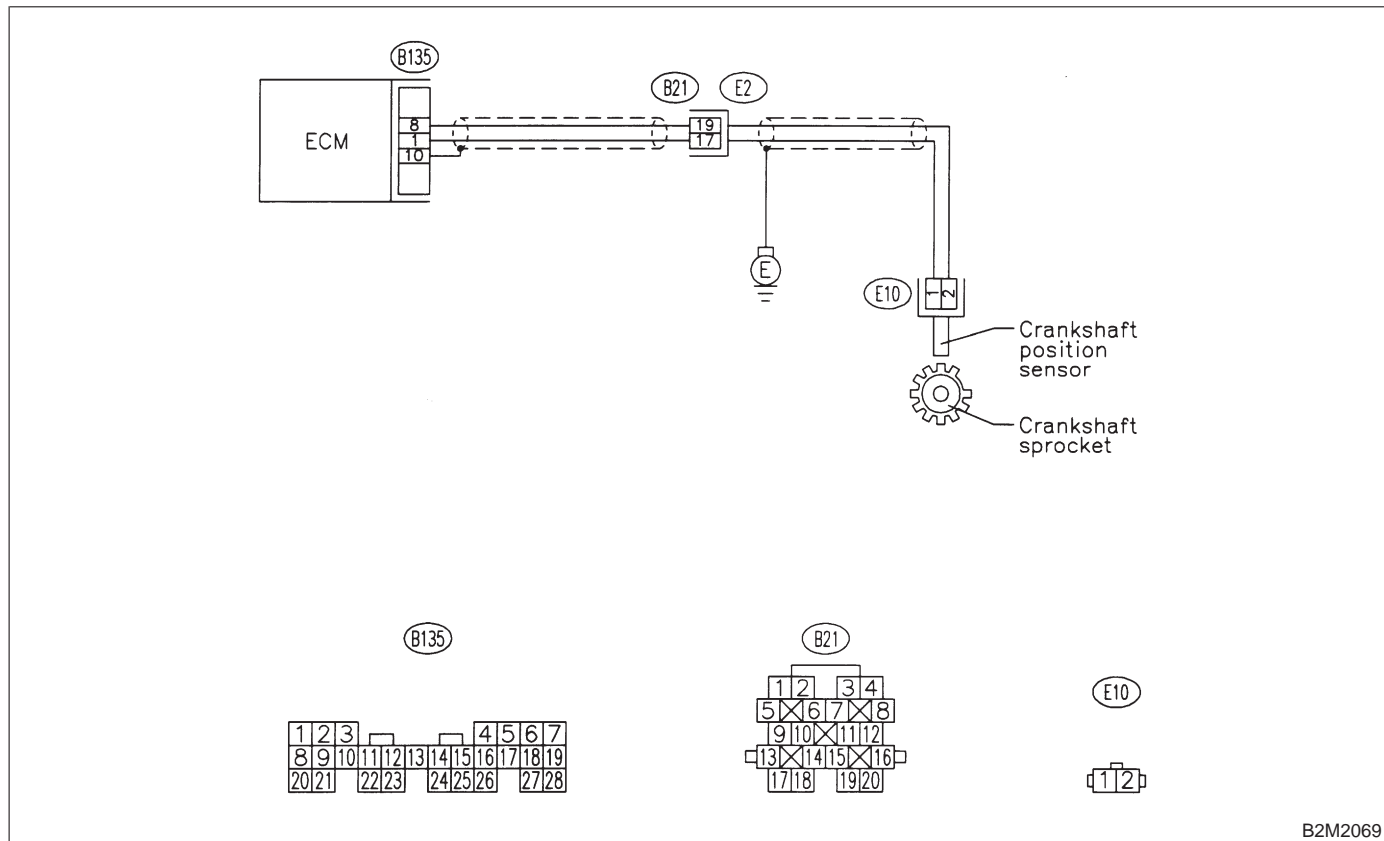
AE: DTC P0336 — CRANKSHAFT POSITION SENSOR CIRCUIT RANGE/PERFORMANCE PROBLEM —

- **DTC DETECTING CONDITION:**
 - Immediately at fault recognition
- **TROUBLE SYMPTOM:**
 - Engine stalls.
 - Failure of engine to start

CAUTION:

After repair or replacement of faulty parts, conduct **CLEAR MEMORY MODE** <Ref. to 2-7 [T3D0].> and **INSPECTION MODE** <Ref. to 2-7 [T3E0].>

● **WIRING DIAGRAM:**



B2M2069

10AE1 : CHECK ANY OTHER DTC ON DISPLAY.

10AE2 : CHECK CONDITION OF CRANKSHAFT POSITION SENSOR.

- CHECK** : Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0335?
- YES** : Inspect DTC P0335 using "10. Diagnostics Chart with Trouble Code for 2200 cc California Spec. Vehicles". <Ref. to 2-7 [T10A0].>
- NO** : Go to step 10AE2.

- Turn ignition switch to OFF.
- CHECK** : Is the crankshaft position sensor installation bolt tightened securely?
 - YES** : Go to step 10AE3.
 - NO** : Tighten crankshaft position sensor installation bolt securely.

10AE3 : CHECK CRANKSHAFT SPROCKET.

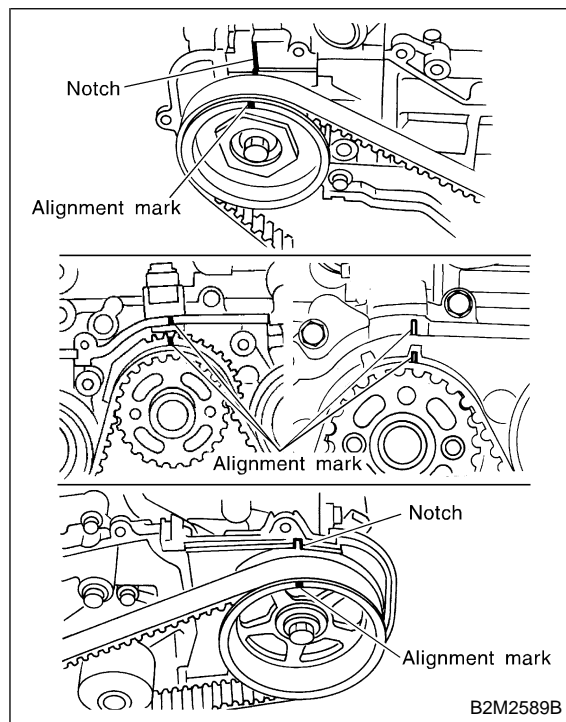
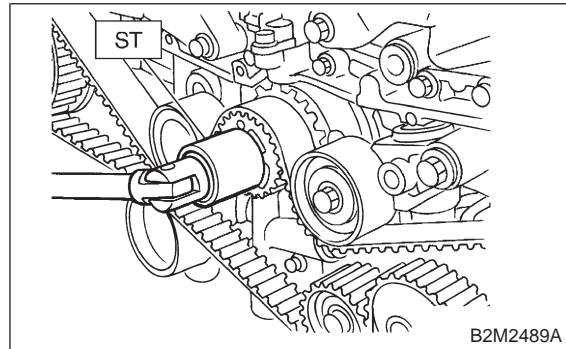
Remove front belt cover. <Ref. to 2-3 [W2A1].>

- CHECK** : **Are crankshaft sprocket teeth cracked or damaged?**
- YES** : Replace crankshaft sprocket. <Ref. to 2-3 [W2A0].>
- NO** : Go to step **10AE4**.

10AE4 : CHECK INSTALLATION CONDITION OF TIMING BELT.

Turn crankshaft using ST, and align alignment mark on crankshaft sprocket. Then, make sure left and right camshaft sprockets are matched with notches (alignment marks of belt cover and cylinder head).

ST 499987500 CRANKSHAFT SOCKET



- CHECK** : **Is timing belt installed properly in accordance with the correct position of crankshaft and camshaft sprockets?**
- YES** : Repair installation condition of timing belt. <Ref. to 2-3 [W2A0].>
- NO** : Replace crankshaft position sensor. <Ref. to 2-7 [W6A0].>

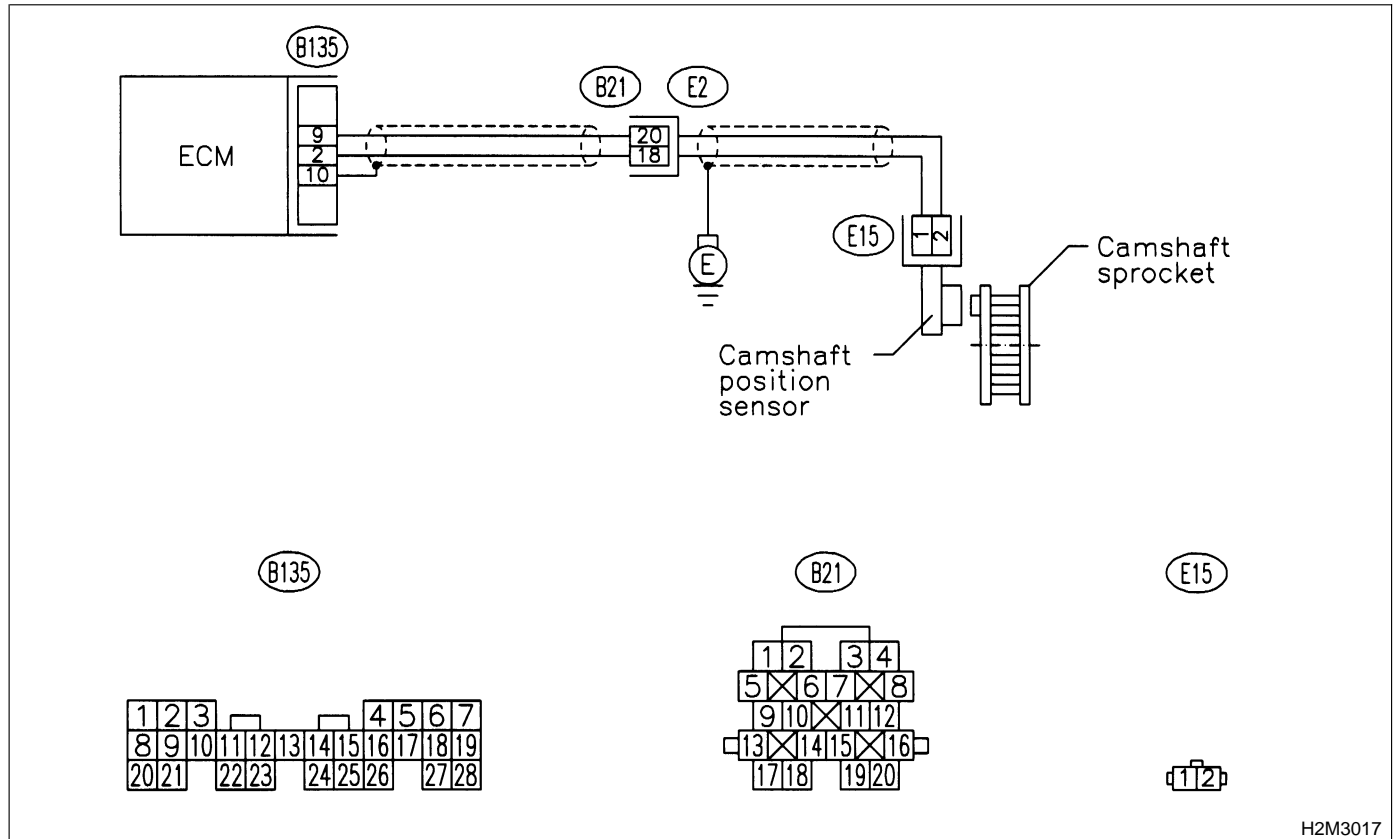
AF: DTC P0340 — CAMSHAFT POSITION SENSOR CIRCUIT MALFUNCTION

- **DTC DETECTING CONDITION:**
 - Immediately at fault recognition
- **TROUBLE SYMPTOM:**
 - Engine stalls.
 - Failure of engine to start

CAUTION:

After repair or replacement of faulty parts, conduct **CLEAR MEMORY MODE** <Ref. to 2-7 [T3D0].> and **INSPECTION MODE** <Ref. to 2-7 [T3E0].>

● **WIRING DIAGRAM:**



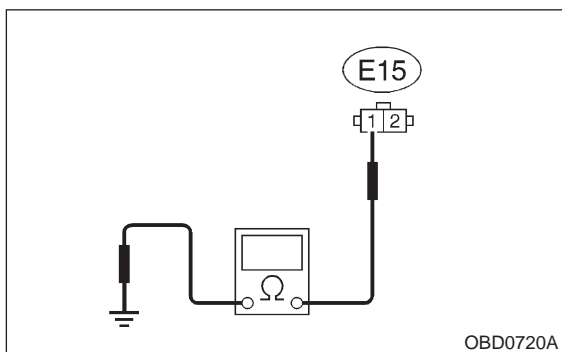
H2M3017

10AF1 : CHECK HARNESS BETWEEN CAMSHAFT POSITION SENSOR AND ECM CONNECTOR.

- 1) Turn ignition switch to OFF.
- 2) Disconnect connector from camshaft position sensor.
- 3) Measure resistance of harness between camshaft position sensor connector and engine ground.

Connector & terminal

(E15) No. 1 — Engine ground:



CHECK : *Is the resistance more than 100 kΩ?*

YES : Repair harness and connector.

NOTE:

In this case, repair the following:

- Open circuit in harness between camshaft position sensor and ECM connector
- Poor contact in ECM connector
- Poor contact in coupling connector (B21)

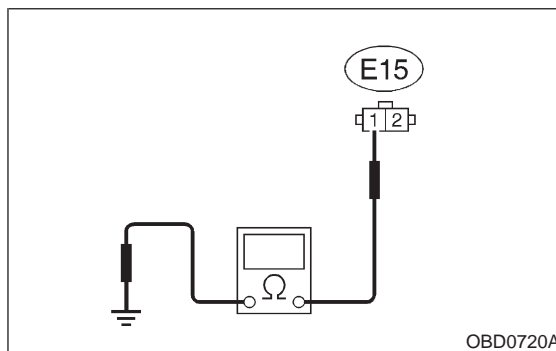
NO : Go to step **10AF2**.

10AF2 : CHECK HARNESS BETWEEN CAMSHAFT POSITION SENSOR AND ECM CONNECTOR.

Measure resistance of harness between camshaft position sensor connector and engine ground.

Connector & terminal

(E15) No. 1 — Engine ground:



CHECK : *Is the resistance less than 10 Ω?*

YES : Repair ground short circuit in harness between camshaft position sensor and ECM connector.

NOTE:

The harness between both connectors are shielded. Repair ground short circuit in harness together with shield.

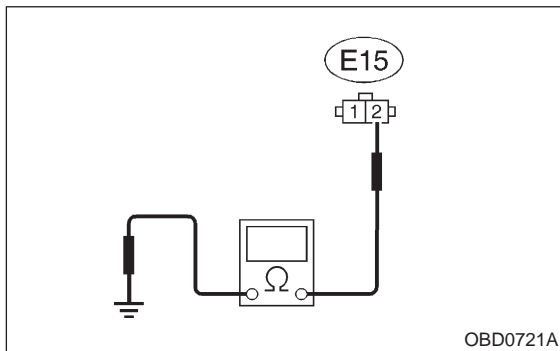
NO : Go to step **10AF3**.

10AF3 : CHECK HARNESS BETWEEN CAMSHAFT POSITION SENSOR AND ECM CONNECTOR.

Measure resistance of harness between camshaft position sensor connector and engine ground.

Connector & terminal

(E15) No. 2 — Engine ground:



CHECK : *Is the resistance less than 5 Ω?*

YES : Go to step **10AF4**.

NO : Repair harness and connector.

NOTE:

In this case, repair the following:

- Open circuit in harness between camshaft position sensor and ECM connector
- Poor contact in ECM connector
- Poor contact in coupling connector (B21)

10AF4 : CHECK CONDITION OF CAMSHAFT POSITION SENSOR.

CHECK : *Is the camshaft position sensor installation bolt tightened securely?*

YES : Go to step **10AF5**.

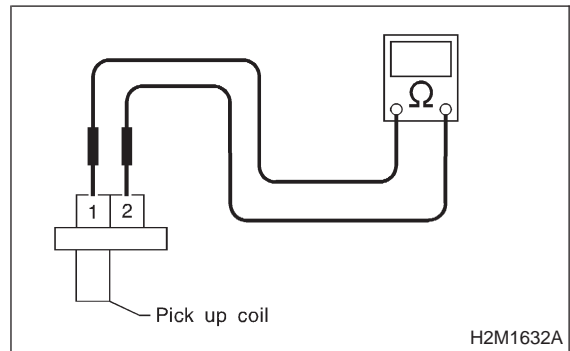
NO : Tighten camshaft position sensor installation bolt securely.

10AF5 : CHECK CAMSHAFT POSITION SENSOR.

- 1) Remove camshaft position sensor.
- 2) Measure resistance between connector terminals of camshaft position sensor.

Terminals

No. 1 — No. 2:



CHECK : *Is the resistance between 1 and 4 kΩ?*

YES : Repair poor contact in camshaft position sensor connector.

NO : Replace camshaft position sensor. <Ref. to 2-7 [W10A0].>

MEMO:

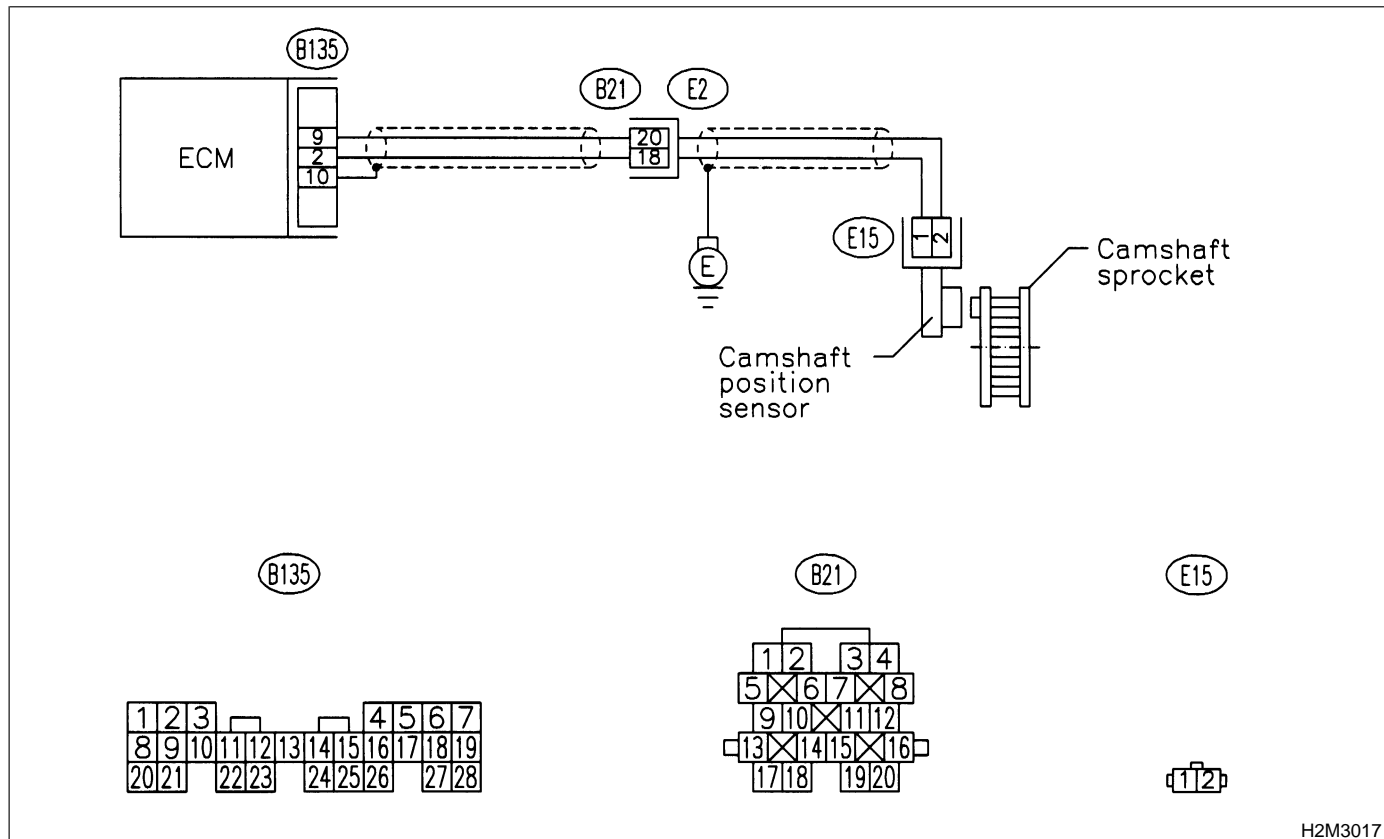
AG: DTC P0341 — CAMSHAFT POSITION SENSOR CIRCUIT RANGE/PERFORMANCE PROBLEM —

- **DTC DETECTING CONDITION:**
 - Immediately at fault recognition
- **TROUBLE SYMPTOM:**
 - Engine stalls.
 - Failure of engine to start

CAUTION:

After repair or replacement of faulty parts, conduct **CLEAR MEMORY MODE** <Ref. to 2-7 [T3D0].> and **INSPECTION MODE** <Ref. to 2-7 [T3E0].>

● **WIRING DIAGRAM:**



H2M3017

10AG1 : CHECK ANY OTHER DTC ON DISPLAY.

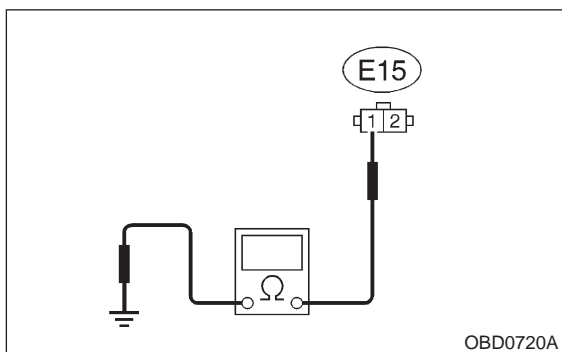
- CHECK** : Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0340?
- YES** : Inspect DTC P0340 using “10. Diagnostics Chart with Trouble Code for 2200 cc California Spec. Vehicles”. <Ref. to 2-7 [T10A0].>
- NO** : Go to step **10AG2**.

10AG2 : CHECK HARNESS BETWEEN CAMSHAFT POSITION SENSOR AND ECM CONNECTOR.

- 1) Turn ignition switch to OFF.
- 2) Disconnect connector from camshaft position sensor.
- 3) Measure resistance of harness between camshaft position sensor connector and engine ground.

Connector & terminal

(E15) No. 1 — Engine ground:



CHECK : *Is the resistance more than 100 kΩ?*

YES : Repair harness and connector.

NOTE:

In this case, repair the following:

- Open circuit in harness between camshaft position sensor and ECM connector
- Poor contact in ECM connector
- Poor contact in coupling connector (B21)

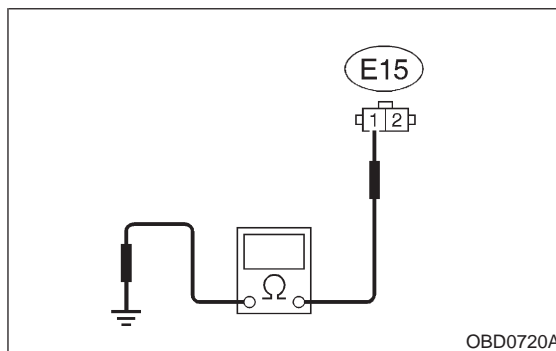
NO : Go to step **10AG3**.

10AG3 : CHECK HARNESS BETWEEN CAMSHAFT POSITION SENSOR AND ECM CONNECTOR.

Measure resistance of harness between camshaft position sensor connector and engine ground.

Connector & terminal

(E15) No. 1 — Engine ground:



CHECK : *Is the resistance less than 10 Ω?*

YES : Repair ground short circuit in harness between camshaft position sensor and ECM connector.

NOTE:

The harness between both connectors are shielded. Repair ground short circuit in harness together with shield.

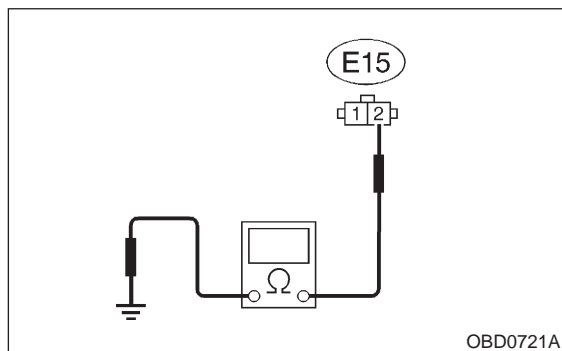
NO : Go to step **10AG4**.

10AG4 : CHECK HARNESS BETWEEN CAMSHFT POSITION SENSOR AND ECM CONNECTOR.

Measure resistance of harness between camshaft position sensor connector and engine ground.

Connector & terminal

(E15) No. 2 — Engine ground:



CHECK : *Is the resistance less than 5 Ω?*

YES : Go to step **10AG5**.

NO : Repair harness and connector.

NOTE:

In this case, repair the following:

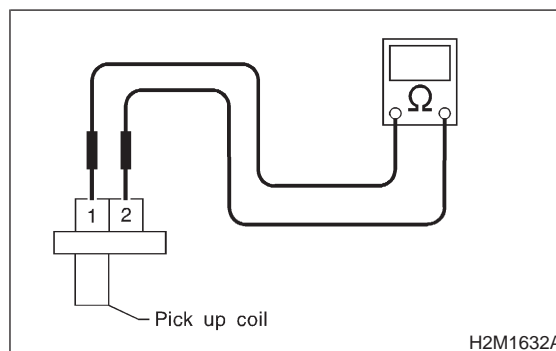
- Open circuit in harness between camshaft position sensor and ECM connector
- Poor contact in ECM connector
- Poor contact in coupling connector (B21)

10AG5 : CHECK CAMSHAFT POSITION SENSOR.

- 1) Remove camshaft position sensor.
- 2) Measure resistance between connector terminals of camshaft position sensor.

Terminals

No. 1 — No. 2:



CHECK : *Is the resistance between 1 and 4 kΩ?*

YES : Go to step **10AG6**.

NO : Replace camshaft position sensor.
<Ref. to 2-7 [W10A0].>

10AG6 : CHECK CONDITION OF CAMSHAFT POSITION SENSOR.

Turn ignition switch to OFF.

CHECK : *Is the camshaft position sensor installation bolt tightened securely?*

YES : Go to step **10AG7**.

NO : Tighten camshaft position sensor installation bolt securely.

10AG7 : CHECK CAMSHAFT SPROCKET.

Remove front belt cover. <Ref. to 2-3 [W2A1].>

CHECK : *Are camshaft sprocket teeth cracked or damaged?*

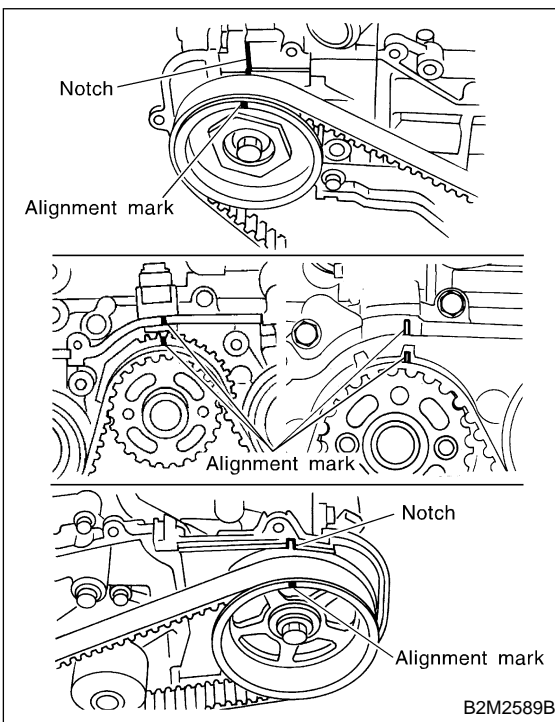
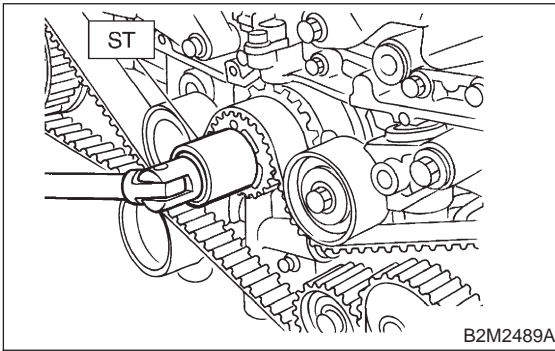
YES : Replace camshaft sprocket. <Ref. to 2-3 [W2A4].>

NO : Go to step **10AG8**.

10AG8 : CHECK INSTALLATION CONDITION OF TIMING BELT.

Turn crankshaft using ST, and align alignment mark on crankshaft sprocket. Then, make sure left and right camshaft sprockets are matched with notches (alignment marks of belt cover and cylinder head).

ST 499987500 CRANKSHAFT SOCKET



- CHECK** : *Is timing belt installed properly in accordance with the correct position of crankshaft and camshaft sprockets?*
- YES** : Repair installation condition of timing belt. <Ref. to 2-3 [W2A0].>
- NO** : Replace camshaft position sensor. <Ref. to 2-7 [W10A0].>

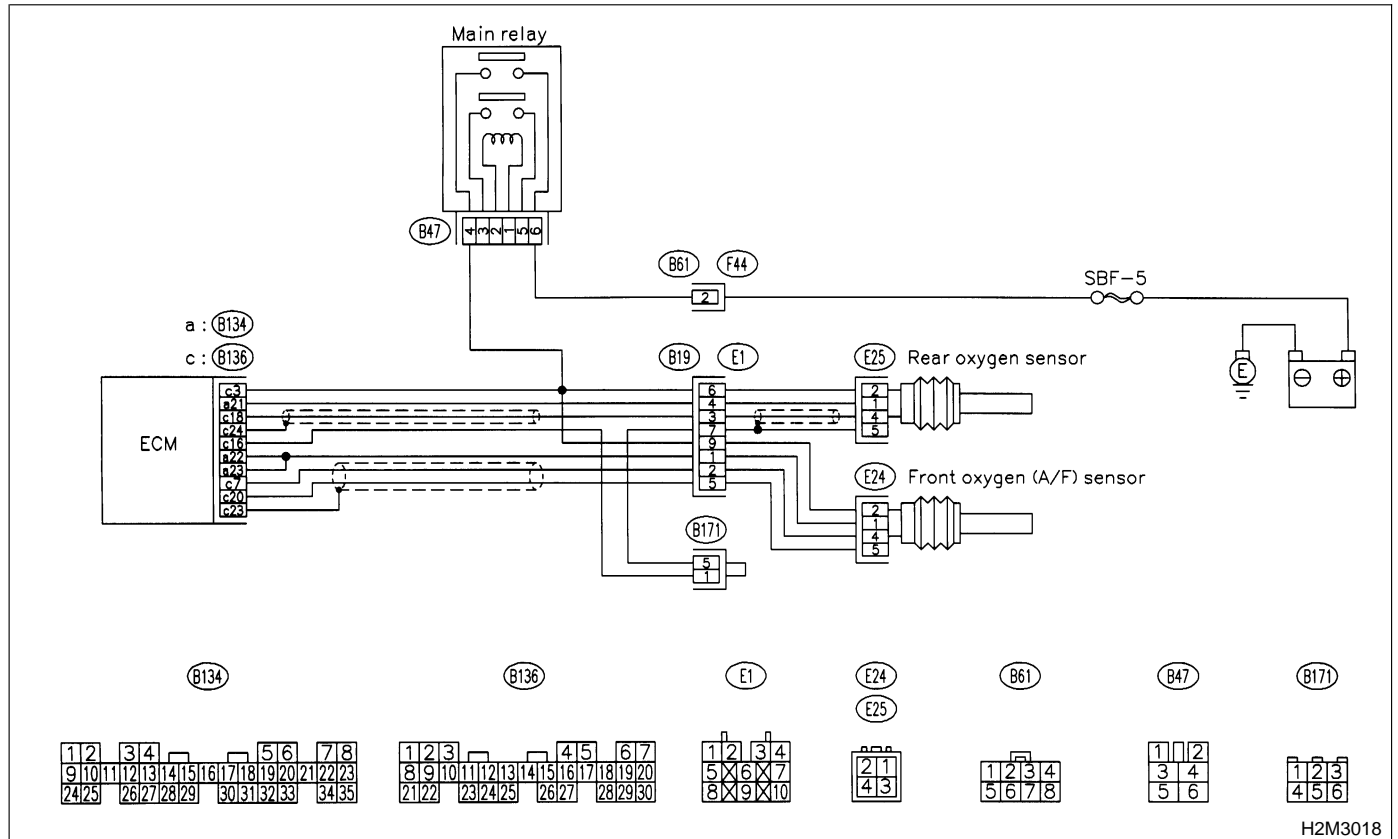
AH: DTC P0420 — CATALYST SYSTEM EFFICIENCY BELOW THRESHOLD

- **DTC DETECTING CONDITION:**
 - Two consecutive driving cycles with fault
- **TROUBLE SYMPTOM:**
 - Engine stalls.
 - Idle mixture is out of specifications.

CAUTION:

After repair or replacement of faulty parts, conduct **CLEAR MEMORY MODE** <Ref. to 2-7 [T3D0].> and **INSPECTION MODE** <Ref. to 2-7 [T3E0].>

● **WIRING DIAGRAM:**



10AH1 : CHECK ANY OTHER DTC ON DISPLAY.

CHECK : Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0131, P0132, P0133, P0135, P0136, P0139, P0141, P0301, P0302, P0303, P0304, P1130, P1131, P1134, P1139, P1150 and P1151?

YES : Inspect the relevant DTC using "10. Diagnostics Chart with Trouble Code for 2200 cc California Spec. Vehicles". <Ref. to 2-7 [T10A0].>

NOTE:
In this case, it is not necessary to inspect DTC P0420.

NO : Go to step 10AH2.

10AH2 : CHECK EXHAUST SYSTEM.

Check for gas leaks or air suction caused by loose or dislocated nuts and bolts, and open hole at exhaust pipes.

NOTE:
Check the following positions.

- Between cylinder head and front exhaust pipe
- Between front exhaust pipe and front catalytic converter
- Between front catalytic converter and rear catalytic converter

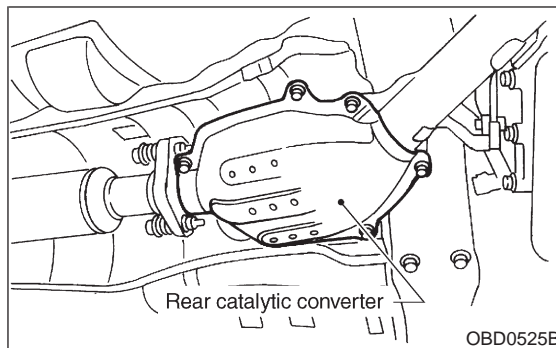
CHECK : Is there a fault in exhaust system?

YES : Repair or replace exhaust system. <Ref. to 2-9 [W1A0].>

NO : Go to step 10AH3.

10AH3 : CHECK REAR CATALYTIC CONVERTER.

Separate rear catalytic converter from rear exhaust pipe.



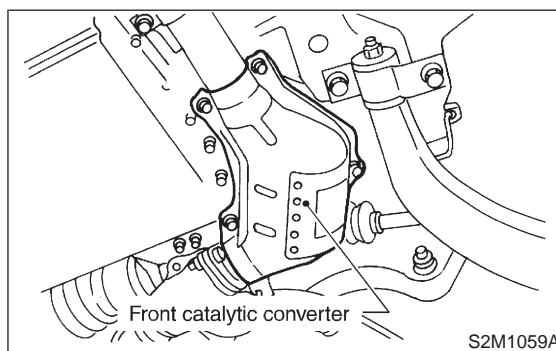
CHECK : Is there damage at rear face of rear catalyst?

YES : Replace front catalytic converter <Ref. to 2-1 [W1A0].> and rear catalytic converter <Ref. to 2-1 [W2A0].>

NO : Go to step 10AH4.

10AH4 : CHECK FRONT CATALYTIC CONVERTER.

Remove front catalytic converter.



CHECK : Is there damage at rear face or front face of front catalyst?

YES : Replace front catalytic converter. <Ref. to 2-1 [W1A0].>

NO : Contact with SOA service.

NOTE:
Inspection by DTM is required, because probable cause is deterioration of multiple parts.

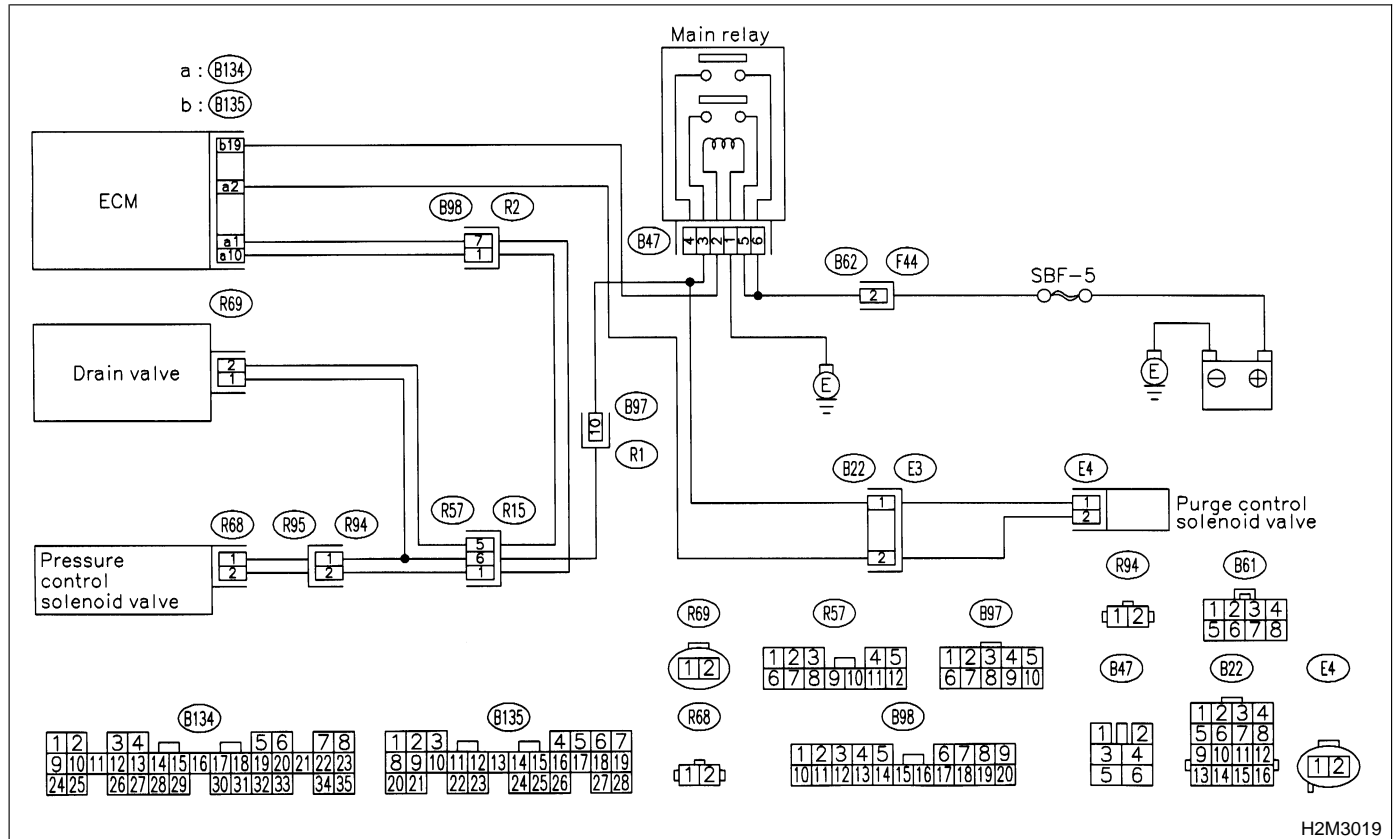
AI: DTC P0440 — EVAPORATIVE EMISSION CONTROL SYSTEM MALFUNCTION —

- **DTC DETECTING CONDITION:**
 - Two consecutive driving cycles with fault
- **TROUBLE SYMPTOM:**
 - Gasoline smell

CAUTION:

After repair or replacement of faulty parts, conduct **CLEAR MEMORY MODE** <Ref. to 2-7 [T3D0].> and **INSPECTION MODE** <Ref. to 2-7 [T3E0].>

● **WIRING DIAGRAM:**



H2M3019

10AI1 : CHECK ANY OTHER DTC ON DISPLAY.

- CHECK** : *Is there any other DTC on display?*
- YES** : Inspect the relevant DTC using "10. Diagnostics Chart with Trouble Code for 2200 cc California Spec. Vehicles". <Ref. to 2-7 [T10A0].>
- NO** : Go to step **10AI2**.

10AI2 : CHECK FUEL FILLER CAP.

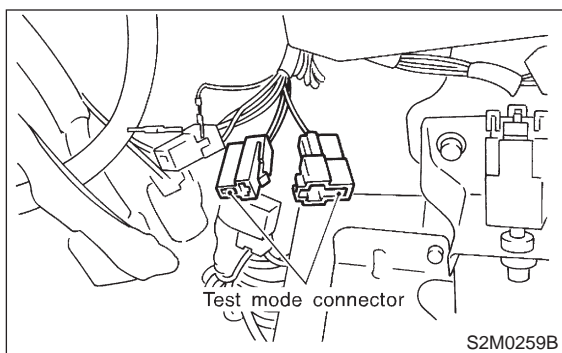
- 1) Turn ignition switch to OFF.
 - 2) Open the fuel flap.
- CHECK** : *Is the fuel filler cap tightened securely?*
 - YES** : Go to step **10AI3**.
 - NO** : Tighten fuel filler cap securely.

10A13 : CHECK FUEL FILLER PIPE PACKING.

- CHECK** : *Is there any damage to the seal between fuel filler cap and fuel filler pipe?*
- YES** : Repair or replace fuel filler cap and fuel filler pipe. <Ref. to 2-8 [W3A0].>
- NO** : Go to step **10A14**.

10A14 : CHECK DRAIN VALVE OR VENT CONTROL SOLENOID VALVE.

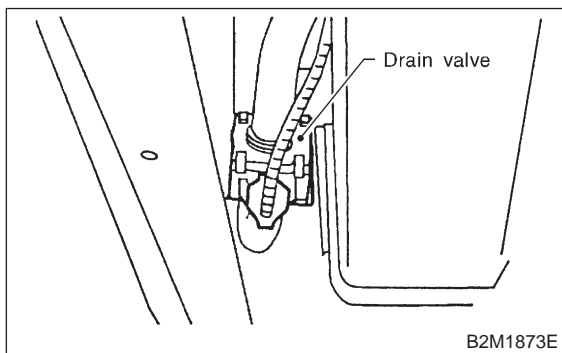
1) Connect test mode connector.



2) Turn ignition switch to ON.

NOTE:

Drain valve or vent control solenoid valve operation check can also be executed using Subaru Select Monitor. For the procedure, refer to "COMPULSORY VALVE OPERATION CHECK MODE". <Ref. to 2-7 [T3F0].>

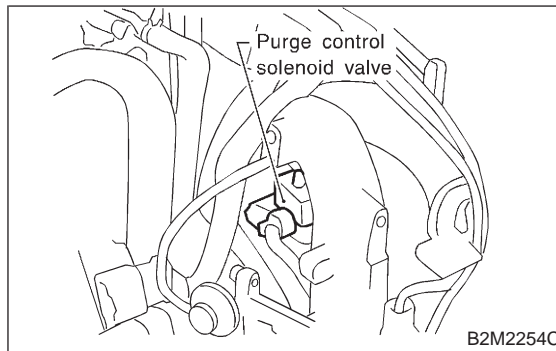


- CHECK** : *Does drain valve produce operating sound?*
- YES** : Go to step **10A15**.
- NO** : Replace drain valve. <Ref. to 2-1 [W13A0].>

10A15 : CHECK PURGE CONTROL SOLENOID VALVE.

NOTE:

Purge control solenoid valve operation check can also be executed using Subaru Select Monitor. For the procedure, refer to "COMPULSORY VALVE OPERATION CHECK MODE". <Ref. to 2-7 [T3F0].>

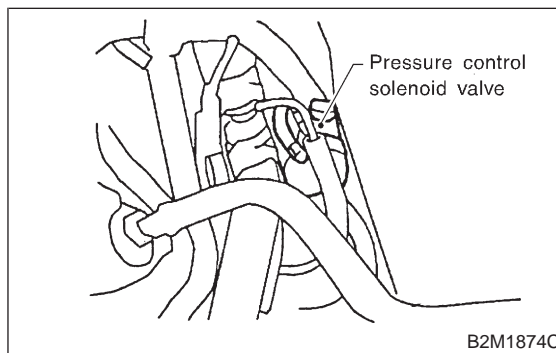


- CHECK** : *Does purge control solenoid valve produce operating sound?*
- YES** : Go to step **10A16**.
- NO** : Replace purge control solenoid valve. <Ref. to 2-1 [W4A0].>

10A16 : CHECK PRESSURE CONTROL SOLENOID VALVE.

NOTE:

Pressure control solenoid valve operation check can also be executed using Subaru Select Monitor. For the procedure, refer to "COMPULSORY VALVE OPERATION CHECK MODE". <Ref. to 2-7 [T3F0].>



- CHECK** : *Does pressure control solenoid valve produce operating sound?*
- YES** : Go to step **10A17**.
- NO** : Replace pressure control solenoid valve. <Ref. to 2-1 [W7A0].>

10A17 : CHECK EVAPORATIVE EMISSION CONTROL SYSTEM LINE.

Turn ignition switch to OFF.

- CHECK** : ***Does fuel leak in fuel line?***
YES : Repair or replace fuel line. <Ref. to 2-8 [W7A0].>
NO : Go to step **10A18**.

10A18 : CHECK CANISTER.

- CHECK** : ***Is there any damage at canister?***
YES : Repair or replace canister. <Ref. to 2-1 [W3A0].>
NO : Go to step **10A19**.

10A19 : CHECK FUEL TANK.

- CHECK** : ***Is there any damage at fuel tank?***
YES : Repair or replace fuel tank. <Ref. to 2-8 [W2A0].>
NO : Go to step **10A10**.

10A10 : CHECK ANY OTHER MECHANICAL TROUBLE IN EVAPORATIVE EMISSION CONTROL SYSTEM.

- CHECK** : ***Are there holes, cracks, clogging or disconnections of hoses or pipes in evaporative emission control system?***
YES : Repair or replace hoses or pipes.
NO : Contact with SOA service.

NOTE:

Inspection by DTM is required, because probable cause is deterioration of multiple parts.

MEMO:

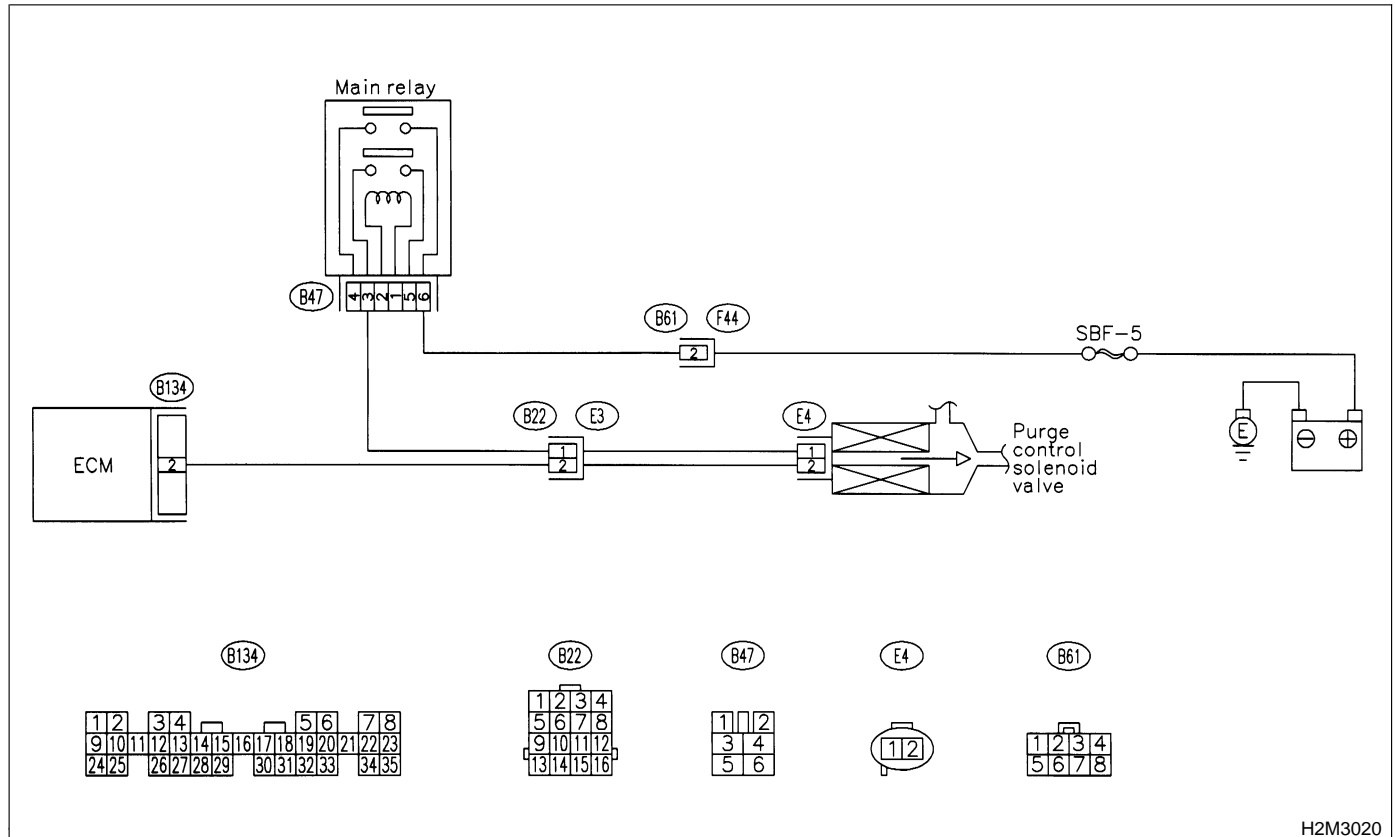
AJ: DTC P0443 — EVAPORATIVE EMISSION CONTROL SYSTEM PURGE CONTROL VALVE CIRCUIT LOW INPUT —

- **DTC DETECTING CONDITION:**
 - Two consecutive driving cycles with fault
- **TROUBLE SYMPTOM:**
 - Erroneous idling

CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to 2-7 [T3D0].> and INSPECTION MODE <Ref. to 2-7 [T3E0].>

● **WIRING DIAGRAM:**



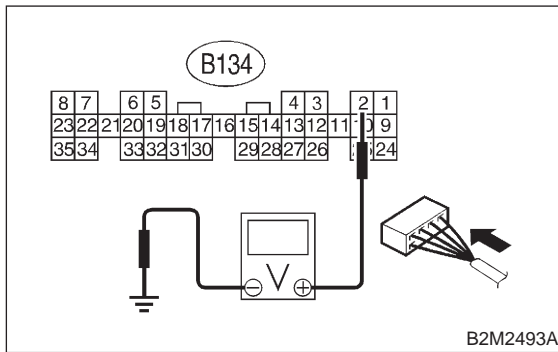
H2M3020

10AJ1 : CHECK OUTPUT SIGNAL FROM ECM.

- 1) Turn ignition switch to ON.
- 2) Measure voltage between ECM and chassis ground.

Connector & terminal

(B134) No. 2 (+) — Chassis ground (-):



- CHECK** : **Is the voltage more than 10 V?**
- YES** : Even if MIL lights up, the circuit has returned to a normal condition at this time. Contact with SOA service.

NOTE:

Inspection by DTM is required, because probable cause is deterioration of multiple parts.

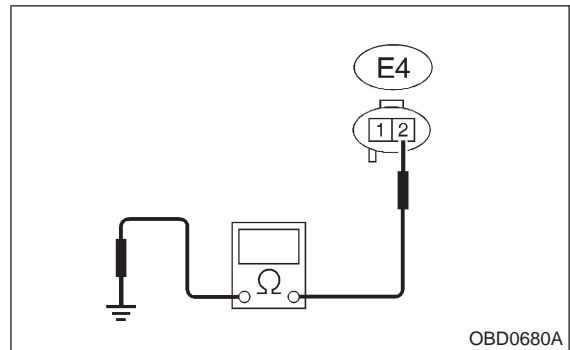
- NO** : Go to step **10AJ2**.

10AJ2 : CHECK HARNESS BETWEEN PURGE CONTROL SOLENOID VALVE AND ECM CONNECTOR.

- 1) Turn ignition switch to OFF.
- 2) Disconnect connectors from purge control solenoid valve and ECM.
- 3) Measure resistance of harness between purge control solenoid valve connector and engine ground.

Connector & terminal

(E4) No. 2 — Engine ground:



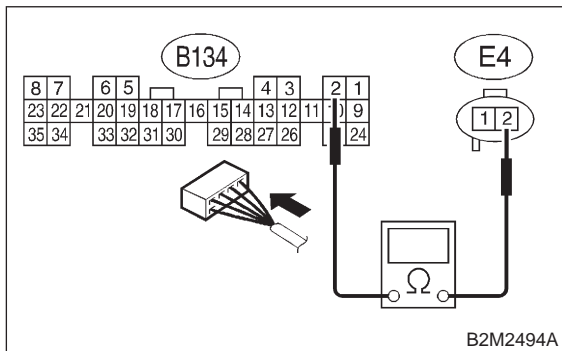
- CHECK** : **Is the resistance less than 10 Ω?**
- YES** : Repair ground short circuit in harness between ECM and purge control solenoid valve connector.
- NO** : Go to step **10AJ3**.

10AJ3 : CHECK HARNESS BETWEEN PURGE CONTROL SOLENOID VALVE AND ECM CONNECTOR.

Measure resistance of harness between ECM and purge control solenoid valve of harness connector.

Connector & terminal

(B134) No. 2 — (E4) No. 2:



- CHECK** : *Is the resistance less than 1 Ω?*
- YES** : Go to step **10AJ4**.
- NO** : Repair open circuit in harness between ECM and purge control solenoid valve connector.

NOTE:

In this case, repair the following:

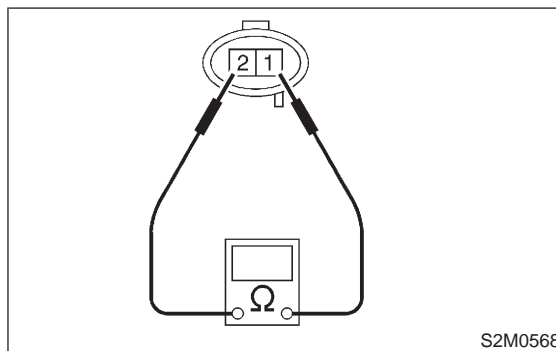
- Open circuit in harness between ECM and purge control solenoid valve connector
- Poor contact in coupling connector (B22)

10AJ4 : CHECK PURGE CONTROL SOLENOID VALVE.

- 1) Remove purge control solenoid valve.
- 2) Measure resistance between purge control solenoid valve terminals.

Terminals

No. 1 — No. 2:



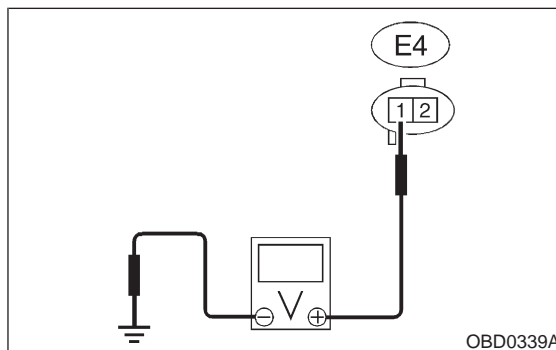
- CHECK** : *Is the resistance between 10 and 100 Ω?*
- YES** : Go to step **10AJ5**.
- NO** : Replace purge control solenoid valve. <Ref. to 2-1 [W4A0].>

10AJ5 : CHECK POWER SUPPLY TO PURGE CONTROL SOLENOID VALVE.

- 1) Turn ignition switch to ON.
- 2) Measure voltage between purge control solenoid valve and engine ground.

Connector & terminal

(E4) No. 1 (+) — Engine ground (-):



- CHECK** : *Is the voltage more than 10 V?*
- YES** : Go to step **10AJ6**.
- NO** : Repair open circuit in harness between main relay and purge control solenoid valve connector.

10AJ6 : CHECK POOR CONTACT.

Check poor contact in purge control solenoid valve connector. <Ref. to FOREWORD [T3C1].>

CHECK : *Is there poor contact in purge control solenoid valve connector?*

YES : Repair poor contact in purge control solenoid valve connector.

NO : Contact with SOA service.

NOTE:

Inspection by DTM is required, because probable cause is deterioration of multiple parts.

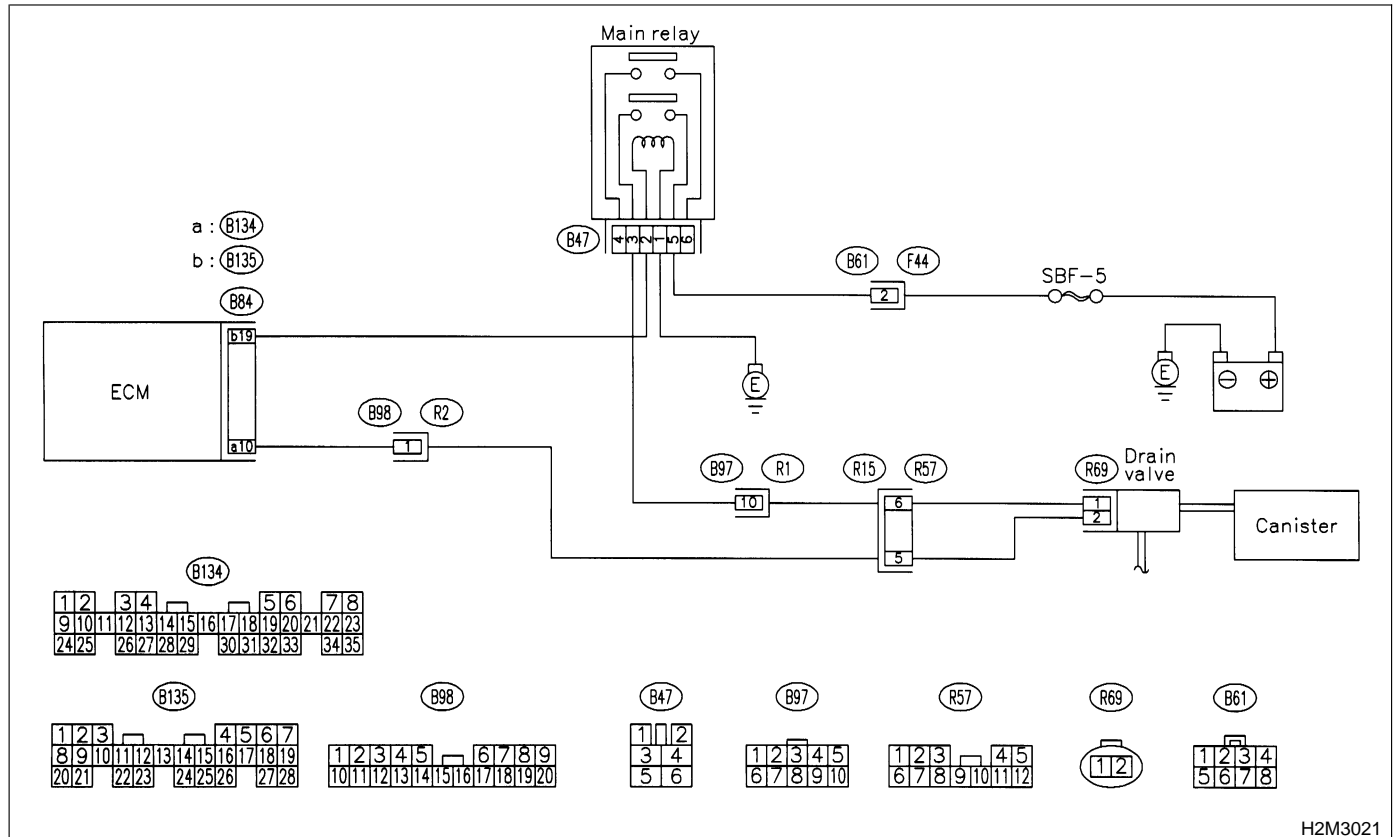
AK: DTC P0446 — EVAPORATIVE EMISSION CONTROL SYSTEM VENT CONTROL LOW INPUT —

- **DTC DETECTING CONDITION:**
 - Two consecutive driving cycles with fault

CAUTION:

After repair or replacement of faulty parts, conduct **CLEAR MEMORY MODE** <Ref. to 2-7 [T3D0].> and **INSPECTION MODE** <Ref. to 2-7 [T3E0].>

- **WIRING DIAGRAM:**

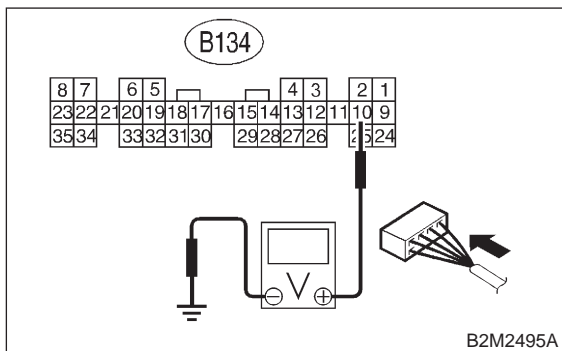


H2M3021

10AK1 : CHECK OUTPUT SIGNAL FROM ECM.

- 1) Turn ignition switch to ON.
- 2) Measure voltage between ECM and chassis ground.

Connector & terminal
(B134) No. 10 (+) — Chassis ground (-):



- CHECK** : Is the voltage more than 10 V?
YES : Go to step 10AK2.
NO : Go to step 10AK3.

10AK2 : CHECK POOR CONTACT.

Check poor contact in ECM connector. <Ref. to FOREWORD [T3C1].>

- CHECK** : Is there poor contact in ECM connector?
YES : Repair poor contact in ECM connector.
NO : Even if MIL lights up, the circuit has returned to a normal condition at this time. (However, the possibility of poor contact still remains.)

NOTE:

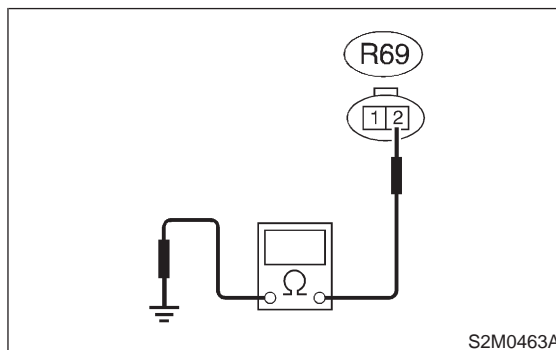
In this case, repair the following:

- Poor contact in drain valve connector
- Poor contact in ECM connector
- Poor contact in coupling connectors (B98) and (R57)

10AK3 : CHECK HARNESS BETWEEN DRAIN VALVE AND ECM CONNECTOR.

- 1) Turn ignition switch to OFF.
- 2) Disconnect connectors from drain valve and ECM.
- 3) Measure resistance of harness between drain valve connector and chassis ground.

Connector & terminal
(R69) No. 2 — Chassis ground:



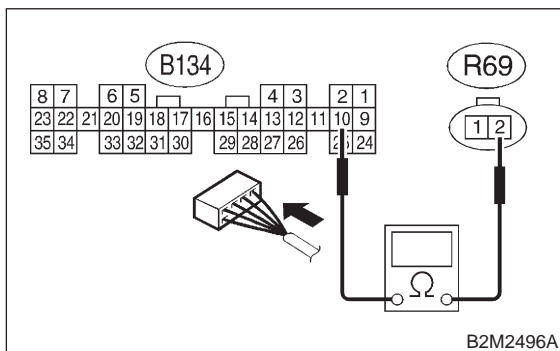
- CHECK** : Is the resistance less than 10 Ω?
YES : Repair ground short circuit in harness between ECM and drain valve connector.
NO : Go to step 10AK4.

10AK4 : CHECK HARNESS BETWEEN DRAIN VALVE AND ECM CONNECTOR.

Measure resistance of harness between ECM and drain valve connector.

Connector & terminal

(B134) No. 10 — (R69) No. 2:



- CHECK** : *Is the resistance less than 1 Ω?*
- YES** : Go to step **10AK5**.
- NO** : Repair harness and connector.

NOTE:

In this case, repair the following:

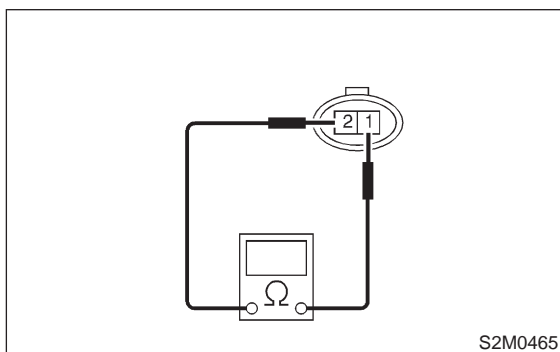
- Open circuit in harness between ECM and drain valve connector
- Poor contact in coupling connectors (B98) and (R57)

10AK5 : CHECK DRAIN VALVE.

Measure resistance between drain valve terminals.

Terminals

No. 1 — No. 2:



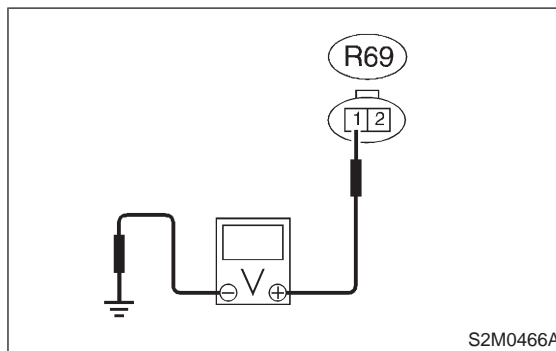
- CHECK** : *Is the resistance between 10 and 100 Ω?*
- YES** : Go to step **10AK6**.
- NO** : Replace drain valve. <Ref. to 2-1 [W13A0].>

10AK6 : CHECK POWER SUPPLY TO DRAIN VALVE.

- 1) Turn ignition switch to ON.
- 2) Measure voltage between drain valve and chassis ground.

Connector & terminal

(R69) No. 1 (+) — Chassis ground (-):



- CHECK** : *Is the voltage more than 10 V?*
- YES** : Go to step **10AK7**.
- NO** : Repair harness and connector.

NOTE:

In this case, repair the following:

- Open circuit in harness between main relay and drain valve
- Poor contact in coupling connectors (B97) and (R57)
- Poor contact in main relay connector

10AK7 : CHECK POOR CONTACT.

Check poor contact in drain valve connector. <Ref. to FOREWORD [T3C1].>

- CHECK** : *Is there poor contact in drain valve connector?*
- YES** : Repair poor contact in drain valve connector.
- NO** : Contact with SOA service.

NOTE:

Inspection by DTM is required, because probable cause is deterioration of multiple parts.

MEMO:

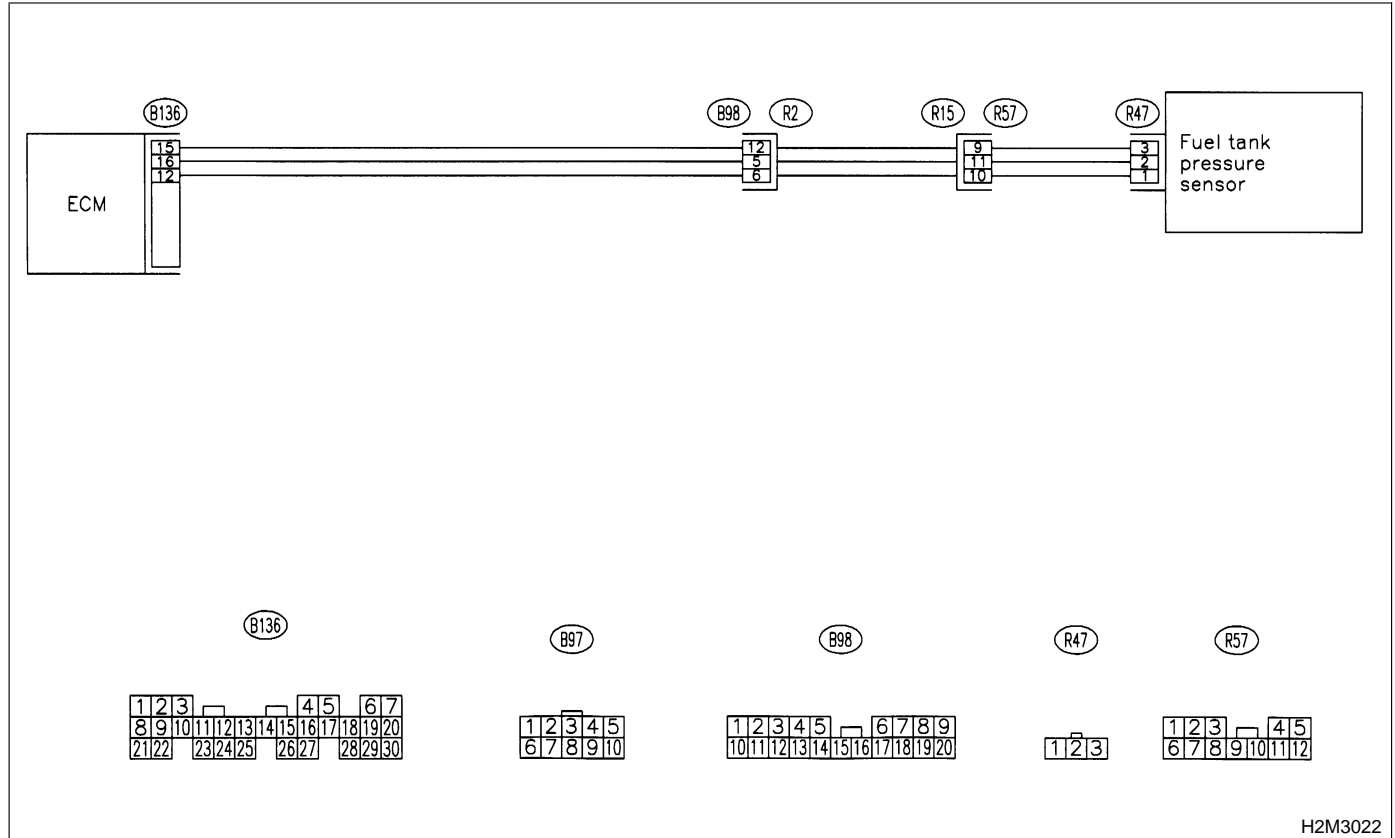
AL: DTC P0451 — EVAPORATIVE EMISSION CONTROL SYSTEM PRESSURE SENSOR RANGE/PERFORMANCE PROBLEM —

- **DTC DETECTING CONDITION:**
 - Two consecutive driving cycles with fault

CAUTION:

After repair or replacement of faulty parts, conduct **CLEAR MEMORY MODE** <Ref. to 2-7 [T3D0].> and **INSPECTION MODE** <Ref. to 2-7 [T3E0].>

● **WIRING DIAGRAM:**



H2M3022

10AL1 : CHECK ANY OTHER DTC ON DISPLAY.

- CHECK** : *Is there any DTC on display?*
- YES** : Inspect the relevant DTC using "10. Diagnostics Chart with Trouble Code for 2200 cc California Spec. Vehicles". <Ref. to 2-7 [T10A0].>
- NO** : Go to step **10AL2**.

10AL2 : CHECK FUEL FILLER CAP.

- 1) Turn ignition switch to OFF.
 - 2) Open the fuel flap.
- CHECK** : *Is the fuel filler cap tightened securely?*
 - YES** : Go to step **10AL3**.
 - NO** : Tighten fuel filler cap securely.

**10AL3 : CHECK PRESSURE/VACUUM
LINE.**

NOTE:

Check the following items.

- Disconnection, leakage and clogging of the vacuum hoses and pipes between fuel tank pressure sensor and fuel tank
- Disconnection, leakage and clogging of air ventilation hoses and pipes between fuel filler pipe and fuel tank

CHECK : *Is there a fault in pressure/vacuum line?*

YES : Repair or replace hoses and pipes.

NO : Replace fuel tank pressure sensor.
<Ref. to 2-1 [W6A0].>

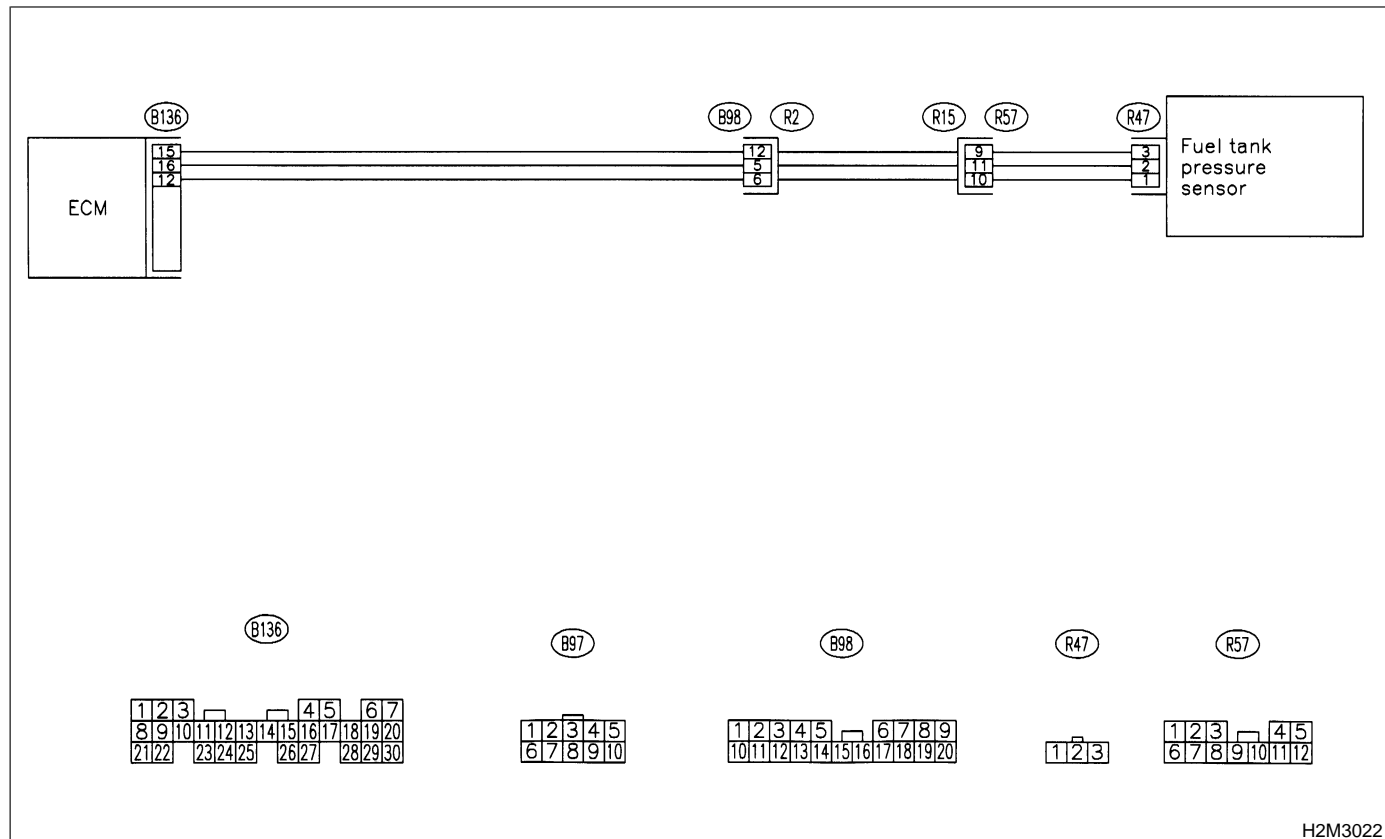
**AM: DTC P0452 — EVAPORATIVE EMISSION CONTROL SYSTEM
PRESSURE SENSOR LOW INPUT —**

- DTC DETECTING CONDITION:
 - Immediately at fault recognition

CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to 2-7 [T3D0].> and INSPECTION MODE <Ref. to 2-7 [T3E0].>

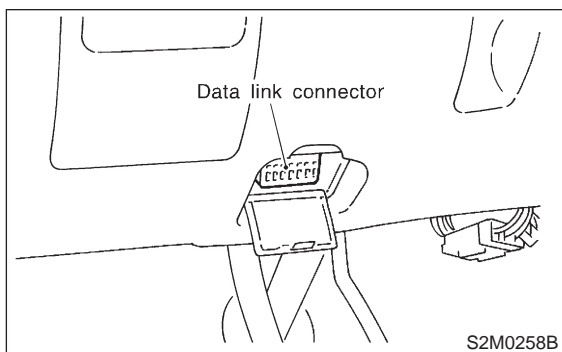
- WIRING DIAGRAM:



H2M3022

10AM1 : CONNECT SUBARU SELECT MONITOR OR THE OBD-II GENERAL SCAN TOOL, AND READ DATA.

- 1) Turn ignition switch to OFF.
- 2) Remove fuel filler cap.
- 3) Install fuel filler cap.
- 4) Connect Subaru Select Monitor or the OBD-II general scan tool to data link connector.



- 5) Turn ignition switch to ON and Subaru Select Monitor or the OBD-II general scan tool switch to ON.
- 6) Read the data of fuel tank pressure sensor signal using Subaru Select Monitor or the OBD-II general scan tool.

NOTE:

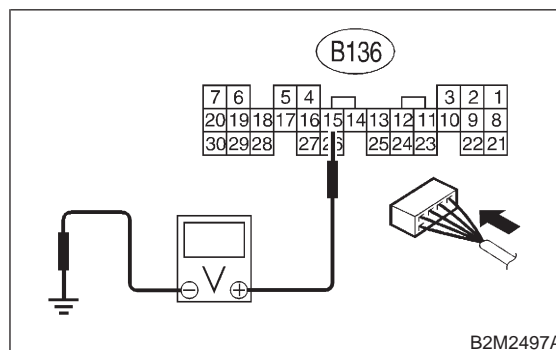
- Subaru Select Monitor
For detailed operation procedure, refer to the "READ CURRENT DATA SHOWN ON DISPLAY FOR ENGINE". <Ref. to 2-7 [T3C4].>
- OBD-II general scan tool
For detailed operation procedures, refer to the OBD-II General Scan Tool Instruction Manual.

- CHECK** : *Is the value less than -2.8 kPa (-21.0 mmHg, -0.827 inHg)?*
- YES** : Go to step 10AM2.
- NO** : Even if MIL lights up, the circuit has returned to a normal condition at this time.

10AM2 : CHECK POWER SUPPLY TO FUEL TANK PRESSURE SENSOR.

Measure voltage between ECM connector and chassis ground.

Connector & terminal
(B136) No. 15 (+) — Chassis ground (-):

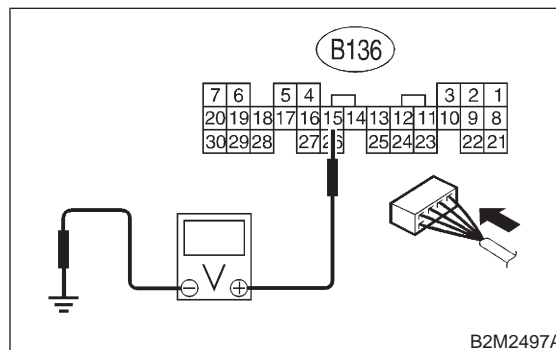


- CHECK** : *Is the voltage more than 4.5 V?*
- YES** : Go to step 10AM4.
- NO** : Go to step 10AM3.

10AM3 : CHECK POWER SUPPLY TO FUEL TANK PRESSURE SENSOR.

Measure voltage between ECM connector and chassis ground.

Connector & terminal
(B136) No. 15 (+) — Chassis ground (-):



- CHECK** : *Does the voltage change more than 4.5 V by shaking harness and connector of ECM while monitoring the value with voltage meter?*
- YES** : Repair poor contact in ECM connector.
- NO** : Contact with SOA service.

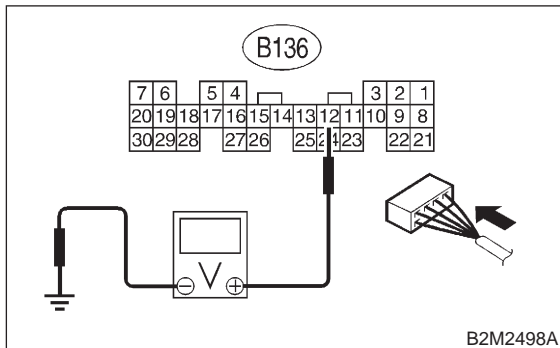
NOTE:

Inspection by DTM is required, because probable cause is deterioration of multiple parts.

10AM4 : CHECK INPUT SIGNAL FOR ECM.

Measure voltage between ECM and chassis ground.

Connector & terminal (B136) No. 12 (+) — Chassis ground (-):



- CHECK** : Is the voltage less than 0.2 V?
- YES** : Go to step 10AM6.
- NO** : Go to step 10AM5.

10AM5 : CHECK INPUT SIGNAL FOR ECM. (USING SUBARU SELECT MONITOR.)

Read data of fuel tank pressure sensor signal using Subaru Select Monitor.

NOTE:

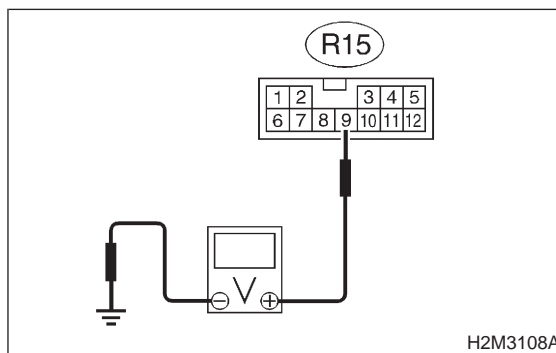
- Subaru Select Monitor
- For detailed operation procedure, refer to the "READ CURRENT DATA SHOWN ON DISPLAY FOR ENGINE". <Ref. to 2-7 [T3C4].>

- CHECK** : Does the value change more than -2.8 kPa (-21.0 mmHg, -0.827 inHg) by shaking harness and connector of ECM while monitoring the value with Subaru Select Monitor?
- YES** : Repair poor contact in ECM connector.
- NO** : Go to step 10AM6.

10AM6 : CHECK HARNESS BETWEEN ECM AND COUPLING CONNECTOR IN REAR WIRING HARNESS.

- 1) Turn ignition switch to OFF.
- 2) Remove rear seat cushion (Sedan) or move rear seat cushion (Wagon).
- 3) Separate rear wiring harness and fuel tank cord.
- 4) Turn ignition switch to ON.
- 5) Measure voltage between rear wiring harness connector and chassis ground.

Connector & terminal (R15) No. 9 (+) — Chassis ground (-):



- CHECK** : Is the voltage more than 4.5 V?
- YES** : Go to step 10AM7.
- NO** : Repair harness and connector.

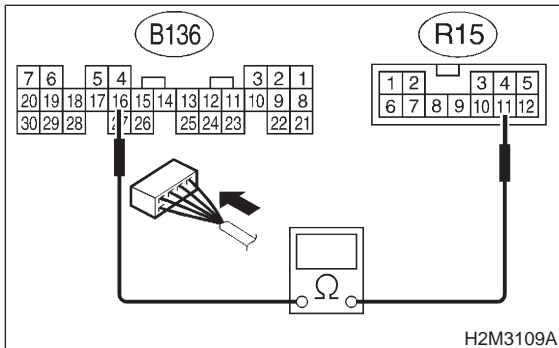
NOTE:

- In this case, repair the following:
- Open circuit in harness between ECM and rear wiring harness connector (R15)
 - Poor contact in coupling connector (B98)

10AM7 : CHECK HARNESS BETWEEN ECM AND COUPLING CONNECTOR IN REAR WIRING HARNESS.

- 1) Turn ignition switch to OFF.
- 2) Disconnect connector from ECM.
- 3) Measure resistance of harness between ECM and rear wiring harness connector.

Connector & terminal
(B136) No. 16 — (R15) No. 11:



- CHECK** : Is the resistance less than 1 Ω?
- YES** : Go to step 10AM8.
- NO** : Repair harness and connector.

NOTE:

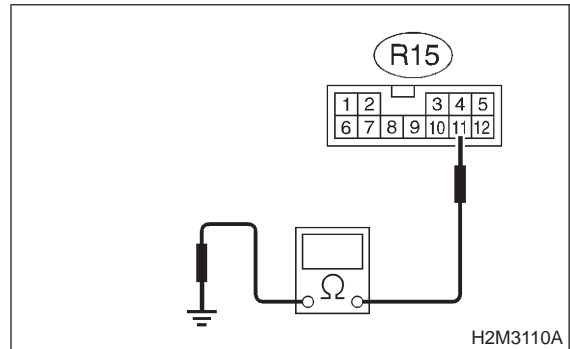
In this case, repair the following:

- Open circuit in harness between ECM and rear wiring harness connector (R15)
- Poor contact in coupling connector (B98)

10AM8 : CHECK HARNESS BETWEEN ECM AND COUPLING CONNECTOR IN REAR WIRING HARNESS.

Measure resistance of harness between rear wiring harness connector and chassis ground.

Connector & terminal
(R15) No. 11 — Chassis ground:

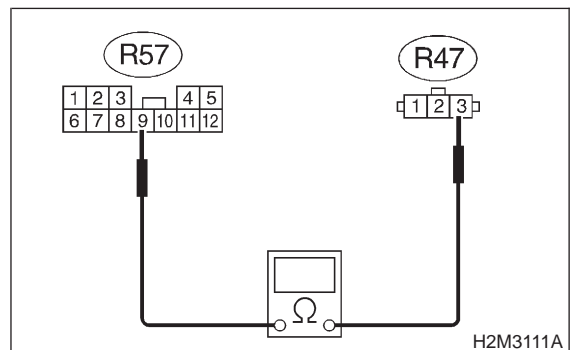


- CHECK** : Is the resistance more than 500 kΩ?
- YES** : Go to step 10AM9.
- NO** : Repair ground short circuit in harness between ECM and rear wiring harness connector (R15).

10AM9 : CHECK FUEL TANK CORD.

- 1) Remove fuel tank. <Ref. to 2-8 [W2A0].>
- 2) Disconnect connector from fuel tank pressure sensor.
- 3) Measure resistance of fuel tank cord.

Connector & terminal
(R57) No. 9 — (R47) No. 3:



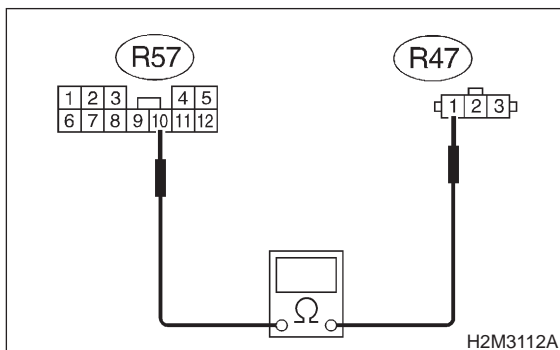
- CHECK** : Is the resistance less than 1 Ω?
- YES** : Go to step 10AM10.
- NO** : Repair open circuit in fuel tank cord.

10AM10 : CHECK FUEL TANK CORD.

Measure resistance of fuel tank cord.

Connector & terminal

(R57) No. 10 — (R47) No. 1:



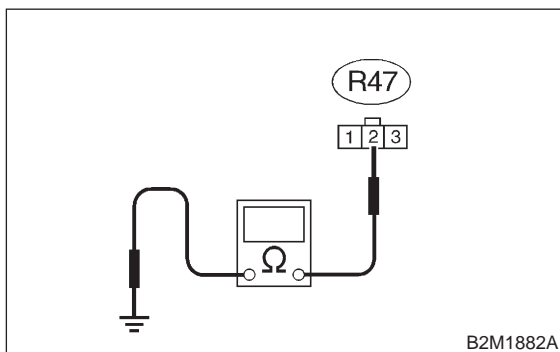
- CHECK** : **Is the resistance less than 1 Ω?**
YES : Go to step **10AM11**.
NO : Repair open circuit in fuel tank cord.

10AM11 : CHECK FUEL TANK CORD.

Measure resistance of harness between fuel tank pressure sensor connector and chassis ground.

Connector & terminal

(R47) No. 2 — Chassis ground:



- CHECK** : **Is the resistance more than 500 kΩ?**
YES : Go to step **10AM12**.
NO : Repair ground short circuit in fuel tank cord.

10AM12 : CHECK POOR CONTACT.

Check poor contact in fuel tank pressure sensor connector. <Ref. to FOREWORD [T3C1].>

- CHECK** : **Is there poor contact in fuel tank pressure sensor connector?**
YES : Repair poor contact in fuel tank pressure sensor connector.
NO : Replace fuel tank pressure sensor. <Ref. to 2-1 [W6A0].>

MEMO:

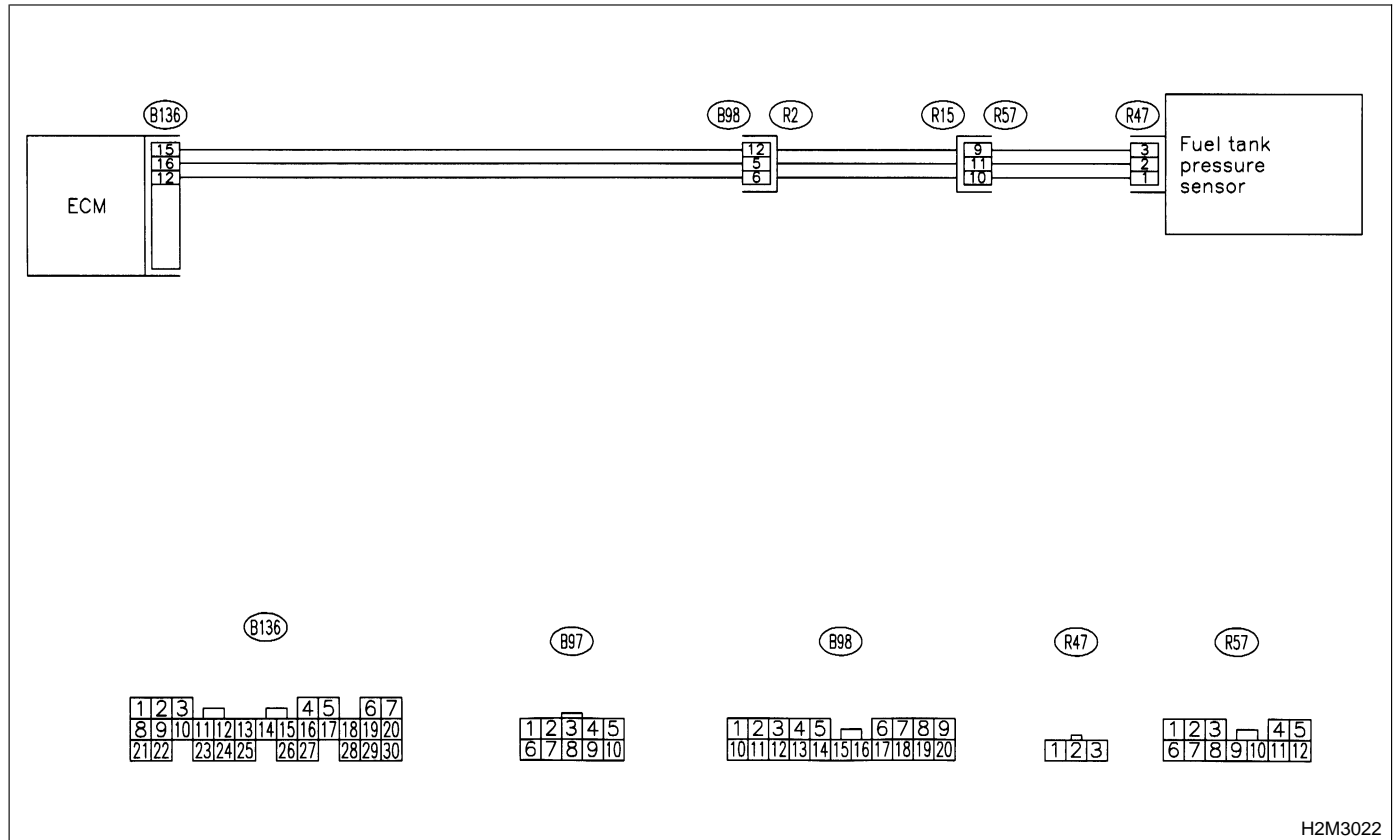
AN: DTC P0453 — EVAPORATIVE EMISSION CONTROL SYSTEM PRESSURE SENSOR HIGH INPUT —

- **DTC DETECTING CONDITION:**
 - Immediately at fault recognition

CAUTION:

After repair or replacement of faulty parts, conduct **CLEAR MEMORY MODE** <Ref. to 2-7 [T3D0].> and **INSPECTION MODE** <Ref. to 2-7 [T3E0].>

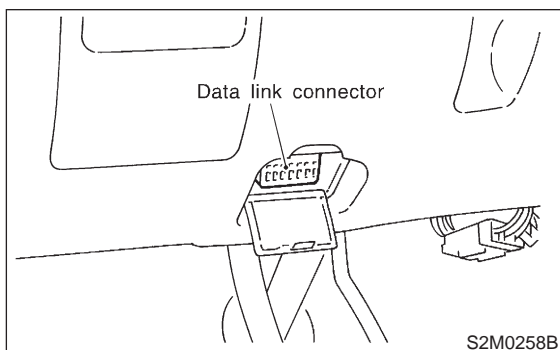
- **WIRING DIAGRAM:**



H2M3022

10AN1 : CONNECT SUBARU SELECT MONITOR OR THE OBD-II GENERAL SCAN TOOL, AND READ DATA.

- 1) Turn ignition switch to OFF.
- 2) Remove fuel filler cap.
- 3) Install fuel filler cap.
- 4) Connect Subaru Select Monitor or the OBD-II general scan tool to data link connector.



- 5) Turn ignition switch to ON and Subaru Select Monitor or the OBD-II general scan tool switch to ON.
- 6) Read data of fuel tank pressure sensor signal using Subaru Select Monitor or OBD-II general scan tool.

NOTE:

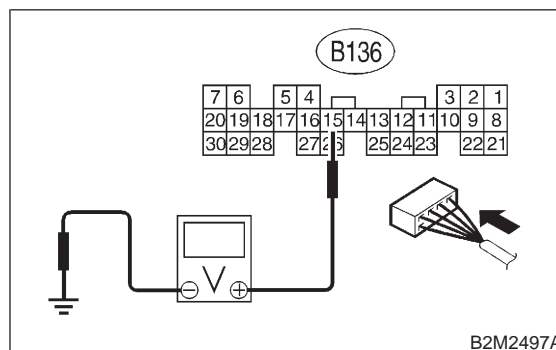
- Subaru Select Monitor
For detailed operation procedure, refer to the "READ CURRENT DATA SHOWN ON DISPLAY FOR ENGINE". <Ref. to 2-7 [T3C4].>
- OBD-II general scan tool
For detailed operation procedures, refer to the OBD-II General Scan Tool Instruction Manual.

- CHECK** : *Is the value more than 2.8 kPa (21.0 mmHg, 0.827 inHg)?*
- YES** : Go to step 10AN12.
- NO** : Go to step 10AN2.

10AN2 : CHECK POWER SUPPLY TO FUEL TANK PRESSURE SENSOR.

Measure voltage between ECM connector and chassis ground.

Connector & terminal
(B136) No. 15 (+) — Chassis ground (-):

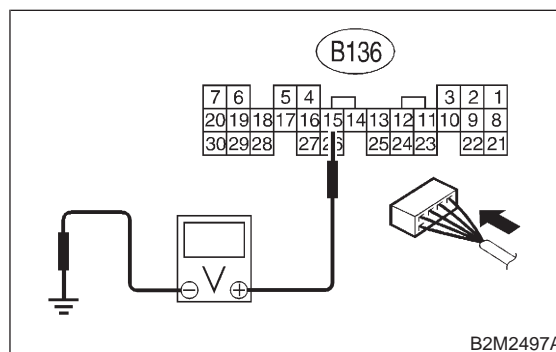


- CHECK** : *Is the voltage more than 4.5 V?*
- YES** : Go to step 10AN4.
- NO** : Go to step 10AN3.

10AN3 : CHECK POWER SUPPLY TO FUEL TANK PRESSURE SENSOR.

Measure voltage between ECM connector and chassis ground.

Connector & terminal
(B136) No. 15 (+) — Chassis ground (-):

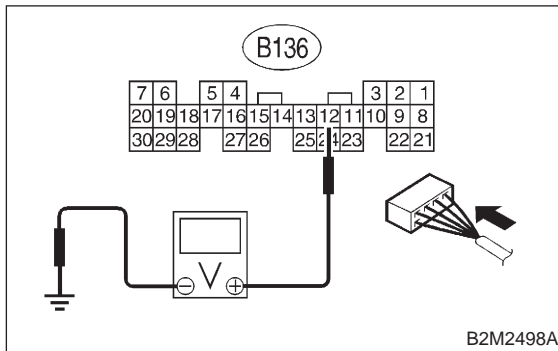


- CHECK** : *Does the voltage change more than 4.5 V by shaking harness and connector of ECM while monitoring the value with voltage meter?*
- YES** : Repair poor contact in ECM connector.
- NO** : Replace ECM. <Ref. to 2-7 [W15A0].>

10AN4 : CHECK INPUT SIGNAL FOR ECM.

Measure voltage between ECM and chassis ground.

Connector & terminal
(B136) No. 12 (+) — Chassis ground (-):



- CHECK** : *Is the voltage less than 0.2 V?*
- YES** : Go to step **10AN6**.
- NO** : Go to step **10AN5**.

10AN5 : CHECK INPUT SIGNAL FOR ECM. (USING SUBARU SELECT MONITOR.)

Read data of fuel tank pressure sensor signal using Subaru Select Monitor.

NOTE:

- Subaru Select Monitor

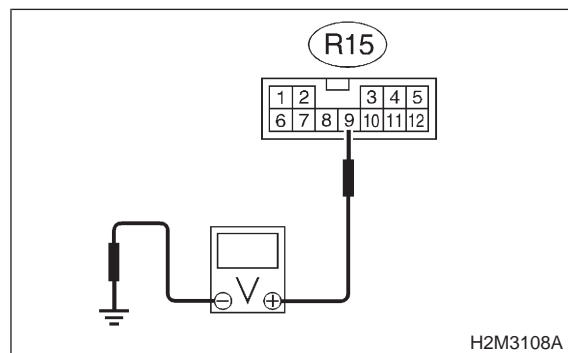
For detailed operation procedure, refer to the "READ CURRENT DATA SHOWN ON DISPLAY FOR ENGINE". <Ref. to 2-7 [T3C4].>

- CHECK** : *Does the value change more than -2.8 kPa (-21.0 mmHg, -0.827 inHg) by shaking harness and connector of ECM while monitoring the value with Subaru Select Monitor?*
- YES** : Repair poor contact in ECM connector.
- NO** : Go to step **10AN6**.

10AN6 : CHECK HARNESS BETWEEN ECM AND COUPLING CONNECTOR IN REAR WIRING HARNESS.

- Turn ignition switch to OFF.
- Remove rear seat cushion (Sedan) or move rear seat cushion (Wagon).
- Separate rear wiring harness and fuel tank cord.
- Turn ignition switch to ON.
- Measure voltage between rear wiring harness connector and chassis ground.

Connector & terminal
(R15) No. 9 (+) — Chassis ground (-):



- CHECK** : *Is the voltage more than 4.5 V?*
- YES** : Go to step **10AN7**.
- NO** : Repair harness and connector.

NOTE:

In this case, repair the following:

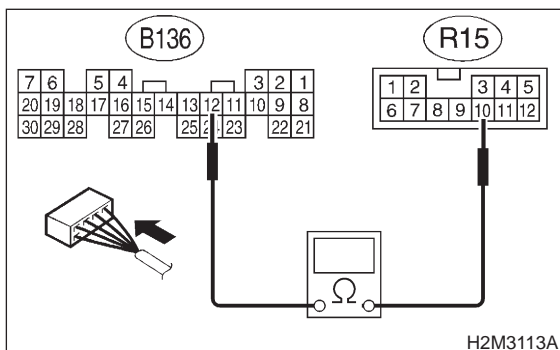
- Open circuit in harness between ECM and rear wiring harness connector (R15)
- Poor contact in coupling connector (B98)

10AN7 : CHECK HARNESS BETWEEN ECM AND COUPLING CONNECTOR IN REAR WIRING HARNESS.

- 1) Turn ignition switch to OFF.
- 2) Disconnect connector from ECM.
- 3) Measure resistance of harness between ECM and rear wiring harness connector.

Connector & terminal

(B136) No. 12 — (R15) No. 10:



- CHECK** : Is the resistance less than 1 Ω?
- YES** : Go to step 10AN8.
- NO** : Repair harness and connector.

NOTE:

In this case, repair the following:

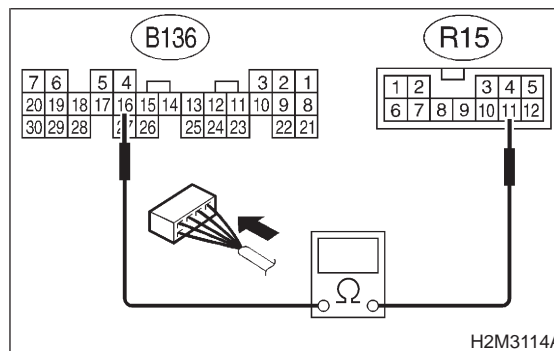
- Open circuit in harness between ECM and rear wiring harness connector (R15)
- Poor contact in coupling connector (B98)

10AN8 : CHECK HARNESS BETWEEN ECM AND COUPLING CONNECTOR IN REAR WIRING HARNESS.

Measure resistance of harness between rear wiring harness connector and chassis ground.

Connector & terminal

(B136) No. 16 — (R15) No. 11:



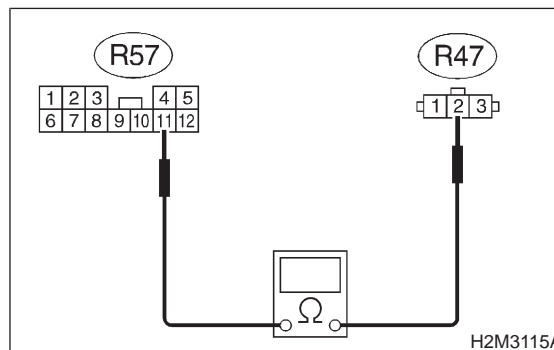
- CHECK** : Is the resistance less than 1 Ω?
- YES** : Go to step 10AN9.
- NO** : Repair ground short circuit in harness between ECM and rear wiring harness connector (R15).

10AN9 : CHECK FUEL TANK CORD.

- 1) Remove fuel tank. <Ref. to 2-8 [W2A0].>
- 2) Disconnect connector from fuel tank pressure sensor.
- 3) Measure resistance of fuel tank cord.

Connector & terminal

(R57) No. 11 — (R47) No. 2:



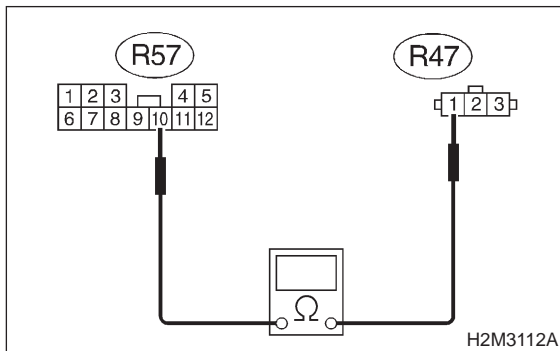
- CHECK** : Is the resistance less than 1 Ω?
- YES** : Go to step 10AN10.
- NO** : Repair open circuit in fuel tank cord.

10AN10 : CHECK FUEL TANK CORD.

Measure resistance of fuel tank cord.

Connector & terminal

(R57) No. 10 — (R47) No. 1:



- CHECK** : **Is the resistance less than 1 Ω?**
YES : Go to step **10AN11**.
NO : Repair open circuit in fuel tank cord.

10AN11 : CHECK POOR CONTACT.

Check poor contact in fuel tank pressure sensor connector. <Ref. to FOREWORD [T3C1].>

- CHECK** : **Is there poor contact in fuel tank pressure sensor connector?**
YES : Repair poor contact in fuel tank pressure sensor connector.
NO : Replace fuel tank pressure sensor. <Ref. to 2-1 [W6A0].>

10AN12 : CHECK HARNESS BETWEEN ECM AND FUEL TANK PRESSURE SENSOR CONNECTOR.

- 1) Turn ignition switch to OFF and Subaru Select Monitor or the OBD-II general scan tool switch to OFF.
- 2) Remove fuel tank. <Ref. to 2-8 [W2A0].>
- 3) Remove fuel tank cord from fuel tank.
- 4) Connect fuel tank cord to rear wiring harness.
- 5) Remove fuel filler cap.
- 6) Install fuel filler cap.
- 7) Turn ignition switch to ON and Subaru Select Monitor or the OBD-II general scan tool switch to ON.
- 8) Read data of fuel tank pressure sensor signal using Subaru Select Monitor or the OBD-II general scan tool.

NOTE:

- Subaru Select Monitor
For detailed operation procedure, refer to the "READ CURRENT DATA SHOWN ON DISPLAY FOR ENGINE". <Ref. to 2-7 [T3C4].>
- OBD-II general scan tool
For detailed operation procedures, refer to the OBD-II General Scan Tool Instruction Manual.

- CHECK** : **Is the value more than 2.8 kPa (21.0 mmHg, 0.827 inHg)?**
YES : Repair battery short circuit in harness between ECM and fuel tank pressure sensor connector.
NO : Replace fuel tank pressure sensor. <Ref. to 2-1 [W6A0].>

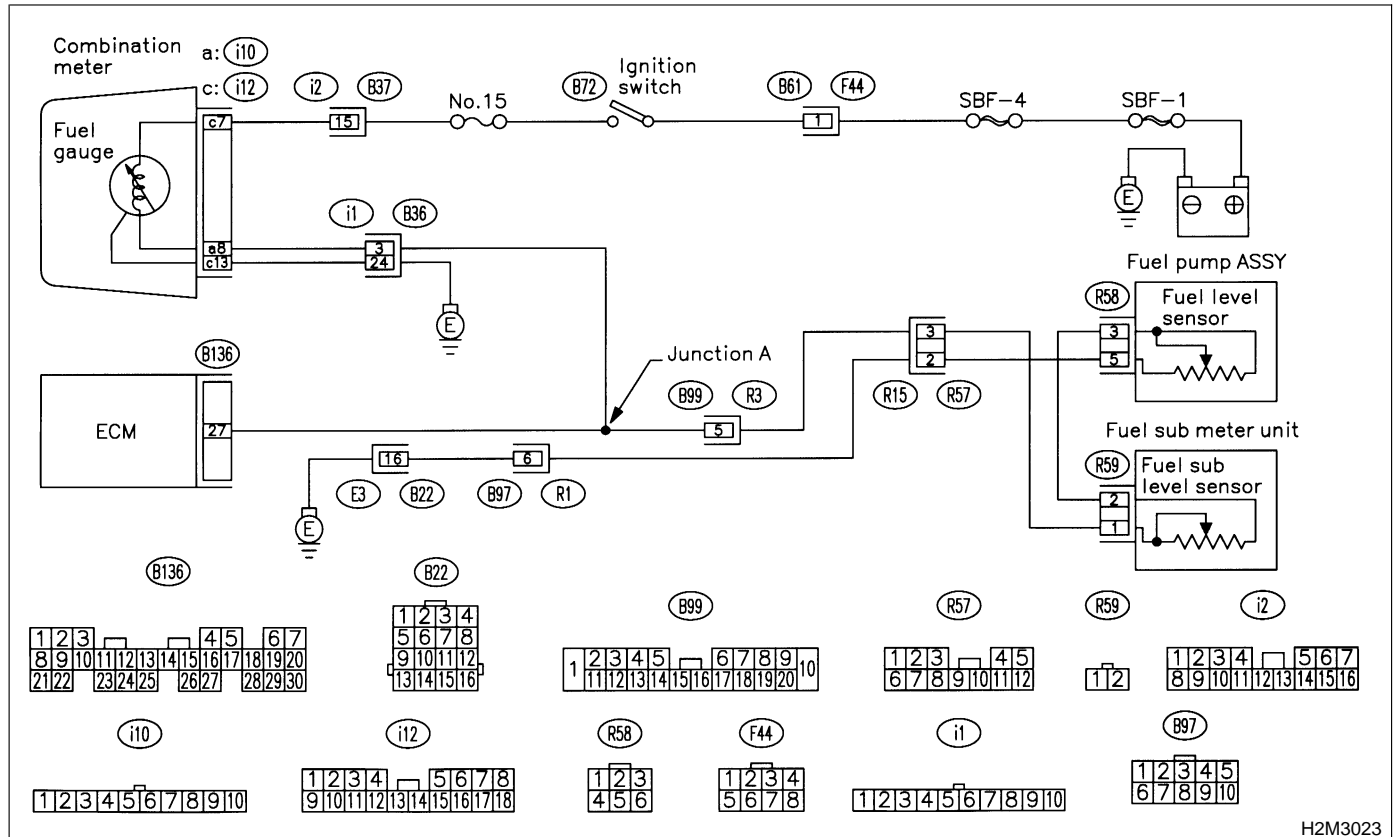
AO: DTC P0461 — FUEL LEVEL SENSOR CIRCUIT RANGE/PERFORMANCE PROBLEM —

- **DTC DETECTING CONDITION:**
 - Two consecutive driving cycles with fault

CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to 2-7 [T3D0].> and INSPECTION MODE <Ref. to 2-7 [T3E0].>

● **WIRING DIAGRAM:**



10A01 : CHECK ANY OTHER DTC ON DISPLAY.

- CHECK** : Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0462 or P0463?
- YES** : Inspect DTC P0462 or P0463 using "10. Diagnostics Chart with Trouble Code for 2200 cc California Spec. Vehicles". <Ref. to 2-7 [T10A0].>

NOTE:

In this case, it is not necessary to inspect this trouble.

- NO** : Replace fuel sending unit <Ref. to 2-1 [W8A0].> and fuel sub meter unit <Ref. to 2-1 [W10A0].>

AP: DTC P0462 — FUEL LEVEL SENSOR CIRCUIT LOW INPUT —

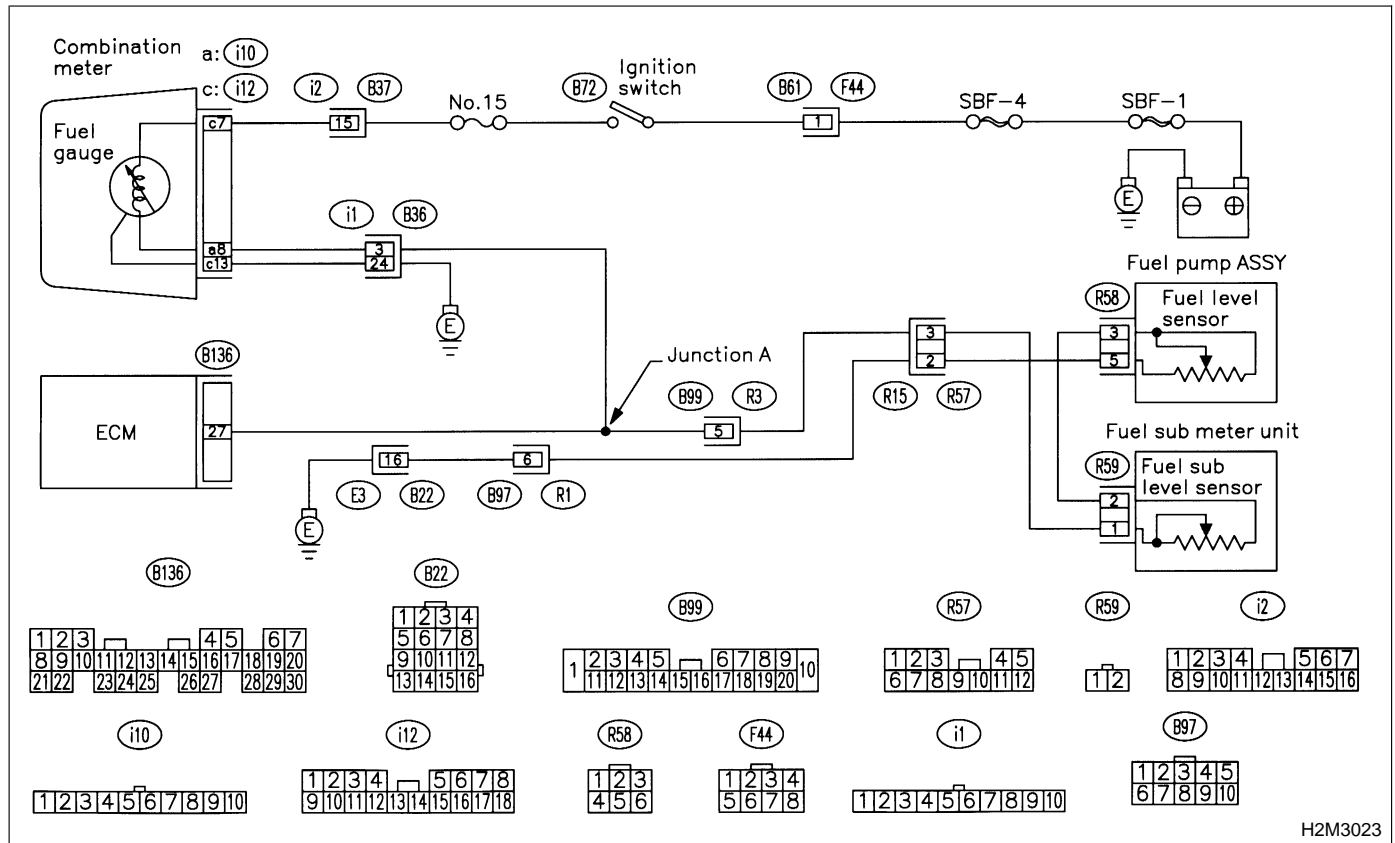
• DTC DETECTING CONDITION:

- Two consecutive driving cycles with fault

CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to 2-7 [T3D0].> and INSPECTION MODE <Ref. to 2-7 [T3E0].>

• WIRING DIAGRAM:



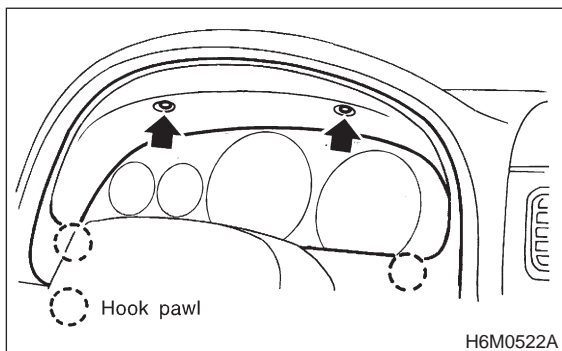
H2M3023

10AP1 : CHECK SPEEDOMETER AND TACHOMETER OPERATION IN COMBINATION METER.

- CHECK** : Does speedometer and tachometer operate normally?
- YES** : Go to step 10AP3.
- NO** : Go to step 10AP2.

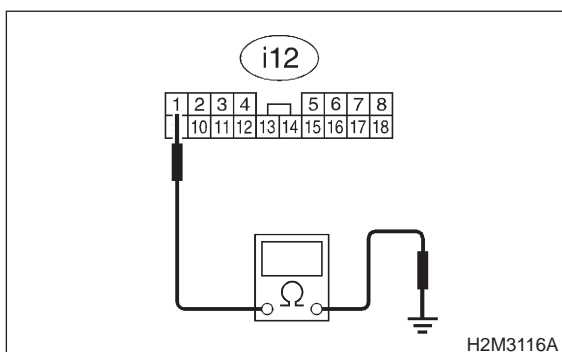
10AP2 : CHECK GROUND CIRCUIT OF COMBINATION METER.

- 1) Turn ignition switch to OFF.
- 2) Pull out combination meter from instrument panel. <Ref. to 6-2 [W8A0].>



- 3) Disconnect connector from combination meter.
- 4) Measure resistance of harness between combination meter connector and chassis ground.

Connector & terminal
(i12) No. 1 — Chassis ground:



- CHECK** : **Is resistance less than 5 Ω?**
- YES** : Repair or replace combination meter. <Ref. to 6-2 [W8A0].>
- NO** : Repair harness and connector.

NOTE:

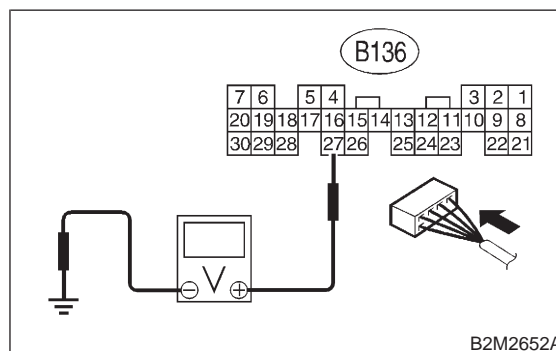
In this case, repair the following:

- Open circuit in harness between combination meter connector and grounding terminal
- Poor contact in combination meter connector
- Poor contact in grounding terminal

10AP3 : CHECK INPUT SIGNAL FOR ECM.

- 1) Turn ignition switch to ON. (Engine OFF)
- 2) Measure voltage between ECM connector and chassis ground.

Connector & terminal
(B136) No. 27 (+) — Chassis ground (-):



- CHECK** : **Is the voltage less than 0.12 V?**
- YES** : Go to step 10AP5.
- NO** : Go to step 10AP4.

10AP4 : CHECK INPUT SIGNAL FOR ECM. (USING SUBARU SELECT MONITOR.)

Read data of fuel level sensor signal using Subaru Select Monitor.

NOTE:

- Subaru Select Monitor
- For detailed operation procedure, refer to the "READ CURRENT DATA SHOWN ON DISPLAY FOR ENGINE". <Ref. to 2-7 [T3C4].>

CHECK : **Does the value change less than 0.12 V by shaking harness and connector of ECM while monitoring the value with Subaru Select Monitor?**

- YES** : Repair poor contact in ECM connector.
- NO** : Even if MIL lights up, the circuit has returned to a normal condition at this time. A temporary poor contact of the connector may be the cause.

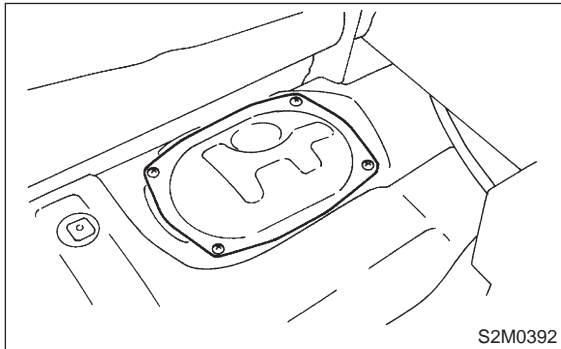
NOTE:

In this case, repair the following:

- Poor contact in fuel pump connector
- Poor contact in combination meter connector
- Poor contact in ECM connector
- Poor contact in coupling connectors (i1), (B22), (B99), (B97) and (R57)

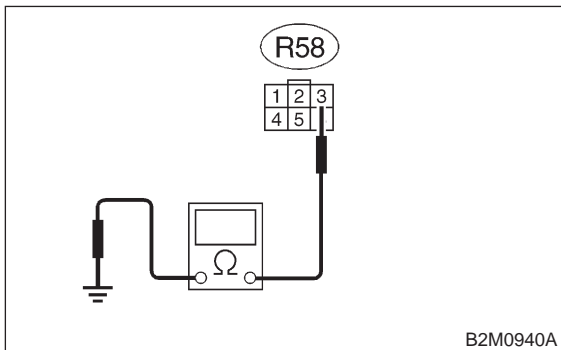
10AP5 : CHECK HARNESS BETWEEN ECM, COMBINATION METER AND FUEL PUMP CONNECTOR.

- 1) Turn ignition switch to OFF.
- 2) Remove fuel pump access hole lid located on the right rear of trunk compartment floor (Sedan) or luggage compartment floor (Wagon).



- 3) Disconnect connector from fuel pump.
- 4) Measure resistance of harness between fuel pump connector and chassis ground.

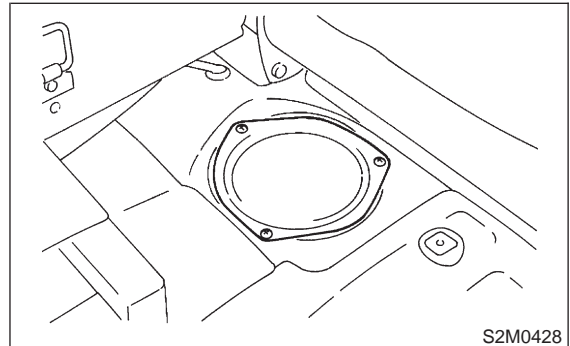
Connector & terminal
(R58) No. 3 — Chassis ground:



- CHECK** : Is the resistance less than 10 Ω?
- YES** : Go to step 10AP6.
- NO** : Go to step 10AP11.

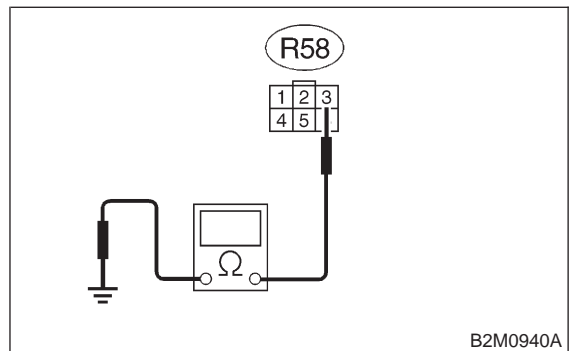
10AP6 : CHECK FUEL TANK CORD.

- 1) Remove service hole cover located on the left rear of trunk compartment floor (Sedan) or luggage compartment floor (Wagon).



- 2) Disconnect connector from fuel sub meter unit.
- 3) Measure resistance of harness between fuel pump connector and chassis ground.

Connector & terminal
(R58) No. 3 — Chassis ground:



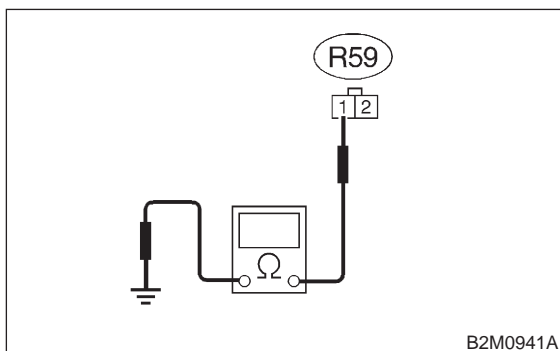
- CHECK** : Is the resistance less than 10 Ω?
- YES** : Repair ground short circuit in harness between fuel pump and fuel sub meter unit connector.
- NO** : Go to step 10AP7.

10AP7 : CHECK REAR WIRING HARNESS.

- 1) Separate fuel tank cord connector (R57) and rear wiring harness connector (R15).
- 2) Measure resistance of harness between fuel sub meter unit connector and chassis ground.

Connector & terminal

(R59) No. 1 — Chassis ground:



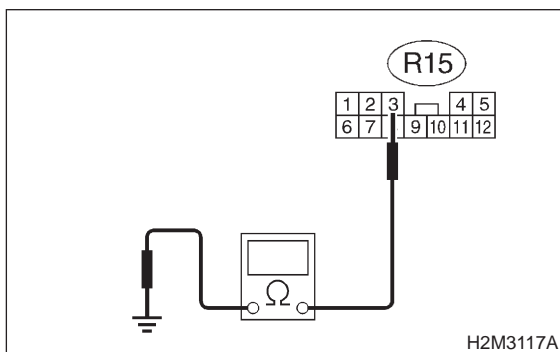
- CHECK** : **Is the resistance less than 10 Ω?**
- YES** : Repair ground short circuit in fuel tank cord.
- NO** : Go to step **10AP8**.

10AP8 : CHECK REAR, BULKHEAD AND INSTRUMENT PANEL WIRING HARNESS.

- 1) Separate rear wiring harness connector (R1) and bulkhead wiring harness connector (B97).
- 2) Measure resistance of harness between rear wiring harness connector and chassis ground.

Connector & terminal

(R15) No. 3 — Chassis ground:



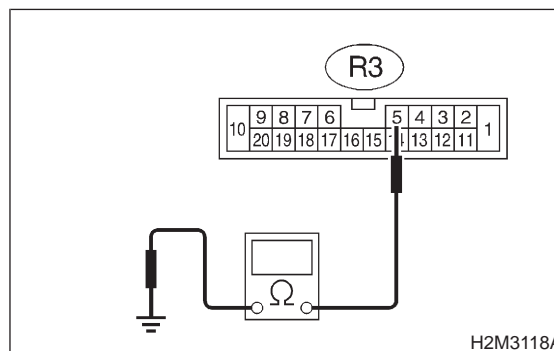
- CHECK** : **Is the resistance less than 10 Ω?**
- YES** : Go to step **10AP9**.
- NO** : Repair ground short circuit in bulkhead wiring harness.

10AP9 : CHECK REAR WIRING HARNESS.

- 1) Separate rear wiring harness connector (R3) and bulkhead wiring harness connector (B99).
- 2) Measure resistance of harness between rear wiring harness connector and chassis ground.

Connector & terminal

(R3) No. 5 — Chassis ground:



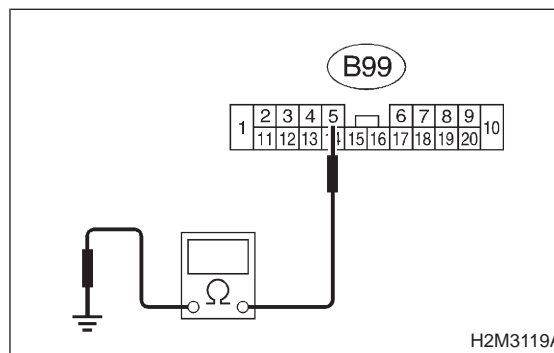
- CHECK** : **Is the resistance less than 10 Ω?**
- YES** : Repair ground short circuit in rear wiring harness.
- NO** : Go to step **10AP10**.

10AP10 : CHECK BULKHEAD WIRING HARNESS.

- 1) Separate bulkhead wiring harness connector (B36) and instrument panel wiring harness connector (i1).
- 2) Measure resistance of harness between bulkhead wiring harness connector and chassis ground.

Connector & terminal

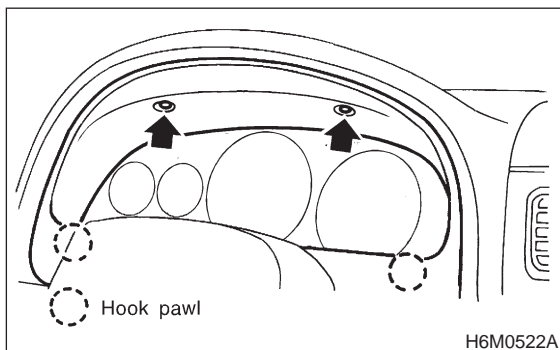
(B99) No. 5 — Chassis ground:



- CHECK** : **Is the resistance less than 10 Ω?**
- YES** : Repair ground short circuit in bulkhead wiring harness.
- NO** : Repair ground short circuit in instrument panel wiring harness.

10AP11 : CHECK HARNESS BETWEEN COMBINATION METER AND FUEL PUMP CONNECTOR.

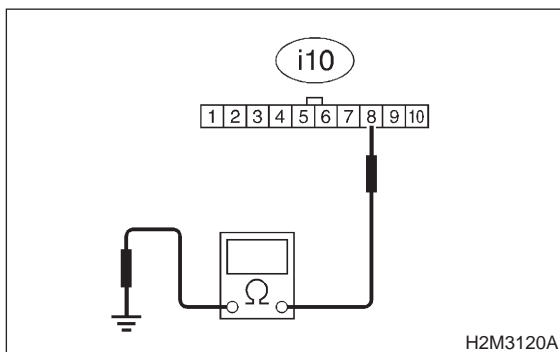
- 1) Connect connector to fuel pump.
- 2) Pull out combination meter from instrument panel. <Ref. to 6-2 [W8A0].>



- 3) Disconnect connector from combination meter.
- 4) Measure resistance of harness between combination meter connector and chassis ground.

Connector & terminal

(i10) No. 8 — Chassis ground:



CHECK : **Is the resistance less than 200 Ω?**

YES : Go to step **10AP12**.

NO : Repair harness and connector.

NOTE:

In this case, repair the following:

- Open circuit in harness between combination meter connector and junction A on rear wiring harness
- Poor contact in coupling connectors (i1) and (B99)

10AP12 : CHECK COMBINATION METER.

Disconnect connector from combination meter and remove combination meter.

CHECK : **Is the fuel meter installation screw tightened securely?**

YES : Go to step **10AP13**.

NO : Tighten fuel meter installation screw securely.

10AP13 : CHECK COMBINATION METER PRINTED CIRCUIT PLATE.

Remove printed circuit plate assembly from combination meter assembly.

CHECK : **Is there flaw or burning on printed circuit plate assembly?**

YES : Replace printed circuit plate assembly.

NO : Replace fuel meter assembly. <Ref. to 6-2 [W8A0].>

MEMO:

AQ: DTC P0463 — FUEL LEVEL SENSOR CIRCUIT HIGH INPUT —

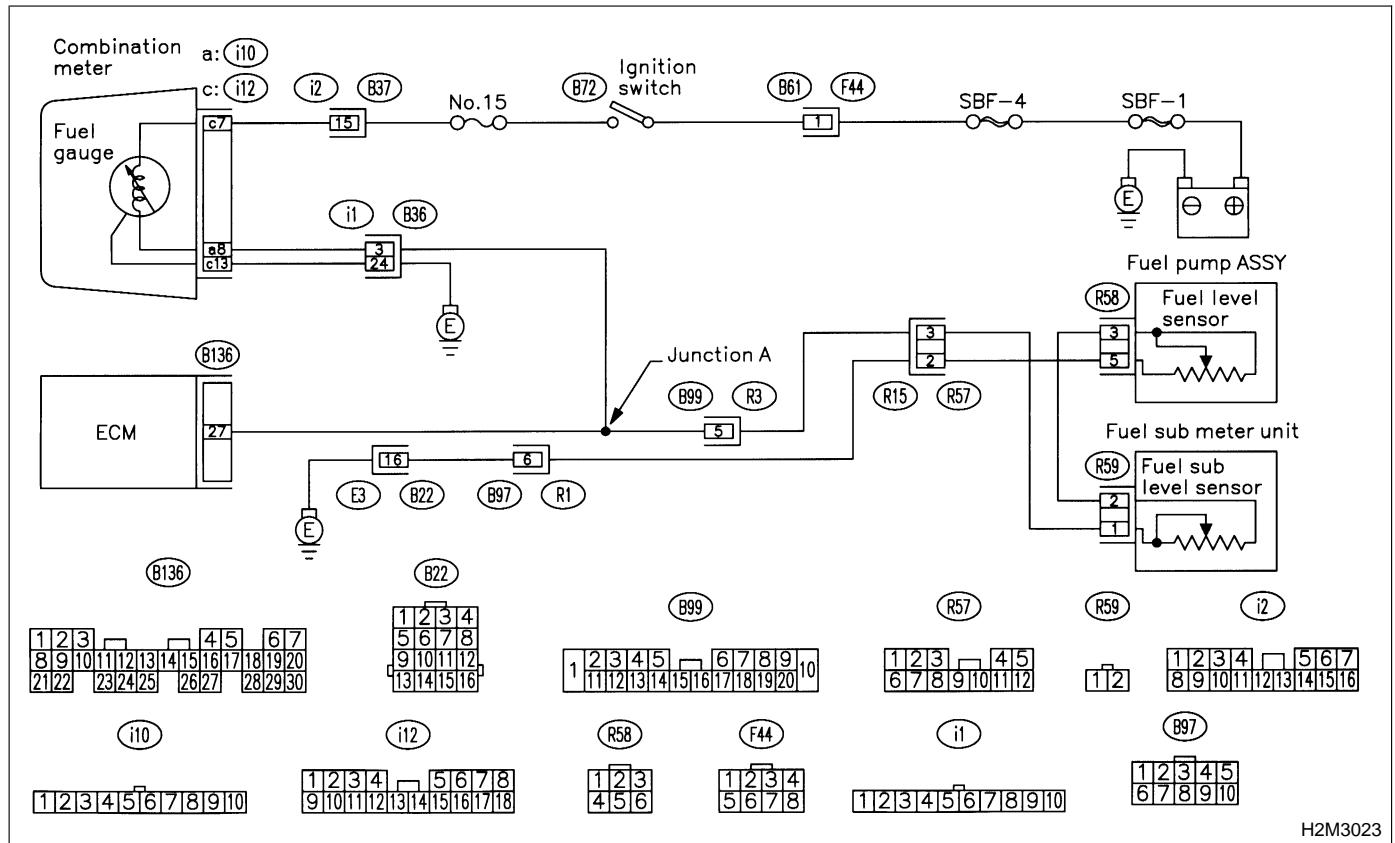
DTC DETECTING CONDITION:

- Two consecutive driving cycles with fault

CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to 2-7 [T3D0].> and INSPECTION MODE <Ref. to 2-7 [T3E0].>

WIRING DIAGRAM:



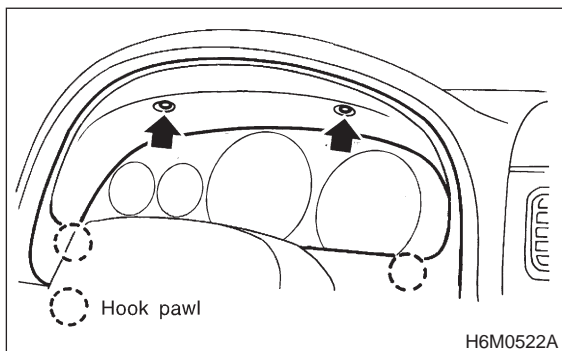
H2M3023

10AQ1 : CHECK SPEEDOMETER AND TACHOMETER OPERATION IN COMBINATION METER.

- CHECK** : Does speedometer and tachometer operate normally?
- YES** : Go to step 10AQ3.
- NO** : Go to step 10AQ2.

10AQ2 : CHECK GROUND CIRCUIT OF COMBINATION METER.

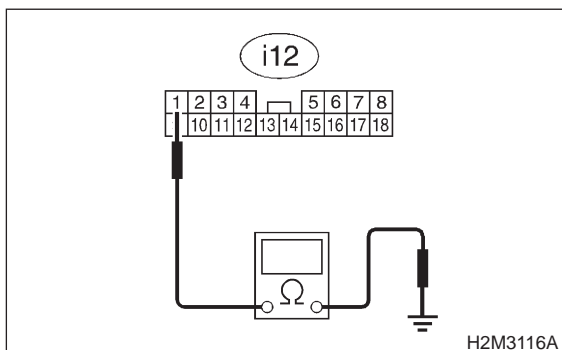
- 1) Turn ignition switch to OFF.
- 2) Pull out combination meter from instrument panel. <Ref. to 6-2 [W8A0].>



- 3) Disconnect connector from combination meter.
- 4) Measure resistance of harness between combination meter connector and chassis ground.

Connector & terminal

(i12) No. 1 — Chassis ground (-):



CHECK : **Is resistance less than 5 Ω?**

YES : Repair or replace combination meter. <Ref. to 6-2 [W8A0].>

NO : Repair harness and connector.

NOTE:

In this case, repair the following:

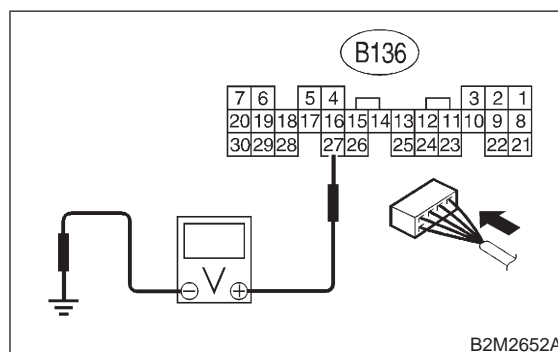
- Open circuit in harness between combination meter connector and grounding terminal
- Poor contact in combination meter connector
- Poor contact in grounding terminal

10AQ3 : CHECK INPUT SIGNAL FOR ECM.

- 1) Turn ignition switch to ON. (Engine OFF)
- 2) Measure voltage between ECM connector and chassis ground.

Connector & terminal

(B136) No. 27 (+) — Chassis ground (-):



CHECK : **Is the voltage more than 4.75 V?**

YES : Go to step 10AQ4.

NO : Even if MIL lights up, the circuit has returned to a normal condition at this time. A temporary poor contact of the connector may be the cause.

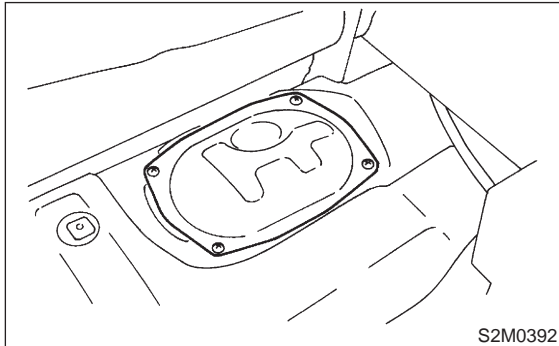
NOTE:

In this case, repair the following:

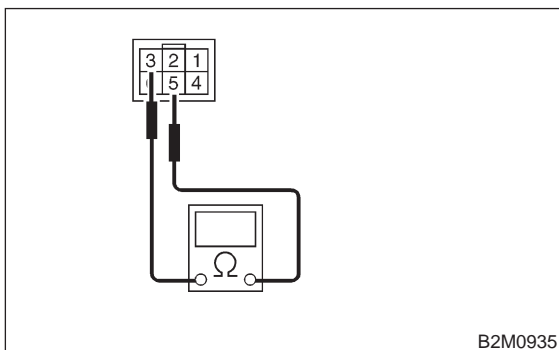
- Poor contact in fuel pump connector
- Poor contact in combination meter connector
- Poor contact in ECM connector
- Poor contact in coupling connector (i1), (B99), (B22), (B97) and (R57)

10AQ4 : CHECK FUEL LEVEL SENSOR.

- 1) Turn ignition switch to OFF.
- 2) Remove fuel pump access hole lid located on the right rear of trunk compartment floor (Sedan) or luggage compartment floor (Wagon).



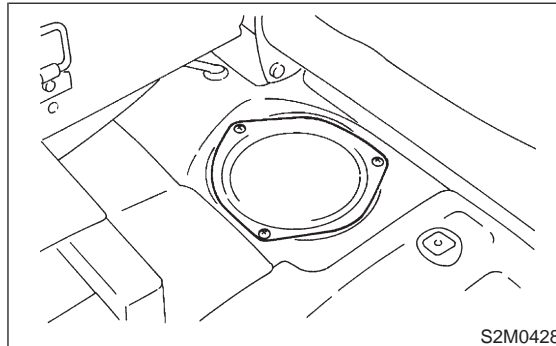
- 3) Disconnect connector from fuel pump.
- 4) Measure resistance between connector terminals of fuel pump.

Terminals**No. 3 — No. 5:**

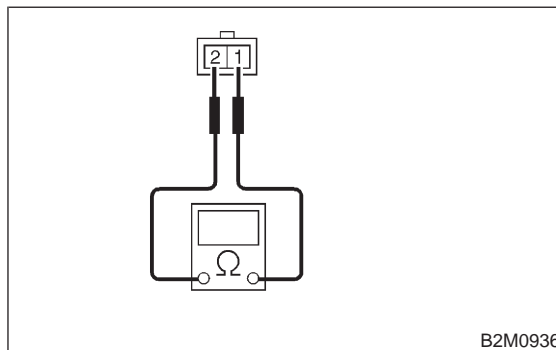
- CHECK** : *Is the resistance less than 100 Ω?*
- YES** : Go to step **10AQ5**.
- NO** : Replace fuel sending unit. <Ref. to 2-1 [W8A0].>

10AQ5 : CHECK FUEL SUB LEVEL SENSOR.

- 1) Remove service hole cover located on the left rear of trunk compartment floor (Sedan) or luggage compartment floor (Wagon).



- 2) Disconnect connector from fuel sub meter unit.
- 3) Measure resistance between connector terminals of fuel sub meter unit.

Terminals**No. 1 — No. 2:**

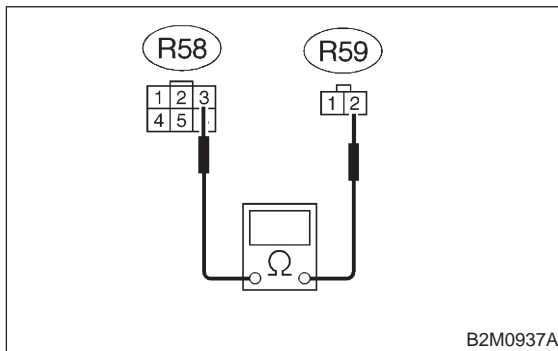
- CHECK** : *Is the resistance less than 100 Ω?*
- YES** : Go to step **10AQ6**.
- NO** : Replace fuel sub meter unit. <Ref. to 2-1 [W10A0].>

10AQ6 : CHECK HARNESS BETWEEN FUEL PUMP AND FUEL SUB METER UNIT CONNECTOR.

Measure resistance of harness between fuel pump and fuel sub meter unit connector.

Connector & terminal

(R58) No. 3 — (R59) No. 2:



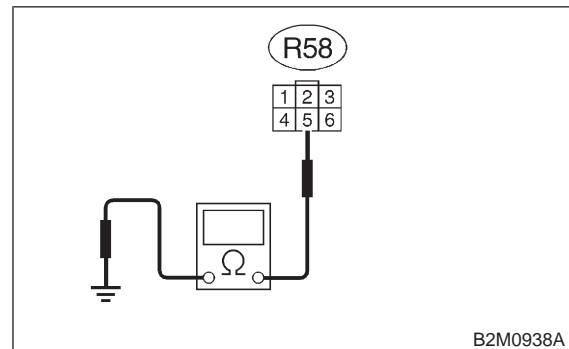
- CHECK** : *Is the resistance less than 1 Ω?*
- YES** : Go to step **10AQ7**.
- NO** : Repair open circuit in harness between fuel pump and fuel sub meter unit connector.

10AQ7 : CHECK GROUND CIRCUIT OF FUEL LEVEL SENSOR.

Measure resistance of harness between fuel pump connector and chassis ground.

Connector & terminal

(R58) No. 5 — Chassis ground:



- CHECK** : *Is the resistance less than 5 Ω?*
- YES** : Go to step **10AQ8**.
- NO** : Repair harness and connector.

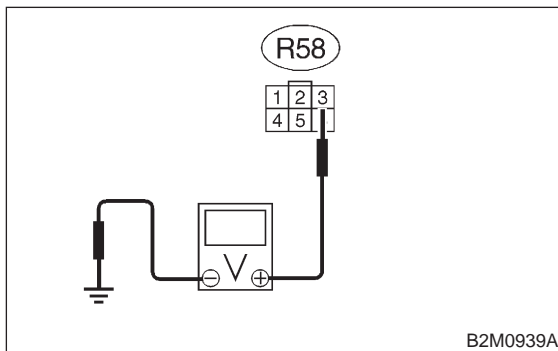
NOTE:

In this case, repair the following:

- Open circuit in harness between fuel pump connector and chassis grounding terminal
- Poor contact in fuel pump connector
- Poor contact in coupling connectors (R57), (B97) and (B22)

10AQ8 : CHECK HARNESS BETWEEN ECM AND FUEL PUMP CONNECTOR.

- 1) Connect connector to fuel sub meter unit.
- 2) Turn ignition switch to ON.
- 3) Measure voltage between fuel pump connector and chassis ground.

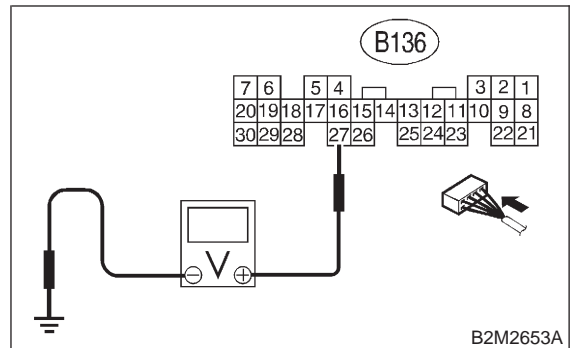
Connector & terminal**(R58) No. 3 (+) — Chassis ground (-):****CHECK** : **Is the voltage less than 1 V?****YES** : Repair harness and connector.**NOTE:**

In this case, repair the following:

- Open circuit in harness between fuel pump connector and junction A on rear wiring harness
- Poor contact in fuel sub meter unit connector
- Poor contact in fuel pump connector
- Poor contact in coupling connector (R57) and (R59)

NO : Go to step **10AQ9**.**10AQ9 : CHECK HARNESS BETWEEN ECM AND FUEL PUMP CONNECTOR.**

- 1) Turn ignition switch to OFF.
- 2) Disconnect connector from ECM.
- 3) Turn ignition switch to ON.
- 4) Measure voltage between ECM connector and chassis ground.

Connector & terminal**(B136) No. 27 (+) — Chassis ground (-):****CHECK** : **Is the voltage less than 1 V?****YES** : Repair harness and connector.**NOTE:**

In this case, repair the following:

- Open circuit in harness between ECM connector and junction A on rear wiring harness
- Poor contact in coupling connector (B97)

NO : Repair connector.**NOTE:**

In this case, repair the following:

- Poor contact in fuel pump connector
- Poor contact in fuel sub meter unit
- Poor contact in ECM connector

MEMO:

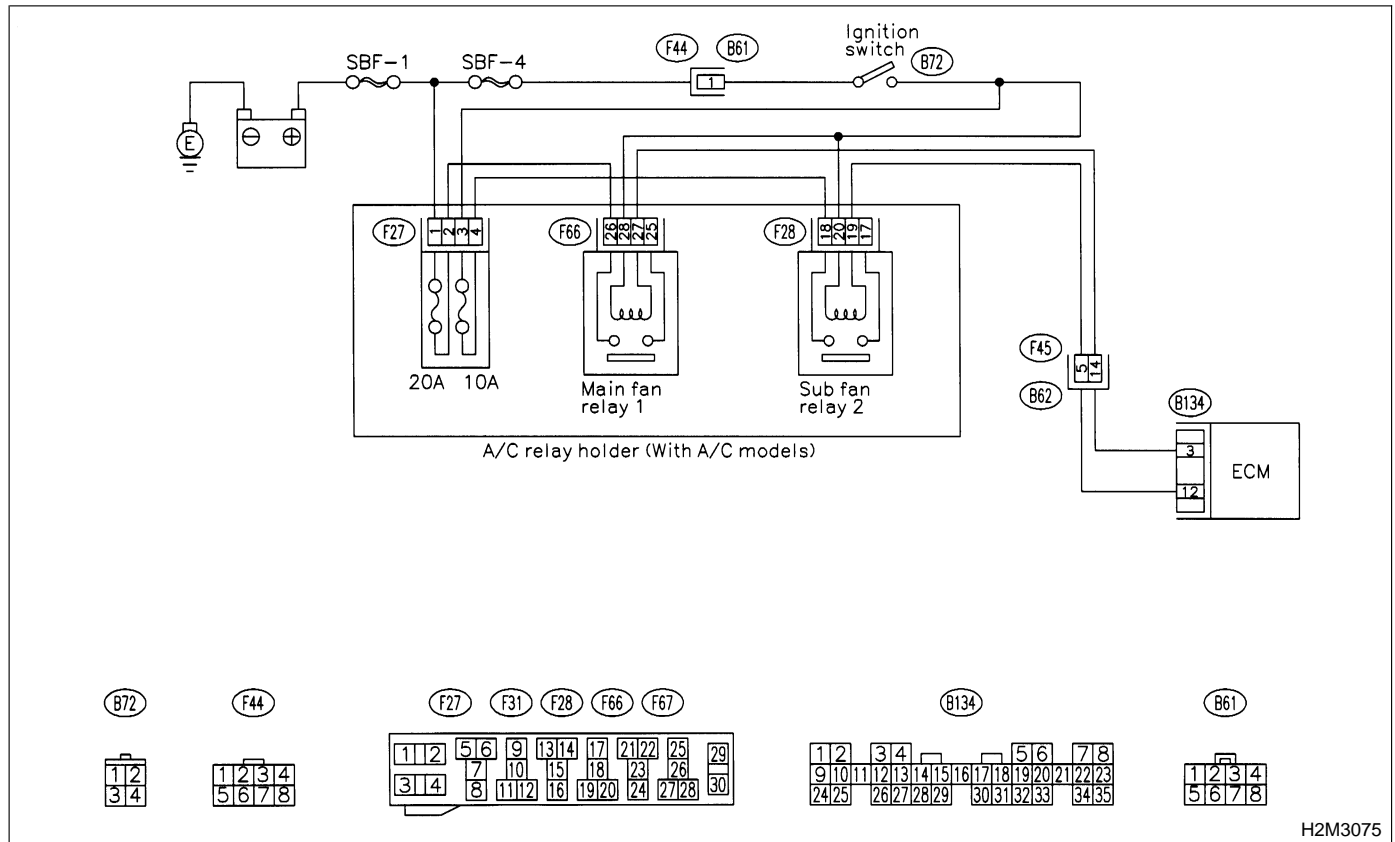
AR: DTC P0480 — COOLING FAN RELAY 1 CIRCUIT LOW INPUT —

- **DTC DETECTING CONDITION:**
 - Two consecutive driving cycles with fault
- **TROUBLE SYMPTOM:**
 - Radiator fan does not operate properly.
 - Overheating

CAUTION:

After repair or replacement of faulty parts, conduct **CLEAR MEMORY MODE** <Ref. to 2-7 [T3D0].> and **INSPECTION MODE** <Ref. to 2-7 [T3E0].>

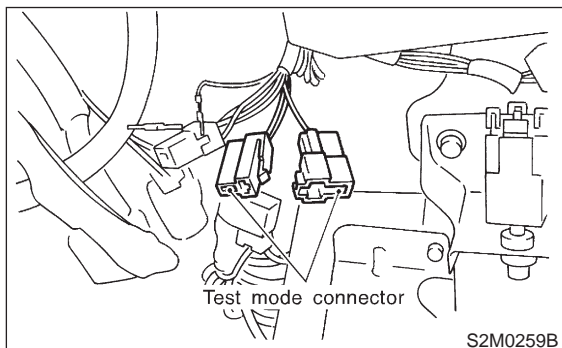
● **WIRING DIAGRAM:**



H2M3075

10AR1 : CHECK OUTPUT SIGNAL FROM ECM.

- 1) Turn ignition switch to OFF.
- 2) Connect test mode connector at the lower portion of instrument panel (on the driver's side), to the side of the center console box.

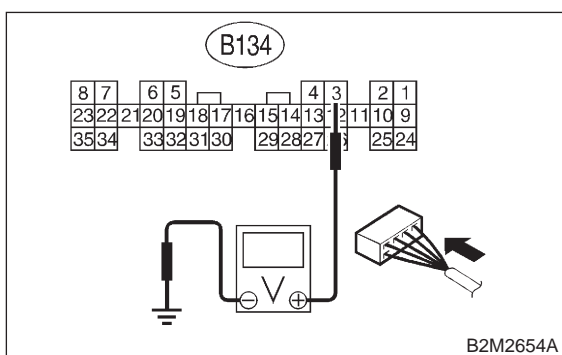


- 3) Turn ignition switch to ON.
- 4) Measure voltage between ECM and chassis ground.

NOTE:

Radiator fan relay operation check can be executed using Subaru Select Monitor. For procedure, refer to "COMPULSORY VALVE OPERATION CHECK MODE". <Ref. to 2-7 [T3F0].>

Connector & terminal
(B134) No. 3 (+) — Chassis ground (-):

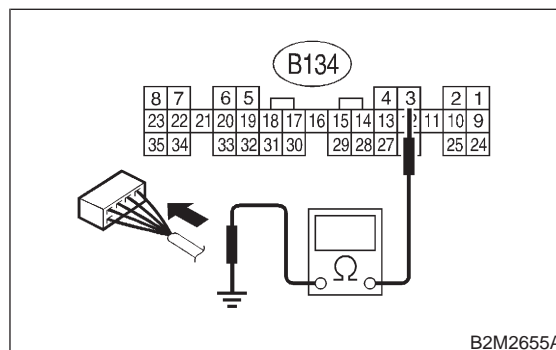


- CHECK** : Does voltage change between 0 and 10 volts?
- YES** : Repair poor contact in ECM connector.
- NO** : Go to step **10AR2**.

10AR2 : CHECK GROUND SHORT CIRCUIT IN RADIATOR FAN RELAY 1 CONTROL CIRCUIT.

- 1) Turn ignition switch to OFF.
- 2) Disconnect connectors from ECM.
- 3) Measure resistance of harness between ECM connector and chassis ground.

Connector & terminal
(B134) No. 3 — Chassis ground:

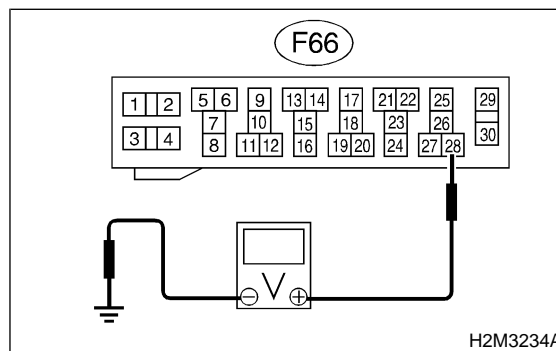


- CHECK** : Is the resistance less than 10 Ω?
- YES** : Repair ground short circuit in radiator fan relay 1 control circuit.
- NO** : Go to step **10AR3**.

10AR3 : CHECK POWER SUPPLY FOR RELAY.

- 1) Remove main fan relay from A/C relay holder.
- 2) Turn ignition switch to ON.
- 3) Measure voltage between fuse and relay box (F/B) connector and chassis ground.

Connector & terminal
(F66) No. 28 (+) — Chassis ground (-):



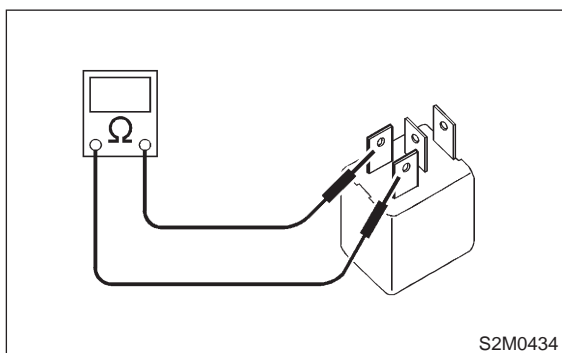
- CHECK** : Is the voltage more than 10 V?
- YES** : Go to step **10AR4**.
- NO** : Repair open circuit in harness between ignition switch and fuse and relay box (F/B) connector.

10AR4 : CHECK MAIN FAN RELAY 1.

- 1) Turn ignition switch to OFF.
- 2) Measure resistance between main fan relay 1 terminals.

Terminal

No. 27 — No. 28:



CHECK : *Is the resistance between 87 and 107 Ω?*

YES : Go to step **10AR5**.

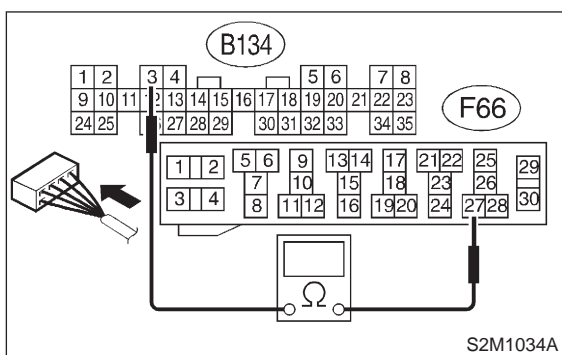
NO : Replace main fan relay 1.

10AR5 : CHECK OPEN CIRCUIT IN MAIN FAN RELAY 1 CONTROL CIRCUIT.

Measure resistance of harness between ECM and main fan relay 1 connector.

Connector & terminal

(B134) No. 3 — (F66) No. 27:



CHECK : *Is the resistance less than 1 Ω?*

YES : Go to step **10AR6**.

NO : Repair harness and connector.

NOTE:

In this case, repair the following:

- Open circuit in harness between ECM and main fan relay 1 connector
- Poor contact in coupling connector (F45)

10AR6 : CHECK POOR CONTACT.

Check poor contact in ECM or main fan relay 1 connector. <Ref. to FOREWORD [T3C1].>

CHECK : *Is there poor contact in ECM or main fan relay 1 connector?*

YES : Repair poor contact in ECM or main fan relay 1 connector.

NO : Contact with SOA service.

MEMO:

AS: DTC P0483 — COOLING FAN FUNCTION PROBLEM —

- **DTC DETECTING CONDITION:**
 - Two consecutive driving cycles with fault
- **TROUBLE SYMPTOM:**
 - Occurrence of noise
 - Overheating

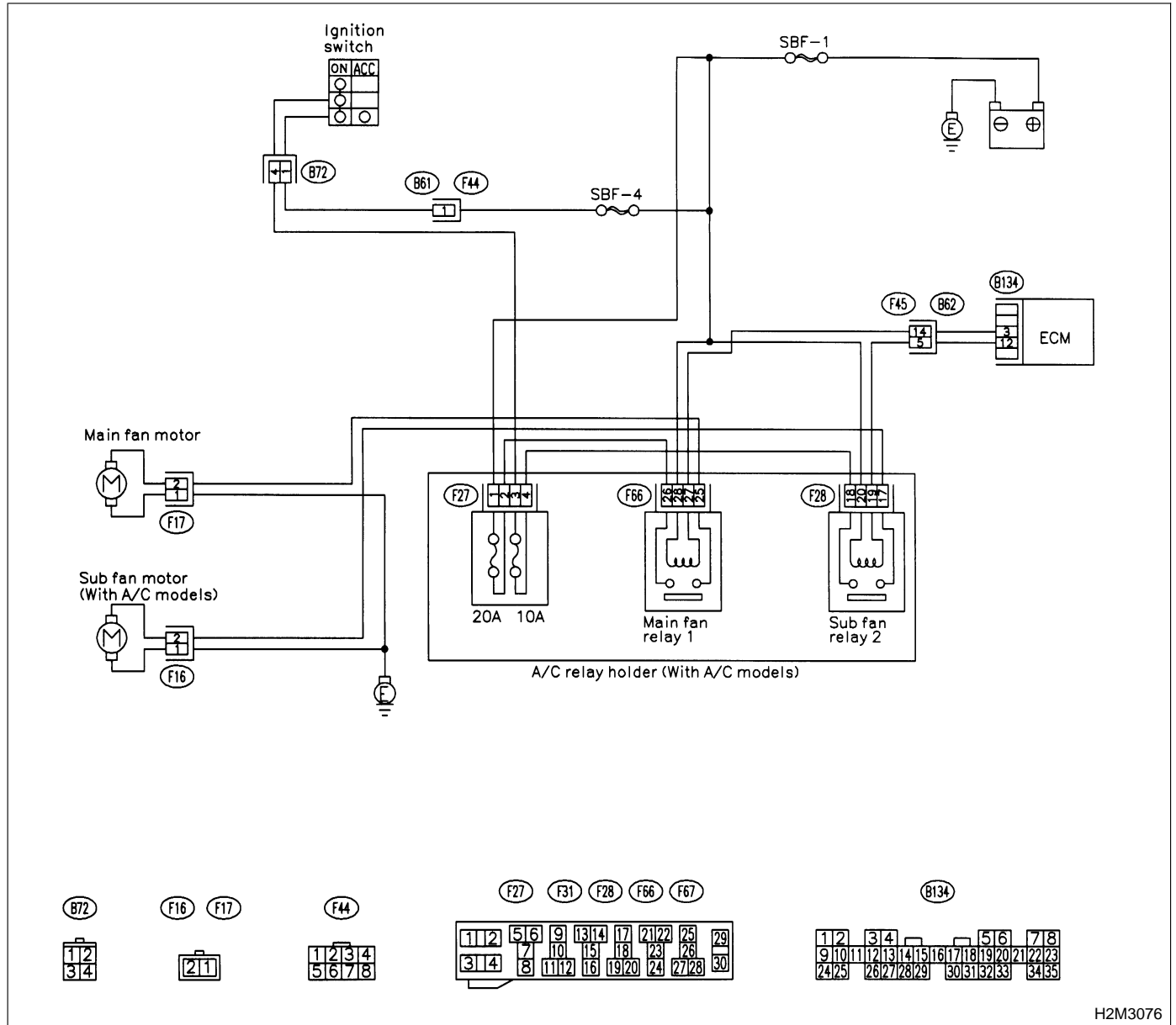
CAUTION:

After repair or replacement of faulty parts, conduct **CLEAR MEMORY MODE** <Ref. to 2-7 [T3D0].> and **INSPECTION MODE** <Ref. to 2-7 [T3E0].>

NOTE:

If the vehicle, with the engine idling, is placed very close to a wall or another vehicle, preventing normal cooling function, the OBD system may detect malfunction.

● **WIRING DIAGRAM:**



10AS1 : CHECK ANY OTHER DTC ON DISPLAY.

- CHECK** : *Is there any other DTC on display?*
- YES** : Inspect the relevant DTC using "10. Diagnostics Chart with Trouble Code for 2200 cc California Spec. Vehicles". <Ref. to 2-7 [T10A0].>
- NO** : Check engine cooling system. <Ref. to 2-5 [T100].>

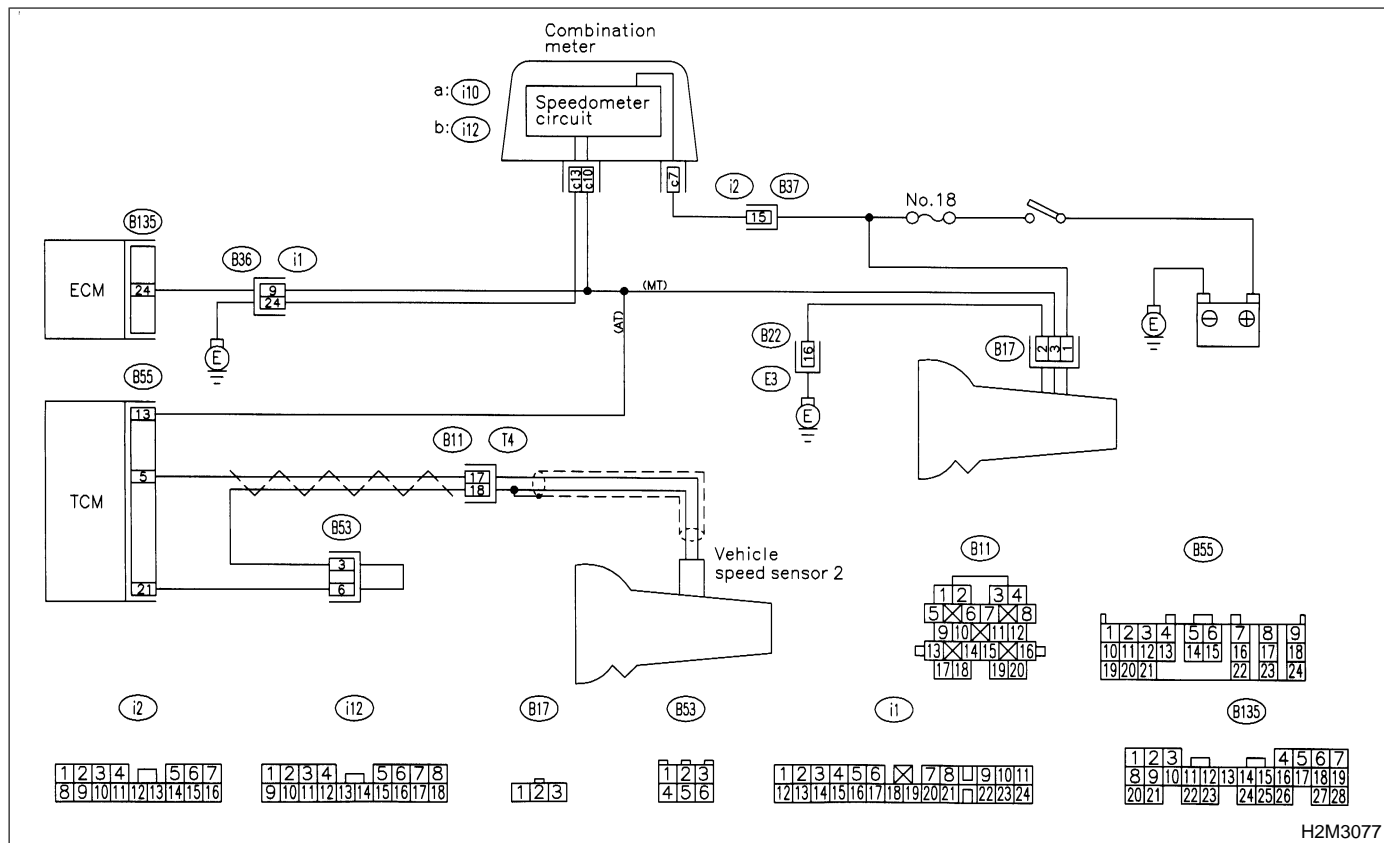
AT: DTC P0500 — VEHICLE SPEED SENSOR MALFUNCTION —

- **DTC DETECTING CONDITION:**
 - Immediately at fault recognition

CAUTION:

After repair or replacement of faulty parts, conduct **CLEAR MEMORY MODE** <Ref. to 2-7 [T3D0].> and **INSPECTION MODE** <Ref. to 2-7 [T3E0].>

● **WIRING DIAGRAM:**



H2M3077

10AT1 : CHECK TRANSMISSION TYPE.

- CHECK** : *Is transmission type AT?*
- YES** : Go to step 10AT2.
- NO** : Go to step 10AT3.

10AT2 : CHECK DTC P0720 ON DISPLAY.

- CHECK** : *Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0720?*
- YES** : Check vehicle speed sensor 2 signal circuit. <Ref. to 3-2 [T8G0].>
- NO** : Go to step 10AT3.

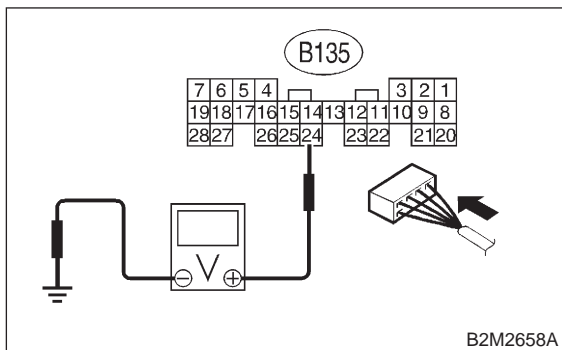
10AT3 : CHECK SPEEDOMETER OPERATION IN COMBINATION METER.

- CHECK** : *Does speedometer operate normally?*
- YES** : Go to step 10AT4.
- NO** : Check speedometer and vehicle speed sensor. <Ref. to 6-2 [K2A4].>

10AT4 : CHECK HARNESS BETWEEN ECM AND COMBINATION METER CONNECTOR.

- 1) Turn ignition switch to OFF.
- 2) Disconnect connector from TCM.
- 3) Turn ignition switch to ON.
- 4) Measure voltage between ECM and chassis ground.

Connector & terminal
(B135) No. 24 (+) — Chassis ground (-):



- CHECK** : **Is the voltage more than 2 V?**
YES : Repair harness and connector.

NOTE:

In this case, repair the following:

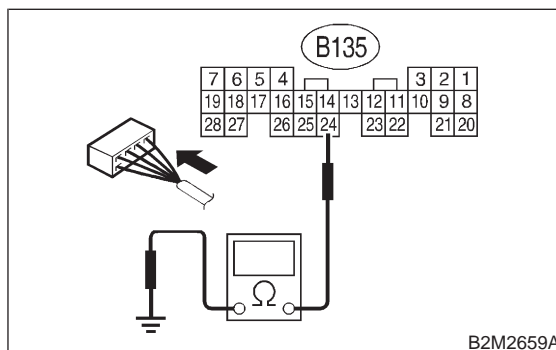
- Open circuit in harness between ECM and combination meter connector
- Poor contact in ECM connector
- Poor contact in combination meter connector
- Poor contact in coupling connector (B37)

NO : Go to step **10AT5**.

10AT5 : CHECK HARNESS BETWEEN ECM AND COMBINATION METER CONNECTOR.

- 1) Turn ignition switch to OFF.
- 2) Disconnect connector from ECM.
- 3) Measure resistance of harness between ECM connector and chassis ground.

Connector & terminal
(B135) No. 24 — Chassis ground:



- CHECK** : **Is the resistance less than 10 Ω?**
YES : Repair ground short circuit in harness between ECM and combination meter connector.
NO : Repair poor contact in ECM connector.

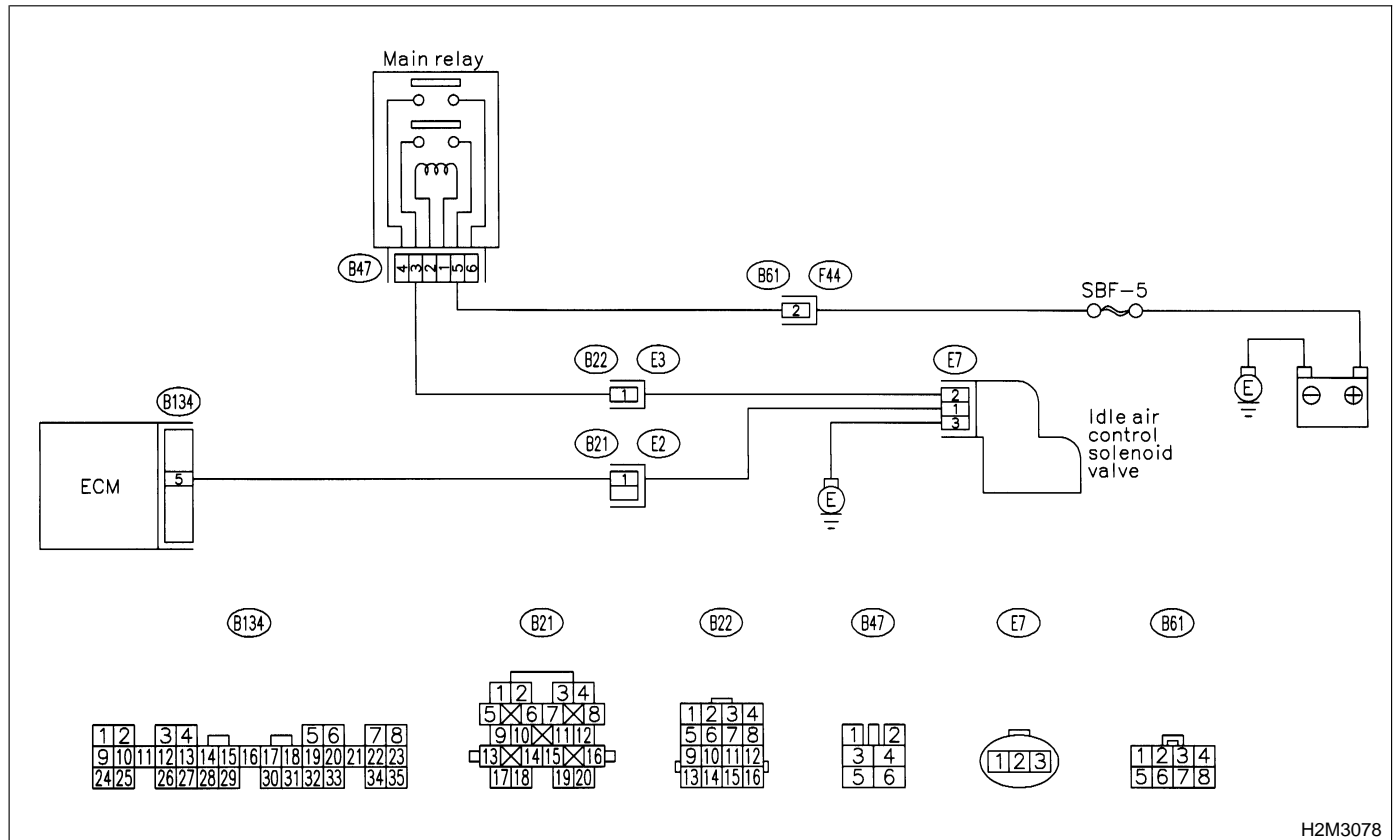
AU: DTC P0505 — IDLE CONTROL SYSTEM CIRCUIT LOW INPUT —

- **DTC DETECTING CONDITION:**
 - Immediately at fault recognition
- **TROUBLE SYMPTOM:**
 - Erroneous idling
 - Engine stalls.
 - Engine breathing

CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to 2-7 [T3D0].> and INSPECTION MODE <Ref. to 2-7 [T3E0].>

● **WIRING DIAGRAM:**



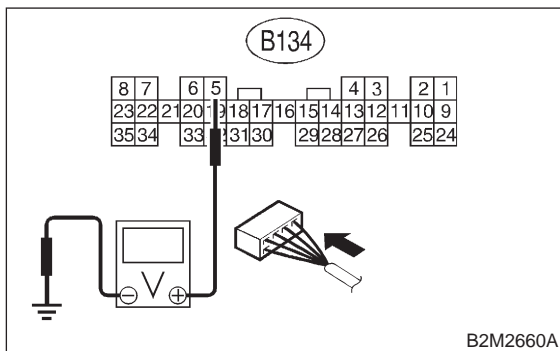
H2M3078

10AU1 : CHECK OUTPUT SIGNAL FROM ECM.

- 1) Turn ignition switch to ON.
- 2) Measure voltage between ECM and chassis ground.

Connector & terminal

(B134) No. 5 (+) — Chassis ground (-):



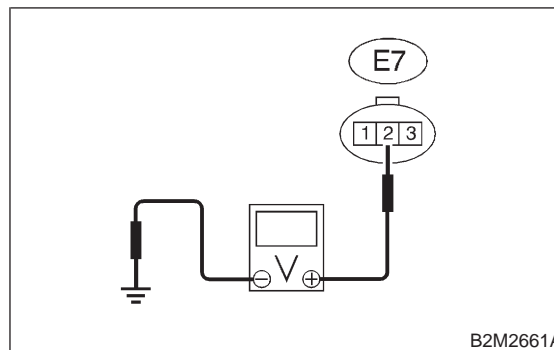
- CHECK** : *Is the voltage more than 3 V?*
- YES** : Repair poor contact in ECM connector.
- NO** : Go to step **10AU2**.

10AU2 : CHECK POWER SUPPLY TO IDLE AIR CONTROL SOLENOID VALVE.

- 1) Turn ignition switch to OFF.
- 2) Disconnect connector from idle air control solenoid valve.
- 3) Turn ignition switch to ON.
- 4) Measure voltage between idle air control solenoid valve and engine ground.

Connector & terminal

(E7) No. 2 (+) — Engine ground (-):



- CHECK** : *Is the voltage more than 10 V?*
- YES** : Go to step **10AU3**.
- NO** : Repair harness and connector.

NOTE:

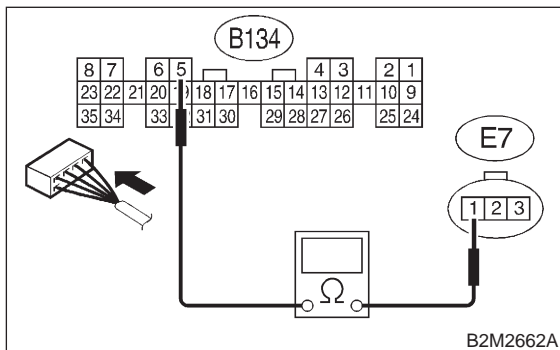
In this case, repair the following:

- Open circuit in harness between idle air control solenoid valve and main relay connector
- Poor contact in coupling connector (B22)

10AU3 : CHECK HARNESS BETWEEN ECM AND IDLE AIR CONTROL SOLENOID VALVE CONNECTOR.

- 1) Turn ignition switch to OFF.
- 2) Disconnect connector from ECM.
- 3) Measure resistance of harness between ECM and idle air control solenoid valve connector.

Connector & terminal
(B134) No. 5 — (E7) No. 1:



- CHECK** : Is the resistance less than 1 Ω?
- YES** : Go to step 10AU4.
- NO** : Repair harness and connector.

NOTE:

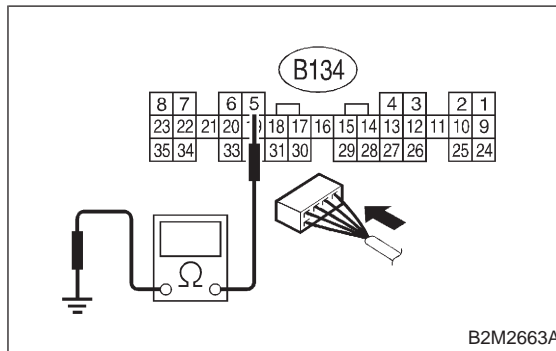
In this case, repair the following:

- Open circuit in harness between ECM and idle air control solenoid valve connector
- Poor contact in coupling connector (B21)

10AU4 : CHECK HARNESS BETWEEN ECM AND IDLE AIR CONTROL SOLENOID VALVE CONNECTOR.

Measure resistance of harness between ECM and chassis ground.

Connector & terminal
(B134) No. 5 — Chassis ground:

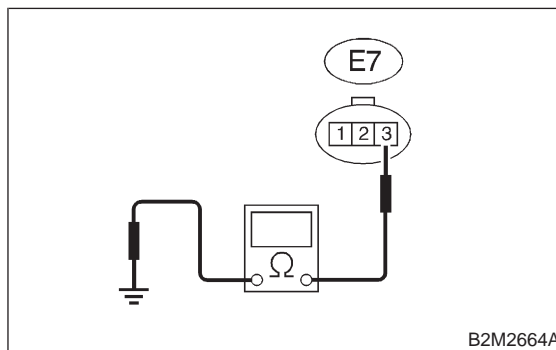


- CHECK** : Is the resistance less than 10 Ω?
- YES** : Repair ground short circuit in harness between ECM and idle air control solenoid valve connector.
- NO** : Go to step 10AU5.

10AU5 : CHECK GROUND CIRCUIT OF IDLE AIR CONTROL SOLENOID VALVE.

Measure resistance of harness between idle air control solenoid valve connector and engine ground.

Connector & terminal
(E7) No. 3 — Engine ground:



- CHECK** : Is the resistance less than 5 Ω?
- YES** : Go to step 10AU6.
- NO** : Repair open circuit in harness between idle air control solenoid valve connector and engine ground terminal.

10AU6 : CHECK POOR CONTACT.

Check poor contact in ECM and idle air control solenoid valve connectors. <Ref. to FOREWORD [T3C1].>

- CHECK** : *Is there poor contact in ECM and idle air control solenoid valve connectors?*
- YES** : Repair poor contact in ECM and idle air control solenoid valve connectors.
- NO** : Replace idle air control solenoid valve. <Ref. to 2-7 [W12A1].>

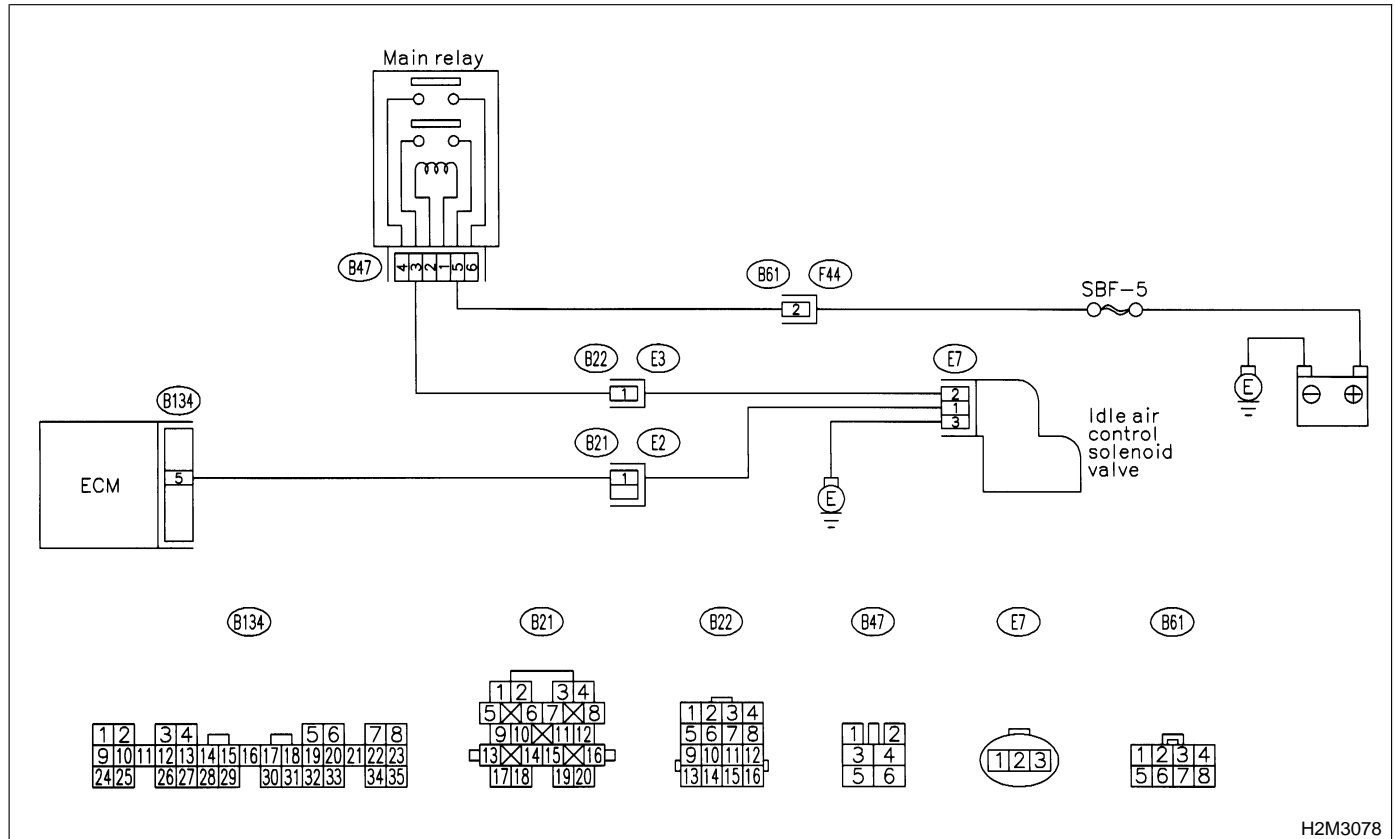
AV: DTC P0506 — IDLE CONTROL SYSTEM RPM LOWER THAN EXPECTED

- **DTC DETECTING CONDITION:**
 - Two consecutive driving cycles with fault
- **TROUBLE SYMPTOM:**
 - Engine is difficult to start.
 - Engine does not start.
 - Erroneous idling
 - Engine stalls.

CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to 2-7 [T3D0].> and INSPECTION MODE <Ref. to 2-7 [T3E0].>

● **WIRING DIAGRAM:**



H2M3078

10AV1 : CHECK ANY OTHER DTC ON DISPLAY.

CHECK : *Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0505 or P1505?*

YES : Inspect DTC P0505 or P1505 using "10. Diagnostics Chart with Trouble Code for 2200 cc California Spec. Vehicles". <Ref. to 2-7 [T10A0].>

NOTE:
In this case, it is not necessary to inspect DTC P0506.

NO : Go to step **10AV2**.

10AV2 : CHECK IDLE AIR CONTROL SOLENOID VALVE.

- 1) Turn ignition switch to OFF.
- 2) Remove idle air control solenoid valve from throttle body. <Ref. to 2-7 [W12A1].>
- 3) Using an air gun, force air into idle air control solenoid valve by-pass air inlet. Confirm that forced air subsequently escapes from both main air passage and assist air passage.

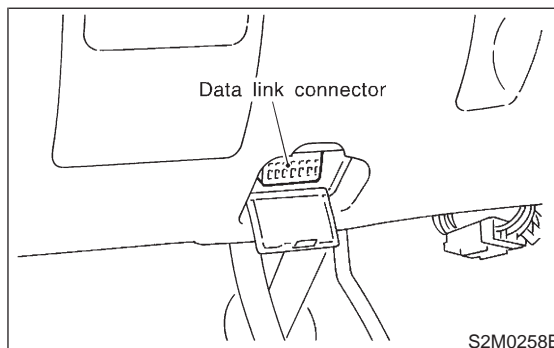
CHECK : *Does air flow out?*

YES : Go to step **10AV4**.

NO : Replace idle air control solenoid valve. <Ref. to 2-7 [W12A1].> After replace, Go to step **10AV3**.

10AV3 : CHECK IDLE AIR CONTROL SOLENOID VALVE DUTY RATIO.

- 1) Turn ignition switch to OFF.
- 2) Connect Subaru Select Monitor or OBD-II general scan tool to data link connector.



- 3) Turn ignition switch to ON and Subaru Select Monitor or the OBD-II general scan tool switch to ON.
- 4) Start engine, and warm-up the engine.
- 5) Turn all accessory switches to OFF.
- 6) Read data of idle air control solenoid valve duty ratio using Subaru Select Monitor or OBD-II general scan tool.

NOTE:

- Subaru Select Monitor
For detailed operation procedures, refer to the "READ CURRENT DATA SHOWN ON DISPLAY FOR ENGINE". <Ref. to 2-7 [T3C4].>
- OBD-II general scan tool
For detailed operation procedures, refer to the OBD-II General Scan Tool Instruction Manual.

CHECK : *Is the value more than 60%?*

YES : Go to step **10AV4**.

NO : END.

10AV4 : CHECK BY-PASS AIR LINE.

- 1) Turn ignition switch to OFF.
- 2) Remove idle air control solenoid valve from throttle body. <Ref. to 2-7 [W12A1].>
- 3) Remove throttle body to intake manifold. <Ref. to 2-7 [W3A1].>
- 4) Confirm that there is no foreign matter stuck in the air by-pass line.
- 5) Using an air gun, force air into solenoid valve installation area and throttle valve interior. Confirm that forced air subsequently escapes from both these areas.

CHECK : ***Does air flow out?***

YES : Replace idle air control solenoid valve.
<Ref. to 2-7 [W12A1].>

NO : Replace throttle body. <Ref. to 2-7 [W3A1].>

AW: DTC P0507 — IDLE CONTROL SYSTEM RPM HIGHER THAN EXPECTED

DTC DETECTING CONDITION:

- Two consecutive driving cycles with fault

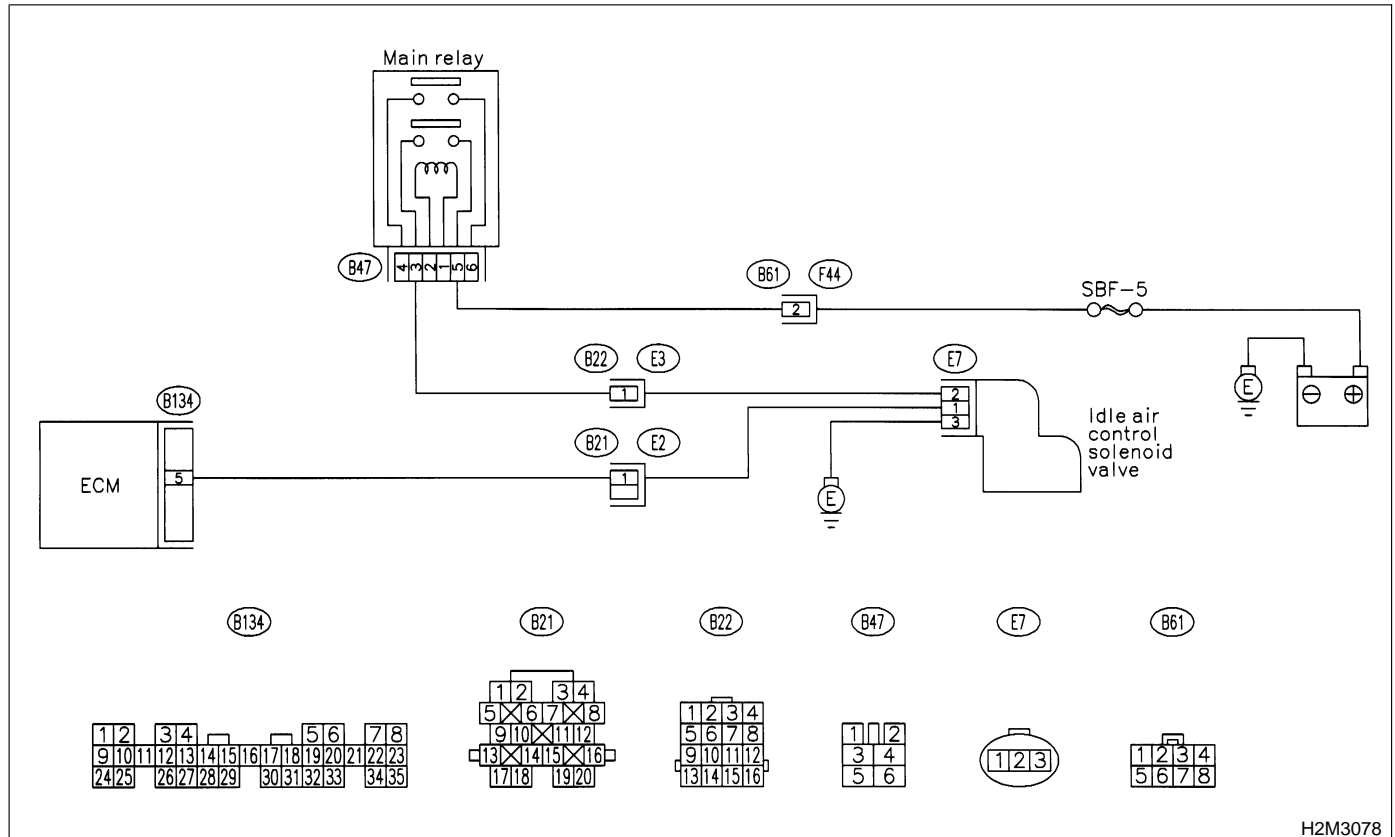
TROUBLE SYMPTOM:

- Engine keeps running at higher revolution than specified idling revolution.

CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to 2-7 [T3D0].> and INSPECTION MODE <Ref. to 2-7 [T3E0].>

WIRING DIAGRAM:



H2M3078

10AW1 : CHECK ANY OTHER DTC ON DISPLAY.

CHECK : Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0505 or P1505?

YES : Inspect DTC P0505 or P1505 using "10. Diagnostics Chart with Trouble Code for 2200 cc California Spec. Vehicles". <Ref. to 2-7 [T10A0].>

NOTE:
In this case, it is not necessary to inspect DTC P0507.

NO : Go to step 10AW2.

10AW2 : CHECK AIR INTAKE SYSTEM.

- 1) Turn ignition switch to ON.
- 2) Start engine, and idle it.
- 3) Check the following items.
 - Loose installation of intake manifold, idle air control solenoid valve and throttle body
 - Cracks of intake manifold gasket, idle air control solenoid valve gasket and throttle body gasket
 - Disconnections of vacuum hoses

CHECK : Is there a fault in air intake system?

YES : Repair air suction and leaks.

NO : Replace idle air control solenoid valve. <Ref. to 2-7 [W12A1].>

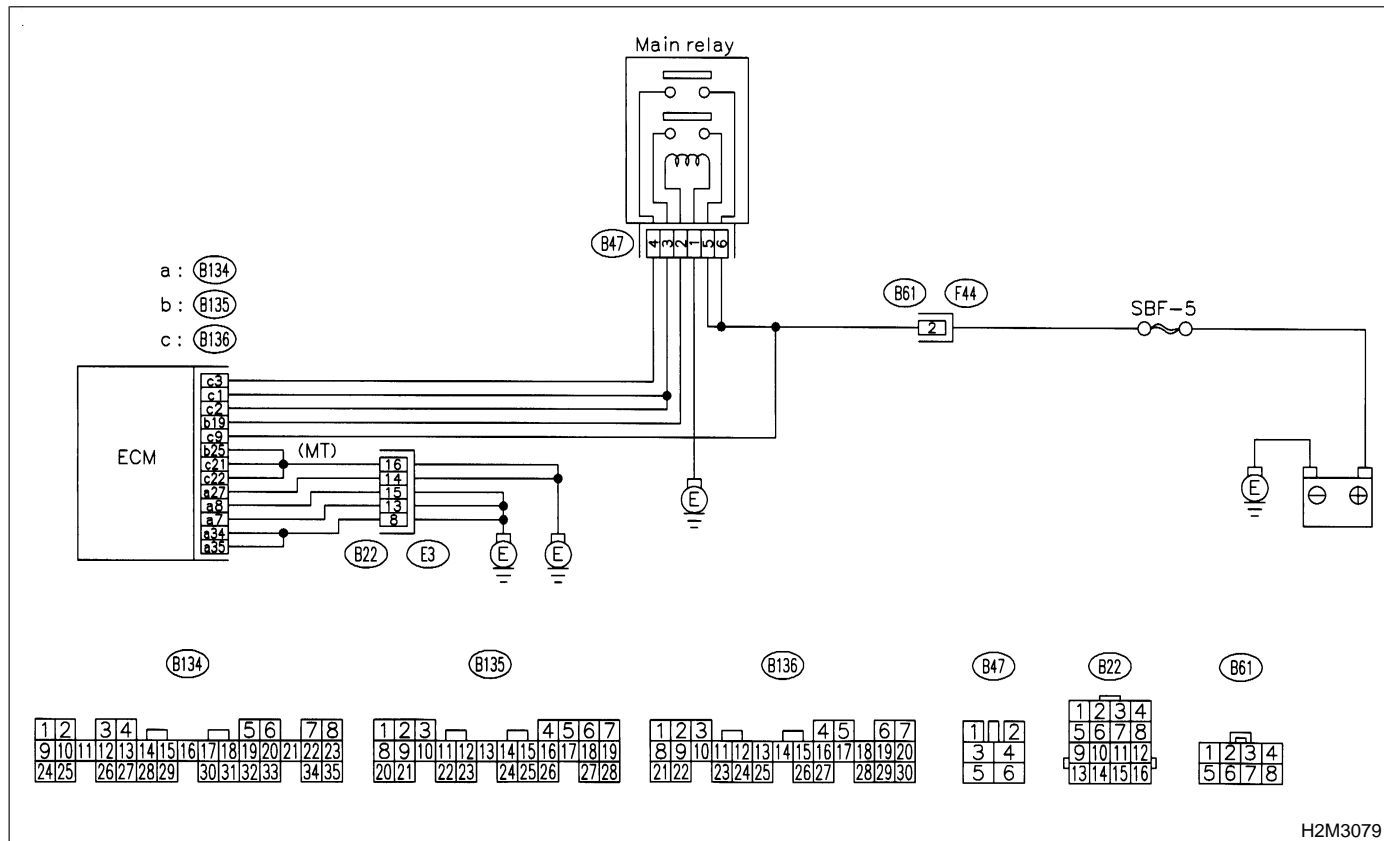
AX: DTC P0601 — INTERNAL CONTROL MODULE MEMORY CHECK SUM ERROR —

- **DTC DETECTING CONDITION:**
 - Two consecutive driving cycles with fault
- **TROUBLE SYMPTOM:**
 - Engine does not start.
 - Engine stalls.

CAUTION:

After repair or replacement of faulty parts, conduct **CLEAR MEMORY MODE** <Ref. to 2-7 [T3D0].> and **INSPECTION MODE** <Ref. to 2-7 [T3E0].>

● **WIRING DIAGRAM:**



H2M3079

10AX1 : CHECK ANY OTHER DTC ON DISPLAY.

- CHECK** : Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0601?
- YES** : Replace ECM. <Ref. to 2-7 [W15A0].>
- NO** : It is not necessary to inspect DTC P0601.

MEMO:

AY: DTC P0703 — BRAKE SWITCH INPUT MALFUNCTION —

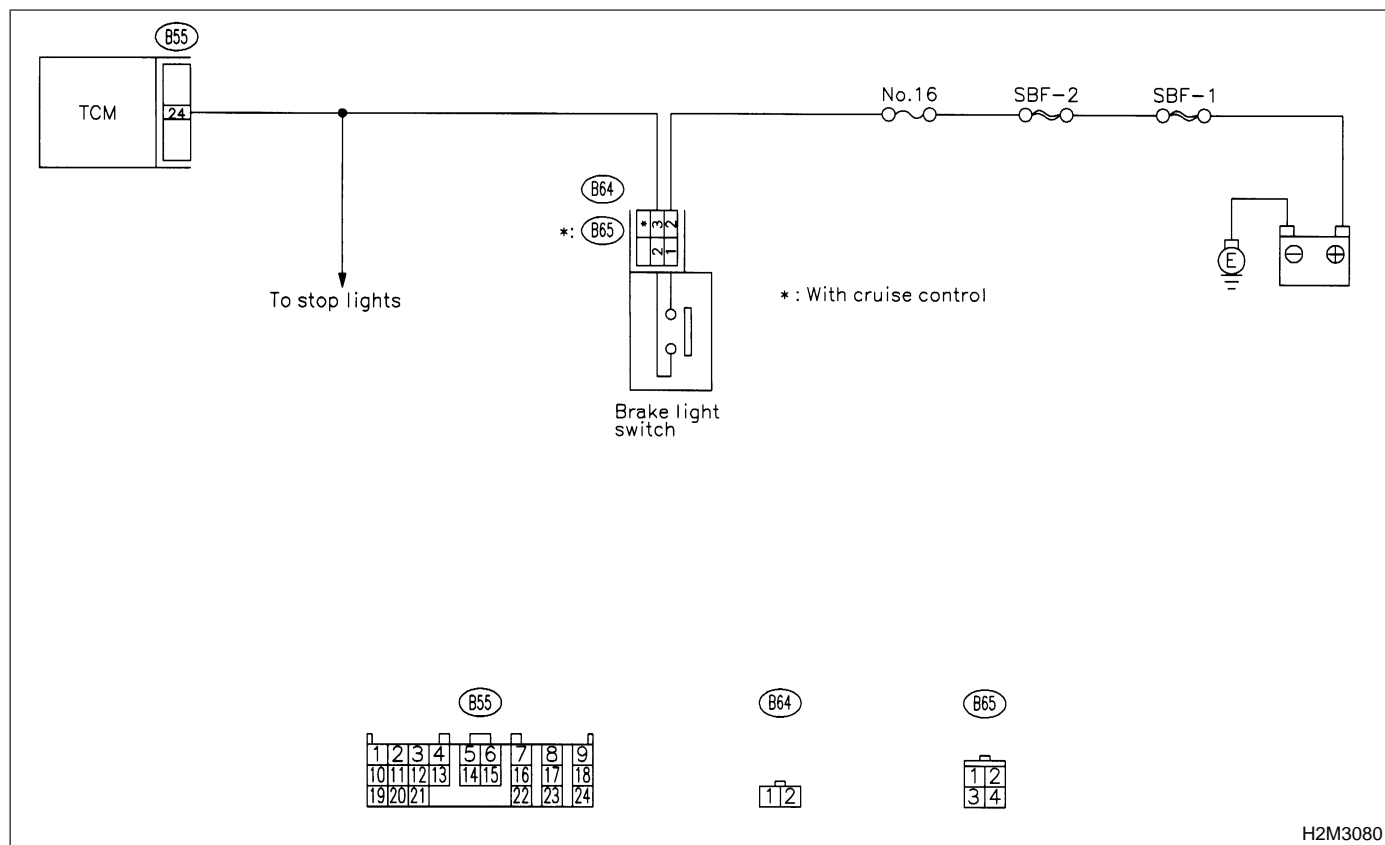
● **DTC DETECTING CONDITION:**

- Two consecutive driving cycles with fault

CAUTION:

After repair or replacement of faulty parts, conduct **CLEAR MEMORY MODE** <Ref. to 2-7 [T3D0].> and **INSPECTION MODE** <Ref. to 2-7 [T3E0].>.

● **WIRING DIAGRAM:**



H2M3080

10AY1 : CHECK OPERATION OF BRAKE LIGHT.

- CHECK** : Does brake light come on when depressing the brake pedal?
- YES** : Go to step **10AY2**.
- NO** : Repair or replace brake light circuit.

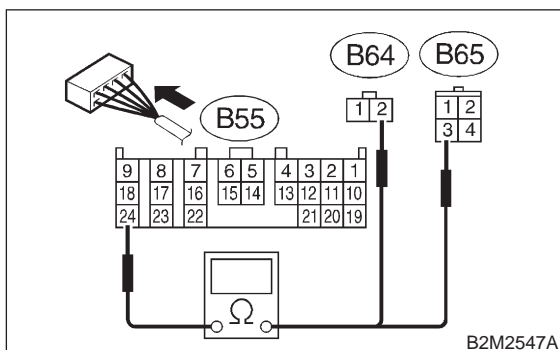
10AY2 : CHECK HARNESS BETWEEN TCM AND BRAKE LIGHT SWITCH CONNECTOR.

- 1) Disconnect connectors from TCM and brake light switch.
- 2) Measure resistance of harness between TCM and brake light switch connector.

Connector & terminal

(B55) No. 24 — (B64) No. 2:

(B55) No. 24 — (B65) No. 3 (With cruise control):



- CHECK** : Is the resistance less than 1 Ω?
- YES** : Go to step 10AY3.
- NO** : Repair or replace harness and connector.

NOTE:

In this case, repair the following:

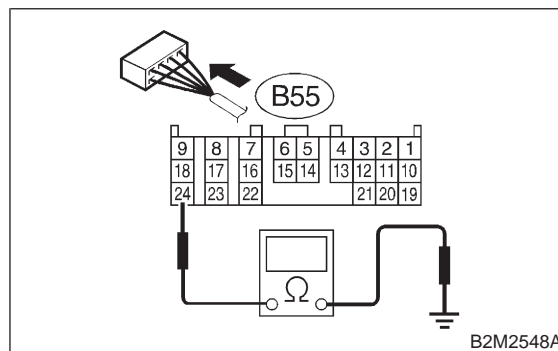
- Open circuit in harness between TCM and brake light switch connector
- Poor contact in TCM connector
- Poor contact in brake light switch connector

10AY3 : CHECK HARNESS BETWEEN TCM AND BRAKE LIGHT SWITCH CONNECTOR.

Measure resistance of harness between TCM and chassis ground.

Connector & terminal

(B55) No. 24 — Chassis ground:



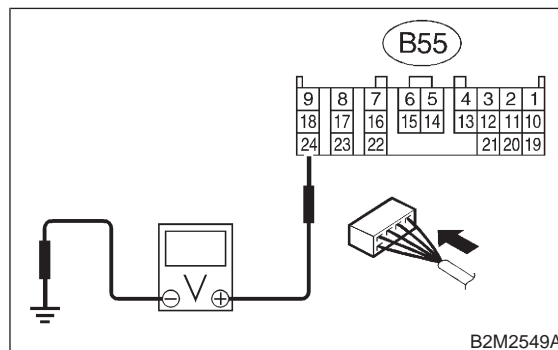
- CHECK** : Is the resistance more than 1 MΩ?
- YES** : Go to step 10AY4.
- NO** : Repair ground short circuit in harness between TCM and brake light switch connector.

10AY4 : CHECK INPUT SIGNAL FOR TCM.

- 1) Connect connectors to TCM and brake light switch.
- 2) Measure voltage between TCM and chassis ground.

Connector & terminal

(B55) No. 24 (+) — Chassis ground (-):



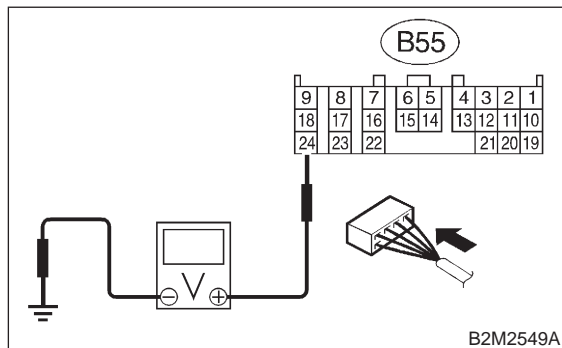
- CHECK** : Is the voltage less than 1 V when releasing the brake pedal?
- YES** : Go to step 10AY5.
- NO** : Adjust or replace brake light switch. <Ref. to 4-5 [W1A1].>

10AY5 : CHECK INPUT SIGNAL FOR TCM.

Measure voltage between TCM and chassis ground.

Connector & terminal

(B55) No. 24 (+) — Chassis ground (-):



- CHECK** : *Is the voltage more than 10 V when depressing the brake pedal?*
- YES** : Go to step **10AY6**.
- NO** : Adjust or replace brake light switch.
<Ref. to 4-5 [W1A1].>

10AY6 : CHECK POOR CONTACT.

Check poor contact in TCM connector. <Ref. to FOREWORD [T3C1].>

- CHECK** : *Is there poor contact in TCM connector?*
- YES** : Repair poor contact in TCM connector.
- NO** : Replace TCM. <Ref. to 3-2 [W22A0].>

MEMO:

AZ: DTC P0705 — TRANSMISSION RANGE SENSOR CIRCUIT MALFUNCTION —

● **DTC DETECTING CONDITION:**

- Two consecutive driving cycles with fault

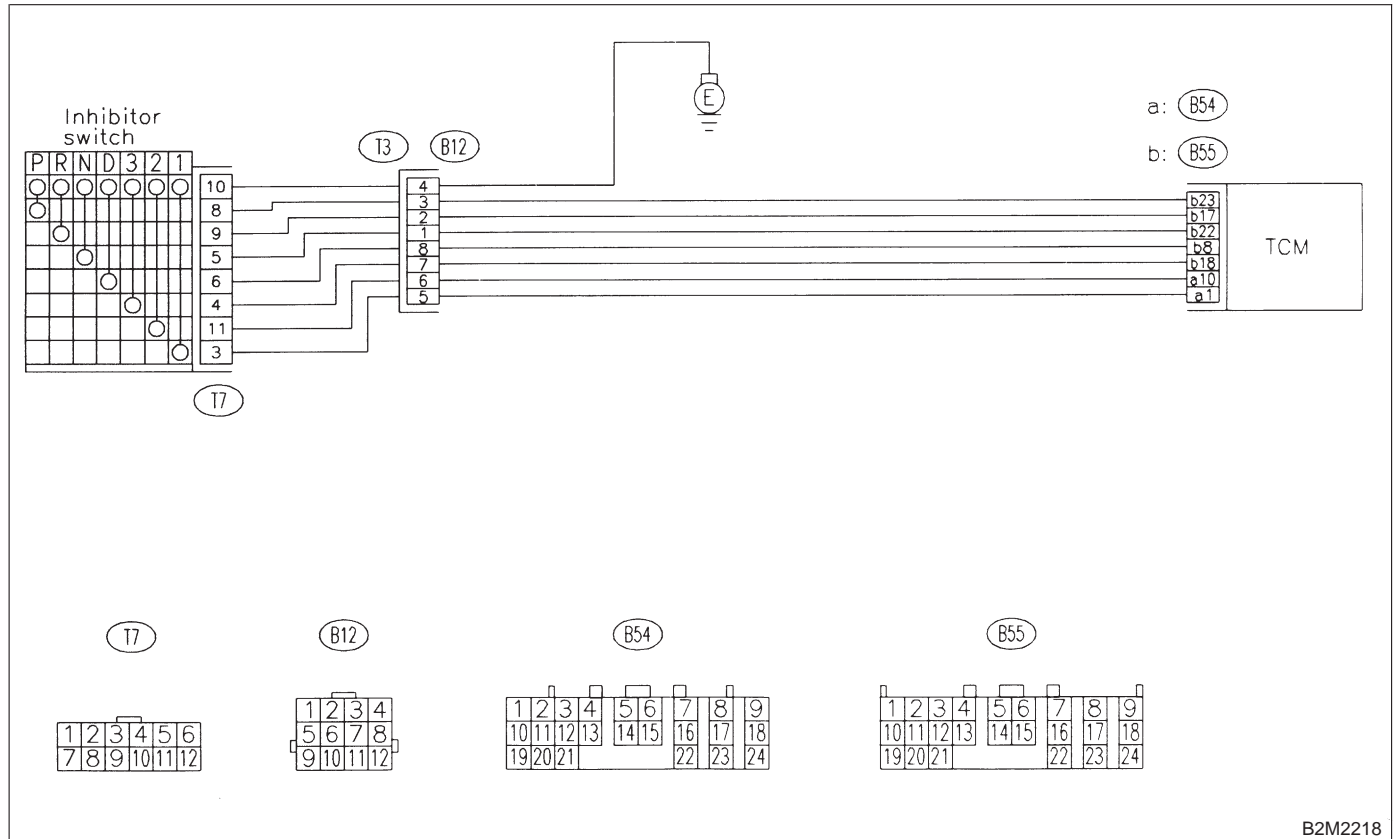
● **TROUBLE SYMPTOM:**

- Starter does not rotate when selector lever is in “P” or “N” range.
- Starter rotates when selector lever is in “R”, “D”, “3”, “2” or “1” range.
- Engine brake is not effected when selector lever is in “3” range.
- Shift characteristics are erroneous.

CAUTION:

After repair or replacement of faulty parts, conduct **CLEAR MEMORY MODE** <Ref. to 2-7 [T3D0].> and **INSPECTION MODE** <Ref. to 2-7 [T3E0].>

● **WIRING DIAGRAM:**



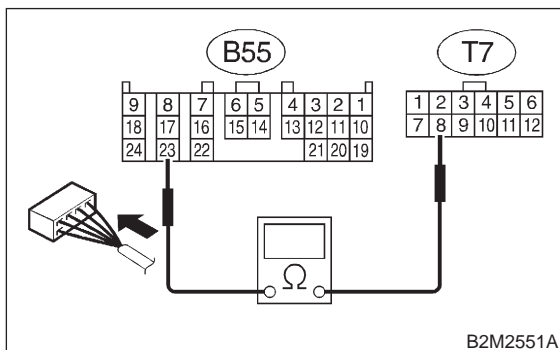
B2M2218

10AZ1 : CHECK HARNESS BETWEEN TCM AND INHIBITOR SWITCH CONNECTOR.

- 1) Turn ignition switch to OFF.
- 2) Disconnect connectors from TCM and transmission.
- 3) Measure resistance of harness between TCM and transmission harness connector.

Connector & terminal

(B55) No. 23 — (T7) No. 8:



CHECK : *Is the resistance less than 1 Ω?*

YES : Go to step **10AZ2**.

NO : Repair harness and connector.

NOTE:

In this case, repair the following:

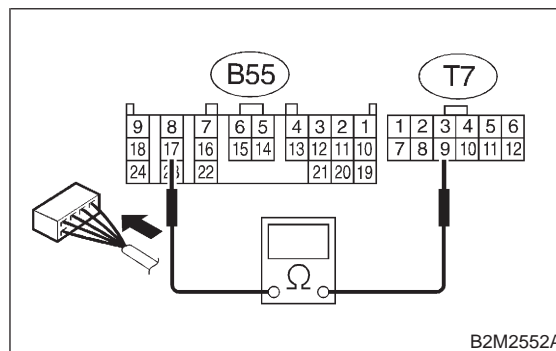
- Open circuit in harness between ECM and inhibitor switch connector
- Poor contact in coupling connector (B12)

10AZ2 : CHECK HARNESS BETWEEN TCM AND INHIBITOR SWITCH CONNECTOR.

Measure resistance of harness between TCM and transmission harness connector.

Connector & terminal

(B55) No. 17 — (T7) No. 9:



CHECK : *Is the resistance less than 1 Ω?*

YES : Go to step **10AZ3**.

NO : Repair harness and connector.

NOTE:

In this case, repair the following:

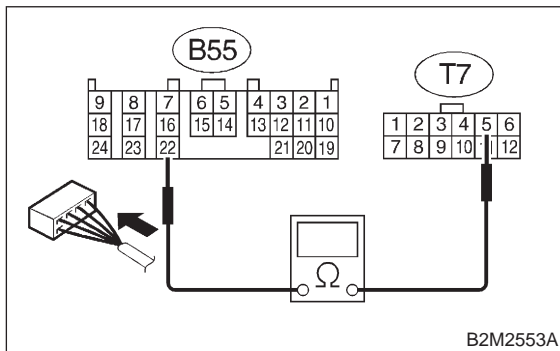
- Open circuit in harness between ECM and inhibitor switch connector
- Poor contact in coupling connector (B12)

10AZ3 : CHECK HARNESS BETWEEN TCM AND INHIBITOR SWITCH CONNECTOR.

Measure resistance of harness between TCM and transmission harness connector.

Connector & terminal

(B55) No. 22 — (T7) No. 5:



CHECK : Is the resistance less than 1 Ω?

YES : Go to step 10AZ4.

NO : Repair harness and connector.

NOTE:

In this case, repair the following:

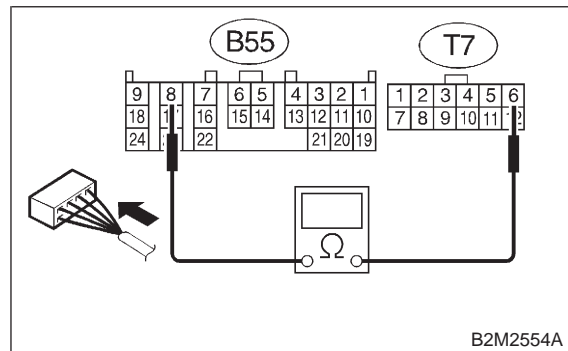
- Open circuit in harness between ECM and inhibitor switch connector.
- Poor contact in coupling connector (B12)

10AZ4 : CHECK HARNESS BETWEEN TCM AND INHIBITOR SWITCH CONNECTOR.

Measure resistance of harness between TCM and transmission harness connector.

Connector & terminal

(B55) No. 8 — (T7) No. 6:



CHECK : Is the resistance less than 1 Ω?

YES : Go to step 10AZ5.

NO : Repair harness and connector.

NOTE:

In this case, repair the following:

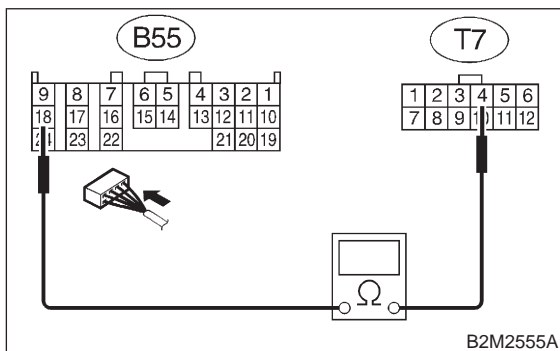
- Open circuit in harness between ECM and inhibitor switch connector.
- Poor contact in coupling connector (B12)

10AZ5 : CHECK HARNESS BETWEEN TCM AND INHIBITOR SWITCH CONNECTOR.

Measure resistance of harness between TCM and transmission harness connector.

Connector & terminal

(B55) No. 18 — (T7) No. 4:



CHECK : Is the resistance less than 1 Ω?

YES : Go to step 10AZ6.

NO : Repair harness and connector.

NOTE:

In this case, repair the following:

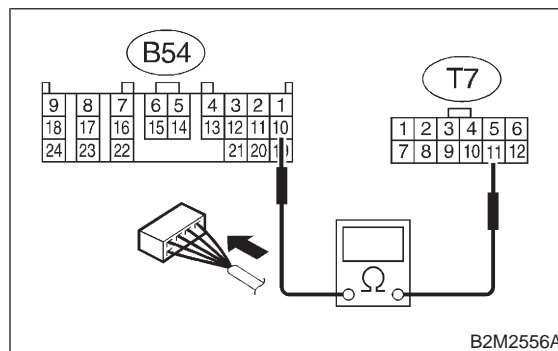
- Open circuit in harness between ECM and inhibitor switch connector.
- Poor contact in coupling connector (B12)

10AZ6 : CHECK HARNESS BETWEEN TCM AND INHIBITOR SWITCH CONNECTOR.

Measure resistance of harness between TCM and transmission harness connector.

Connector & terminal

(B54) No. 10 — (T7) No. 11:



CHECK : Is the resistance less than 1 Ω?

YES : Go to step 10AZ7.

NO : Repair harness and connector.

NOTE:

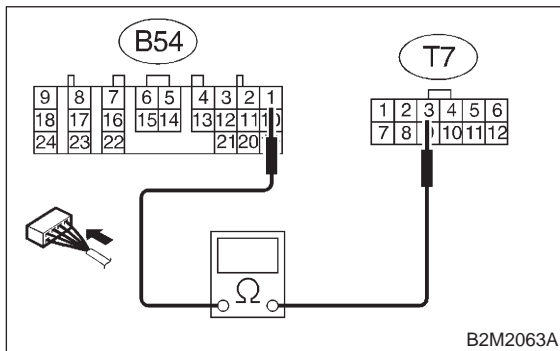
In this case, repair the following:

- Open circuit in harness between ECM and inhibitor switch connector.
- Poor contact in coupling connector (B12)

10AZ7 : CHECK HARNESS BETWEEN TCM AND INHIBITOR SWITCH CONNECTOR.

Measure resistance of harness between TCM and transmission harness connector.

Connector & terminal
(B54) No. 1 — (T7) No. 3:



- CHECK** : Is the resistance less than 1 Ω?
- YES** : Go to step 10AZ8.
- NO** : Repair harness and connector.

NOTE:

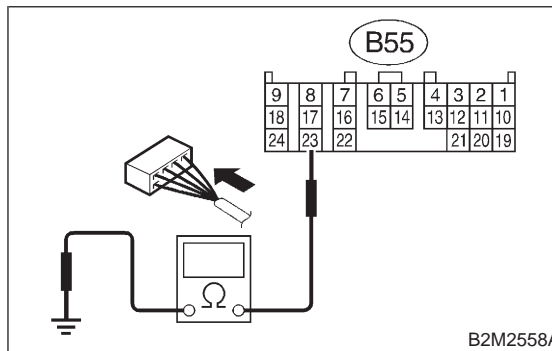
In this case, repair the following:

- Open circuit in harness between ECM and inhibitor switch connector.
- Poor contact in coupling connector (B12)

10AZ8 : CHECK HARNESS BETWEEN TCM AND INHIBITOR SWITCH CONNECTOR.

Measure resistance of harness between TCM and chassis ground.

Connector & terminal
(B55) No. 23 — Chassis ground:

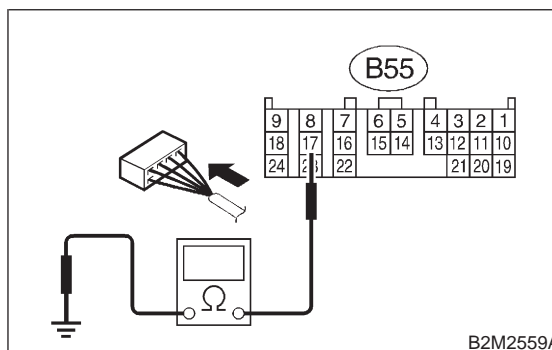


- CHECK** : Is the resistance more than 1 MΩ?
- YES** : Go to step 10AZ9.
- NO** : Repair ground short circuit in harness between TCM and transmission harness connector.

10AZ9 : CHECK HARNESS BETWEEN TCM AND INHIBITOR SWITCH CONNECTOR.

Measure resistance of harness between TCM and chassis ground.

Connector & terminal
(B55) No. 17 — Chassis ground:

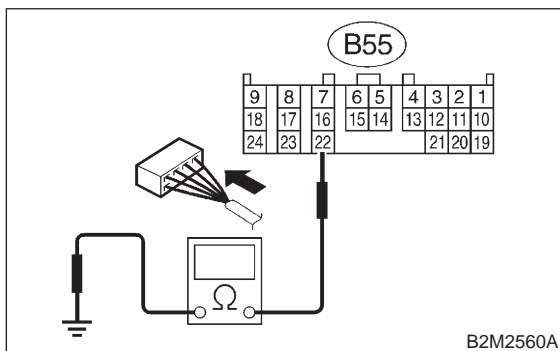


- CHECK** : Is the resistance more than 1 MΩ?
- YES** : Go to step 10AZ10.
- NO** : Repair ground short circuit in harness between TCM and transmission harness connector.

10AZ10 : CHECK HARNESS BETWEEN TCM AND INHIBITOR SWITCH CONNECTOR.

Measure resistance of harness between TCM and chassis ground.

Connector & terminal
(B55) No. 22 — Chassis ground:

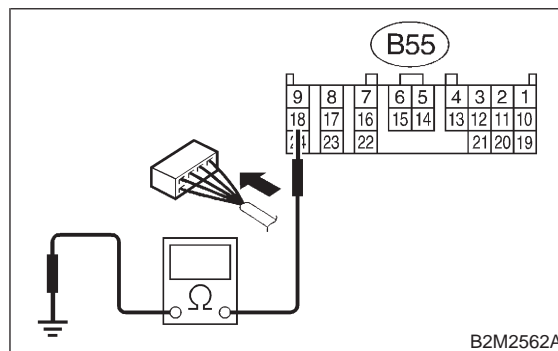


- CHECK** : Is the resistance more than 1 MΩ?
- YES** : Go to step 10AZ11.
- NO** : Repair ground short circuit in harness between TCM and transmission harness connector.

10AZ12 : CHECK HARNESS BETWEEN TCM AND INHIBITOR SWITCH CONNECTOR.

Measure resistance of harness between TCM and chassis ground.

Connector & terminal
(B55) No. 18 — Chassis ground:

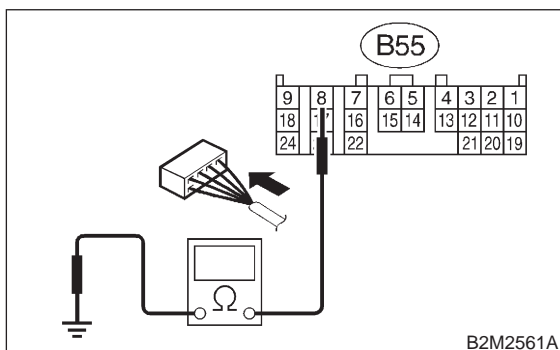


- CHECK** : Is the resistance more than 1 MΩ?
- YES** : Go to step 10AZ13.
- NO** : Repair ground short circuit in harness between TCM and transmission harness connector.

10AZ11 : CHECK HARNESS BETWEEN TCM AND INHIBITOR SWITCH CONNECTOR.

Measure resistance of harness between TCM and chassis ground.

Connector & terminal
(B55) No. 8 — Chassis ground:

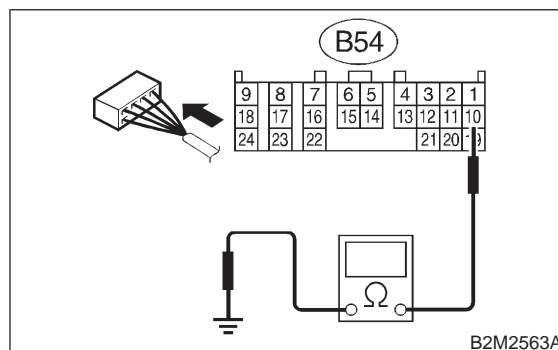


- CHECK** : Is the resistance more than 1 MΩ?
- YES** : Go to step 10AZ12.
- NO** : Repair ground short circuit in harness between TCM and transmission harness connector.

10AZ13 : CHECK HARNESS BETWEEN TCM AND INHIBITOR SWITCH CONNECTOR.

Measure resistance of harness between TCM and chassis ground.

Connector & terminal
(B54) No. 10 — Chassis ground:

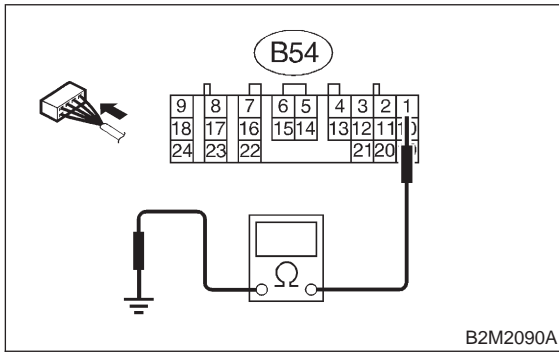


- CHECK** : Is the resistance more than 1 MΩ?
- YES** : Go to step 10AZ14.
- NO** : Repair ground short circuit in harness between TCM and transmission harness connector.

10AZ14 : CHECK HARNESS BETWEEN TCM AND INHIBITOR SWITCH CONNECTOR.

Measure resistance of harness between TCM and chassis ground.

Connector & terminal
(B54) No. 1 — Chassis ground:

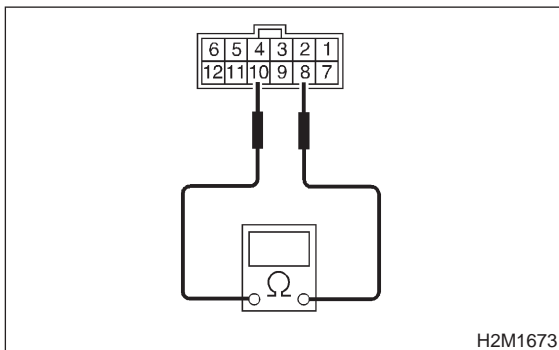


- CHECK** : Is the resistance more than 1 MΩ?
- YES** : Go to step 10AZ15.
- NO** : Repair ground short circuit in harness between TCM and transmission harness connector.

10AZ15 : CHECK INHIBITOR SWITCH.

Measure resistance between inhibitor switch connector receptacle's terminals in selector lever "P" position.

Terminals
No. 8 — No. 10:

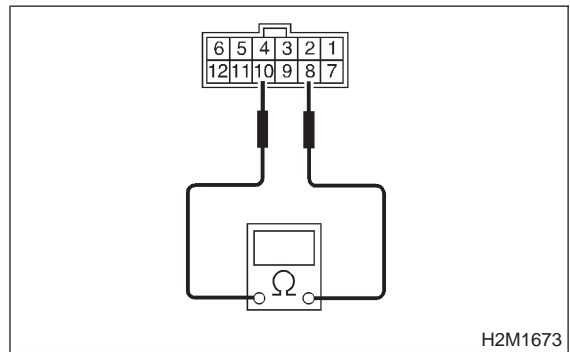


- CHECK** : Is the resistance less than 1 Ω?
- YES** : Go to step 10AZ16.
- NO** : Go to step 10AZ29.

10AZ16 : CHECK INHIBITOR SWITCH.

Measure resistance between inhibitor switch connector receptacle's terminals in selector lever except for "P" position.

Terminals
No. 8 — No. 10:

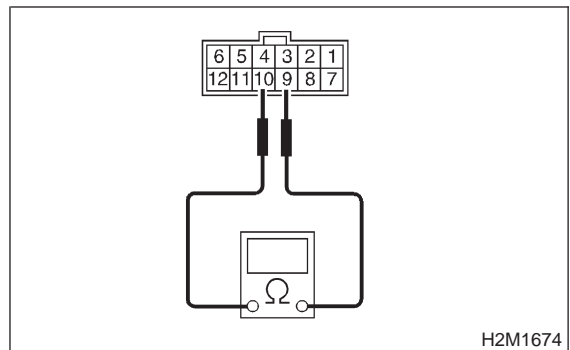


- CHECK** : Is the resistance more than 1 MΩ?
- YES** : Go to step 10AZ17.
- NO** : Go to step 10AZ29.

10AZ17 : CHECK INHIBITOR SWITCH.

Measure resistance between inhibitor switch connector receptacle's terminals in selector lever for "R" position.

Terminals
No. 9 — No. 10:



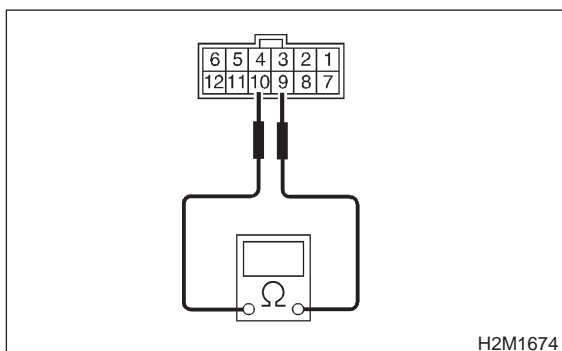
- CHECK** : Is the resistance less than 1 Ω?
- YES** : Go to step 10AZ18.
- NO** : Go to step 10AZ29.

10AZ18 : CHECK INHIBITOR SWITCH.

Measure resistance between inhibitor switch connector receptacle's terminals in selector lever except for "R" position.

Terminals

No. 9 — No. 10:



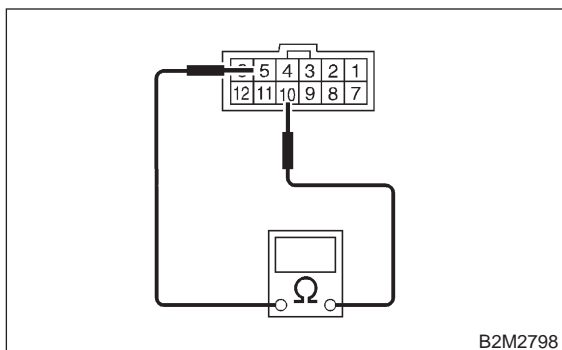
- CHECK** : Is the resistance more than 1 MΩ?
- YES** : Go to step 10AZ19.
- NO** : Go to step 10AZ29.

10AZ19 : CHECK INHIBITOR SWITCH.

Measure resistance between inhibitor switch connector receptacle's terminals in selector lever for "N" position.

Terminals

No. 5 — No. 10:



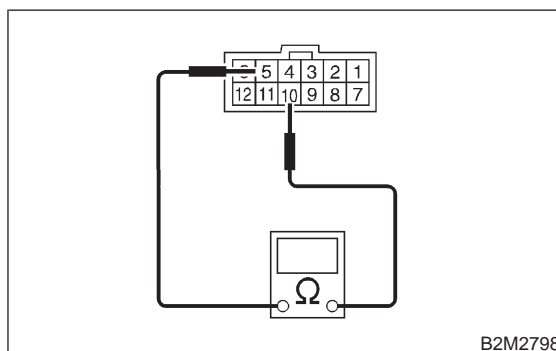
- CHECK** : Is the resistance less than 1 Ω?
- YES** : Go to step 10AZ20.
- NO** : Go to step 10AZ29.

10AZ20 : CHECK INHIBITOR SWITCH.

Measure resistance between inhibitor switch connector receptacle's terminals in selector lever except for "N" position.

Terminals

No. 5 — No. 10:



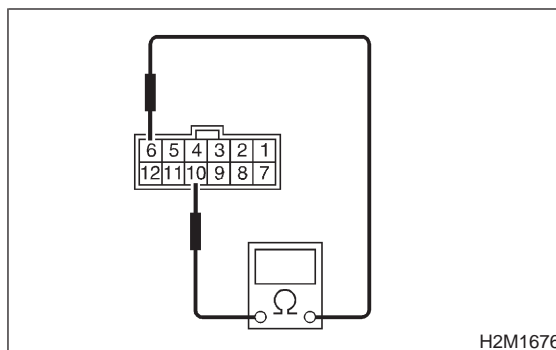
- CHECK** : Is the resistance more than 1 MΩ?
- YES** : Go to step 10AZ21.
- NO** : Go to step 10AZ29.

10AZ21 : CHECK INHIBITOR SWITCH.

Measure resistance between inhibitor switch connector receptacle's terminals in selector lever except for "D" position.

Terminals

No. 6 — No. 10:



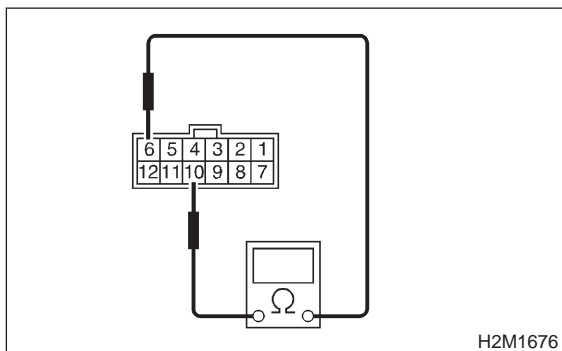
- CHECK** : Is the resistance less than 1 Ω?
- YES** : Go to step 10AZ22.
- NO** : Go to step 10AZ29.

10AZ22 : CHECK INHIBITOR SWITCH.

Measure resistance between inhibitor switch connector receptacle's terminals in selector lever except for "D" position.

Terminals

No. 6 — No. 10:



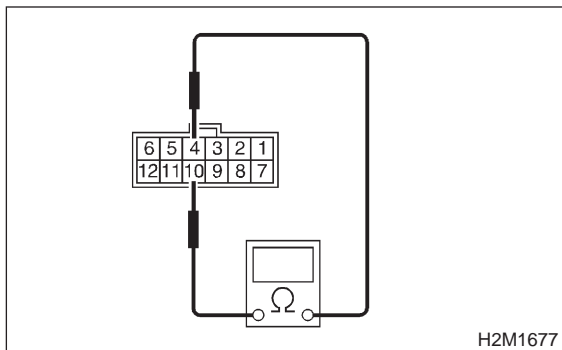
- CHECK** : Is the resistance more than 1 MΩ?
- YES** : Go to step 10AZ23.
- NO** : Go to step 10AZ29.

10AZ23 : CHECK INHIBITOR SWITCH.

Measure resistance between inhibitor switch connector receptacle's terminals in selector lever for "3" position.

Terminals

No. 4 — No. 10:



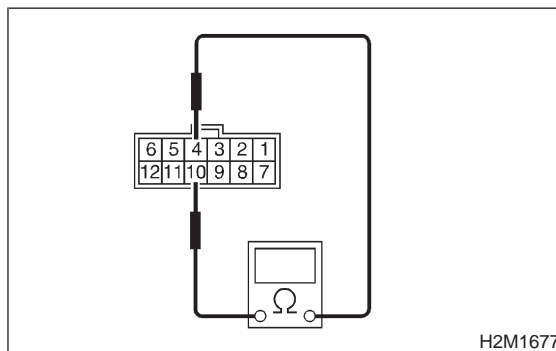
- CHECK** : Is the resistance less than 1 Ω?
- YES** : Go to step 10AZ24.
- NO** : Go to step 10AZ29.

10AZ24 : CHECK INHIBITOR SWITCH.

Measure resistance between inhibitor switch connector receptacle's terminals in selector lever except for "3" position.

Terminals

No. 4 — No. 10:



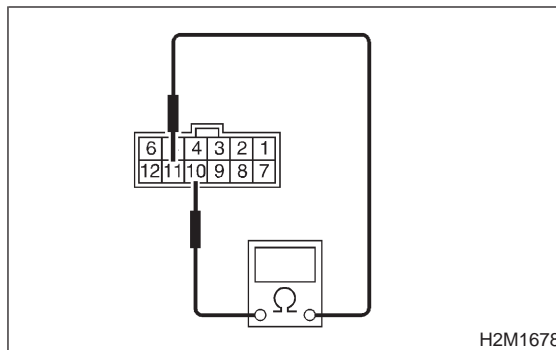
- CHECK** : Is the resistance more than 1 MΩ?
- YES** : Go to step 10AZ25.
- NO** : Go to step 10AZ29.

10AZ25 : CHECK INHIBITOR SWITCH.

Measure resistance between inhibitor switch connector receptacle's terminals in selector lever except for "2" position.

Terminals

No. 11 — No. 10:



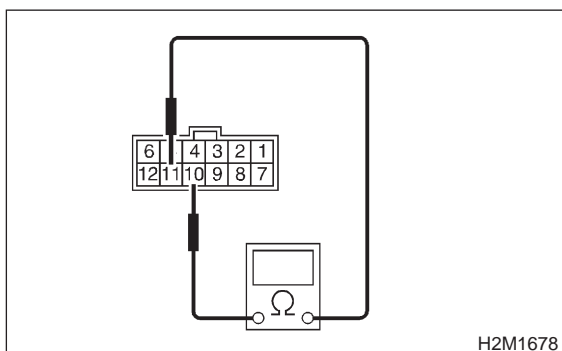
- CHECK** : Is the resistance less than 1 Ω?
- YES** : Go to step 10AZ26.
- NO** : Go to step 10AZ29.

10AZ26 : CHECK INHIBITOR SWITCH.

Measure resistance between inhibitor switch connector receptacle's terminals in selector lever except for "R" position.

Terminals

No. 11 — No. 10:



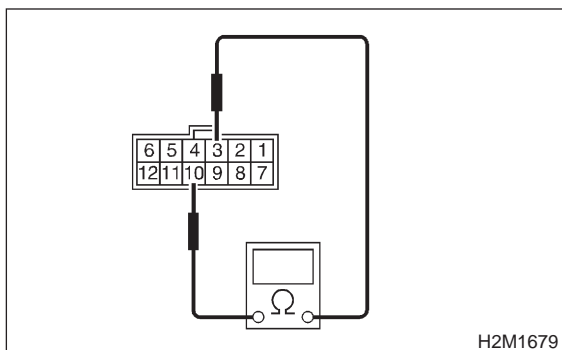
- CHECK** : *Is the resistance more than 1 MΩ?*
- YES** : Go to step **10AZ27**.
- NO** : Go to step **10AZ29**.

10AZ27 : CHECK INHIBITOR SWITCH.

Measure resistance between inhibitor switch connector receptacle's terminals in selector lever except for "1" position.

Terminals

No. 3 — No. 10:



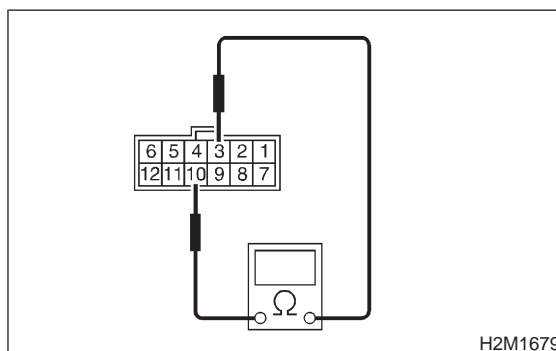
- CHECK** : *Is the resistance less than 1 Ω?*
- YES** : Go to step **10AZ28**.
- NO** : Go to step **10AZ29**.

10AZ28 : CHECK INHIBITOR SWITCH.

Measure resistance between inhibitor switch connector receptacle's terminals in selector lever except for "1" position.

Terminals

No. 3 — No. 10:



- CHECK** : *Is the resistance more than 1 MΩ?*
- YES** : Go to step **10AZ30**.
- NO** : Go to step **10AZ29**.

10AZ29 : CHECK SELECTOR CABLE.

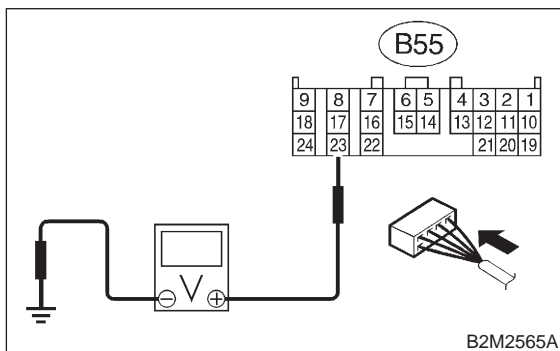
CHECK : *Is there faulty connection in the selector cable?*

- YES** : Repair connection of selector cable.
- NO** : Replace inhibitor switch. <Ref. to 3-2 [W2C0].>

10AZ30 : CHECK INPUT SIGNAL FOR TCM.

- 1) Turn ignition switch to OFF.
- 2) Connect connector to TCM and transmission.
- 3) Turn ignition switch to ON.
- 4) Measure voltage between TCM and chassis ground.

Connector & terminal
(B55) No. 23 (+) — Chassis ground (-):

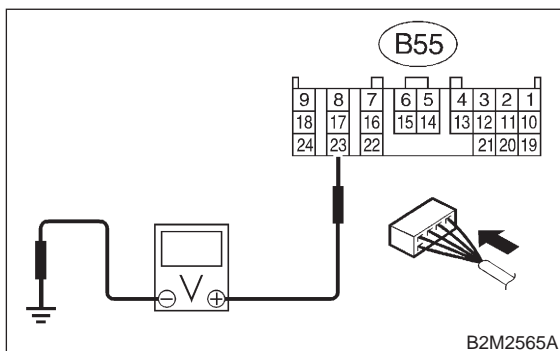


- CHECK** : Is the voltage less than 1 V?
- YES** : Go to step 10AZ31.
- NO** : Go to step 10AZ44.

10AZ31 : CHECK INPUT SIGNAL FOR TCM.

Measure voltage between TCM chassis ground in selector lever except for "P" and "N" positions.

Connector & terminal
(B55) No. 23 (+) — Chassis ground (-):

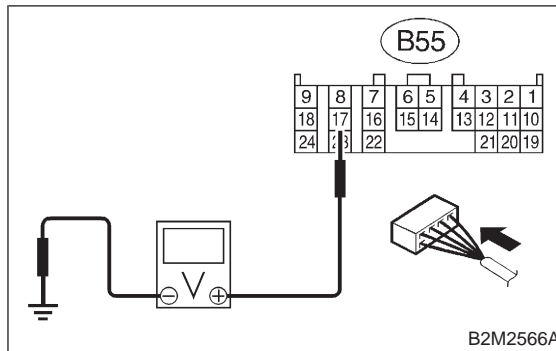


- CHECK** : Is the voltage more than 8 V?
- YES** : Go to step 10AZ32.
- NO** : Go to step 10AZ44.

10AZ32 : CHECK INPUT SIGNAL FOR TCM.

Measure voltage between TCM chassis ground in selector lever "R" position.

Connector & terminal
(B55) No. 17 (+) — Chassis ground (-):

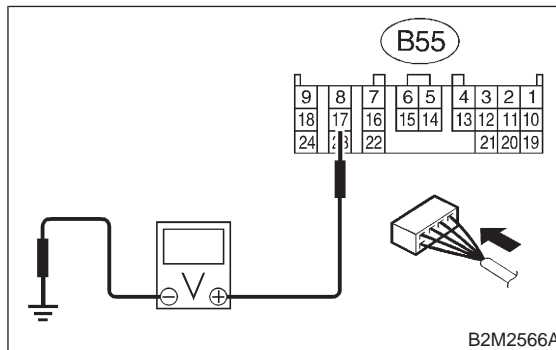


- CHECK** : Is the voltage less than 1 V?
- YES** : Go to step 10AZ33.
- NO** : Go to step 10AZ44.

10AZ33 : CHECK INPUT SIGNAL FOR TCM.

Measure voltage between TCM chassis ground in selector lever except for "R" position.

Connector & terminal
(B55) No. 17 (+) — Chassis ground (-):



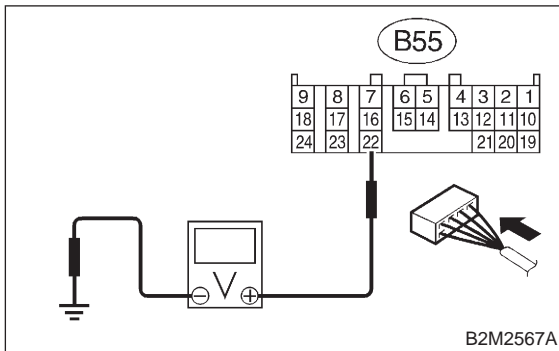
- CHECK** : Is the voltage more than 6 V?
- YES** : Go to step 10AZ34.
- NO** : Go to step 10AZ44.

10AZ34 : CHECK INPUT SIGNAL FOR TCM.

Measure voltage between TCM chassis ground in selector lever "P" and "N" positions.

Connector & terminal

(B55) No. 22 (+) — Chassis ground (-):



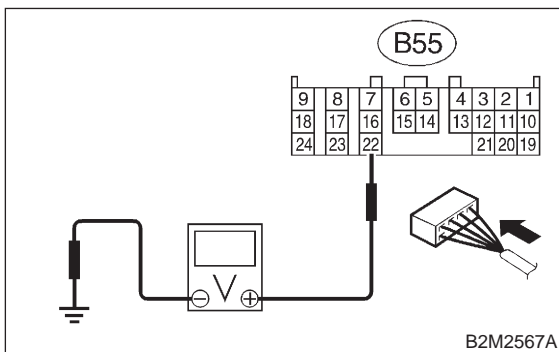
- CHECK** : Is the voltage less than 1 V?
- YES** : Go to step 10AZ35.
- NO** : Go to step 10AZ44.

10AZ35 : CHECK INPUT SIGNAL FOR TCM.

Measure voltage between TCM chassis ground in selector lever except for "N" and "P" positions.

Connector & terminal

(B55) No. 22 (+) — Chassis ground (-):



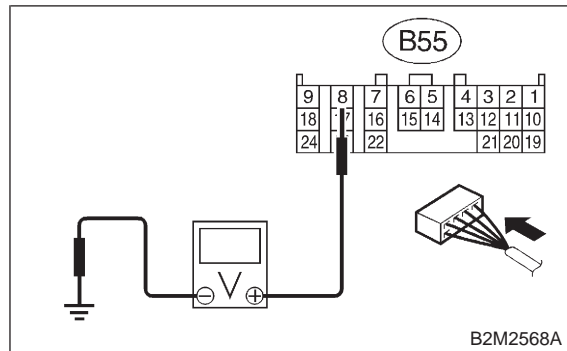
- CHECK** : Is the voltage more than 8 V?
- YES** : Go to step 10AZ36.
- NO** : Go to step 10AZ44.

10AZ36 : CHECK INPUT SIGNAL FOR TCM.

Measure voltage between TCM and chassis ground in selector lever "D" position.

Connector & terminal

(B55) No. 8 (+) — Chassis ground (-):



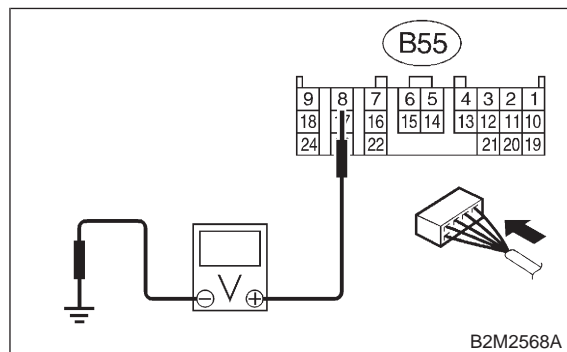
- CHECK** : Is the voltage less than 1 V?
- YES** : Go to step 10AZ37.
- NO** : Go to step 10AZ44.

10AZ37 : CHECK INPUT SIGNAL FOR TCM.

Measure voltage between TCM chassis ground in selector lever except for "N" and "P" positions.

Connector & terminal

(B55) No. 8 (+) — Chassis ground (-):



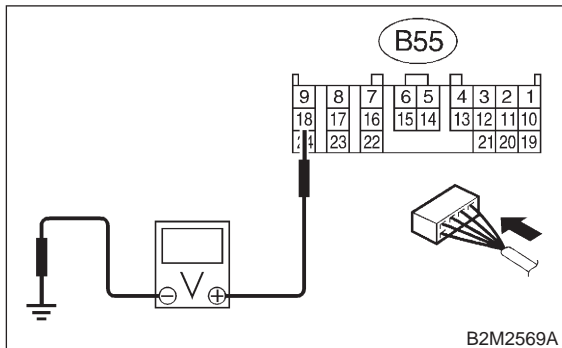
- CHECK** : Is the voltage more than 6 V?
- YES** : Go to step 10AZ38.
- NO** : Go to step 10AZ44.

10AZ38 : CHECK INPUT SIGNAL FOR TCM.

Measure voltage between TCM chassis ground in selector lever "3" position.

Connector & terminal

(B55) No. 18 (+) — Chassis ground (-):



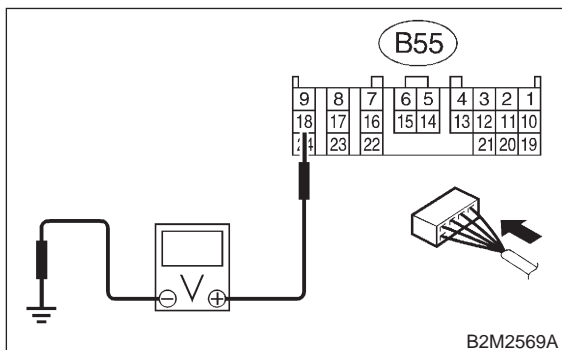
- CHECK** : Is the voltage less than 1 V?
- YES** : Go to step 10AZ39.
- NO** : Go to step 10AZ44.

10AZ39 : CHECK INPUT SIGNAL FOR TCM.

Measure voltage between TCM and chassis ground in selector lever except for "3" position.

Connector & terminal

(B55) No. 18 (+) — Chassis ground (-):



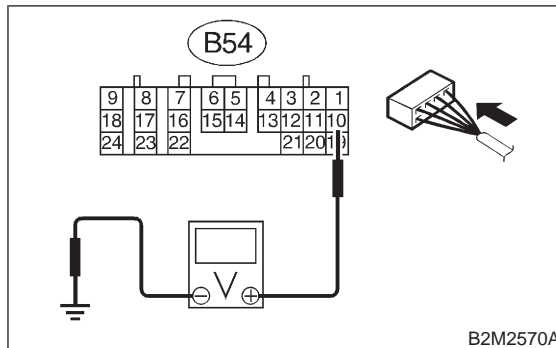
- CHECK** : Is the voltage more than 6 V?
- YES** : Go to step 10AZ40.
- NO** : Go to step 10AZ44.

10AZ40 : CHECK INPUT SIGNAL FOR TCM.

Measure voltage between TCM chassis ground in selector lever "2" position.

Connector & terminal

(B54) No. 10 (+) — Chassis ground (-):



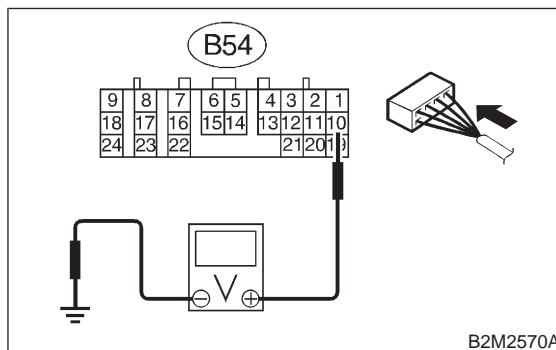
- CHECK** : Is the voltage less than 1 V?
- YES** : Go to step 10AZ41.
- NO** : Go to step 10AZ44.

10AZ41 : CHECK INPUT SIGNAL FOR TCM.

Measure voltage between TCM and chassis ground in selector lever except for "2" position.

Connector & terminal

(B54) No. 10 (+) — Chassis ground (-):

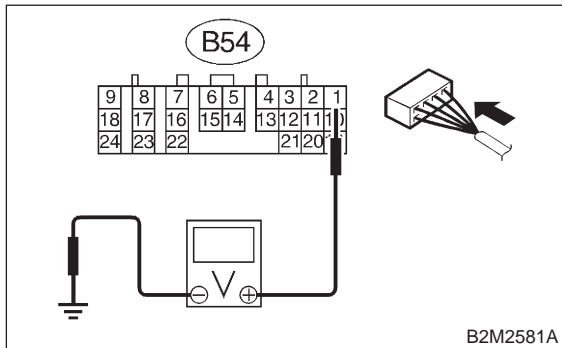


- CHECK** : Is the voltage more than 6 V?
- YES** : Go to step 10AZ42.
- NO** : Go to step 10AZ44.

10AZ42 : CHECK INPUT SIGNAL FOR TCM.

Measure voltage between TCM chassis ground in selector lever "1" position.

Connector & terminal
(B54) No. 1 (+) — Chassis ground (-):

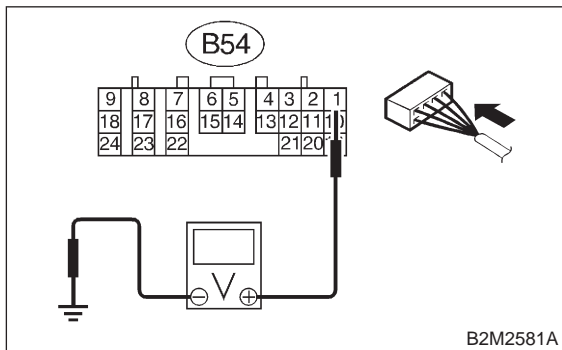


- CHECK** : *Is the voltage less than 1 V?*
- YES** : Go to step 10AZ43.
- NO** : Go to step 10AZ44.

10AZ43 : CHECK INPUT SIGNAL FOR TCM.

Measure voltage between TCM chassis ground in selector lever except for "1" position.

Connector & terminal
(B54) No. 1 (+) — Chassis ground (-):



- CHECK** : *Is the voltage more than 6 V?*
- YES** : Repair poor contact in TCM connector.
- NO** : Go to step 10AZ44.

10AZ44 : CHECK POOR CONTACT.

Check poor contact in TCM connector. <Ref. to FOREWORD [T3C1].>

- CHECK** : *Is there poor contact in TCM connector?*
- YES** : Repair poor contact in TCM connector.
- NO** : Replace TCM. <Ref. to 3-2 [W22A0].>

BA: DTC P0710 — TRANSMISSION FLUID TEMPERATURE SENSOR CIRCUIT MALFUNCTION —

● DTC DETECTING CONDITION:

- Two consecutive driving cycles with fault

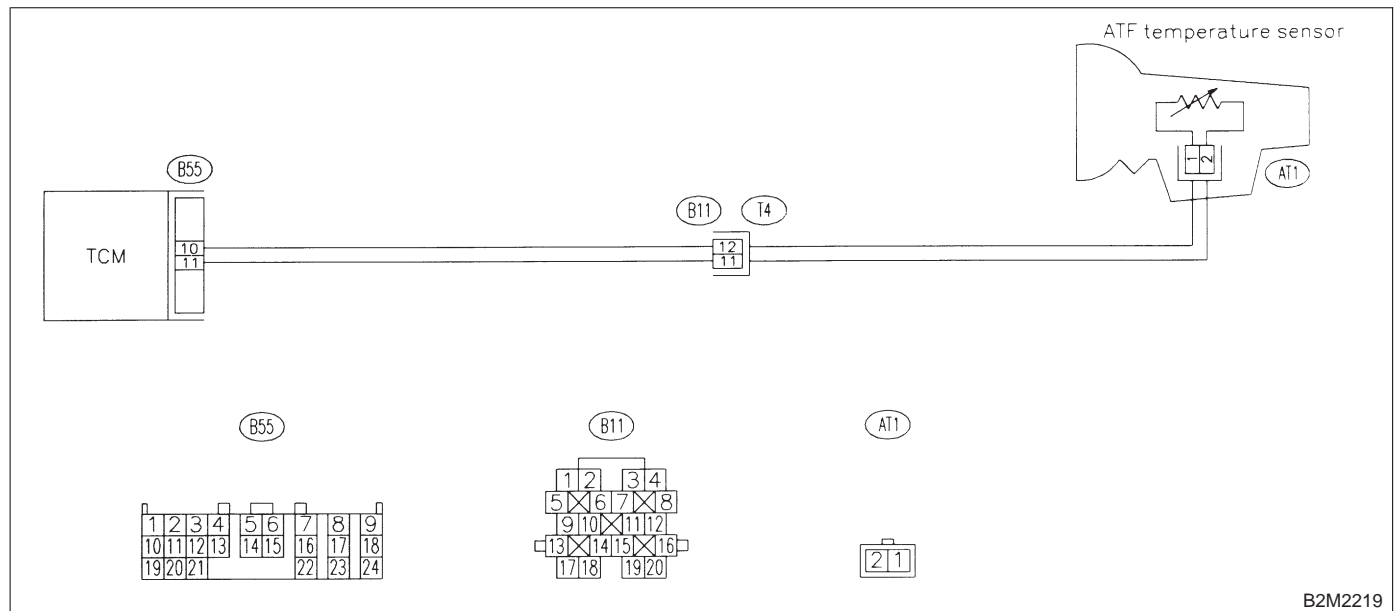
● TROUBLE SYMPTOM:

- No shift up to 4th speed (after engine warm-up)
- No lock-up (after engine warm-up)
- Excessive shift shock

CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to 2-7 [T3D0].> and INSPECTION MODE <Ref. to 2-7 [T3E0].>

● WIRING DIAGRAM:



B2M2219

10BA1 : CHECK DTC P0710 ON DISPLAY.

- CHECK** : Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0710?
- YES** : Check ATF temperature sensor circuit. <Ref. to 3-2 [T8E0].>
- NO** : It is not necessary to inspect DTC P0710.

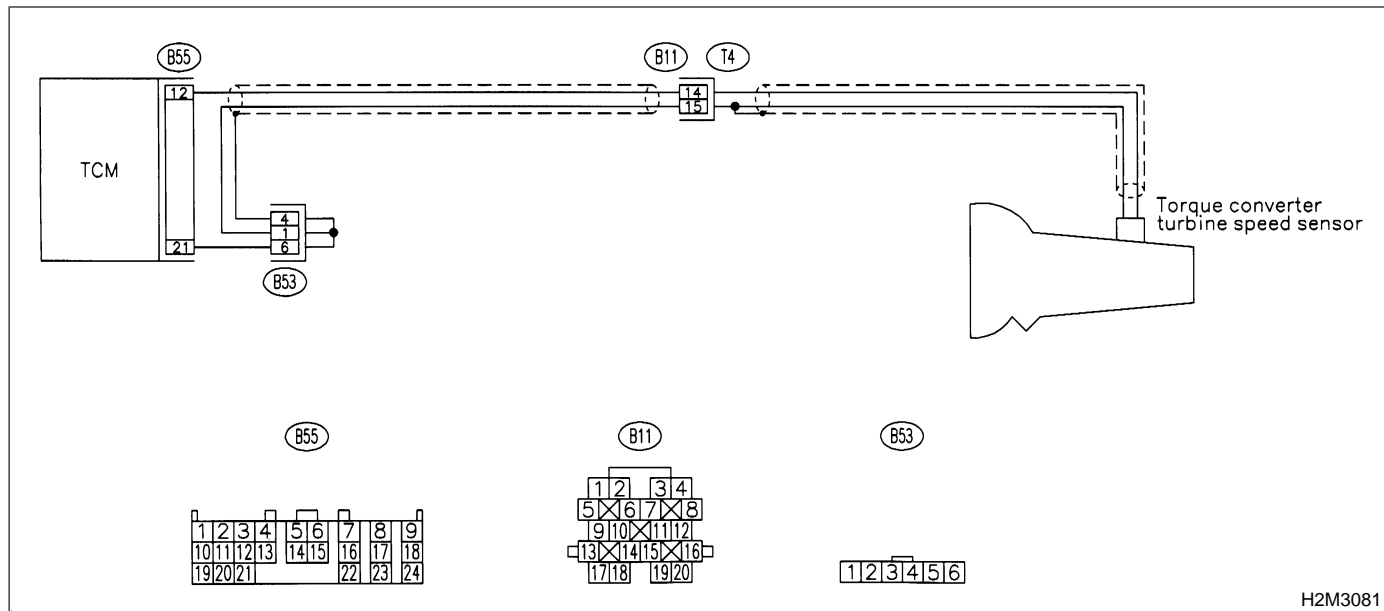
BB: DTC P0715 — TORQUE CONVERTER TURBINE SPEED SENSOR CIRCUIT MALFUNCTION —

- **DTC DETECTING CONDITION:**
 - Two consecutive driving cycles with fault

CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to 2-7 [T3D0].> and INSPECTION MODE <Ref. to 2-7 [T3E0].>

- **WIRING DIAGRAM:**



H2M3081

10BB1 : CHECK DTC P0715 ON DISPLAY.

- CHECK** : Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0715?
- YES** : Check torque converter turbine speed sensor circuit. <Ref. to 3-2 [T8H0].>
- NO** : It is not necessary to inspect DTC P0715.

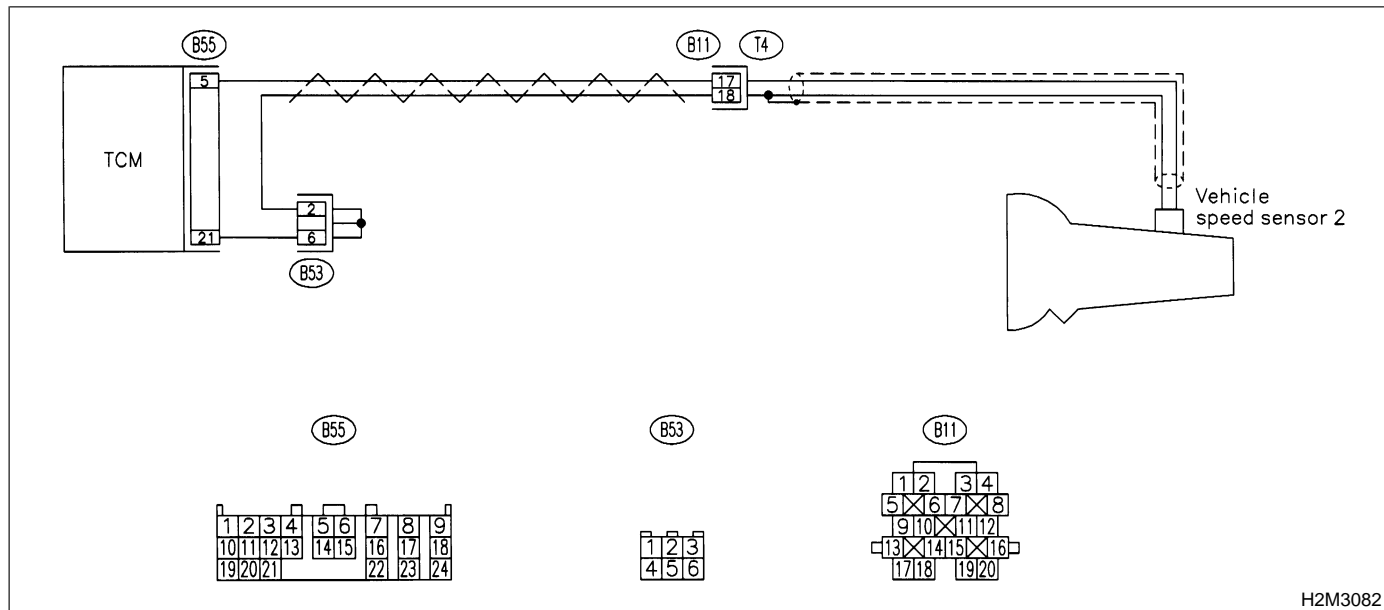
BC: DTC P0720 — OUTPUT SPEED SENSOR (VEHICLE SPEED SENSOR 2) CIRCUIT MALFUNCTION —

- **DTC DETECTING CONDITION:**
 - Two consecutive driving cycles with fault
- **TROUBLE SYMPTOM:**
 - No shift or excessive tight corner “braking”

CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to 2-7 [T3D0].> and INSPECTION MODE <Ref. to 2-7 [T3E0].>

● **WIRING DIAGRAM:**



10BC1 : CHECK DTC P0720 ON DISPLAY.

- CHECK** : *Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0720?*
- YES** : Check vehicle speed sensor 2 circuit. <Ref. to 3-2 [T8G0].>
- NO** : It is not necessary to inspect DTC P0720.

BD: DTC P0725 — ENGINE SPEED INPUT CIRCUIT MALFUNCTION —

● **DTC DETECTING CONDITION:**

- Two consecutive driving cycles with fault

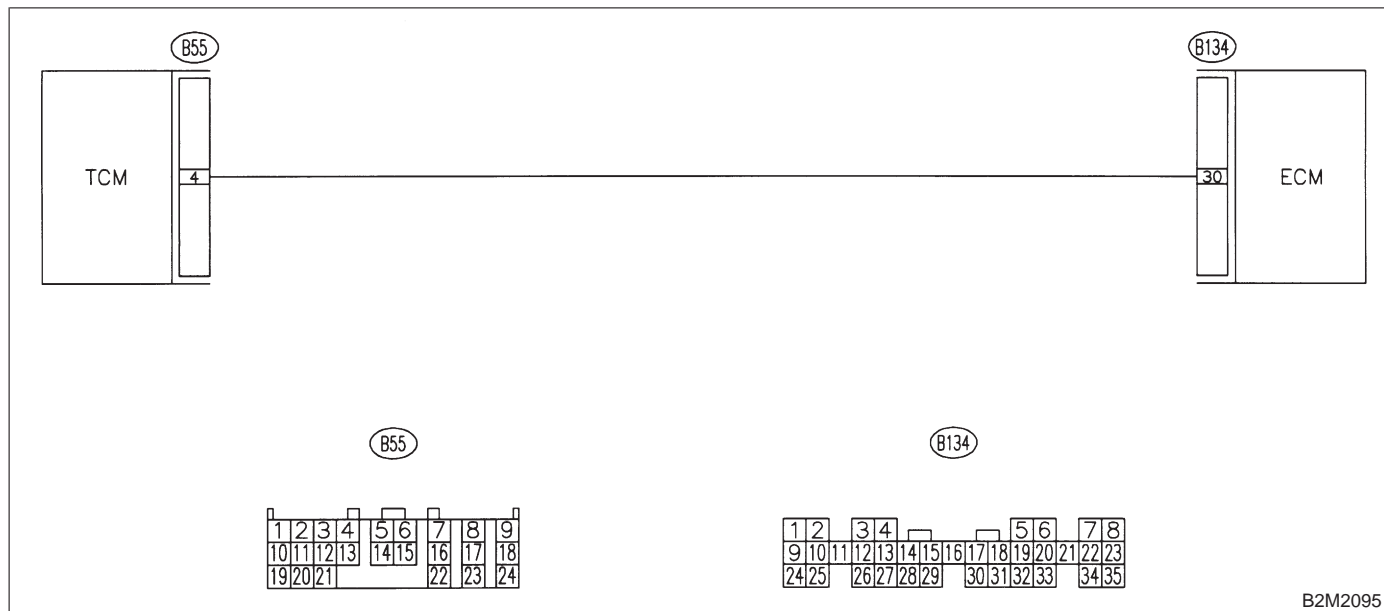
● **TROUBLE SYMPTOM:**

- No lock-up (after engine warm-up)
- AT diagnostic indicator light (AT OIL TEMP indicator light) remains on when vehicle speed is "0".

CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to 2-7 [T3D0].> and INSPECTION MODE <Ref. to 2-7 [T3E0].>

● **WIRING DIAGRAM:**



B2M2095

10BD1 : CHECK DTC P0725 ON DISPLAY.

CHECK : Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0725?

YES : Check engine speed input signal circuit. <Ref. to 3-2 [T8C0].>

NO : It is not necessary to inspect DTC P0725.

BE: DTC P0731 — GEAR 1 INCORRECT RATIO —

NOTE:

For the diagnostic procedure, refer to 2-7 [T10BH0]. <Ref. to 2-7 [T10BH0].>

BF: DTC P0732 — GEAR 2 INCORRECT RATIO —

NOTE:

For the diagnostic procedure, refer to 2-7 [T10BH0]. <Ref. to 2-7 [T10BH0].>

BG: DTC P0733 — GEAR 3 INCORRECT RATIO —

NOTE:

For the diagnostic procedure, refer to 2-7 [T10BH0]. <Ref. to 2-7 [T10BH0].>

BH: DTC P0734 — GEAR 4 INCORRECT RATIO —● **DTC DETECTING CONDITION:**

- Two consecutive driving cycles with fault

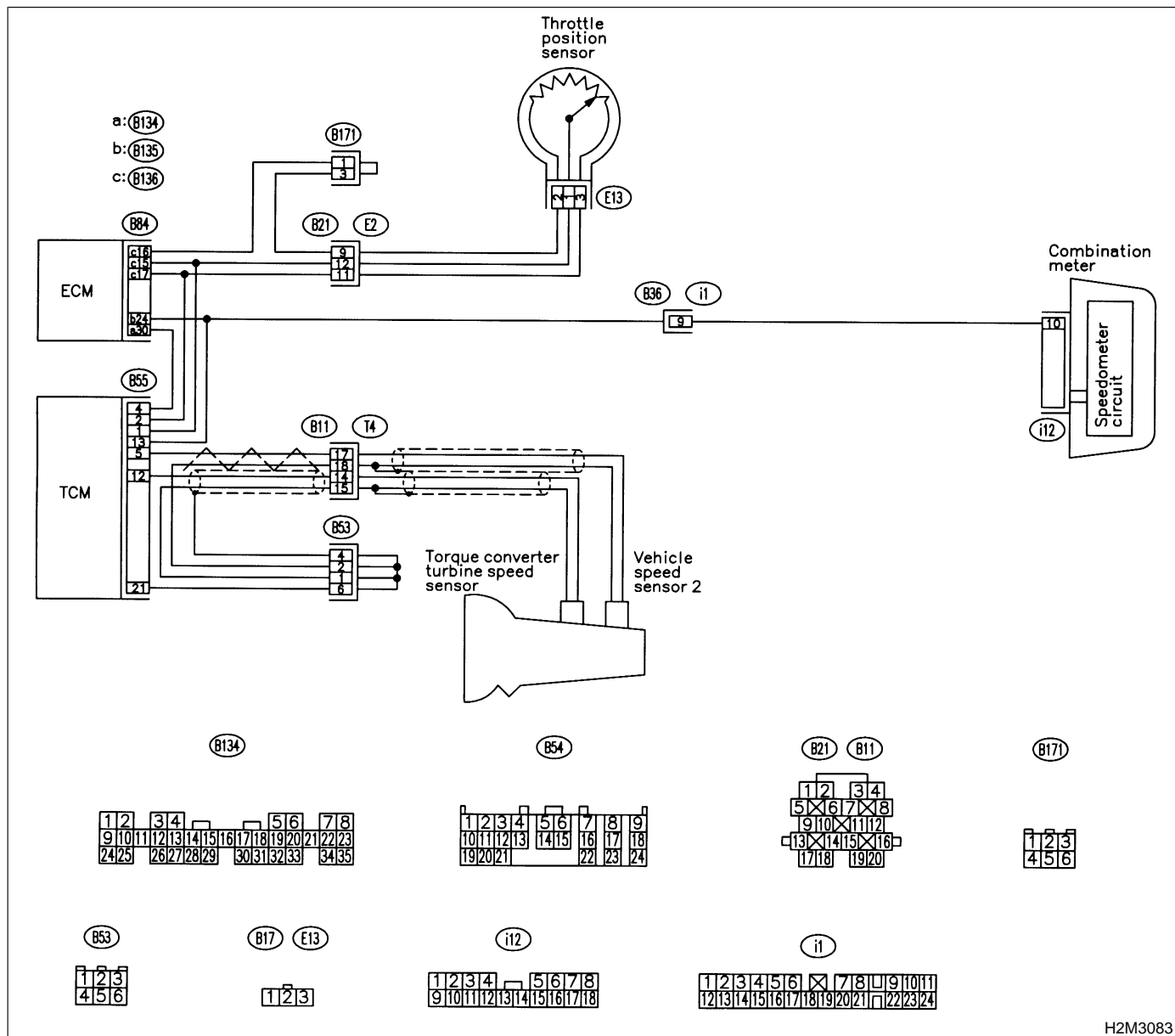
● **TROUBLE SYMPTOM:**

- Shift point too high or too low; engine brake not effected in “3” range; excessive shift shock; excessive tight corner “braking”

CAUTION:

After repair or replacement of faulty parts, conduct **CLEAR MEMORY MODE** <Ref. to 2-7 [T3D0].> and **INSPECTION MODE** <Ref. to 2-7 [T3E0].>.

● WIRING DIAGRAM:



10BH1 : CHECK ANY OTHER DTC ON DISPLAY.

- CHECK** : *Is there any other DTC on display?*
- YES** : Inspect relevant DTC using "10. Diagnostics Chart with Trouble Code for 2200 cc California Spec. Vehicles". <Ref. to 2-7 [T10A0].>
- NO** : Go to step **10BH2**.

10BH2 : CHECK THROTTLE POSITION SENSOR CIRCUIT.

- Check throttle position sensor circuit. <Ref. to 3-2 [T8F0].>
- CHECK** : *Is there any trouble in throttle position sensor circuit?*
- YES** : Repair or replace throttle position sensor circuit.
- NO** : Go to step **10BH3**.

**10BH3 : CHECK VEHICLE SPEED SENSOR
2 CIRCUIT.**

Check vehicle speed sensor 2 circuit. <Ref. to 3-2 [T8G0].>

- CHECK** : *Is there any trouble in vehicle speed sensor 2 circuit?*
- YES** : Repair or replace vehicle speed sensor 2 circuit.
- NO** : Go to step **10BH4**.

**10BH4 : CHECK TORQUE CONVERTER
TURBINE SPEED SENSOR CIR-
CUIT.**

Check torque converter turbine speed sensor circuit. <Ref. to 3-2 [T8H0].>

- CHECK** : *Is there any trouble in torque converter turbine speed sensor circuit?*
- YES** : Repair or replace torque converter turbine speed sensor circuit.
- NO** : Go to step **10BH5**.

10BH5 : CHECK POOR CONTACT.

Check poor contact in TCM connector. <Ref. to FOREWORD [T3C1].>

- CHECK** : *Is there poor contact in TCM connector?*
- YES** : Repair poor contact in TCM connector.
- NO** : Go to step **10BH6**.

10BH6 : CHECK MECHANICAL TROUBLE.

Check mechanical trouble in automatic transmission.

- CHECK** : *Is there any mechanical trouble in automatic transmission?*
- YES** : Repair or replace automatic transmission. <Ref. to 3-2 [T1000].>
- NO** : Replace TCM. <Ref. to 3-2 [W22A0].>

MEMO:

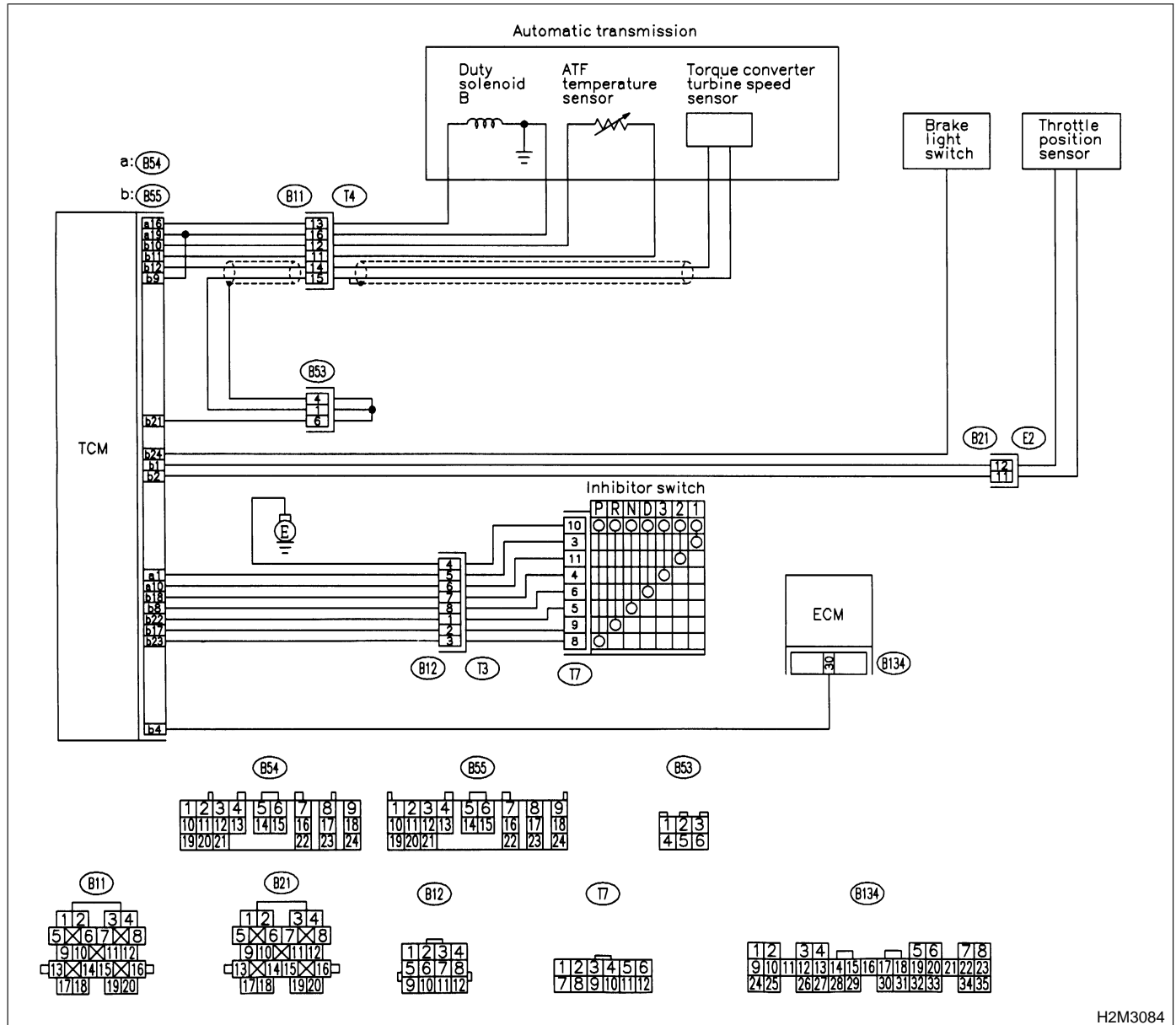
BI: DTC P0740 — TORQUE CONVERTER CLUTCH SYSTEM MALFUNCTION

- **DTC DETECTING CONDITION:**
 - Two consecutive driving cycles with fault
- **TROUBLE SYMPTOM:**
 - No lock-up (after engine warm-up)
 - No shift or excessive tight corner "braking"

CAUTION:

After repair or replacement of faulty parts, conduct **CLEAR MEMORY MODE** <Ref. to 2-7 [T3D0].> and **INSPECTION MODE** <Ref. to 2-7 [T3E0].>

● **WIRING DIAGRAM:**



10B11 : CHECK ANY OTHER DTC ON DISPLAY.

- CHECK** : *Is there any other DTC on display?*
- YES** : Inspect the relevant DTC using "10. Diagnostics Chart with Trouble Code for 2200 cc California Spec. Vehicles". <Ref. to 2-7 [T10A0].>
- NO** : Go to step **10B12**.

10B12 : CHECK DUTY SOLENOID B CIRCUIT.

Check duty solenoid B circuit. <Ref. to 3-2 [T8Q0].>

- CHECK** : *Is there any trouble in duty solenoid B circuit?*
- YES** : Repair or replace duty solenoid B circuit.
- NO** : Go to step **10B13**.

10B13 : CHECK THROTTLE POSITION SENSOR CIRCUIT.

Check throttle position sensor circuit. <Ref. to 3-2 [T8F0].>

- CHECK** : *Is there any trouble in throttle position sensor circuit?*
- YES** : Repair or replace throttle position sensor circuit.
- NO** : Go to step **10B14**.

10B14 : CHECK TORQUE CONVERTER TURBINE SPEED SENSOR CIRCUIT.

Check torque converter turbine speed sensor circuit. <Ref. to 3-2 [T8H0].>

- CHECK** : *Is there any trouble in torque converter turbine speed sensor circuit?*
- YES** : Repair or replace torque converter turbine speed sensor circuit.
- NO** : Go to step **10B15**.

10B15 : CHECK INHIBITOR SWITCH CIRCUIT.

Check inhibitor switch circuit. <Ref. to 2-7 [T10AZ0].>

- CHECK** : *Is there any trouble in inhibitor switch circuit?*
- YES** : Repair or replace inhibitor switch circuit.
- NO** : Go to step **10B16**.

10B16 : CHECK BRAKE LIGHT SWITCH CIRCUIT.

Check brake light switch circuit. <Ref. to 2-7 [T10AY0].>

- CHECK** : *Is there any trouble in brake light switch circuit?*
- YES** : Repair or replace brake light switch circuit.
- NO** : Go to step **10B17**.

10B17 : CHECK ATF TEMPERATURE SENSOR CIRCUIT.

Check ATF temperature sensor circuit. <Ref. to 3-2 [T8E0].>

- CHECK** : *Is there any trouble in ATF temperature sensor circuit?*
- YES** : Repair or replace ATF temperature sensor circuit.
- NO** : Go to step **10B18**.

10B18 : CHECK POOR CONTACT.

Check poor contact in TCM connector. <Ref. to FOREWORD [T3C1].>

- CHECK** : *Is there poor contact in TCM connector?*
- YES** : Repair poor contact in TCM connector.
- NO** : Go to step **10B19**.

10BI9 : CHECK MECHANICAL TROUBLE.

Check mechanical trouble in automatic transmission.

- CHECK** : *Is there any mechanical trouble in automatic transmission?*
- YES** : Repair or replace automatic transmission. <Ref. to 3-2 [T1000].>
- NO** : Replace TCM. <Ref. to 3-2 [W22A0].>

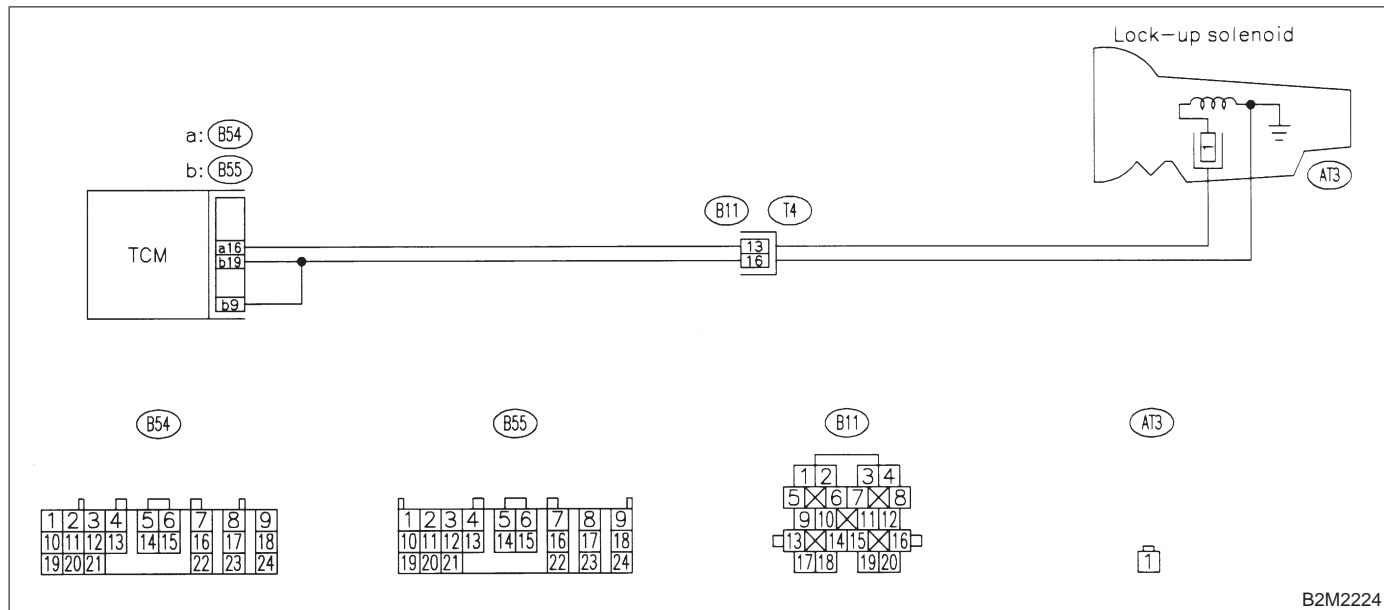
BJ: DTC P0743 — TORQUE CONVERTER CLUTCH SYSTEM (DUTY SOLENOID B) ELECTRICAL —

- **DTC DETECTING CONDITION:**
 - Two consecutive driving cycles with fault
- **TROUBLE SYMPTOM:**
 - No lock-up (after engine warm-up)

CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to 2-7 [T3D0].> and INSPECTION MODE <Ref. to 2-7 [T3E0].>

● **WIRING DIAGRAM:**



10BJ1 : CHECK DTC P0743 ON DISPLAY.

- CHECK** : Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0743?
- YES** : Check duty solenoid B circuit. <Ref. to 3-2 [T8Q0].>
- NO** : It is not necessary to inspect DTC P0743.

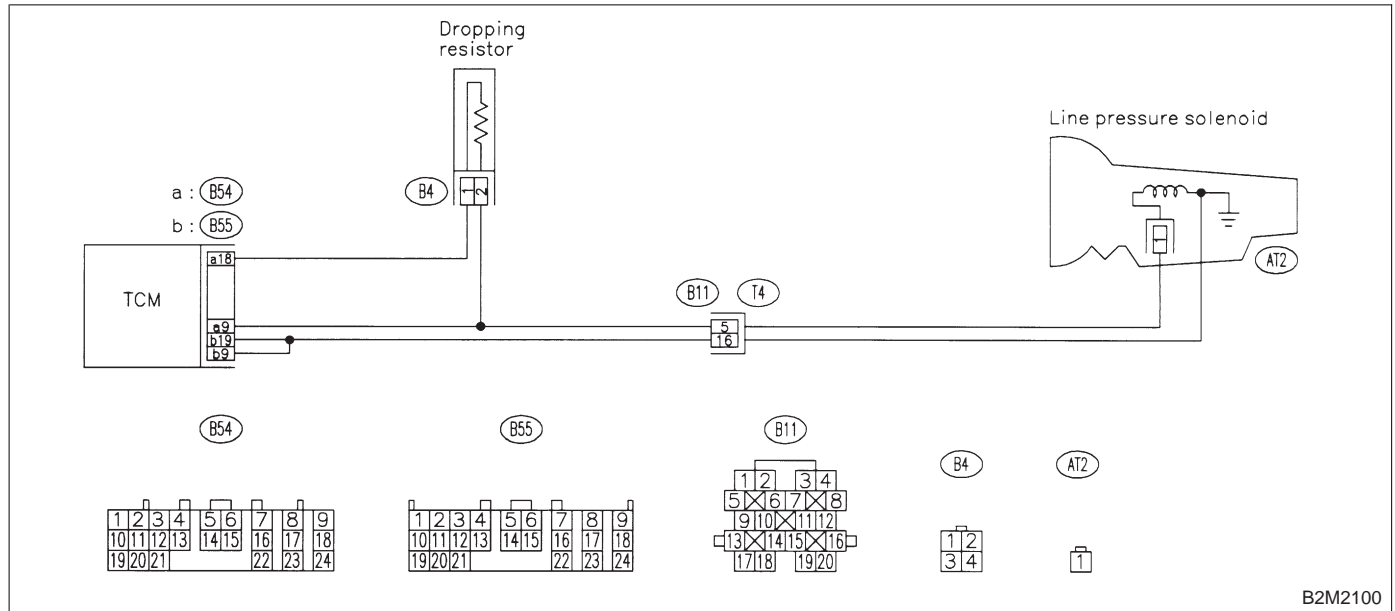
BK: DTC P0748 — PRESSURE CONTROL SOLENOID (DUTY SOLENOID A) ELECTRICAL —

- **DTC DETECTING CONDITION:**
 - Two consecutive driving cycles with fault
- **TROUBLE SYMPTOM:**
 - Excessive shift shock

CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to 2-7 [T3D0].> and INSPECTION MODE <Ref. to 2-7 [T3E0].>

● **WIRING DIAGRAM:**



B2M2100

10BK1 : CHECK DTC P0748 ON DISPLAY.

- CHECK** : Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0748?
- YES** : Check duty solenoid A circuit. <Ref. to 3-2 [T800].>
- NO** : It is not necessary to inspect DTC P0748.

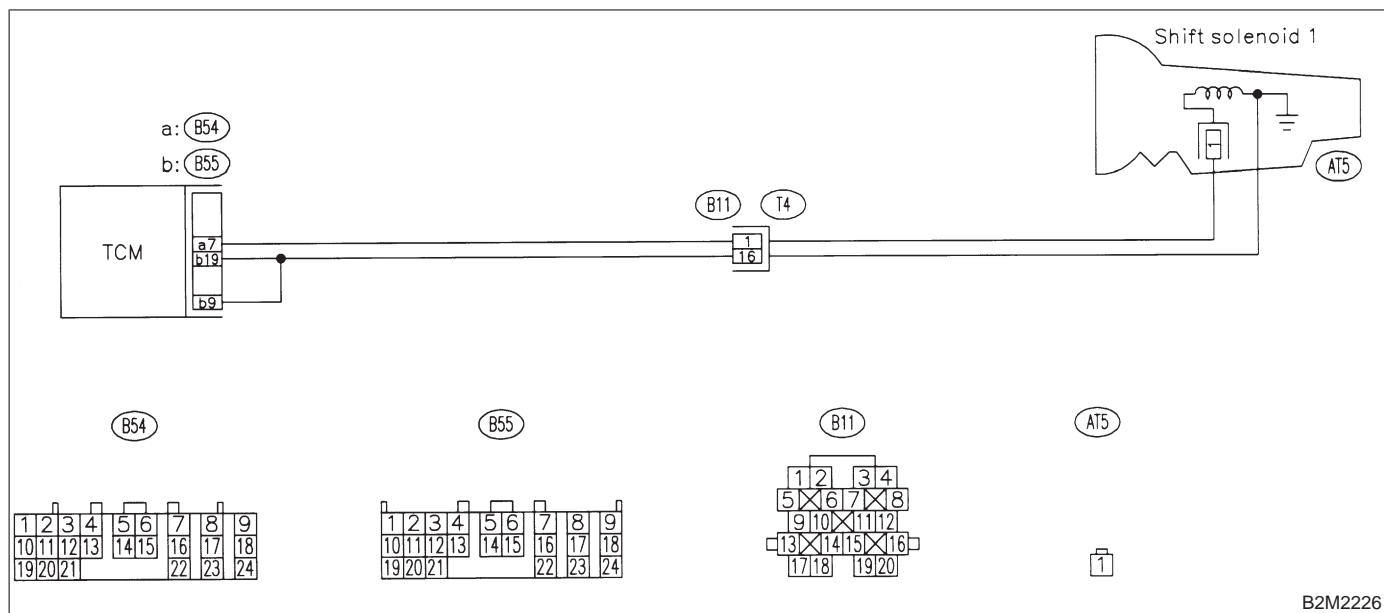
BL: DTC P0753 — SHIFT SOLENOID A (SHIFT SOLENOID 1) ELECTRICAL —

- **DTC DETECTING CONDITION:**
 - Two consecutive driving cycles with fault
- **TROUBLE SYMPTOM:**
 - No shift

CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to 2-7 [T3D0].> and INSPECTION MODE <Ref. to 2-7 [T3E0].>

● **WIRING DIAGRAM:**



B2M2226

10BL1 : CHECK DTC P0753 ON DISPLAY.

- CHECK** : Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0753?
- YES** : Check shift solenoid 1 circuit. <Ref. to 3-2 [T8K0].>
- NO** : It is not necessary to inspect DTC P0753.

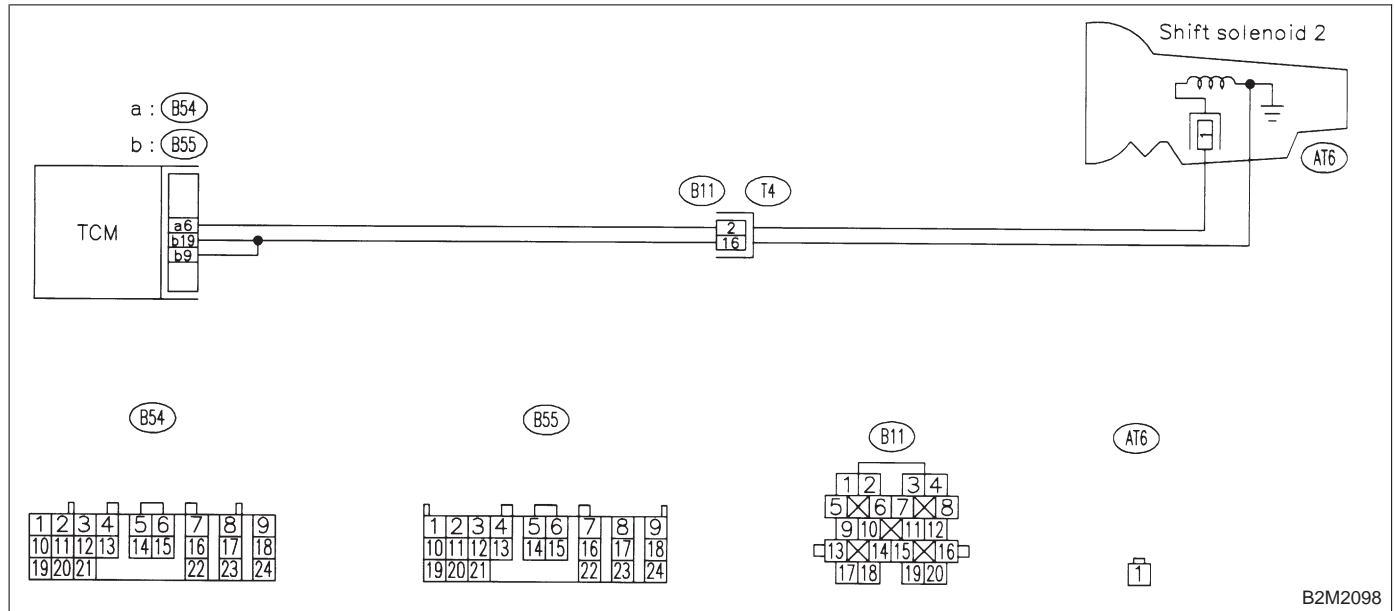
BM: DTC P0758 — SHIFT SOLENOID B (SHIFT SOLENOID 2) ELECTRICAL

- **DTC DETECTING CONDITION:**
 - Two consecutive driving cycles with fault
- **TROUBLE SYMPTOM:**
 - No shift

CAUTION:

After repair or replacement of faulty parts, conduct **CLEAR MEMORY MODE** <Ref. to 2-7 [T3D0].> and **INSPECTION MODE** <Ref. to 2-7 [T3E0].>

● **WIRING DIAGRAM:**



10BM1 : CHECK DTC P0758 ON DISPLAY.

- CHECK** : Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0758?
- YES** : Check shift solenoid 2 circuit. <Ref. to 3-2 [T8L0].>
- NO** : It is not necessary to inspect DTC P0758.

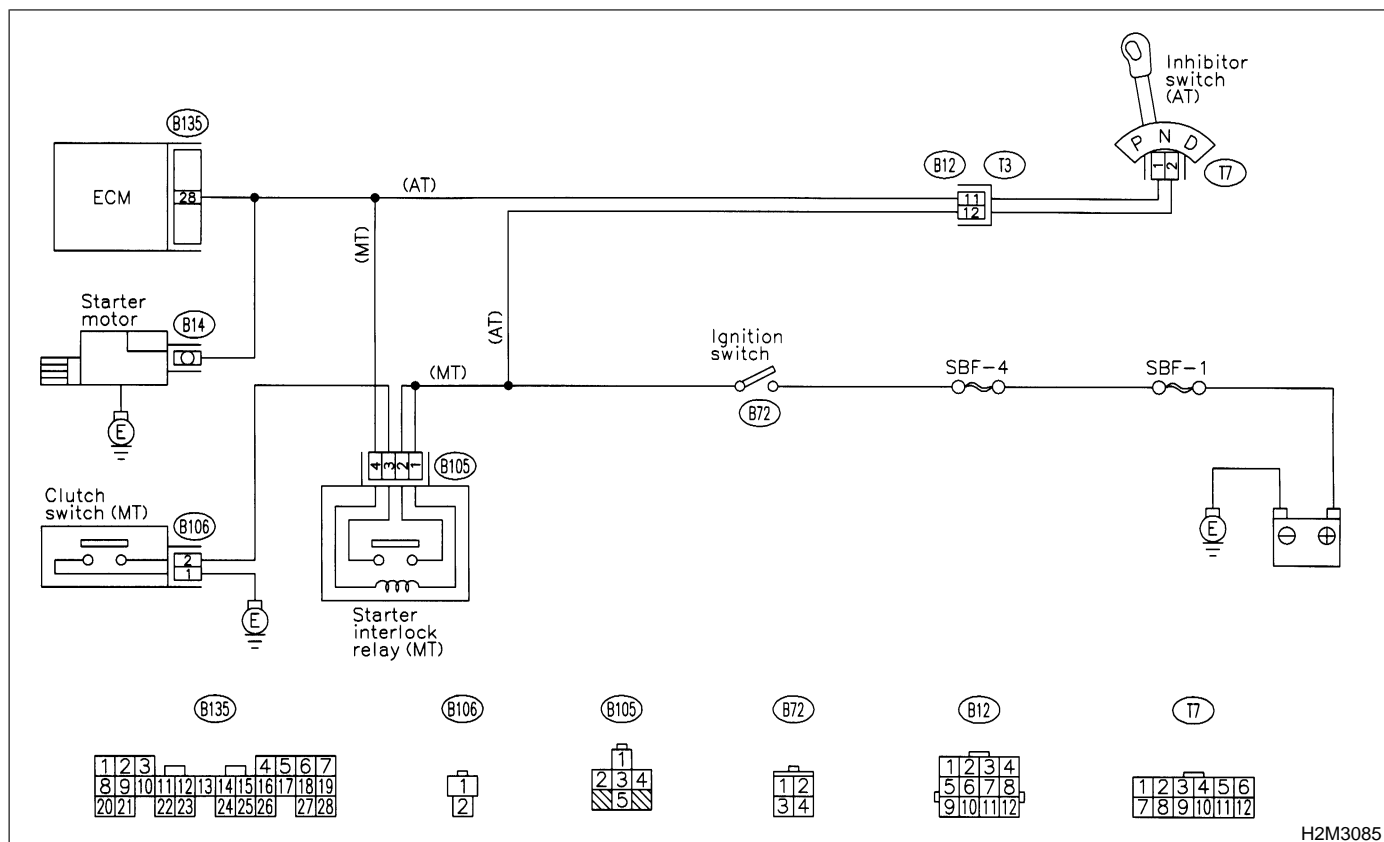
BN: DTC P1100 — STARTER SWITCH CIRCUIT LOW INPUT —

- **DTC DETECTING CONDITION:**
 - Two consecutive driving cycles with fault
- **TROUBLE SYMPTOM:**
 - Failure of engine to start

CAUTION:

After repair or replacement of faulty parts, conduct **CLEAR MEMORY MODE** <Ref. to 2-7 [T3D0].> and **INSPECTION MODE** <Ref. to 2-7 [T3E0].>

● **WIRING DIAGRAM:**



10BN1 : CHECK OPERATION OF STARTER MOTOR.

NOTE:

- On AT vehicles, place the inhibitor switch in the "P" or "N" position.
- On MT vehicles, depress the clutch pedal.

CHECK : **Does starter motor operate when ignition switch to "ST"?**

YES : Repair harness and connector.

NOTE:

In this case, repair the following:

- Open or ground short circuit in harness between ECM and starter motor connector.
- Poor contact in ECM connector.

NO : Check starter motor circuit. <Ref. to 2-7 [T8B0].>

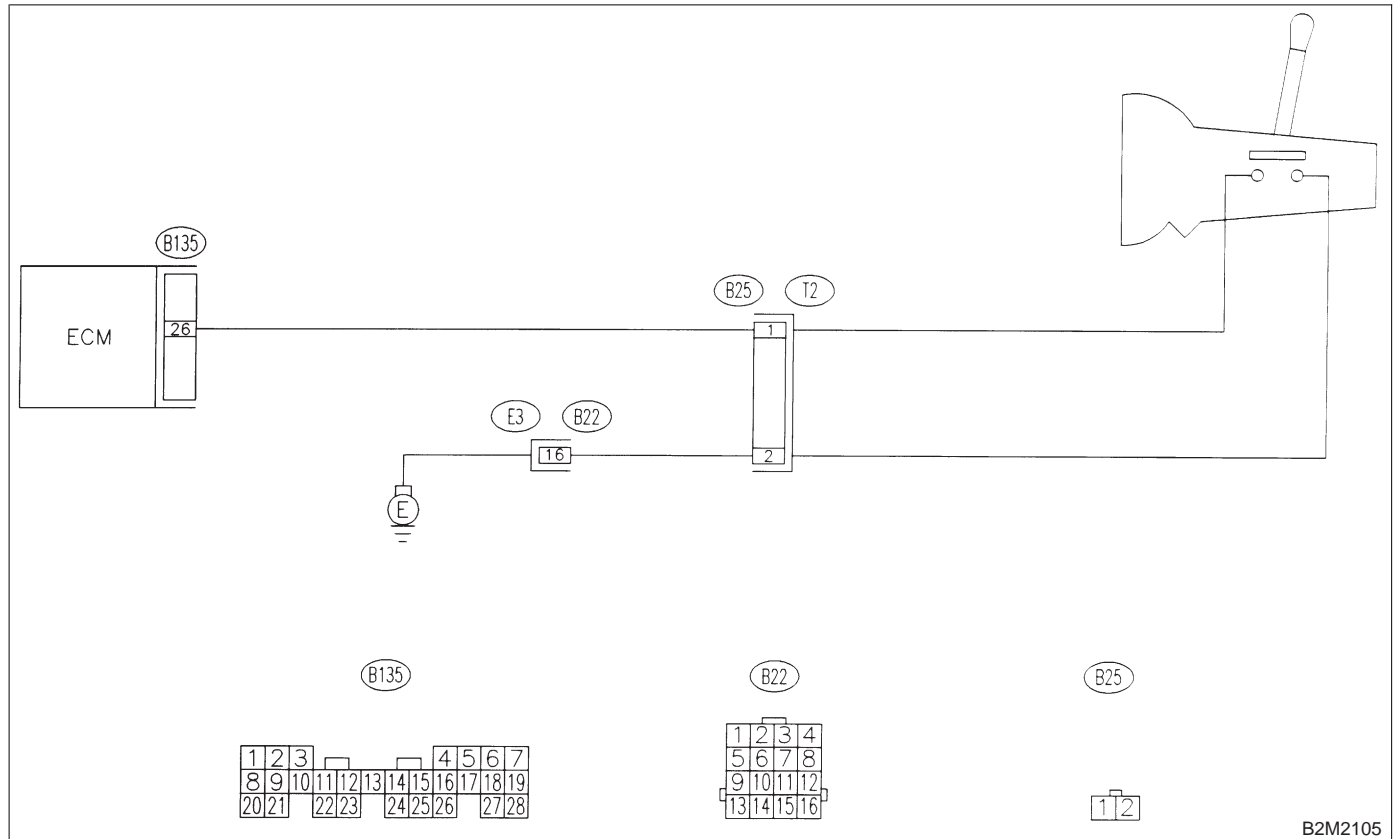
BO: DTC P1101 — NEUTRAL POSITION SWITCH CIRCUIT LOW INPUT [MT VEHICLES] —

- **DTC DETECTING CONDITION:**
 - Two consecutive driving cycles with fault
- **TROUBLE SYMPTOM:**
 - Erroneous idling

CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to 2-7 [T3D0].> and INSPECTION MODE <Ref. to 2-7 [T3E0].>

● **WIRING DIAGRAM:**

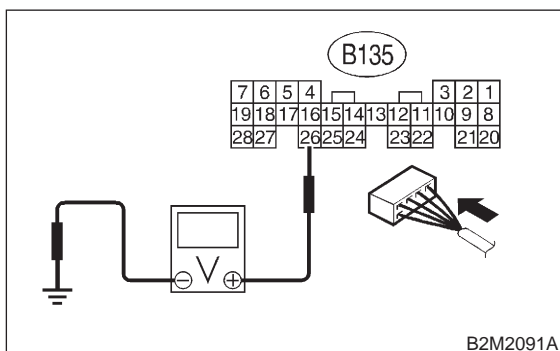


10B01 : CHECK INPUT SIGNAL FOR ECM.

- 1) Turn ignition switch to ON.
- 2) Measure voltage between ECM and chassis ground.

Connector & terminal

(B135) No. 26 (+) — Chassis ground (-):



CHECK : *Is the voltage more than 10 V in neutral position?*

YES : Go to step 10B02.

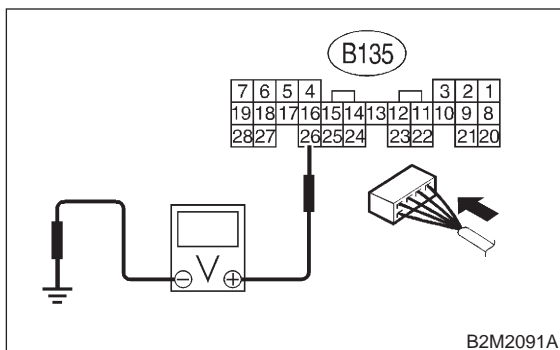
NO : Go to step 10B04.

10B02 : CHECK INPUT SIGNAL FOR ECM.

Measure voltage between ECM and chassis ground.

Connector & terminal

(B135) No. 26 (+) — Chassis ground (-):



CHECK : *Is the voltage less than 1 V in other positions?*

YES : Go to step 10B03.

NO : Go to step 10B04.

10B03 : CHECK POOR CONTACT.

Check poor contact in ECM connector. <Ref. to FOREWORD [T3C1].>

CHECK : *Is there poor contact in ECM connector?*

YES : Repair poor contact in ECM connector.

NO : Contact with SOA service.

NOTE:

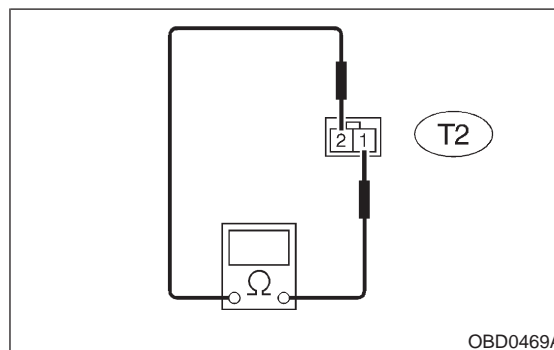
Inspection by DTM is required, because probable cause is deterioration of multiple parts.

10B04 : CHECK NEUTRAL POSITION SWITCH.

- 1) Turn ignition switch to OFF.
- 2) Disconnect connector from transmission harness.
- 3) Measure resistance between transmission harness and connector terminals.

Connector & terminal

(T2) No. 1 — No. 2:



CHECK : *Is the resistance more than 1 MΩ in neutral position?*

YES : Go to step 10B05.

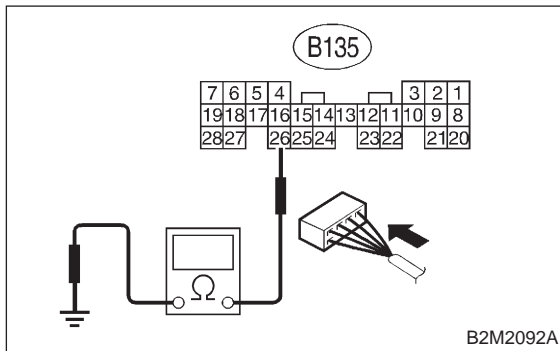
NO : Repair short circuit in transmission harness or replace neutral position switch.

10B05 : CHECK HARNESS BETWEEN ECM AND NEUTRAL POSITION SWITCH CONNECTOR.

Measure resistance between ECM and chassis ground.

Connector & terminal

(B135) No. 26 — Chassis ground:



CHECK : **Is the resistance less than 10 Ω?**

YES : Repair ground short circuit in harness between ECM and transmission harness connector.

NO : Go to step **10B06**.

10B06 : CHECK POOR CONTACT.

Check poor contact in transmission harness connector. <Ref. to FOREWORD [T3C1].>

CHECK : **Is there poor contact in transmission harness connector?**

YES : Repair poor contact in transmission harness connector.

NO : Contact with SOA service.

NOTE:

Inspection by DTM is required, because probable cause is deterioration of multiple parts.

MEMO:

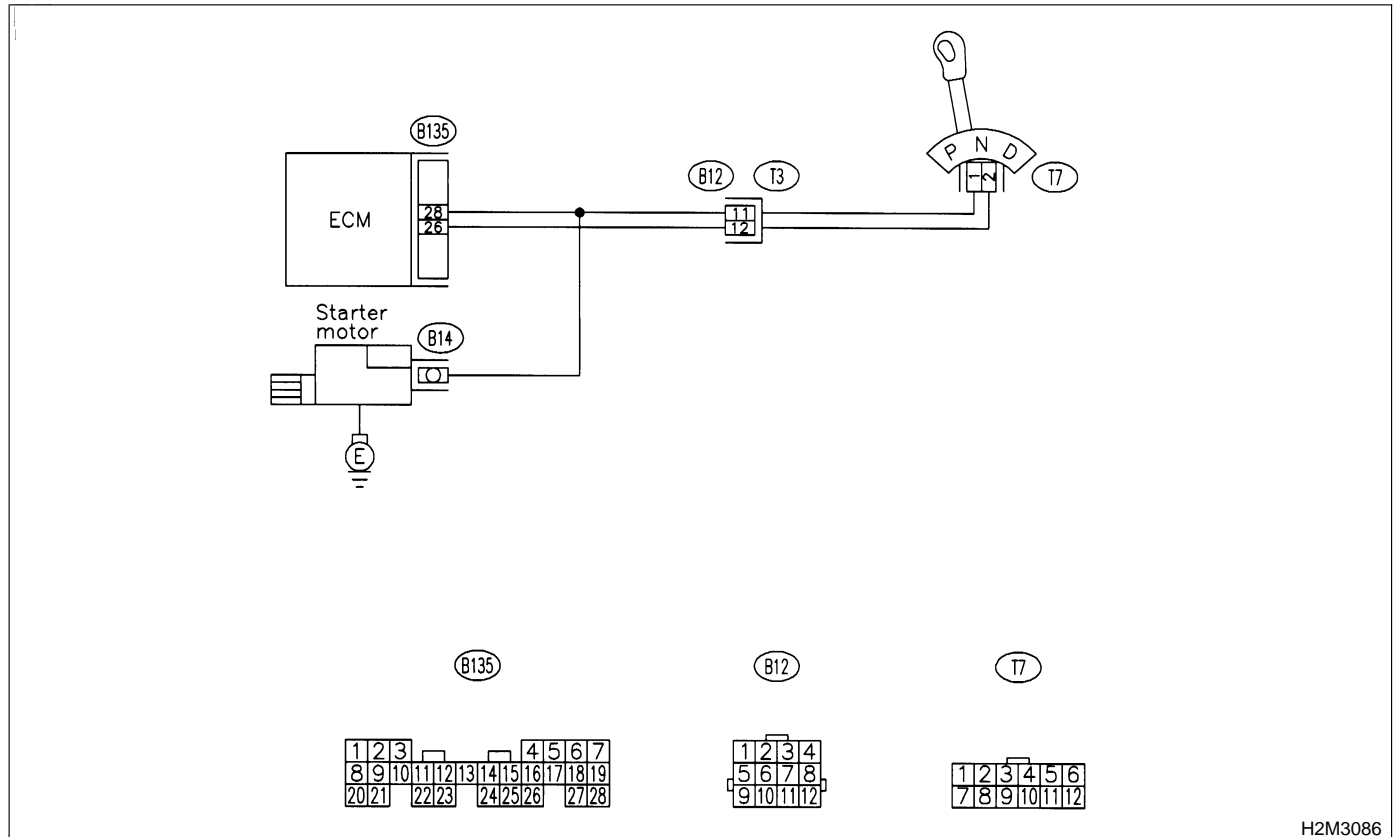
BP: DTC P1101 — NEUTRAL POSITION SWITCH CIRCUIT HIGH INPUT [AT VEHICLES] —

- **DTC DETECTING CONDITION:**
 - Two consecutive driving cycles with fault
- **TROUBLE SYMPTOM:**
 - Erroneous idling

CAUTION:

After repair or replacement of faulty parts, conduct **CLEAR MEMORY MODE** <Ref. to 2-7 [T3D0].> and **INSPECTION MODE** <Ref. to 2-7 [T3E0].>

● **WIRING DIAGRAM:**



10BP1 : CHECK DTC P0705 ON DISPLAY.

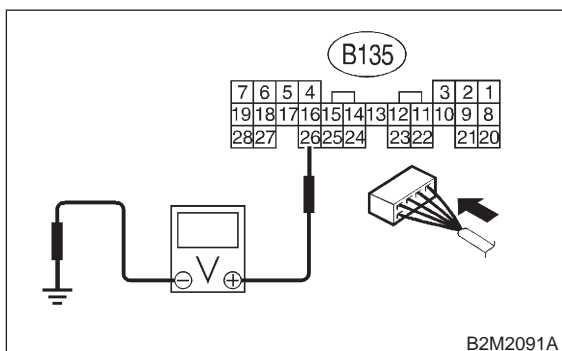
- CHECK** : *Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0705?*
- YES** : Inspect DTC P0705 using “10. Diagnostics Chart with Trouble Code for 2200 cc California Spec. Vehicles”. <Ref. to 2-7 [T10A0].>
- NO** : Go to step **10BP2**.

10BP2 : CHECK INPUT SIGNAL FOR ECM.

- 1) Turn ignition switch to ON.
- 2) Measure voltage between ECM and chassis ground in selector lever "N" and "P" positions.

Connector & terminal

(B135) No. 26 (+) — Chassis ground (-):



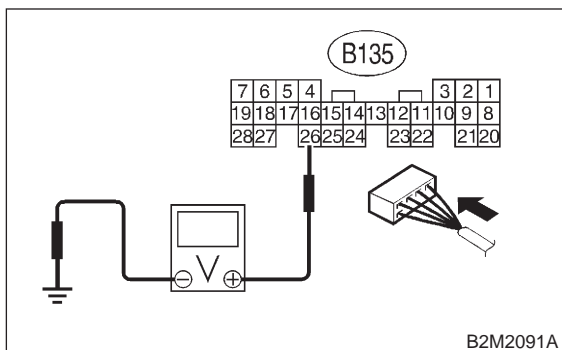
- CHECK** : *Is the voltage less than 1 V?*
- YES** : Go to step 10BP3.
- NO** : Go to step 10BP5.

10BP3 : CHECK INPUT SIGNAL FOR ECM.

Measure voltage between ECM and chassis ground in selector lever except for "N" and "P" positions.

Connector & terminal

(B135) No. 26 (+) — Chassis ground (-):



- CHECK** : *Is the voltage more than 10 V?*
- YES** : Go to step 10BP4.
- NO** : Go to step 10BP5.

10BP4 : CHECK POOR CONTACT.

Check poor contact in ECM connector. <Ref. to FOREWORD [T3C1].>

- CHECK** : *Is there poor contact in ECM connector?*
- YES** : Repair poor contact in ECM connector.
- NO** : Contact with SOA service.

NOTE:

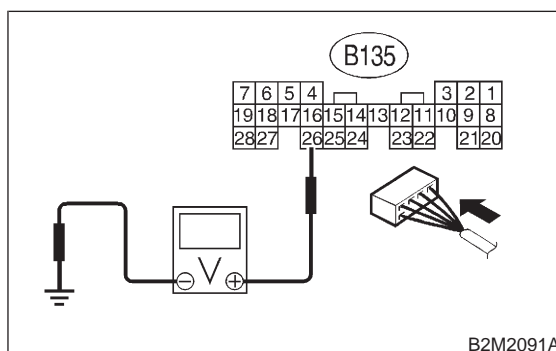
Inspection by DTM is required, because probable cause is deterioration of multiple parts.

10BP5 : CHECK INPUT SIGNAL FOR ECM.

Measure voltage between ECM and chassis ground.

Connector & terminal

(B135) No. 26 (+) — Chassis ground (-):



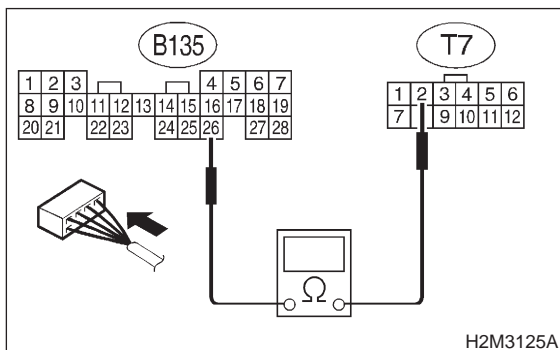
- CHECK** : *Is the voltage more than 10 V?*
- YES** : Repair battery short circuit in harness between ECM and inhibitor switch connector.
- NO** : Go to step 10BP6.

10BP6 : CHECK HARNESS BETWEEN ECM AND INHIBITOR SWITCH CONNECTOR.

- 1) Turn ignition switch to OFF.
- 2) Disconnect connectors from ECM and inhibitor switch.
- 3) Measure resistance of harness between ECM and inhibitor switch connector.

Connector & terminal

(B135) No. 26 — (T7) No. 2:



- CHECK** : Is the resistance less than 1 Ω?
- YES** : Go to step 10BP7.
- NO** : Repair harness and connector.

NOTE:

In this case, repair the following:

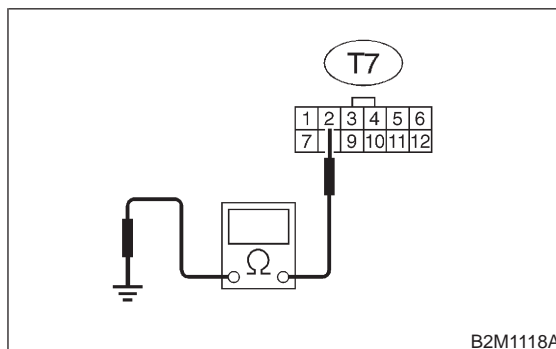
- Open circuit in harness between ECM and inhibitor switch connector
- Poor contact in coupling connector (B12)
- Poor contact in inhibitor switch connector
- Poor contact in ECM connector

10BP7 : CHECK INHIBITOR SWITCH GROUND LINE.

Measure resistance of harness between inhibitor switch connector and engine ground.

Connector & terminal

(T7) No. 2 — Engine ground:



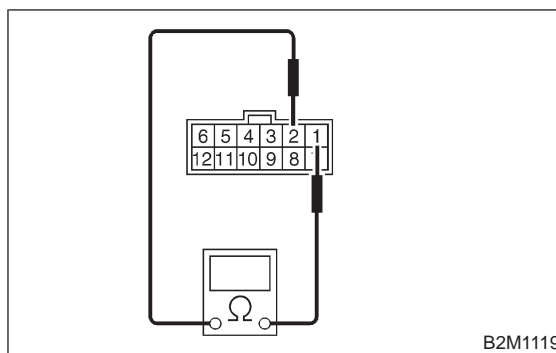
- CHECK** : Is the resistance less than 5 Ω?
- YES** : Go to step 10BP8.
- NO** : Repair open circuit in inhibitor switch ground line.

10BP8 : CHECK INHIBITOR SWITCH.

Measure resistance between inhibitor switch connector receptacle's terminals in selector lever "N" and "P" positions.

Terminals

No. 1 — No. 2:



- CHECK** : Is the resistance less than 1 Ω?
- YES** : Go to step 10BP9.
- NO** : Replace inhibitor switch. <Ref. to 3-2 [W2C0].>

10BP9 : CHECK SELECTOR CABLE CONNECTION.

CHECK : *Is there any fault in selector cable connection to inhibitor switch?*

YES : Repair selector cable connection. <Ref. to 3-2 [W2A0].>

NO : Contact with SOA service.

NOTE:

Inspection by DTM is required, because probable cause is deterioration of multiple parts.

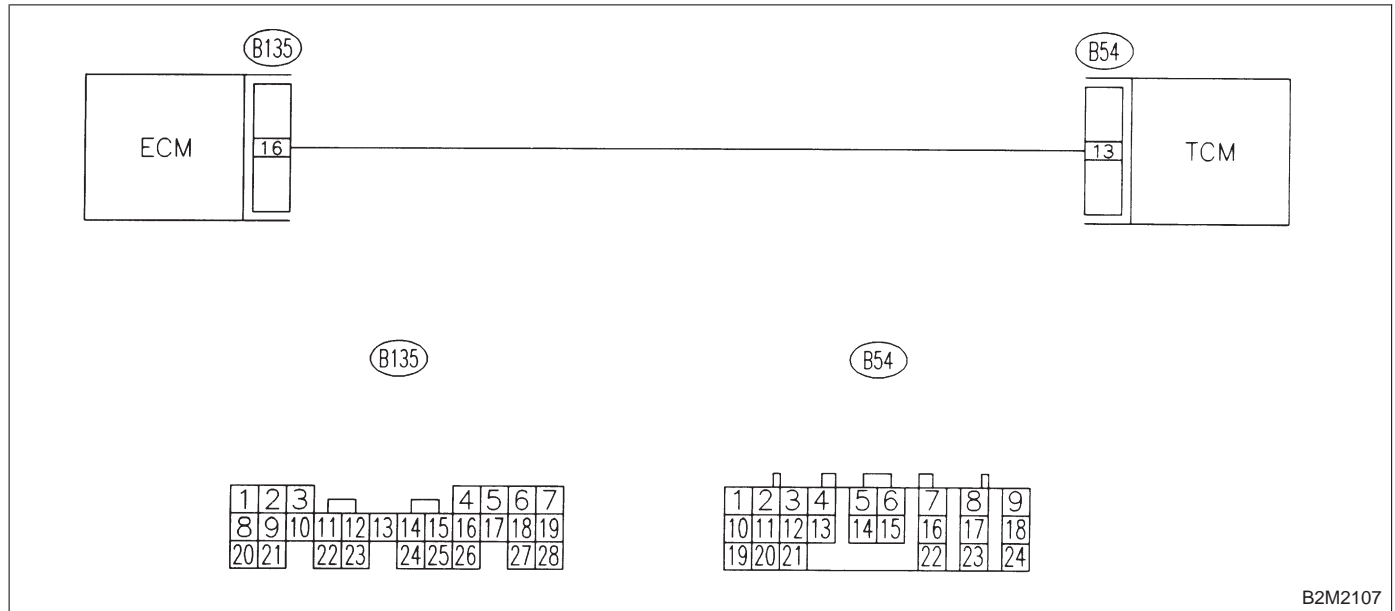
BQ: DTC P1103 — ENGINE TORQUE CONTROL SIGNAL 1 CIRCUIT MALFUNCTION —

- **DTC DETECTING CONDITION:**
 - Two consecutive driving cycles with fault
- **TROUBLE SYMPTOM:**
 - Excessive shift shock

CAUTION:

After repair or replacement of faulty parts, conduct **CLEAR MEMORY MODE** <Ref. to 2-7 [T3D0].> and **INSPECTION MODE** <Ref. to 2-7 [T3E0].>

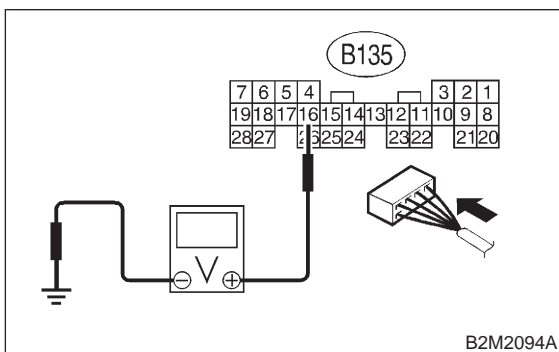
● **WIRING DIAGRAM:**



10BQ1 : CHECK INPUT SIGNAL FOR ECM.

- 1) Turn ignition switch to ON.
- 2) Measure voltage between ECM and chassis ground.

Connector & terminal
(B135) No. 16 (+) — Chassis ground (-):

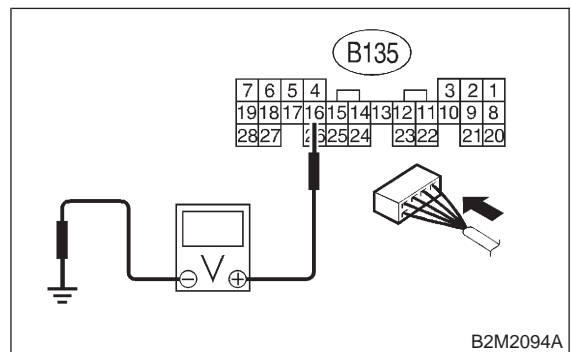


- CHECK** : Is the voltage more than 4.5 V?
- YES** : Go to step 10BQ2.
- NO** : Go to step 10BQ4.

10BQ2 : CHECK INPUT SIGNAL FOR ECM.

Measure voltage between ECM and chassis ground.

Connector & terminal
(B135) No. 16 (+) — Chassis ground (-):



- CHECK** : Is the voltage more than 10 V?
- YES** : Repair battery short circuit in harness between ECM and TCM connector.
- NO** : Go to step 10BQ3.

10BQ3 : CHECK POOR CONTACT.

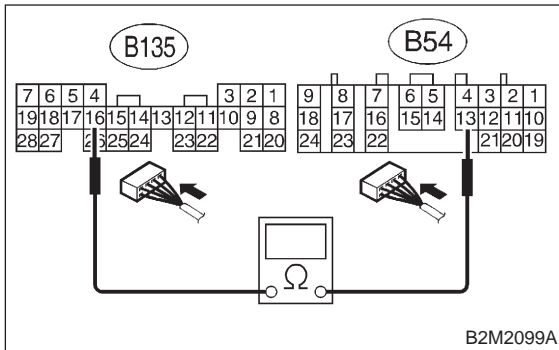
Check poor contact in ECM connector. <Ref. to FOREWORD [T3C1].>

- CHECK** : *Is there poor contact in ECM connector?*
- YES** : Repair poor contact in ECM connector.
- NO** : Replace ECM. <Ref. to 2-7 [W15A0].>

10BQ4 : CHECK HARNESS BETWEEN ECM AND TCM CONNECTOR.

- 1) Turn ignition switch to OFF.
- 2) Disconnect connectors from ECM and TCM.
- 3) Measure resistance of harness between ECM and TCM connector.

Connector & terminal
(B135) No. 16 — (B54) No. 13:

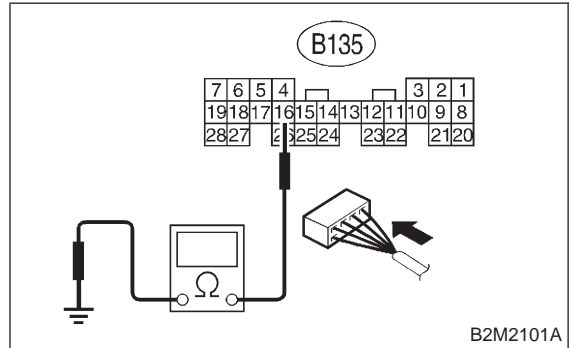


- CHECK** : *Is the resistance less than 1 Ω?*
- YES** : Go to step 10BQ5.
- NO** : Repair open circuit in harness between ECM and TCM connector.

10BQ5 : CHECK HARNESS BETWEEN ECM AND TCM CONNECTOR.

Measure resistance of harness between ECM and chassis ground.

Connector & terminal
(B135) No. 16 — Chassis ground:



- CHECK** : *Is the resistance less than 10 Ω?*
- YES** : Repair ground short circuit in harness between ECM and TCM connector.
- NO** : Go to step 10BQ6.

10BQ6 : CHECK POOR CONTACT.

Check poor contact in TCM connector. <Ref. to FOREWORD [T3C1].>

- CHECK** : *Is there poor contact in TCM connector?*
- YES** : Repair poor contact in TCM connector.
- NO** : Replace TCM. <Ref. to 3-2 [W22A0].>

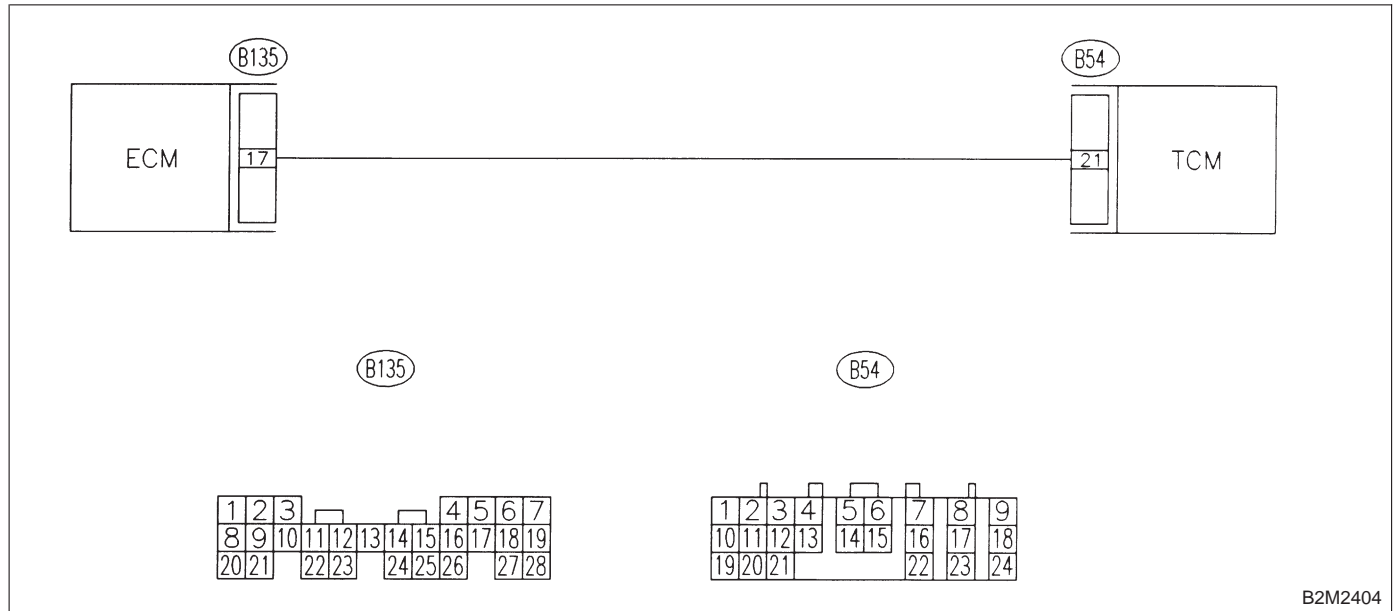
BR: DTC P1106 — ENGINE TORQUE CONTROL SIGNAL 2 CIRCUIT MALFUNCTION —

- **DTC DETECTING CONDITION:**
 - Two consecutive driving cycles with fault
- **TROUBLE SYMPTOM:**
 - Excessive shift shock

CAUTION:

After repair or replacement of faulty parts, conduct **CLEAR MEMORY MODE** <Ref. to 2-7 [T3D0].> and **INSPECTION MODE** <Ref. to 2-7 [T3E0].>

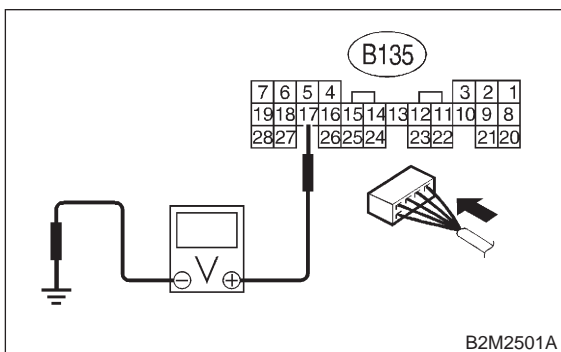
● **WIRING DIAGRAM:**



10BR1 : CHECK INPUT SIGNAL FOR ECM.

- 1) Turn ignition switch to ON.
- 2) Measure voltage between ECM and chassis ground.

Connector & terminal
(B135) No. 17 (+) — Chassis ground (-):

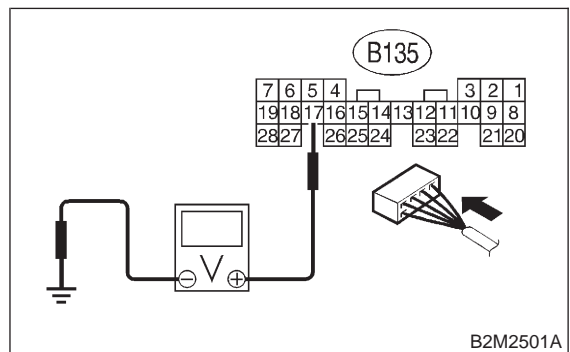


- CHECK** : Is the voltage more than 4.5 V?
- YES** : Go to step 10BR2.
- NO** : Go to step 10BR4.

10BR2 : CHECK INPUT SIGNAL FOR ECM.

Measure voltage between ECM and chassis ground.

Connector & terminal
(B135) No. 17 (+) — Chassis ground (-):



- CHECK** : Is the voltage more than 10 V?
- YES** : Repair battery short circuit in harness between ECM and TCM connector.
- NO** : Go to step 10BR3.

10BR3 : CHECK POOR CONTACT.

Check poor contact in ECM connector. <Ref. to FOREWORD [T3C1].>

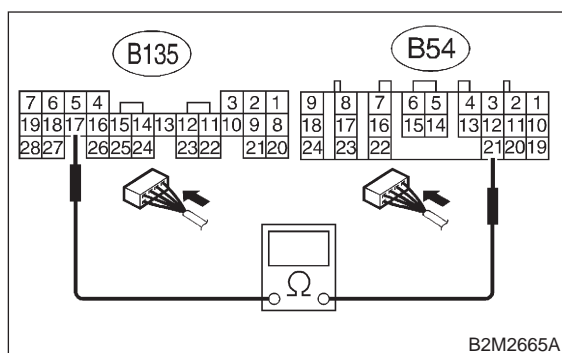
- CHECK** : *Is there poor contact in ECM connector?*
- YES** : Repair poor contact in ECM connector.
- NO** : Replace ECM. <Ref. to 2-7 [W15A0].>

10BR4 : CHECK HARNESS BETWEEN ECM AND TCM CONNECTOR.

- 1) Turn ignition switch to OFF.
- 2) Disconnect connectors from ECM and TCM.
- 3) Measure resistance of harness between ECM and TCM connector.

Connector & terminal

(B135) No. 17 — (B54) No. 21:



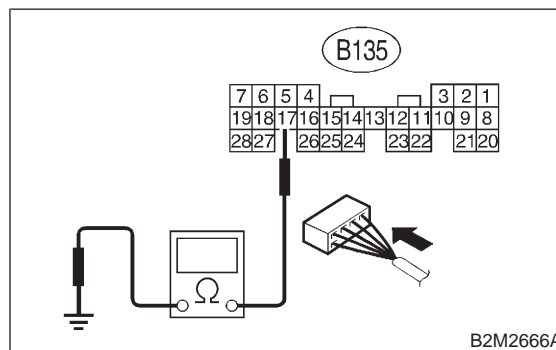
- CHECK** : *Is the resistance less than 1 Ω?*
- YES** : Go to step **10BR5**.
- NO** : Repair open circuit in harness between ECM and TCM connector.

10BR5 : CHECK HARNESS BETWEEN ECM AND TCM CONNECTOR.

Measure resistance of harness between ECM and chassis ground.

Connector & terminal

(B135) No. 17 — Chassis ground:



- CHECK** : *Is the resistance less than 10 Ω?*
- YES** : Repair ground short circuit in harness between ECM and TCM connector.
- NO** : Go to step **10BR6**.

10BR6 : CHECK POOR CONTACT.

Check poor contact in TCM connector. <Ref. to FOREWORD [T3C1].>

- CHECK** : *Is there poor contact in TCM connector?*
- YES** : Repair poor contact in TCM connector.
- NO** : Replace TCM. <Ref. to 3-2 [W22A0].>

BS: DTC P1110 — ATMOSPHERIC PRESSURE SENSOR CIRCUIT LOW INPUT —

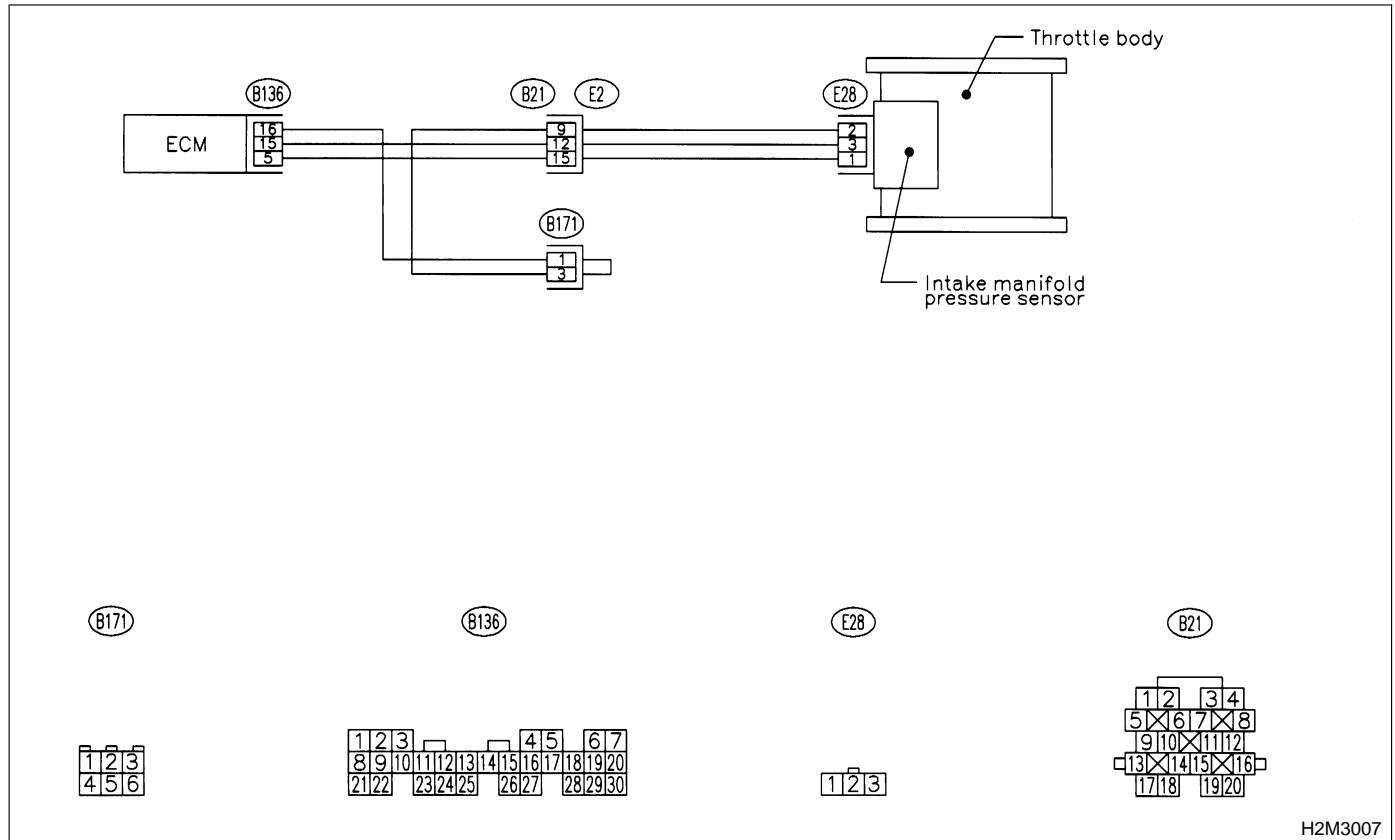
● DTC DETECTING CONDITION:

- Two consecutive driving cycles with fault

CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to 2-7 [T3D0].> and INSPECTION MODE <Ref. to 2-7 [T3E0].>

● WIRING DIAGRAM:



H2M3007

10BS1 : CHECK ANY OTHER DTC ON DISPLAY.

CHECK : Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P1110?

YES : Replace ECM. <Ref. to 2-7 [W15A0].>

NO : It is not necessary to inspect DTC P1110.

BT: DTC P1111 — ATMOSPHERIC PRESSURE SENSOR CIRCUIT HIGH INPUT —

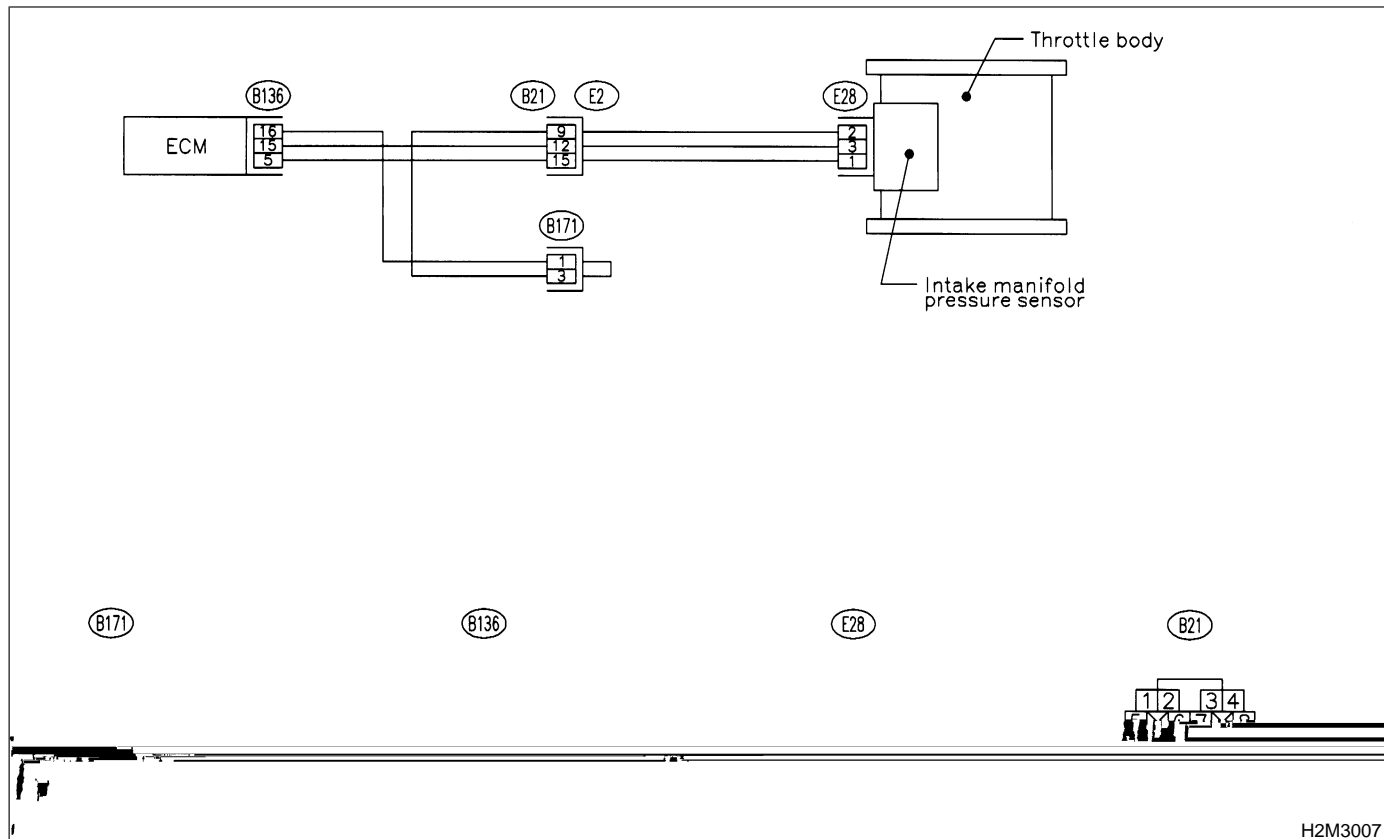
● **DTC DETECTING CONDITION:**

- Two consecutive driving cycles with fault

CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to 2-7 [T3D0].> and INSPECTION MODE <Ref. to 2-7 [T3E0].>

● **WIRING DIAGRAM:**



10BT1 : CHECK ANY OTHER DTC ON DISPLAY.

- CHECK** : Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P1111?
- YES** : Replace ECM. <Ref. to 2-7 [W15A0].>
- NO** : It is not necessary to inspect DTC P1111.

BU: DTC P1112 — ATMOSPHERIC PRESSURE SENSOR CIRCUIT RANGE/ PERFORMANCE PROBLEM —

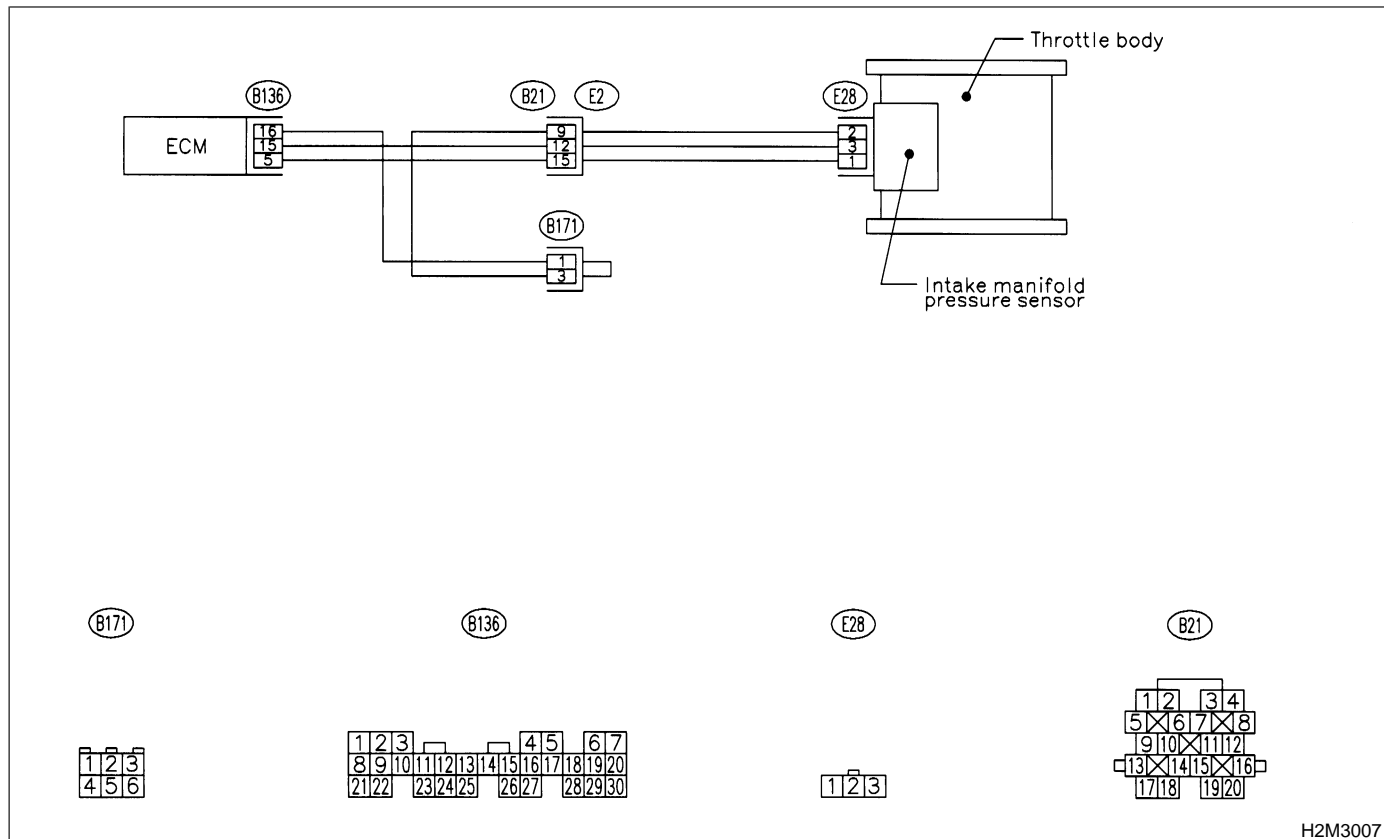
● DTC DETECTING CONDITION:

- Two consecutive driving cycles with fault

CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to 2-7 [T3D0].> and INSPECTION MODE <Ref. to 2-7 [T3E0].>

● WIRING DIAGRAM:



H2M3007

10BU1 : CHECK ANY OTHER DTC ON DISPLAY.

- CHECK** : Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0106, P0107, P0108, P1110 or P1111?
- YES** : Inspect DTC P0106, P0107, P0108, P1110 or P1111 using "10. Diagnostics Chart with Trouble Code for 2200 cc California Spec. Vehicles". <Ref. to 2-7 [T10A0].>
- NO** : Replace ECM. <Ref. to 2-7 [W15A0].>

MEMO:

BV: DTC P1115 — ENGINE TORQUE CONTROL CUT SIGNAL CIRCUIT HIGH INPUT —

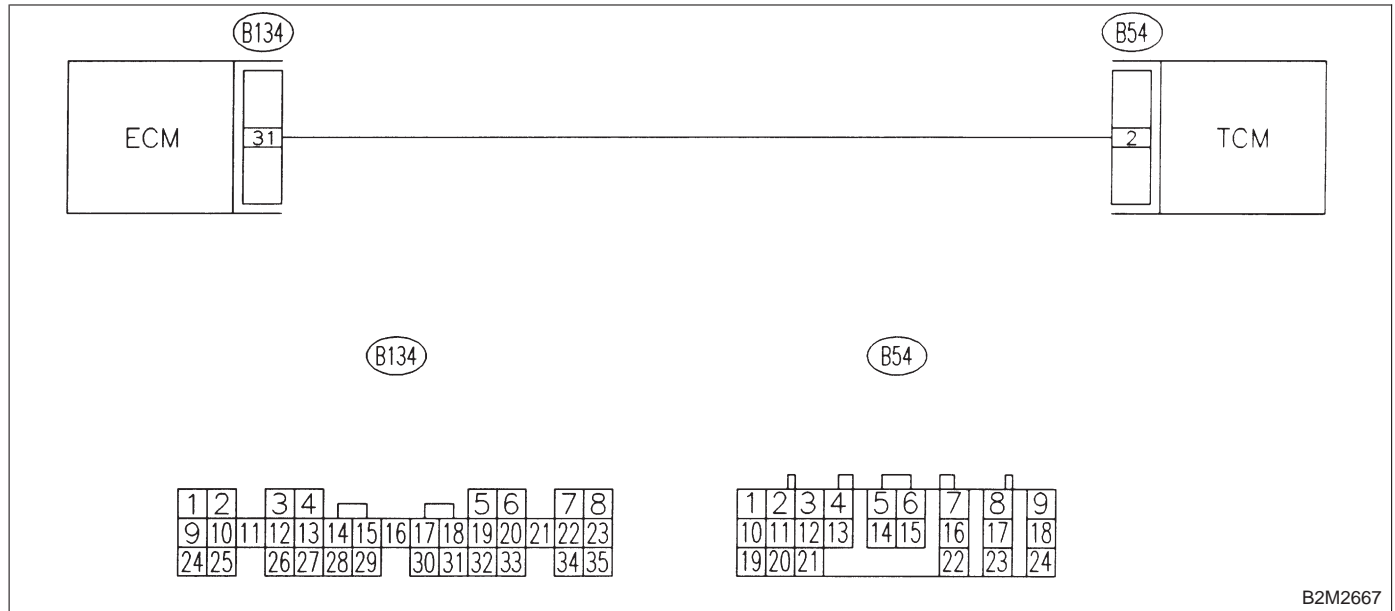
● **DTC DETECTING CONDITION:**

- Two consecutive driving cycles with fault

CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to 2-7 [T3D0].> and INSPECTION MODE <Ref. to 2-7 [T3E0].>

● **WIRING DIAGRAM:**

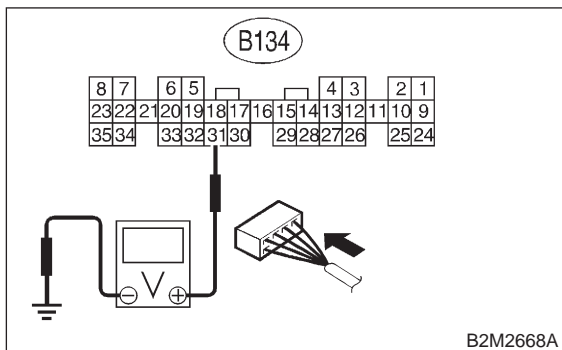


B2M2667

10BV1 : CHECK OUTPUT SIGNAL FROM ECM.

- 1) Start engine, and warm-up the engine.
- 2) Turn ignition switch to OFF.
- 3) Disconnect connector from TCM.
- 4) Turn ignition switch to ON.
- 5) Measure voltage between ECM and chassis ground.

Connector & terminal
(B134) No. 31 (+) — Chassis ground (-):

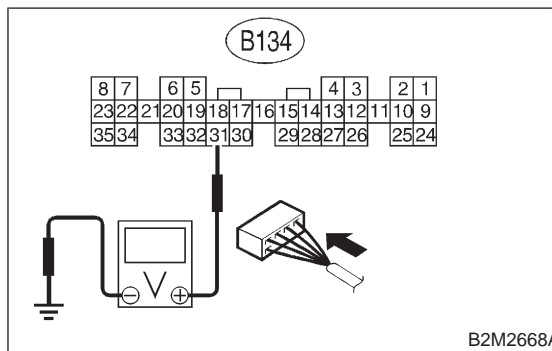


- CHECK** : **Is the voltage less than 3 V?**
- YES** : Go to step **10BV2**.
- NO** : Repair battery short circuit in harness between ECM and TCM connector. After repair, replace ECM. <Ref. to 2-7 [W15A0].>

10BV2 : CHECK HARNESS BETWEEN ECM AND TCM CONNECTOR.

- 1) Turn ignition switch to OFF.
- 2) Measure voltage between ECM and chassis ground.

Connector & terminal
(B134) No. 31 (+) — Chassis ground (-):



- CHECK** : **Does the voltage change more than 10 V by shaking harness and connector of ECM while monitoring the value with voltage meter?**
- YES** : Repair battery short circuit in harness between ECM and TCM connector. After repair, replace ECM. <Ref. to 2-7 [W15A0].>
- NO** : Contact with SOA service.

NOTE:
 Inspection by DTM is required, because probable cause is deterioration of multiple parts.

BW: DTC P1116 — ENGINE TORQUE CONTROL CUT SIGNAL CIRCUIT LOW INPUT —

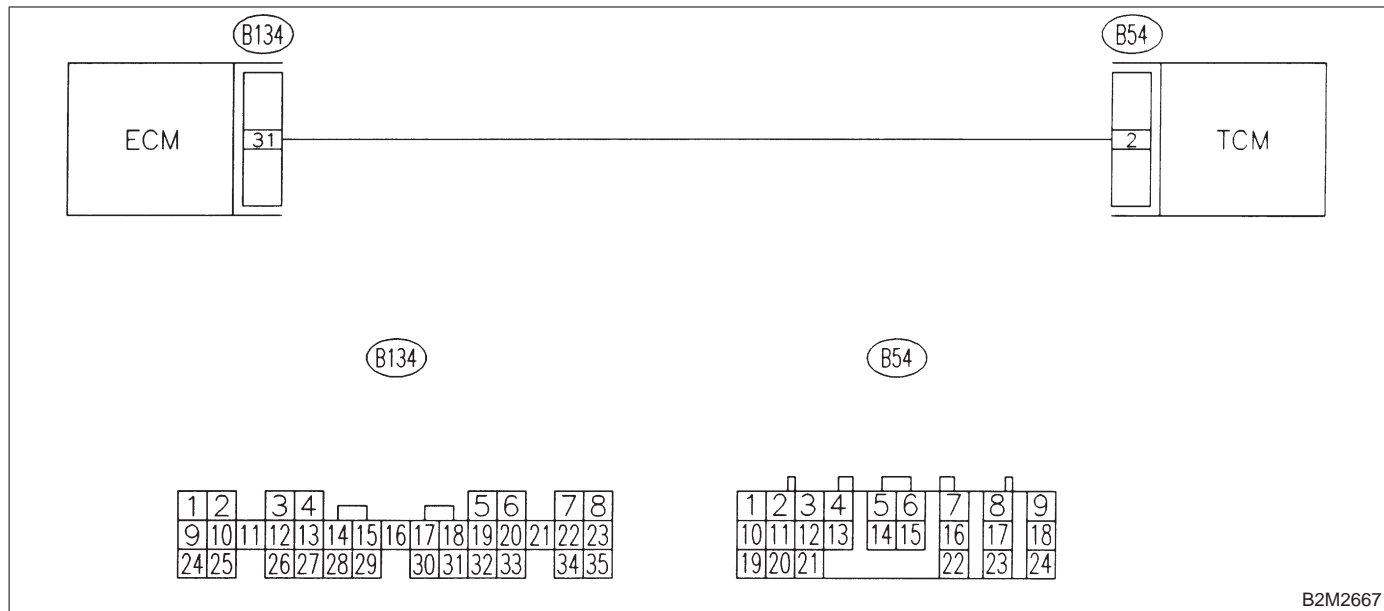
● **DTC DETECTING CONDITION:**

- Two consecutive driving cycles with fault

CAUTION:

After repair or replacement of faulty parts, conduct **CLEAR MEMORY MODE** <Ref. to 2-7 [T3D0].> and **INSPECTION MODE** <Ref. to 2-7 [T3E0].>

● **WIRING DIAGRAM:**



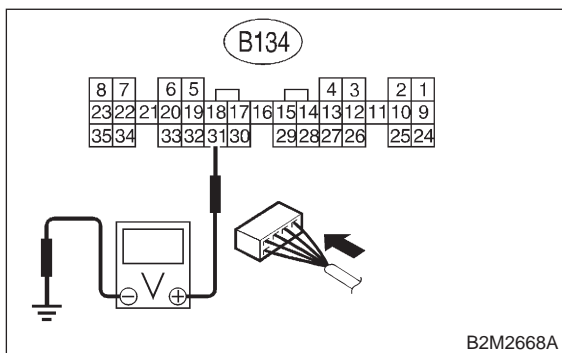
B2M2667

10BW1 : CHECK OUTPUT SIGNAL FROM ECM.

- 1) Start engine, and warm-up the engine.
- 2) Turn ignition switch to OFF.
- 3) Turn ignition switch to ON.
- 4) Measure voltage between ECM and chassis ground.

Connector & terminal

(B134) No. 31 (+) — Chassis ground (-):



B2M2668A

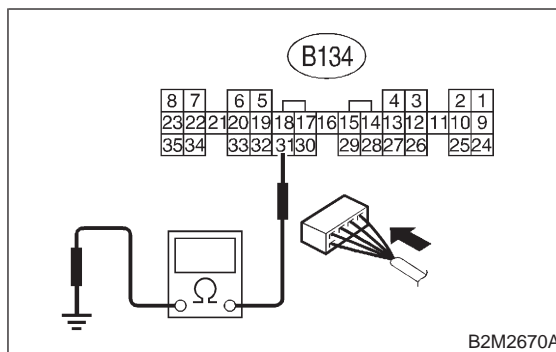
- CHECK** : Is the voltage more than 3 V?
- YES** : Repair poor contact in ECM connector.
- NO** : Go to step 10BW2.

10BW2 : CHECK HARNESS BETWEEN ECM AND TCM CONNECTOR.

- 1) Turn ignition switch to OFF.
- 2) Disconnect connectors from ECM and TCM.
- 3) Measure resistance of harness between ECM and chassis ground.

Connector & terminal

(B134) No. 31 — Chassis ground:



B2M2670A

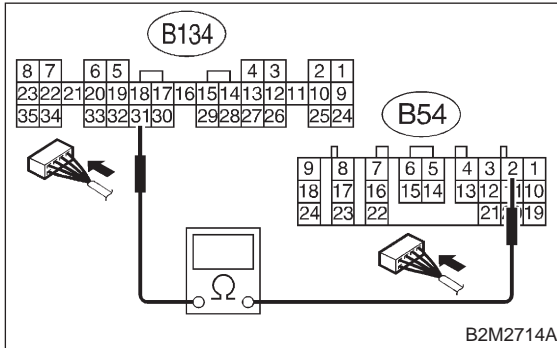
- CHECK** : Is the resistance less than 10 Ω?
- YES** : Repair ground short circuit in harness between ECM and TCM connector.
- NO** : Go to step 10BW3.

**10BW3 : CHECK HARNESS BETWEEN
ECM AND TCM CONNECTOR.**

Measure resistance of harness between ECM and TCM connector.

Connector & terminal

(B134) No. 31 — (B54) No. 2:



- CHECK** : *Is the resistance less than 1 Ω?*
- YES** : Repair poor contact in ECM or TCM connector.
- NO** : Repair open circuit in harness between ECM and TCM connector.

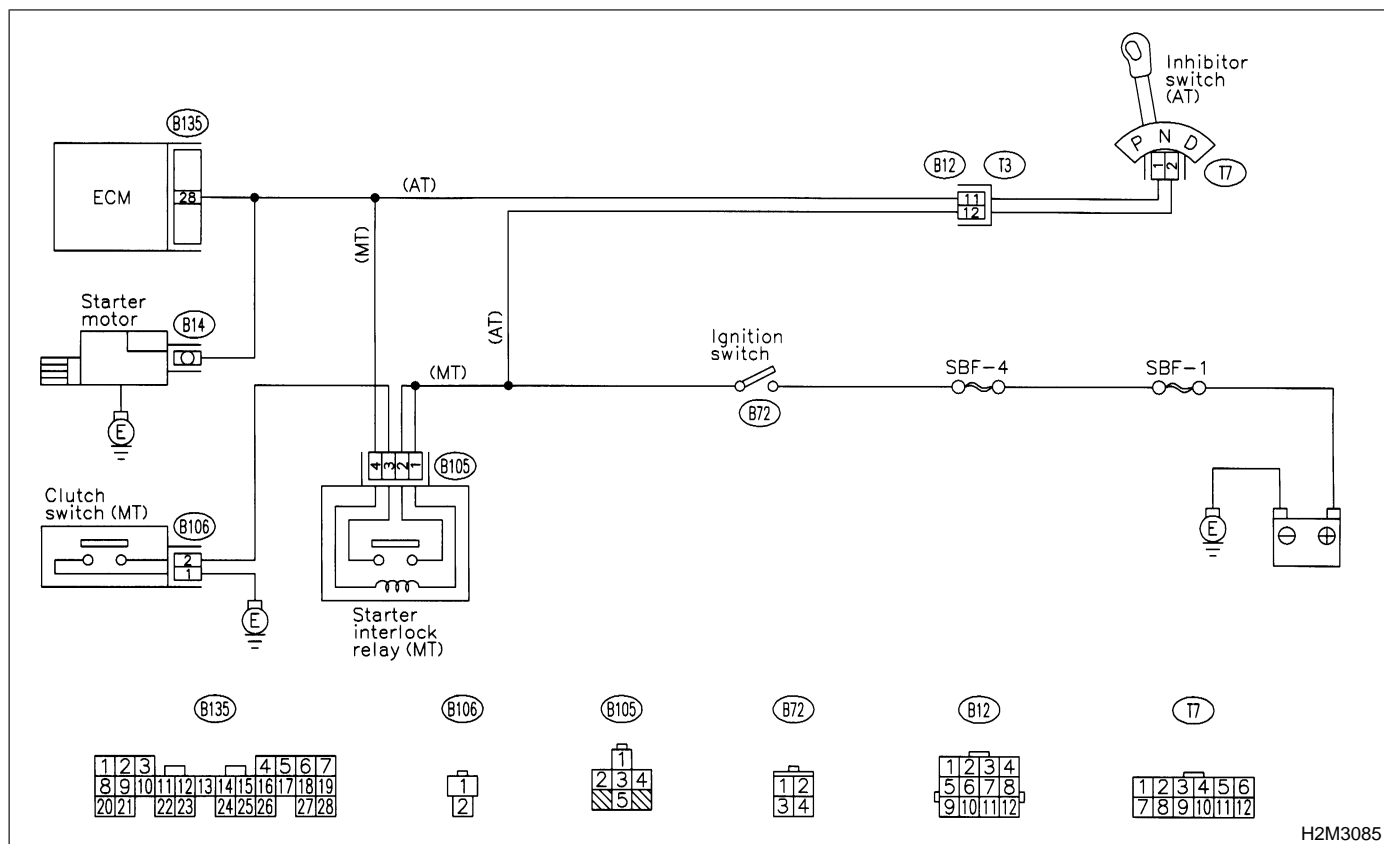
BX: DTC P1120 — STARTER SWITCH CIRCUIT HIGH INPUT —

- **DTC DETECTING CONDITION:**
 - Two consecutive driving cycles with fault
- **TROUBLE SYMPTOM:**
 - Failure of engine to start

CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to 2-7 [T3D0].> and INSPECTION MODE <Ref. to 2-7 [T3E0].>

● **WIRING DIAGRAM:**



H2M3085

10BX1 : CHECK OPERATION OF STARTER MOTOR.

NOTE:

- On AT vehicles, place the inhibitor switch in each position.
- On MT vehicles, depress or release the clutch pedal.

- CHECK** : *Does starter motor operate when ignition switch to "ON"?*
- YES** : Repair battery short circuit in starter motor circuit. After repair, replace ECM. <Ref. to 2-7 [W15A0].>
- NO** : Check starter motor circuit. <Ref. to 2-7 [T8B0].>

MEMO:

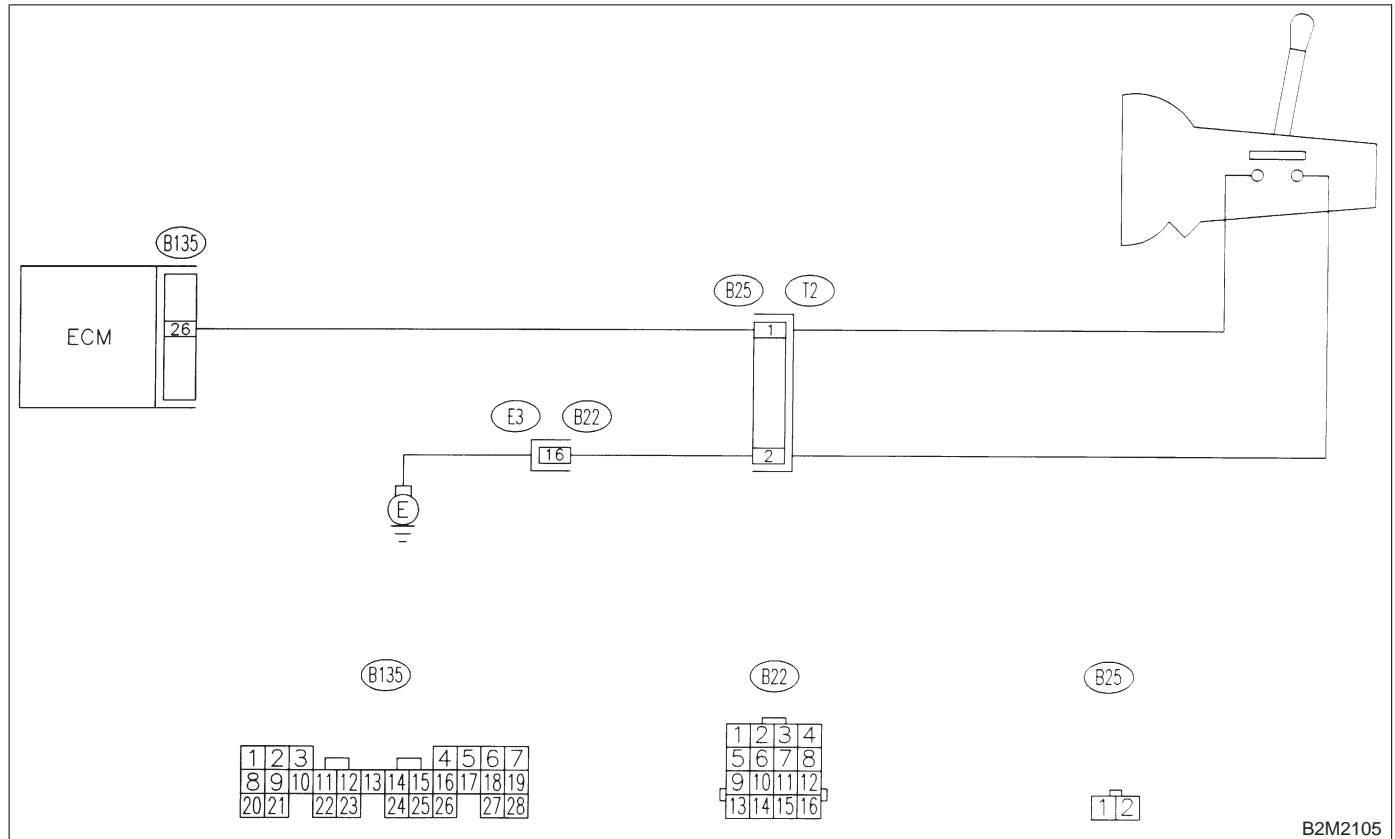
BY: DTC P1121 — NEUTRAL POSITION SWITCH CIRCUIT HIGH INPUT [MT VEHICLES] —

- **DTC DETECTING CONDITION:**
 - Two consecutive driving cycles with fault
- **TROUBLE SYMPTOM:**
 - Erroneous idling

CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to 2-7 [T3D0].> and INSPECTION MODE <Ref. to 2-7 [T3E0].>

● **WIRING DIAGRAM:**



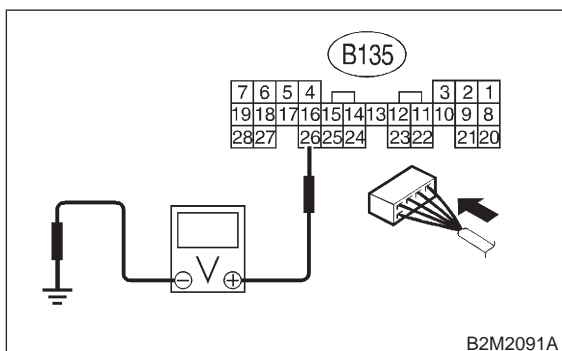
B2M2105

10BY1 : CHECK INPUT SIGNAL FOR ECM.

- 1) Turn ignition switch to ON.
- 2) Measure voltage between ECM and chassis ground.

Connector & terminal

(B135) No. 26 (+) — Chassis ground (-):



CHECK : *Is the voltage more than 10 V in neutral position?*

YES : Go to step 10BY2.

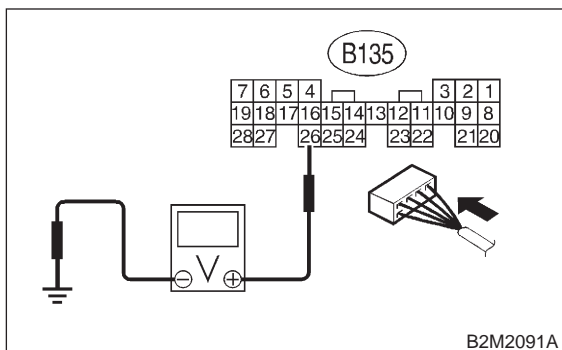
NO : Go to step 10BY4.

10BY2 : CHECK INPUT SIGNAL FOR ECM.

Measure voltage between ECM and chassis ground.

Connector & terminal

(B135) No. 26 (+) — Chassis ground (-):



CHECK : *Is the voltage less than 1 V in other positions?*

YES : Go to step 10BY3.

NO : Go to step 10BY4.

10BY3 : CHECK POOR CONTACT.

Check poor contact in ECM connector. <Ref. to FOREWORD [T3C1].>

CHECK : *Is there poor contact in ECM connector?*

YES : Repair poor contact in ECM connector.

NO : Contact with SOA service.

NOTE:

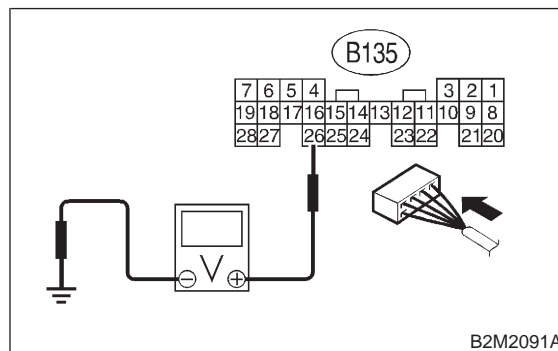
Inspection by DTM is required, because probable cause is deterioration of multiple parts.

10BY4 : CHECK HARNESS BETWEEN ECM AND TCM CONNECTOR.

- 1) Turn ignition switch to OFF.
- 2) Measure voltage between ECM and chassis ground.

Connector & terminal

(B135) No. 26 (+) — Chassis ground (-):



CHECK : *Is the voltage more than 10 V?*

YES : Repair battery short circuit in harness between ECM and transmission harness connector.

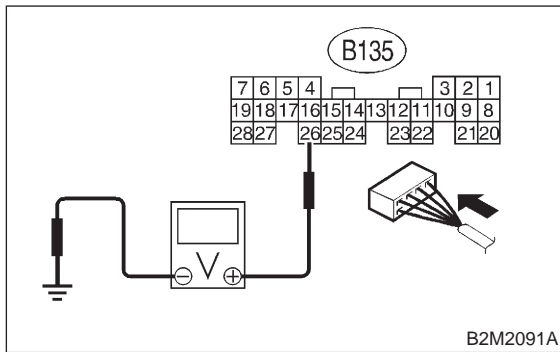
NO : Go to step 10BY5.

10BY5 : CHECK HARNESS BETWEEN ECM AND TCM CONNECTOR.

- 1) Turn ignition switch to ON.
- 2) Measure voltage between ECM and chassis ground.

Connector & terminal

(B135) No. 26 (+) — Chassis ground (-):



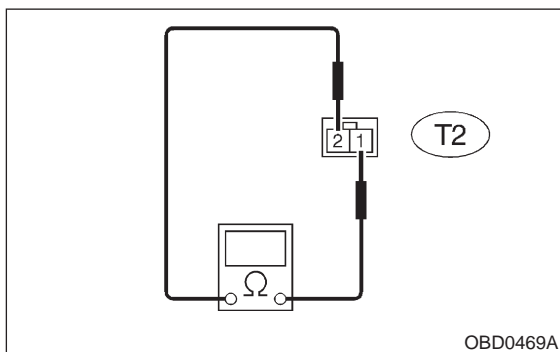
- CHECK** : **Is the voltage more than 10 V?**
- YES** : Repair battery short circuit in harness between ECM and transmission harness connector.
- NO** : Go to step **10BY6**.

10BY6 : CHECK NEUTRAL POSITION SWITCH.

Measure resistance between transmission harness connector terminals.

Connector & terminal

(T2) No. 1 — No. 2:



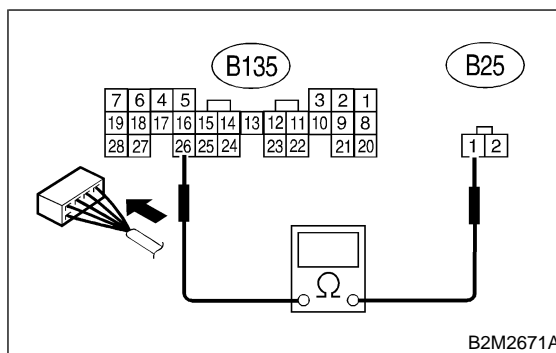
- CHECK** : **Is the resistance less than 1 Ω in other positions?**
- YES** : Go to step **10BY7**.
- NO** : Repair open circuit in transmission harness or replace neutral position switch.

10BY7 : CHECK HARNESS BETWEEN ECM AND NEUTRAL POSITION SWITCH CONNECTOR.

- 1) Disconnect connector from ECM.
- 2) Measure resistance of harness between ECM and transmission harness connector.

Connector & terminal

(B135) No. 26 — (B25) No. 1:

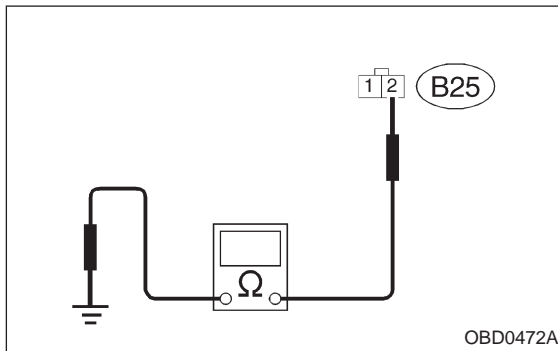


- CHECK** : **Is the resistance less than 1 Ω?**
- YES** : Go to step **10BY8**.
- NO** : Repair open circuit in harness between ECM and transmission harness connector.

10BY8 : CHECK HARNESS BETWEEN ECM AND NEUTRAL POSITION SWITCH CONNECTOR.

Measure resistance of harness between transmission harness connector and engine ground.

**Connector & terminal
(B25) No. 2 — Engine ground:**



CHECK : *Is the resistance less than 5 Ω?*

YES : Go to step **10BY9**.

NO : Repair harness and connector.

NOTE:

In this case, repair the following:

- Open circuit in harness between transmission harness connector and engine grounding terminal
- Poor contact in coupling connector (B22)

10BY9 : CHECK POOR CONTACT.

Check poor contact in transmission harness connector. <Ref. to FOREWORD [T3C1].>

CHECK : *Is there poor contact in transmission harness connector?*

YES : Repair poor contact in transmission harness connector.

NO : Contact with SOA service.

NOTE:

Inspection by DTM is required, because probable cause is deterioration of multiple parts.

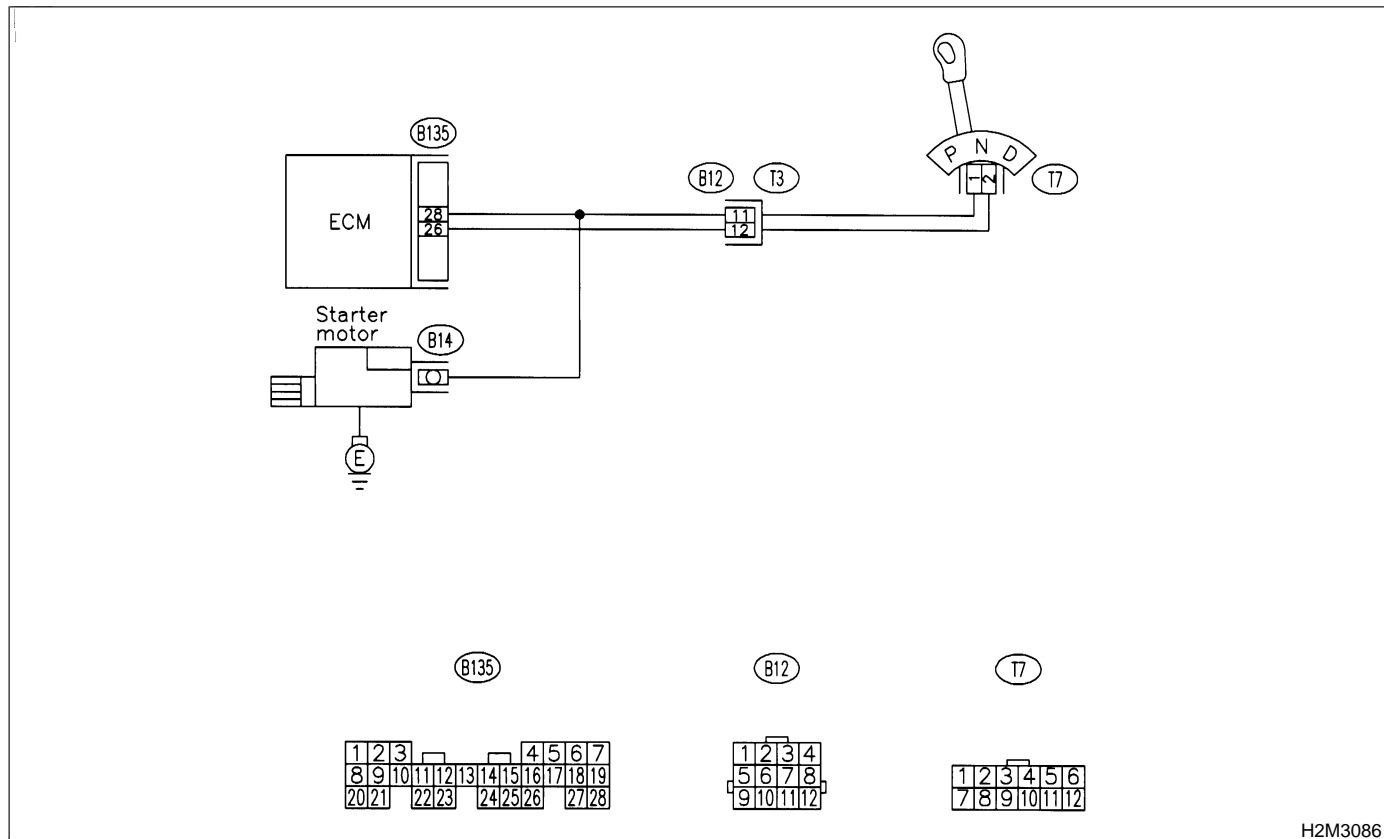
BZ: DTC P1121 — NEUTRAL POSITION SWITCH CIRCUIT LOW INPUT [AT VEHICLES] —

- **DTC DETECTING CONDITION:**
 - Two consecutive driving cycles with fault
- **TROUBLE SYMPTOM:**
 - Erroneous idling

CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to 2-7 [T3D0].> and INSPECTION MODE <Ref. to 2-7 [T3E0].>

● **WIRING DIAGRAM:**



10BZ1 : CHECK DTC P0705 ON DISPLAY.

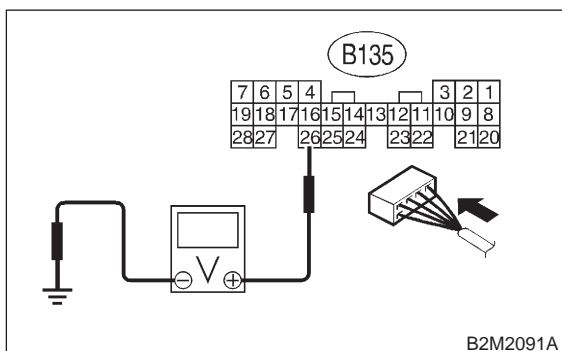
- CHECK** : Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0705?
- YES** : Inspect DTC P0705 using “10. Diagnostics Chart with Trouble Code for 2200 cc California Spec. Vehicles”. <Ref. to 2-7 [T10A0].>
- NO** : Go to step **10BZ2**.

10BZ2 : CHECK INPUT SIGNAL FOR ECM.

- 1) Turn ignition switch to ON.
- 2) Measure voltage between ECM and chassis ground.

Connector & terminal

(B135) No. 26 (+) — Chassis ground (-):



CHECK : **Is the voltage more than 10 V in other positions?**

YES : Even if MIL lights up, the circuit has returned to a normal condition at this time.

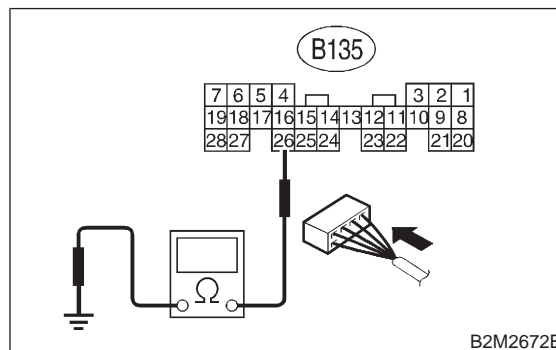
NO : Go to step **10BZ3**.

10BZ3 : CHECK HARNESS BETWEEN ECM AND TRANSMISSION HARNESS CONNECTOR.

- 1) Turn ignition switch to OFF.
- 2) Disconnect connectors from ECM and transmission harness connector.
- 3) Measure resistance of harness between ECM connector and chassis ground.

Connector & terminal

(B135) No. 26 — Chassis ground:



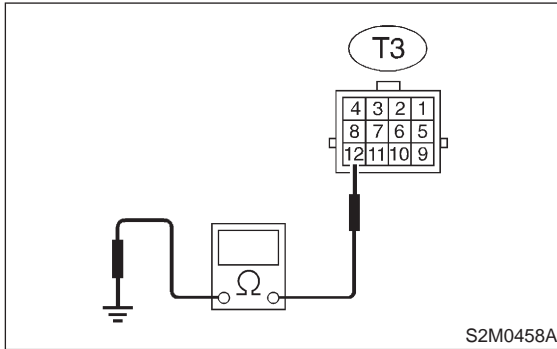
CHECK : **Is the resistance less than 10 Ω?**

YES : Repair ground short circuit in harness between ECM and transmission harness connector.

NO : Go to step **10BZ4**.

10BZ4 : CHECK TRANSMISSION HARNESS CONNECTOR.

- 1) Disconnect connector from inhibitor switch.
- 2) Measure resistance of harness between transmission harness connector and engine ground.

Connector & terminal**(T3) No. 12 — Engine ground:**

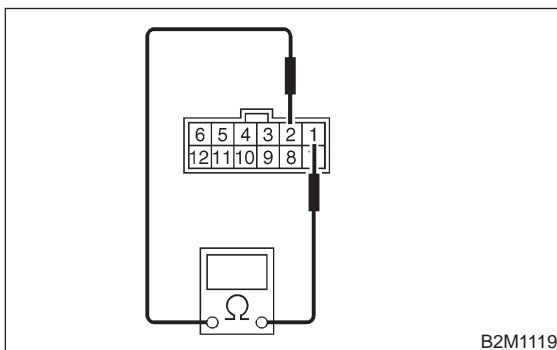
CHECK : **Is the resistance less than 10 Ω?**

YES : Repair ground short circuit in harness between transmission harness and inhibitor switch connector.

NO : Go to step **10BZ5**.

10BZ5 : CHECK INHIBITOR SWITCH.

Measure resistance between inhibitor switch connector receptacle's terminals in selector lever except for "N" position.

Terminals**No. 1 — No. 2:**

CHECK : **Is the resistance more than 1 MΩ in other positions?**

YES : Go to step **10BZ6**.

NO : Replace inhibitor switch. <Ref. to 3-2 [W2C0].>

10BZ6 : CHECK SELECTOR CABLE CONNECTION.

CHECK : **Is there any fault in selector cable connection to inhibitor switch?**

YES : Repair selector cable connection. <Ref. to 3-2 [W2A0].>

NO : Contact with SOA service.

NOTE:

Inspection by DTM is required, because probable cause is deterioration of multiple parts.

MEMO:

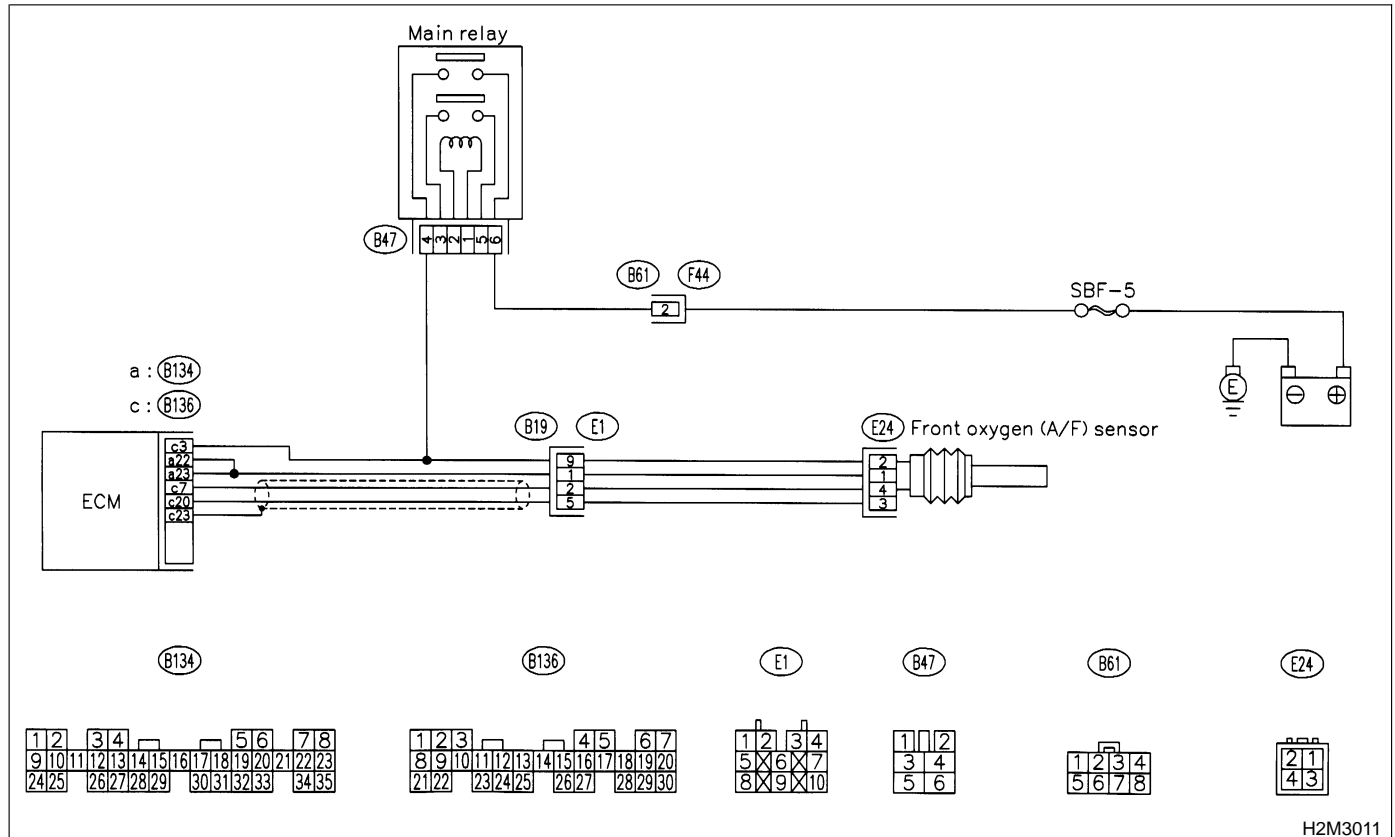
CA: DTC P1130 — FRONT OXYGEN (A/F) SENSOR CIRCUIT MALFUNCTION (OPEN CIRCUIT) —

- **DTC DETECTING CONDITION:**
 - Two consecutive driving cycles with fault

CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to 2-7 [T3D0].> and INSPECTION MODE <Ref. to 2-7 [T3E0].>

● **WIRING DIAGRAM:**



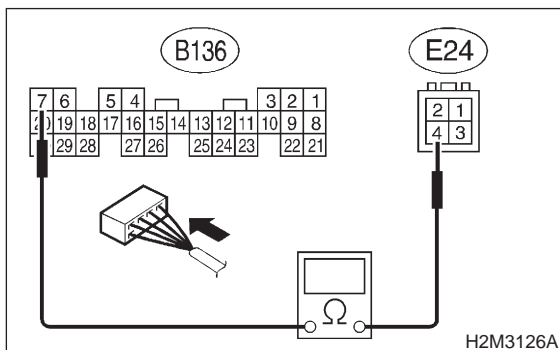
H2M3011

10CA1 : CHECK HARNESS BETWEEN ECM AND FRONT OXYGEN (A/F) SENSOR CONNECTOR.

- 1) Turn ignition switch to OFF.
- 2) Disconnect connectors from ECM and front oxygen (A/F) sensor connector.
- 3) Measure resistance of harness between ECM and front oxygen (A/F) sensor connector.

Connector & terminal

(B136) No. 7 — (E24) No. 4:



CHECK : Is the resistance less than 1 Ω?

YES : Go to step 10CA2.

NO : Repair harness and connector.

NOTE:

In this case, repair the following:

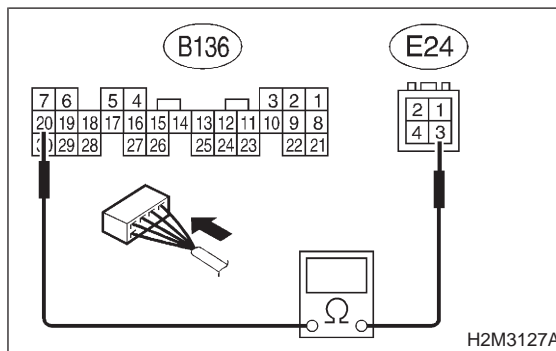
- Open circuit in harness between ECM and coupling connector (E1)
- Open circuit in harness between coupling connector (E1) and front oxygen (A/F) sensor connector
- Poor contact in front oxygen (A/F) sensor connector
- Poor contact in ECM connector
- Poor contact in coupling connector (E1)

10CA2 : CHECK HARNESS BETWEEN ECM AND FRONT OXYGEN (A/F) SENSOR CONNECTOR.

Measure resistance of harness between ECM and front oxygen (A/F) sensor connector.

Connector & terminal

(B136) No. 20 — (E24) No. 3:



CHECK : Is the resistance less than 1 Ω?

YES : Go to step 10CA3.

NO : Repair harness and connector.

NOTE:

In this case, repair the following:

- Open circuit in harness between ECM and coupling connector (E1)
- Open circuit in harness between coupling connector (E1) and front oxygen (A/F) sensor connector
- Poor contact in front oxygen (A/F) sensor connector
- Poor contact in ECM connector
- Poor contact in coupling connector (E1)

10CA3 : CHECK POOR CONTACT.

Check poor contact in front oxygen (A/F) sensor connector. <Ref. to FOREWORD [T3C1].>

CHECK : Is there poor contact in front oxygen (A/F) sensor connector?

YES : Repair poor contact in front oxygen (A/F) sensor connector.

NO : Replace front oxygen (A/F) sensor. <Ref. to 2-7 [W7A0].>

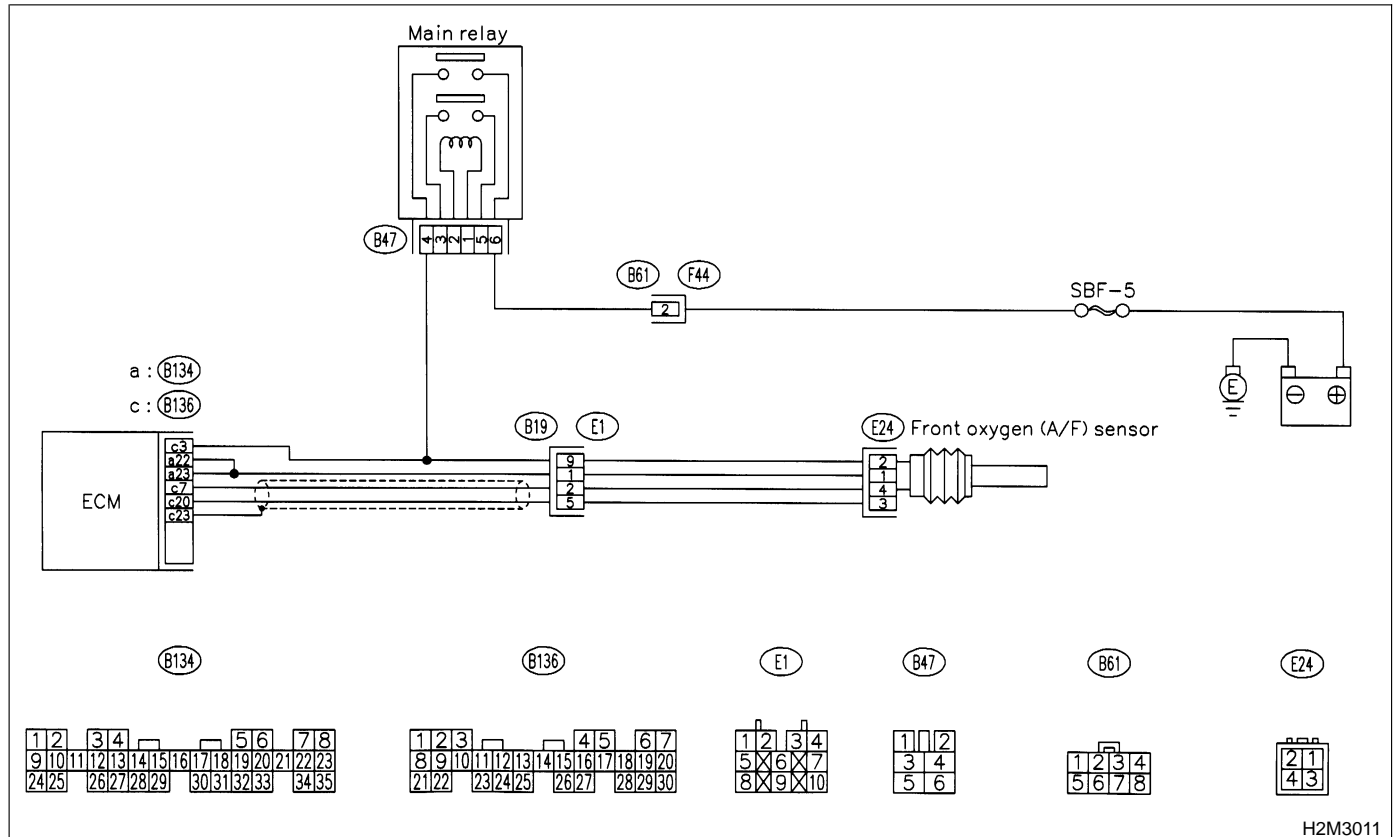
CB: DTC P1131 — FRONT OXYGEN (A/F) SENSOR CIRCUIT MALFUNCTION (SHORT CIRCUIT) —

- **DTC DETECTING CONDITION:**
 - Two consecutive driving cycles with fault

CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to 2-7 [T3D0].> and INSPECTION MODE <Ref. to 2-7 [T3E0].>

● **WIRING DIAGRAM:**

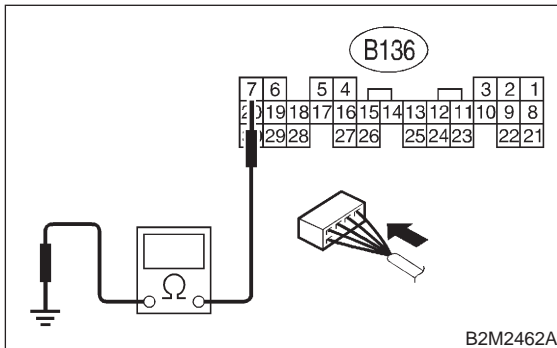


H2M3011

10CB1 : CHECK HARNESS BETWEEN ECM AND FRONT OXYGEN (A/F) SENSOR CONNECTOR.

- 1) Turn ignition switch to OFF.
- 2) Disconnect connector from ECM.
- 3) Measure resistance of harness between ECM connector and chassis ground.

Connector & terminal
(B136) No. 7 — Chassis ground:

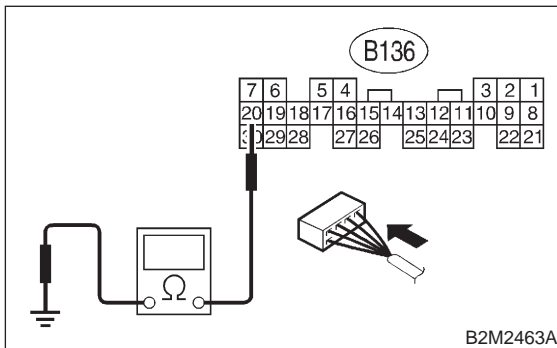


- (CHECK)** : Is the resistance more than 10 Ω?
- (YES)** : Go to step 10CB2.
- (NO)** : Repair ground short circuit in harness between ECM and front oxygen (A/F) sensor connector.

10CB2 : CHECK HARNESS BETWEEN ECM AND FRONT OXYGEN (A/F) SENSOR CONNECTOR.

Measure resistance of harness between ECM connector and chassis ground.

Connector & terminal
(B136) No. 20 — Chassis ground:

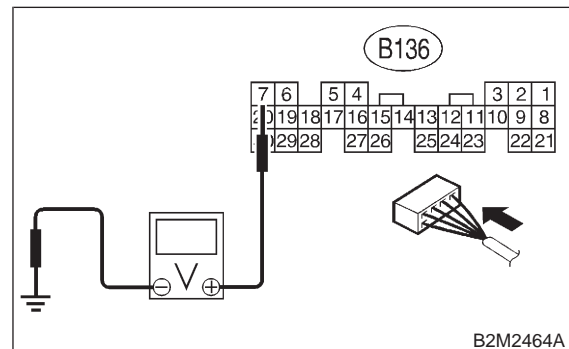


- (CHECK)** : Is the resistance more than 10 Ω?
- (YES)** : Go to step 10CB3.
- (NO)** : Repair ground short circuit in harness between ECM and front oxygen (A/F) sensor connector.

10CB3 : CHECK OUTPUT SIGNAL FOR ECM.

- 1) Connect connector to ECM.
- 2) Turn ignition switch to ON.
- 3) Measure voltage between ECM connector and chassis ground.

Connector & terminal
(B136) No. 7 (+) — Chassis ground (-):

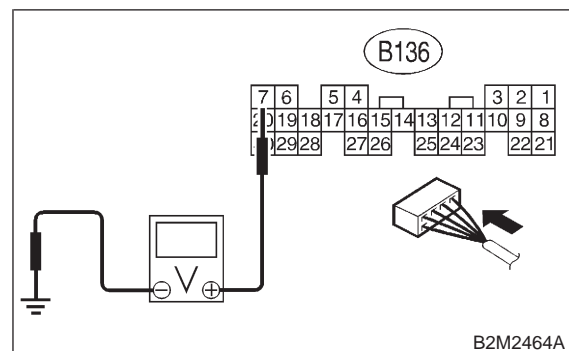


- (CHECK)** : Is the voltage more than 4.5 V?
- (YES)** : Go to step 10CB4.
- (NO)** : Go to step 10CB5.

10CB4 : CHECK OUTPUT SIGNAL FOR ECM.

Measure voltage between ECM connector and chassis ground.

Connector & terminal
(B136) No. 7 (+) — Chassis ground (-):



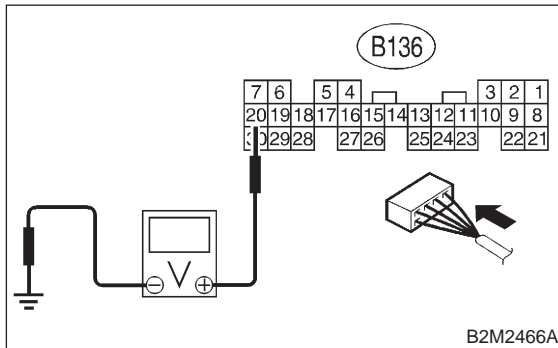
- (CHECK)** : Is the voltage more than 10 V?
- (YES)** : Repair battery short circuit in harness between ECM and front oxygen (A/F) sensor connector. After repair, replace ECM. <Ref. to 2-7 [W15A0].>
- (NO)** : Repair poor contact in ECM connector.

10CB5 : CHECK OUTPUT SIGNAL FOR ECM.

Measure voltage between ECM connector and chassis ground.

Connector & terminal

(B136) No. 20 (+) — Chassis ground (-):



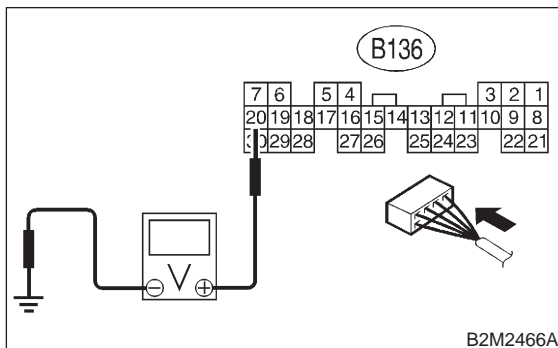
- CHECK** : **Is the voltage more than 4.95 V?**
- YES** : Go to step **10CB6**.
- NO** : Replace front oxygen (A/F) sensor.
<Ref. to 2-7 [W7A0].>

10CB6 : CHECK OUTPUT SIGNAL FOR ECM.

Measure voltage between ECM connector and chassis ground.

Connector & terminal

(B136) No. 20 (+) — Chassis ground (-):



- CHECK** : **Is the voltage more than 10 V?**
- YES** : Repair battery short circuit in harness between ECM and front oxygen (A/F) sensor connector. After repair, replace ECM. <Ref. to 2-7 [W15A0].>
- NO** : Repair poor contact in ECM connector.

MEMO:

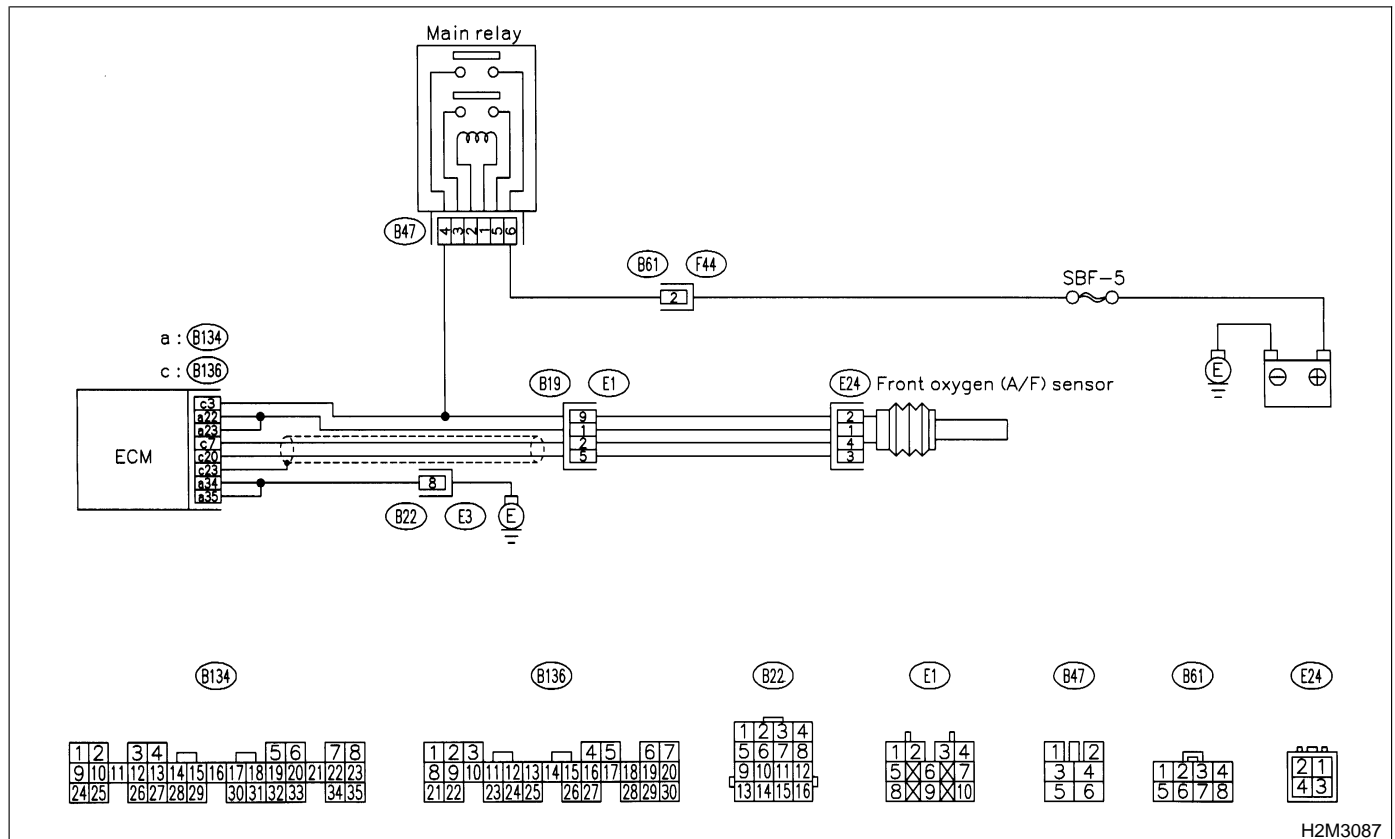
CC: DTC P1132 — FRONT OXYGEN (A/F) SENSOR HEATER CIRCUIT LOW INPUT —

- **DTC DETECTING CONDITION:**
 - Two consecutive driving cycles with fault

CAUTION:

After repair or replacement of faulty parts, conduct **CLEAR MEMORY MODE** <Ref. to 2-7 [T3D0].> and **INSPECTION MODE** <Ref. to 2-7 [T3E0].>

● **WIRING DIAGRAM:**



H2M3087

10CC1 : CHECK ANY OTHER DTC ON DISPLAY.

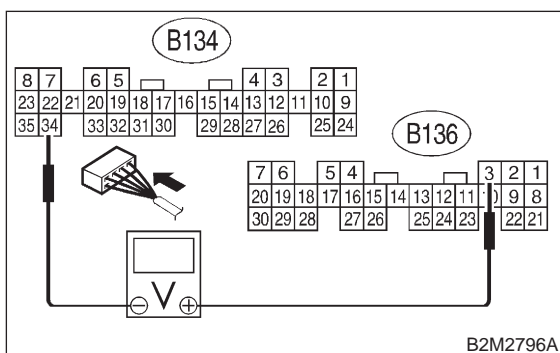
- CHECK** : Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P1132 and P0141 at the same time?
- YES** : Go to step 10CC2.
- NO** : Go to step 10CC5.

10CC2 : CHECK POWER SUPPLY CIRCUIT OF ECM.

- 1) Disconnect connectors from ECM.
- 2) Turn ignition switch to ON.
- 3) Measure power supply voltage between ECM connector terminals.

Connector & terminal

(B136) No. 3 (+) — (B134) No. 34 (-):



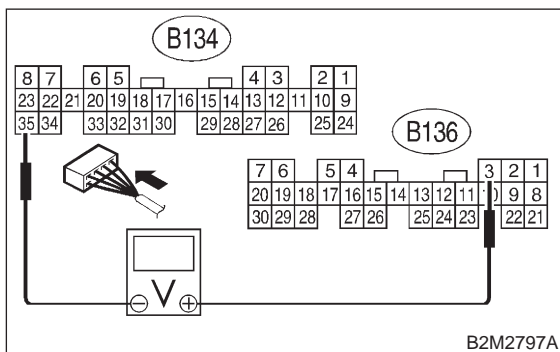
- CHECK** : *Is the voltage more than 8 V?*
- YES** : Go to step **10CC3**.
- NO** : Repair open or ground short circuit in harness of power supply circuit.

10CC3 : CHECK POWER SUPPLY CIRCUIT OF ECM.

Measure power supply voltage between ECM connector terminals.

Connector & terminal

(B136) No. 3 (+) — (B136) No. 35 (-):



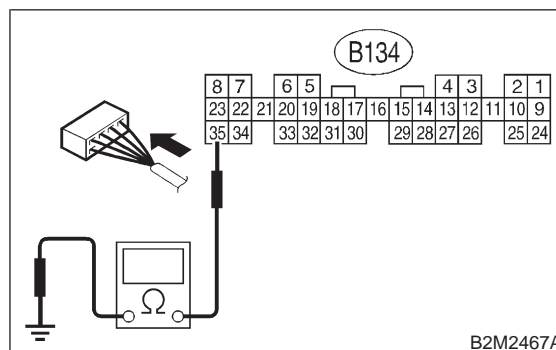
- CHECK** : *Is the voltage more than 8 V?*
- YES** : Go to step **10CC4**.
- NO** : Repair open or ground short circuit in harness of power supply circuit.

10CC4 : CHECK GROUND CIRCUIT OF ECM.

Measure resistance of harness between ECM connector and chassis ground.

Connector & terminal

(B134) No. 35 — Chassis ground:



- CHECK** : *Is the resistance less than 5 Ω?*
- YES** : Go to step **10CC6**.
- NO** : Go to step **10CC5**.

10CC5 : CHECK GROUND CIRCUIT OF ECM.

1) Repair harness and connector.

NOTE:

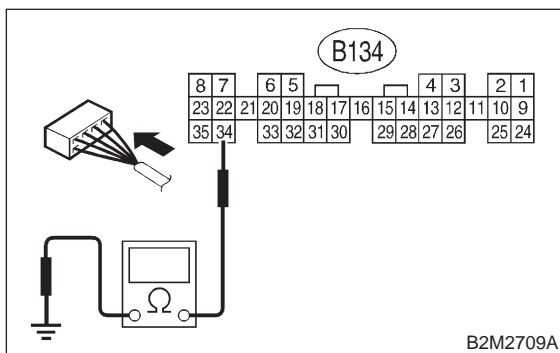
In this case, repair the following:

- Open circuit in harness between ECM and engine ground terminal
- Poor contact in ECM connector
- Poor contact in coupling connector (B22)

2) Measure resistance of harness between ECM connector and chassis ground.

Connector & terminal

(B134) No. 34 — Chassis ground:



CHECK : *Is there resistance less than 5 Ω?*

YES : Go to step **10CC6**.

NO : Repair harness and connector.

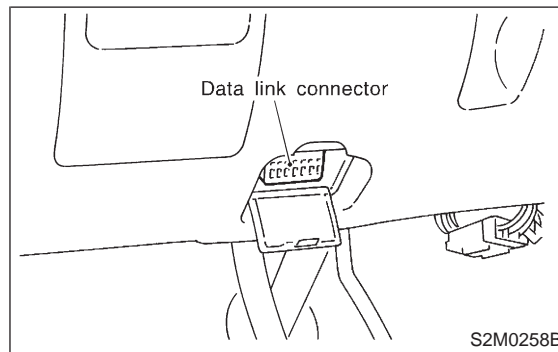
NOTE:

In this case, repair the following:

- Open circuit in harness between ECM and engine ground terminal
- Poor contact in ECM connector
- Poor contact in coupling connector (B22)

10CC6 : CONNECT SUBARU SELECT MONITOR OR THE OBD-II GENERAL SCAN TOOL, AND READ DATA.

- 1) Turn ignition switch to OFF.
- 2) Connect Subaru Select Monitor or the OBD-II general scan tool to data link connector.



- 3) Turn ignition switch to ON and Subaru Select Monitor or OBD-II general scan tool switch to ON.
- 4) Start engine
- 5) Read data of front oxygen (A/F) sensor heater current using Subaru Select Monitor or OBD-II general scan tool.

NOTE:

- Subaru Select Monitor

For detailed operation procedure, refer to the "READ CURRENT DATA SHOWN ON DISPLAY FOR ENGINE". <Ref. to 2-7 [T3C4].>

- OBD-II scan tool

For detailed operation procedures, refer to the OBD-II General Scan Tool Instruction Manual.

CHECK : *Is the value more than 0.2 A?*

YES : Repair poor contact in connector.

NOTE:

In this case, repair the following:

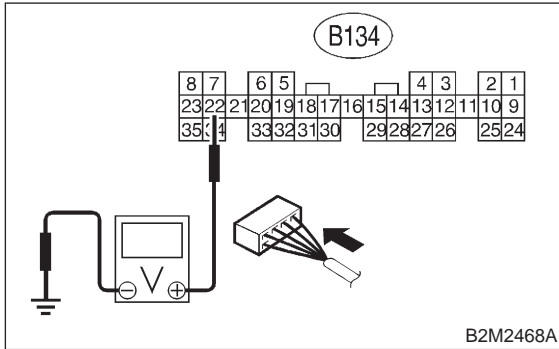
- Poor contact in front oxygen (A/F) sensor connector
- Poor contact in ECM connector

NO : Go to step **10CC7**.

10CC7 : CHECK OUTPUT SIGNAL FROM ECM.

- 1) Start and idle the engine.
- 2) Measure voltage between ECM connector and chassis ground.

Connector & terminal
(B134) No. 22 (+) — Chassis ground (-):

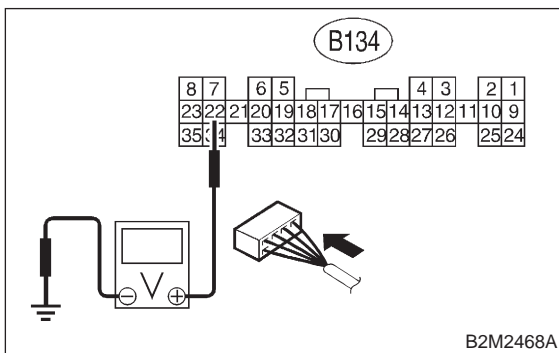


- CHECK** : *Is the voltage less than 1.0 V?*
- YES** : Go to step 10CC9.
- NO** : Go to step 10CC8.

10CC8 : CHECK OUTPUT SIGNAL FROM ECM.

Measure voltage between ECM connector and chassis ground.

Connector & terminal
(B134) No. 22 (+) — Chassis ground (-):

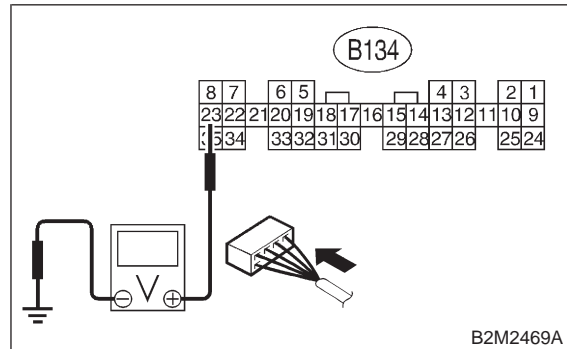


- CHECK** : *Does the voltage change less than 1.0 V by shaking harness and connector of ECM while monitoring the value with voltage meter?*
- YES** : Repair poor contact in ECM connector.
- NO** : Go to step 10CC9.

10CC9 : CHECK OUTPUT SIGNAL FROM ECM.

Measure voltage between ECM connector and chassis ground.

Connector & terminal
(B134) No. 23 (+) — Chassis ground (-):

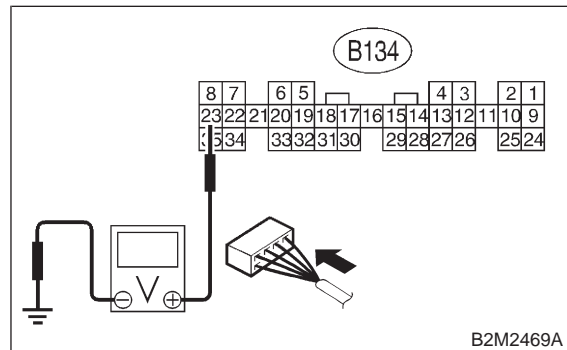


- CHECK** : *Is the voltage less than 1.0 V?*
- YES** : Go to step 10CC11.
- NO** : Go to step 10CC10.

10CC10 : CHECK OUTPUT SIGNAL FROM ECM.

Measure voltage between ECM connector and chassis ground.

Connector & terminal
(B134) No. 23 (+) — Chassis ground (-):



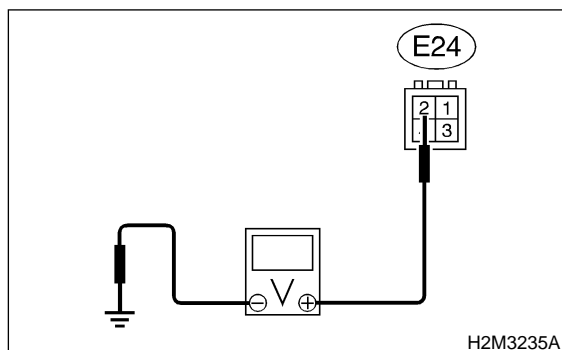
- CHECK** : *Does the voltage change less than 1.0 V by shaking harness and connector of ECM while monitoring the value with voltage meter?*
- YES** : Repair poor contact in ECM connector.
- NO** : Go to step 10CC11.

10CC11 : CHECK POWER SUPPLY TO FRONT OXYGEN SENSOR.

- 1) Turn ignition switch to OFF.
- 2) Disconnect connector from front oxygen sensor.
- 3) Turn ignition switch to ON.
- 4) Measure voltage between front oxygen sensor connector and engine ground.

Connector & terminal

(E24) No. 2 (+) — Engine ground (-):



CHECK : **Is the voltage more than 10 V?**

YES : Go to step **10CC12**.

NO : Repair power supply line.

NOTE:

In this case, repair the following:

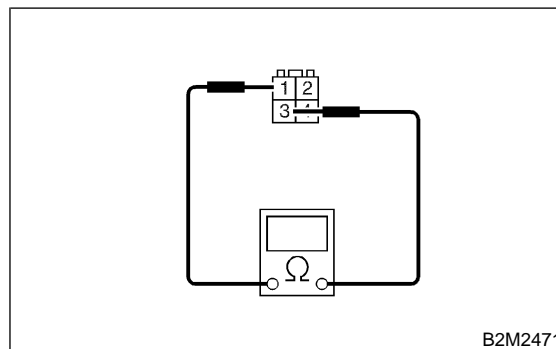
- Open circuit in harness between main relay and coupling connector (E1)
- Open circuit in harness between coupling connector (E1) and front oxygen (A/F) sensor connector
- Poor contact in front oxygen sensor connector
- Poor contact in main relay connector
- Poor contact in coupling connector (E1)

10CC12 : CHECK FRONT OXYGEN SENSOR.

- 1) Turn ignition switch to OFF.
- 2) Measure resistance between front oxygen sensor connector terminals.

Terminals

No. 3 — No. 1:



CHECK : **Is the resistance less than 10 Ω?**

YES : Repair harness and connector.

NOTE:

In this case, repair the following:

- Open or ground short circuit in harness between front oxygen (A/F) sensor and coupling connector (E1)
- Open or ground short circuit in harness between coupling connector (E1) and ECM connector
- Poor contact in front oxygen sensor connector
- Poor contact in ECM connector
- Poor contact in coupling connector (E1)

NO : Replace front oxygen (A/F) sensor.
<Ref. to 2-7 [W7A0].>

MEMO:

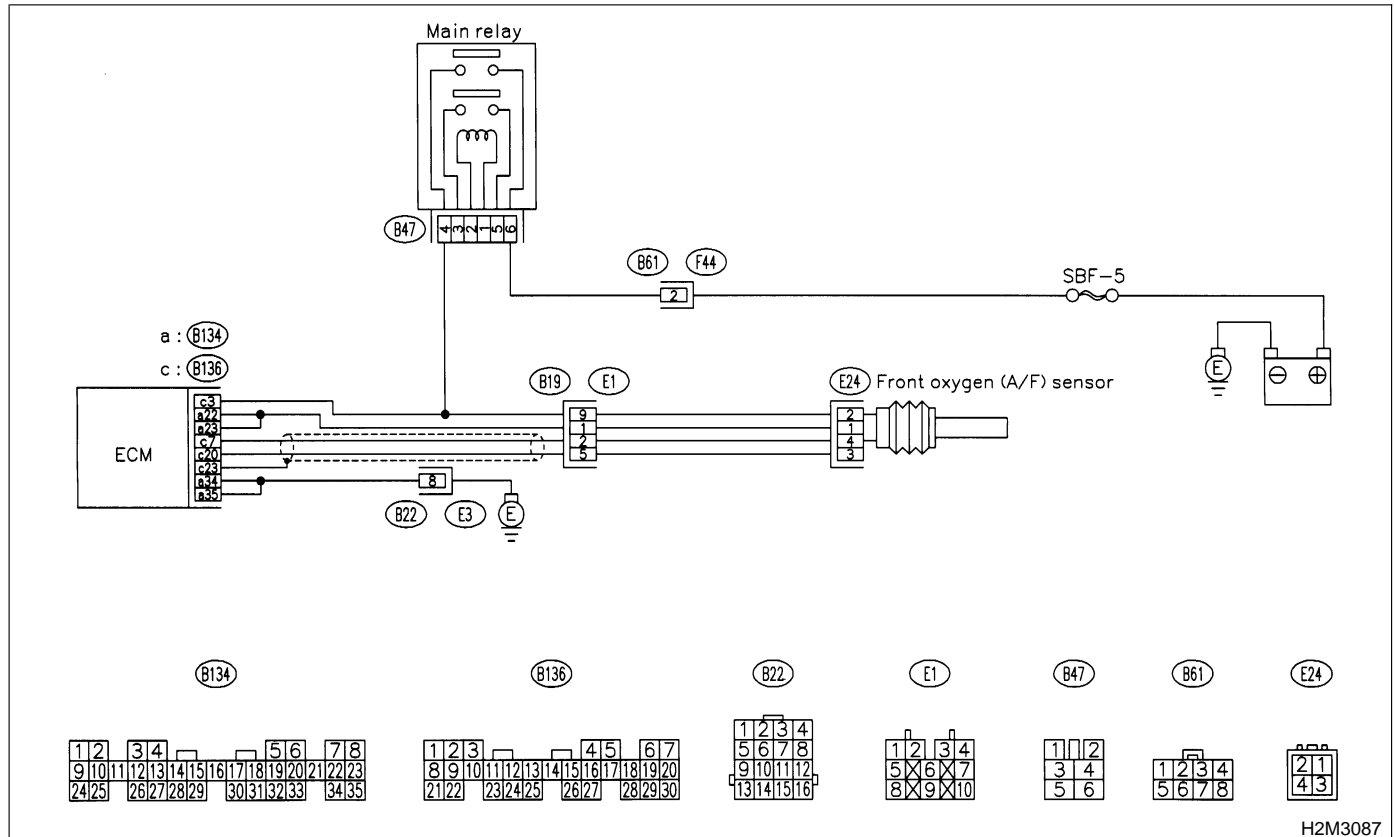
CD: DTC P1133 — FRONT OXYGEN (A/F) SENSOR HEATER CIRCUIT HIGH INPUT —

- **DTC DETECTING CONDITION:**
 - Two consecutive driving cycles with fault

CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to 2-7 [T3D0].> and INSPECTION MODE <Ref. to 2-7 [T3E0].>

● **WIRING DIAGRAM:**

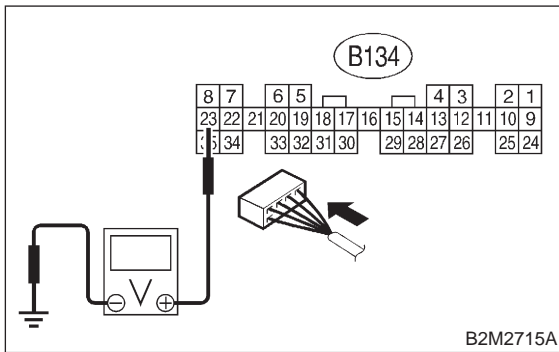


H2M3087

10CD1 : CHECK OUTPUT SIGNAL FROM ECM.

- 1) Turn ignition switch to ON.
- 2) Measure voltage between ECM connector and chassis ground.

Connector & terminal
(B134) No. 23 (+) — Chassis ground (-):

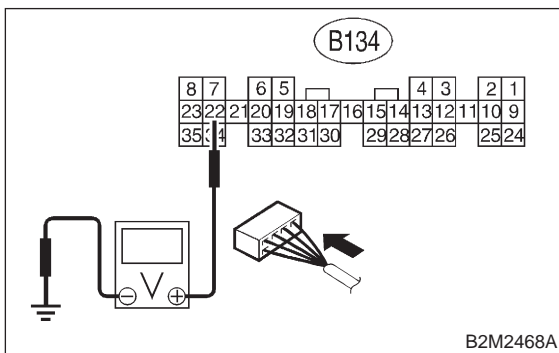


- CHECK** : *Is the voltage more than 8 V?*
- YES** : Go to step 10CD3.
- NO** : Go to step 10CD2.

10CD2 : CHECK OUTPUT SIGNAL FROM ECM.

Measure voltage between ECM connector and chassis ground.

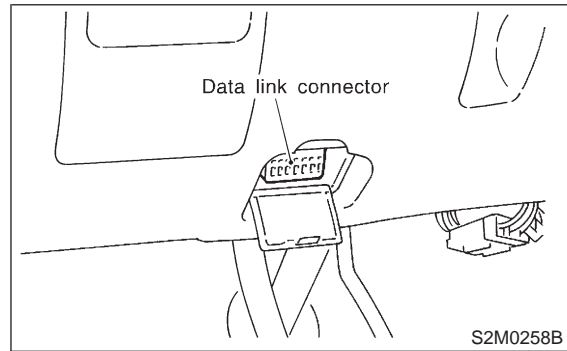
Connector & terminal
(B134) No. 22 (+) — Chassis ground (-):



- CHECK** : *Is the voltage more than 8 V?*
- YES** : Go to step 10CD3.
- NO** : Go to step 10CD4.

10CD3 : CHECK FRONT OXYGEN (A/F) SENSOR HEATER CURRENT.

- 1) Turn ignition switch to OFF.
- 2) Repair battery short circuit in harness between ECM and front oxygen (A/F) sensor connector.
- 3) Connect Subaru Select Monitor or the OBD-II general scan tool to data link connector.



- 4) Turn ignition switch to ON and Subaru Select Monitor or OBD-II general scan tool switch to ON.
- 5) Read data of front oxygen (A/F) sensor heater current using Subaru Select Monitor or the OBD-II general scan tool.

NOTE:

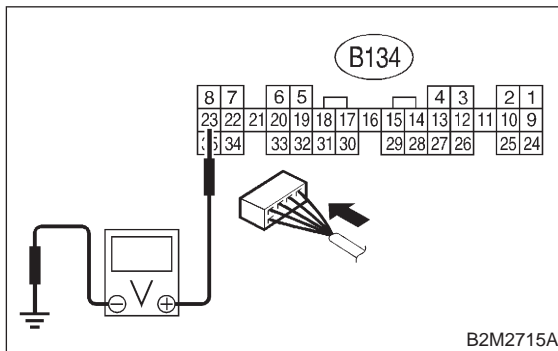
- Subaru Select Monitor
 For detailed operation procedure, refer to the "READ CURRENT DATA SHOWN ON DISPLAY FOR ENGINE". <Ref. to 2-7 [T3C4].>
- OBD-II general scan tool
 For detailed operation procedure, refer to the OBD-II General Scan Tool Instruction Manual.

- CHECK** : *Is the value more than 2.3 A?*
- YES** : Replace ECM. <Ref. to 2-7 [W15A0].>
- NO** : END

10CD4 : CHECK OUTPUT SIGNAL FROM ECM.

Measure voltage between ECM connector and chassis ground.

Connector & terminal
(B134) No. 23 (+) — Chassis ground (-):

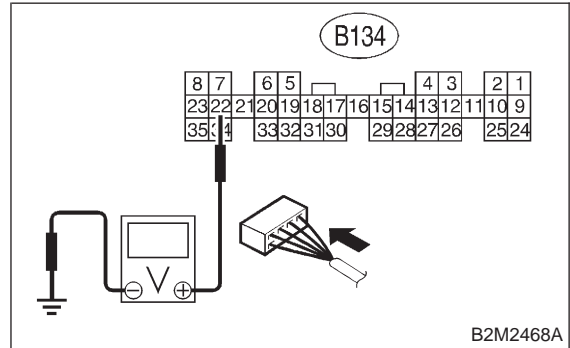


- CHECK** : Does the voltage change more than 8 V by shaking harness and connector of ECM while monitoring the value with voltage meter?
- YES** : Repair battery short circuit in harness between ECM and front oxygen (A/F) sensor connector.
- NO** : Go to step 10CD5.

10CD5 : CHECK OUTPUT SIGNAL FROM ECM.

Measure voltage between ECM connector and chassis ground.

Connector & terminal
(B134) No. 22 (+) — Chassis ground (-):



- CHECK** : Does the voltage change more than 8 V by shaking harness and connector of ECM while monitoring the value with voltage meter?
- YES** : Repair battery short circuit in harness between ECM and front oxygen (A/F) sensor connector.
- NO** : END

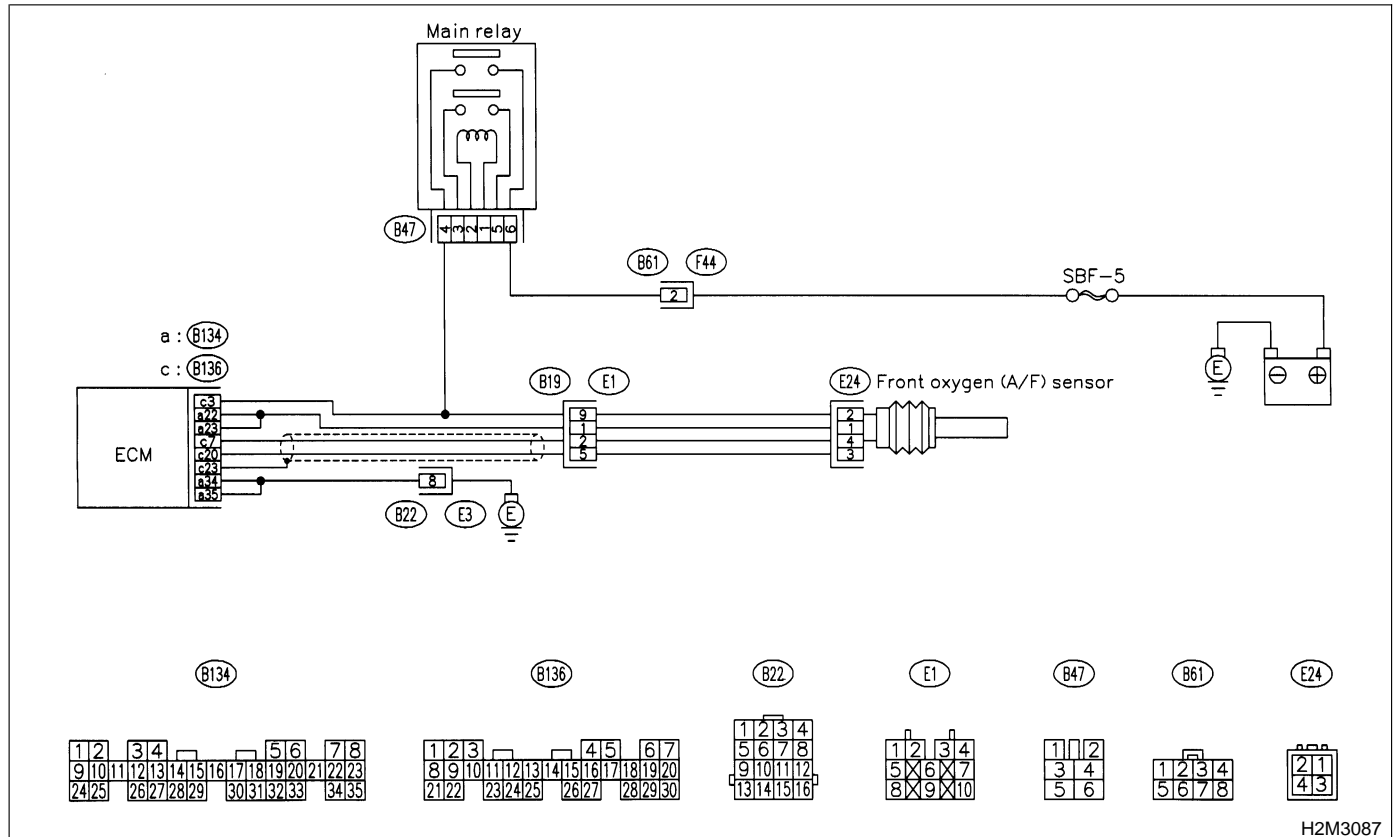
CE: DTC P1134 — FRONT OXYGEN (A/F) SENSOR MICRO-COMPUTER PROBLEM —

- **DTC DETECTING CONDITION:**
 - Two consecutive driving cycles with fault

CAUTION:

After repair or replacement of faulty parts, conduct **CLEAR MEMORY MODE** <Ref. to 2-7 [T3D0].> and **INSPECTION MODE** <Ref. to 2-7 [T3E0].>

● WIRING DIAGRAM:



10CE1 : CHECK ANY OTHER DTC ON DISPLAY.

- CHECK** : Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P1134?
- YES** : Replace ECM. <Ref. to 2-7 [W15A0].>
- NO** : It is not necessary to inspect DTC P1134.

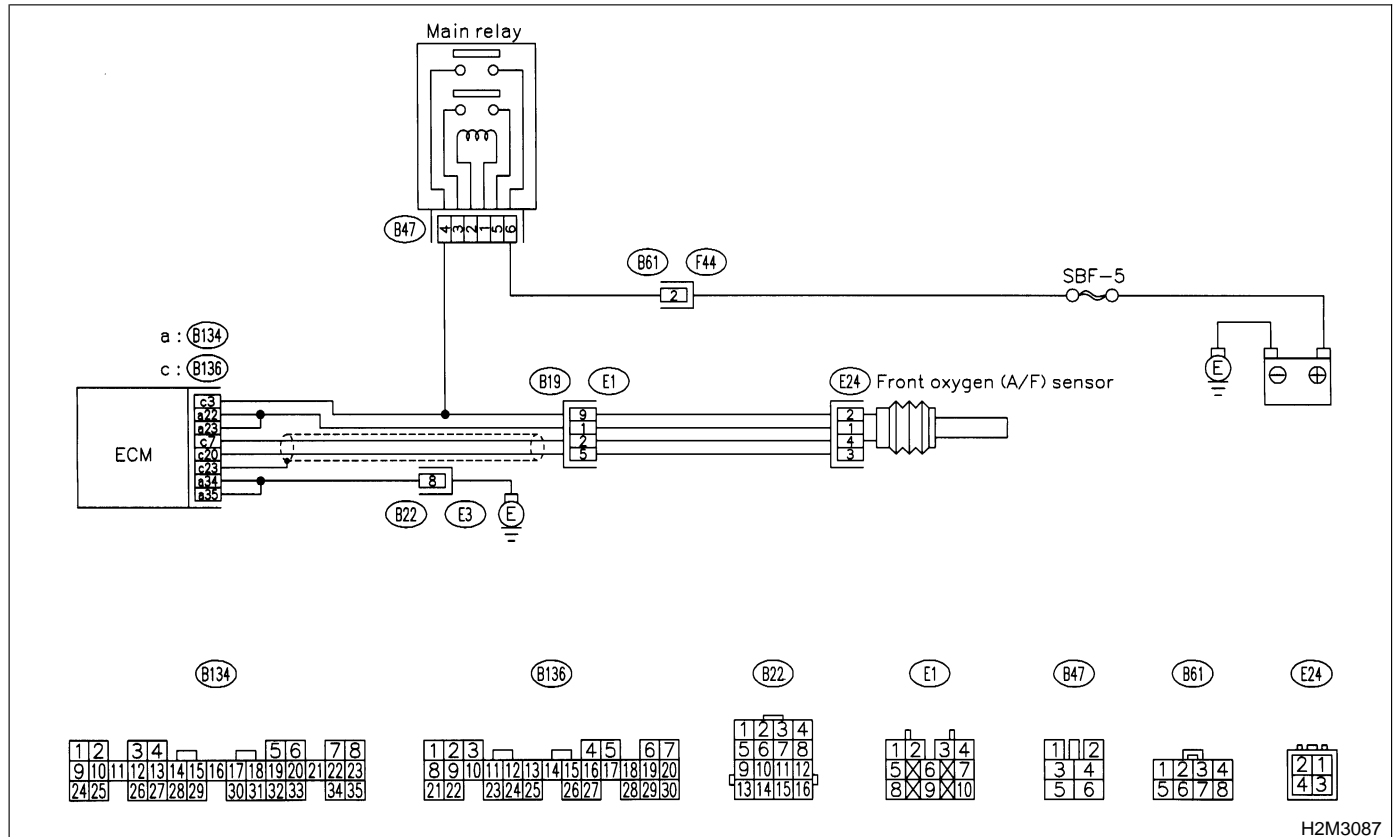
CF: DTC P1139 — FRONT OXYGEN (A/F) SENSOR #1 HEATER CIRCUIT RANGE/PERFORMANCE PROBLEM —

- **DTC DETECTING CONDITION:**
 - Two consecutive driving cycles with fault

CAUTION:

After repair or replacement of faulty parts, conduct **CLEAR MEMORY MODE** <Ref. to 2-7 [T3D0].> and **INSPECTION MODE** <Ref. to 2-7 [T3E0].>

● **WIRING DIAGRAM:**



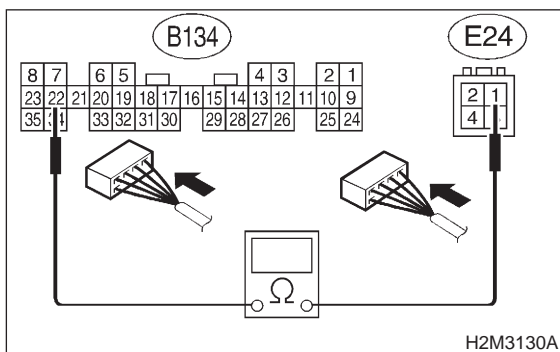
H2M3087

10CF1 : CHECK HARNESS BETWEEN ECM AND FRONT OXYGEN (A/F) SENSOR CONNECTOR.

- 1) Start engine, and warm-up the engine.
- 2) Turn ignition switch to OFF.
- 3) Disconnect connectors from ECM and front oxygen (A/F) sensor.
- 4) Measure resistance of harness between ECM and front oxygen (A/F) sensor connector.

Connector & terminal

(B134) No. 22 — (E24) No. 1:



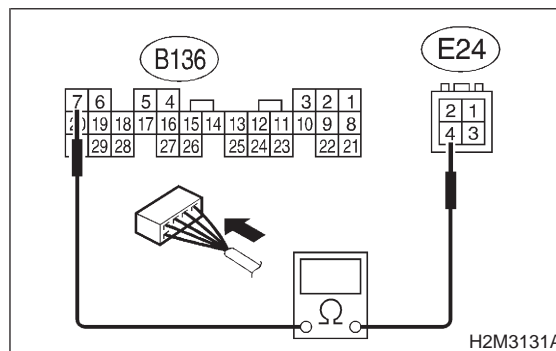
- CHECK** : *Is the resistance less than 1 Ω?*
- YES** : Go to step **10CF2**.
- NO** : Repair open circuit in harness between ECM and front oxygen (A/F) sensor connector.

10CF2 : CHECK HARNESS BETWEEN ECM AND FRONT OXYGEN (A/F) SENSOR CONNECTOR.

Measure resistance of harness between ECM and front oxygen (A/F) sensor connector.

Connector & terminal

(B136) No. 7 — (E24) No. 4:



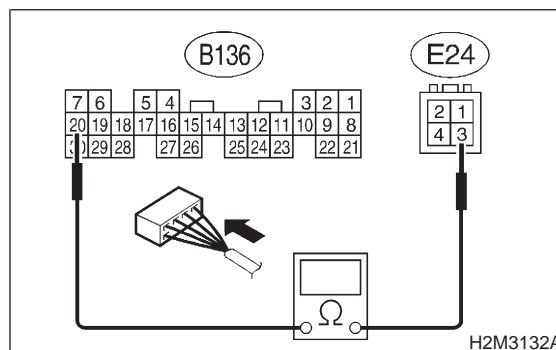
- CHECK** : *Is the resistance less than 1 Ω?*
- YES** : Go to step **10CF3**.
- NO** : Repair open circuit in harness between ECM and front oxygen (A/F) sensor connector.

10CF3 : CHECK HARNESS BETWEEN ECM AND FRONT OXYGEN (A/F) SENSOR CONNECTOR.

Measure resistance of harness between ECM and front oxygen (A/F) sensor connector.

Connector & terminal

(B136) No. 20 — (E24) No. 3:



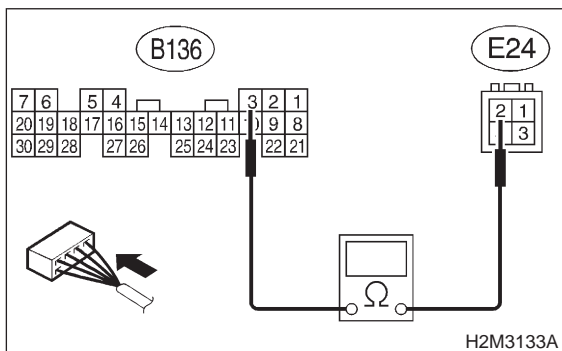
- CHECK** : *Is the resistance less than 1 Ω?*
- YES** : Go to step **10CF4**.
- NO** : Repair open circuit in harness between ECM and front oxygen (A/F) sensor connector.

10CF4 : CHECK HARNESS BETWEEN ECM AND FRONT OXYGEN (A/F) SENSOR CONNECTOR.

Measure resistance of harness between ECM and front oxygen (A/F) sensor connector.

Connector & terminal

(B136) No. 3 — (E24) No. 2:



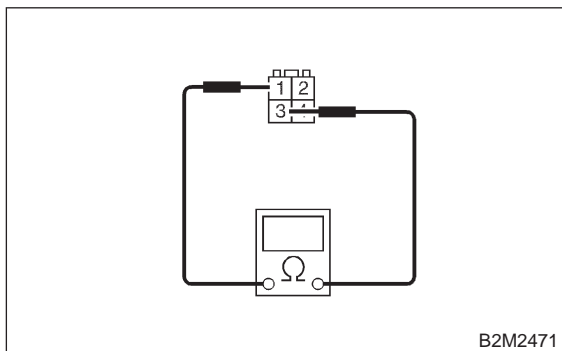
- CHECK** : **Is the resistance less than 1 Ω?**
- YES** : Go to step **10CF5**.
- NO** : Repair open circuit in harness between ECM and front oxygen (A/F) sensor connector.

10CF5 : CHECK FRONT OXYGEN (A/F) SENSOR.

Measure resistance between front oxygen (A/F) sensor connector terminals.

Terminals

No. 3 — No. 1:



- CHECK** : **Is the resistance less than 5 Ω?**
- YES** : Go to step **10CF6**.
- NO** : Replace front oxygen (A/F) sensor. <Ref. to 2-7 [W7A0].>

10CF6 : CHECK POOR CONTACT.

Check poor contact in ECM and front oxygen (A/F) sensor connector. <Ref. to FOREWORD [T3C1].>

- CHECK** : **Is there poor contact in ECM or front oxygen (A/F) sensor connector?**
- YES** : Repair poor contact in ECM or front oxygen (A/F) sensor connector.
- NO** : Replace front oxygen (A/F) sensor. <Ref. to 2-7 [W7A0].>

MEMO:

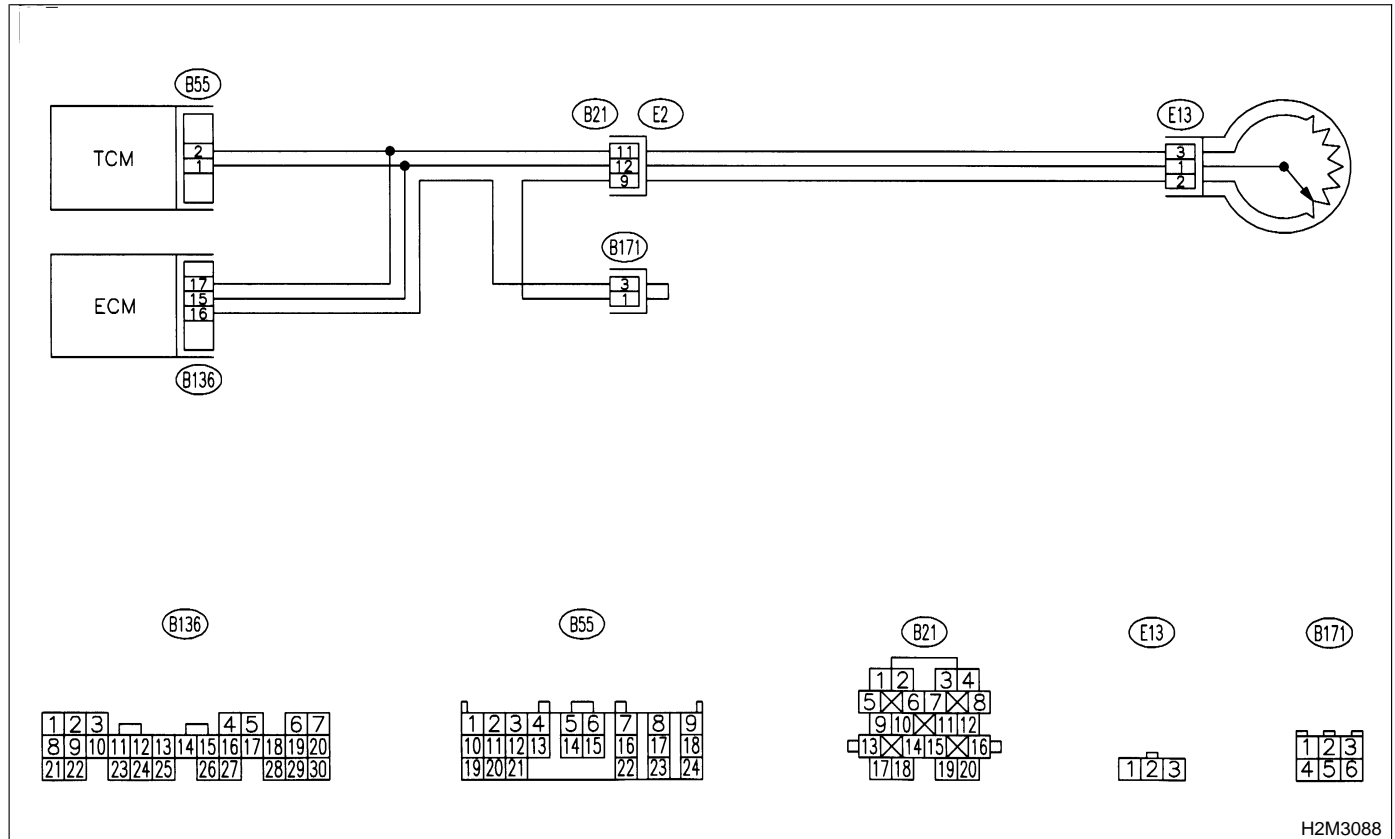
CG: DTC P1142 — THROTTLE POSITION SENSOR CIRCUIT RANGE/PERFORMANCE PROBLEM (LOW INPUT) —

- **DTC DETECTING CONDITION:**
 - Two consecutive driving cycles with fault
- **TROUBLE SYMPTOM:**
 - Erroneous idling
 - Engine stalls.
 - Poor driving performance

CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to 2-7 [T3D0].> and INSPECTION MODE <Ref. to 2-7 [T3E0].>

● **WIRING DIAGRAM:**



H2M3088

10CG1 : CHECK ANY OTHER DTC ON DISPLAY.

CHECK : Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0106, P0107, P0108, P0122 or P0123?

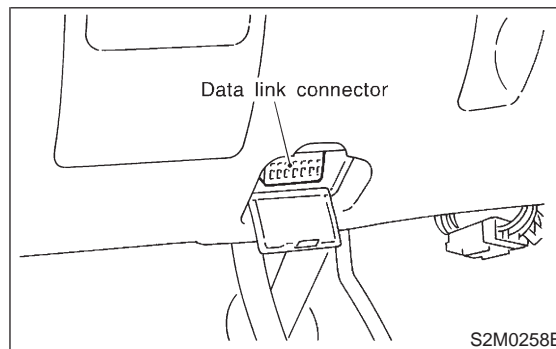
YES : Inspect DTC P0106, P0107, P0108, P0122 or P0123 using "12. Diagnostics Chart with Trouble Code for 2200 cc California Spec. Vehicles". <Ref. to 2-7 [T10A0].>

NOTE:
In this case, it is not necessary to inspect DTC P1142.

NO : Go to step **10CG2**.

10CG2 : CONNECT SUBARU SELECT MONITOR OR THE OBD-II GENERAL SCAN TOOL, AND READ DATA.

- 1) Turn ignition switch to OFF.
- 2) Connect Subaru Select Monitor or the OBD-II general scan tool to data link connector.



- 3) Turn ignition switch to ON and Subaru Select Monitor or the OBD-II general scan tool switch to ON.
- 4) Start engine.
- 5) Read the data of intake manifold absolute pressure signal using Subaru Select Monitor or OBD-II general scan tool.

NOTE:

- Subaru Select Monitor
For detailed operation procedure, refer to the "READ CURRENT DATA SHOWN ON DISPLAY FOR ENGINE". <Ref. to 2-7 [T3C4].>
- OBD-II general scan tool
For detailed operation procedures, refer to the OBD-II General Scan Tool Instruction Manual.

CHECK : Is the value less than 0 kPa (0 mmHg, 0 inHg)?

YES : Replace intake manifold pressure sensor. <Ref. to 2-7 [W20A0].>

NO : Replace throttle position sensor. <Ref. to 2-7 [W9A1].>

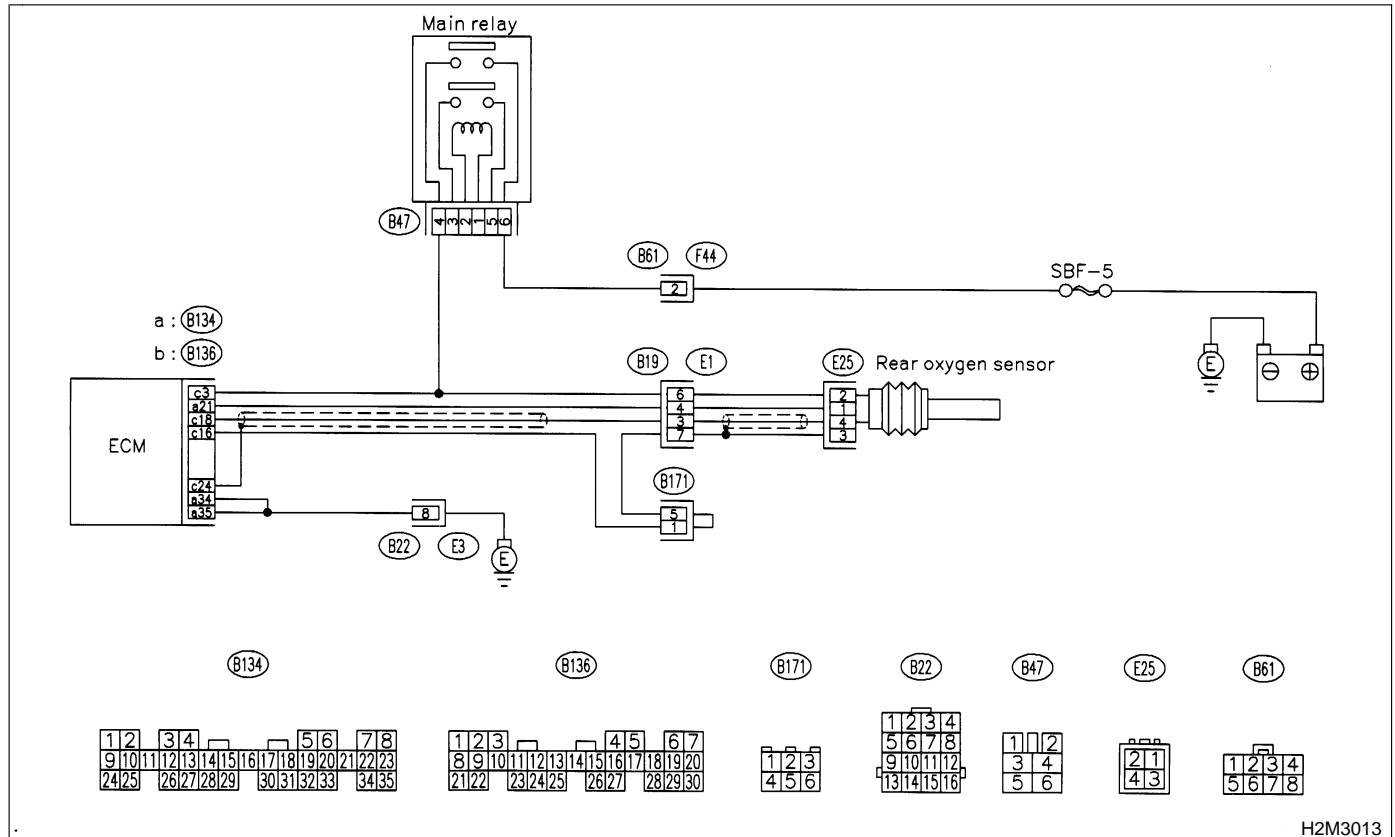
CH: DTC P1151 — REAR OXYGEN SENSOR HEATER CIRCUIT HIGH INPUT

- **DTC DETECTING CONDITION:**
 - Two consecutive driving cycles with fault

CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to 2-7 [T3D0].> and INSPECTION MODE <Ref. to 2-7 [T3E0].>

● **WIRING DIAGRAM:**

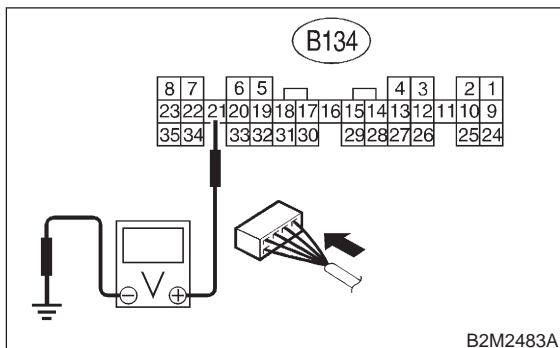


H2M3013

10CH1 : CHECK INPUT SIGNAL FOR ECM.

Measure voltage between ECM connector and chassis ground.

Connector & terminal
(B134) No. 21 (+) — Chassis ground (-):



- CHECK** : *Is the voltage more than 8 V?*
- YES** : Go to step 10CH2.
- NO** : Go to step 10CH3.

10CH2 : CHECK DTC P1151 ON DISPLAY.

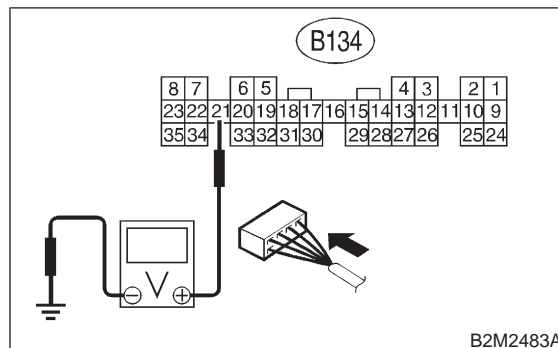
- 1) Turn ignition switch to OFF.
- 2) Repair battery short circuit in harness between ECM and rear oxygen sensor connector.
- 3) Operate the INSPECTION MODE. <Ref. to 2-7 [T3E1].>

- CHECK** : *Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P1151?*
- YES** : Replace ECM. <Ref. to 2-7 [W15A0].>
- NO** : END

10CH3 : CHECK INPUT SIGNAL FOR ECM.

Measure voltage between ECM connector and chassis ground.

Connector & terminal
(B134) No. 21 (+) — Chassis ground (-):

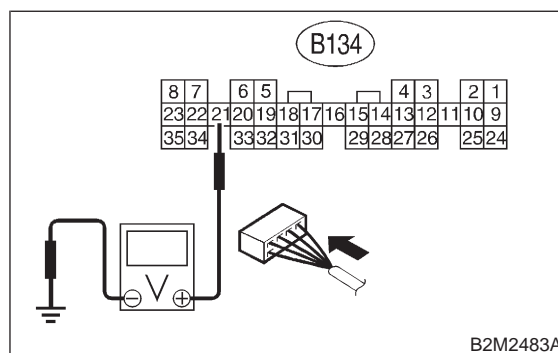


- CHECK** : *Does the voltage change more than 8 V by shaking harness and connector of ECM while monitoring the value with voltage meter?*
- YES** : Repair poor contact in ECM connector.
- NO** : Go to step 10CH4.

10CH4 : CHECK INPUT SIGNAL FOR ECM.

Measure voltage between ECM connector and chassis ground.

Connector & terminal
(B134) No. 21 (+) — Chassis ground (-):



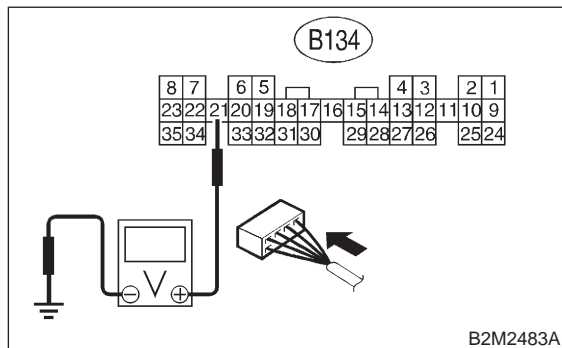
- CHECK** : *Does the voltage change more than 8 V by shaking harness and connector of rear oxygen sensor while monitoring the value with voltage meter?*
- YES** : Repair poor contact in rear oxygen sensor connector.
- NO** : Go to step 10CH5.

10CH5 : CHECK INPUT SIGNAL FOR ECM.

Measure voltage between ECM connector and chassis ground.

Connector & terminal

(B134) No. 21 (+) — Chassis ground (-):



CHECK : **Does the voltage change more than 8 V by shaking coupling connector (E1) while monitoring the value with voltage meter?**

YES : Repair poor contact in coupling connector.

NO : Even if MIL lights up, the circuit has returned to normal condition at this time.

MEMO:

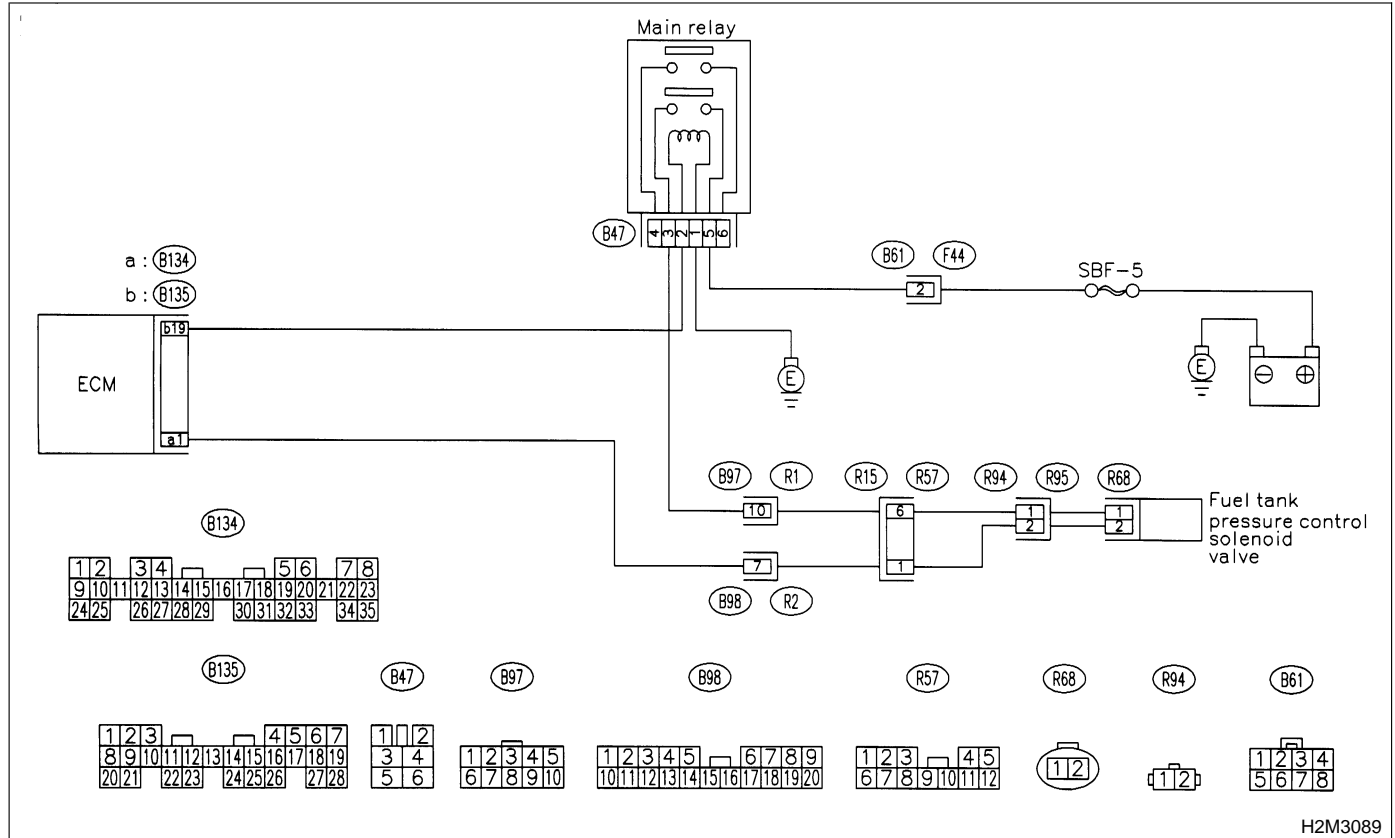
CI: DTC P1400 — FUEL TANK PRESSURE CONTROL SOLENOID VALVE CIRCUIT LOW INPUT —

- **DTC DETECTING CONDITION:**
 - Two consecutive driving cycles with fault

CAUTION:

After repair or replacement of faulty parts, conduct **CLEAR MEMORY MODE** <Ref. to 2-7 [T3D0].> and **INSPECTION MODE** <Ref. to 2-7 [T3E0].>

● **WIRING DIAGRAM:**

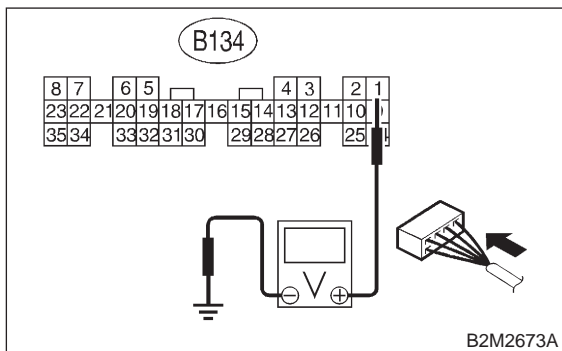


H2M3089

10C11 : CHECK OUTPUT SIGNAL FROM ECM.

- 1) Turn ignition switch to ON.
- 2) Measure voltage between ECM and chassis ground.

Connector & terminal
(B134) No. 1 (+) — Chassis ground (-):



- CHECK** : Is the voltage more than 10 V?
- YES** : Go to step 10C12.
- NO** : Go to step 10C13.

10C12 : CHECK POOR CONTACT.

Check poor contact in ECM connector. <Ref. to FOREWORD [T3C1].>

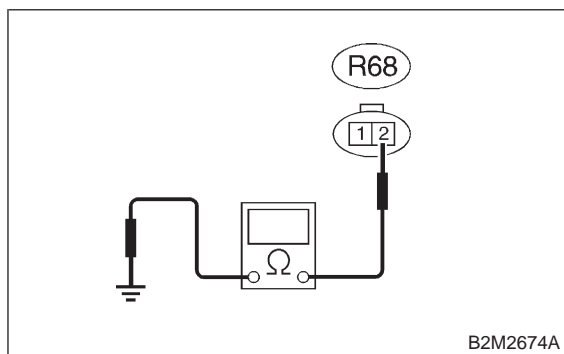
- CHECK** : Is there poor contact in ECM connector?
- YES** : Repair poor contact in ECM connector.
- NO** : Contact with SOA service.

NOTE:
 Inspection by DTM is required, because probable cause is deterioration of multiple parts.

10C13 : CHECK HARNESS BETWEEN FUEL TANK PRESSURE CONTROL SOLENOID VALVE AND ECM CONNECTOR.

- 1) Turn ignition switch to OFF.
- 2) Disconnect connectors from fuel tank pressure control solenoid valve and ECM.
- 3) Measure resistance of harness between fuel tank pressure control solenoid valve connector and chassis ground.

Connector & terminal
(R68) No. 2 — Chassis ground:



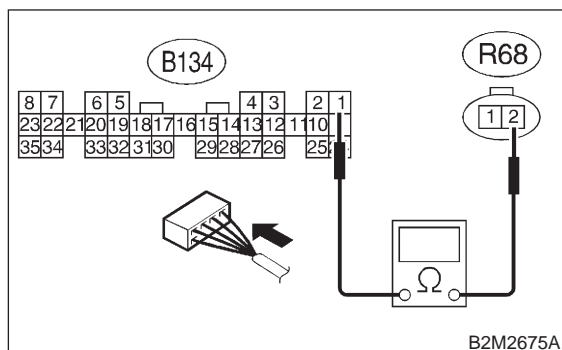
- CHECK** : Is the resistance less than 10 Ω?
- YES** : Repair ground short circuit in harness between ECM and fuel tank pressure control solenoid valve connector.
- NO** : Go to step 10C14.

10CI4 : CHECK HARNESS BETWEEN FUEL TANK PRESSURE CONTROL SOLENOID VALVE AND ECM CONNECTOR.

Measure resistance of harness between ECM and fuel tank pressure control solenoid valve connector.

Connector & terminal

(B134) No. 1 — (R68) No. 2:



CHECK : Is the resistance less than 1 Ω ?

YES : Go to step 10CI5.

NO : Repair harness and connector.

NOTE:

In this case, repair the following:

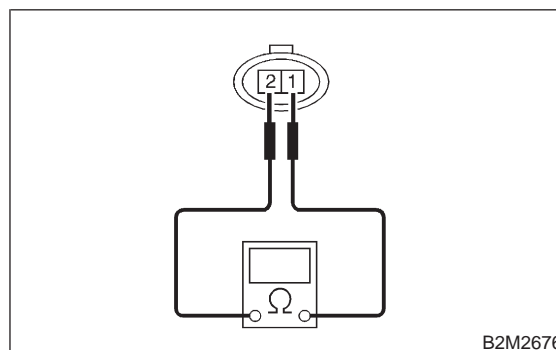
- Open circuit in harness between ECM and fuel tank pressure control solenoid valve connector
- Poor contact in coupling connectors (B98), (R94) and (R57)

10CI5 : CHECK FUEL TANK PRESSURE CONTROL SOLENOID VALVE.

Measure resistance between fuel tank pressure control solenoid valve terminals.

Terminals

No. 1 — No. 2:



CHECK : Is the resistance between 10 and 100 Ω ?

YES : Go to step 10CI6.

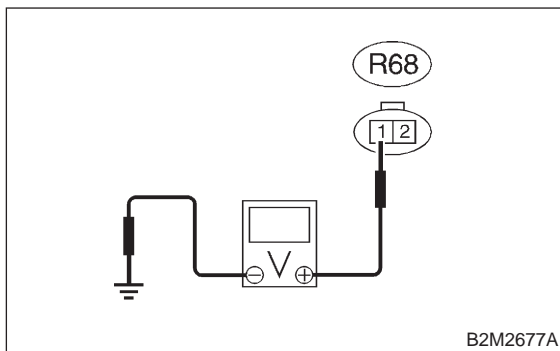
NO : Replace fuel tank pressure control solenoid valve. <Ref. to 2-1 [W6A0].>

10CI6 : CHECK POWER SUPPLY TO FUEL TANK PRESSURE CONTROL SOLENOID VALVE.

- 1) Turn ignition switch to ON.
- 2) Measure voltage between fuel tank pressure control solenoid valve and chassis ground.

Connector & terminal

(R68) No. 1 (+) — Chassis ground (-):



CHECK : **Is the voltage more than 10 V?**

YES : Go to step **10CI7**.

NO : Repair harness and connector.

NOTE:

In this case, repair the following:

- Open circuit in harness between main relay and fuel tank pressure control solenoid valve connector
- Poor contact in coupling connectors (B97), (R94) and (R57)
- Poor contact in main relay connector

10CI7 : CHECK POOR CONTACT.

Check poor contact in fuel tank pressure control solenoid valve connector. <Ref. to FOREWORD [T3C1].>

CHECK : **Is there poor contact in fuel tank pressure control solenoid valve connector?**

YES : Repair poor contact in fuel tank pressure control solenoid valve connector.

NO : Contact with SOA service.

NOTE:

Inspection by DTM is required, because probable cause is deterioration of multiple parts.

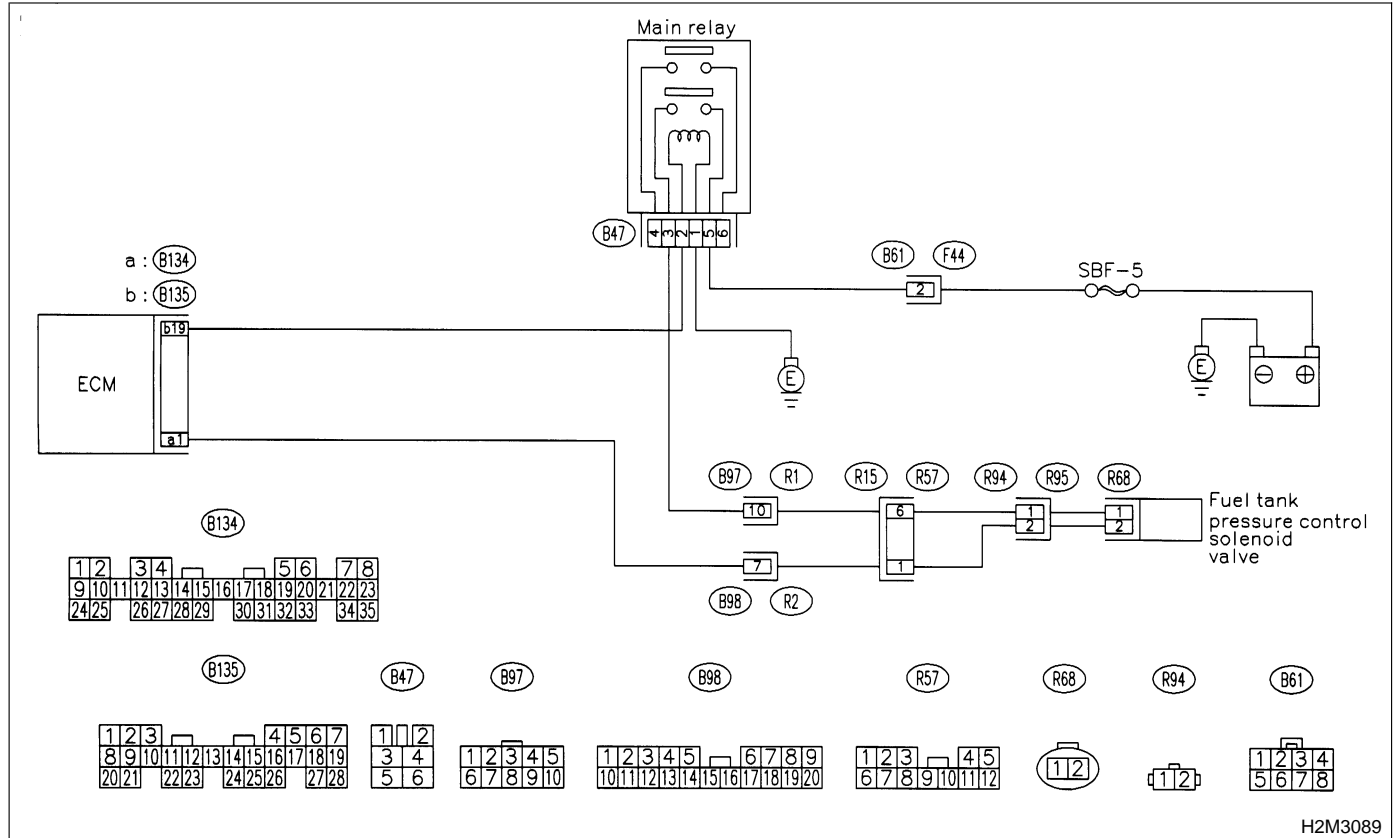
CJ: DTC P1420 — FUEL TANK PRESSURE CONTROL SOLENOID VALVE CIRCUIT HIGH INPUT —

- **DTC DETECTING CONDITION:**
 - Two consecutive driving cycles with fault

CAUTION:

After repair or replacement of faulty parts, conduct **CLEAR MEMORY MODE** <Ref. to 2-7 [T3D0].> and **INSPECTION MODE** <Ref. to 2-7 [T3E0].>

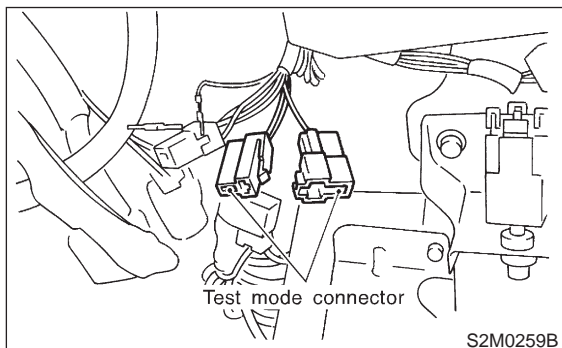
● **WIRING DIAGRAM:**



H2M3089

10CJ1 : CHECK OUTPUT SIGNAL FROM ECM.

- 1) Turn ignition switch to OFF.
- 2) Connect test mode connector at the lower portion of instrument panel (on the driver's side), to the side of the center console box.



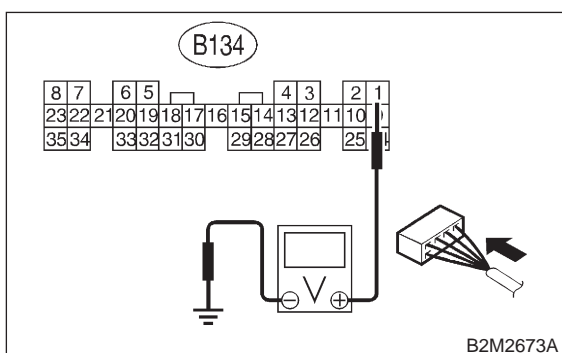
- 3) Turn ignition switch to ON.
- 4) Measure voltage between ECM and chassis ground.

NOTE:

Fuel tank pressure control solenoid valve operation check can be executed using Subaru Select Monitor. For procedure, refer to "COMPULSORY VALVE OPERATION CHECK MODE". <Ref. to 2-7 [T3F0].>

Connector & terminal

(B134) No. 1 (+) — Chassis ground (-):



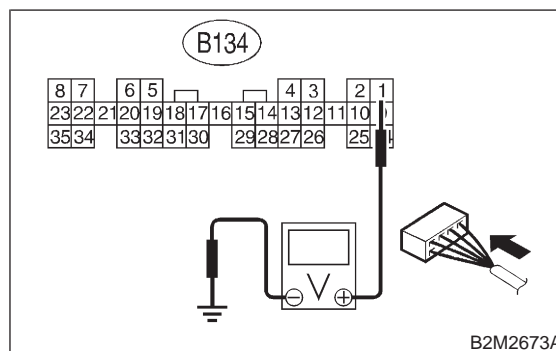
- CHECK** : Does voltage change between 0 and 10 volts?
- YES** : Go to step 10CJ2.
- NO** : Even if MIL light up, the circuit has returned to a normal condition at this time. In this case, repair poor contact in ECM connector.

10CJ2 : CHECK OUTPUT SIGNAL FROM ECM.

- 1) Turn ignition switch to ON.
- 2) Measure voltage between ECM and chassis ground.

Connector & terminal

(B134) No. 1 (+) — Chassis ground (-):



- CHECK** : Is the voltage more than 10 V?
- YES** : Go to step 10CJ4.
- NO** : Go to step 10CJ3.

10CJ3 : CHECK POOR CONTACT.

Check poor contact in ECM connector. <Ref. to FOREWORD [T3C1].>

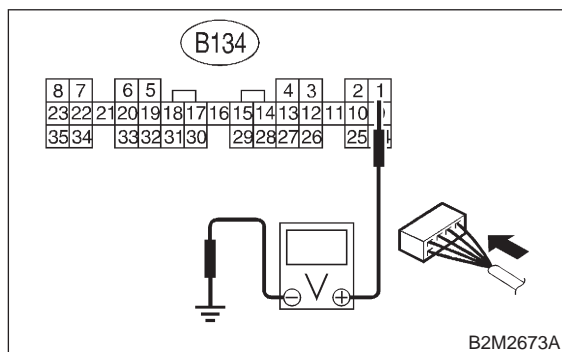
- CHECK** : Is there poor contact in ECM connector?
- YES** : Repair poor contact in ECM connector.
- NO** : Replace ECM. <Ref. to 2-7 [W15A0].>

10CJ4 : CHECK HARNESS BETWEEN FUEL TANK PRESSURE CONTROL SOLENOID VALVE AND ECM CONNECTOR.

- 1) Turn ignition switch to OFF.
- 2) Disconnect connector from fuel tank pressure control solenoid valve.
- 3) Turn ignition switch to ON.
- 4) Measure voltage between ECM and chassis ground.

Connector & terminal

(B134) No. 1 (+) — Chassis ground (-):



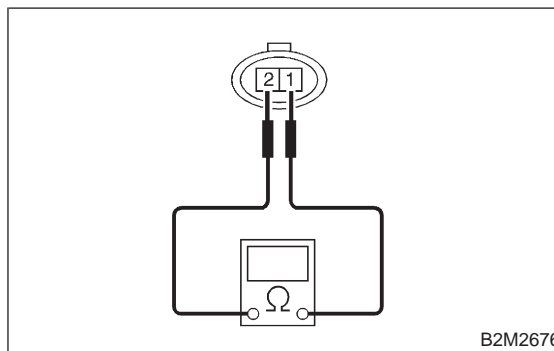
- CHECK** : **Is the voltage more than 10 V?**
- YES** : Repair battery short circuit in harness between ECM and fuel tank pressure control solenoid valve connector. After repair, replace ECM. <Ref. to 2-7 [W15A0].>
- NO** : Go to step **10CJ5**.

10CJ5 : CHECK FUEL TANK PRESSURE CONTROL SOLENOID VALVE.

- 1) Turn ignition switch to OFF.
- 2) Measure resistance between fuel tank pressure control solenoid valve terminals.

Terminals

No. 1 — No. 2:



- CHECK** : **Is the resistance less than 1 Ω?**
- YES** : Replace fuel tank pressure control solenoid valve <Ref. to 2-1 [W7A0].> and ECM <Ref. to 2-7 [W15A0].>.
- NO** : Go to step **10CJ6**.

10CJ6 : CHECK POOR CONTACT.

Check poor contact in ECM connector. <Ref. to FOREWORD [T3C1].>

- CHECK** : **Is there poor contact in ECM connector?**
- YES** : Repair poor contact in ECM connector.
- NO** : Replace ECM. <Ref. to 2-7 [W15A0].>

MEMO:

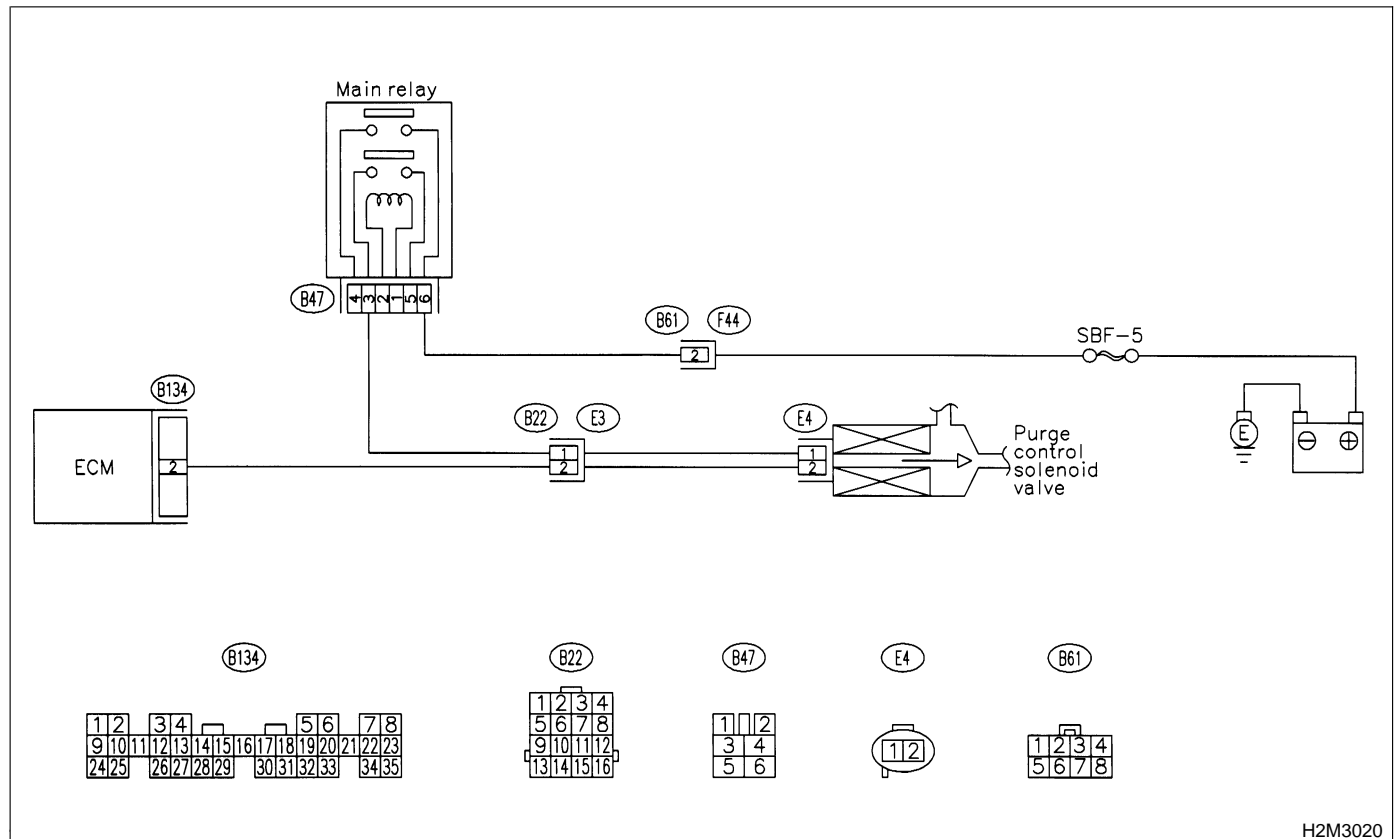
CK: DTC P1422 — EVAPORATIVE EMISSION CONTROL SYSTEM PURGE CONTROL VALVE CIRCUIT HIGH INPUT —

- **DTC DETECTING CONDITION:**
 - Two consecutive driving cycles with fault
- **TROUBLE SYMPTOM:**
 - Erroneous idling

CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to 2-7 [T3D0].> and INSPECTION MODE <Ref. to 2-7 [T3E0].>

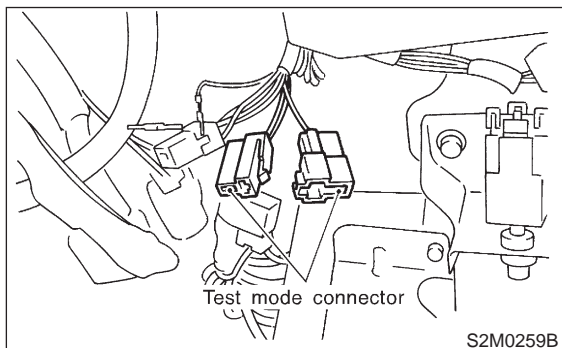
● **WIRING DIAGRAM:**



H2M3020

10CK1 : CHECK OUTPUT SIGNAL FROM ECM.

- 1) Turn ignition switch to OFF.
- 2) Connect test mode connector at the lower portion of instrument panel (on the driver's side), to the side of the center console box.



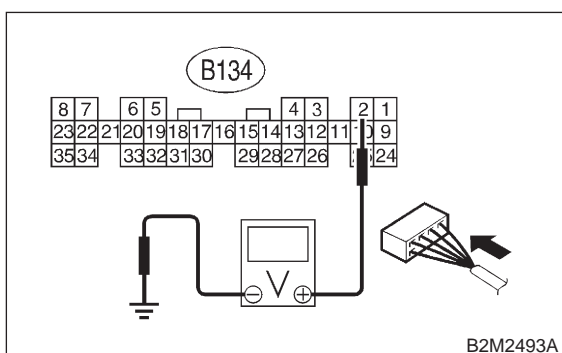
- 3) Turn ignition switch to ON.
- 4) Measure voltage between ECM and chassis ground.

NOTE:

Purge control solenoid valve operation check can be executed using Subaru Select Monitor. For procedure, refer to "COMPULSORY VALVE OPERATION CHECK MODE". <Ref. to 2-7 [T3F0].>

Connector & terminal

(B134) No. 2 (+) — Chassis ground (-):



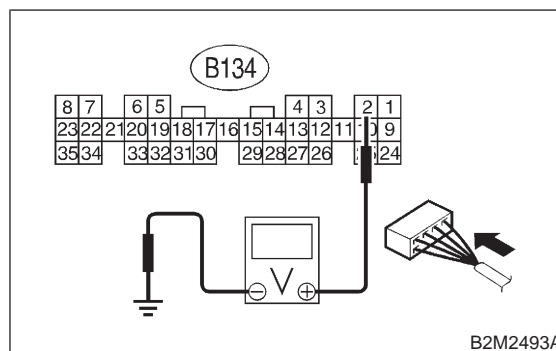
- CHECK** : Does voltage change between 0 and 10 volts?
- YES** : Go to step 10CK2.
- NO** : Even if MIL light up, the circuit has returned to a normal condition at this time. In this case, repair poor contact in ECM connector.

10CK2 : CHECK OUTPUT SIGNAL FROM ECM.

- 1) Turn ignition switch to ON.
- 2) Measure voltage between ECM and chassis ground.

Connector & terminal

(B134) No. 2 (+) — Chassis ground (-):



- CHECK** : Is the voltage more than 10 V?
- YES** : Go to step 10CK4.
- NO** : Go to step 10CK3.

10CK3 : CHECK POOR CONTACT.

Check poor contact in ECM connector. <Ref. to FOREWORD [T3C1].>

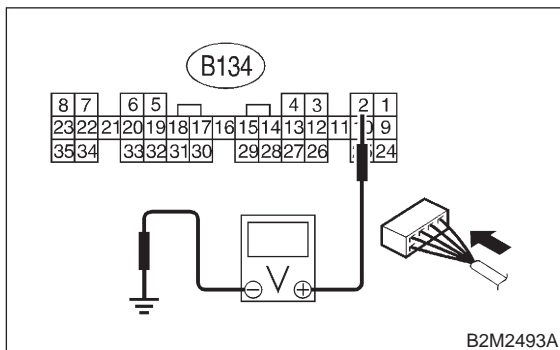
- CHECK** : Is there poor contact in ECM connector?
- YES** : Repair poor contact in ECM connector.
- NO** : Replace ECM. <Ref. to 2-7 [W15A0].>

10CK4 : CHECK HARNESS BETWEEN PURGE CONTROL SOLENOID VALVE AND ECM CONNECTOR.

- 1) Turn ignition switch to OFF.
- 2) Disconnect connector from purge control solenoid valve.
- 3) Turn ignition switch to ON.
- 4) Measure voltage between ECM and chassis ground.

Connector & terminal

(B134) No. 2 (+) — Chassis ground (-):



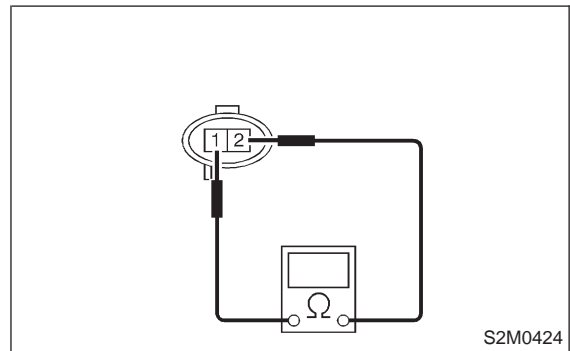
- CHECK** : **Is the voltage more than 10 V?**
- YES** : Repair battery short circuit in harness between ECM and purge control solenoid valve connector. After repair, replace ECM. <Ref. to 2-7 [W15A0].>
- NO** : Go to step **10CK5**.

10CK5 : CHECK PURGE CONTROL SOLENOID VALVE.

- 1) Turn ignition switch to OFF.
- 2) Measure resistance between purge control solenoid valve terminals.

Terminals

No. 1 — No. 2:



- CHECK** : **Is the resistance less than 1 Ω?**
- YES** : Replace purge control solenoid valve <Ref. to 2-1 [W4A0].> and ECM <Ref. to 2-7 [W15A0].>.
- NO** : Go to step **10CK6**.

10CK6 : CHECK POOR CONTACT.

Check poor contact in ECM connector. <Ref. to FOREWORD [T3C1].>

- CHECK** : **Is there poor contact in ECM connector?**
- YES** : Repair poor contact in ECM connector.
- NO** : Replace ECM. <Ref. to 2-7 [W15A0].>

MEMO:

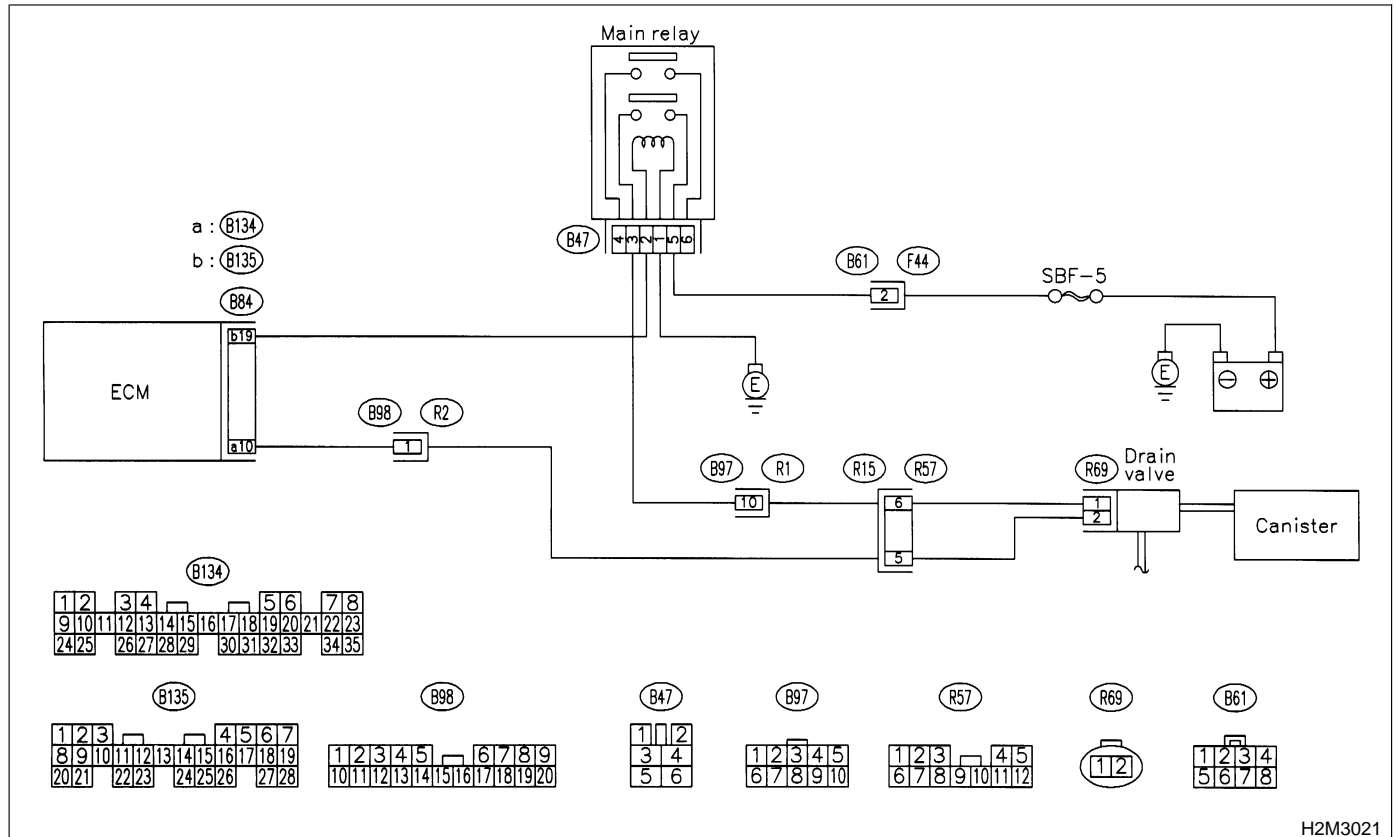
CL: DTC P1423 — EVAPORATIVE EMISSION CONTROL SYSTEM VENT CONTROL HIGH INPUT —

- **DTC DETECTING CONDITION:**
 - Two consecutive driving cycles with fault

CAUTION:

After repair or replacement of faulty parts, conduct **CLEAR MEMORY MODE** <Ref. to 2-7 [T3D0].> and **INSPECTION MODE** <Ref. to 2-7 [T3E0].>

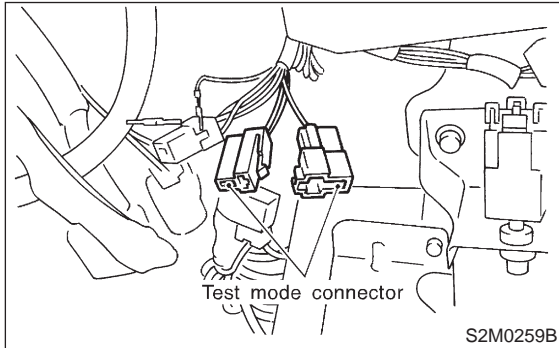
● **WIRING DIAGRAM:**



H2M3021

10CL1 : CHECK OUTPUT SIGNAL FROM ECM.

- 1) Turn ignition switch to OFF.
- 2) Connect test mode connector at the lower portion of instrument panel (on the driver's side), to the side of the center console box.



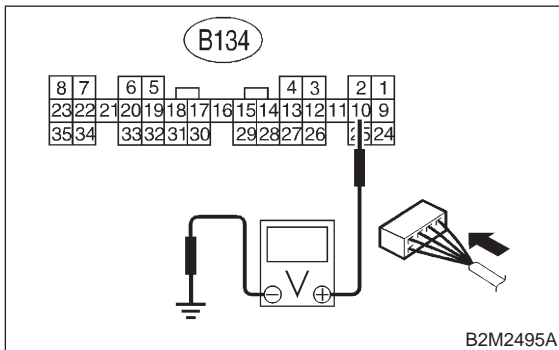
- 3) Turn ignition switch to ON.
- 4) Measure voltage between ECM and chassis ground.

NOTE:

Drain valve operation check can be executed using Subaru Select Monitor. For procedure, refer to "COMPULSORY VALVE OPERATION CHECK MODE". <Ref. to 2-7 [T3F0].>

Connector & terminal

(B134) No. 10 (+) — Chassis ground (-):



CHECK : **Does voltage change between 0 and 10 volts?**

YES : Go to step **10CL2**.

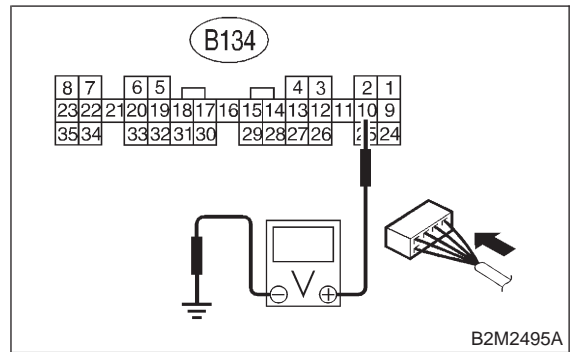
NO : Even if MIL light up, the circuit has returned to a normal condition at this time. In this case, repair poor contact in ECM connector.

10CL2 : CHECK OUTPUT SIGNAL FROM ECM.

- 1) Turn ignition switch to ON.
- 2) Measure voltage between ECM and chassis ground.

Connector & terminal

(B134) No. 10 (+) — Chassis ground (-):



CHECK : **Is the voltage more than 10 V?**

YES : Go to step **10CL4**.

NO : Go to step **10CL3**.

10CL3 : CHECK POOR CONTACT.

Check poor contact in ECM connector. <Ref. to FOREWORD [T3C1].>

CHECK : **Is there poor contact in ECM connector?**

YES : Repair poor contact in ECM connector.

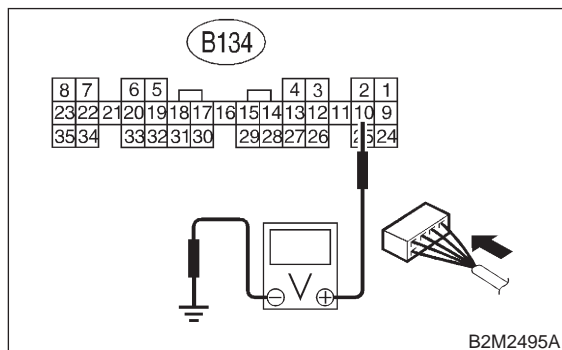
NO : Replace ECM. <Ref. to 2-7 [W15A0].>

10CL4 : CHECK HARNESS BETWEEN DRAIN VALVE AND ECM CONNECTOR.

- 1) Turn ignition switch to OFF.
- 2) Disconnect connector from drain valve.
- 3) Turn ignition switch to ON.
- 4) Measure voltage between ECM and chassis ground.

Connector & terminal

(B134) No. 10 (+) — Chassis ground (-):



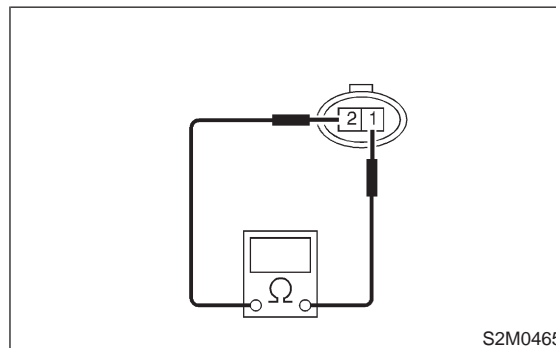
- CHECK** : **Is the voltage more than 10 V?**
- YES** : Repair battery short circuit in harness between ECM and drain valve connector. After repair, replace ECM. <Ref. to 2-7 [W15A0].>
- NO** : Go to step **10CL5**.

10CL5 : CHECK DRAIN VALVE.

- 1) Turn ignition switch to OFF.
- 2) Measure resistance between drain valve terminals.

Terminals

No. 1 — No. 2:



- CHECK** : **Is the resistance less than 1 Ω?**
- YES** : Replace drain valve <Ref. to 2-1 [W13A0].> and ECM <Ref. to 2-7 [W15A0].>.
- NO** : Go to step **10CL6**.

10CL6 : CHECK POOR CONTACT.

Check poor contact in ECM connector. <Ref. to FOREWORD [T3C1].>

- CHECK** : **Is there poor contact in ECM connector?**
- YES** : Repair poor contact in ECM connector.
- NO** : Replace ECM. <Ref. to 2-7 [W15A0].>

MEMO:

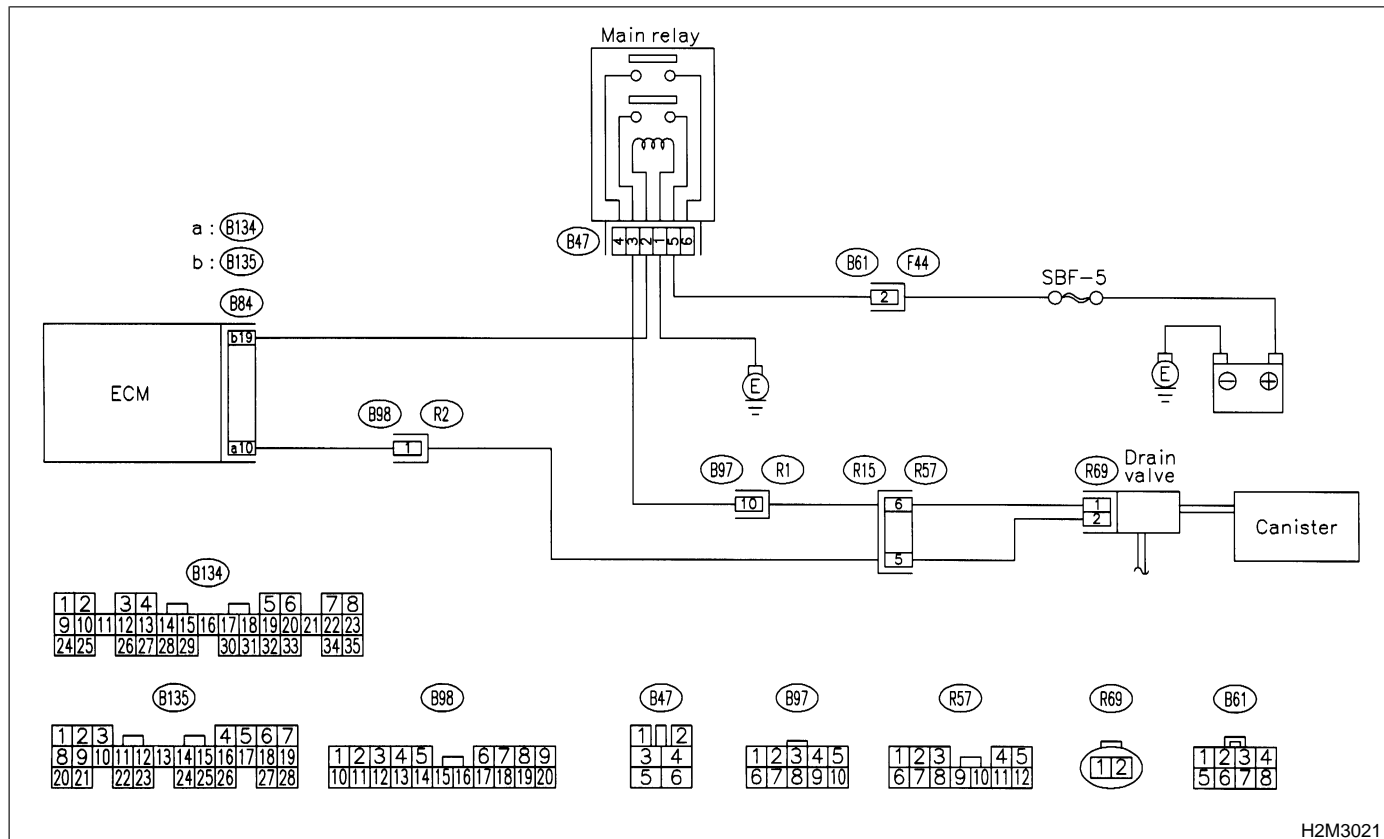
CM: DTC P1443 — EVAPORATIVE EMISSION CONTROL SYSTEM VENT CONTROL FUNCTION PROBLEM —

- **DTC DETECTING CONDITION:**
 - Immediately after fault occurrence
- **TROUBLE SYMPTOM:**
 - Improper fuel supply

CAUTION:

After repair or replacement of faulty parts, conduct **CLEAR MEMORY MODE** <Ref. to 2-7 [T3D0].> and **INSPECTION MODE** <Ref. to 2-7 [T3E0].>

● **WIRING DIAGRAM:**



H2M3021

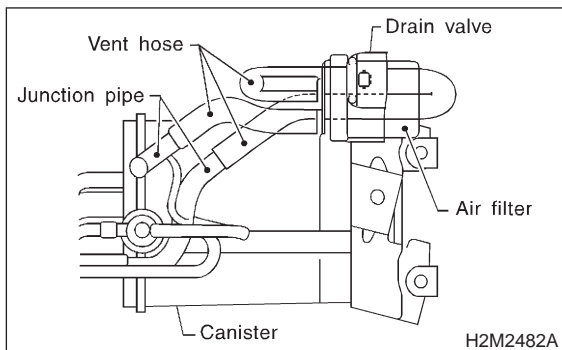
10CM1 : CHECK ANY OTHER DTC ON DISPLAY.

- CHECK** : *Is there any other DTC on display?*
- YES** : Inspect the relevant DTC using "10. Diagnostics Chart with Trouble Code for 2200 cc California Spec. Vehicles". <Ref. to 2-7 [T10A0].>
- NO** : Go to step **10CM2**.

10CM2 : CHECK VENT LINE HOSES.

Check the following items.

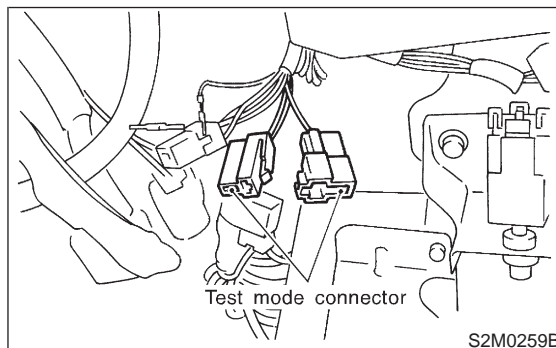
- Clogging of vent hoses between canister and drain valve
- Clogging of vent hose between drain valve and air filter
- Clogging of vent hose between air filter and junction pipe
- Clogging of junction pipe
- Clogging of air filter



- CHECK** : **Is there a fault in vent line?**
- YES** : Repair or replace the faulty part.
- NO** : Go to step **10CM3**.

10CM3 : CHECK DRAIN VALVE OPERATION.

- 1) Turn ignition switch to OFF.
- 2) Connect test mode connector at the lower portion of instrument panel (on the driver's side), to the side of the center console box.



- 3) Turn ignition switch to ON.

NOTE:

Drain valve operation check can also be executed using Subaru Select Monitor. For the procedure, refer to the "COMPULSORY VALVE OPERATION CHECK MODE". <Ref. to 2-7 [T3F0].>

- CHECK** : **Does drain valve produce operating sound?**
- YES** : Contact with SOA service.

NOTE:

Inspection by DTM is required, because probable cause is deterioration of multiple parts.

- NO** : Replace drain valve. <Ref. to 2-1 [W13A0].>

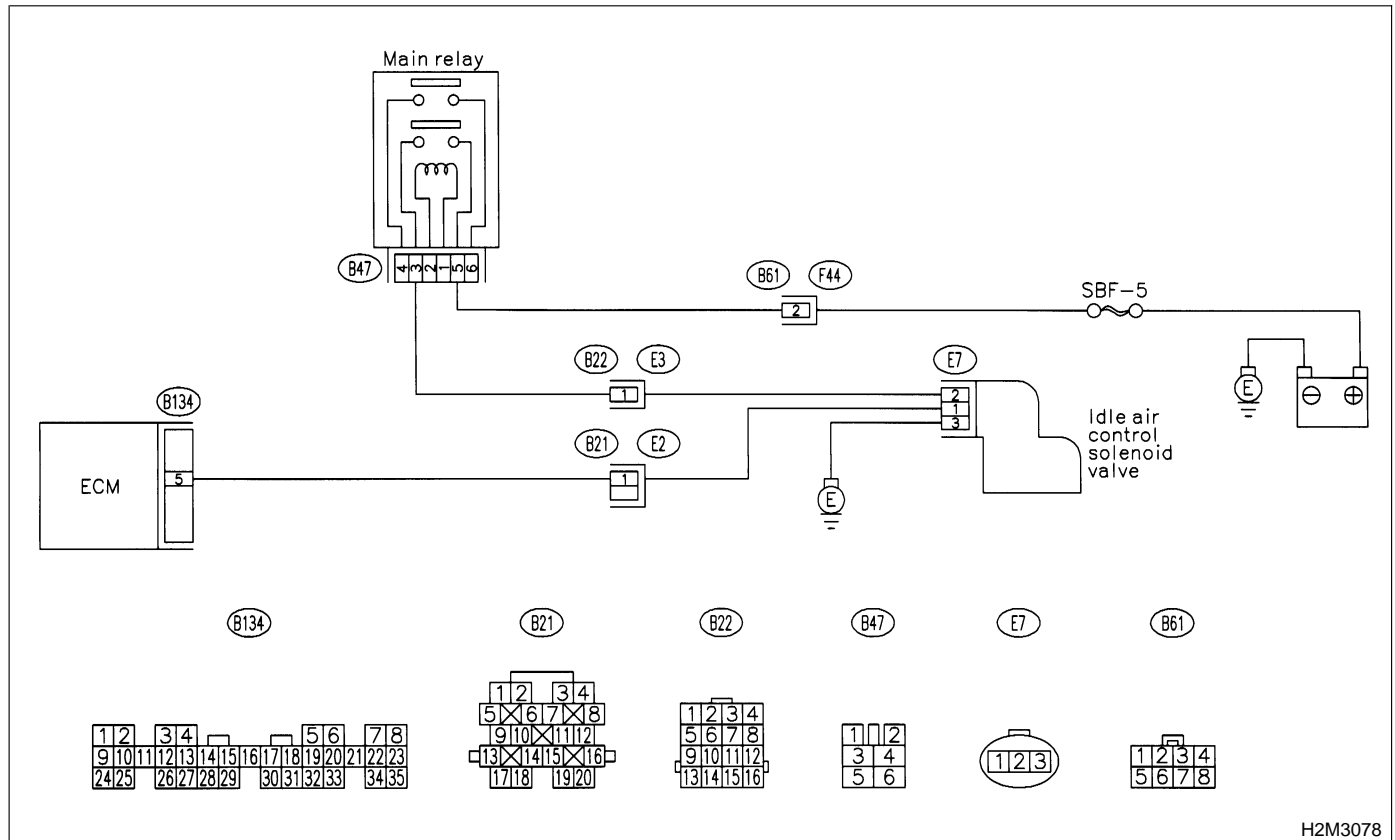
CN: DTC P1505 — IDLE CONTROL SYSTEM CIRCUIT HIGH INPUT —

- **DTC DETECTING CONDITION:**
 - Immediately at fault recognition
- **TROUBLE SYMPTOM:**
 - Erroneous idling
 - Engine stalls.
 - Engine breathing

CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to 2-7 [T3D0].> and INSPECTION MODE <Ref. to 2-7 [T3E0].>

● **WIRING DIAGRAM:**



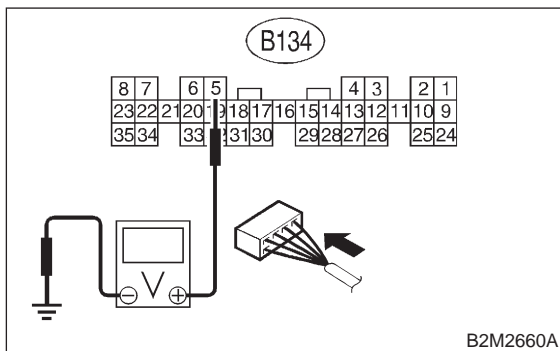
H2M3078

10CN1 : CHECK OUTPUT SIGNAL FROM ECM.

- 1) Turn ignition switch to ON.
- 2) Measure voltage between ECM and chassis ground.

Connector & terminal

(B134) No. 5 (+) — Chassis ground (-):



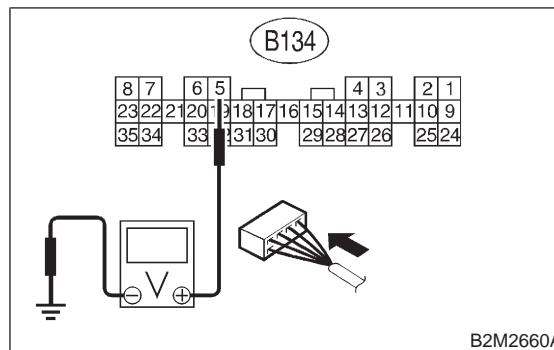
- CHECK** : *Is the voltage more than 10 V?*
- YES** : Go to step 10CN2.
- NO** : Go to step 10CN3.

10CN2 : CHECK OUTPUT SIGNAL FROM ECM.

- 1) Turn ignition switch to OFF.
- 2) Disconnect connector from idle air control solenoid valve.
- 3) Turn ignition switch to ON.
- 4) Measure voltage between ECM and chassis ground.

Connector & terminal

(B134) No. 5 (+) — Chassis ground (-):



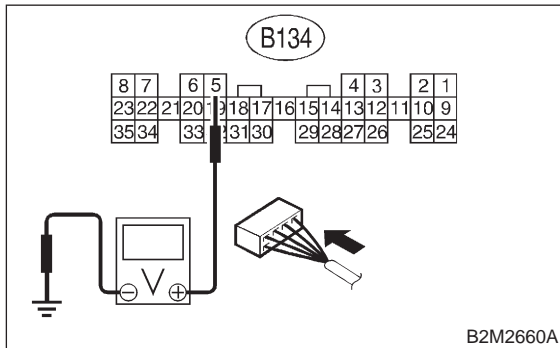
- CHECK** : *Is the voltage more than 10 V?*
- YES** : Repair battery short circuit in harness between ECM and idle air control solenoid valve connector. After repair, replace ECM. <Ref. to 2-7 [W15A0].>
- NO** : Replace idle air control solenoid valve <Ref. to 2-7 [W12A1].> and ECM <Ref. to 2-7 [W15A0].>.

10CN3 : CHECK OUTPUT SIGNAL FROM ECM.
--

Measure voltage between ECM and chassis ground.

Connector & terminal

(B134) No. 5 (+) — Chassis ground (-):



- CHECK** : **Does the voltage change more than 10 V by shaking harness and connector of ECM while monitoring the value with voltage meter?**
- YES** : Repair battery short circuit in harness between ECM and idle air control solenoid valve connector. After repair, replace ECM. <Ref. to 2-7 [W15A0].>
- NO** : Contact with SOA service.

NOTE:

Inseption by DTM is required, because probable cause is deterioration of multiple parts.

CO: DTC P1507 — IDLE CONTROL SYSTEM MALFUNCTION (FAIL-SAFE) —

• DTC DETECTING CONDITION:

- Two consecutive driving cycles with fault

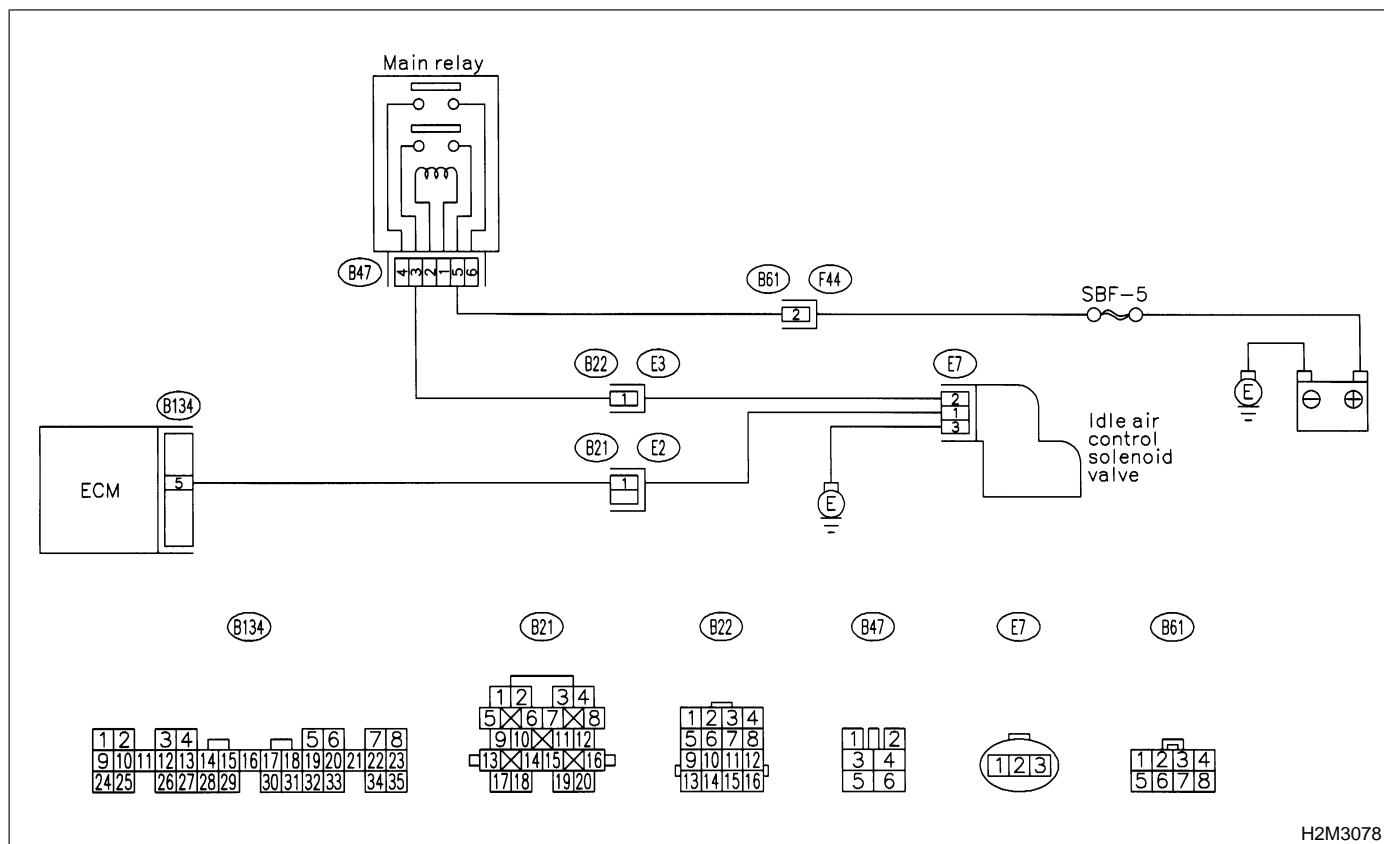
• TROUBLE SYMPTOM:

- Engine keeps running at higher revolution than specified idling revolution.

CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to 2-7 [T3D0].> and INSPECTION MODE <Ref. to 2-7 [T3E0].>

• WIRING DIAGRAM:



H2M3078

10C01 : CHECK ANY OTHER DTC ON DISPLAY.

CHECK : Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0116 or P0117 or P0505 or P1505?

YES : Inspect DTC P0116 or P0117 or P0505 or P1505 using "10. Diagnostics Chart with Trouble Code for 2200 cc California Spec. Vehicles". <Ref. to 2-7 [T10A0].>

NOTE:

In this case, it is not necessary to inspect DTC P1507.

NO : Go to step 10C02.

10C02 : CHECK AIR INTAKE SYSTEM.

- 1) Turn ignition switch to ON.
 - 2) Start engine, and idle it.
 - 3) Check the following items.
 - Loose installation of intake manifold, idle air control solenoid valve and throttle body
 - Cracks of intake manifold gasket, idle air control solenoid valve gasket and throttle body gasket
 - Disconnections of vacuum hoses
- CHECK** : Is there a fault in air intake system?
- YES** : Repair air suction and leaks.
- NO** : Replace idle air control solenoid valve. <Ref. to 2-7 [W12A1].>

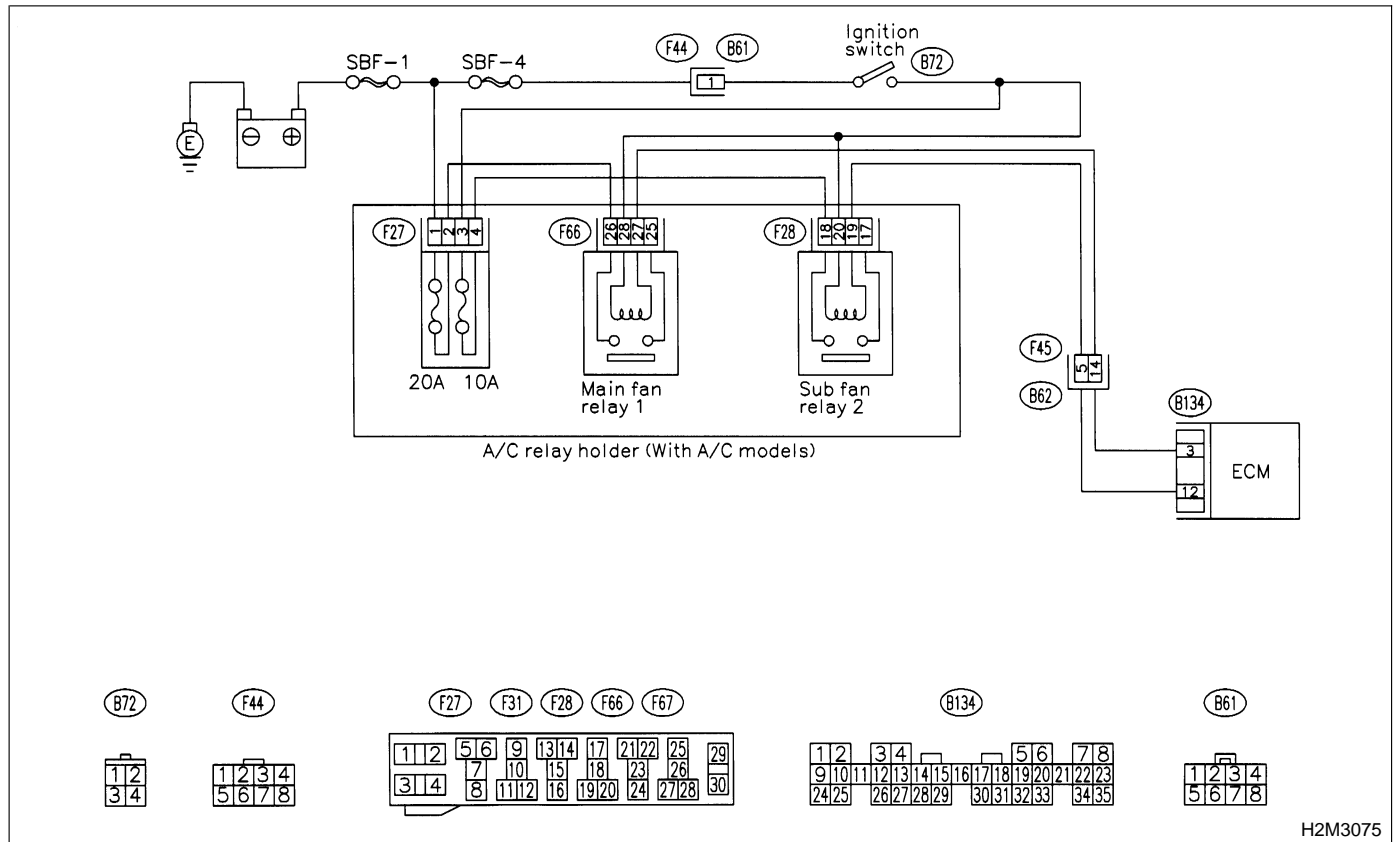
CP: DTC P1520 — COOLING FAN RELAY 1 CIRCUIT HIGH INPUT —

- **DTC DETECTING CONDITION:**
 - Two consecutive driving cycles with fault
- **TROUBLE SYMPTOM:**
 - Radiator fan does not operate properly.
 - Overheating

CAUTION:

After repair or replacement of faulty parts, conduct **CLEAR MEMORY MODE** <Ref. to 2-7 [T3D0].> and **INSPECTION MODE** <Ref. to 2-7 [T3E0].>

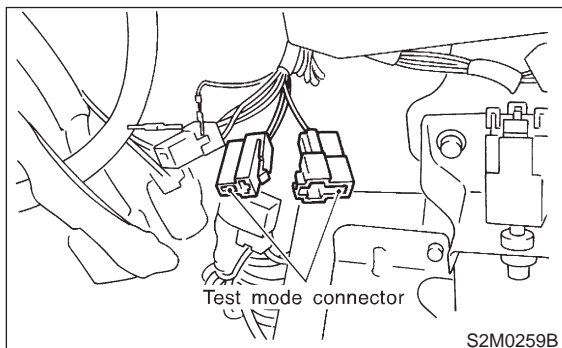
● **WIRING DIAGRAM:**



H2M3075

10CP1 : CHECK OUTPUT SIGNAL FROM ECM.

- 1) Turn ignition switch to OFF.
- 2) Connect test mode connector at the lower portion of instrument panel (on the driver's side), to the side of the center console box.



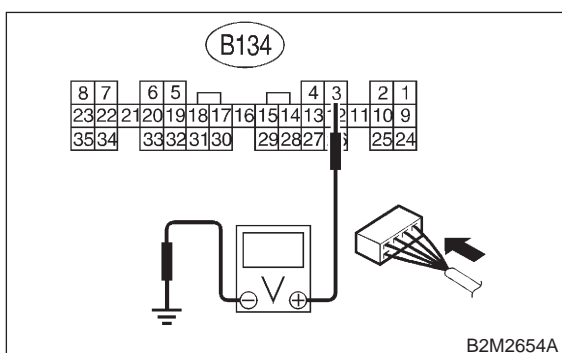
- 3) Turn ignition switch to ON.
- 4) Measure voltage between ECM and chassis ground.

NOTE:

Radiator fan relay operation check can be executed using Subaru Select Monitor. For procedure, refer to "COMPULSORY VALVE OPERATION CHECK MODE". <Ref. to 2-7 [T3F0].>

Connector & terminal

(B134) No. 3 (+) — Chassis ground (-):



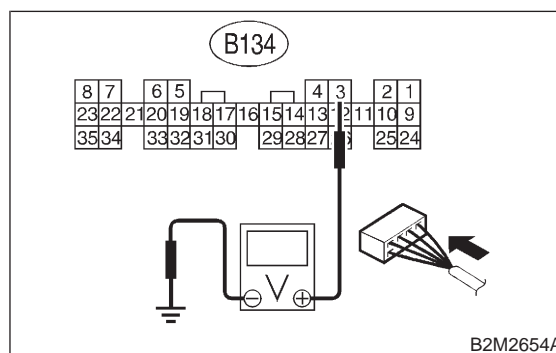
- CHECK** : **Does voltage change between 0 and 10 volts?**
- YES** : Even if MIL lights up, the circuit has returned to a normal condition at this time. In this case, repair poor contact in ECM connector.
- NO** : Go to step **10CP2**.

10CP2 : CHECK SHORT CIRCUIT IN RADIATOR FAN RELAY 1 CONTROL CIRCUIT.

- 1) Turn ignition switch to OFF.
- 2) Remove main fan relay 1 and sub fan relay 1. (with A/C models)
Remove main fan relay. (without A/C models)
- 3) Disconnect test mode connector.
- 4) Turn ignition switch to ON.
- 5) Measure voltage between ECM and chassis ground.

Connector & terminal

(B134) No. 3 (+) — Chassis ground (-):



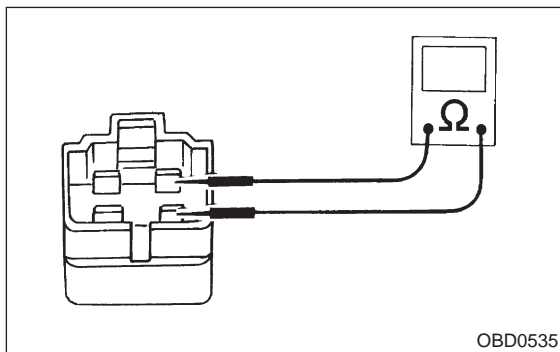
- CHECK** : **Is the voltage more than 10 V?**
- YES** : Repair battery short circuit in radiator fan relay 1 control circuit. After repair, replace ECM. <Ref. to 2-7 [W15A0].>
- NO** : Go to step **10CP3**.

10CP3 : CHECK VEHICLE MODEL.

- CHECK** : **Is the vehicle equipped with A/C?**
- YES** : Go to step **10CP4**.
- NO** : Go to step **10CP6**.

10CP4 : CHECK MAIN FAN RELAY 1.

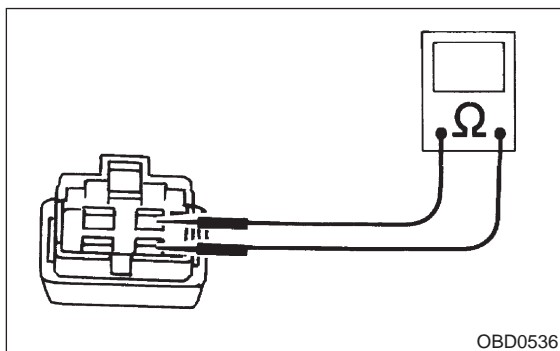
- 1) Turn ignition switch to OFF.
- 2) Remove main fan relay 1.
- 3) Measure resistance between main fan relay 1 terminals.

Terminal**No. 1 — No. 3:**

- CHECK** : **Is the resistance less than 1 Ω?**
- YES** : Replace main fan relay 1 and ECM <Ref. to 2-7 [W15A0].>
- NO** : Go to step **10CP5**.

10CP5 : CHECK SUB FAN RELAY 1.

- 1) Remove sub fan relay 1.
- 2) Measure resistance between sub fan relay 1 terminals.

Terminal**No. 1 — No. 3**

- CHECK** : **Is the resistance less than 1 Ω?**
- YES** : Replace sub fan relay 1 and ECM <Ref. to 2-7 [W15A0].>
- NO** : Go to step **10CP6**.

10CP6 : CHECK POOR CONTACT.

Check poor contact in ECM connector. <Ref. to FOREWORD [T3C1].>

- CHECK** : **Is there poor contact in ECM connector?**
- YES** : Repair poor contact in ECM connector.
- NO** : Replace ECM. <Ref. to 2-7 [W15A0].>

MEMO:

CQ: DTC P1560 — BACK-UP VOLTAGE CIRCUIT MALFUNCTION —

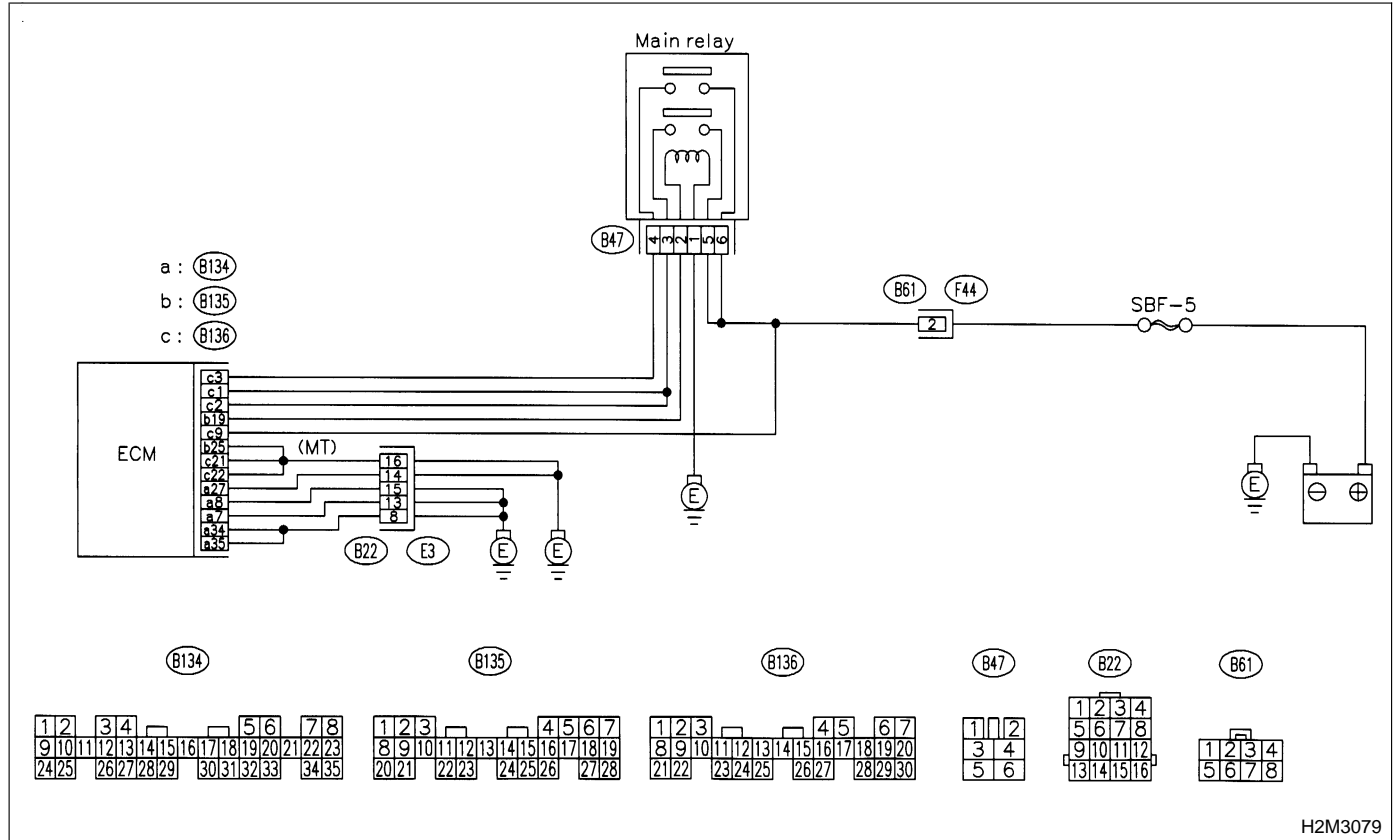
• DTC DETECTING CONDITION:

- Two consecutive driving cycles with fault

CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to 2-7 [T3D0].> and INSPECTION MODE <Ref. to 2-7 [T3E0].>

• WIRING DIAGRAM:

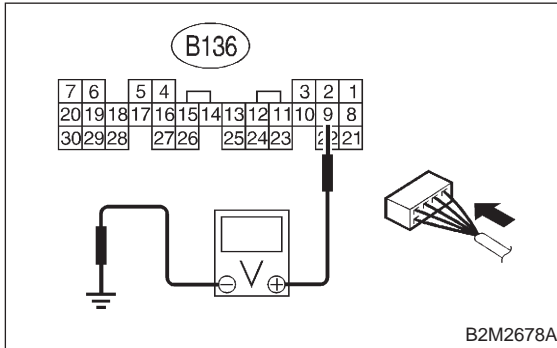


H2M3079

10CQ1 : CHECK INPUT SIGNAL FOR ECM.

- 1) Turn ignition switch to OFF.
- 2) Measure voltage between ECM and chassis ground.

Connector & terminal
(B136) No. 9 (+) — Chassis ground (-):

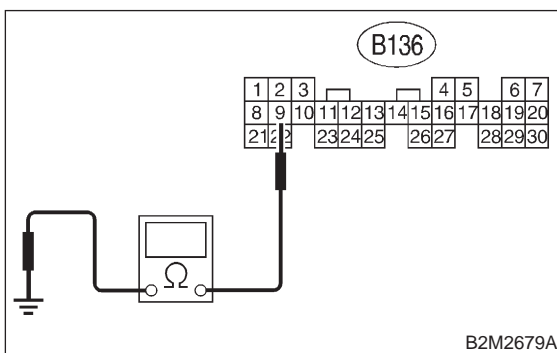


- CHECK** : *Is the voltage more than 10 V?*
YES : Repair poor contact in ECM connector.
NO : Go to step 10CQ2.

10CQ2 : CHECK HARNESS BETWEEN ECM AND MAIN FUSE BOX CONNECTOR.

- 1) Disconnect connector from ECM.
- 2) Measure resistance of harness between ECM and chassis ground.

Connector & terminal
(B136) No. 9 — Chassis ground:



- CHECK** : *Is the resistance less than 10 Ω?*
YES : Repair ground short circuit in harness between ECM connector and battery terminal.
NO : Go to step 10CQ3.

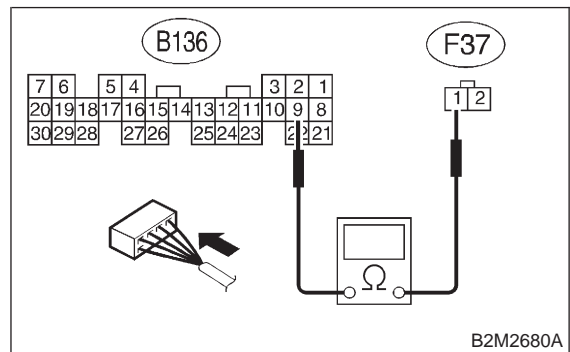
10CQ3 : CHECK FUSE SBF-2.

- CHECK** : *Is fuse blown?*
YES : Replace fuse. <Ref. to 6-3 [D6B0].>
NO : Go to step 10CQ4.

10CQ4 : CHECK HARNESS BETWEEN ECM AND MAIN FUSE BOX CONNECTOR.

- 1) Disconnect connector from main fuse box.
- 2) Measure resistance of harness between ECM and main fuse box connector.

Connector & terminal
(B136) No. 9 — (F37) No. 1:



- CHECK** : *Is the resistance less than 1 Ω?*
YES : Repair poor contact in ECM and main fuse box connector.
NO : Repair harness and connector.

NOTE:

In this case, repair the following:

- Open circuit in harness between ECM and main fuse box connector
- Poor contact in coupling connector (F44)
- Poor contact in ECM connector
- Poor contact in main fuse box connector

CR: DTC P1700 — THROTTLE POSITION SENSOR CIRCUIT MALFUNCTION FOR AUTOMATIC TRANSMISSION —

● **DTC DETECTING CONDITION:**

- Two consecutive driving cycles with fault

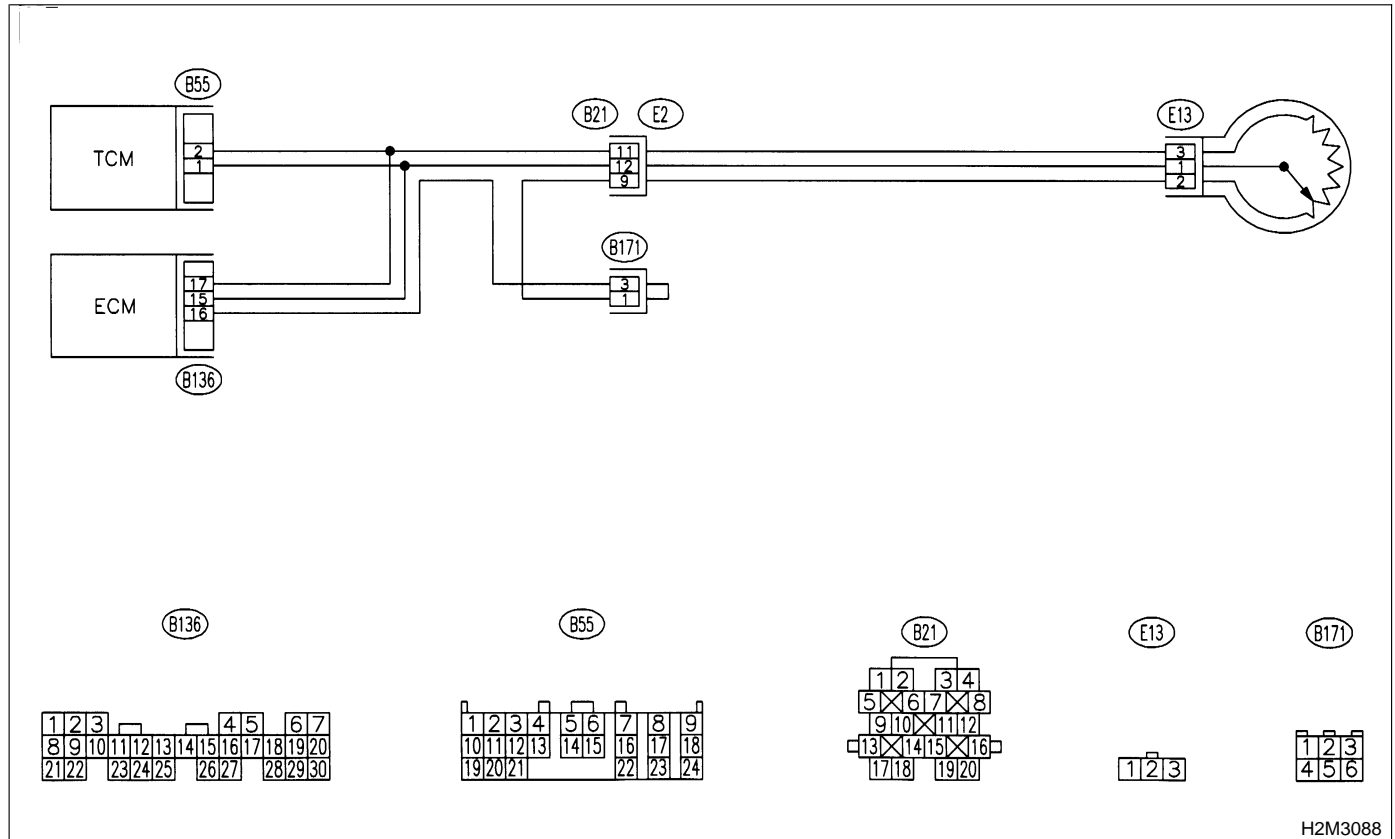
● **TROUBLE SYMPTOM:**

- Shift point too high or too low; engine brake not effected in “3” range; excessive shift shock; excessive tight corner “braking”

CAUTION:

After repair or replacement of faulty parts, conduct **CLEAR MEMORY MODE** <Ref. to 2-7 [T3D0].> and **INSPECTION MODE** <Ref. to 2-7 [T3E0].>

● **WIRING DIAGRAM:**



H2M3088

10CR1 : CHECK DTC P1700 ON DISPLAY.

- CHECK** : Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P1700?
- YES** : Check throttle position sensor circuit. <Ref. to 3-2 [T8F0].>
- NO** : It is not necessary to inspect DTC P1700.

MEMO:

CS: DTC P1701 — CRUISE CONTROL SET SIGNAL CIRCUIT MALFUNCTION FOR AUTOMATIC TRANSMISSION —

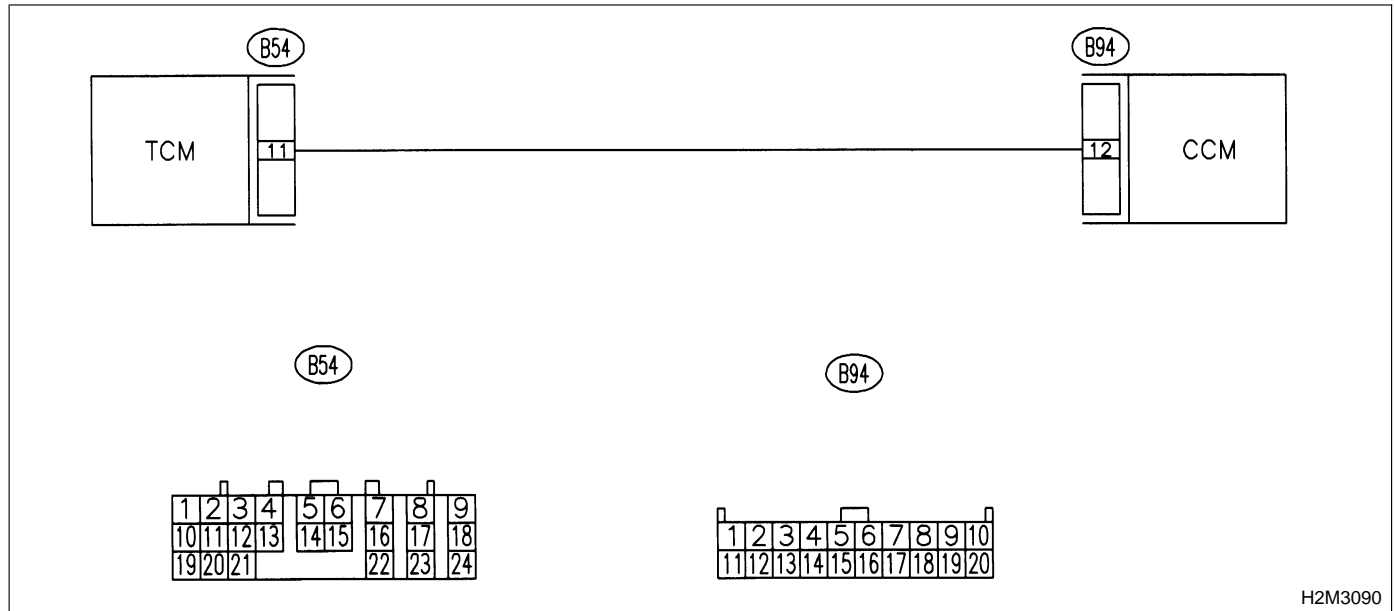
● DTC DETECTING CONDITION:

- Two consecutive driving cycles with fault

CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to 2-7 [T3D0].> and INSPECTION MODE <Ref. to 2-7 [T3E0].>

● WIRING DIAGRAM:

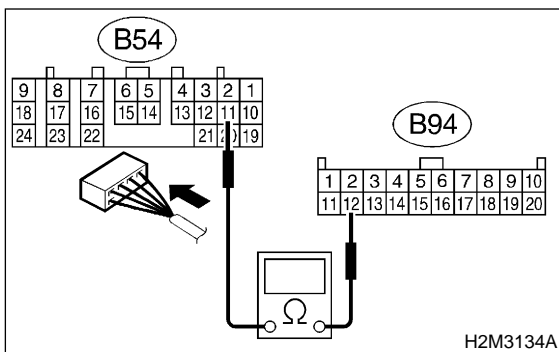


10CS1 : CHECK HARNESS BETWEEN TCM AND CCM CONNECTOR.

- 1) Turn ignition switch to OFF.
- 2) Disconnect connectors from TCM and CCM.
- 3) Measure resistance of harness between TCM and CCM connector.

Connector & terminal

(B54) No. 11 — (B94) No. 12:



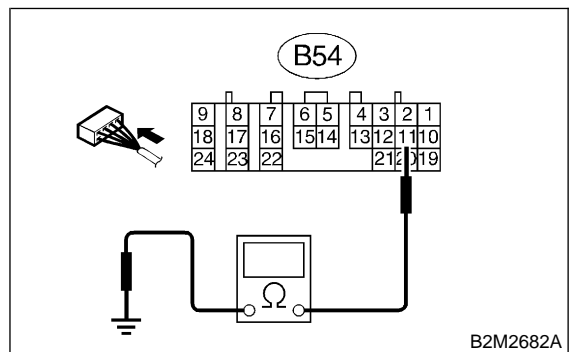
- CHECK** : *Is the resistance less than 1 Ω?*
- YES** : Go to step **10CS2**.
- NO** : Repair open circuit in harness between TCM and CCM connector.

10CS2 : CHECK HARNESS BETWEEN TCM AND CCM CONNECTOR.

Measure resistance of harness between TCM and chassis ground.

Connector & terminal

(B54) No. 11 — Chassis ground:



- CHECK** : *Is the resistance less than 10 Ω?*
- YES** : Repair short circuit in harness between TCM and CCM connector.
- NO** : Go to step **10CS3**.

10CS3 : CHECK INPUT SIGNAL FOR TCM.

- 1) Connect connector to TCM and CCM.
- 2) Lift-up the vehicle or set the vehicle on free rollers.

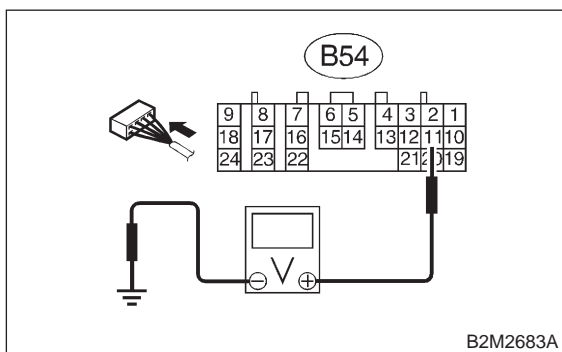
CAUTION:

On AWD models, raise all wheels off ground.

- 3) Start the engine.
- 4) Cruise control main switch to ON.
- 5) TCS OFF switch to ON. (with TCS models only)
- 6) Move selector lever to "D" and slowly increase vehicle speed to 50 km/h (31 MPH).
- 7) Cruise control set switch to ON.
- 8) Measure voltage between TCM and chassis ground.

Connector & terminal

(B54) No. 11 (+) — Chassis ground (-):



- CHECK** : **Is the resistance less than 1 V?**
- YES** : Go to step **10CS4**.
- NO** : Check cruise control set circuit.

10CS4 : CHECK POOR CONTACT.

Check poor contact in TCM connector. <Ref. to FOREWORD [T3C1].>

- CHECK** : **Is there poor contact in TCM connector?**
- YES** : Repair poor contact in TCM connector.
- NO** : Replace TCM. <Ref. to 3-2 [W22A0].>

CT: DTC P1702 — AUTOMATIC TRANSMISSION DIAGNOSIS INPUT SIGNAL CIRCUIT LOW INPUT —

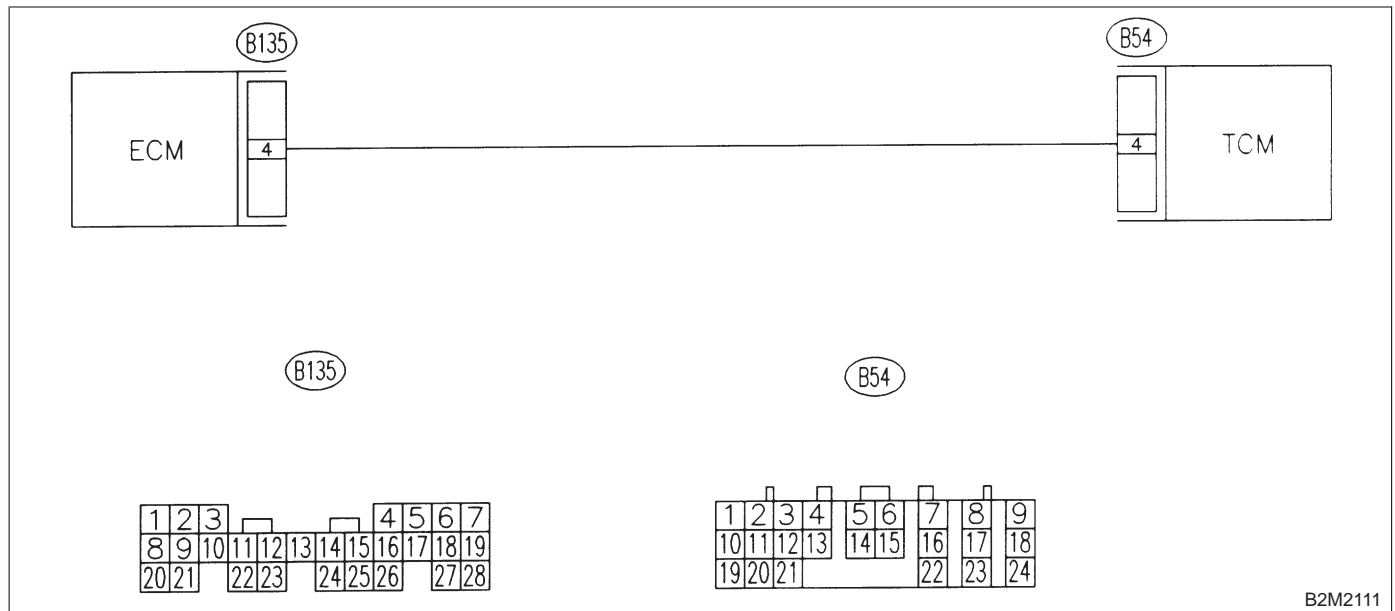
● **DTC DETECTING CONDITION:**

- Two consecutive driving cycles with fault

CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to 2-7 [T3D0].> and INSPECTION MODE <Ref. to 2-7 [T3E0].>

● **WIRING DIAGRAM:**



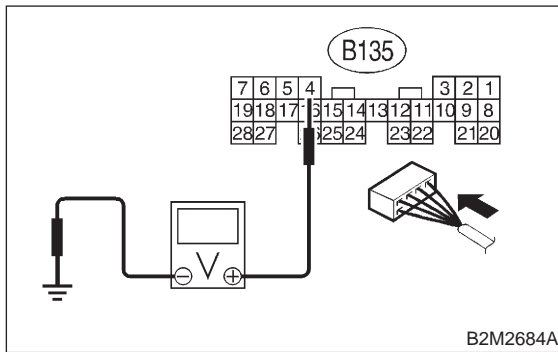
B2M2111

10CT1 : CHECK HARNESS BETWEEN ECM AND TCM CONNECTOR.

- 1) Turn ignition switch to ON.
- 2) Measure voltage between ECM and chassis ground.

Connector & terminal

(B135) No. 4 (+) — Chassis ground (-):



- CHECK** : *Is the voltage less than 1 V?*
- YES** : Go to step **10CT2**.
- NO** : Even if MIL lights up, the circuit has returned to a normal condition at this time.

NOTE:

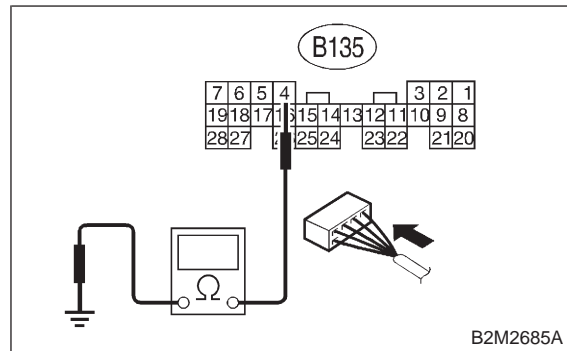
- In this case, repair the following:
- Poor contact in ECM connector
 - Poor contact in TCM connector

10CT2 : CHECK HARNESS BETWEEN ECM AND TCM CONNECTOR.

- 1) Turn ignition switch to OFF.
- 2) Disconnect connector from ECM and TCM.
- 3) Measure resistance of harness between ECM and chassis ground.

Connector & terminal

(B135) No. 4 — Chassis ground:



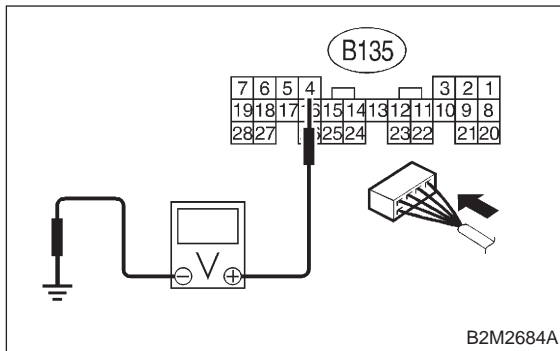
- CHECK** : *Is the resistance less than 10 Ω?*
- YES** : Repair ground short circuit in harness between ECM and TCM connector.
- NO** : Go to step **10CT3**.

10CT3 : CHECK OUTPUT SIGNAL FOR ECM.

- 1) Connect connector to ECM.
- 2) Turn ignition switch to ON.
- 3) Measure voltage between ECM and chassis ground.

Connector & terminal

(B135) No. 4 (+) — Chassis ground (-):



- CHECK** : **Is the voltage more than 5 V?**
- YES** : Replace TCM. <Ref. to 3-2 [W22A0].>
- NO** : Repair poor contact in ECM connector.

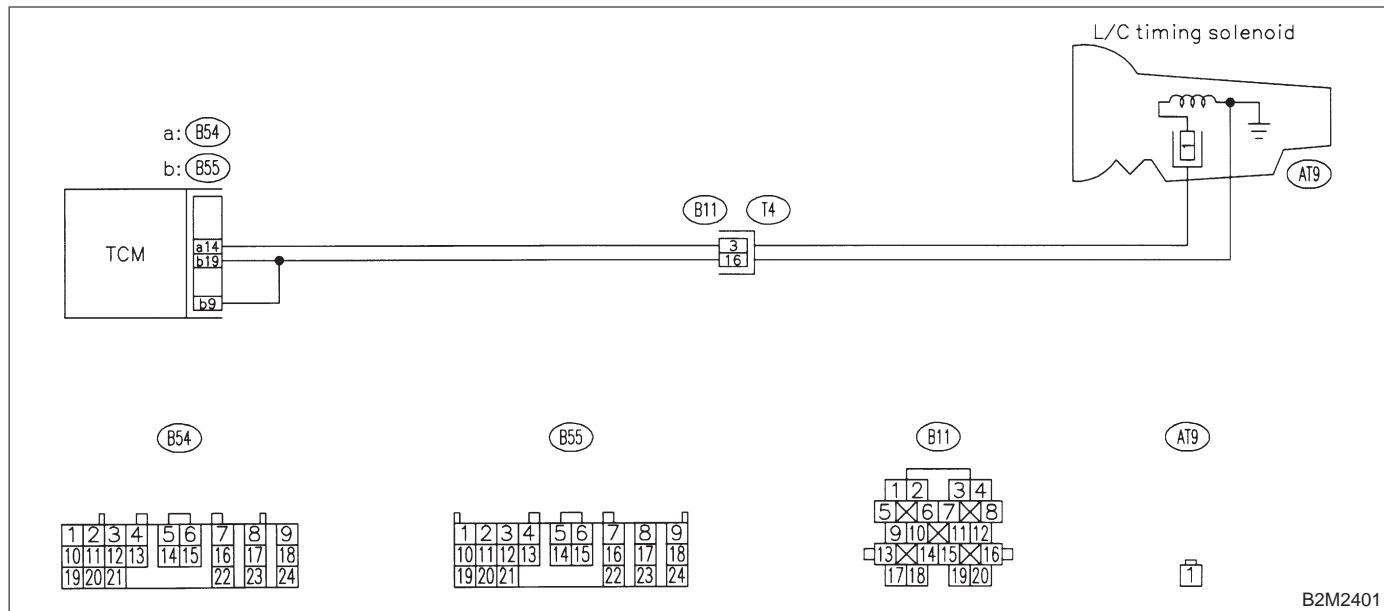
CU: DTC P1703 — LOW CLUTCH TIMING CONTROL SOLENOID VALVE CIRCUIT MALFUNCTION —

- **DTC DETECTING CONDITION:**
 - Two consecutive driving cycles with fault

CAUTION:

After repair or replacement of faulty parts, conduct **CLEAR MEMORY MODE** <Ref. to 2-7 [T3D0].> and **INSPECTION MODE** <Ref. to 2-7 [T3E0].>

● **WIRING DIAGRAM:**



B2M2401

10CU1 : CHECK DTC P1703 ON DISPLAY.

- CHECK** : Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P1703?
- YES** : Check low clutch timing control solenoid valve circuit. <Ref. to 3-2 [T8M0].>
- NO** : It is not necessary to inspect DTC P1703.

CV: DTC P1704 — 2-4 BRAKE TIMING CONTROL SOLENOID VALVE CIRCUIT MALFUNCTION —

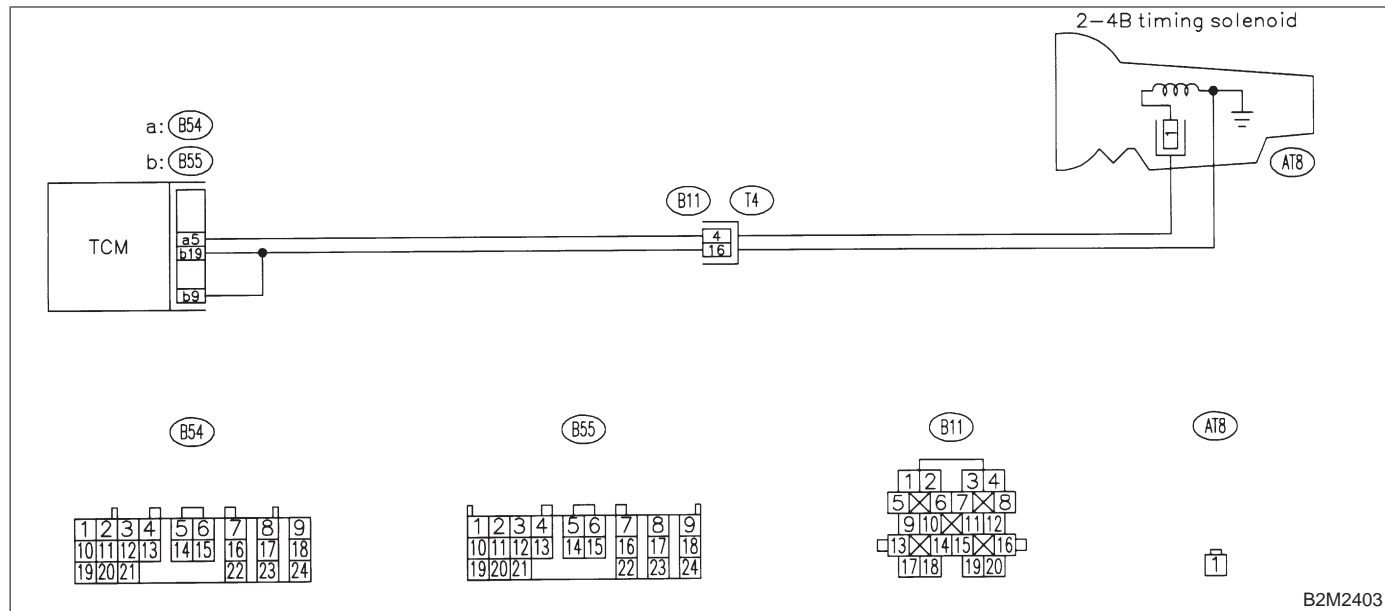
● **DTC DETECTING CONDITION:**

- Two consecutive driving cycles with fault

CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to 2-7 [T3D0].> and INSPECTION MODE <Ref. to 2-7 [T3E0].>

● **WIRING DIAGRAM:**



10CV1 : CHECK DTC P1704 ON DISPLAY.

- CHECK** : Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P1704?
- YES** : Check 2-4 brake timing control solenoid valve circuit. <Ref. to 3-2 [T8N0].>
- NO** : It is not necessary to inspect DTC P1704.

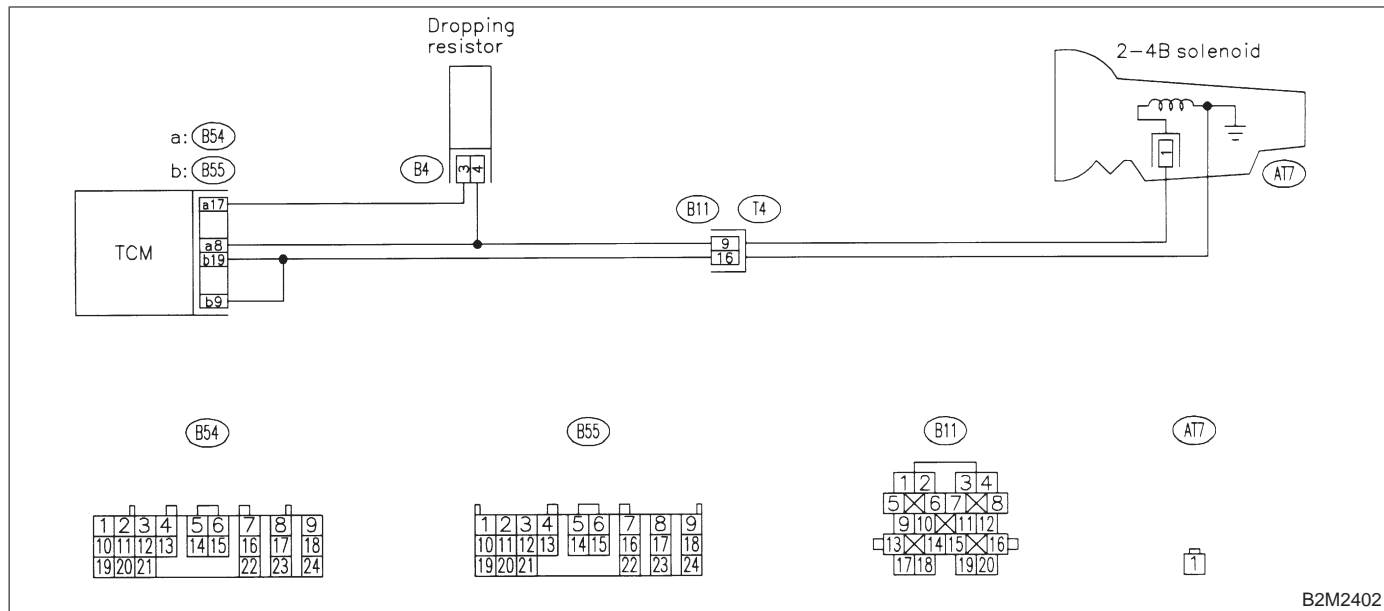
CW: DTC P1705 — 2-4 BRAKE PRESSURE CONTROL SOLENOID VALVE (DUTY SOLENOID D) CIRCUIT MALFUNCTION —

- **DTC DETECTING CONDITION:**
 - Two consecutive driving cycles with fault

CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to 2-7 [T3D0].> and INSPECTION MODE <Ref. to 2-7 [T3E0].>

● **WIRING DIAGRAM:**



10CW1 : CHECK DTC P1705 ON DISPLAY.

- CHECK** : Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P1705?
- YES** : Check 2-4 brake pressure control solenoid valve circuit. <Ref. to 3-2 [T8P0].>
- NO** : It is not necessary to inspect DTC P1705.

CX: DTC P1722 — AUTOMATIC TRANSMISSION DIAGNOSIS INPUT SIGNAL CIRCUIT HIGH INPUT —

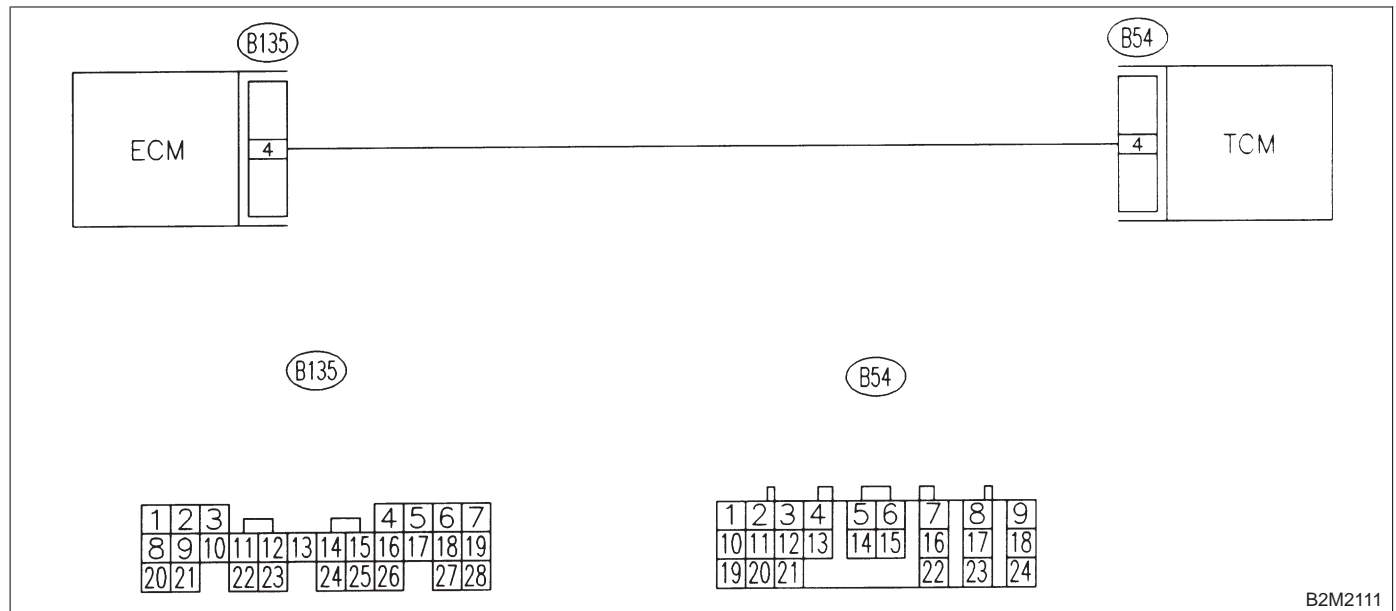
● **DTC DETECTING CONDITION:**

- Two consecutive driving cycles with fault

CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to 2-7 [T3D0].> and INSPECTION MODE <Ref. to 2-7 [T3E0].>

● **WIRING DIAGRAM:**

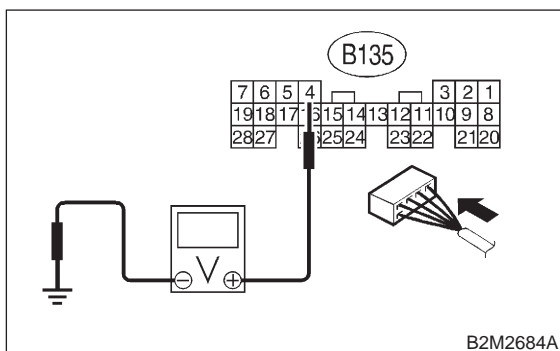


B2M2111

10CX1 : CHECK HARNESS BETWEEN ECM AND TCM CONNECTOR.

- 1) Turn ignition switch to ON.
- 2) Measure voltage between ECM and chassis ground.

Connector & terminal
(B135) No. 4 (+) — Chassis ground (-):

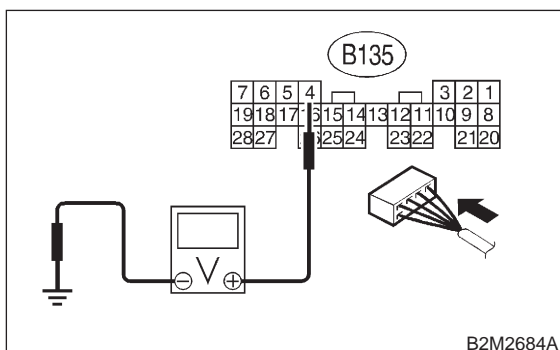


- CHECK** : *Is the voltage more than 10 V?*
- YES** : Repair battery short circuit in harness between ECM and TCM connector. After repair, replace ECM. <Ref. to 2-7 [W15A0].>
- NO** : Go to step **10CX2**.

10CX2 : CHECK HARNESS BETWEEN ECM AND TCM CONNECTOR.

Measure voltage between ECM connector and chassis ground.

Connector & terminal
(B135) No. 4 (+) — Chassis ground (-):

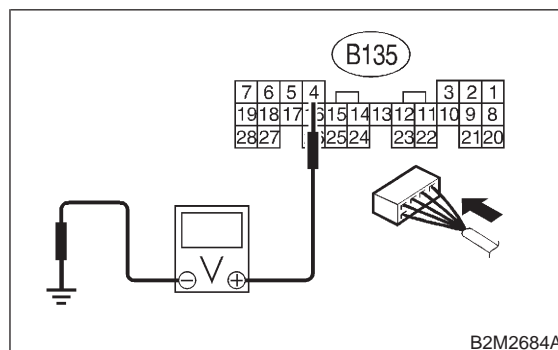


- CHECK** : *Is the voltage more than 4 V?*
- YES** : Go to step **10CX5**.
- NO** : Go to step **10CX3**.

10CX3 : CHECK HARNESS BETWEEN ECM AND TCM CONNECTOR.

Measure voltage between ECM connector and chassis ground.

Connector & terminal
(B135) No. 4 (+) — Chassis ground (-):



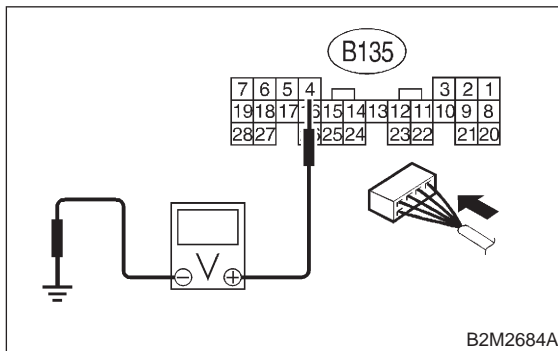
- CHECK** : *Is the voltage less than 1 V?*
- YES** : Repair poor contact in ECM connector.
- NO** : Go to step **10CX4**.

10CX4 : CHECK OUTPUT SIGNAL FROM ECM.

Measure voltage between ECM and chassis ground.

Connector & terminal

(B135) No. 4 (+) — Chassis ground (-):



CHECK : **Does the voltage change from 1 V to 4 V while monitoring the value with voltage meter?**

YES : Even if MIL lights up, the circuit has returned to a normal condition at this time.

NOTE:

In this case, repair the following:

- Poor contact in ECM connector
- Poor contact in TCM connector

NO : Contact with SOA service.

NOTE:

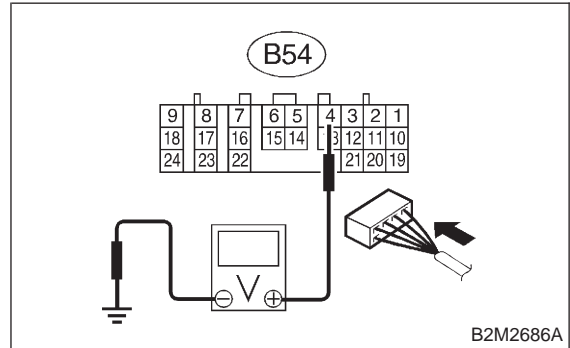
Inspection by DTM is required, because probable cause is deterioration of multiple parts.

10CX5 : CHECK HARNESS BETWEEN ECM AND TCM CONNECTOR.

Measure voltage between TCM and chassis ground.

Connector & terminal

(B54) No. 4 (+) — Chassis ground (-):



CHECK : **Is the voltage more than 4 V?**

YES : Go to step 10CX6.

NO : Repair open circuit in harness between ECM and TCM connector.

10CX6 : CHECK POOR CONTACT.

Check poor contact in TCM connector. <Ref. to FOREWORD [T3C1].>

CHECK : **Is there poor contact in TCM connector?**

YES : Repair poor contact in TCM connector.

NO : Check TCM power supply line and grounding line.

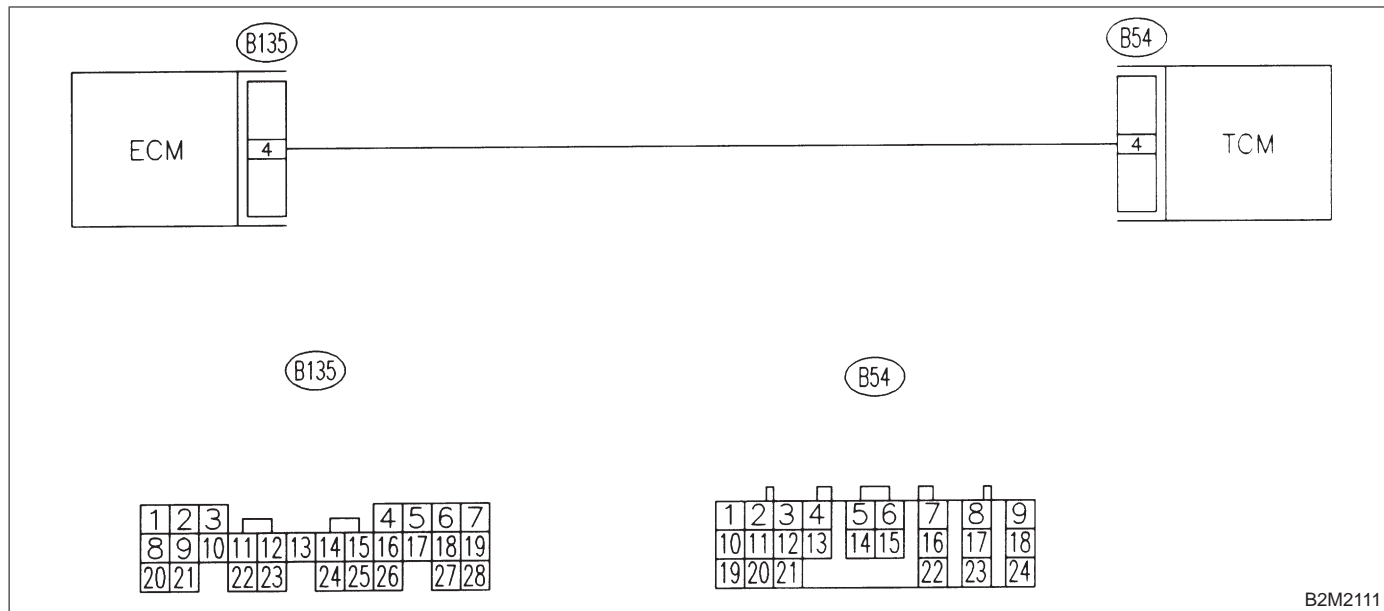
CY: DTC P1742 — AUTOMATIC TRANSMISSION DIAGNOSIS INPUT SIGNAL CIRCUIT MALFUNCTION —

- **DTC DETECTING CONDITION:**
 - Two consecutive driving cycles with fault

CAUTION:

After repair or replacement of faulty parts, conduct **CLEAR MEMORY MODE** <Ref. to 2-7 [T3D0].> and **INSPECTION MODE** <Ref. to 2-7 [T3E0].>

● **WIRING DIAGRAM:**



10CY1 : CHECK DRIVING CONDITION.

- 1) Start and warm-up the engine until the radiator fan makes one complete rotation.
- 2) Drive the vehicle.

CHECK : *Is AT shift control functioning properly?*

YES : Go to step **10CY2**.

NO : Replace TCM. <Ref. to 3-2 [W22A0].>

10CY2 : CHECK ACCESSORY.

CHECK : *Are car phone and/or CB installed on vehicle?*

YES : Repair grounding line of car phone or CB system.

NO : Replace TCM. <Ref. to 3-2 [W22A0].>

11. Diagnostics Chart with Trouble Code for Except 2200 cc California Spec. Vehicles

A: DIAGNOSTIC TROUBLE CODE (DTC) LIST

DTC No.	Item	Index
P0101	Mass air flow sensor circuit range/performance problem (high input)	<Ref. to 2-7 [T11B0].>
P0102	Mass air flow sensor circuit low input	<Ref. to 2-7 [T11C0].>
P0103	Mass air flow sensor circuit high input	<Ref. to 2-7 [T11D0].>
P0106	Pressure sensor circuit range/performance problem	<Ref. to 2-7 [T11E0].>
P0107	Pressure sensor circuit low input	<Ref. to 2-7 [T11F0].>
P0108	Pressure sensor circuit high input	<Ref. to 2-7 [T11G0].>
P0116	Engine coolant temperature sensor circuit low input	<Ref. to 2-7 [T11H0].>
P0117	Engine coolant temperature sensor circuit high input	<Ref. to 2-7 [T11I0].>
P0121	Throttle position sensor circuit range/performance problem (high input)	<Ref. to 2-7 [T11J0].>
P0122	Throttle position sensor circuit low input	<Ref. to 2-7 [T11K0].>
P0123	Throttle position sensor circuit high input	<Ref. to 2-7 [T11L0].>
P0125	Insufficient coolant temperature for closed loop fuel control	<Ref. to 2-7 [T11M0].>
P0130	Front oxygen sensor circuit malfunction	<Ref. to 2-7 [T11N0].>
P0133	Front oxygen sensor circuit slow response	<Ref. to 2-7 [T11O0].>
P0135	Front oxygen sensor heater circuit malfunction	<Ref. to 2-7 [T11P0].>
P0136	Rear oxygen sensor circuit malfunction	<Ref. to 2-7 [T11Q0].>
P0139	Rear oxygen sensor circuit slow response	<Ref. to 2-7 [T11R0].>
P0141	Rear oxygen sensor heater circuit malfunction	<Ref. to 2-7 [T11S0].>
P0170	Fuel trim malfunction	<Ref. to 2-7 [T11T0].>
P0181	Fuel temperature sensor A circuit range/performance problem	<Ref. to 2-7 [T11U0].>
P0182	Fuel temperature sensor A circuit low input	<Ref. to 2-7 [T11V0].>
P0183	Fuel temperature sensor A circuit high input	<Ref. to 2-7 [T11W0].>
P0301	Cylinder 1 misfire detected	<Ref. to 2-7 [T11X0].>
P0302	Cylinder 2 misfire detected	<Ref. to 2-7 [T11Y0].>
P0303	Cylinder 3 misfire detected	<Ref. to 2-7 [T11Z0].>

DTC No.	Item	Index
P0304	Cylinder 4 misfire detected	<Ref. to 2-7 [T11AA0].>
P0325	Knock sensor circuit high input	<Ref. to 2-7 [T11AB0].>
P0335	Crankshaft position sensor circuit malfunction	<Ref. to 2-7 [T11AC0].>
P0336	Crankshaft position sensor circuit range/performance problem	<Ref. to 2-7 [T11AD0].>
P0340	Camshaft position sensor circuit malfunction	<Ref. to 2-7 [T11AE0].>
P0341	Camshaft position sensor circuit range/performance problem	<Ref. to 2-7 [T11AF0].>
P0420	Catalyst system efficiency below threshold	<Ref. to 2-7 [T11AG0].>
P0440	Evaporative emission control system malfunction	<Ref. to 2-7 [T11AH0].>
P0443	Evaporative emission control system purge control valve circuit low input	<Ref. to 2-7 [T11AI0].>
P0446	Evaporative emission control system vent control low input	<Ref. to 2-7 [T11AJ0].>
P0451	Evaporative emission control system pressure sensor range/performance problem	<Ref. to 2-7 [T11AK0].>
P0452	Evaporative emission control system pressure sensor low input	<Ref. to 2-7 [T11AL0].>
P0453	Evaporative emission control system pressure sensor high input	<Ref. to 2-7 [T11AM0].>
P0461	Fuel level sensor circuit range/performance problem	<Ref. to 2-7 [T11AN0].>
P0462	Fuel level sensor circuit low input	<Ref. to 2-7 [T11AO0].>
P0463	Fuel level sensor circuit high input	<Ref. to 2-7 [T11AP0].>
P0480	Cooling fan relay 1 circuit low input	<Ref. to 2-7 [T11AQ0].>
P0483	Cooling fan function problem	<Ref. to 2-7 [T11AR0].>
P0500	Vehicle speed sensor malfunction	<Ref. to 2-7 [T11AS0].>
P0506	Idle control system RPM lower than expected	<Ref. to 2-7 [T11AT0].>
P0507	Idle control system RPM higher than expected	<Ref. to 2-7 [T11AU0].>
P0601	Internal control module memory check sum error	<Ref. to 2-7 [T11AV0].>
P0703	Brake switch input malfunction	<Ref. to 2-7 [T11AW0].>
P0705	Transmission range sensor circuit malfunction	<Ref. to 2-7 [T11AX0].>
P0710	Transmission fluid temperature sensor circuit malfunction	<Ref. to 2-7 [T11AY0].>
P0715	Torque converter turbine speed sensor circuit malfunction	<Ref. to 2-7 [T11AZ0].>
P0720	Output speed sensor (vehicle speed sensor 2) circuit malfunction	<Ref. to 2-7 [T11BA0].>

DTC No.	Item	Index
P0725	Engine speed input circuit malfunction	<Ref. to 2-7 [T11BB0].>
P0731	Gear 1 incorrect ratio	<Ref. to 2-7 [T11BC0].>
P0732	Gear 2 incorrect ratio	<Ref. to 2-7 [T11BD0].>
P0733	Gear 3 incorrect ratio	<Ref. to 2-7 [T11BE0].>
P0734	Gear 4 incorrect ratio	<Ref. to 2-7 [T11BF0].>
P0740	Torque converter clutch system malfunction	<Ref. to 2-7 [T11BG0].>
P0743	Torque converter clutch system (Solenoid B) electrical	<Ref. to 2-7 [T11BH0].>
P0748	Pressure control solenoid (Duty solenoid A) electrical	<Ref. to 2-7 [T11BI0].>
P0753	Shift solenoid A (Shift solenoid 1) electrical	<Ref. to 2-7 [T11BJ0].>
P0758	Shift solenoid B (Shift solenoid 2) electrical	<Ref. to 2-7 [T11BK0].>
P1100	Starter switch circuit low input	<Ref. to 2-7 [T11BL0].>
P1101	Neutral position switch circuit low input [MT vehicles]	<Ref. to 2-7 [T11BM0].>
P1101	Neutral position switch circuit high input [AT vehicles]	<Ref. to 2-7 [T11BN0].>
P1102	Pressure sources switching solenoid valve circuit low input	<Ref. to 2-7 [T11BO0].>
P1103	Engine torque control signal 1 circuit malfunction	<Ref. to 2-7 [T11BP0].>
P1106	Engine torque control signal 2 circuit malfunction	<Ref. to 2-7 [T11BQ0].>
P1115	Engine torque control cut signal circuit high input	<Ref. to 2-7 [T11BR0].>
P1116	Engine torque control cut signal circuit low input	<Ref. to 2-7 [T11BS0].>
P1120	Starter switch circuit high input	<Ref. to 2-7 [T11BT0].>
P1121	Neutral position switch circuit high input [MT vehicles]	<Ref. to 2-7 [T11BU0].>
P1121	Neutral position switch circuit low input [AT vehicles]	<Ref. to 2-7 [T11BV0].>
P1122	Pressure sources switching solenoid valve circuit high input	<Ref. to 2-7 [T11BW0].>
P1141	Mass air flow sensor circuit range/performance problem (low input)	<Ref. to 2-7 [T11BX0].>
P1142	Throttle position sensor circuit range/performance problem (low input)	<Ref. to 2-7 [T11BY0].>
P1143	Pressure sensor circuit range/performance problem (low input)	<Ref. to 2-7 [T11BZ0].>
P1144	Pressure sensor circuit range/performance problem (high input)	<Ref. to 2-7 [T11CA0].>
P1150	Front oxygen sensor heater circuit high input	<Ref. to 2-7 [T11CB0].>

DTC No.	Item	Index
P1151	Rear oxygen sensor heater circuit high input	<Ref. to 2-7 [T11CC0].>
P1325	Knock sensor circuit low input	<Ref. to 2-7 [T11CD0].>
P1400	Fuel tank pressure control solenoid valve circuit low input	<Ref. to 2-7 [T11CE0].>
P1420	Fuel tank pressure control solenoid valve circuit high input	<Ref. to 2-7 [T11CF0].>
P1422	Evaporative emission control system purge control valve circuit high input	<Ref. to 2-7 [T11CG0].>
P1423	Evaporative emission control system vent control high input	<Ref. to 2-7 [T11CH0].>
P1442	Fuel level sensor circuit range/performance problem 2	<Ref. to 2-7 [T11CI0].>
P1443	Evaporative emission control system vent control function problem	<Ref. to 2-7 [T11CJ0].>
P1507	Idle control system malfunction (fail-safe)	<Ref. to 2-7 [T11CK0].>
P1510	Idle air control solenoid valve signal 1 circuit low input	<Ref. to 2-7 [T11CL0].>
P1511	Idle air control solenoid valve signal 1 circuit high input	<Ref. to 2-7 [T11CM0].>
P1512	Idle air control solenoid valve signal 2 circuit low input	<Ref. to 2-7 [T11CN0].>
P1513	Idle air control solenoid valve signal 2 circuit high input	<Ref. to 2-7 [T11CO0].>
P1514	Idle air control solenoid valve signal 3 circuit low input	<Ref. to 2-7 [T11CP0].>
P1515	Idle air control solenoid valve signal 3 circuit high input	<Ref. to 2-7 [T11CQ0].>
P1516	Idle air control solenoid valve signal 4 circuit low input	<Ref. to 2-7 [T11CR0].>
P1517	Idle air control solenoid valve signal 4 circuit high input	<Ref. to 2-7 [T11CS0].>
P1520	Cooling fan relay 1 circuit high input	<Ref. to 2-7 [T11CT0].>
P1540	Vehicle speed sensor malfunction 2	<Ref. to 2-7 [T11CU0].>
P1560	Back-up voltage circuit malfunction	<Ref. to 2-7 [T11CV0].>
P1700	Throttle position sensor circuit malfunction for automatic transmission	<Ref. to 2-7 [T11CW0].>
P1701	Cruise control set signal circuit malfunction for automatic transmission	<Ref. to 2-7 [T11CX0].>
P1702	Automatic transmission diagnosis input signal circuit low input	<Ref. to 2-7 [T11CY0].>
P1703	Low clutch timing control solenoid valve circuit malfunction	<Ref. to 2-7 [T11CZ0].>
P1704	2-4 brake timing control solenoid valve circuit malfunction	<Ref. to 2-7 [T11DA0].>
P1705	2-4 brake pressure control solenoid valve (Duty solenoid D) circuit malfunction	<Ref. to 2-7 [T11DB0].>
P1722	Automatic transmission diagnosis input signal circuit high input	<Ref. to 2-7 [T11DC0].>

DTC No.	Item	Index
P1742	Automatic transmission diagnosis input signal circuit malfunction	<Ref. to 2-7 [T11DD0].>

MEMO:

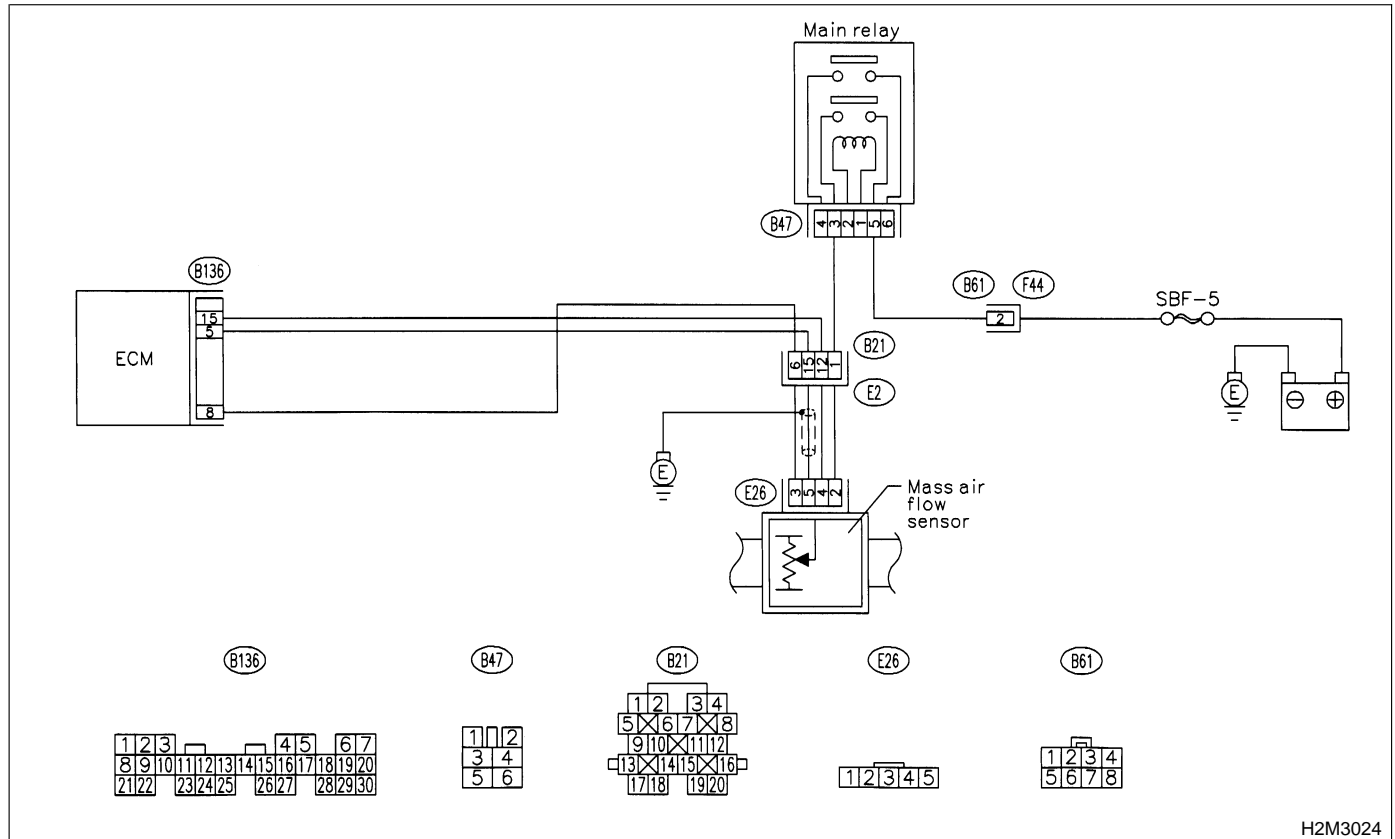
B: DTC P0101 — MASS AIR FLOW SENSOR CIRCUIT RANGE/PERFORMANCE PROBLEM (HIGH INPUT) —

- **DTC DETECTING CONDITION:**
 - Two consecutive driving cycles with fault
- **TROUBLE SYMPTOM:**
 - Erroneous idling
 - Engine stalls.
 - Poor driving performance

CAUTION:

After repair or replacement of faulty parts, conduct **CLEAR MEMORY MODE** <Ref. to 2-7 [T3D0].> and **INSPECTION MODE** <Ref. to 2-7 [T3E0].>

● **WIRING DIAGRAM:**



H2M3024

11B1 : CHECK ANY OTHER DTC ON DISPLAY.

CHECK : Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0102 or P0103?

YES : Inspect DTC P0102 or P0103 using "11. Diagnostics Chart with Trouble Code for Except 2200 cc California Spec. Vehicles". <Ref. to 2-7 [T11A0].>

NOTE:
In this case, it is not necessary to inspect DTC P0101.

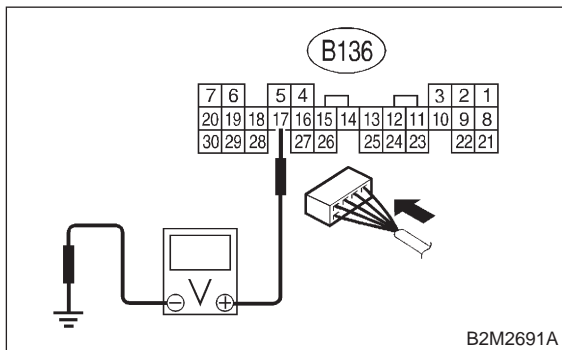
NO : Go to step 11B2.

11B2 : CHECK INPUT SIGNAL FOR ECM.

- 1) Turn ignition switch to ON.
- 2) Measure voltage between ECM connector and chassis ground while throttle valve is fully closed.

Connector & terminal

(B136) No. 17 (+) — Chassis ground (-):



CHECK : **Is the voltage between 0.2 V and 1.0 V?**

YES : Go to step 11B3.

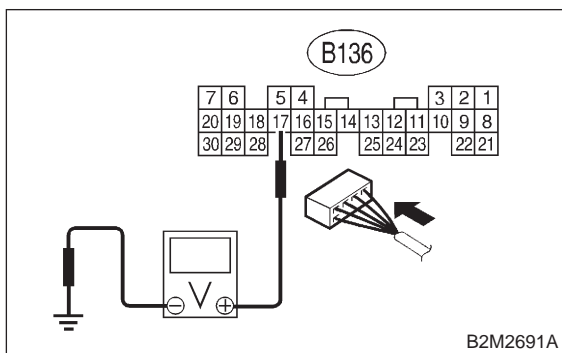
NO : Check throttle position sensor circuit. <Ref. to 2-7 [T11K0].>

11B3 : CHECK INPUT SIGNAL FOR ECM.

Measure voltage between ECM connector and chassis ground while throttle valve is fully opened.

Connector & terminal

(B136) No. 17 (+) — Chassis ground (-):



CHECK : **Is the voltage between 4.2 V and 4.7 V?**

YES : Replace mass air flow sensor. <Ref. to 2-7 [W2A0].>

NO : Check throttle position sensor circuit. <Ref. to 2-7 [T11K0].>

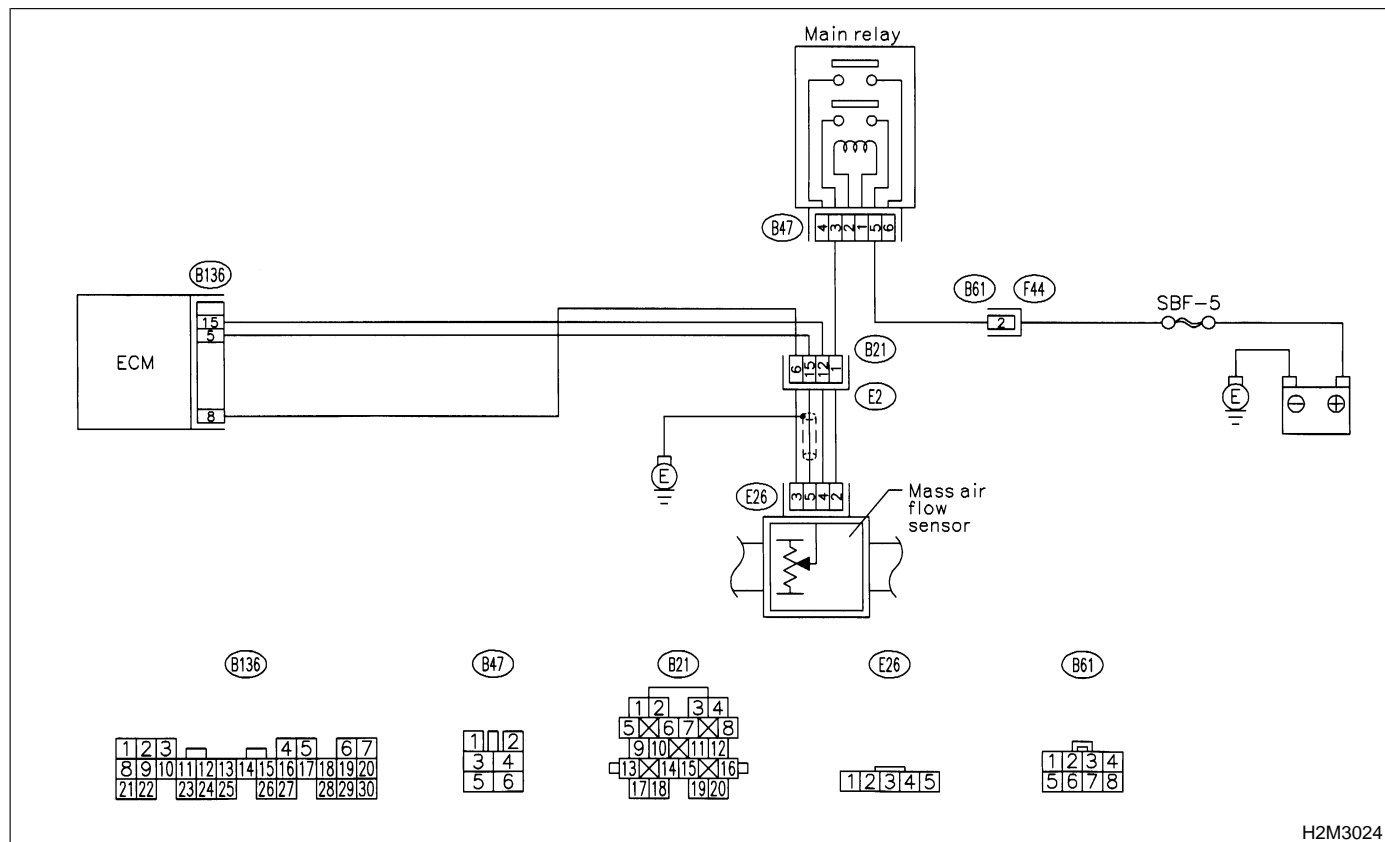
C: DTC P0102 — MASS AIR FLOW SENSOR CIRCUIT LOW INPUT —

- **DTC DETECTING CONDITION:**
 - Immediately at fault recognition
- **TROUBLE SYMPTOM:**
 - Erroneous idling
 - Engine stalls.
 - Poor driving performance

CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to 2-7 [T3D0].> and INSPECTION MODE <Ref. to 2-7 [T3E0].>

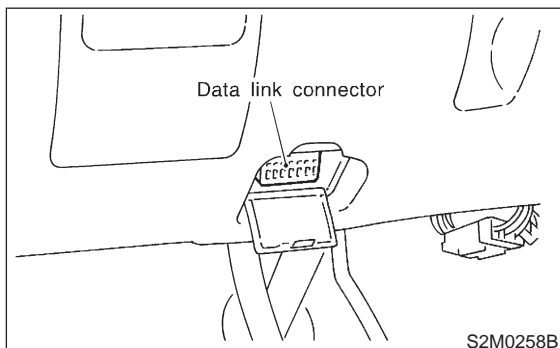
● **WIRING DIAGRAM:**



H2M3024

11C1 : CONNECT SUBARU SELECT MONITOR OR THE OBD-II GENERAL SCAN TOOL, AND READ DATA.

- 1) Turn ignition switch to OFF.
- 2) Connect Subaru Select Monitor or the OBD-II general scan tool to data link connector.



- 3) Turn ignition switch to ON and Subaru Select Monitor or the OBD-II general scan tool switch to ON.
- 4) Start engine.
- 5) Read data of mass air flow sensor signal using Subaru Select Monitor or OBD-II general scan tool.

NOTE:

- Subaru Select Monitor

For detailed operation procedure, refer to the "READ CURRENT DATA SHOWN ON DISPLAY FOR ENGINE". <Ref. to 2-7 [T3C4].>

- OBD-II general scan tool

For detailed operation procedure, refer to the OBD-II General Scan Tool Instruction Manual.

CHECK : *Is the value equal to or more than 0 g/sec (0 lb/min) or 0.3 V and equal to or less than 186 g/sec (25 lb/min) or 5.0 V?*

YES : Even if MIL lights up, the circuit has returned to a normal condition at this time. A temporary poor contact of the connector or harness may be the cause. Repair harness or connector in the mass air flow sensor.

NOTE:

In this case, repair the following:

- Open or ground short circuit in harness between mass air flow sensor and ECM connector
- Poor contact in mass air flow sensor or ECM connector

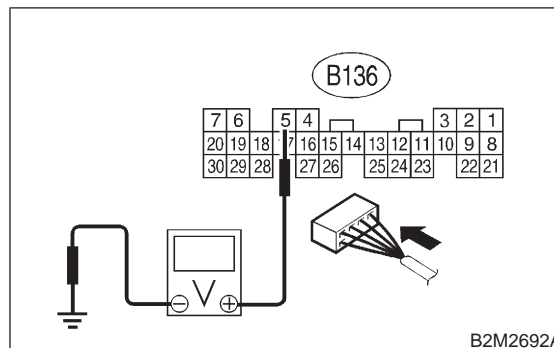
NO : Go to step **11C2**.

11C2 : CHECK INPUT SIGNAL FOR ECM.

Measure voltage between ECM connector and chassis ground while engine is idling.

Connector & terminal

(B136) No. 5 (+) — Chassis ground (-):



CHECK : *Is the voltage less than 0.3 V?*

YES : Go to step **11C4**.

NO : Go to step **11C3**.

11C3 : CHECK INPUT SIGNAL FOR ECM. (USING SUBARU SELECT MONITOR)

Measure voltage between ECM connector and chassis ground while engine is idling.

CHECK : *Does the voltage change more than 0.3 V by shaking harness and connector of ECM while monitoring the value with Subaru Select Monitor?*

YES : Repair poor contact in ECM connector.

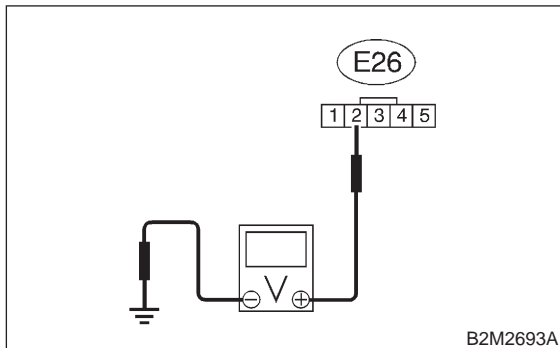
NO : Contact with SOA service.

NOTE:

Inspection by DTM is required, because probable cause is deterioration of multiple parts.

11C4 : CHECK POWER SUPPLY TO MASS AIR FLOW SENSOR.

- 1) Turn ignition switch to OFF.
- 2) Disconnect connector from mass air flow sensor.
- 3) Turn ignition switch to ON.
- 4) Measure voltage between mass air flow sensor connector and engine ground.

Connector & terminal
(E26) No. 2 (+) — Engine ground (-):

CHECK : *Is the voltage more than 10 V?*
YES : Go to step 11C5.

NO : Repair harness and connector.

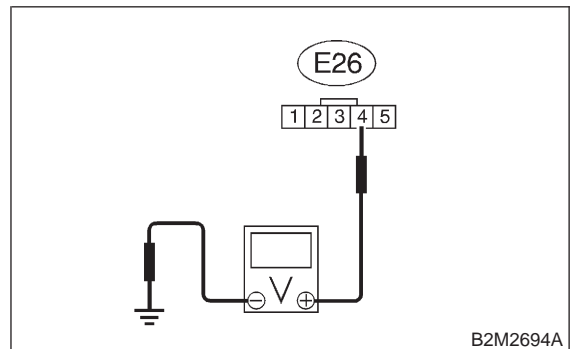
NOTE:

In this case, repair the following:

- Open or ground short circuit in harness between main relay and mass air flow sensor connector
- Poor contact in main relay connector
- Poor contact in coupling connector (B21)

11C5 : CHECK POWER SUPPLY TO MASS AIR FLOW SENSOR.

Measure voltage between mass air flow sensor connector and engine ground.

Connector & terminal
(E26) No. 4 (+) — Engine ground (-):

CHECK : *Is the voltage more than 4 V?*
YES : Go to step 11C6.

NO : Repair harness and connector.

NOTE:

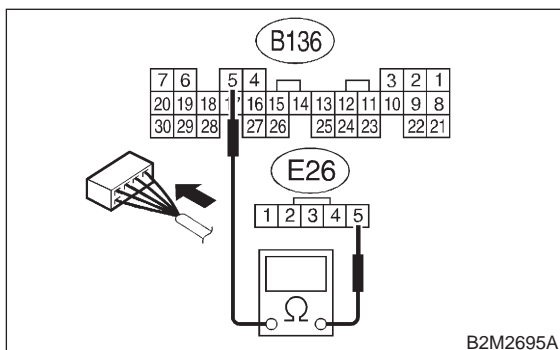
In this case, repair the following:

- Open or ground short circuit in harness between ECM and mass air flow sensor connector
- Poor contact in ECM connector
- Poor contact in coupling connector (B21)

11C6 : CHECK HARNESS BETWEEN ECM AND MASS AIR FLOW SENSOR CONNECTOR.

- 1) Turn ignition switch to OFF.
- 2) Disconnect connector from ECM.
- 3) Measure resistance of harness between ECM and mass air flow sensor connector.

Connector & terminal
(B136) No. 5 — (E26) No. 5:



- CHECK** : *Is the resistance less than 1 Ω?*
- YES** : Go to step 11C7.
- NO** : Repair harness and connector.

NOTE:

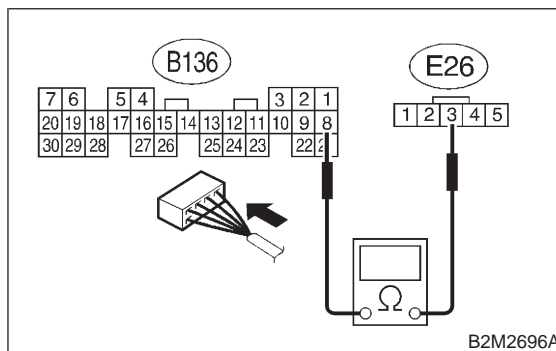
In this case, repair the following:

- Open circuit in harness between ECM and mass air flow sensor connector
- Poor contact in mass air flow sensor connector
- Poor contact in ECM connector
- Poor contact in coupling connector (B21)

11C7 : CHECK HARNESS BETWEEN ECM AND MASS AIR FLOW SENSOR CONNECTOR.

Measure resistance of harness between ECM and mass air flow sensor connector.

Connector & terminal
(B136) No. 8 — (E26) No. 3:



- CHECK** : *Is the resistance less than 1 Ω?*
- YES** : Go to step 11C8.
- NO** : Repair harness and connector.

NOTE:

In this case, repair the following:

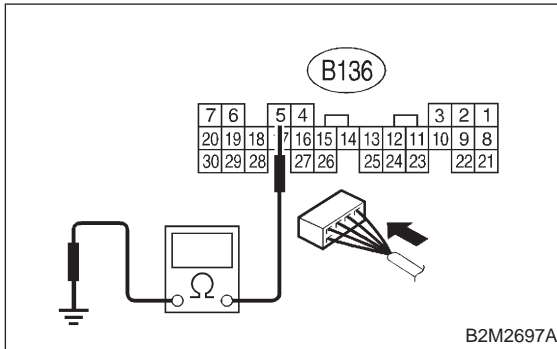
- Open circuit in harness between ECM and mass air flow sensor connector
- Poor contact in mass air flow sensor connector
- Poor contact in ECM connector
- Poor contact in coupling connector (B21)

11C8 : CHECK HARNESS BETWEEN ECM AND MASS AIR FLOW SENSOR CONNECTOR.

Measure resistance of harness between ECM connector and chassis ground.

Connector & terminal

(B136) No. 5 — Chassis ground:



- CHECK** : **Is the resistance more than 1 MΩ?**
- YES** : Replace mass air flow sensor. <Ref. to 2-7 [W2A0].>
- NO** : Repair ground short circuit in harness between ECM and mass air flow sensor connector.

MEMO:

D: DTC P0103 — MASS AIR FLOW SENSOR CIRCUIT HIGH INPUT —

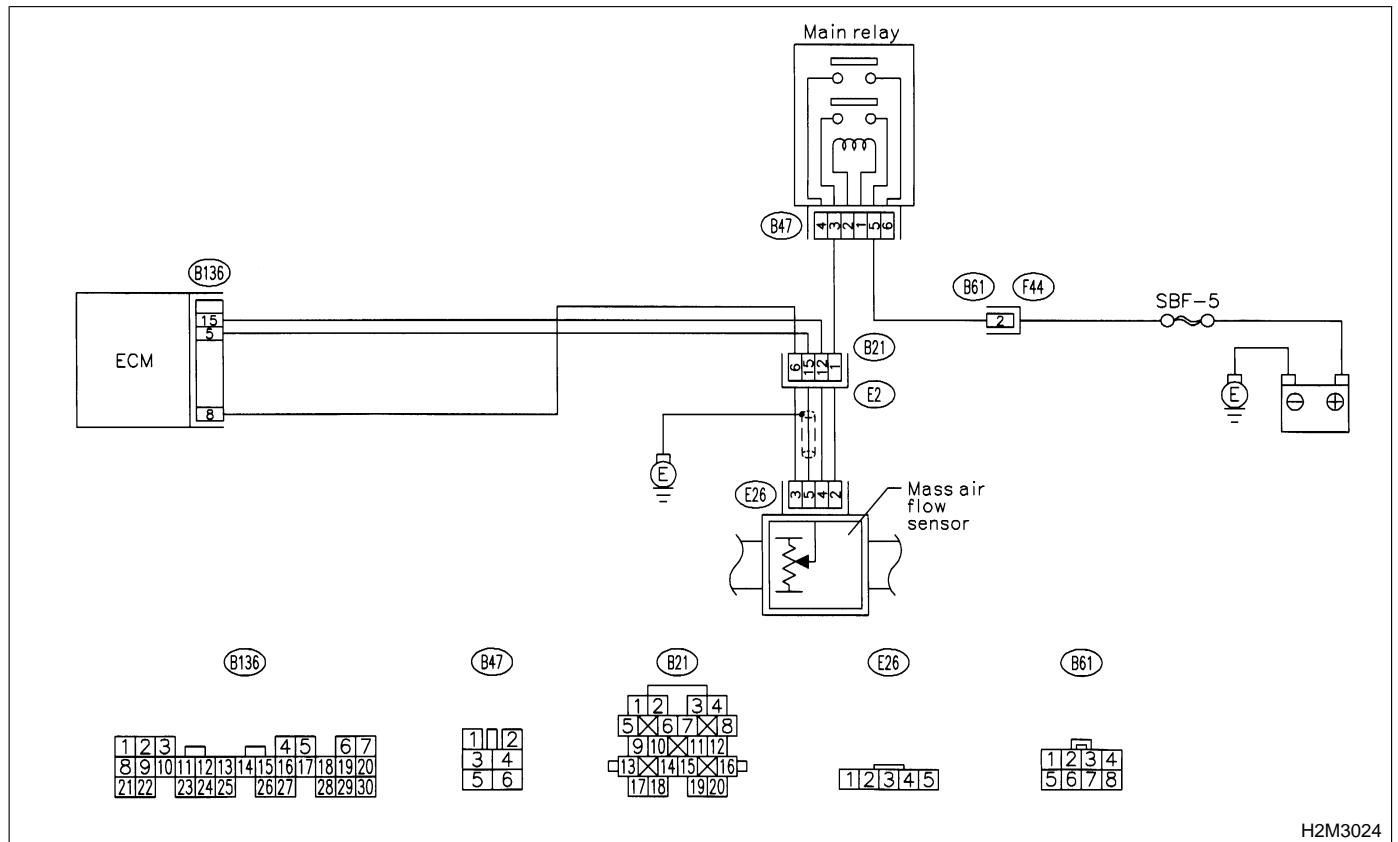
- **DTC DETECTING CONDITION:**
 - Immediately at fault recognition

- **TROUBLE SYMPTOM:**
 - Erroneous idling
 - Engine stalls.
 - Poor driving performance

CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to 2-7 [T3D0].> and INSPECTION MODE <Ref. to 2-7 [T3E0].>

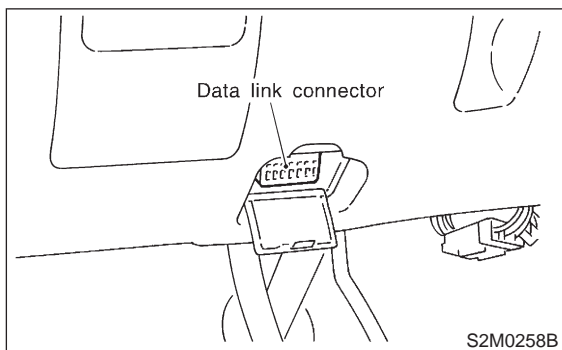
● **WIRING DIAGRAM:**



H2M3024

11D1 : CONNECT SUBARU SELECT MONITOR OR THE OBD-II GENERAL SCAN TOOL, AND READ DATA.

- 1) Turn ignition switch to OFF.
- 2) Connect Subaru Select Monitor or the OBD-II general scan tool to data link connector.



- 3) Turn ignition switch to ON and Subaru Select Monitor or the OBD-II general scan tool switch to ON.
- 4) Start engine.
- 5) Read data of mass air flow sensor signal using Subaru Select Monitor or OBD-II general scan tool.

NOTE:

- Subaru Select Monitor

For detailed operation procedure, refer to the "READ CURRENT DATA SHOWN ON DISPLAY FOR ENGINE". <Ref. to 2-7 [T3C4].>

- OBD-II general scan tool

For detailed operation procedures, refer to the OBD-II General Scan Tool Instruction Manual.

CHECK : *Is the value equal to or more than 0 g/sec (0 lb/min) or 0.3 V and equal to or less than 186 g/sec (25 lb/min) or 5.0 V?*

YES : Even if MIL lights up, the circuit has returned to a normal condition at this time.

NO : Go to step 11D2.

11D2 : CHECK HARNESS BETWEEN ECM AND MASS AIR FLOW SENSOR CONNECTOR.

- 1) Turn ignition switch to OFF and Subaru Select Monitor or the OBD-II general scan tool switch to OFF.
- 2) Disconnect connector from mass air flow sensor.
- 3) Turn ignition switch to ON and Subaru Select Monitor or the OBD-II general scan tool switch to ON.
- 4) Read data of mass air flow sensor signal using Subaru Select Monitor or OBD-II general scan tool.

NOTE:

- Subaru Select Monitor

For detailed operation procedure, refer to the "READ CURRENT DATA SHOWN ON DISPLAY FOR ENGINE". <Ref. to 2-7 [T3C4].>

- OBD-II general scan tool

For detailed operation procedures, refer to the OBD-II General Scan Tool Instruction Manual.

CHECK : *Is the value more than 186 g/sec (25 lb/min) or 5 V?*

YES : Repair battery short circuit in harness between mass air flow sensor and ECM connector. After repair, replace ECM. <Ref. to 2-7 [W15A0].>

NO : Replace mass air flow sensor. <Ref. to 2-7 [W2A0].>

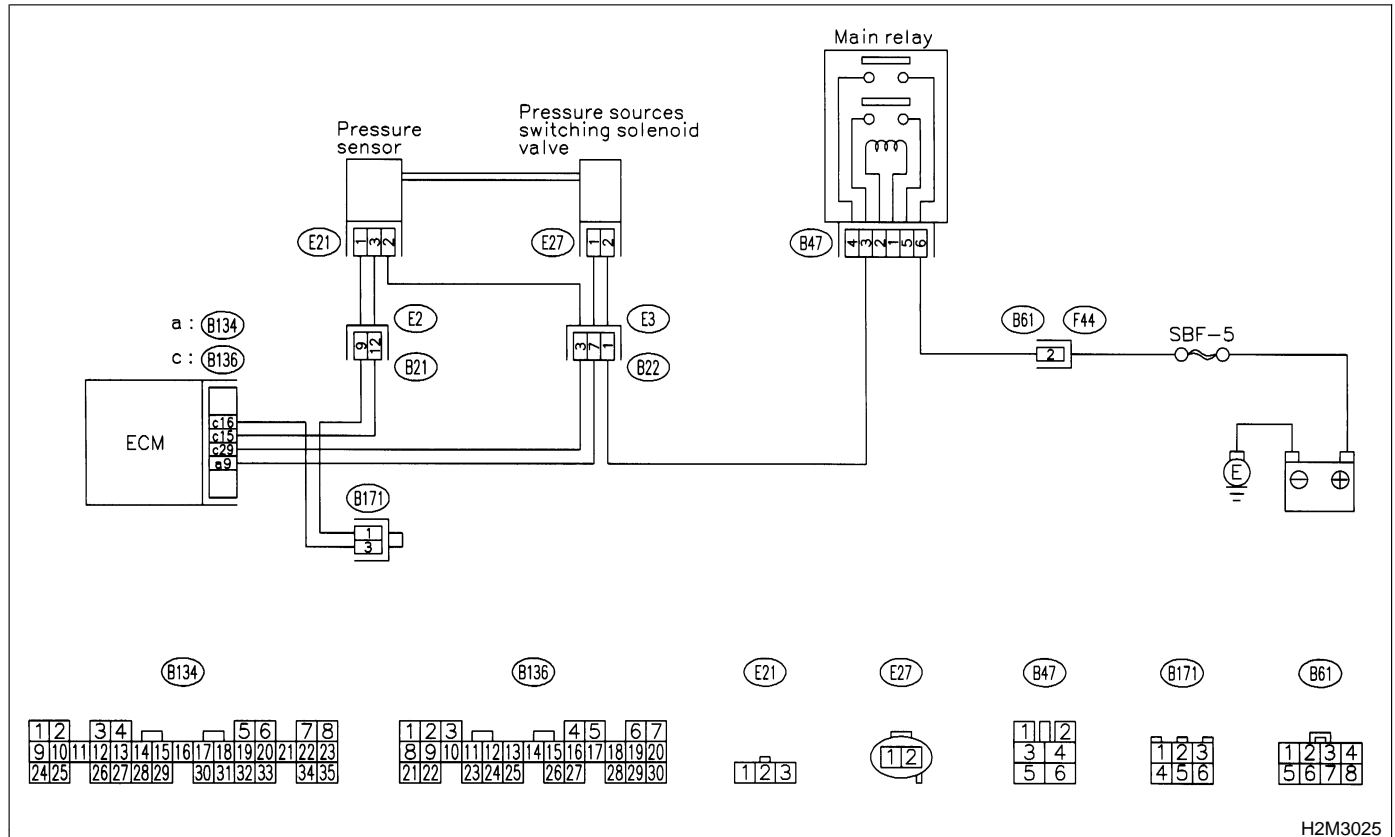
E: DTC P0106 — PRESSURE SENSOR CIRCUIT RANGE/PERFORMANCE PROBLEM —

- **DTC DETECTING CONDITION:**
 - Two consecutive driving cycles with fault

CAUTION:

After repair or replacement of faulty parts, conduct **CLEAR MEMORY MODE** <Ref. to 2-7 [T3D0].> and **INSPECTION MODE** <Ref. to 2-7 [T3E0].>

● **WIRING DIAGRAM:**



11E1 : CHECK ANY OTHER DTC ON DISPLAY.

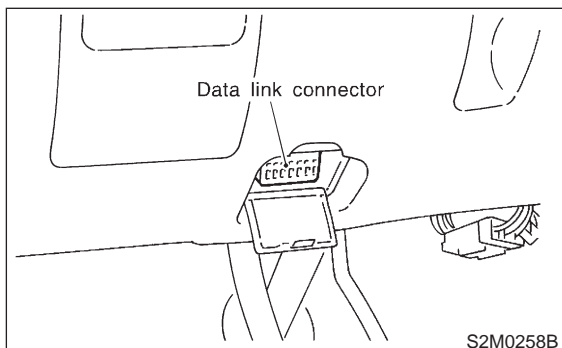
NOTE:

In this case, it is not necessary to inspect DTC P0106.

- CHECK** : Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0107, P0108, P1102 OR P1122?
- YES** : Inspect DTC P0107, P0108, P1102 OR P1122 using "11. Diagnostics Chart with Trouble Code for Except 2200 cc California Spec. Vehicles". <Ref. to 2-7 [T11A0].>
- NO** : Go to step **11E2**.

11E2 : CHECK IDLE SWITCH SIGNAL.

- 1) Turn ignition switch to OFF.
- 2) Connect Subaru Select Monitor to data link connector.



- 3) Turn ignition switch to ON and Subaru Select Monitor switch to ON.
- 4) Operate the LED operation mode for engine using Subaru Select Monitor.

NOTE:

- Subaru Select Monitor

For detailed operation procedure, refer to the "LED OPERATION MODE FOR ENGINE". <Ref. to 2-7 [T3C8].>

CHECK : *Does the LED of {Idle Switch Signal} come on?*

YES : Go to step 11E3.

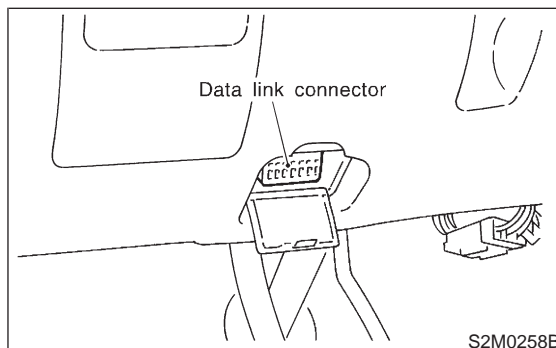
NO : Check throttle position sensor circuit. <Ref. to 2-7 [T11K0].>

NOTE:

In this case, it is not necessary to inspect DTC P0106.

11E3 : CHECK DATA FOR CONTROL.

- 1) Turn ignition switch to OFF.
- 2) Connect Subaru Select Monitor or the OBD-II general scan tool to data link connector.



- 3) Turn ignition switch ON and Subaru Select Monitor or the OBD-II general scan tool switch ON.
- 4) Start engine.
- 5) Read data of intake manifold absolute pressure signal using Subaru Select Monitor or OBD-II general scan tool.

NOTE:

- Subaru Select Monitor

For detailed operation procedure, refer to the "READ CURRENT DATA SHOWN ON DISPLAY FOR ENGINE". <Ref. to 2-7 [T3C4].>

- OBD-II general scan tool

For detailed operation procedures, refer to the OBD-II General Scan Tool Instruction Manual.

CHECK : *Is the value more than 85 kPa (638 mmHg, 25.12 inHg)?*

YES : Go to step 11E6.

NO : Go to step 11E4.

11E4 : CHECK DATA FOR CONTROL.

Read data of atmospheric absolute pressure signal using Subaru Select Monitor or OBD-II general scan tool.

CHECK : *Is the value less than 32 kPa (240 mmHg, 9.45 inHg)?*

YES : Go to step 11E7.

NO : Go to step 11E5.

11E5 : CHECK DATA FOR CONTROL.

Read data of atmospheric absolute pressure signal using Subaru Select Monitor or OBD-II general scan tool.

CHECK : *Is the value more than 133 kPa (998 mmHg, 39.29 inHg)?*

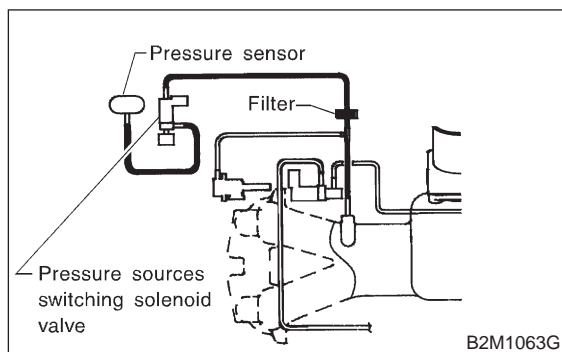
YES : Replace pressure sensor. <Ref. to 2-7 [W11A0].>

NO : Repair poor contact in pressure sensor connector, pressure sources switching solenoid valve connector, and ECM connector.

11E6 : CHECK VACUUM HOSES.

Check the following items.

- Disconnection of the vacuum hose from pressure sources switching solenoid valve to intake manifold
- Holes in the vacuum hose between pressure sources switching solenoid valve to intake manifold
- Clogging of the vacuum hose between pressure sources switching solenoid valve to intake manifold
- Disconnection of the vacuum hose from pressure sensor to pressure sources switching solenoid valve
- Holes in the vacuum hose between pressure sensor and pressure sources switching solenoid valve
- Clogging of the vacuum hose between pressure sensor and pressure sources switching solenoid valve
- Clogging of the filter



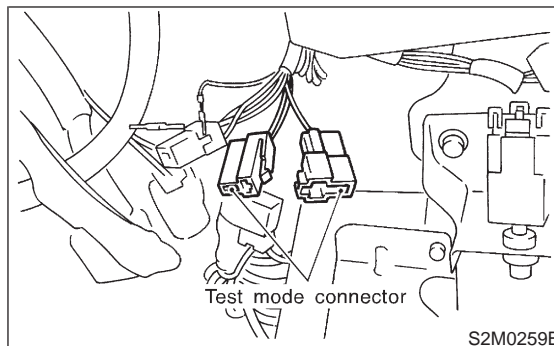
CHECK : *Is there a fault in vacuum hose?*

YES : Repair or replace hoses or filter.

NO : Go to step 11E7.

11E7 : CHECK PRESSURE SOURCES SWITCHING SOLENOID VALVE.

- 1) Turn ignition switch to OFF.
- 2) Connect test mode connector.



- 3) Turn ignition switch to ON.

NOTE:

Pressure sources switching solenoid valve operation check can also be executed using Subaru Select Monitor. For the procedure, refer to the "COMPULSORY VALVE OPERATION CHECK MODE". <Ref. to 2-7 [T3F0].>

CHECK : *Does pressure sources switching solenoid valve produce operating sound? (ON ⇔ OFF each 1.5 sec.)*

YES : Replace pressure sensor. <Ref. to 2-7 [W11A0].>

NO : Replace pressure sources switching solenoid valve. <Ref. to 2-7 [W13A0].>

MEMO:

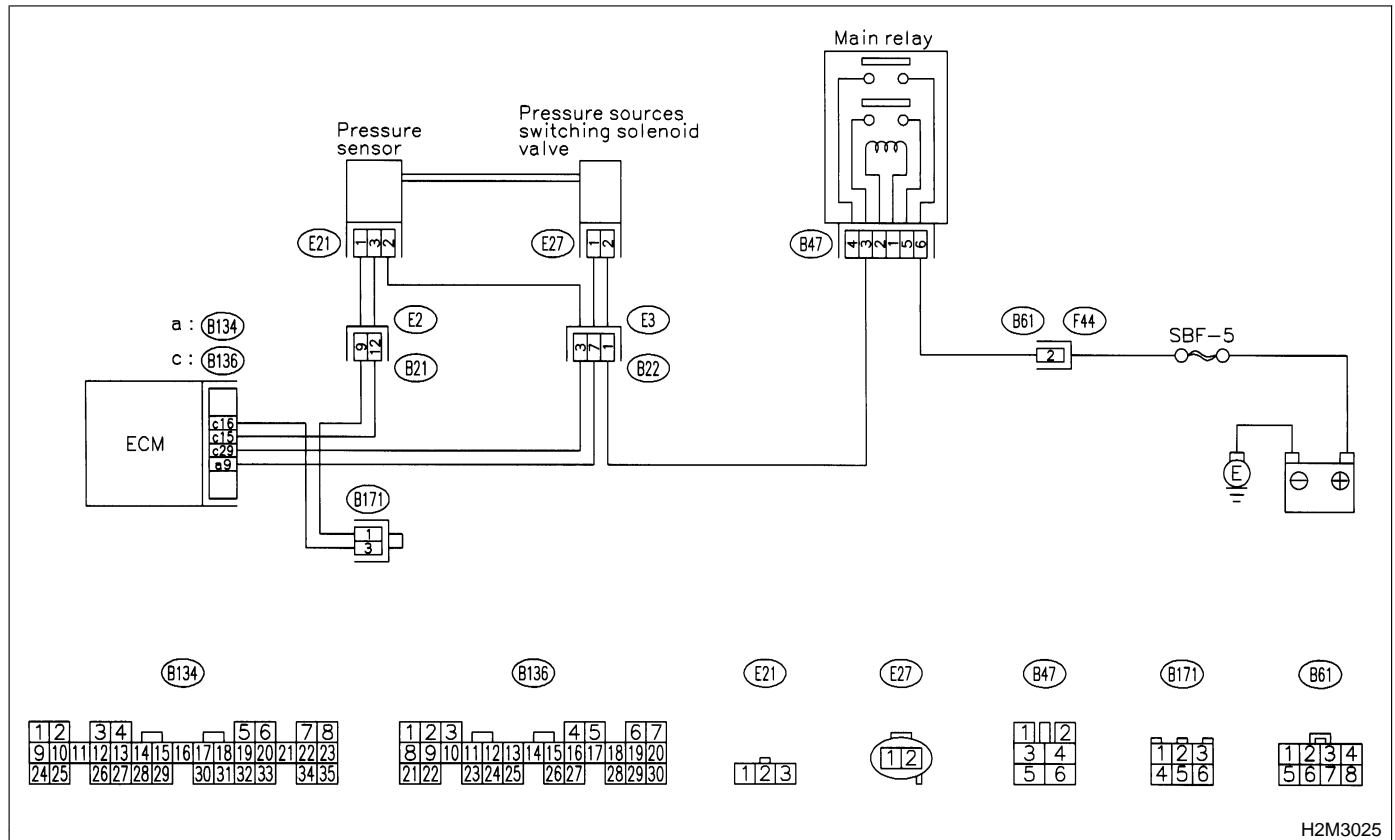
F: DTC P0107 — PRESSURE SENSOR CIRCUIT LOW INPUT —

- DTC DETECTING CONDITION:
 - Immediately at fault recognition

CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to 2-7 [T3D0].> and INSPECTION MODE <Ref. to 2-7 [T3E0].>

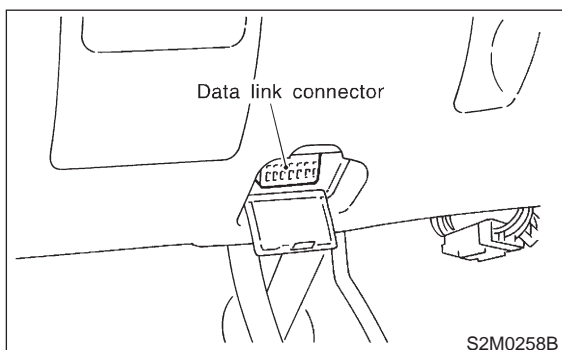
● WIRING DIAGRAM:



H2M3025

11F1 : CONNECT SUBARU SELECT MONITOR OR THE OBD-II GENERAL SCAN TOOL, AND READ DATA.

- 1) Turn ignition switch to OFF.
- 2) Connect Subaru Select Monitor or the OBD-II general scan tool to data link connector.



- 3) Turn ignition switch to ON and Subaru Select Monitor or the OBD-II general scan tool switch to ON.
- 4) Start engine.
- 5) Read the data of intake manifold absolute pressure signal using Subaru Select Monitor or OBD-II general scan tool.

NOTE:

- Subaru Select Monitor

For detailed operation procedure, refer to the "READ CURRENT DATA SHOWN ON DISPLAY FOR ENGINE". <Ref. to 2-7 [T3C4].>

- OBD-II general scan tool

For detailed operation procedures, refer to the OBD-II General Scan Tool Instruction Manual.

CHECK : *Is the value less than 0 kPa (0 mmHg, 0 inHg)?*

YES : Go to step 11F3.

NO : Go to step 11F2.

11F2 : CHECK POOR CONTACT.

Check poor contact in ECM and pressure sensor connector. <Ref. to FOREWORD [T3C1].>

CHECK : *Is there poor contact in ECM or pressure sensor connector?*

YES : Repair poor contact in ECM or pressure sensor connector.

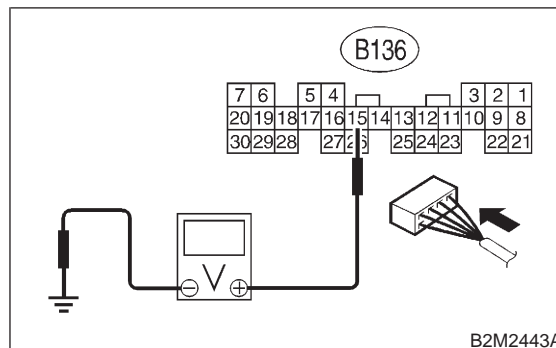
NO : Even if MIL lights up, the circuit has returned to a normal condition at this time.

11F3 : CHECK INPUT SIGNAL FOR ECM.

Measure voltage between ECM connector and chassis ground.

Connector & terminal

(B136) No. 15 (+) — Chassis ground (-):



CHECK : *Is the voltage more than 4.5 V?*

YES : Go to step 11F5.

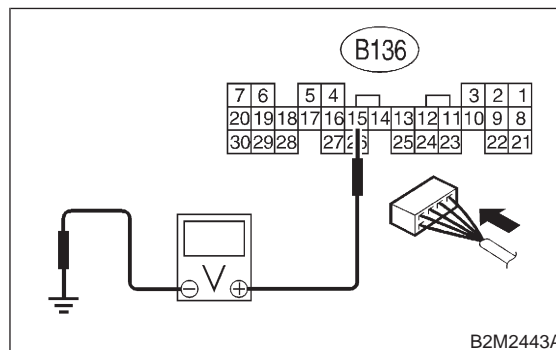
NO : Go to step 11F4.

11F4 : CHECK INPUT SIGNAL FOR ECM.

Measure voltage between ECM connector and chassis ground.

Connector & terminal

(B136) No. 15 (+) — Chassis ground (-):



CHECK : *Does the voltage change more than 4.5 V by shaking harness and connector of ECM while monitoring the value with voltage meter?*

YES : Repair poor contact in ECM connector.

NO : Contact with SOA service.

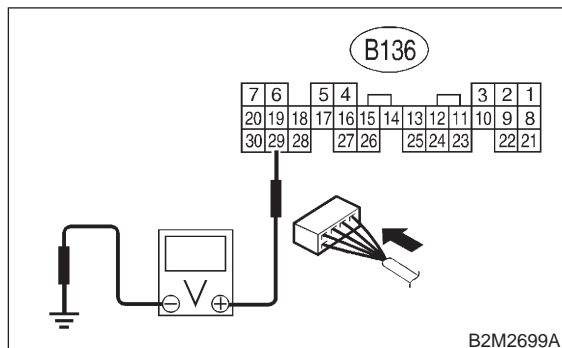
NOTE:

Inspection by DTM is required, because probable cause is deterioration of multiple parts.

11F5 : CHECK INPUT SIGNAL FOR ECM.

Measure voltage between ECM and chassis ground.

Connector & terminal
(B136) No. 29 (+) — Chassis ground (-):



- CHECK** : **Is the voltage less than 0.2 V?**
- YES** : Go to step 11F7.
- NO** : Go to step 11F6.

11F6 : CHECK INPUT SIGNAL FOR ECM. (USING SUBARU SELECT MONITOR.)

Read data of atmospheric absolute pressure signal using Subaru Select Monitor.

NOTE:

- Subaru Select Monitor

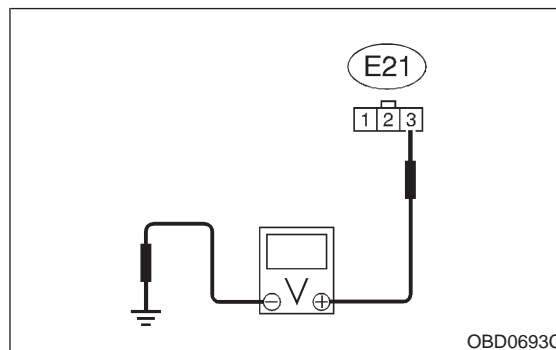
For detailed operation procedure, refer to the "READ CURRENT DATA SHOWN ON DISPLAY FOR ENGINE". <Ref. to 2-7 [T3C4].>

- CHECK** : **Does the value change more than 0 kPa (0 mmHg, 0 inHg) by shaking harness and connector of ECM while monitoring the value with Subaru select monitor?**
- YES** : Repair poor contact in ECM connector.
- NO** : Go to step 11F7.

11F7 : CHECK HARNESS BETWEEN ECM AND PRESSURE SENSOR CONNECTOR.

- Turn ignition switch to OFF.
- Disconnect connector from pressure sensor.
- Turn ignition switch to ON.
- Measure voltage between pressure sensor connector and engine ground.

Connector & terminal
(E21) No. 3 (+) — Engine ground (-):



- CHECK** : **Is the voltage more than 4.5 V?**
- YES** : Go to step 11F8.
- NO** : Repair harness and connector.

NOTE:

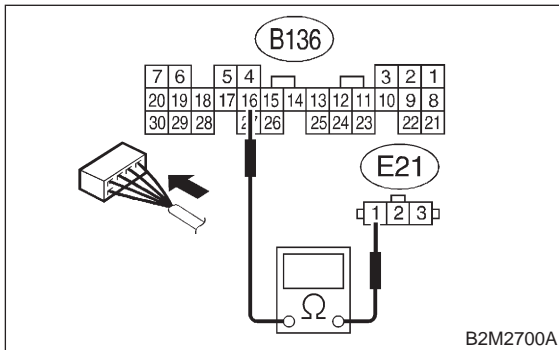
In this case, repair the following:

- Open circuit in harness between ECM and pressure sensor connector
- Poor contact in coupling connector (B21)

11F8 : CHECK HARNESS BETWEEN ECM AND PRESSURE SENSOR CONNECTOR.

- 1) Turn ignition switch to OFF.
- 2) Disconnect connector from ECM.
- 3) Measure resistance of harness between ECM and pressure sensor connector.

Connector & terminal
(B136) No. 16 — (E21) No. 1:



- CHECK** : **Is the resistance less than 1 Ω?**
- YES** : Go to step 11F9.
- NO** : Repair harness and connector.

NOTE:

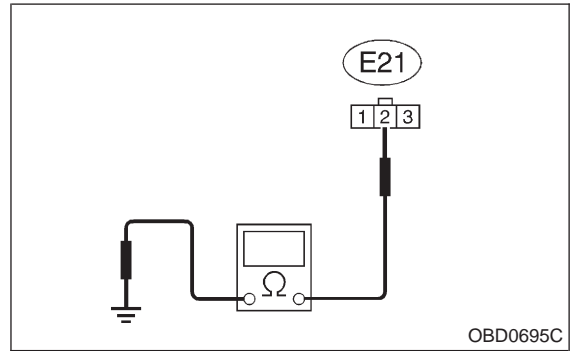
In this case, repair the following:

- Open circuit in harness between ECM and pressure sensor connector
- Poor contact in coupling connector (B21)

11F9 : CHECK HARNESS BETWEEN ECM AND PRESSURE SENSOR CONNECTOR.

Measure resistance of harness between pressure sensor connector and engine ground.

Connector & terminal
(E21) No. 2 — Engine ground:



- CHECK** : **Is the resistance more than 500 kΩ?**
- YES** : Go to step 11F10.
- NO** : Repair ground short circuit in harness between ECM and pressure sensor connector.

11F10 : CHECK POOR CONTACT.

Check poor contact in pressure sensor connector.
 <Ref. to FOREWORD [T3C1].>

- CHECK** : **Is there poor contact in pressure sensor connector?**
- YES** : Repair poor contact in pressure sensor connector.
- NO** : Replace pressure sensor. <Ref. to 2-7 [W11A0].>

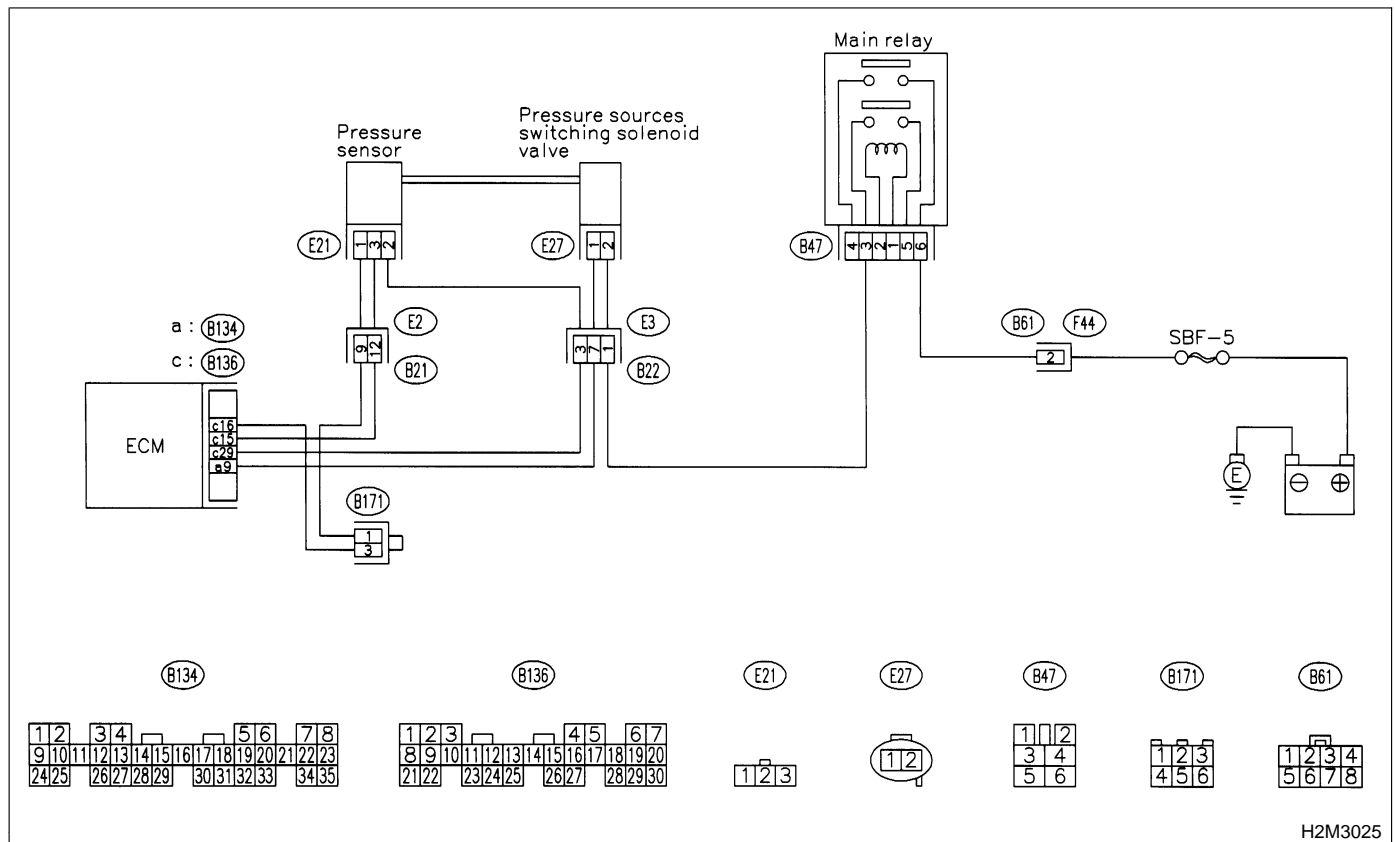
G: DTC P0108 — PRESSURE SENSOR CIRCUIT HIGH INPUT —

- **DTC DETECTING CONDITION:**
 - Immediately at fault recognition

CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to 2-7 [T3D0].> and INSPECTION MODE <Ref. to 2-7 [T3E0].>

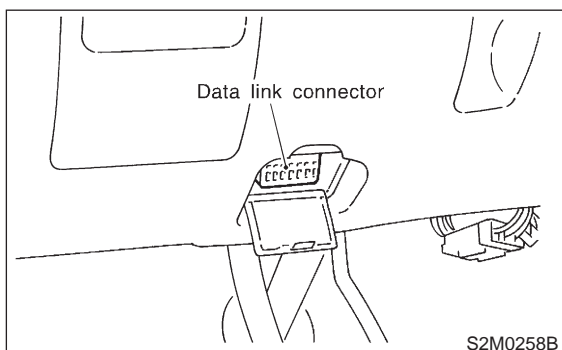
● **WIRING DIAGRAM:**



H2M3025

11G1 : CONNECT SUBARU SELECT MONITOR OR THE OBD-II GENERAL SCAN TOOL, AND READ DATA.

- 1) Turn ignition switch to OFF.
- 2) Connect Subaru Select Monitor or the OBD-II general scan tool to data link connector.



- 3) Turn ignition switch to ON and Subaru Select Monitor or the OBD-II general scan tool switch to ON.
- 4) Start engine.
- 5) Read the data of intake manifold absolute pressure signal using Subaru Select Monitor or OBD-II general scan tool.

NOTE:

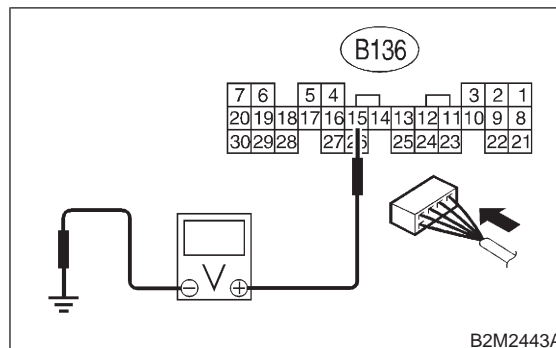
- Subaru Select Monitor
For detailed operation procedure, refer to the "READ CURRENT DATA SHOWN ON DISPLAY FOR ENGINE". <Ref. to 2-7 [T3C4].>
- OBD-II general scan tool
For detailed operation procedures, refer to the OBD-II General Scan Tool Instruction Manual.

- CHECK** : *Is the value more than 140 kPa (1,050 mmHg, 41.34 inHg)?*
- YES** : Go to step 11G10.
- NO** : Go to step 11G2.

11G2 : CHECK INPUT SIGNAL FOR ECM.

Measure voltage between ECM connector and chassis ground.

Connector & terminal
(B136) No. 15 (+) — Chassis ground (-):

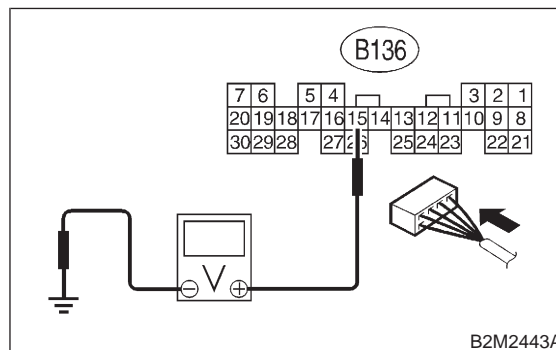


- CHECK** : *Is the voltage more than 4.5 V?*
- YES** : Go to step 11G4.
- NO** : Go to step 11G3.

11G3 : CHECK INPUT SIGNAL FOR ECM.

Measure voltage between ECM connector and chassis ground.

Connector & terminal
(B136) No. 15 (+) — Chassis ground (-):



- CHECK** : *Does the voltage change more than 4.5 V by shaking harness and connector of ECM while monitoring the value with voltage meter?*
- YES** : Repair poor contact in ECM connector.
- NO** : Contact with SOA service.

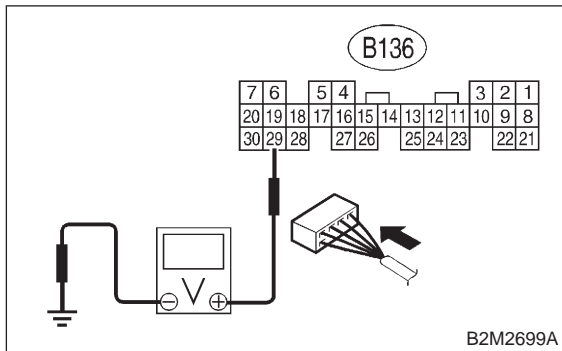
NOTE:

Inspection by DTM is required, because probable cause is deterioration of multiple parts.

11G4 : CHECK INPUT SIGNAL FOR ECM.

Measure voltage between ECM connector and chassis ground.

Connector & terminal
(B136) No. 29 (+) — Chassis ground (-):



- CHECK** : *Is the voltage less than 0.2 V?*
- YES** : Go to step 11G6.
- NO** : Go to step 11G5.

11G5 : CHECK INPUT SIGNAL FOR ECM. (USING SUBARU SELECT MONITOR.)

Read data of atmospheric absolute pressure signal using Subaru Select Monitor.

NOTE:

- Subaru Select Monitor

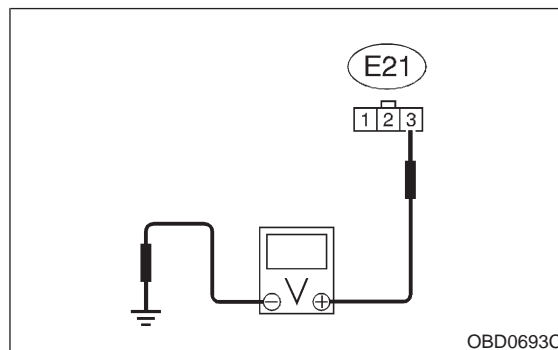
For detailed operation procedure, refer to the "READ CURRENT DATA SHOWN ON DISPLAY FOR ENGINE". <Ref. to 2-7 [T3C4].>

- CHECK** : *Does the value change more than 0 kPa (0 mmHg, 0 inHg) by shaking harness and connector of ECM while monitoring the value with Subaru select monitor?*
- YES** : Repair poor contact in ECM connector.
- NO** : Go to step 11G6.

11G6 : CHECK HARNESS BETWEEN ECM AND PRESSURE SENSOR CONNECTOR.

- 1) Turn ignition switch to OFF.
- 2) Disconnect connector from pressure sensor.
- 3) Turn ignition switch to ON.
- 4) Measure voltage between pressure sensor connector and engine ground.

Connector & terminal
(E21) No. 3 (+) — Engine ground (-):



- CHECK** : *Is the voltage more than 4.5 V?*
- YES** : Go to step 11G7.
- NO** : Repair harness and connector.

NOTE:

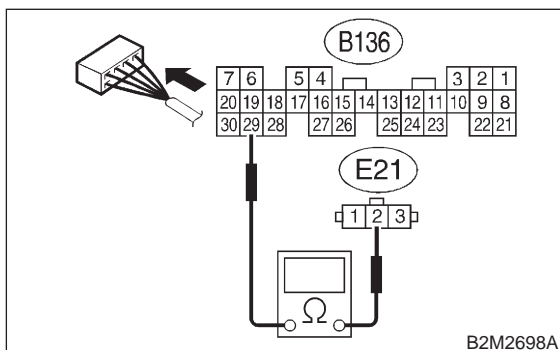
In this case, repair the following:

- Open circuit in harness between ECM and pressure sensor connector
- Poor contact in coupling connector (B21)

11G7 : CHECK HARNESS BETWEEN ECM AND PRESSURE SENSOR CONNECTOR.

- 1) Turn ignition switch to OFF.
- 2) Disconnect connector from ECM.
- 3) Measure resistance of harness between ECM and pressure sensor connector.

Connector & terminal
(B136) No. 29 — (E21) No. 2:



- CHECK** : *Is the resistance less than 1 Ω?*
YES : Go to step 11G8.
NO : Repair harness and connector.

NOTE:

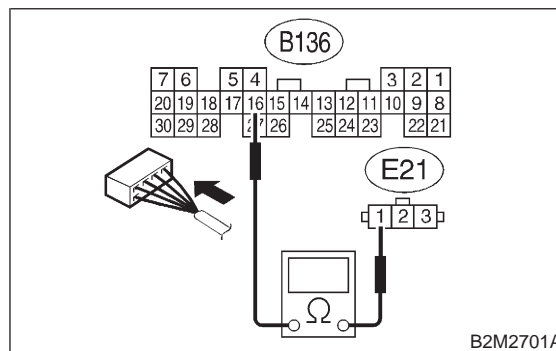
In this case, repair the following:

- Open circuit in harness between ECM and pressure sensor connector
- Poor contact in coupling connector (B22)

11G8 : CHECK HARNESS BETWEEN ECM AND PRESSURE SENSOR CONNECTOR.

Measure resistance of harness between ECM and pressure sensor connector.

Connector & terminal
(B136) No. 16 — (E21) No. 1:



- CHECK** : *Is the resistance less than 1 Ω?*
YES : Go to step 11G9.
NO : Repair harness and connector.

NOTE:

In this case, repair the following:

- Open circuit in harness between ECM and pressure sensor connector
- Poor contact in coupling connector (B21)

11G9 : CHECK POOR CONTACT.

Check poor contact in pressure sensor connector.
 <Ref. to FOREWORD [T3C1].>

- CHECK** : *Is there poor contact in pressure sensor connector?*
YES : Repair poor contact in pressure sensor connector.
NO : Replace pressure sensor. <Ref. to 2-7 [W11A0].>

11G10 : CHECK HARNESS BETWEEN ECM AND PRESSURE SENSOR CONNECTOR.

- 1) Turn ignition switch to OFF and Subaru Select Monitor or the OBD-II general scan tool switch to OFF.
- 2) Disconnect connector from pressure sensor.
- 3) Turn ignition switch to ON and Subaru Select Monitor or the OBD-II general scan tool switch to ON.
- 4) Read data of intake manifold absolute pressure signal using Subaru select monitor or OBD-II general scan tool.

NOTE:

- Subaru Select Monitor

For detailed operation procedure, refer to the "READ CURRENT DATA SHOWN ON DISPLAY FOR ENGINE". <Ref. to 2-7 [T3C4].>

- OBD-II general scan tool

For detailed operation procedures, refer to the OBD-II General Scan Tool Instruction Manual.

CHECK : ***Is the value more than 140 kPa (1,050 mmHg, 41.34 inHg)?***

YES : Repair battery short circuit in harness between ECM and pressure sensor connector.

NO : Replace pressure sensor. <Ref. to 2-7 [W11A0].>

MEMO:

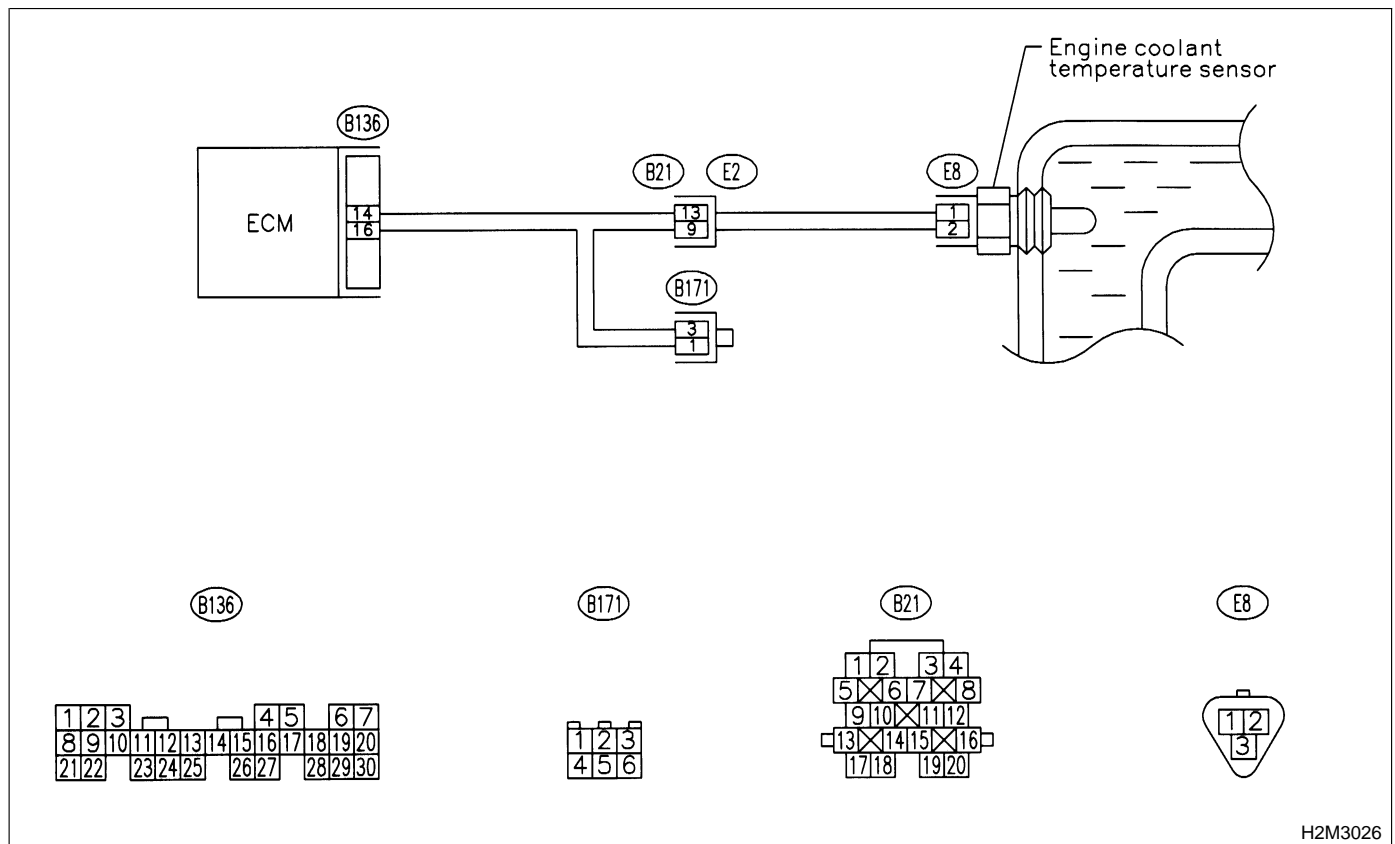
H: DTC P0116 — ENGINE COOLANT TEMPERATURE SENSOR CIRCUIT LOW INPUT —

- **DTC DETECTING CONDITION:**
 - Immediately at fault recognition
- **TROUBLE SYMPTOM:**
 - Hard to start
 - Erroneous idling
 - Poor driving performance

CAUTION:

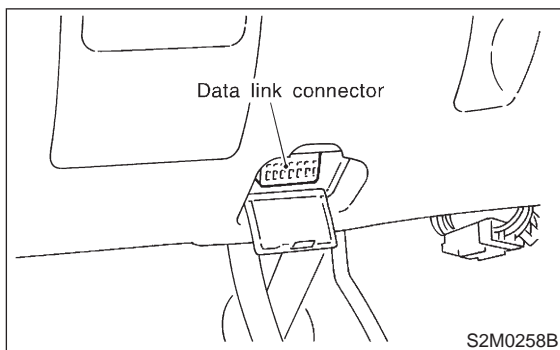
After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to 2-7 [T3D0].> and INSPECTION MODE <Ref. to 2-7 [T3E0].>

● **WIRING DIAGRAM:**



11H1 : CONNECT SUBARU SELECT MONITOR OR THE OBD-II GENERAL SCAN TOOL, AND READ DATA.

- 1) Turn ignition switch to OFF.
- 2) Connect Subaru Select Monitor or the OBD-II general scan tool to data link connector.



- 3) Turn ignition switch to ON and Subaru Select Monitor or OBD-II general scan tool switch to ON.
- 4) Start engine.
- 5) Read data of engine coolant temperature sensor signal using Subaru Select Monitor or OBD-II general scan tool.

NOTE:

- Subaru Select Monitor

For detailed operation procedure, refer to the "READ CURRENT DATA SHOWN ON DISPLAY FOR ENGINE". <Ref. to 2-7 [T3C4].>

- OBD-II general scan tool

For detailed operation procedures, refer to the OBD-II General Scan Tool Instruction Manual.

CHECK : *Is the value greater than 150°C (300°F)?*

YES : Go to step 11H2.

NO : Repair poor contact.

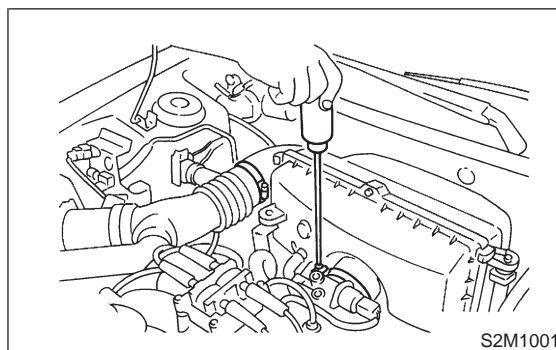
NOTE:

In this case, repair the following:

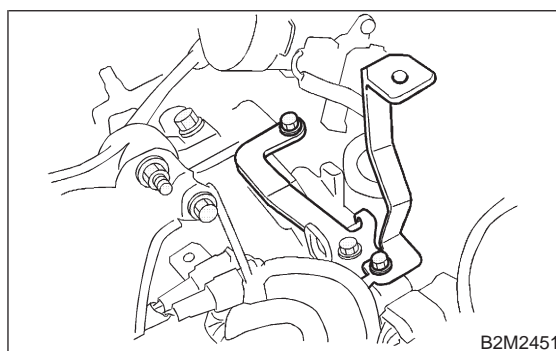
- Poor contact in engine coolant temperature sensor
- Poor contact in ECM
- Poor contact in coupling connector (B21)

11H2 : CHECK HARNESS BETWEEN ENGINE COOLANT TEMPERATURE SENSOR AND ECM CONNECTOR.

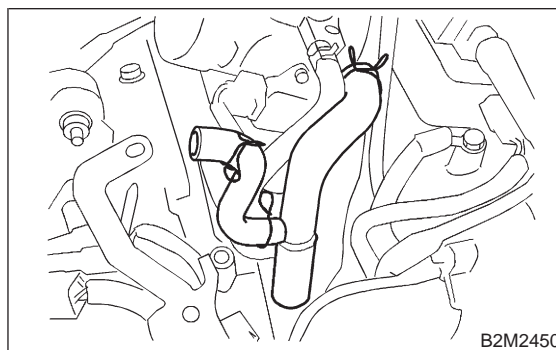
- 1) Turn ignition switch to OFF.
- 2) Remove air intake duct and air intake chamber assembly as a unit.



- 3) Remove engine harness connector bracket from cylinder block.



- 4) Remove blow-by hoses.



- 5) Disconnect connector from engine coolant temperature sensor.
- 6) Turn ignition switch and Subaru Select Monitor or OBD-II general scan tool switch to ON.
- 7) Read data of engine coolant temperature sensor signal using Subaru Select Monitor or OBD-II general scan tool.

NOTE:

- Subaru Select Monitor

For detailed operation procedure, refer to the "READ CURRENT DATA SHOWN ON DISPLAY FOR ENGINE". <Ref. to 2-7 [T3C4].>

- OBD-II general scan tool

For detailed operation procedures, refer to the OBD-II General Scan Tool Instruction Manual.

- CHECK** : ***Is the value less than -40°C (-40°F)?***
- YES** : Replace engine coolant temperature sensor. <Ref. to 2-7 [W5A2].>
- NO** : Repair ground short circuit in harness between engine coolant temperature sensor and ECM connector.

MEMO:

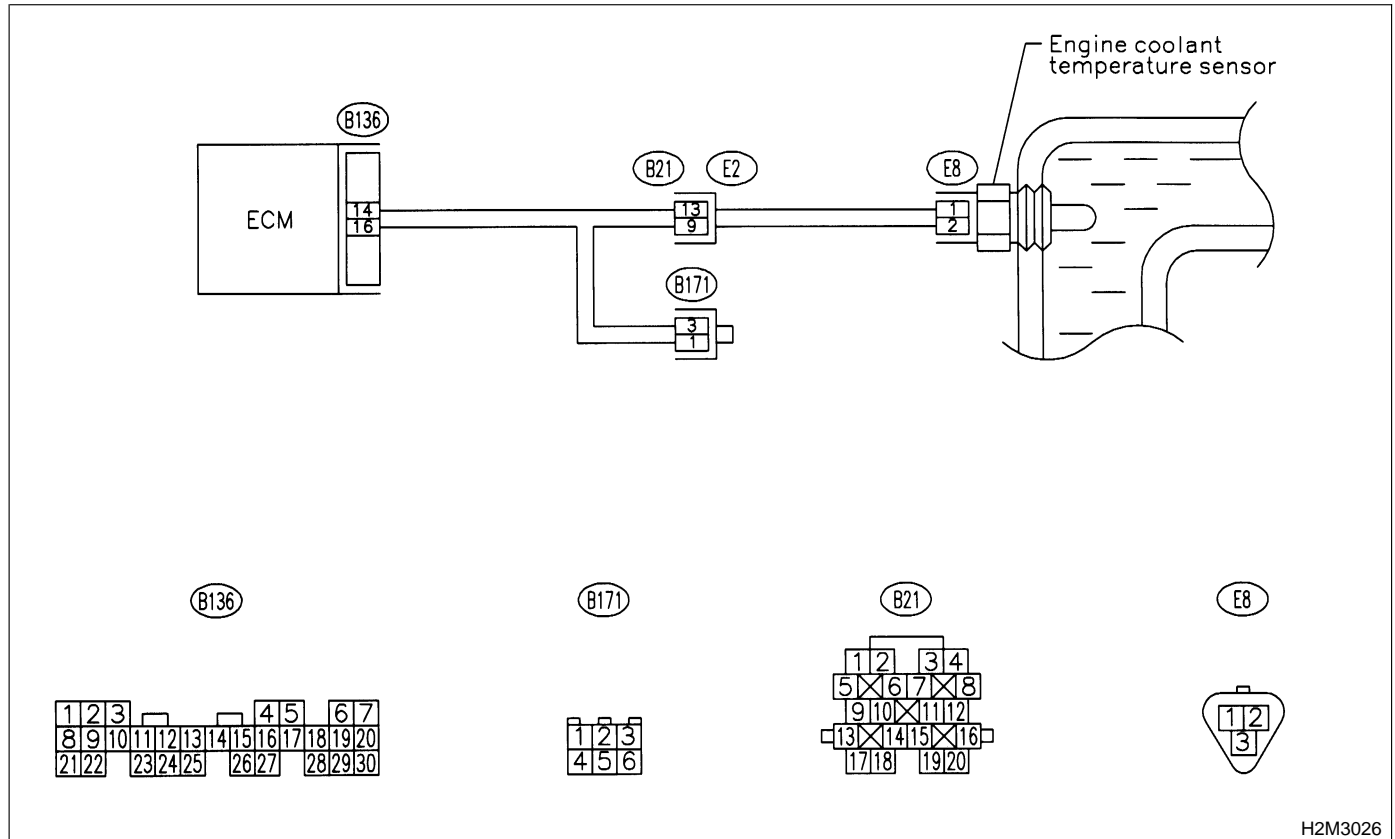
I: DTC P0117 — ENGINE COOLANT TEMPERATURE SENSOR CIRCUIT HIGH INPUT —

- **DTC DETECTING CONDITION:**
 - Immediately at fault recognition
- **TROUBLE SYMPTOM:**
 - Hard to start
 - Erroneous idling
 - Poor driving performance

CAUTION:

After repair or replacement of faulty parts, conduct **CLEAR MEMORY MODE** <Ref. to 2-7 [T3D0].> and **INSPECTION MODE** <Ref. to 2-7 [T3E0].>

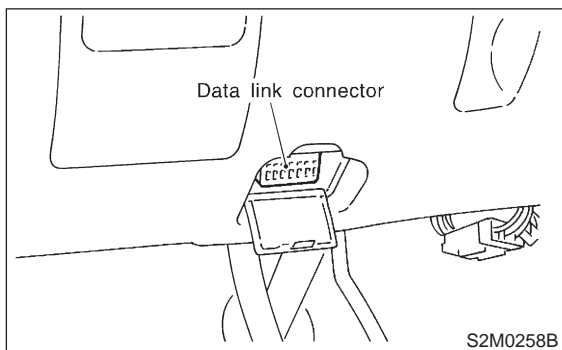
● **WIRING DIAGRAM:**



H2M3026

1111 : CONNECT SUBARU SELECT MONITOR OR THE OBD-II GENERAL SCAN TOOL, AND READ DATA.

- 1) Turn ignition switch to OFF.
- 2) Connect Subaru Select Monitor or the OBD-II general scan tool to data link connector.



- 3) Turn ignition switch to ON and Subaru Select Monitor or OBD-II general scan tool switch to ON.
- 4) Start engine.
- 5) Read data of engine coolant temperature sensor signal using Subaru Select Monitor or OBD-II general scan tool.

NOTE:

- Subaru Select Monitor

For detailed operation procedure, refer to the "READ CURRENT DATA SHOWN ON DISPLAY FOR ENGINE". <Ref. to 2-7 [T3C4].>

- OBD-II general scan tool

For detailed operation procedures, refer to the OBD-II General Scan Tool Instruction Manual.

CHECK : *Is the value less than -40°C (-40°F)?*

YES : Go to step 1112.

NO : Repair poor contact.

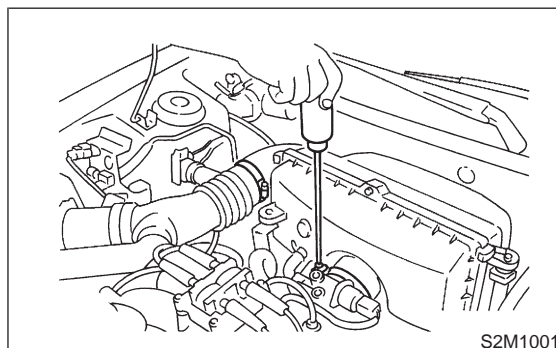
NOTE:

In this case, repair the following:

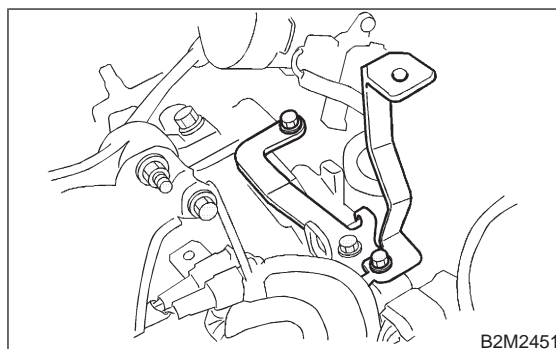
- Poor contact in engine coolant temperature sensor
- Poor contact in ECM
- Poor contact in coupling connector (B21)

1112 : CHECK HARNESS BETWEEN ENGINE COOLANT TEMPERATURE SENSOR AND ECM CONNECTOR.

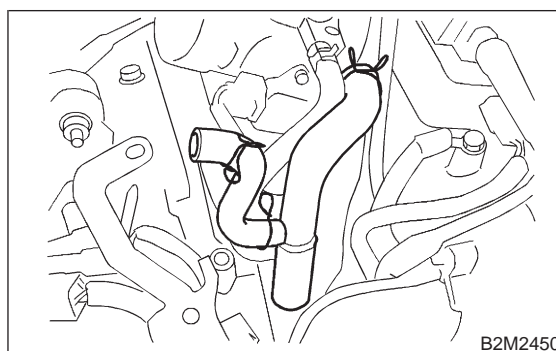
- 1) Turn ignition switch to OFF.
- 2) Remove air intake duct and air intake chamber assembly as a unit.



- 3) Remove engine harness connector bracket from cylinder block.



- 4) Remove blow-by hoses.

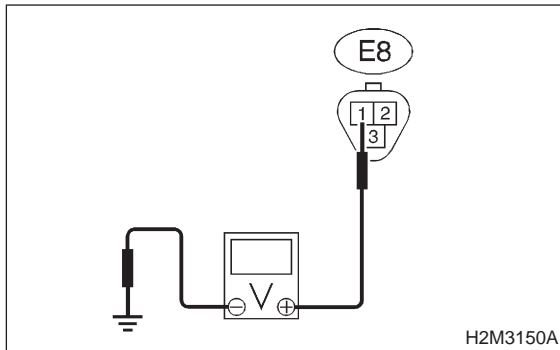


- 5) Disconnect connector from engine coolant temperature sensor.

6) Measure voltage between engine coolant temperature sensor connector and engine ground.

Connector & terminal

(E8) No. 1 (+) — Engine ground (-):



CHECK : **Is the voltage more than 10 V?**

YES : Repair battery short circuit in harness between ECM and engine coolant temperature sensor connector.

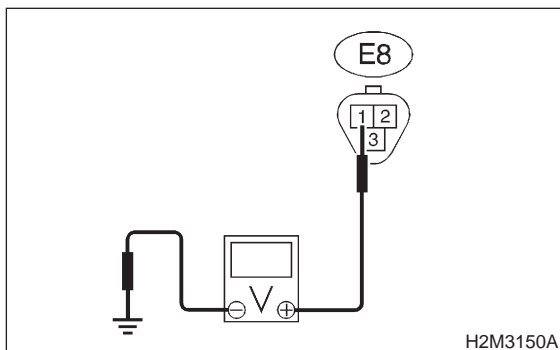
NO : Go to step 1113.

1113 : CHECK HARNESS BETWEEN ENGINE COOLANT TEMPERATURE SENSOR AND ECM CONNECTOR.

1) Turn ignition switch to ON.
2) Measure voltage between engine coolant temperature sensor connector and engine ground.

Connector & terminal

(E8) No. 1 (+) — Engine ground (-):



CHECK : **Is the voltage more than 10 V?**

YES : Repair battery short circuit in harness between ECM and engine coolant temperature sensor connector.

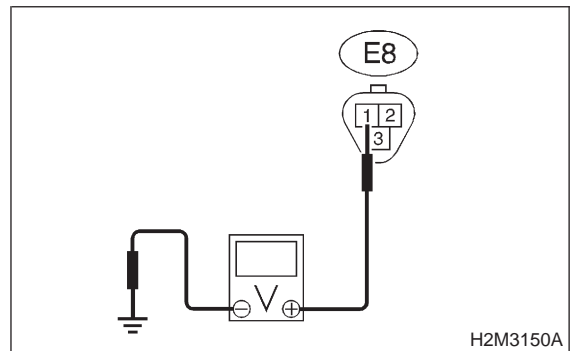
NO : Go to step 1114.

1114 : CHECK HARNESS BETWEEN ENGINE COOLANT TEMPERATURE SENSOR AND ECM CONNECTOR.

Measure voltage between engine coolant temperature sensor connector and engine ground.

Connector & terminal

(E8) No. 1 (+) — Engine ground (-):



CHECK : **Is the voltage more than 4 V?**

YES : Go to step 1115.

NO : Repair harness and connector.

NOTE:

In this case, repair the following:

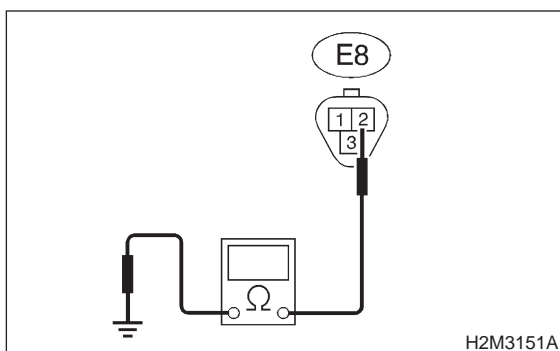
- Open circuit in harness between ECM and engine coolant temperature sensor connector
- Poor contact in engine coolant temperature sensor connector
- Poor contact in ECM connector
- Poor contact in coupling connector (B21)

1115 : CHECK HARNESS BETWEEN ENGINE COOLANT TEMPERATURE SENSOR AND ECM CONNECTOR.

- 1) Turn ignition switch to OFF.
- 2) Measure resistance of harness between engine coolant temperature sensor connector and engine ground.

Connector & terminal

(E8) No. 2 — Engine ground:



CHECK : **Is the resistance less than 5 Ω ?**

YES : Replace engine coolant temperature sensor. <Ref. to 2-7 [W5A2].>

NO : Repair harness and connector.

NOTE:

In this case, repair the following:

- Open circuit in harness between ECM and engine coolant temperature sensor connector
- Poor contact in engine coolant temperature sensor connector
- Poor contact in ECM connector
- Poor contact in coupling connector (B21)

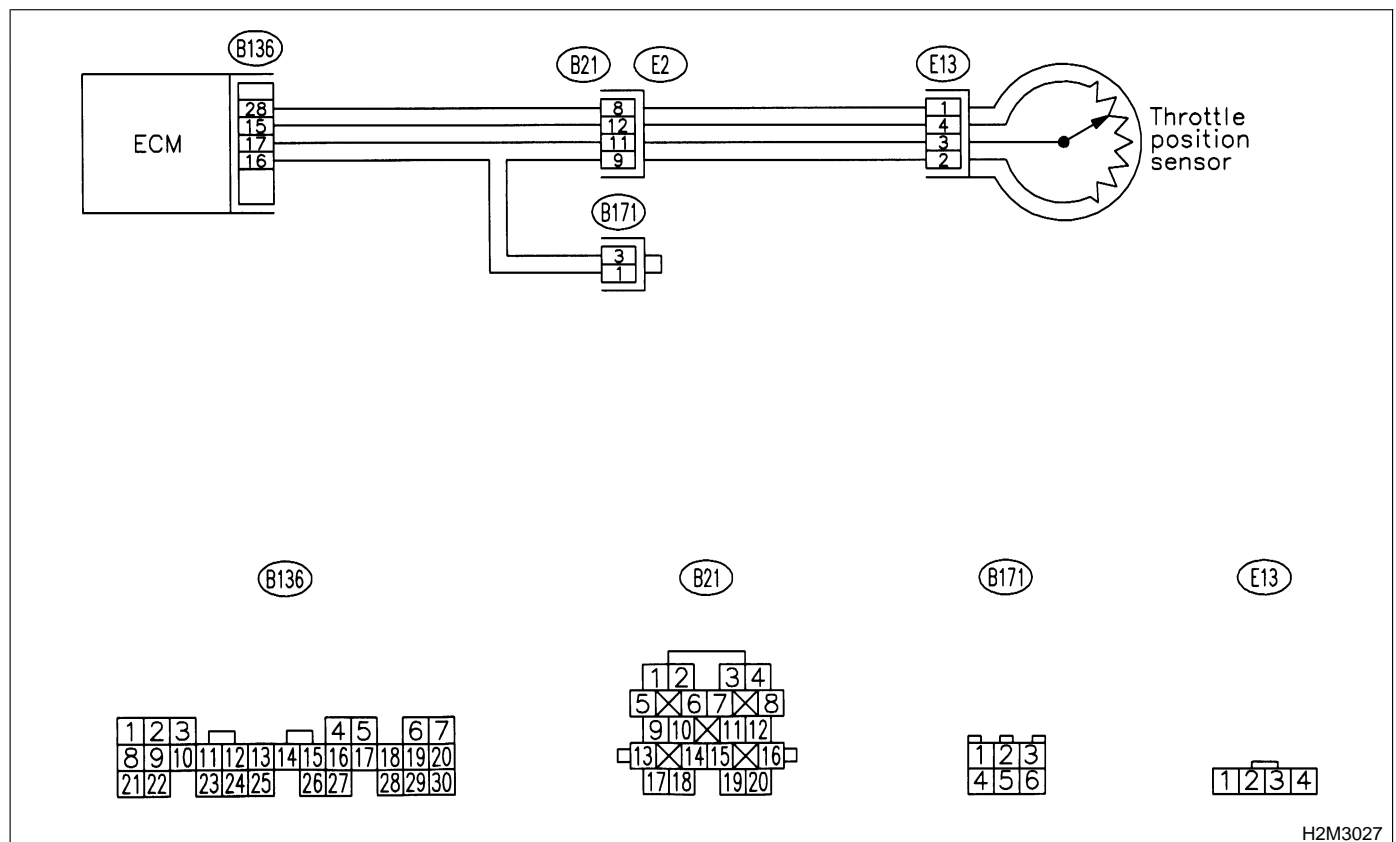
J: DTC P0121 — THROTTLE POSITION SENSOR CIRCUIT RANGE/PERFORMANCE PROBLEM (HIGH INPUT) —

- **DTC DETECTING CONDITION:**
 - Two consecutive driving cycles with fault
- **TROUBLE SYMPTOM:**
 - Erroneous idling
 - Engine stalls.
 - Poor driving performance

CAUTION:

After repair or replacement of faulty parts, conduct **CLEAR MEMORY MODE** <Ref. to 2-7 [T3D0].> and **INSPECTION MODE** <Ref. to 2-7 [T3E0].>

● **WIRING DIAGRAM:**



H2M3027

11J1 : CHECK ANY OTHER DTC ON DISPLAY.

CHECK : *Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0122 or P0123?*

YES : Inspect DTC P0122 or P0123 using "11. Diagnostics Chart with Trouble Code for Except 2200 cc California Spec. Vehicles". <Ref. to 2-7 [T11A0].>

NOTE:

In this case, it is not necessary to inspect DTC P0121.

NO : Replace throttle position sensor. <Ref. to 2-7 [W9A2].>

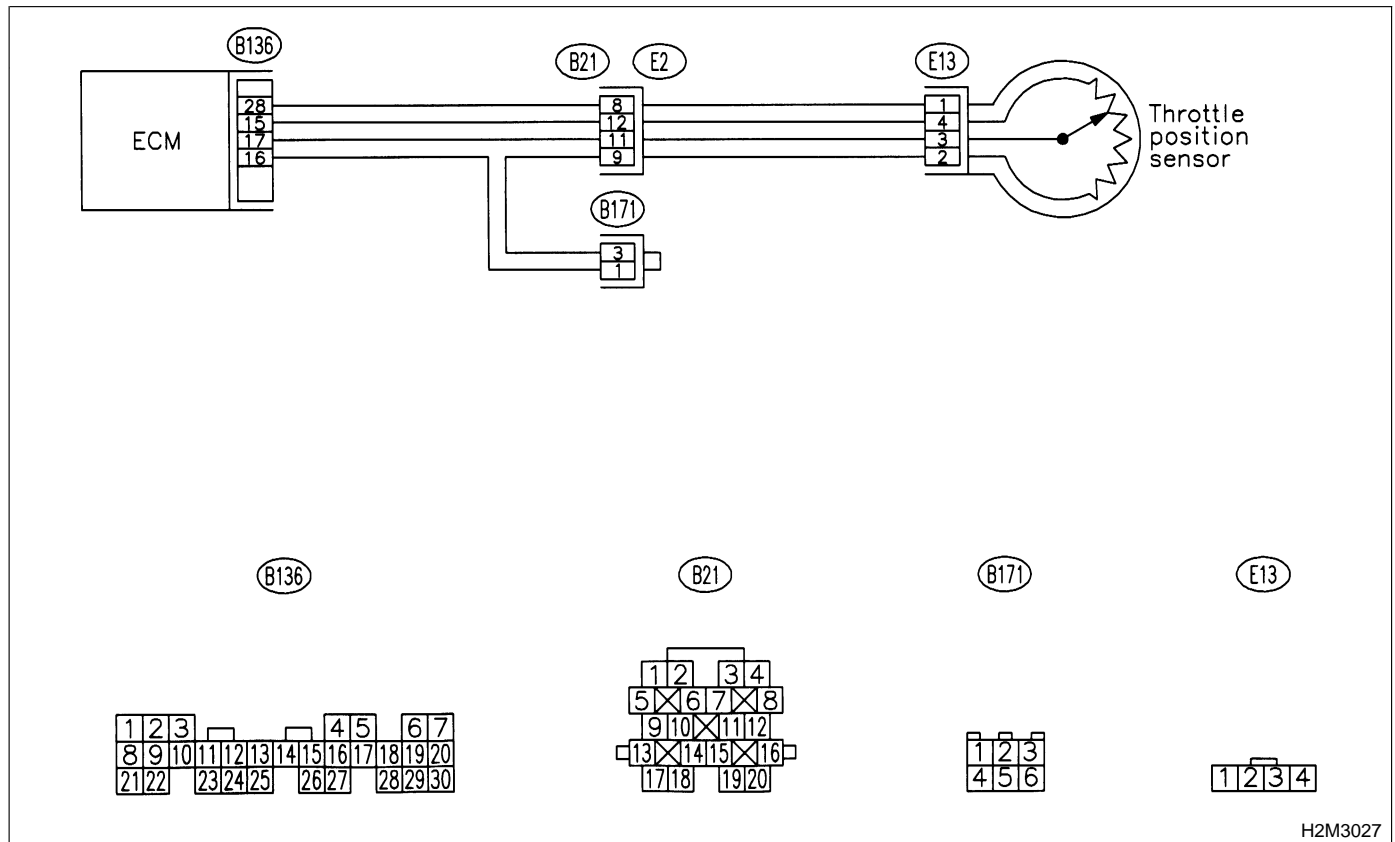
K: DTC P0122 — THROTTLE POSITION SENSOR CIRCUIT LOW INPUT —

- **DTC DETECTING CONDITION:**
 - Immediately at fault recognition
- **TROUBLE SYMPTOM:**
 - Erroneous idling
 - Engine stalls.
 - Poor driving performance

CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to 2-7 [T3D0].> and INSPECTION MODE <Ref. to 2-7 [T3E0].>

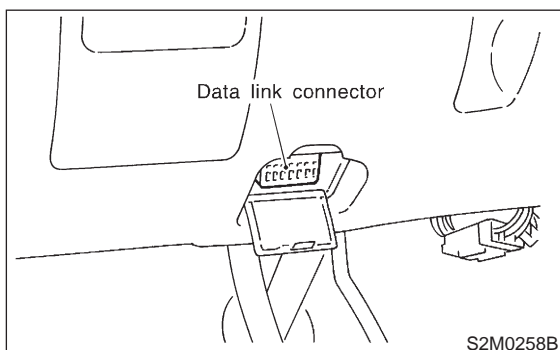
● **WIRING DIAGRAM:**



H2M3027

11K1 : CONNECT SUBARU SELECT MONITOR OR THE OBD-II GENERAL SCAN TOOL, AND READ DATA.

- 1) Turn ignition switch to OFF.
- 2) Connect Subaru Select Monitor or the OBD-II general scan tool to data link connector.



- 3) Turn ignition switch to ON and Subaru Select Monitor or OBD-II general scan tool switch to ON.
- 4) Start engine.
- 5) Read data of throttle position sensor signal using Subaru Select Monitor or OBD-II general scan tool.

NOTE:

- Subaru Select Monitor
For detailed operation procedure, refer to the "READ CURRENT DATA SHOWN ON DISPLAY FOR ENGINE". <Ref. to 2-7 [T3C4].>
- OBD-II general scan tool
For detailed operation procedures, refer to the OBD-II General Scan Tool Instruction Manual.

CHECK : *Is the value less than 0.1 V?*

YES : Go to step 11K2.

NO : Even if MIL lights up, the circuit has returned to a normal condition at this time. A temporary poor contact of the connector may be the cause.

NOTE:

In this case, repair the following:

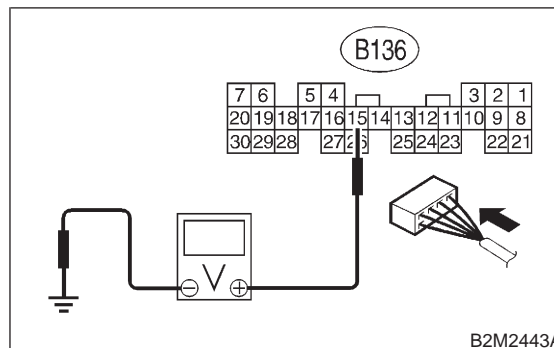
- Poor contact in throttle position sensor connector
- Poor contact in ECM connector
- Poor contact in coupling connector (B21)

11K2 : CHECK INPUT SIGNAL FOR ECM.

Measure voltage between ECM connector and chassis ground while throttle valve is fully closed.

Connector & terminal

(B136) No. 15 (+) — Chassis ground (-):



CHECK : *Is the voltage more than 4.5 V?*

YES : Go to step 11K4.

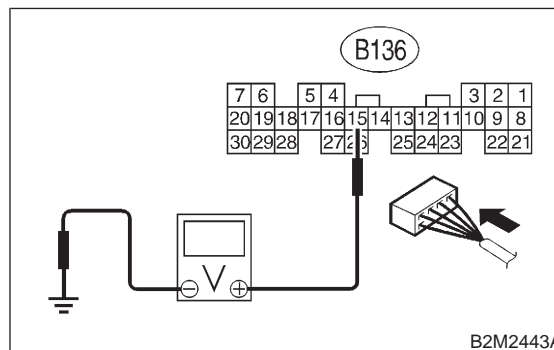
NO : Go to step 11K3.

11K3 : CHECK INPUT SIGNAL FOR ECM.

Measure voltage between ECM connector and chassis ground.

Connector & terminal

(B136) No. 15 (+) — Chassis ground (-):



CHECK : *Does the voltage change more than 4.5 V by shaking harness and connector of ECM while monitoring the value with voltage meter?*

YES : Repair poor contact in ECM connector.

NO : Contact with SOA service.

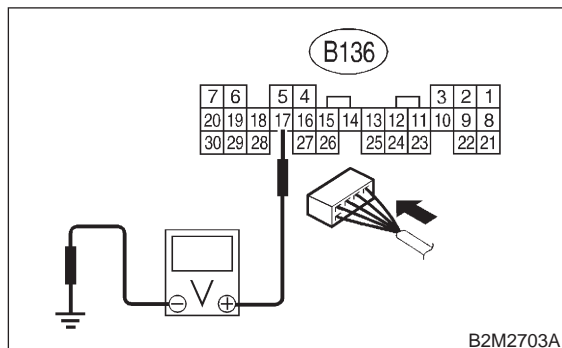
NOTE:

Inspection by DTM is required, because probable cause is deterioration of multiple parts.

11K4 : CHECK INPUT SIGNAL FOR ECM.

Measure voltage between ECM connector and chassis ground.

Connector & terminal
(B136) No. 17 (+) — Chassis ground (-):



- CHECK** : *Is the voltage less than 0.1 V?*
YES : Go to step 11K6.
NO : Go to step 11K5.

11K5 : CHECK INPUT SIGNAL FOR ECM. (USING SUBARU SELECT MONITOR.)

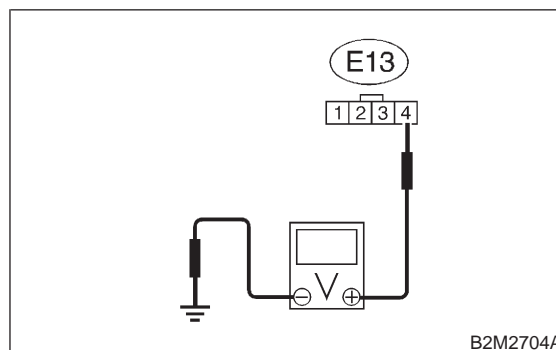
Measure voltage between ECM connector and chassis ground.

- CHECK** : *Does the voltage change more than 0.1 V by shaking harness and connector of ECM while monitoring the value with Subaru Select Monitor?*
YES : Repair poor contact in ECM connector.
NO : Go to step 11K6.

11K6 : CHECK HARNESS BETWEEN ECM AND THROTTLE POSITION SENSOR CONNECTOR.

- 1) Turn ignition switch to OFF.
- 2) Disconnect connectors from throttle position sensor.
- 3) Turn ignition switch to ON.
- 4) Measure voltage between throttle position sensor connector and engine ground.

Connector & terminal
(E13) No. 4 (+) — Engine ground (-):



- CHECK** : *Is the voltage more than 4.5 V?*
YES : Go to step 11K7.
NO : Repair harness and connector.

NOTE:

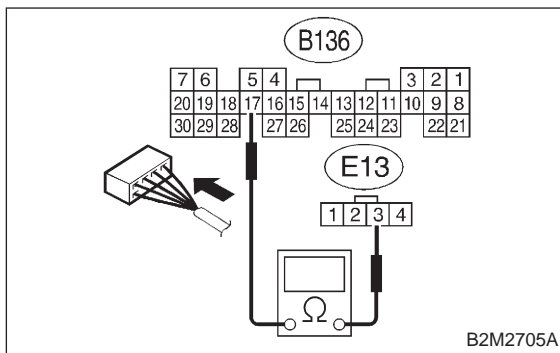
In this case, repair the following:

- Open circuit in harness between throttle position sensor and ECM connector
- Poor contact in throttle position sensor connector
- Poor contact in ECM connector
- Poor contact in coupling connector (B21)

11K7 : CHECK HARNESS BETWEEN ECM AND THROTTLE POSITION SENSOR CONNECTOR.

- 1) Turn ignition switch to OFF.
- 2) Measure resistance of harness between ECM connector and throttle position sensor connector.

Connector & terminal
(B136) No. 17 — (E13) No. 3:



- CHECK** : *Is the resistance less than 1 Ω?*
- YES** : Go to step 11K8.
- NO** : Repair harness and connector.

NOTE:

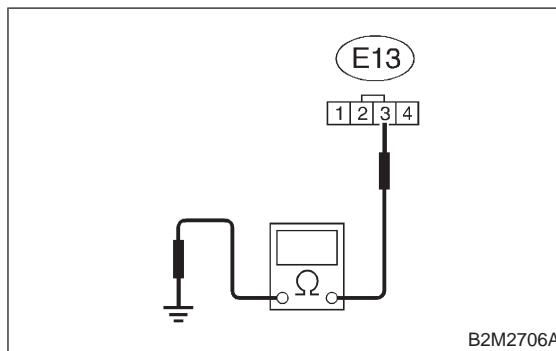
In this case, repair the following:

- Open circuit in harness between throttle position sensor and ECM connector
- Poor contact in ECM connector
- Poor contact in throttle position sensor connector
- Poor contact in coupling connector (B21)

11K8 : CHECK HARNESS BETWEEN ECM AND THROTTLE POSITION SENSOR CONNECTOR.

Measure resistance of harness between throttle position sensor connector and engine ground.

Connector & terminal
(E13) No. 3 — Engine ground:



- CHECK** : *Is the resistance less than 10 Ω?*
- YES** : Repair ground short circuit in harness between throttle position sensor and ECM connector.
- NO** : Go to step 11K9.

11K9 : CHECK POOR CONTACT.

Check poor contact in throttle position sensor connector. <Ref. to FOREWORD [T3C1].>

- CHECK** : *Is there poor contact in throttle position sensor connector?*
- YES** : Repair poor contact in throttle position sensor connector.
- NO** : Replace throttle position sensor. <Ref. to 2-7 [W9A2].>

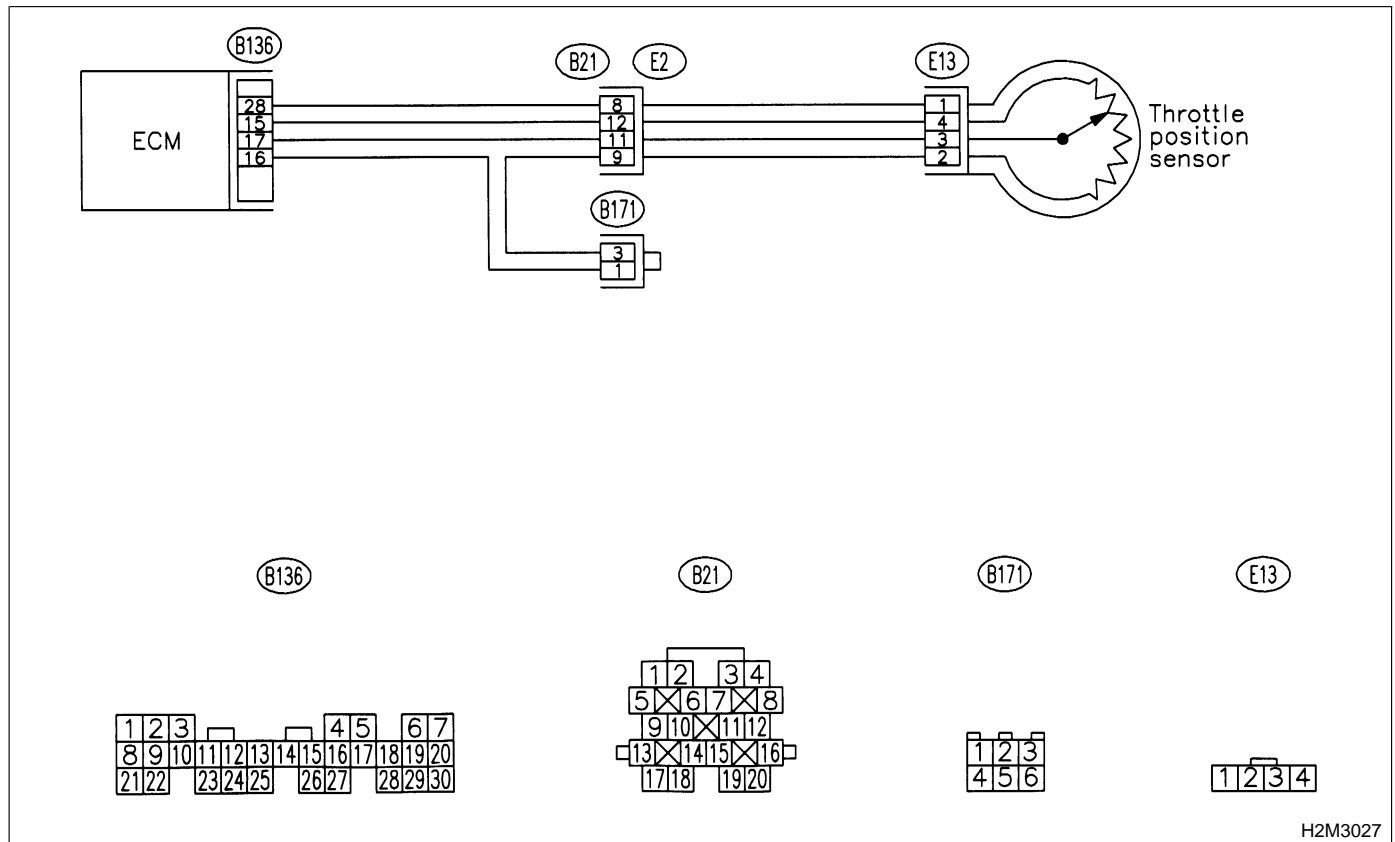
L: DTC P0123 — THROTTLE POSITION SENSOR CIRCUIT HIGH INPUT —

- **DTC DETECTING CONDITION:**
 - Immediately at fault recognition
- **TROUBLE SYMPTOM:**
 - Erroneous idling
 - Engine stalls.
 - Poor driving performance

CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to 2-7 [T3D0].> and INSPECTION MODE <Ref. to 2-7 [T3E0].>

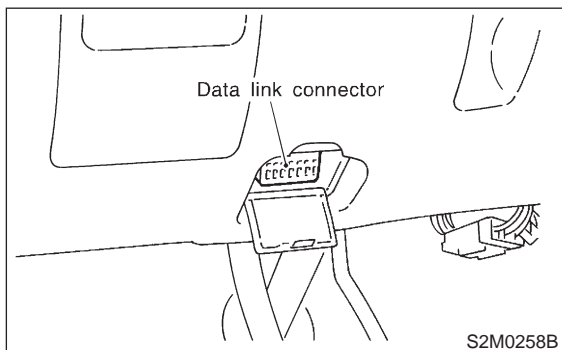
● **WIRING DIAGRAM:**



H2M3027

11L1 : CONNECT SUBARU SELECT MONITOR OR THE OBD-II GENERAL SCAN TOOL, AND READ DATA.

- 1) Turn ignition switch to OFF.
- 2) Connect Subaru Select Monitor or the OBD-II general scan tool to data link connector.



- 3) Turn ignition switch to ON and Subaru Select Monitor or OBD-II general scan tool switch to ON.
- 4) Start engine.
- 5) Read data of throttle position sensor signal using Subaru Select Monitor or OBD-II general scan tool.

NOTE:

- Subaru Select Monitor
For detailed operation procedure, refer to the "READ CURRENT DATA SHOWN ON DISPLAY FOR ENGINE". <Ref. to 2-7 [T3C4].>
- OBD-II general scan tool
For detailed operation procedures, refer to the OBD-II General Scan Tool Instruction Manual.

CHECK : *Is the value more than 4.9 V?*

YES : Go to step 11L2.

NO : Even if MIL lights up, the circuit has returned to a normal condition at this time. A temporary poor contact of the connector may be the cause.

NOTE:

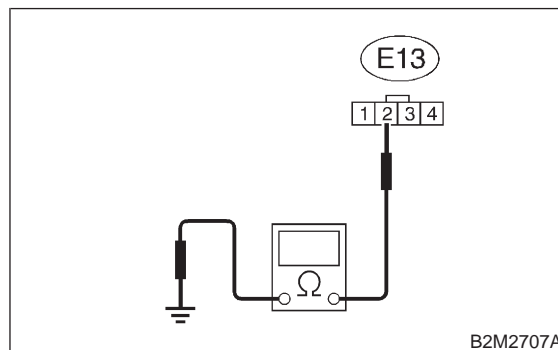
- In this case, repair the following:
- Poor contact in throttle position sensor connector
 - Poor contact in ECM connector
 - Poor contact in coupling connector (B21)
 - Poor contact in joint connector (B171)

11L2 : CHECK HARNESS BETWEEN THROTTLE POSITION SENSOR AND ECM CONNECTOR.

- 1) Turn ignition switch to OFF.
- 2) Disconnect connector from throttle position sensor.
- 3) Measure resistance of harness between throttle position sensor connector and engine ground.

Connector & terminal

(E13) No. 2 — Engine ground:



CHECK : *Is the resistance less than 5 Ω?*

YES : Go to step 11L3.

NO : Repair harness and connector.

NOTE:

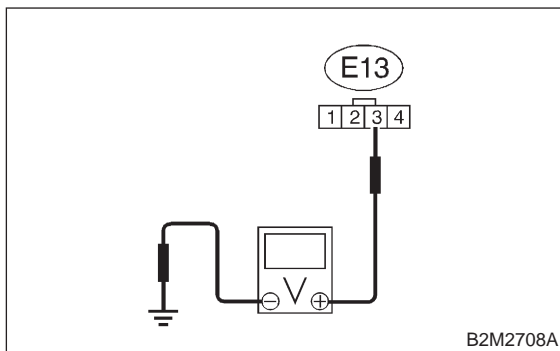
- In this case, repair the following:
- Open circuit in harness between throttle position sensor and ECM connector
 - Poor contact in coupling connector (B21)
 - Poor contact in joint connector (B171)

11L3 : CHECK HARNESS BETWEEN THROTTLE POSITION SENSOR AND ECM CONNECTOR.

- 1) Turn ignition switch to ON.
- 2) Measure voltage between throttle position sensor connector and engine ground.

Connector & terminal

(E13) No. 3 (+) — Engine ground (-):



- CHECK** : **Is the voltage more than 4.9 V?**
- YES** : Repair battery short circuit in harness between throttle position sensor and ECM connector. After repair, replace ECM. <Ref. to 2-7 [W15A0].>
- NO** : Replace throttle position sensor. <Ref. to 2-7 [W9A2].>

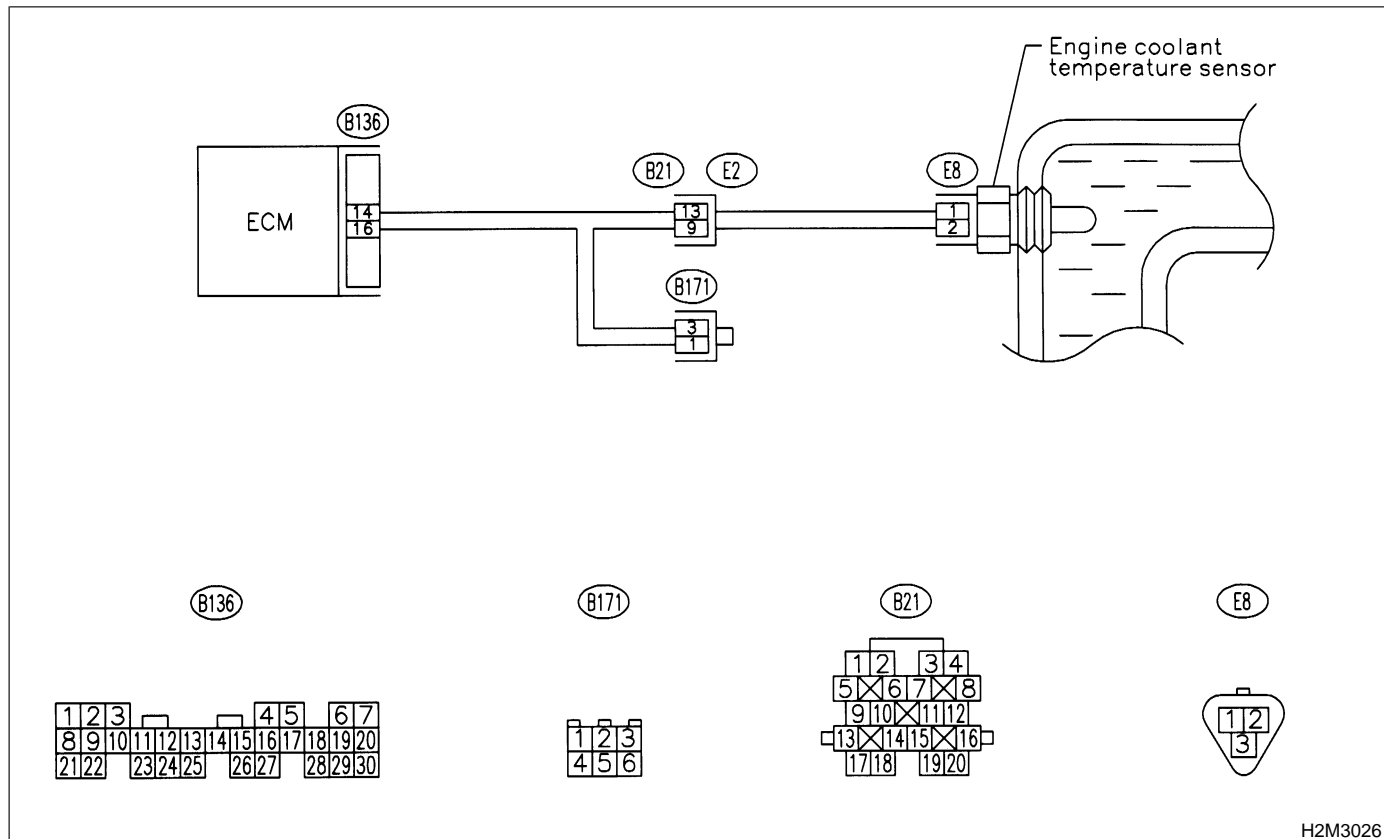
M: DTC P0125 — INSUFFICIENT COOLANT TEMPERATURE FOR CLOSED LOOP FUEL CONTROL —

- **DTC DETECTING CONDITION:**
 - Two consecutive driving cycles with fault
- **TROUBLE SYMPTOM:**
 - Engine would not return to idling.

CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to 2-7 [T3D0].> and INSPECTION MODE <Ref. to 2-7 [T3E0].>

● **WIRING DIAGRAM:**



H2M3026

11M1 : CHECK ANY OTHER DTC ON DISPLAY.

- CHECK** : Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0116 or P0117?
- YES** : Inspect DTC P0116 or P0117 using "11. Diagnostics Chart with Trouble Code for Except 2200 cc California Spec. Vehicles". <Ref. to 2-7 [T11A0].>

NOTE:

In this case, it is not necessary to inspect DTC P0125.

- NO** : Replace engine coolant temperature sensor. <Ref. to 2-7 [W5A2].>

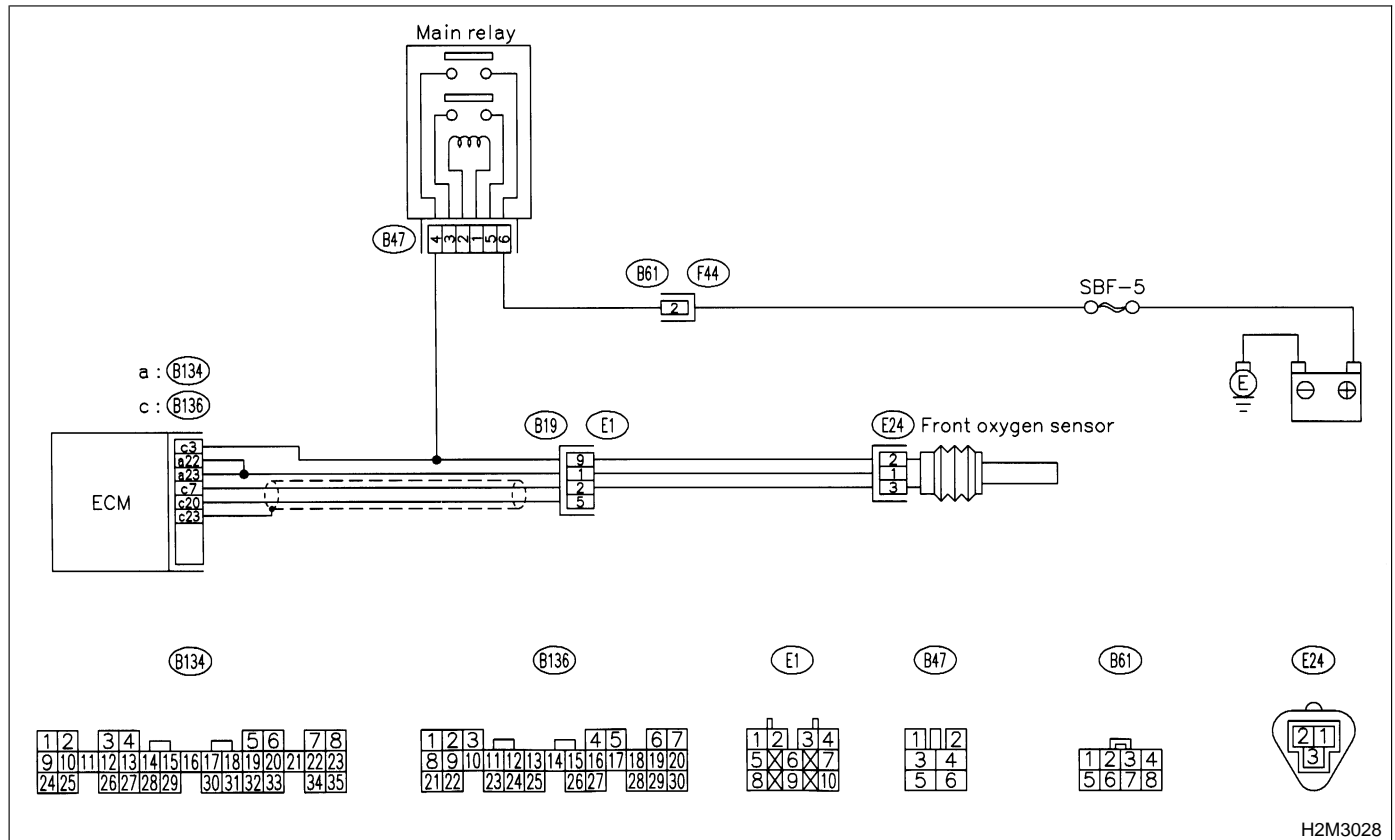
N: DTC P0130 — FRONT OXYGEN SENSOR CIRCUIT MALFUNCTION —

- **DTC DETECTING CONDITION:**
 - Two consecutive driving cycles with fault

CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to 2-7 [T3D0].> and INSPECTION MODE <Ref. to 2-7 [T3E0].>

● **WIRING DIAGRAM:**



H2M3028

11N1 : CHECK FOR OTHER CAUSES AFFECTING EXHAUST GAS.

NOTE:

- Check for use of improper fuel.
- Check if engine oil or coolant level is extremely low.

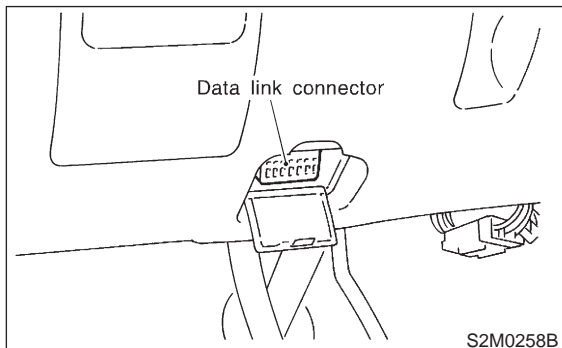
CHECK : *Is CO % more than 2 % after engine warm-up?*

YES : Check fuel system.

NO : Go to step 11N2.

11N2 : CHECK FRONT OXYGEN SENSOR DATA.

- 1) Turn ignition switch to OFF.
- 2) Connect the Subaru Select Monitor or the OBD-II general scan tool to data link connector.



- 3) Start engine and Turn the Subaru Select Monitor and the OBD-II general scan tool switch to ON.
- 4) Warm-up the engine until coolant temperature is above 70°C (160°F) and keep the engine speed at 2,000 rpm to 3,000 rpm for one minute.
- 5) Read data of front oxygen sensor signal using Subaru Select Monitor or OBD-II general scan tool.

NOTE:

- Subaru Select Monitor

For detailed operation procedure, refer to the "READ OXYGEN SENSOR MONITORING TEST RESULTS DATA SHOWN ON DISPLAY FOR ENGINE". <Ref. to 2-7 [T3C7].>

- OBD-II general scan tool

For detailed operation procedures, refer to the OBD-II General Scan Tool Instruction Manual.

CHECK : **Is the difference of voltage less than 0.1 V between the value of max. output and min. output?**

YES : Go to step 11N3.

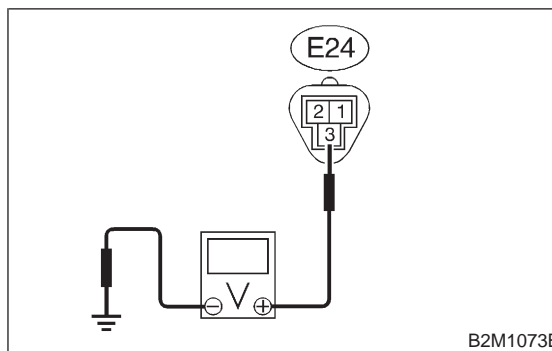
NO : Replace front oxygen sensor. <Ref. to 2-7 [W7A0].>

11N3 : CHECK HARNESS BETWEEN FRONT OXYGEN SENSOR AND ECM CONNECTOR.

- 1) Turn ignition switch to OFF.
- 2) Disconnect connector from front oxygen sensor.
- 3) Turn ignition switch to ON.
- 4) Measure voltage between front oxygen sensor harness connector and engine ground.

Connector & terminal

(E24) No. 3 (+) — Engine ground (-):



CHECK : **Is the voltage more than 0.2 V?**

YES : Go to step 11N4.

NO : Repair harness and connector.

NOTE:

In this case, repair the following:

- Open circuit in harness between ECM and front oxygen sensor connector
- Poor contact in the ECM connector

11N4 : CHECK POOR CONTACT.

Check poor contact in front oxygen sensor connector. <Ref. to FOREWORD [T3C1].>

CHECK : **Is there poor contact in front oxygen sensor connector?**

YES : Repair poor contact in front oxygen sensor connector.

NO : Replace front oxygen sensor. <Ref. to 2-7 [W7A0].>

O: DTC P0133 — FRONT OXYGEN SENSOR CIRCUIT SLOW RESPONSE —

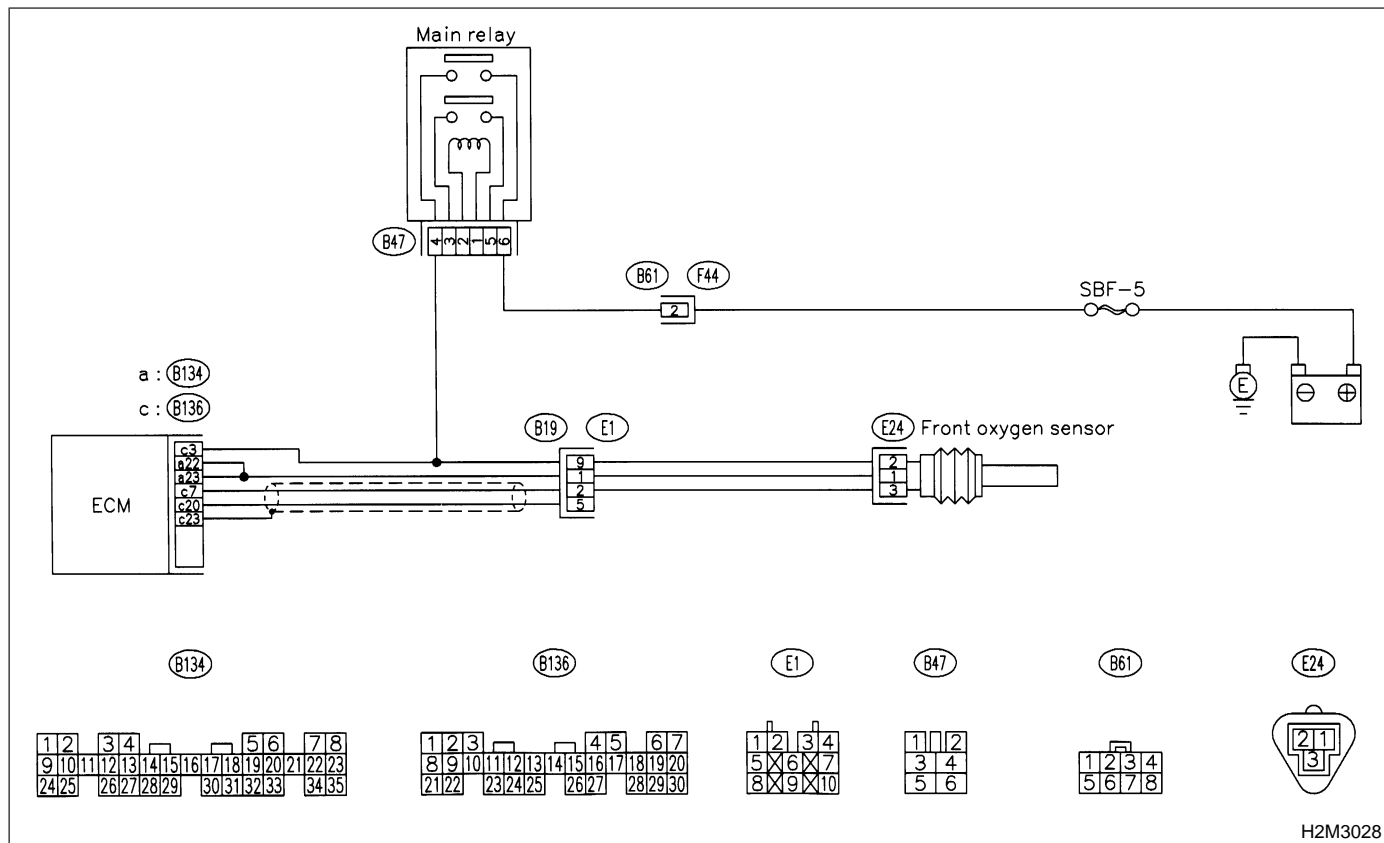
DTC DETECTING CONDITION:

- Two consecutive driving cycles with fault

CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to 2-7 [T3D0].> and INSPECTION MODE <Ref. to 2-7 [T3E0].>

WIRING DIAGRAM:



1101 : CHECK ANY OTHER DTC ON DISPLAY.

- CHECK** : Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0130?
- YES** : Inspect DTC P0130 using “11. Diagnostics Chart with Trouble Code for Except 2200 cc California Spec. Vehicles”. <Ref. to 2-7 [T11A0].>

NOTE:

In this case, it is not necessary to inspect DTC P0133.

- NO** : Go to step 1102.

1102 : CHECK EXHAUST SYSTEM.

NOTE:

Check the following items.

- Loose installation of front portion of exhaust pipe onto cylinder heads
- Loose connection between front exhaust pipe and front catalytic converter
- Damage of exhaust pipe resulting in a hole

- CHECK** : Is there a fault in exhaust system?
- YES** : Repair exhaust system.
- NO** : Replace front oxygen sensor. <Ref. to 2-7 [W7A0].>

MEMO:

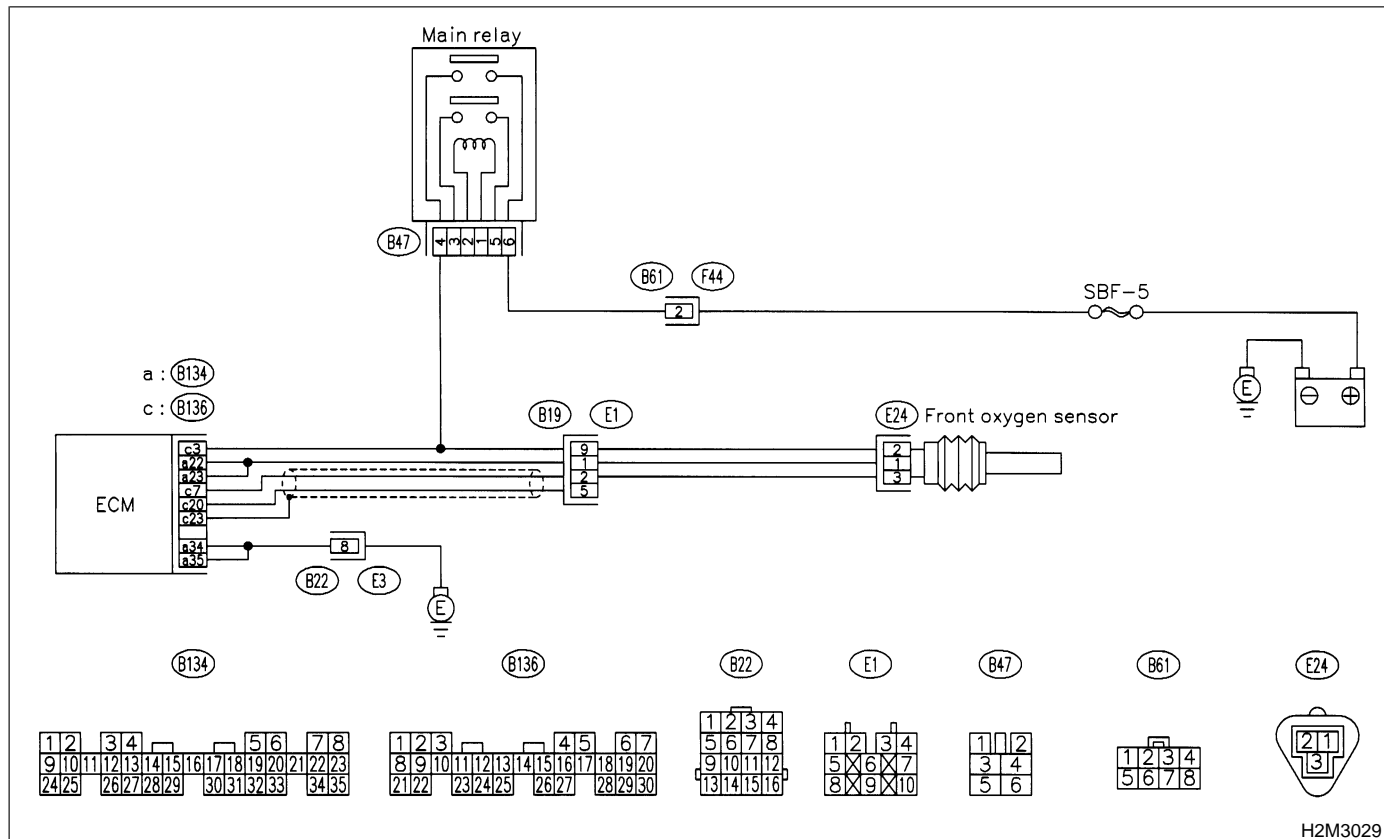
P: DTC P0135 — FRONT OXYGEN SENSOR HEATER CIRCUIT MALFUNCTION —

- **DTC DETECTING CONDITION:**
 - Two consecutive driving cycles with fault

CAUTION:

After repair or replacement of faulty parts, conduct **CLEAR MEMORY MODE** <Ref. to 2-7 [T3D0].> and **INSPECTION MODE** <Ref. to 2-7 [T3E0].>

● **WIRING DIAGRAM:**



11P1 : CHECK ANY OTHER DTC ON DISPLAY.

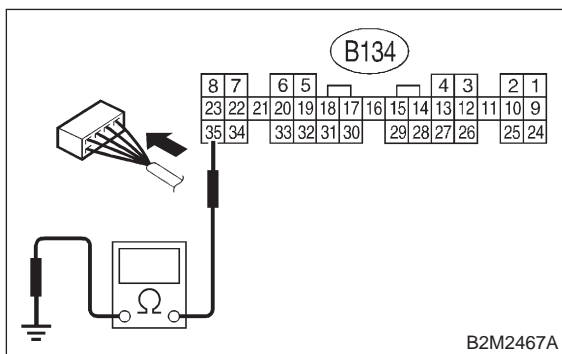
- CHECK** : Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0135 and P0141 at the same time?
- YES** : Go to step 11P2.
- NO** : Go to step 11P4.

11P2 : CHECK GROUND CIRCUIT OF ECM.

- 1) Turn ignition switch to OFF.
- 2) Disconnect connector from ECM.
- 3) Measure resistance of harness between ECM connector and chassis ground.

Connector & terminal

(B134) No. 35 — Chassis ground:



- CHECK** : Is the resistance less than 5 Ω?
- YES** : Go to step 11P4.
- NO** : Go to step 11P3.

11P3 : CHECK GROUND CIRCUIT OF ECM.

- 1) Repair harness and connector.

NOTE:

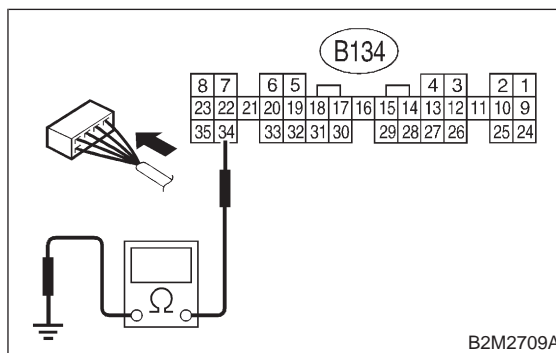
In this case, repair the following:

- Open circuit in harness between ECM and engine ground terminal
- Poor contact in ECM connector
- Poor contact in coupling connector (B22)

- 2) Measure resistance of harness between ECM connector and chassis ground.

Connector & terminal

(B134) No. 34 — Chassis ground:



- CHECK** : Is the resistance less than 5 Ω?
- YES** : Go to step 11P4.
- NO** : Repair harness and connector.

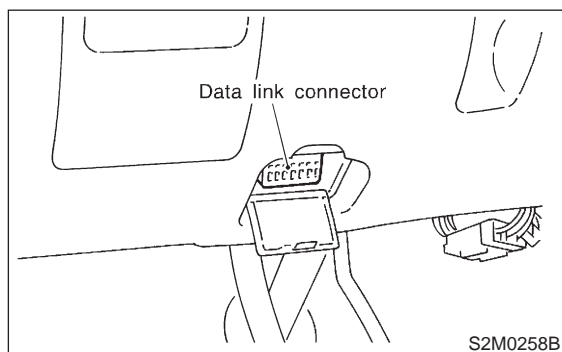
NOTE:

In this case, repair the following:

- Open circuit in harness between ECM and engine ground terminal
- Poor contact in ECM connector
- Poor contact in coupling connector (B22)

11P4 : CONNECT SUBARU SELECT MONITOR OR THE OBD-II GENERAL SCAN TOOL, AND READ DATA.

- 1) Turn ignition switch to OFF.
- 2) Connect Subaru Select Monitor or the OBD-II general scan tool to data link connector.



- 3) Turn ignition switch to ON and Subaru Select Monitor or OBD-II general scan tool switch to ON.
- 4) Start engine
- 5) Read data of front oxygen sensor heater current using Subaru Select Monitor or OBD-II general scan tool.

NOTE:

- Subaru Select Monitor

For detailed operation procedure, refer to the "READ CURRENT DATA SHOWN ON DISPLAY FOR ENGINE". <Ref. to 2-7 [T3C4].>

- OBD-II scan tool

For detailed operation procedures, refer to the OBD-II General Scan Tool Instruction Manual.

CHECK : *Is the value more than 0.2 A?*

YES : Repair connector.

NOTE:

In this case, repair the following:

- Poor contact in front oxygen sensor connector
- Poor contact in ECM connector

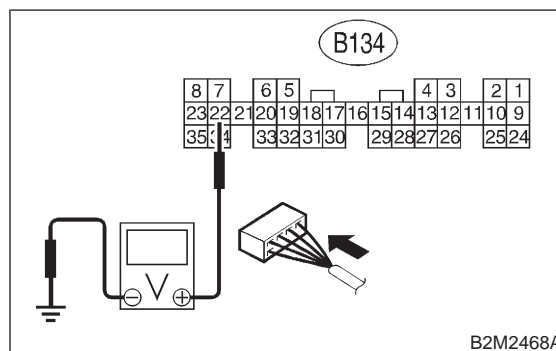
NO : Go to step 11P5.

11P5 : CHECK OUTPUT SIGNAL FROM ECM.

- 1) Start and idle the engine.
- 2) Measure voltage between ECM connector and chassis ground.

Connector & terminal

(B134) No. 22 (+) — Chassis ground (-):



CHECK : *Is the voltage less than 1.0 V?*

YES : Go to step 11P11.

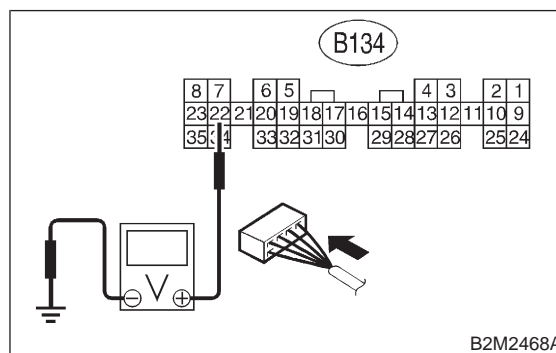
NO : Go to step 11P6.

11P6 : CHECK OUTPUT SIGNAL FROM ECM.

Measure voltage between ECM connector and chassis ground.

Connector & terminal

(B134) No. 22 (+) — Chassis ground (-):



CHECK : *Does the voltage change less than 1.0 V by shaking harness and connector of ECM while monitoring the value with voltage meter?*

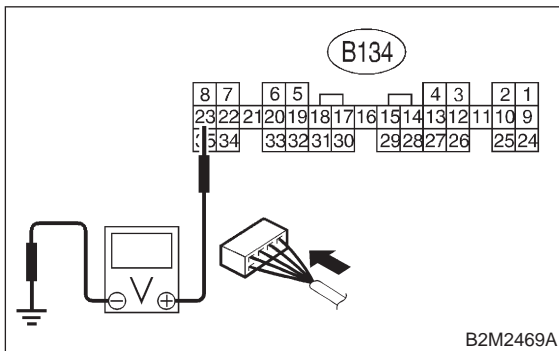
YES : Repair poor contact in ECM connector.

NO : Go to step 11P7.

11P7 : CHECK OUTPUT SIGNAL FROM ECM.

Measure voltage between ECM connector and chassis ground.

Connector & terminal
(B134) No. 23 (+) — Chassis ground (-):

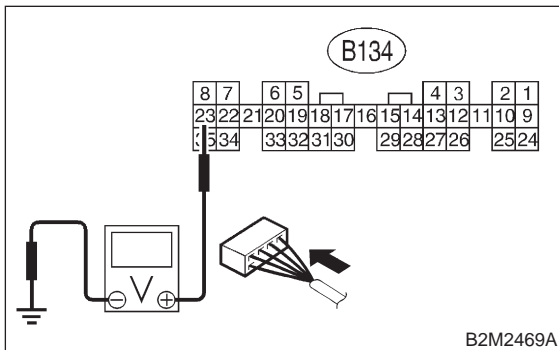


- CHECK** : **Is the voltage less than 1.0 V?**
- YES** : Go to step 11P11.
- NO** : Go to step 11P8.

11P8 : CHECK OUTPUT SIGNAL FROM ECM.

Measure voltage between ECM connector and chassis ground.

Connector & terminal
(B134) No. 23 (+) — Chassis ground (-):

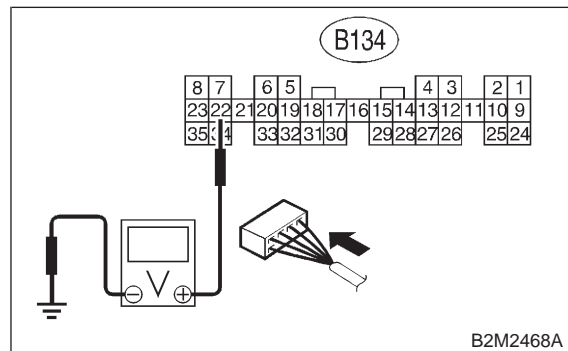


- CHECK** : **Does the voltage change less than 1.0 V by shaking harness and connector of ECM while monitoring the value with voltage meter?**
- YES** : Repair poor contact in ECM connector.
- NO** : Go to step 11P9.

11P9 : CHECK OUTPUT SIGNAL FROM ECM.

- 1) Disconnect connector from front oxygen sensor.
- 2) Measure voltage between ECM connector and chassis ground.

Connector & terminal
(B134) No. 22 (+) — Chassis ground (-):

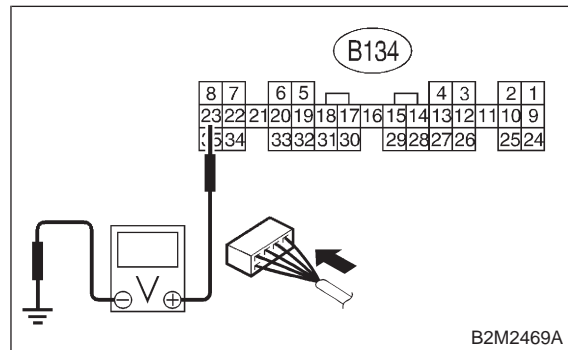


- CHECK** : **Is the voltage less than 1.0 V?**
- YES** : Go to step 11P10.
- NO** : Repair battery short circuit in harness between ECM and front oxygen sensor connector. After repair, replace ECM. <Ref. to 2-7 [W15A0].>

11P10 : CHECK OUTPUT SIGNAL FROM ECM.

Measure voltage between ECM connector and chassis ground.

Connector & terminal
(B134) No. 23 (+) — Chassis ground (-):



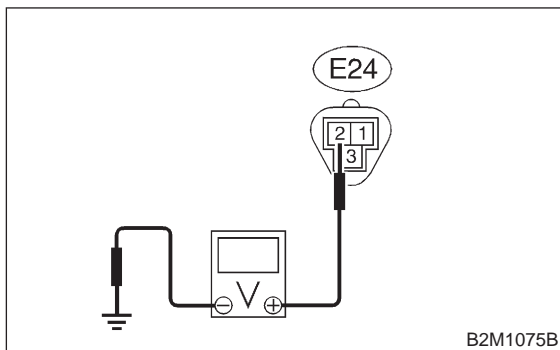
- CHECK** : **Is the voltage less than 1.0 V?**
- YES** : Replace ECM. <Ref. to 2-7 [W15A0].>
- NO** : Repair battery short circuit in harness between ECM and front oxygen sensor connector. After repair, replace ECM. <Ref. to 2-7 [W15A0].>

11P11 : CHECK POWER SUPPLY TO FRONT OXYGEN SENSOR.

- 1) Turn ignition switch to OFF.
- 2) Disconnect connector from front oxygen sensor.
- 3) Turn ignition switch to ON.
- 4) Measure voltage between front oxygen sensor connector and engine ground.

Connector & terminal

(E24) No. 2 (+) — Engine ground (-):



CHECK : *Is the voltage more than 10 V?*

YES : Go to step 11P12.

NO : Repair power supply line.

NOTE:

In this case, repair the following:

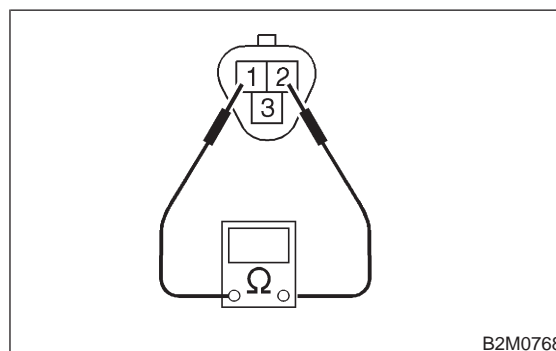
- Open circuit in harness between main relay and front oxygen sensor connector
- Poor contact in front oxygen sensor connector
- Poor contact in main relay connector

11P12 : CHECK FRONT OXYGEN SENSOR.

- 1) Turn ignition switch to OFF.
- 2) Measure resistance between front oxygen sensor connector terminals.

Terminals

No. 1 — No. 2:



CHECK : *Is the resistance less than 30 Ω?*

YES : Repair harness and connector.

NOTE:

In this case, repair the following:

- Open circuit in harness between front oxygen sensor and ECM connector
- Poor contact in front oxygen sensor connector
- Poor contact in ECM connector

NO : Replace front oxygen sensor. <Ref. to 2-7 [W7A0].>

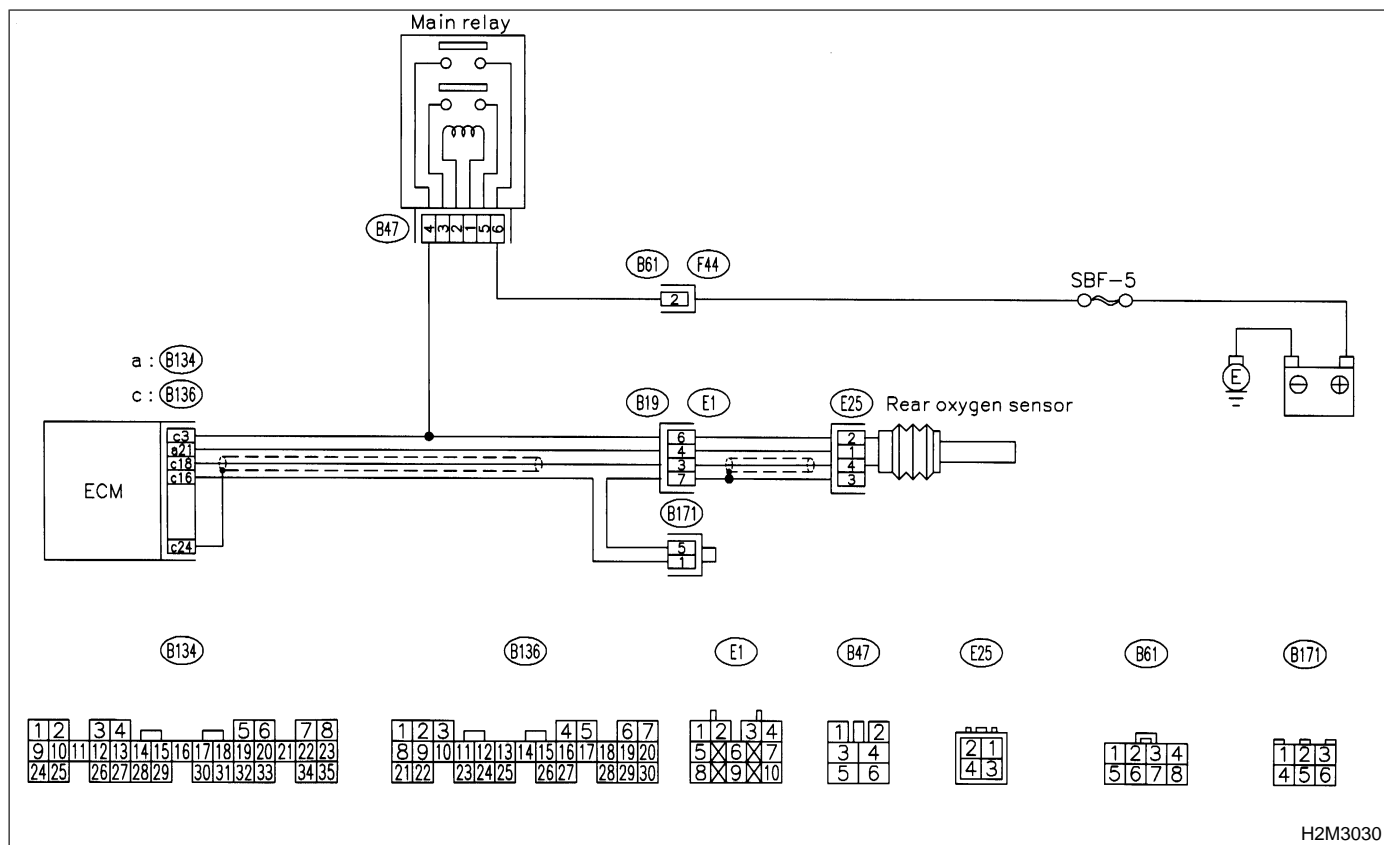
Q: DTC P0136 — REAR OXYGEN SENSOR CIRCUIT MALFUNCTION —

- **DTC DETECTING CONDITION:**
 - Two consecutive driving cycles with fault

CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to 2-7 [T3D0].> and INSPECTION MODE <Ref. to 2-7 [T3E0].>

● **WIRING DIAGRAM:**



H2M3030

11Q1 : CHECK ANY OTHER DTC ON DISPLAY.

- CHECK** : Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0130?
- YES** : Go to step 11Q2.
- NO** : Go to step 11Q3.

11Q2 : CHECK FAILURE CAUSE OF P0130.

Inspect DTC P0130 using "11. Diagnostics Chart with Trouble Code for Except 2200 cc California Spec. Vehicles". <Ref. to 2-7 [T11A0].>

- CHECK** : Is the failure cause of P0130 in the fuel system?
- YES** : Check fuel system.

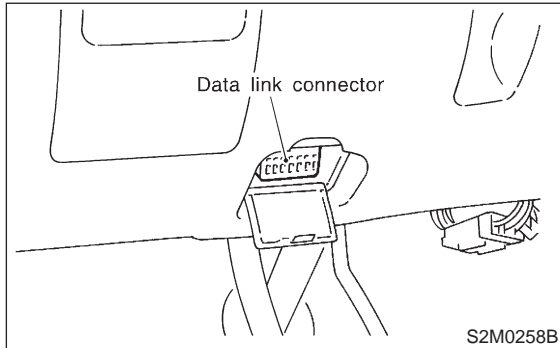
NOTE:

In this case, it is not necessary to inspect DTC P0136.

- NO** : Go to step 11Q3.

11Q3 : CHECK REAR OXYGEN SENSOR DATA.

- 1) Turn ignition switch to OFF.
- 2) Connect Subaru Select Monitor or OBD-II general scan tool to data link connector.



- 3) Start the engine, and turn Subaru Select Monitor or OBD-II general scan tool switch to ON.
- 4) Warm-up the engine until engine coolant temperature is above 70°C (160°F), and keep the engine speed at 2,000 rpm to 3,000 rpm for two minutes.
- 5) Read data of rear oxygen sensor signal using Subaru Select Monitor or OBD-II general scan tool.

NOTE:

- Subaru Select Monitor
For detailed operation procedure, refer to the "READ CURRENT DATA SHOWN ON DISPLAY FOR ENGINE". <Ref. to 2-7 [T3C4].>
- OBD-II general scan tool
For detailed operation procedures, refer to the OBD-II General Scan Tool Instruction Manual.

- CHECK** : Does the value fluctuate?
- YES** : Go to step 11Q7.
- NO** : Go to step 11Q4.

11Q4 : CHECK REAR OXYGEN SENSOR DATA.

Read data of rear oxygen sensor signal using Subaru Select Monitor or OBD-II General Scan Tool.

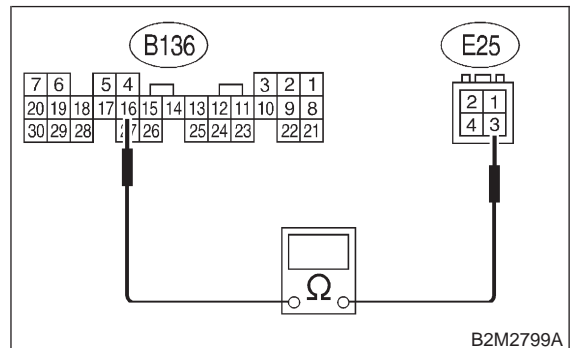
- CHECK** : Is the value fixed between 0.2 and 0.4 V?
- YES** : Go to step 11Q5.
- NO** : Replace rear oxygen sensor. <Ref. to 2-7 [W8A0].>

11Q5 : CHECK HARNESS BETWEEN ECM AND REAR OXYGEN SENSOR CONNECTOR.

- 1) Turn ignition switch to OFF.
- 2) Disconnect connectors from ECM and rear oxygen sensor.
- 3) Measure resistance of harness between ECM and rear oxygen sensor connector.

Connector & terminal

(B136) No. 16 — (E25) No. 3:



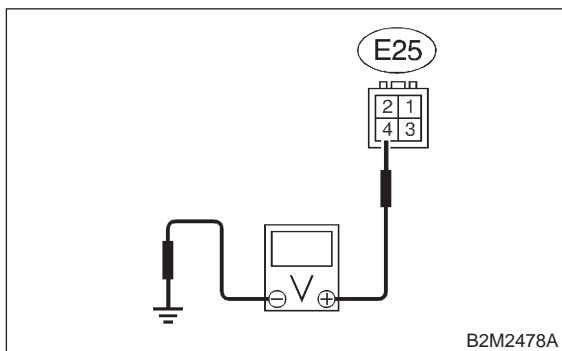
- CHECK** : Is the resistance more than 3 Ω?
- YES** : Repair open circuit in harness between ECM and rear oxygen sensor connector.
- NO** : Go to step 11Q6.

11Q6 : CHECK HARNESS BETWEEN REAR OXYGEN SENSOR AND ECM CONNECTOR.

- 1) Turn ignition switch to OFF.
- 2) Disconnect connector from rear oxygen sensor.
- 3) Turn ignition switch to ON.
- 4) Measure voltage between rear oxygen sensor harness connector and engine ground or chassis ground.

Connector & terminal

(E25) No. 4 (+) — Engine ground (-):



CHECK : **Is the voltage more than 0.2 V?**

YES : Replace rear oxygen sensor. <Ref. to 2-7 [W8A0].>

NO : Repair harness and connector.

NOTE:

In this case, repair the following:

- Open circuit in harness between rear oxygen sensor and ECM connector
- Poor contact in rear oxygen sensor connector
- Poor contact in ECM connector

11Q7 : CHECK EXHAUST SYSTEM.

Check exhaust system parts.

NOTE:

Check the following items.

- Loose installation of portions
- Damage (crack, hole etc.) of parts
- Looseness and ill fitting of parts between front oxygen sensor and rear oxygen sensor

CHECK : **Is there a fault in exhaust system?**

YES : Repair or replace faulty parts.

NO : Replace rear oxygen sensor. <Ref. to 2-7 [W8A0].>

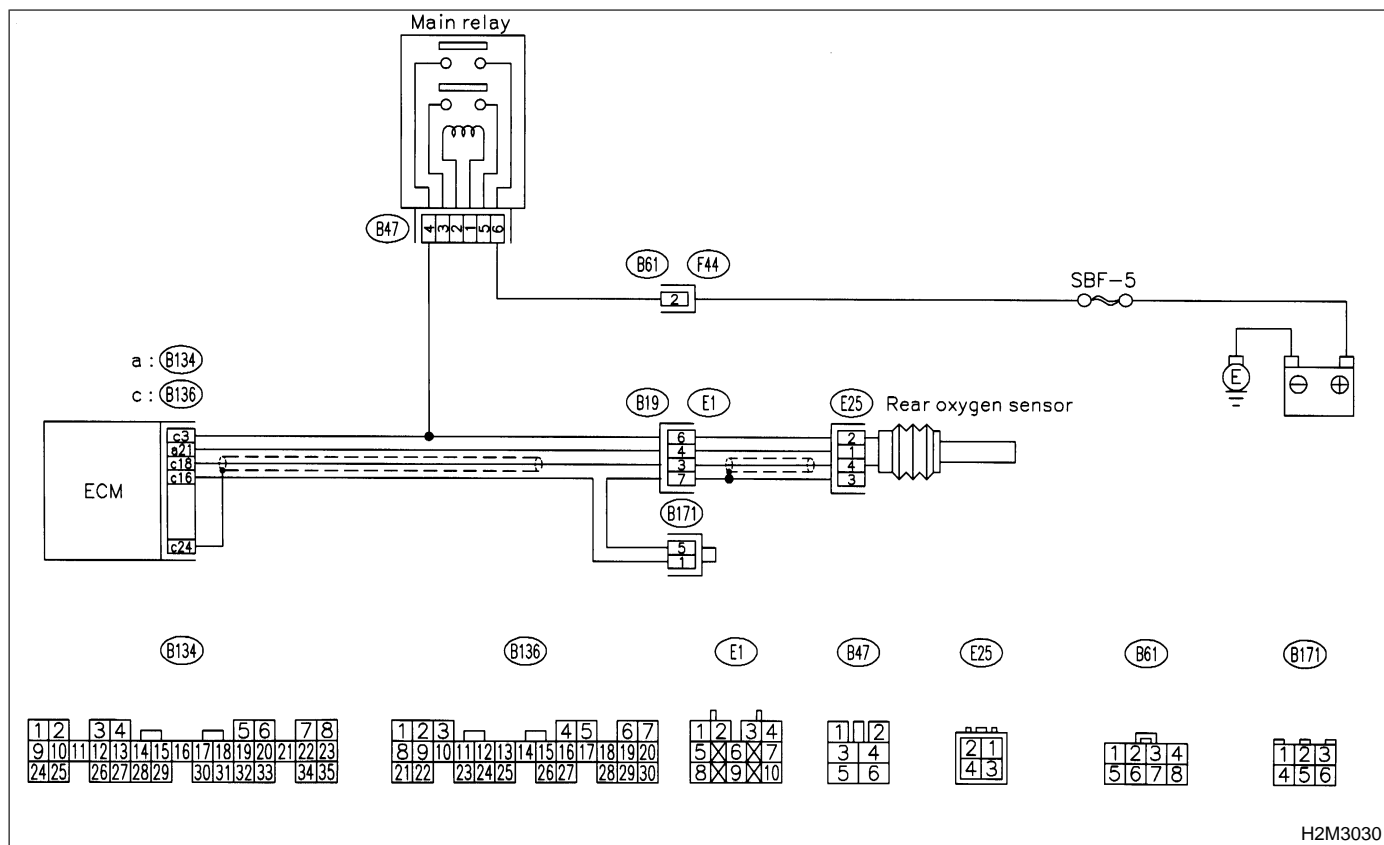
R: DTC P0139 — REAR OXYGEN SENSOR CIRCUIT SLOW RESPONSE —

- **DTC DETECTING CONDITION:**
 - Two consecutive driving cycles with fault

CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to 2-7 [T3D0].> and INSPECTION MODE <Ref. to 2-7 [T3E0].>

● **WIRING DIAGRAM:**



H2M3030

11R1 : CHECK ANY OTHER DTC ON DISPLAY.

CHECK : Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0136?

YES : Inspect DTC P0136 using "11. Diagnostics Chart with Trouble Code for Except 2200 cc California Spec. Vehicles". <Ref. to 2-7 [T11A0].>

NOTE:
In this case, it is not necessary to inspect DTC P0139.

NO : Replace rear oxygen sensor. <Ref. to 2-7 [W8A0].>

S: DTC P0141 — REAR OXYGEN SENSOR HEATER CIRCUIT MALFUNCTION

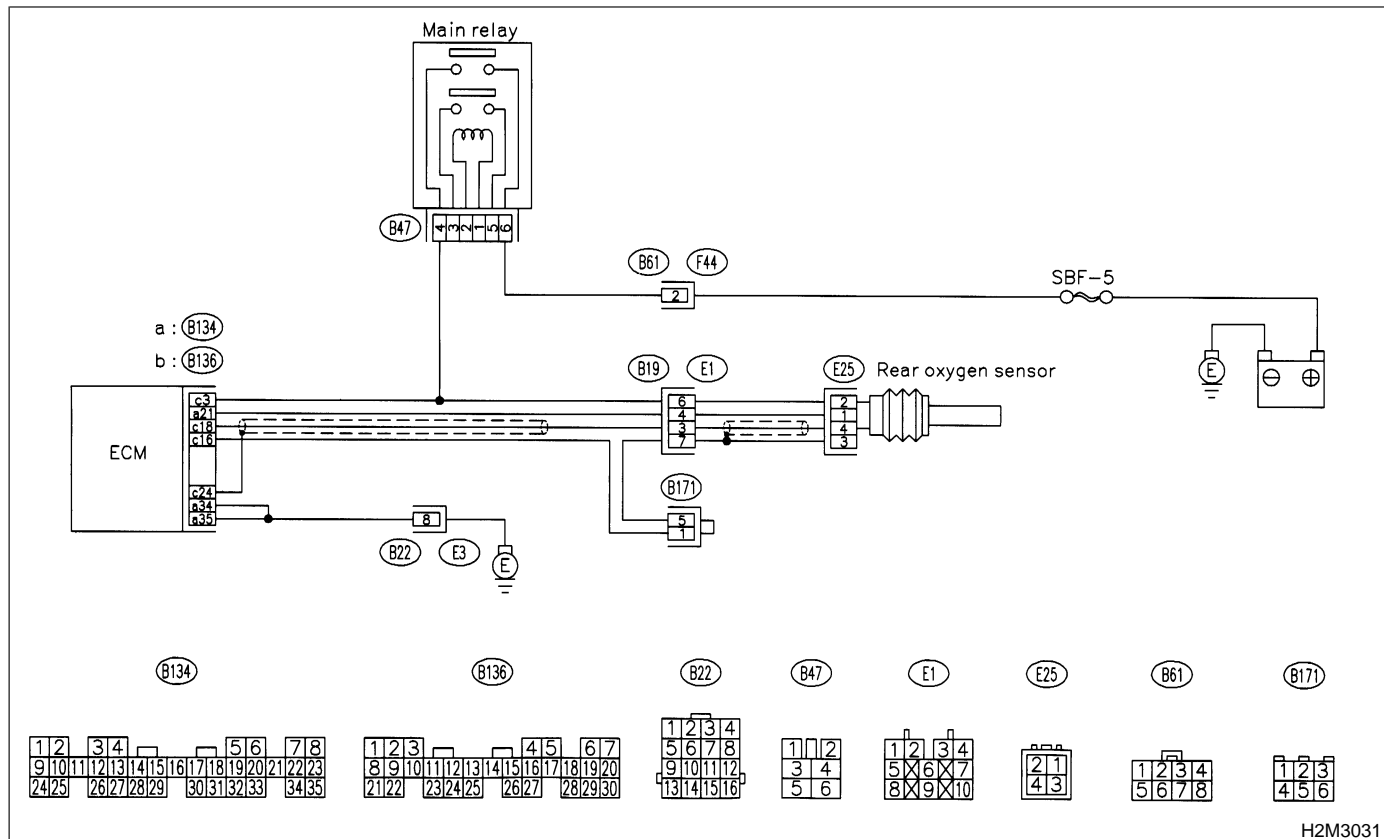
• DTC DETECTING CONDITION:

- Two consecutive driving cycles with fault

CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to 2-7 [T3D0].> and INSPECTION MODE <Ref. to 2-7 [T3E0].>

• WIRING DIAGRAM:



H2M3031

11S1 : CHECK ANY OTHER DTC ON DISPLAY.

CHECK : Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0141 and P0135 at the same time?

YES : Go to step 11S2.

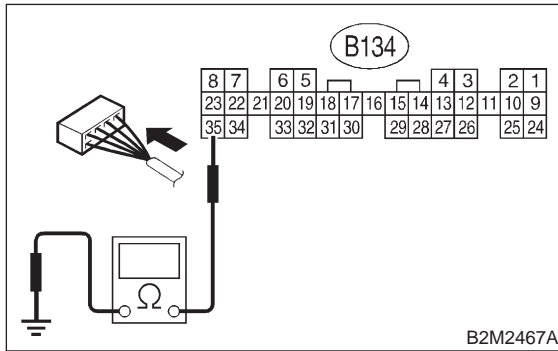
NO : Go to step 11S3.

11S2 : CHECK GROUND CIRCUIT OF ECM.

- 1) Turn ignition switch to OFF.
- 2) Disconnect connector from ECM.
- 3) Measure resistance of harness between ECM connector and chassis ground.

Connector & terminal

(B134) No. 35 — Chassis ground:



- CHECK** : **Is the resistance less than 5 Ω?**
- YES** : Go to step 11S4.
- NO** : Go to step 11S3.

11S3 : CHECK GROUND CIRCUIT OF ECM.

- 1) Repair harness and connector.

NOTE:

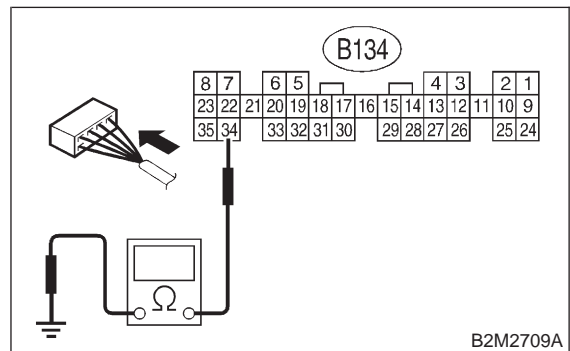
In this case, repair the following:

- Open circuit in harness between ECM and engine ground terminal
- Poor contact in ECM connector
- Poor contact in coupling connector (B22)

- 2) Measure resistance of harness between ECM connector and chassis ground.

Connector & terminal

(B134) No. 34 — Chassis ground:



- CHECK** : **Is the resistance less than 5 Ω?**
- YES** : Go to step 11S4.
- NO** : Repair harness and connector.

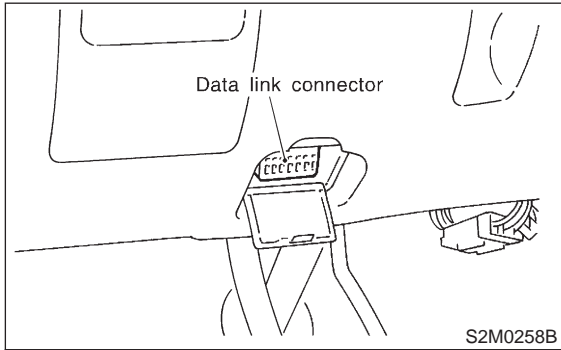
NOTE:

In this case, repair the following:

- Open circuit in harness between ECM and engine ground terminal
- Poor contact in ECM connector
- Poor contact in coupling connector (B22)

11S4 : CONNECT SUBARU SELECT MONITOR OR THE OBD-II GENERAL SCAN TOOL, AND READ DATA.

- 1) Turn ignition switch to OFF.
- 2) Connect Subaru Select Monitor or the OBD-II general scan tool to data link connector.



- 3) Turn ignition switch to ON and Subaru Select Monitor or OBD-II general scan tool switch to ON.
- 4) Start engine.
- 5) Read data of rear oxygen sensor heater current using Subaru Select Monitor or OBD-II general scan tool.

NOTE:

- Subaru Select Monitor
For detailed operation procedure, refer to the "READ CURRENT DATA SHOWN ON DISPLAY FOR ENGINE". <Ref. to 2-7 [T3C4].>
- OBD-II scan tool
For detailed operation procedures, refer to the OBD-II General Scan Tool Instruction Manual.

- CHECK** : *Is the value more than 0.2 A?*
YES : Repair connector.

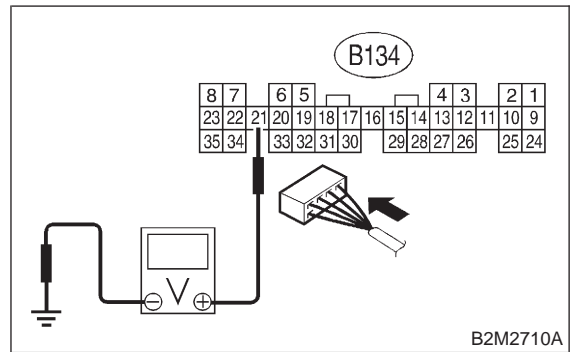
NOTE:

- In this case, repair the following:
- Poor contact in rear oxygen sensor connector
 - Poor contact in rear oxygen sensor connecting harness connector
 - Poor contact in ECM connector
- NO** : Go to step 11S5.

11S5 : CHECK OUTPUT SIGNAL FROM ECM.

- 1) Start and idle the engine.
- 2) Measure voltage between ECM connector and chassis ground.

Connector & terminal
(B134) No. 21 (+) — Chassis ground (-):

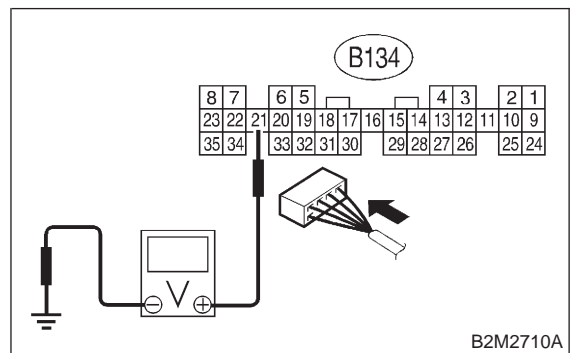


- CHECK** : *Is the voltage less than 1.0 V?*
YES : Go to step 11S8.
NO : Go to step 11S6.

11S6 : CHECK OUTPUT SIGNAL FROM ECM.

Measure voltage between ECM connector and chassis ground.

Connector & terminal
(B134) No. 21 (+) — Chassis ground (-):



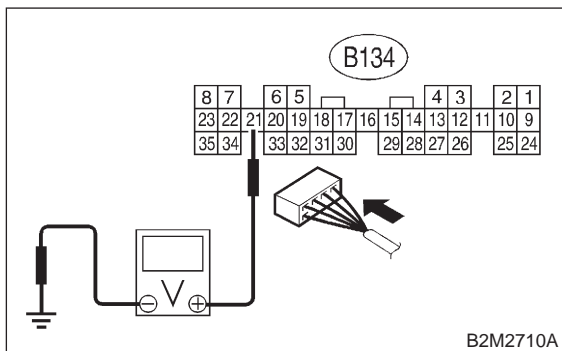
- CHECK** : *Does the voltage change less than 1.0 V by shaking harness and connector of ECM while monitoring the value with voltage meter?*
YES : Repair poor contact in ECM connector.
NO : Go to step 11S7.

11S7 : CHECK OUTPUT SIGNAL FROM ECM.

- 1) Disconnect connector from rear oxygen sensor.
- 2) Measure voltage between ECM connector and chassis ground.

Connector & terminal

(B134) No. 21 (+) — Chassis ground (-):



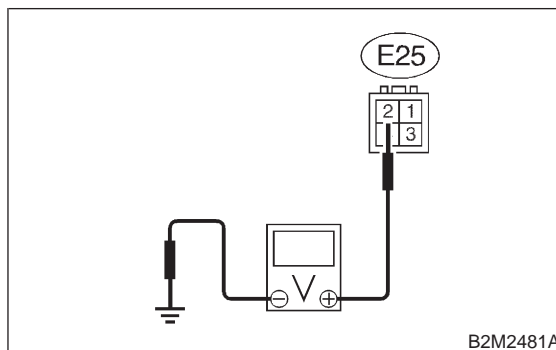
- CHECK** : **Is the voltage less than 1.0 V?**
- YES** : Replace ECM. <Ref. to 2-7 [W15A0].>
- NO** : Repair battery short circuit in harness between ECM and rear oxygen sensor connector. After repair, replace ECM. <Ref. to 2-7 [W15A0].>

11S8 : CHECK POWER SUPPLY TO REAR OXYGEN SENSOR.

- 1) Turn ignition switch to OFF.
- 2) Disconnect connector from rear oxygen sensor.
- 3) Turn ignition switch to ON.
- 4) Measure voltage between rear oxygen sensor connector and engine ground or chassis ground.

Connector & terminal

(E25) No. 2 (+) — Chassis ground (-):



- CHECK** : **Is the voltage more than 10 V?**
- YES** : Go to step 11S9.
- NO** : Repair power supply line.

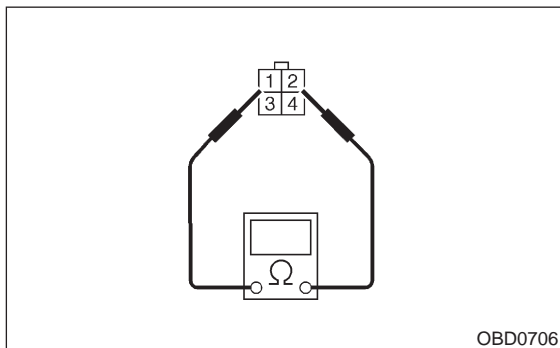
NOTE:

In this case, repair the following:

- Open circuit in harness between main relay and rear oxygen sensor connector
- Poor contact in rear oxygen sensor connector
- Poor contact in coupling connector (E1)

11S9 : CHECK REAR OXYGEN SENSOR.

- 1) Turn ignition switch to OFF.
- 2) Measure resistance between rear oxygen sensor connector terminals.

Terminals**No. 1 — No. 2:****CHECK** : *Is the resistance less than 30 Ω?***YES** : Repair harness and connector.**NOTE:**

In this case, repair the following:

- Open circuit in harness between rear oxygen sensor and ECM connector
- Poor contact in rear oxygen sensor connector
- Poor contact in ECM connector
- Poor contact in coupling connector (E1)

NO : Replace rear oxygen sensor. <Ref. to 2-7 [W8A0].>

MEMO:

T: DTC P0170 — FUEL TRIM MALFUNCTION —

- **DTC DETECTING CONDITION:**
 - Two consecutive driving cycles with fault
- **TROUBLE SYMPTOM:**
 - Erroneous idling
 - Engine stalls.
 - Poor driving performance

CAUTION:

After repair or replacement of faulty parts, conduct **CLEAR MEMORY MODE** <Ref. to 2-7 [T3D0].> and **INSPECTION MODE** <Ref. to 2-7 [T3E0].>.

11T1 : CHECK EXHAUST SYSTEM.

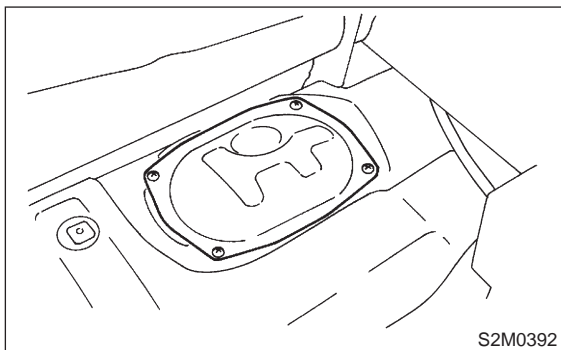
- CHECK** : Are there holes or loose bolts on exhaust system?
- YES** : Repair exhaust system.
- NO** : Go to step 11T2.

11T2 : CHECK AIR INTAKE SYSTEM.

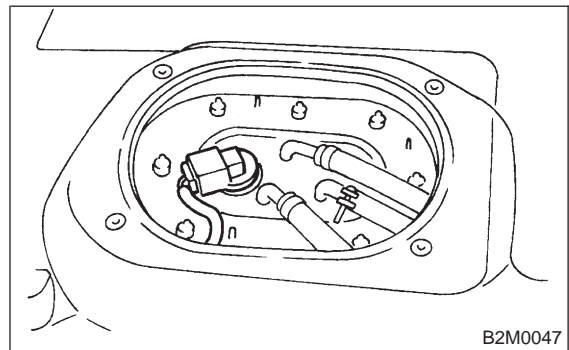
- CHECK** : Are there holes, loose bolts or disconnection of hose on air intake system?
- YES** : Repair air intake system.
- NO** : Go to step 11T3.

11T3 : CHECK FUEL PRESSURE.

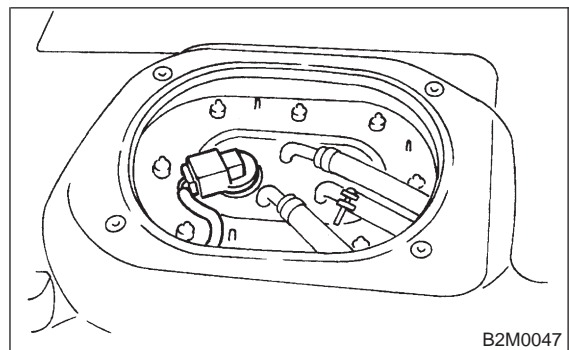
- 1) Release fuel pressure.
- (1) Remove fuel pump access hole lid located on the right rear of trunk compartment floor (Sedan) or luggage compartment floor (Wagon).



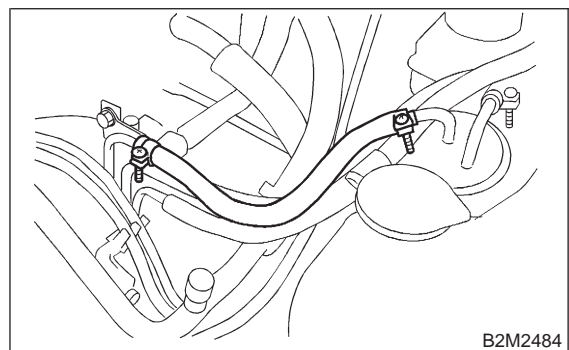
- (2) Disconnect connector from fuel tank.



- (3) Start the engine, and run it until it stalls.
- (4) After stopping the engine, crank the engine for 5 to 7 seconds to reduce fuel pressure.
- (5) Turn ignition switch to OFF.
- (6) Remove fuel filler cap.
- 2) Connect connector to fuel tank.



- 3) Disconnect fuel delivery hose from fuel filter, and connect fuel pressure gauge.



- 4) Install fuel filler cap.

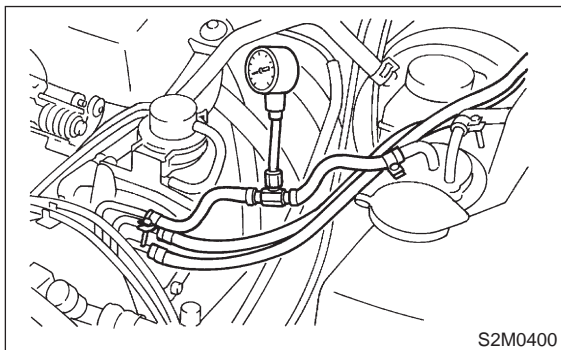
- 5) Start the engine and idle while gear position is neutral.
- 6) Measure fuel pressure while disconnecting pressure regulator vacuum hose from intake manifold.

WARNING:

Before removing fuel pressure gauge, release fuel pressure.

NOTE:

If fuel pressure does not increase, squeeze fuel return hose 2 to 3 times, then measure fuel pressure again.



CHECK : *Is fuel pressure between 284 and 314 kPa (2.9 — 3.2 kg/cm², 41 — 46 psi)?*

YES : Go to step 11T4.

NO : Repair the following items.

Fuel pressure too high	<ul style="list-style-type: none"> ● Clogged fuel return line or bent hose
Fuel pressure too low	<ul style="list-style-type: none"> ● Improper fuel pump discharge ● Clogged fuel supply line

11T4 : CHECK FUEL PRESSURE.

After connecting pressure regulator vacuum hose, measure fuel pressure.

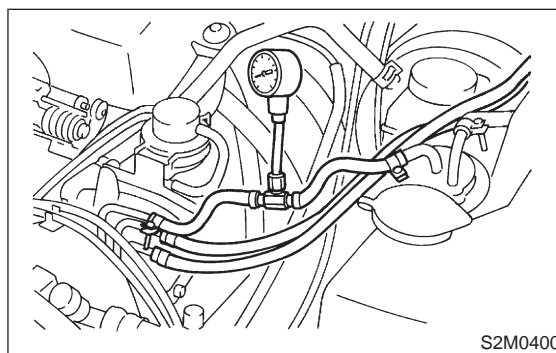
WARNING:

Before removing fuel pressure gauge, release fuel pressure.

NOTE:

- If fuel pressure does not increase, squeeze fuel return hose 2 to 3 times, then measure fuel pressure again.

- If out of specification as measured at this step, check or replace pressure regulator and pressure regulator vacuum hose.



CHECK : *Is fuel pressure between 206 and 235 kPa (2.1 — 2.4 kg/cm², 30 — 34 psi)?*

YES : Go to step 11T5.

NO : Repair the following items.

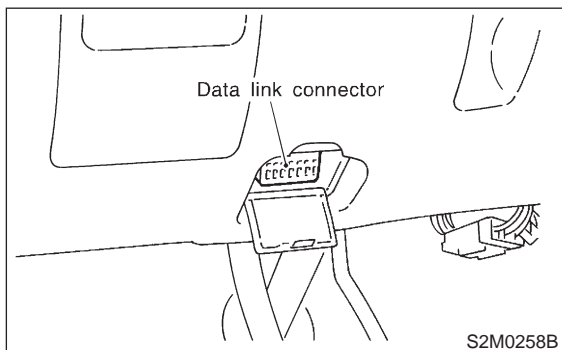
Fuel pressure too high	<ul style="list-style-type: none"> ● Faulty pressure regulator ● Clogged fuel return line or bent hose
Fuel pressure too low	<ul style="list-style-type: none"> ● Faulty pressure regulator ● Improper fuel pump discharge ● Clogged fuel supply line

NOTE:

The fuel pressure gauge registers 10 to 20 kPa (0.1 to 0.2 kg/cm², 1.4 to 2.8 psi) higher than standard values during high-altitude operations.

11T5 : CHECK ENGINE COOLANT TEMPERATURE SENSOR. < REF. TO 2-7 [T11H0].> OR <REF. TO 2-7 [T11I0].>

- 1) Turn ignition switch to OFF.
- 2) Connect the Subaru Select Monitor or the OBD-II general scan tool to data link connector.



- 3) Start the engine and warm-up completely.
- 4) Read data of engine coolant temperature sensor signal using Subaru Select Monitor or OBD-II general scan tool.

NOTE:

- Subaru Select Monitor
For detailed operation procedure, refer to the "READ CURRENT DATA SHOWN ON DISPLAY FOR ENGINE". <Ref. to 2-7 [T3C4].>
- OBD-II general scan tool
For detailed operation procedures, refer to the OBD-II General Scan Tool Instruction Manual.

- CHECK** : *Is temperature greater than 60°C (140°F)?*
- YES** : Go to step 11T6.
- NO** : Replace engine coolant temperature sensor. <Ref. to 2-7 [W5A2].>

11T6 : CHECK MASS AIR FLOW SENSOR.

- 1) Start the engine and warm-up engine until coolant temperature is greater than 60°C (140°F).
- 2) Place the selector lever in "N" or "P" position.
- 3) Turn A/C switch to OFF.
- 4) Turn all accessory switches to OFF.
- 5) Read data of mass flow sensor signal using Subaru Select Monitor or OBD-II general scan tool.

NOTE:

- Subaru Select Monitor
For detailed operation procedure, refer to the "READ CURRENT DATA SHOWN ON DISPLAY FOR ENGINE". <Ref. to 2-7 [T3C4].>
- OBD-II general scan tool
For detailed operation procedures, refer to the OBD-II General Scan Tool Instruction Manual.

Specification:

Engine speed	Specified value
Idling	2.2 — 4.2 (g/sec)
2,500 rpm	8.6 — 14.5 (g/sec)

- CHECK** : *Is the voltage within the specifications?*

- YES** : Contact with SOA service.

NOTE:

Inspection by DTM is required, because probable cause is deterioration of multiple parts.

- NO** : Replace mass air flow sensor. <Ref. to 2-7 [W2A0].>

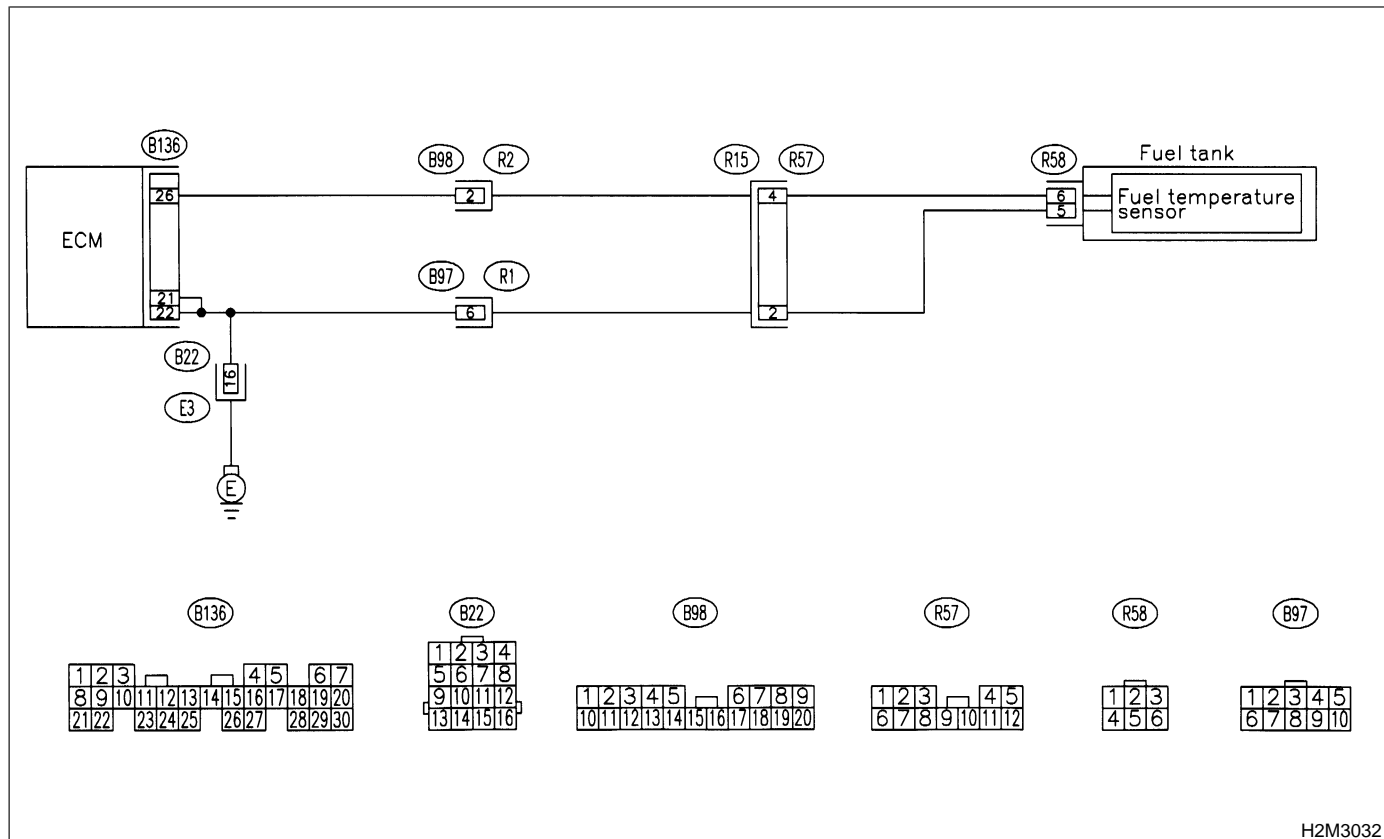
U: DTC P0181 — FUEL TEMPERATURE SENSOR A CIRCUIT RANGE/PERFORMANCE PROBLEM —

- **DTC DETECTING CONDITION:**
 - Two consecutive driving cycles with fault

CAUTION:

After repair or replacement of faulty parts, conduct **CLEAR MEMORY MODE** <Ref. to 2-7 [T3D0].> and **INSPECTION MODE** <Ref. to 2-7 [T3E0].>

● **WIRING DIAGRAM:**



11U1 : CHECK ANY OTHER DTC ON DISPLAY.

- CHECK** : Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0182 or P0183?
- YES** : Inspect DTC P0182 or P0183 using “11. Diagnostics Chart with Trouble Code for Except 2200 cc California Spec. Vehicles”. <Ref. to 2-7 [T11A0].>

NOTE:

In this case, it is not necessary to inspect DTC P0181.

- NO** : Replace fuel temperature sensor. <Ref. to 2-1 [W5A0].>

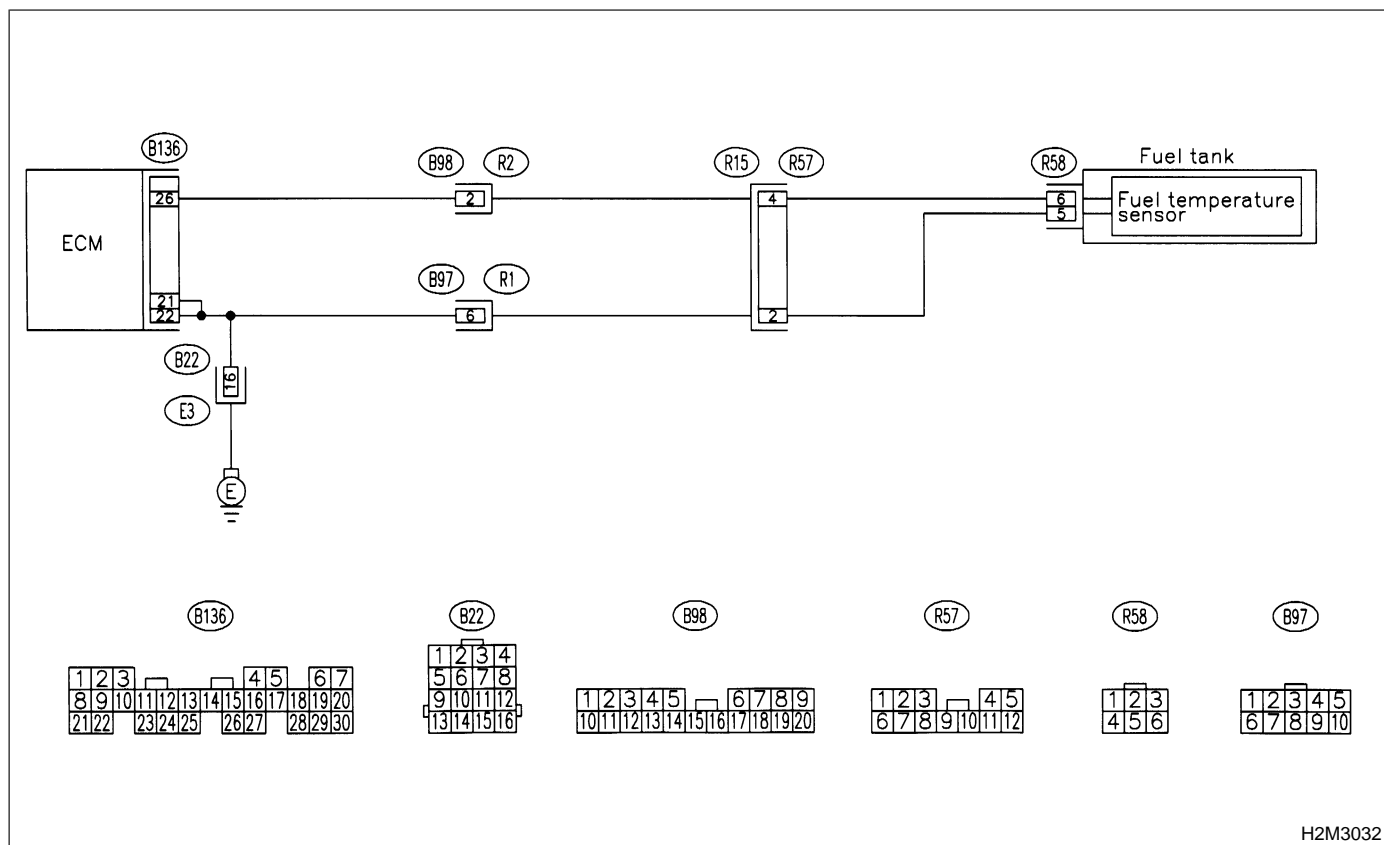
V: DTC P0182 — FUEL TEMPERATURE SENSOR A CIRCUIT LOW INPUT —

- **DTC DETECTING CONDITION:**
 - Immediately at fault recognition

CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to 2-7 [T3D0].> and INSPECTION MODE <Ref. to 2-7 [T3E0].>

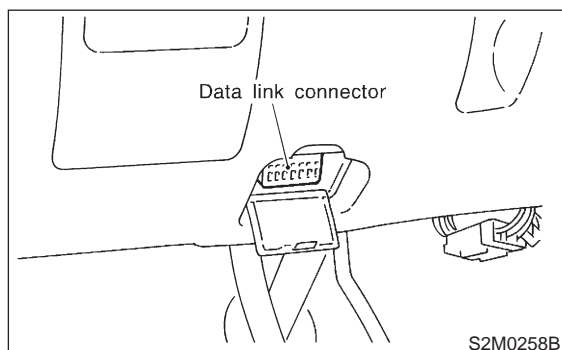
● **WIRING DIAGRAM:**



H2M3032

11V1 : CONNECT SUBARU SELECT MONITOR OR THE OBD-II GENERAL SCAN TOOL, AND READ DATA.

- 1) Turn ignition switch to OFF.
- 2) Connect Subaru Select Monitor or the OBD-II general scan tool to data link connector.



- 3) Turn ignition switch to ON and Subaru Select Monitor or OBD-II general scan tool switch to ON.
- 4) Start engine.
- 5) Read data of fuel temperature sensor signal using Subaru Select Monitor or OBD-II general scan tool.

NOTE:

● Subaru Select Monitor

For detailed operation procedure, refer to the "READ CURRENT DATA SHOWN ON DISPLAY FOR ENGINE". <Ref. to 2-7 [T3C4].>

● OBD-II general scan tool

For detailed operation procedures, refer to the OBD-II General Scan Tool Instruction Manual.

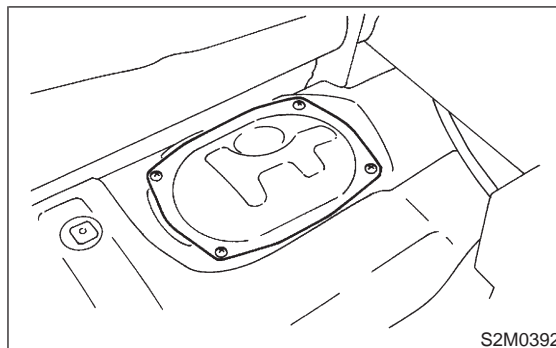
CHECK : **Is the value greater than 150°C (300°F)?**

YES : Go to step 11V2.

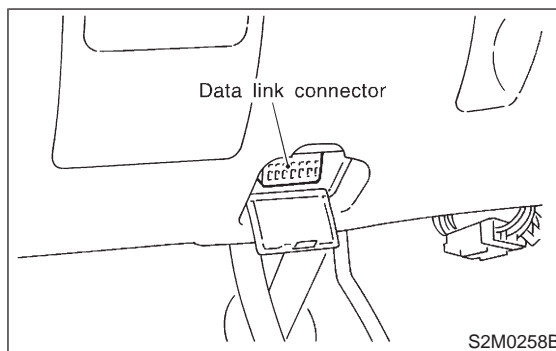
NO : Even if MIL lights up, the circuit has returned to a normal condition at this time.

11V2 : CHECK HARNESS BETWEEN FUEL TEMPERATURE SENSOR AND ECM CONNECTOR.

- 1) Turn ignition switch to OFF.
- 2) Remove access hole lid.



- 3) Disconnect connector from fuel pump.
- 4) Connect Subaru Select Monitor or the OBD-II general scan tool to data link connector.



- 5) Turn ignition switch and Subaru Select Monitor or OBD-II general scan tool switch to ON.
- 6) Read data of fuel temperature sensor signal using Subaru Select Monitor or the OBD-II general scan tool.

NOTE:

● Subaru Select Monitor

For detailed operation procedure, refer to the "READ CURRENT DATA SHOWN ON DISPLAY FOR ENGINE". <Ref. to 2-7 [T3C4].>

● OBD-II general scan tool

For detailed operation procedures, refer to the OBD-II General Scan Tool Instruction Manual.

CHECK : **Is the value less than -40°C (-40°F)?**

YES : Replace fuel temperature sensor. <Ref. to 2-1 [W5A0].>

NO : Repair ground short circuit in harness between fuel pump and ECM connector.

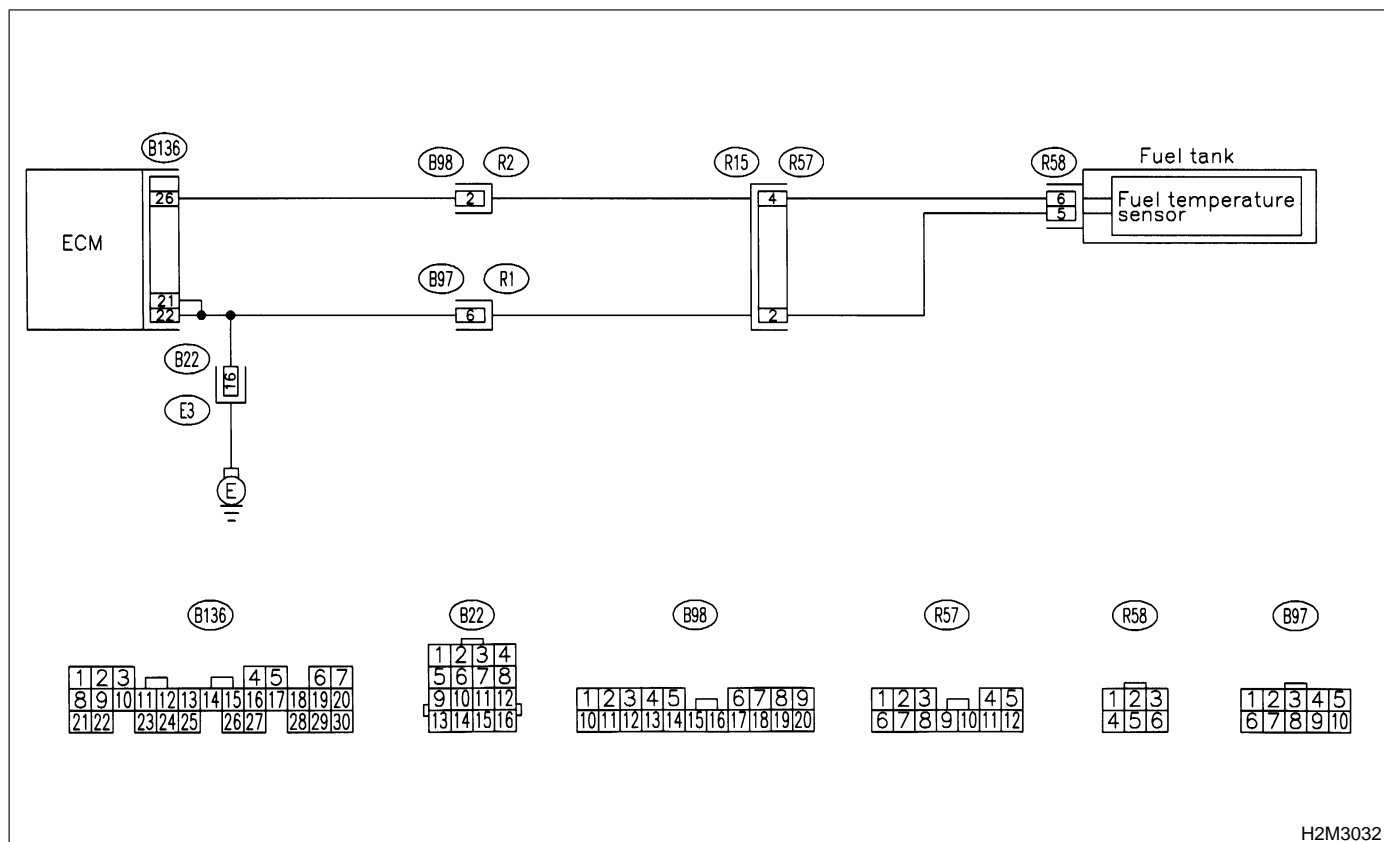
W: DTC P0183 — FUEL TEMPERATURE SENSOR A CIRCUIT HIGH INPUT —

- **DTC DETECTING CONDITION:**
 - Immediately at fault recognition

CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to 2-7 [T3D0].> and INSPECTION MODE <Ref. to 2-7 [T3E0].>

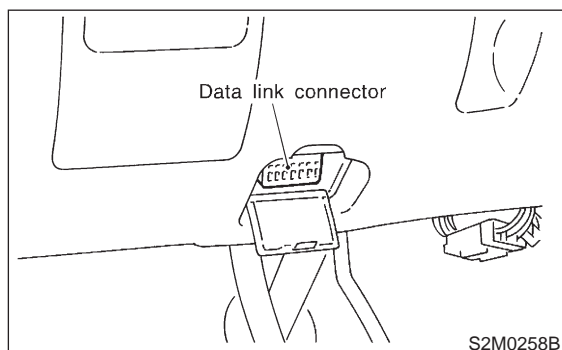
● **WIRING DIAGRAM:**



H2M3032

11W1 : CONNECT SUBARU SELECT MONITOR OR THE OBD-II GENERAL SCAN TOOL, AND READ DATA.

- 1) Turn ignition switch to OFF.
- 2) Connect Subaru Select Monitor or the OBD-II general scan tool to data link connector.



- 3) Turn ignition switch to ON and Subaru Select Monitor or OBD-II general scan tool switch to ON.
- 4) Start engine.
- 5) Read data of fuel temperature sensor signal using Subaru Select Monitor or OBD-II general scan tool.

NOTE:

- Subaru Select Monitor
For detailed operation procedure, refer to the "READ CURRENT DATA SHOWN ON DISPLAY FOR ENGINE". <Ref. to 2-7 [T3C4].>
- OBD-II general scan tool
For detailed operation procedures, refer to the OBD-II General Scan Tool Instruction Manual.

CHECK : *Is the value less than -40°C (-40°F)?*

YES : Go to step 11W2.

NO : Repair poor contact.

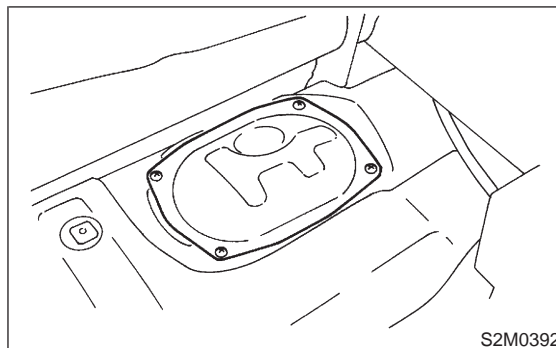
NOTE:

In this case, repair the following:

- Poor contact in fuel pump connector
- Poor contact in ECM connector
- Poor contact in coupling connectors (B22), (B98), (B97) and (R57)

11W2 : CHECK HARNESS BETWEEN FUEL TEMPERATURE SENSOR AND ECM CONNECTOR.

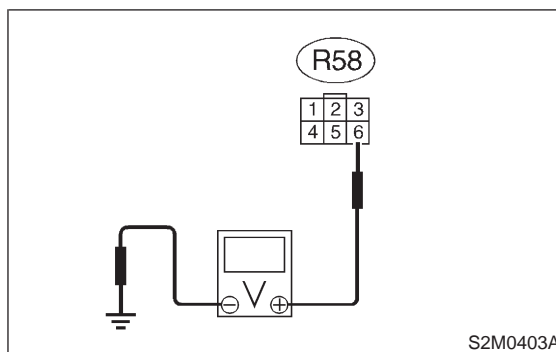
- 1) Turn ignition switch to OFF.
- 2) Remove access hole lid.



- 3) Disconnect connector from fuel pump.
- 4) Measure voltage between fuel pump connector and chassis ground.

Connector & terminal

(R58) No. 6 (+) — Chassis ground (-):



CHECK : *Is the voltage more than 10 V?*

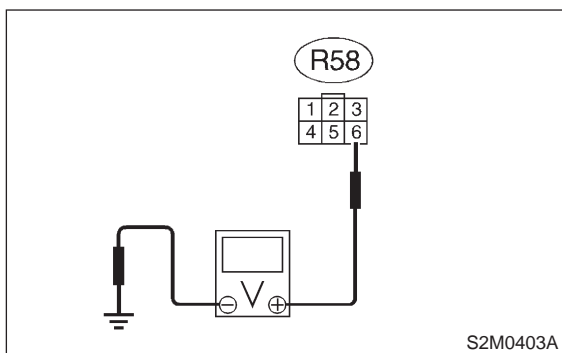
YES : Repair battery short circuit in harness between ECM and fuel pump connector.

NO : Go to step 11W3.

11W3 : CHECK HARNESS BETWEEN FUEL TEMPERATURE SENSOR AND ECM CONNECTOR.

- 1) Turn ignition switch to ON.
- 2) Measure voltage between fuel pump connector and chassis ground.

Connector & terminal
(R58) No. 6 (+) — Chassis ground (-):

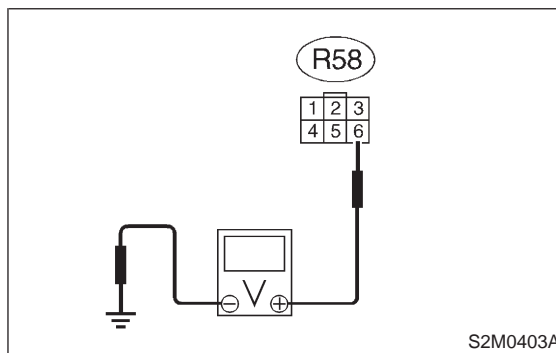


- CHECK** : **Is the voltage more than 10 V?**
- YES** : Repair battery short circuit in harness between ECM and fuel pump connector.
- NO** : Go to step 11W4.

11W4 : CHECK HARNESS BETWEEN FUEL TEMPERATURE SENSOR AND ECM CONNECTOR.

Measure voltage between fuel pump connector and chassis ground.

Connector & terminal
(R58) No. 6 (+) — Chassis ground (-):



- CHECK** : **Is the voltage more than 4 V?**
- YES** : Go to step 11W5.
- NO** : Repair harness and connector.

NOTE:

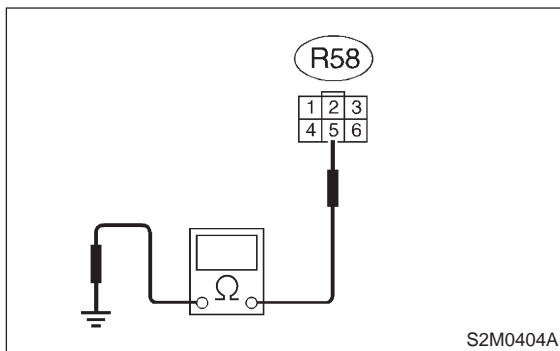
- In this case, repair the following:
- Open circuit in harness between ECM and fuel pump connector
 - Poor contact in fuel pump connector
 - Poor contact in ECM connector
 - Poor contact in coupling connectors (B98) and (R57)

11W5 : CHECK HARNESS BETWEEN FUEL TEMPERATURE SENSOR AND ECM CONNECTOR.

- 1) Turn ignition switch to OFF.
- 2) Measure resistance of harness between fuel pump connector and chassis ground.

Connector & terminal

(R58) No. 5 — Chassis ground:



CHECK : **Is the resistance less than 5 Ω?**

YES : Replace fuel temperature sensor. <Ref. to 2-1 [W5A0].>

NO : Repair harness and connector.

NOTE:

In this case, repair the following:

- Open circuit in harness between ECM and fuel pump connector
- Poor contact in fuel pump connector
- Poor contact in ECM connector
- Poor contact in coupling connectors (B22), (B97) and (R57)

X: DTC P0301 — CYLINDER 1 MISFIRE DETECTED —

NOTE:

For the diagnostic procedure, refer to 2-7 [T14AA1]. <Ref. to 2-7 [T11AA0].>

Y: DTC P0302 — CYLINDER 2 MISFIRE DETECTED —

NOTE:

For the diagnostic procedure, refer to 2-7 [T14AA1]. <Ref. to 2-7 [T11AA0].>

Z: DTC P0303 — CYLINDER 3 MISFIRE DETECTED —

NOTE:

For the diagnostic procedure, refer to 2-7 [T14AA1]. <Ref. to 2-7 [T11AA0].>

AA: DTC P0304 — CYLINDER 4 MISFIRE DETECTED —

• DTC DETECTING CONDITION:

- Two consecutive driving cycles with fault
- Immediately at fault recognition (A misfire which could damage catalyst occurs.)

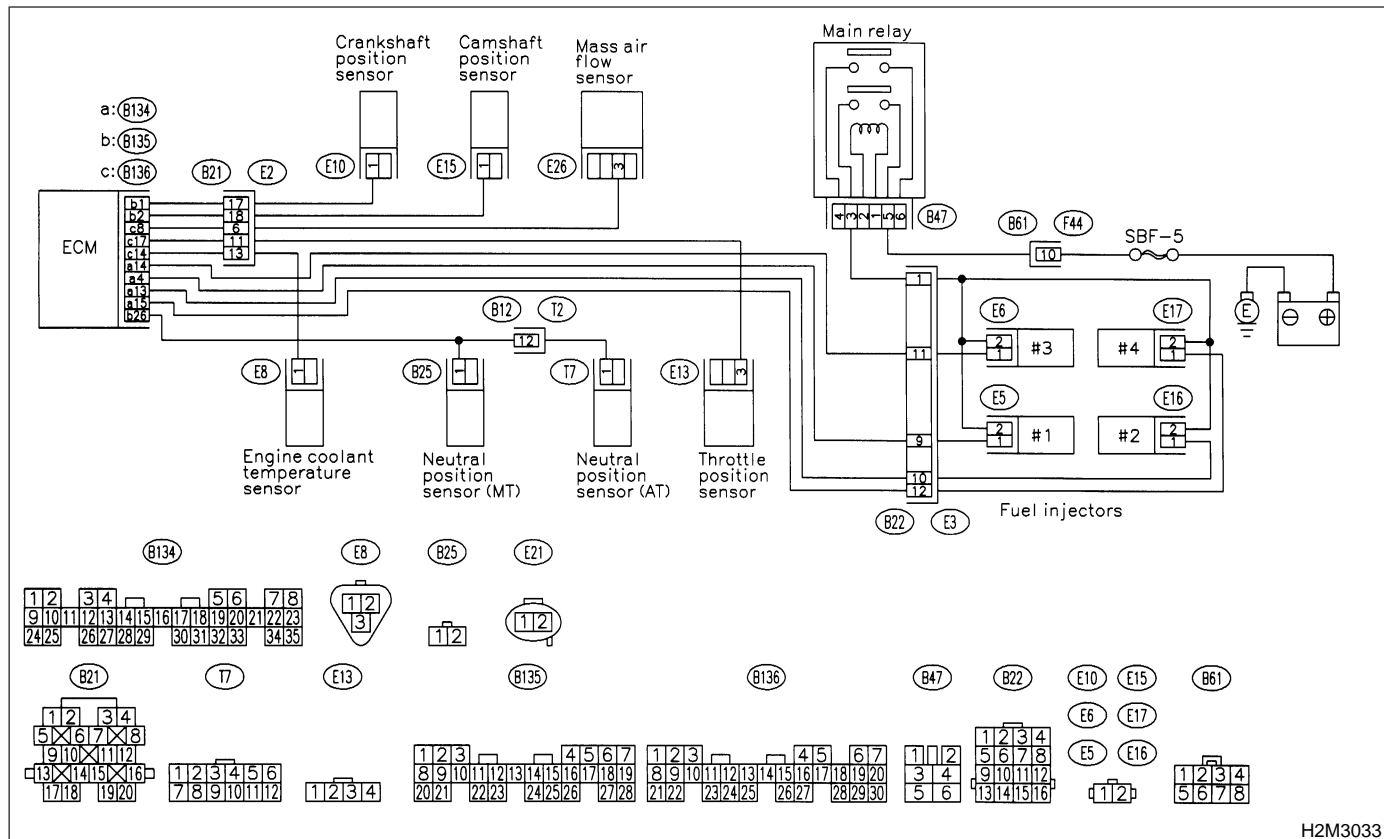
• TROUBLE SYMPTOM:

- Engine stalls.
- Erroneous idling
- Rough driving

CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to 2-7 [T3D0].> and INSPECTION MODE <Ref. to 2-7 [T3E0].>

• WIRING DIAGRAM:



H2M3033

11AA1 : CHECK ANY OTHER DTC ON DISPLAY.

CHECK : Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0101, P0102, P0103, P0116, P0117 or P0125?

YES : Inspect DTC P0101, P0102, P0103, P0116, P0117 or P0125 using "11. Diagnostics Chart with Trouble Code for Except 2200 cc California Spec. Vehicles". <Ref. to 2-7 [T11A0].>

NOTE:

In this case, it is not necessary to inspect DTC P0301, P0302, P0303 and P0304.

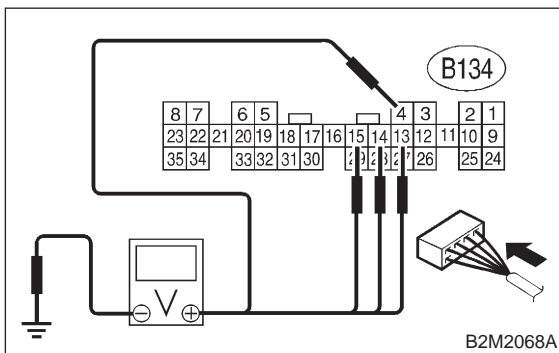
NO : Go to step 11AA2.

11AA2 : CHECK OUTPUT SIGNAL FROM ECM.

- 1) Turn ignition switch to ON.
- 2) Measure voltage between ECM connector and chassis ground on faulty cylinders.

Connector & terminal

- #1; (B134) No. 4 (+) — Chassis ground (-):
- #2; (B134) No. 13 (+) — Chassis ground (-):
- #3; (B134) No. 14 (+) — Chassis ground (-):
- #4; (B134) No. 15 (+) — Chassis ground (-):



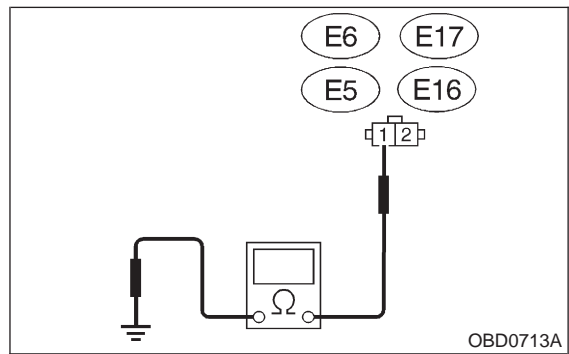
- CHECK** : Is the voltage more than 10 V?
- YES** : Go to step 11AA7.
- NO** : Go to step 11AA3.

11AA3 : CHECK HARNESS BETWEEN FUEL INJECTOR AND ECM CONNECTOR.

- 1) Turn ignition switch to OFF.
- 2) Disconnect connector from fuel injector on faulty cylinders.
- 3) Measure voltage between ECM connector and engine ground on faulty cylinders.

Connector & terminal

- #1; (E5) No. 1 — Engine ground:
- #2; (E16) No. 1 — Engine ground:
- #3; (E6) No. 1 — Engine ground:
- #4; (E17) No. 1 — Engine ground:



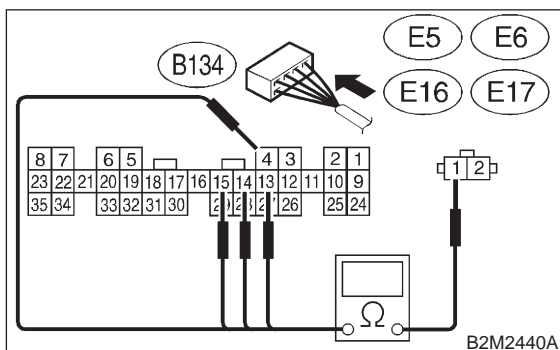
- CHECK** : Is the resistance less than 10 Ω?
- YES** : Repair ground short circuit in harness between fuel injector and ECM connector.
- NO** : Go to step 11AA4.

11AA4 : CHECK HARNESS BETWEEN FUEL INJECTOR AND ECM CONNECTOR.

Measure resistance of harness connector between ECM connector and fuel injector on faulty cylinders.

Connector & terminal

- #1; (B134) No. 4 — (E5) No. 1:
- #2; (B134) No. 13 — (E16) No. 1:
- #3; (B134) No. 14 — (E6) No. 1:
- #4; (B134) No. 15 — (E17) No. 1:



- CHECK** : Is the resistance less than 1 Ω?
- YES** : Go to step 11AA5.
- NO** : Repair harness and connector.

NOTE:

In this case, repair the following:

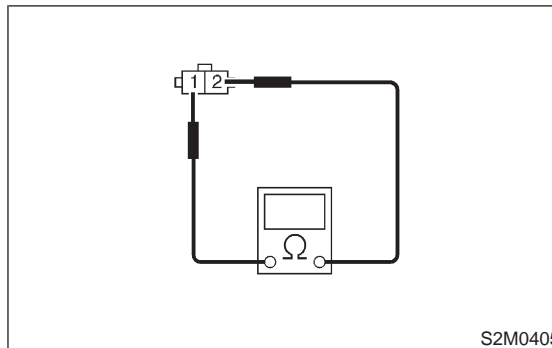
- Open circuit in harness between ECM and fuel injector connector
- Poor contact in coupling connector (B22)

11AA5 : CHECK FUEL INJECTOR.

Measure resistance between fuel injector terminals on faulty cylinder.

Terminals

No. 1 — No. 2:



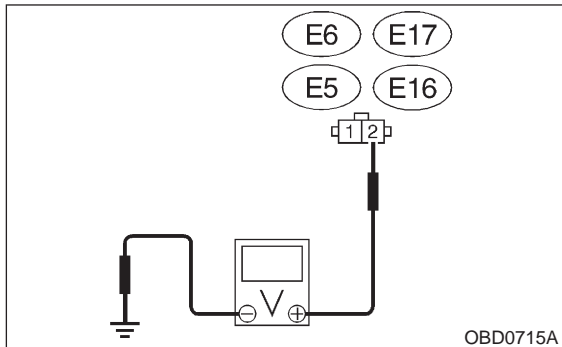
- CHECK** : Is the resistance between 5 and 20 Ω?
- YES** : Go to step 11AA6.
- NO** : Replace faulty fuel injector. <Ref. to 2-7 [W14A0].>

11AA6 : CHECK POWER SUPPLY LINE.

- 1) Turn ignition switch to ON.
- 2) Measure voltage between fuel injector and engine ground on faulty cylinders.

Connector & terminal

- #1; (E5) No. 2 (+) — Engine ground (-):
- #2; (E16) No. 2 (+) — Engine ground (-):
- #3; (E6) No. 2 (+) — Engine ground (-):
- #4; (E17) No. 2 (+) — Engine ground (-):



- CHECK** : *Is the voltage more than 10 V?*
- YES** : Repair poor contact in all connectors in fuel injector circuit.
- NO** : Repair harness and connector.

NOTE:

In this case, repair the following:

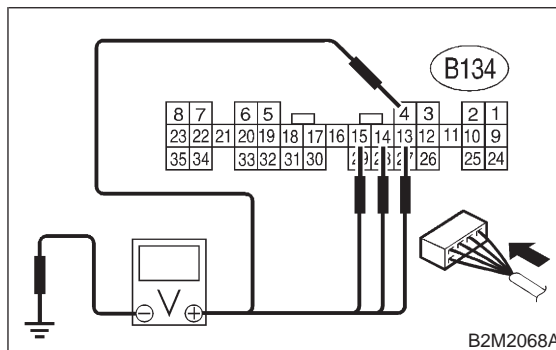
- Open circuit in harness between main relay and fuel injector connector on faulty cylinders
- Poor contact in coupling connector (B22)
- Poor contact in main relay connector
- Poor contact in fuel injector connector on faulty cylinders

11AA7 : CHECK HARNESS BETWEEN FUEL INJECTOR AND ECM CONNECTOR.

- 1) Turn ignition switch to OFF.
- 2) Disconnect connector from fuel injector on faulty cylinder.
- 3) Turn ignition switch to ON.
- 4) Measure voltage between ECM connector and chassis ground on faulty cylinders.

Connector & terminal

- #1; (B134) No. 4 (+) — Chassis ground (-):
- #2; (B134) No. 13 (+) — Chassis ground (-):
- #3; (B134) No. 14 (+) — Chassis ground (-):
- #4; (B134) No. 15 (+) — Chassis ground (-):



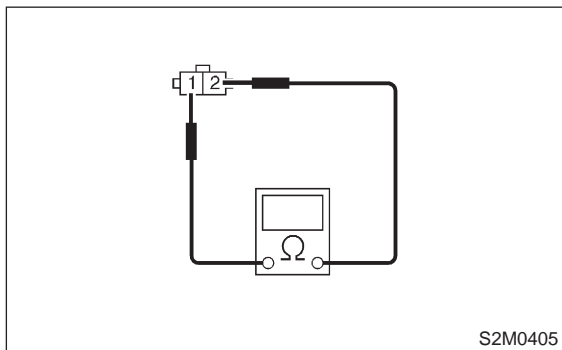
- CHECK** : *Is the voltage more than 10 V?*
- YES** : Repair battery short circuit in harness between ECM and fuel injector. After repair, replace ECM. <Ref. to 2-7 [W15A0].>
- NO** : Go to step 11AA8.

11AA8 : CHECK FUEL INJECTOR.

- 1) Turn ignition switch to OFF.
- 2) Measure resistance between fuel injector terminals on faulty cylinder.

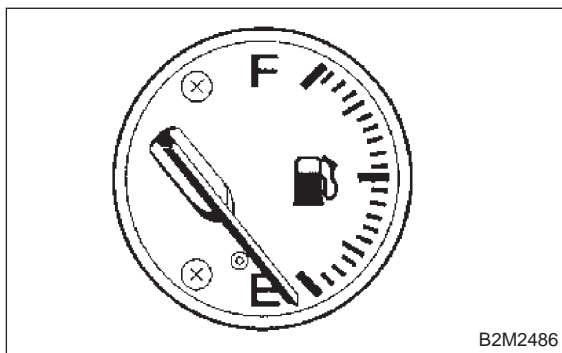
Terminals

No. 1 — No. 2 :



- CHECK** : **Is the resistance less than 1 Ω?**
- YES** : Replace faulty fuel injector <Ref. to 2-7 [W14A0].> and ECM <Ref. to 2-7 [W15A0].>.
- NO** : Go to step 11AA9.

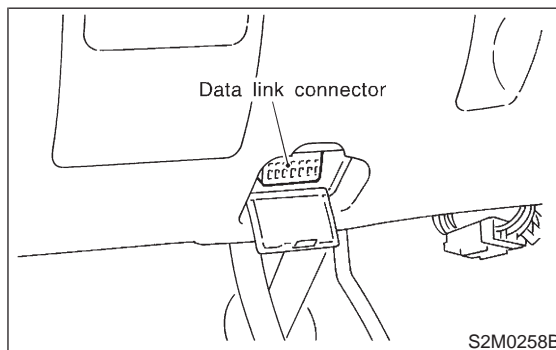
11AA9 : CHECK FUEL LEVEL.



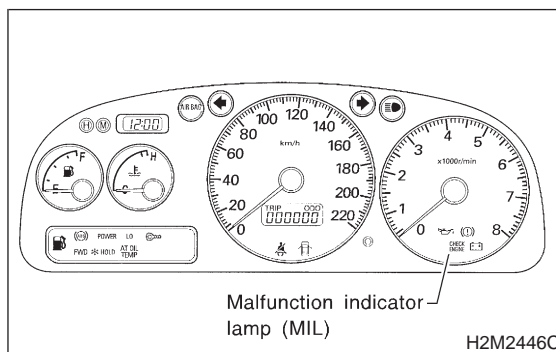
- CHECK** : **Is fuel meter indication (in combination meter) higher than the "Lower" level?**
- YES** : Go to step 11AA10.
- NO** : Replenish fuel so fuel meter indication is higher than the "Lower" level. After refuel, Go to step 11AA10. <Ref. to 2-7 [T11AA10].>

11AA10 : CHECK STATUS OF CHECK ENGINE MALFUNCTION INDICATOR LAMP (MIL).

- 1) Turn ignition switch to OFF.
- 2) Connect Subaru Select Monitor to the data link connector.



- 3) Clear memory using Subaru Select Monitor. <Ref. to 2-7 [T3D0].>
- 4) Start engine, and drive the vehicle more than 10 minutes.



- CHECK** : **Is the MIL coming on or blinking?**
- YES** : Go to step 11AA12.
- NO** : Go to step 11AA11.

11AA11 : CHECK CAUSE OF MISFIRE DIAGNOSED.

CHECK : *Was the cause of misfire diagnosed when the engine is running?*

YES : Finish diagnostics operation, if the engine has no abnormality.

NOTE:

Ex. Remove spark plug cord, etc.

NO : Repair poor contact.

NOTE:

In this case, repair the following:

- Poor contact in ignitor connector
- Poor contact in ignition coil connector
- Poor contact in fuel injector connector on faulty cylinders
- Poor contact in ECM connector
- Poor contact in coupling connector (B22)

11AA12 : CHECK AIR INTAKE SYSTEM.

CHECK : *Is there a fault in air intake system?*

YES : Repair air intake system.

NOTE:

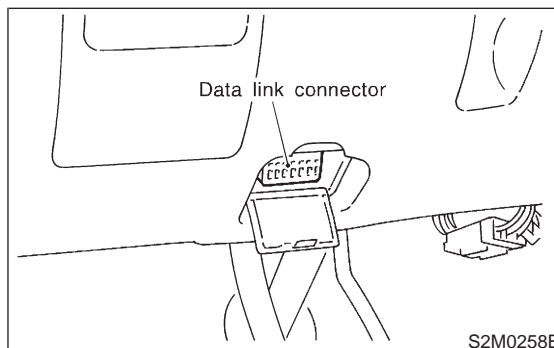
Check the following items:

- Are there air leaks or air suction caused by loose or dislocated nuts and bolts?
- Are there cracks or any disconnection of hoses?

NO : Go to step 11AA13.

11AA13 : CHECK MISFIRE SYMPTOM.

- 1) Turn ignition switch to OFF.
- 2) Connect the Subaru Select Monitor or the OBD-II general scan tool to data link connector.



- 3) Turn ignition switch to ON, and turn Subaru Select Monitor or OBD-II general scan tool switch to ON.
- 4) Read diagnostic trouble code (DTC).

- Subaru Select Monitor <Ref. to 2-7 [T3C2].>
- OBD-II general scan tool

For detailed operation procedures, refer to the OBD-II General Scan Tool Operation Manual.

NOTE:

Perform diagnosis according to the items listed below.

CHECK : *Does the Subaru Select Monitor or OBD-II general scan tool indicate only one DTC?*

YES : Go to step 11AA18.

NO : Go to step 11AA14.

11AA14 : CHECK DIAGNOSTIC TROUBLE CODE (DTC) ON DISPLAY.

CHECK : *Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0301 and P0302?*

YES : Go to step 11AA19.

NO : Go to step 11AA15.

11AA15 : CHECK DIAGNOSTIC TROUBLE CODE (DTC) ON DISPLAY.

CHECK : *Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0303 and P0304?*

YES : Go to step 11AA20.

NO : Go to step 11AA16.

11AA16 : CHECK DIAGNOSTIC TROUBLE CODE (DTC) ON DISPLAY.

CHECK : *Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0301 and P0303?*

YES : Go to step 11AA21.

NO : Go to step 11AA17.

11AA17 : CHECK DIAGNOSTIC TROUBLE CODE (DTC) ON DISPLAY.

CHECK : *Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0302 and P0304?*

YES : Go to step 11AA22.

NO : Go to step 11AA18.

11AA18 : ONLY ONE CYLINDER

CHECK : *Is there a fault in that cylinder?*

YES : Repair or replace faulty parts.

NOTE:

Check the following items.

- Spark plug
- Spark plug cord
- Fuel injector
- Compression ratio

NO : Go to DTC P0170. <Ref. to 2-7 [T11T0].>

11AA19 : GROUP OF #1 AND #2 CYLINDERS

CHECK : *Are there faults in #1 and #2 cylinders?*

YES : Repair or replace faulty parts.

NOTE:

Check the following items.

- Spark plugs
- Fuel injectors
- Ignition coil
- Compression ratio
- If no abnormal is discovered, check for "8. D: IGNITION CONTROL SYSTEM" of #1 and #2 cylinders side. <Ref. to 2-7 [T8D0].>

NO : Go to DTC P0170. <Ref. to 2-7 [T11T0].>

11AA20 : GROUP OF #3 AND #4 CYLINDERS

CHECK : *Are there faults in #3 and #4 cylinders?*

YES : Repair or replace faulty parts.

NOTE:

- Check the following items.
- Spark plugs
- Fuel injectors
- Ignition coil
- If no abnormal is discovered, check for "8. D: IGNITION CONTROL SYSTEM" of #3 and #4 cylinders side. <Ref. to 2-7 [T8D0].>

NO : Go to DTC P0170. <Ref. to 2-7 [T11T0].>

11AA21 : GROUP OF #1 AND #3 CYLINDERS

CHECK : *Are there faults in #1 and #3 cylinders?*

YES : Repair or replace faulty parts.

NOTE:

Check the following items.

- Spark plugs
- Fuel injectors
- Skipping timing belt teeth

NO : Go to DTC P0170. <Ref. to 2-7 [T11T0].>

11AA22 : GROUP OF #2 AND #4 CYLINDERS

CHECK : *Are there faults in #2 and #4 cylinders?*

YES : Repair or replace faulty parts.

NOTE:

Check the following items.

- Spark plugs
- Fuel injectors
- Compression ratio
- Skipping timing belt teeth

NO : Go to DTC P0170. <Ref. to 2-7 [T11T0].>

11AA23 : CYLINDER AT RANDOM

CHECK : *Is the engine idle rough?*

YES : Go to DTC P0170. <Ref. to 2-7 [T11T0].>

NO : Repair or replace faulty parts.

NOTE:

Check the following items.

- Spark plugs
- Fuel injectors
- Compression ratio

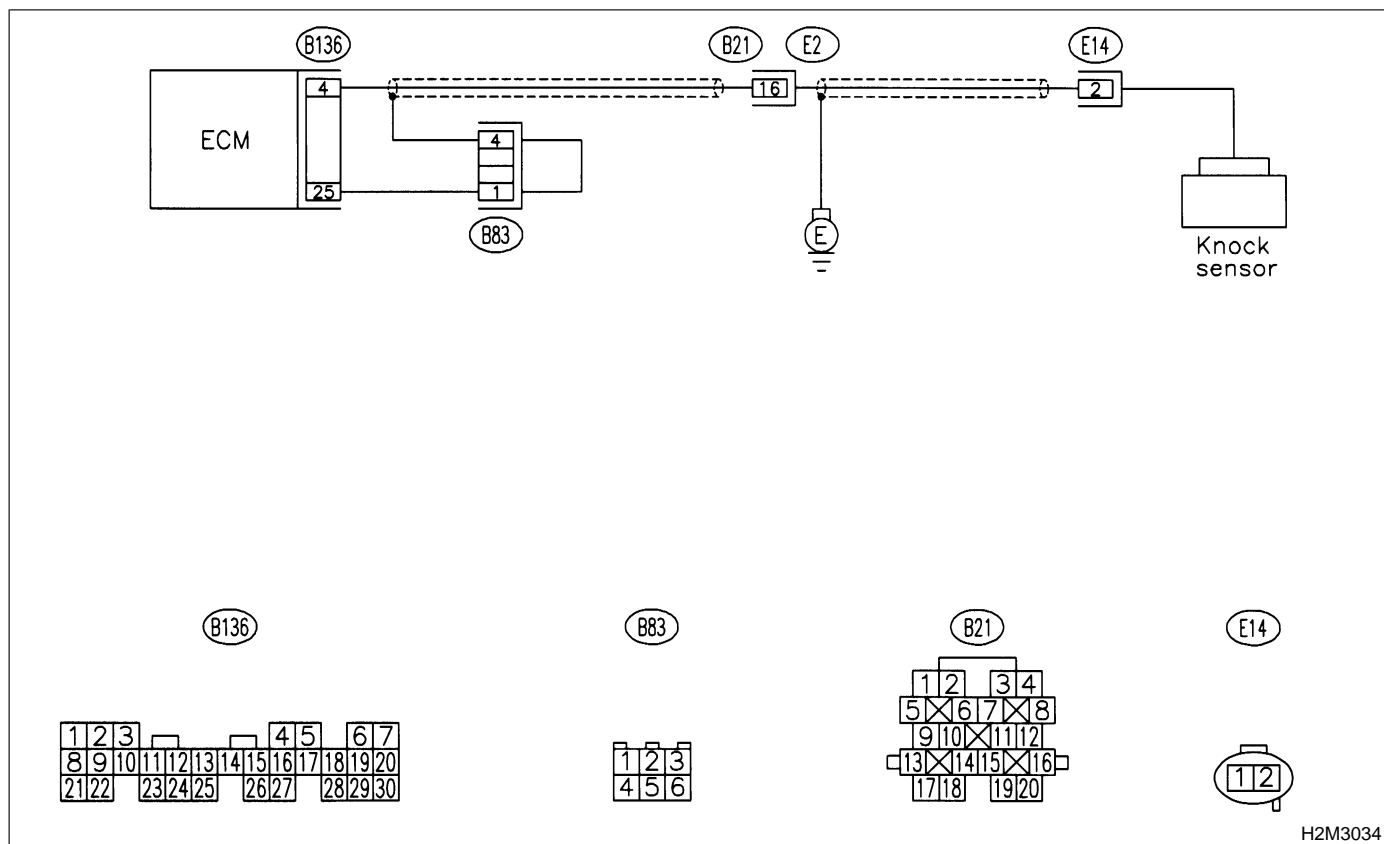
AB: DTC P0325 — KNOCK SENSOR CIRCUIT MALFUNCTION —

- **DTC DETECTING CONDITION:**
 - Immediately at fault recognition
- **TROUBLE SYMPTOM:**
 - Poor driving performance
 - Knocking occurs.

CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to 2-7 [T3D0].> and INSPECTION MODE <Ref. to 2-7 [T3E0].>

● **WIRING DIAGRAM:**



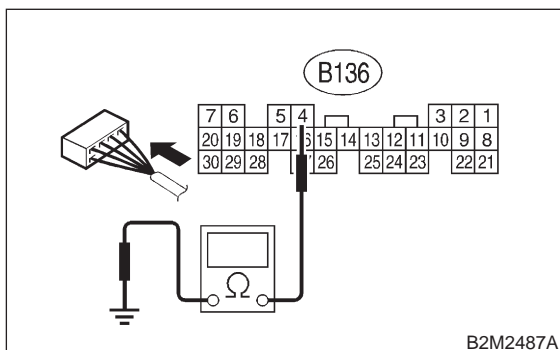
H2M3034

11AB1 : CHECK HARNESS BETWEEN KNOCK SENSOR AND ECM CONNECTOR.

- 1) Turn ignition switch to OFF.
- 2) Disconnect connector from ECM.
- 3) Measure resistance between ECM harness connector and chassis ground.

Connector & terminal

(B136) No. 4 — Chassis ground:



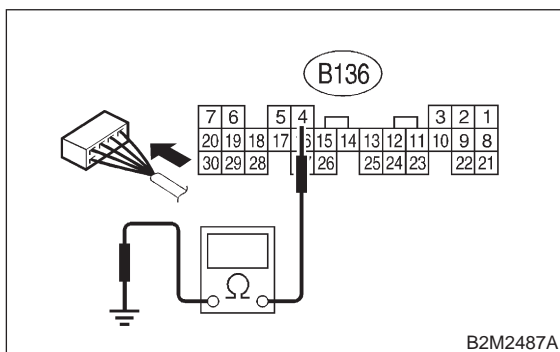
- CHECK** : Is the resistance more than 700 kΩ?
YES : Go to step 11AB3.
NO : Go to step 11AB2.

11AB2 : CHECK HARNESS BETWEEN KNOCK SENSOR AND ECM CONNECTOR.

Measure resistance of harness between ECM connector and chassis ground.

Connector & terminal

(B136) No. 4 — Chassis ground:



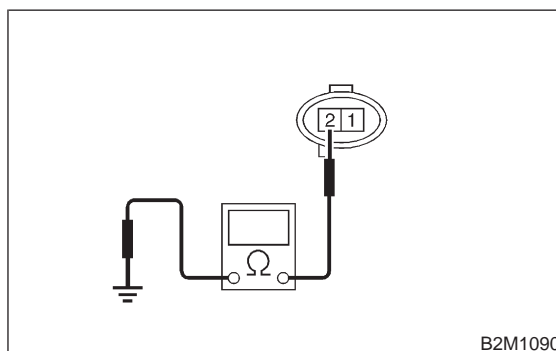
- CHECK** : Is the resistance less than 400 kΩ?
YES : Go to step 11AB5.
NO : Go to step 11AB6.

11AB3 : CHECK KNOCK SENSOR.

- 1) Disconnect connector from knock sensor.
- 2) Measure resistance between knock sensor connector terminal and engine ground.

Terminal

No. 2 — Engine ground:



- CHECK** : Is the resistance more than 700 kΩ?
YES : Go to step 11AB4.
NO : Repair harness and connector.

NOTE:

In this case, repair the following:

- Open circuit in harness between knock sensor and ECM connector
- Poor contact in knock sensor connector
- Poor contact in coupling connector (B21)

11AB4 : CHECK CONDITION OF KNOCK SENSOR INSTALLATION.

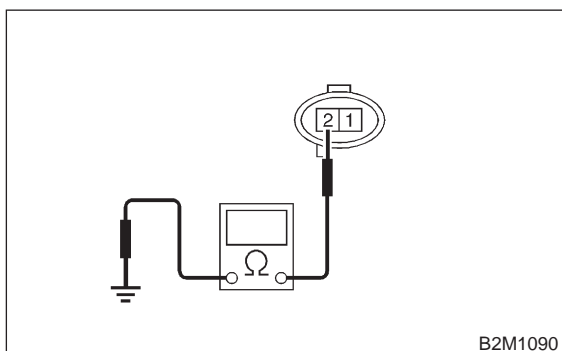
- CHECK** : Is the knock sensor installation bolt tightened securely?
YES : Replace knock sensor. <Ref. to 2-7 [W19A0].>
NO : Tighten knock sensor installation bolt securely.

11AB5 : CHECK KNOCK SENSOR.

- 1) Disconnect connector from knock sensor.
- 2) Measure resistance between knock sensor connector terminal and engine ground.

Terminal

No. 2 — Engine ground:



- CHECK** : **Is the resistance less than 400 kΩ?**
- YES** : Replace knock sensor. <Ref. to 2-7 [W19A0].>
- NO** : Repair ground short circuit in harness between knock sensor connector and ECM connector.

NOTE:

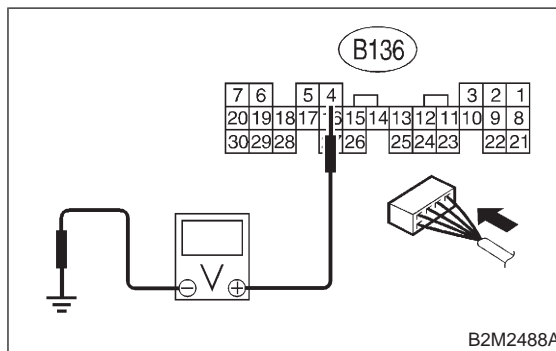
The harness between both connectors is shielded. Repair short circuit of harness together with shield.

11AB6 : CHECK INPUT SIGNAL FOR ECM.

- 1) Connect connectors to ECM and knock sensor.
- 2) Turn ignition switch to ON.
- 3) Measure voltage between ECM and chassis ground.

Connector & terminal

(B136) No. 4 (+) — Chassis ground (-):



- CHECK** : **Is the voltage more than 2 V?**
- YES** : Even if MIL lights up, the circuit has returned to a normal condition at this time. (However, the possibility of poor contact still remains.)

NOTE:

In this case, repair the following:

- Poor contact in knock sensor connector
- Poor contact in ECM connector
- Poor contact in coupling connector (B21)
- NO** : Repair poor contact in ECM connector.

MEMO:

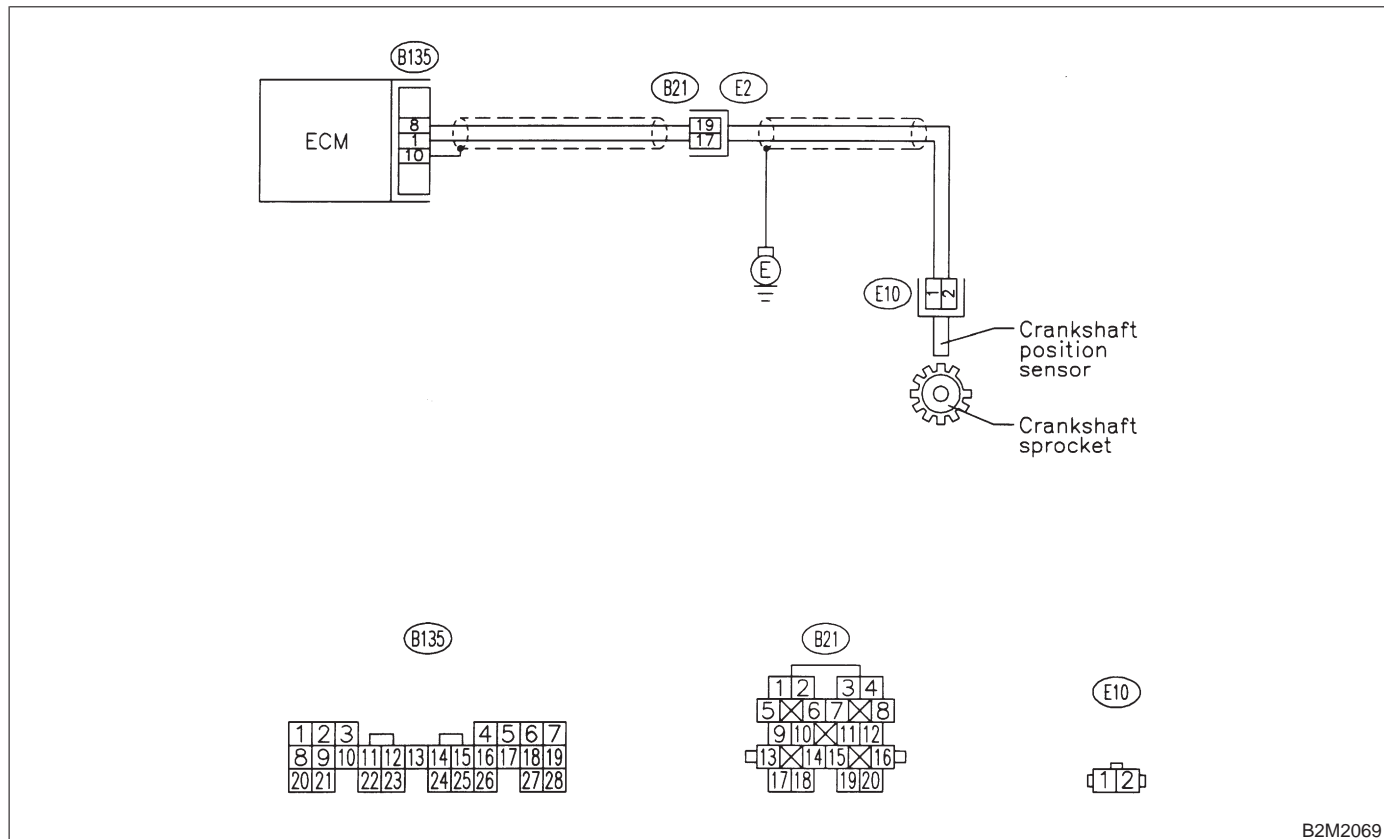
AC: DTC P0335 — CRANKSHAFT POSITION SENSOR CIRCUIT MALFUNCTION —

- **DTC DETECTING CONDITION:**
 - Immediately at fault recognition
- **TROUBLE SYMPTOM:**
 - Engine stalls.
 - Failure of engine to start

CAUTION:

After repair or replacement of faulty parts, conduct **CLEAR MEMORY MODE** <Ref. to 2-7 [T3D0].> and **INSPECTION MODE** <Ref. to 2-7 [T3E0].>

● **WIRING DIAGRAM:**



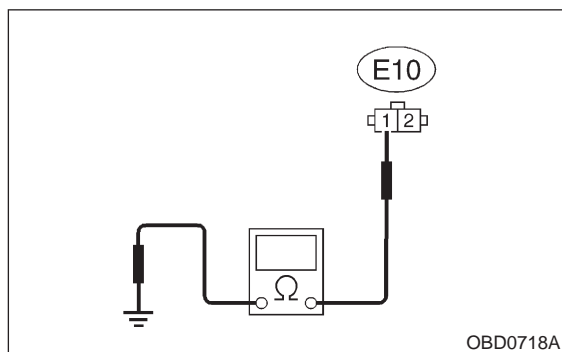
B2M2069

11AC1 : CHECK HARNESS BETWEEN CRANKSHAFT POSITION SENSOR AND ECM CONNECTOR.

- 1) Turn ignition switch to OFF.
- 2) Disconnect connector from crankshaft position sensor.
- 3) Measure resistance of harness between crankshaft position sensor connector and engine ground.

Connector & terminal

(E10) No. 1 — Engine ground:



CHECK : *Is the resistance more than 100 kΩ?*

YES : Repair harness and connector.

NOTE:

In this case, repair the following:

- Open circuit in harness between crankshaft position sensor and ECM connector
- Poor contact in ECM connector
- Poor contact in coupling connector (B21)

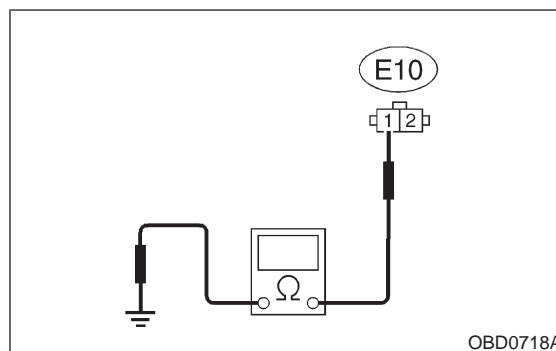
NO : Go to step **11AC2**.

11AC2 : CHECK HARNESS BETWEEN CRANKSHAFT POSITION SENSOR AND ECM CONNECTOR.

Measure resistance of harness between crankshaft position sensor connector and engine ground.

Connector & terminal

(E10) No. 1 — Engine ground:



CHECK : *Is the resistance less than 10 Ω?*

YES : Repair ground short circuit in harness between crankshaft position sensor and ECM connector.

NOTE:

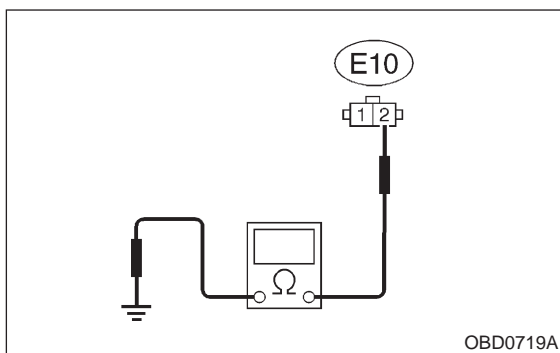
The harness between both connectors are shielded. Repair ground short circuit in harness together with shield.

NO : Go to step **11AC3**.

11AC3 : CHECK HARNESS BETWEEN CRANKSHAFT POSITION SENSOR AND ECM CONNECTOR.

Measure resistance of harness between crankshaft position sensor connector and engine ground.

Connector & terminal
(E10) No. 2 — Engine ground:



- CHECK** : *Is the resistance less than 5 Ω?*
- YES** : Go to step 11AC4.
- NO** : Repair harness and connector.

NOTE:

In this case, repair the following:

- Open circuit in harness between crankshaft position sensor and ECM connector
- Poor contact in ECM connector
- Poor contact in coupling connector (B21)

11AC4 : CHECK CONDITION OF CRANKSHAFT POSITION SENSOR.

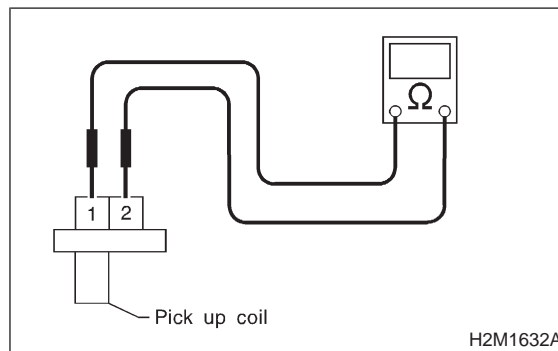
- CHECK** : *Is the crankshaft position sensor installation bolt tightened securely?*
- YES** : Go to step 11AC5.
- NO** : Tighten crankshaft position sensor installation bolt securely.

11AC5 : CHECK CRANKSHAFT POSITION SENSOR.

- 1) Remove crankshaft position sensor.
- 2) Measure resistance between connector terminals of crankshaft position sensor.

Terminals

No. 1 — No. 2:



- CHECK** : *Is the resistance between 1 and 4 kΩ?*
- YES** : Repair poor contact in crankshaft position sensor connector.
- NO** : Replace crankshaft position sensor. <Ref. to 2-7 [W6A0].>

MEMO:

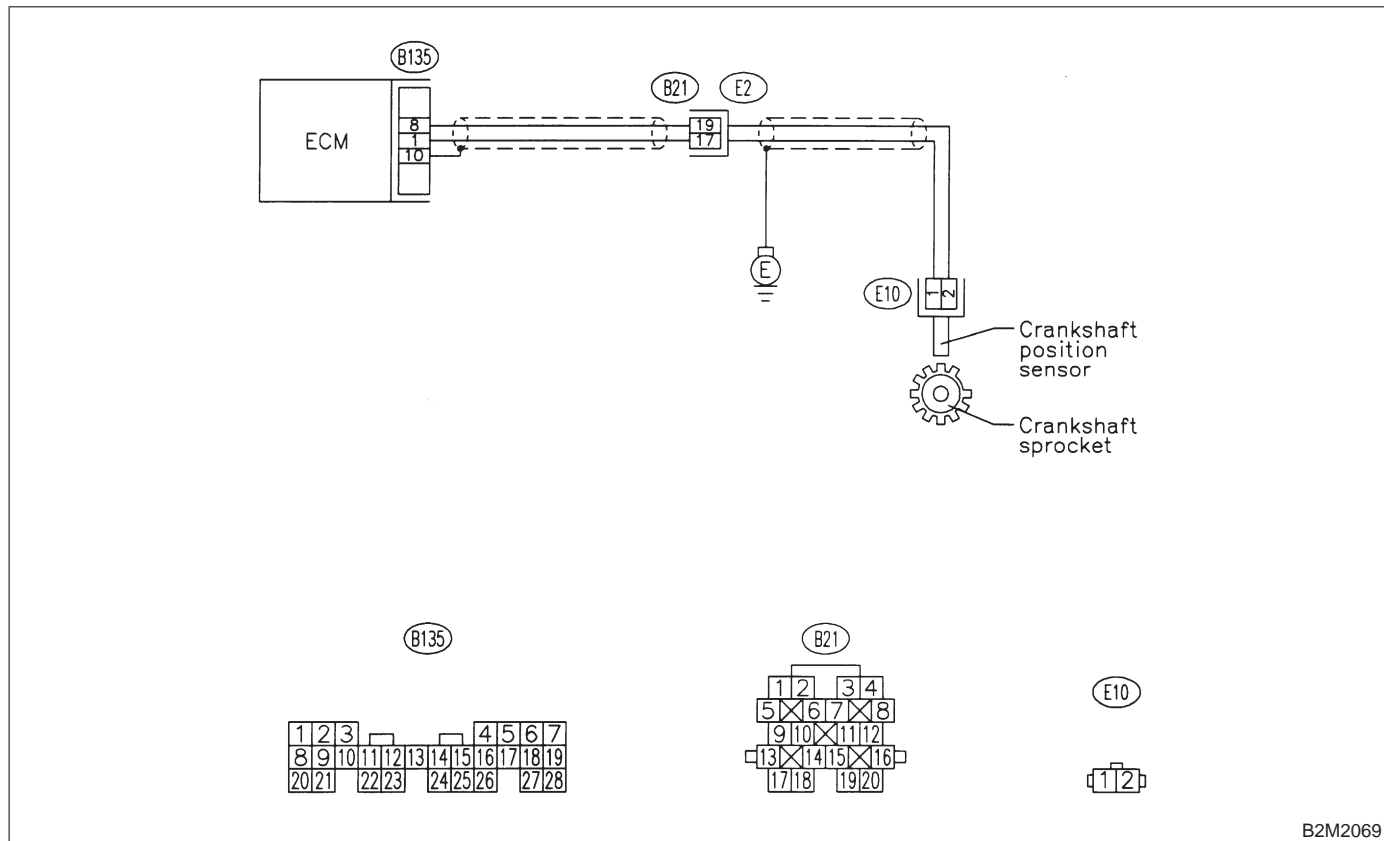
AD: DTC P0336 — CRANKSHAFT POSITION SENSOR CIRCUIT RANGE/PERFORMANCE PROBLEM —

- **DTC DETECTING CONDITION:**
 - Immediately at fault recognition
- **TROUBLE SYMPTOM:**
 - Engine stalls.
 - Failure of engine to start

CAUTION:

After repair or replacement of faulty parts, conduct **CLEAR MEMORY MODE** <Ref. to 2-7 [T3D0].> and **INSPECTION MODE** <Ref. to 2-7 [T3E0].>

● **WIRING DIAGRAM:**



B2M2069

11AD1 : CHECK ANY OTHER DTC ON DISPLAY.

11AD2 : CHECK CONDITION OF CRANKSHAFT POSITION SENSOR.

- CHECK** : Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0336?
- YES** : Inspect DTC P0336 using "11. Diagnostics Chart with Trouble Code for Except 2200 cc California Spec. Vehicles". <Ref. to 2-7 [T11A0].>
- NO** : Go to step 11AD2.

- Turn ignition switch to OFF.
- CHECK** : Is the crankshaft position sensor installation bolt tightened securely?
 - YES** : Go to step 11AD3.
 - NO** : Tighten crankshaft position sensor installation bolt securely.

11AD3 : CHECK CRANKSHAFT SPROCKET.

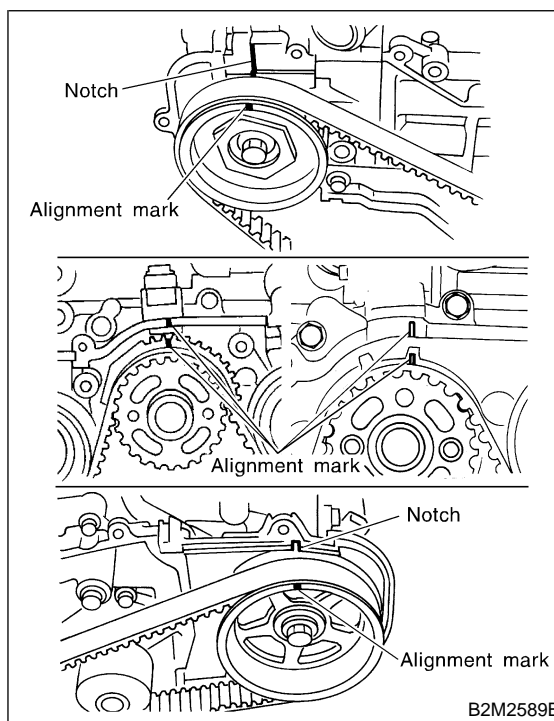
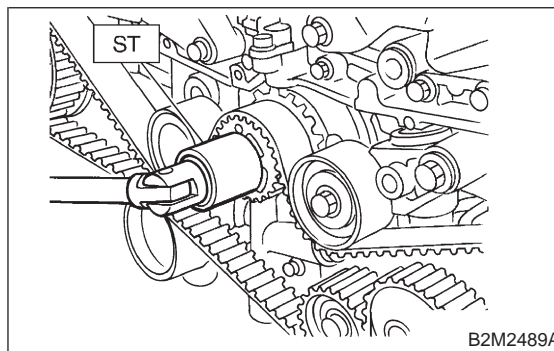
Remove front belt cover. <Ref. to 2-3 [W2A1].>

- CHECK** : ***Are there any cracks or damages in the crankshaft sprocket teeth?***
- YES** : Replace crankshaft sprocket. <Ref. to 2-3 [W2A4].>
- NO** : Go to step **11AD4**.

11AD4 : CHECK INSTALLATION CONDITION OF TIMING BELT.

Turn crankshaft using ST, and align alignment mark on crankshaft sprocket. Then, make sure left and right camshaft sprockets are matched with notches (alignment marks of belt cover and cylinder head).

ST 499987500 CRANKSHAFT SOCKET



- CHECK** : ***Is timing belt installed properly in accordance with the correct position of crankshaft and camshaft sprockets?***
- YES** : Repair installation condition of timing belt. <Ref. to 2-3 [W2A0].>
- NO** : Replace crankshaft position sensor. <Ref. to 2-7 [W6A0].>

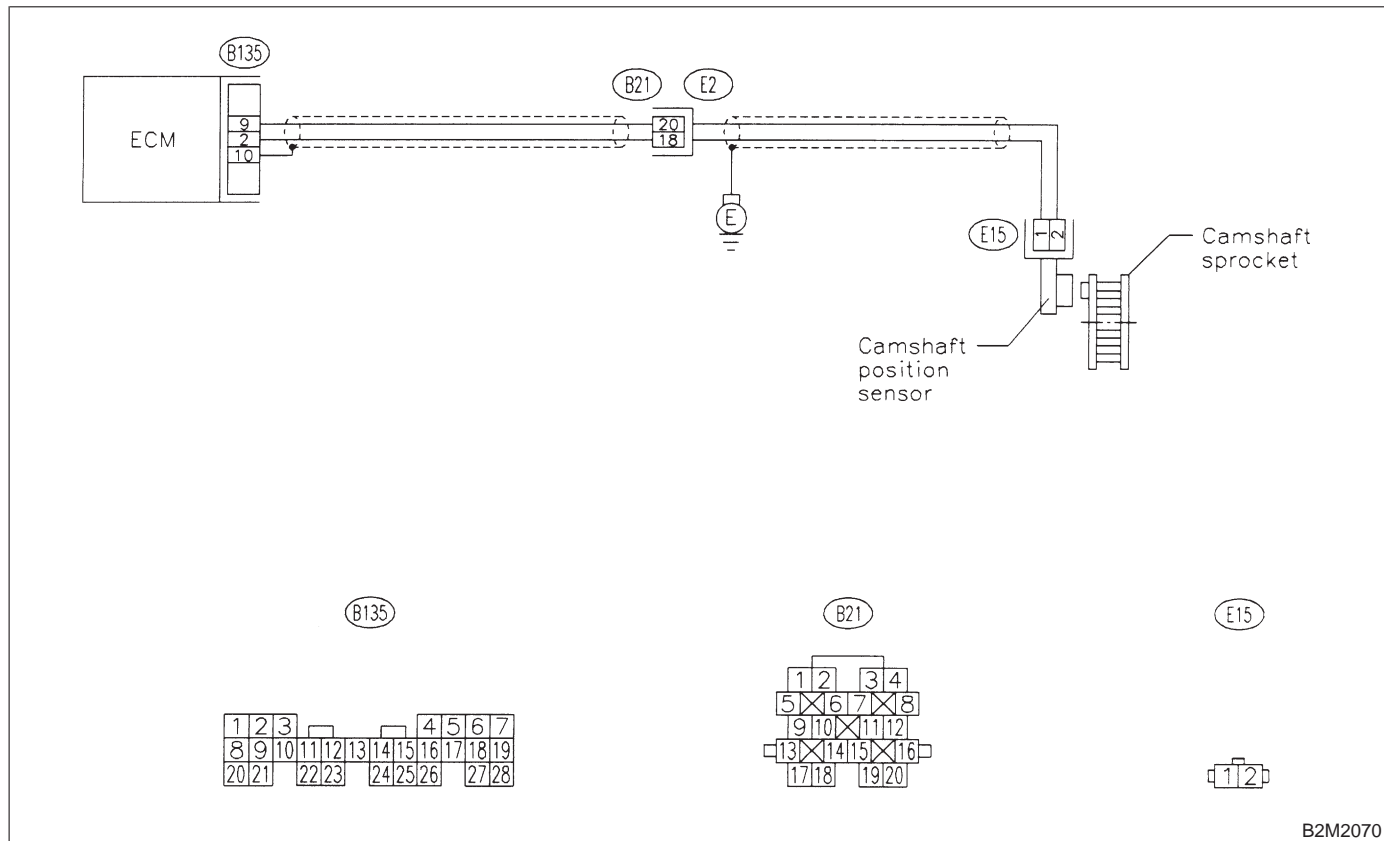
AE: DTC P0340 — CAMSHAFT POSITION SENSOR CIRCUIT MALFUNCTION

- **DTC DETECTING CONDITION:**
 - Immediately at fault recognition
- **TROUBLE SYMPTOM:**
 - Engine stalls.
 - Failure of engine to start

CAUTION:

After repair or replacement of faulty parts, conduct **CLEAR MEMORY MODE** <Ref. to 2-7 [T3D0].> and **INSPECTION MODE** <Ref. to 2-7 [T3E0].>

● **WIRING DIAGRAM:**

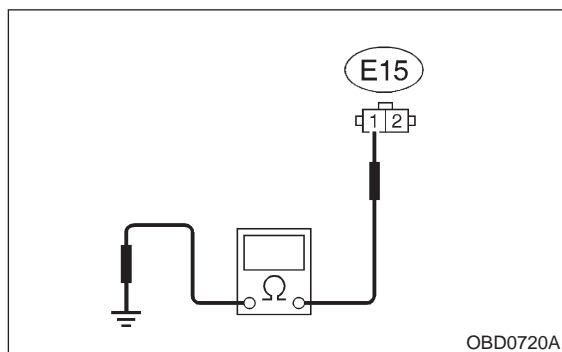


11AE1 : CHECK HARNESS BETWEEN CAMSHAFT POSITION SENSOR AND ECM CONNECTOR.

- 1) Turn ignition switch to OFF.
- 2) Disconnect connector from camshaft position sensor.
- 3) Measure resistance of harness between camshaft position sensor connector and engine ground.

Connector & terminal

(E15) No. 1 — Engine ground:



CHECK : *Is the resistance more than 100 k Ω ?*

YES : Repair harness and connector.

NOTE:

In this case, repair the following:

- Open circuit in harness between camshaft position sensor and ECM connector
- Poor contact in ECM connector
- Poor contact in coupling connector (B21)

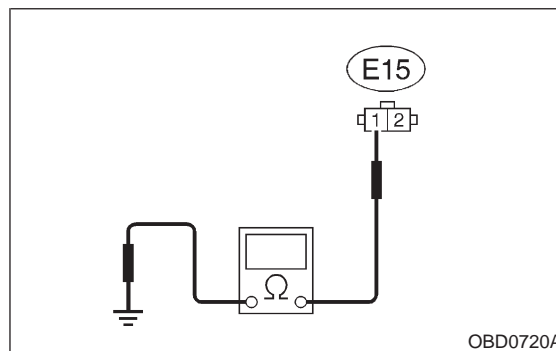
NO : Go to step **11AE2**.

11AE2 : CHECK HARNESS BETWEEN CAMSHAFT POSITION SENSOR AND ECM CONNECTOR.

Measure resistance of harness between camshaft position sensor connector and engine ground.

Connector & terminal

(E15) No. 1 — Engine ground:



CHECK : *Is the resistance less than 10 Ω ?*

YES : Repair ground short circuit in harness between camshaft position sensor and ECM connector.

NOTE:

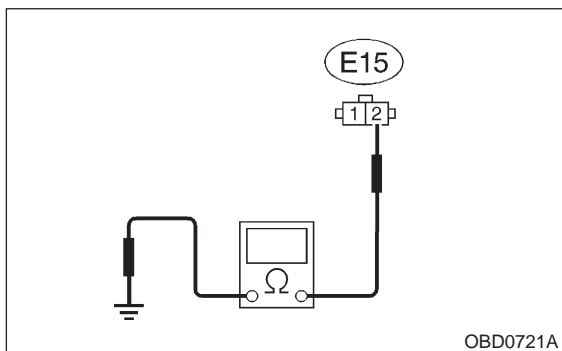
The harness between both connectors are shielded. Repair ground short circuit in harness together with shield.

NO : Go to step **11AE3**.

11AE3 : CHECK HARNESS BETWEEN CAMSHAFT POSITION SENSOR AND ECM CONNECTOR.

Measure resistance of harness between camshaft position sensor connector and engine ground.

Connector & terminal
(E15) No. 2 — Engine ground:



- CHECK** : *Is the resistance less than 5 Ω?*
- YES** : Go to step 11AE4.
- NO** : Repair harness and connector.

NOTE:

In this case, repair the following:

- Open circuit in harness between camshaft position sensor and ECM connector
- Poor contact in ECM connector
- Poor contact in coupling connector (B21)

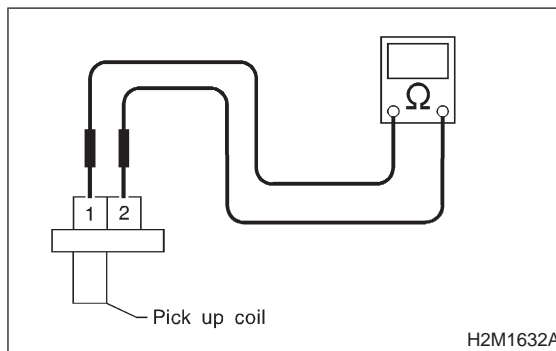
11AE4 : CHECK CONDITION OF CAMSHAFT POSITION SENSOR.

- CHECK** : *Is the camshaft position sensor installation bolt tightened securely?*
- YES** : Go to step 11AE5.
- NO** : Tighten camshaft position sensor installation bolt securely.

11AE5 : CHECK CAMSHAFT POSITION SENSOR.

- 1) Remove camshaft position sensor.
- 2) Measure resistance between connector terminals of camshaft position sensor.

Terminals
No. 1 — No. 2:



- CHECK** : *Is the resistance between 1 and 4 kΩ?*
- YES** : Repair poor contact in camshaft position sensor connector.
- NO** : Replace camshaft position sensor. <Ref. to 2-7 [W10A0].>

MEMO:

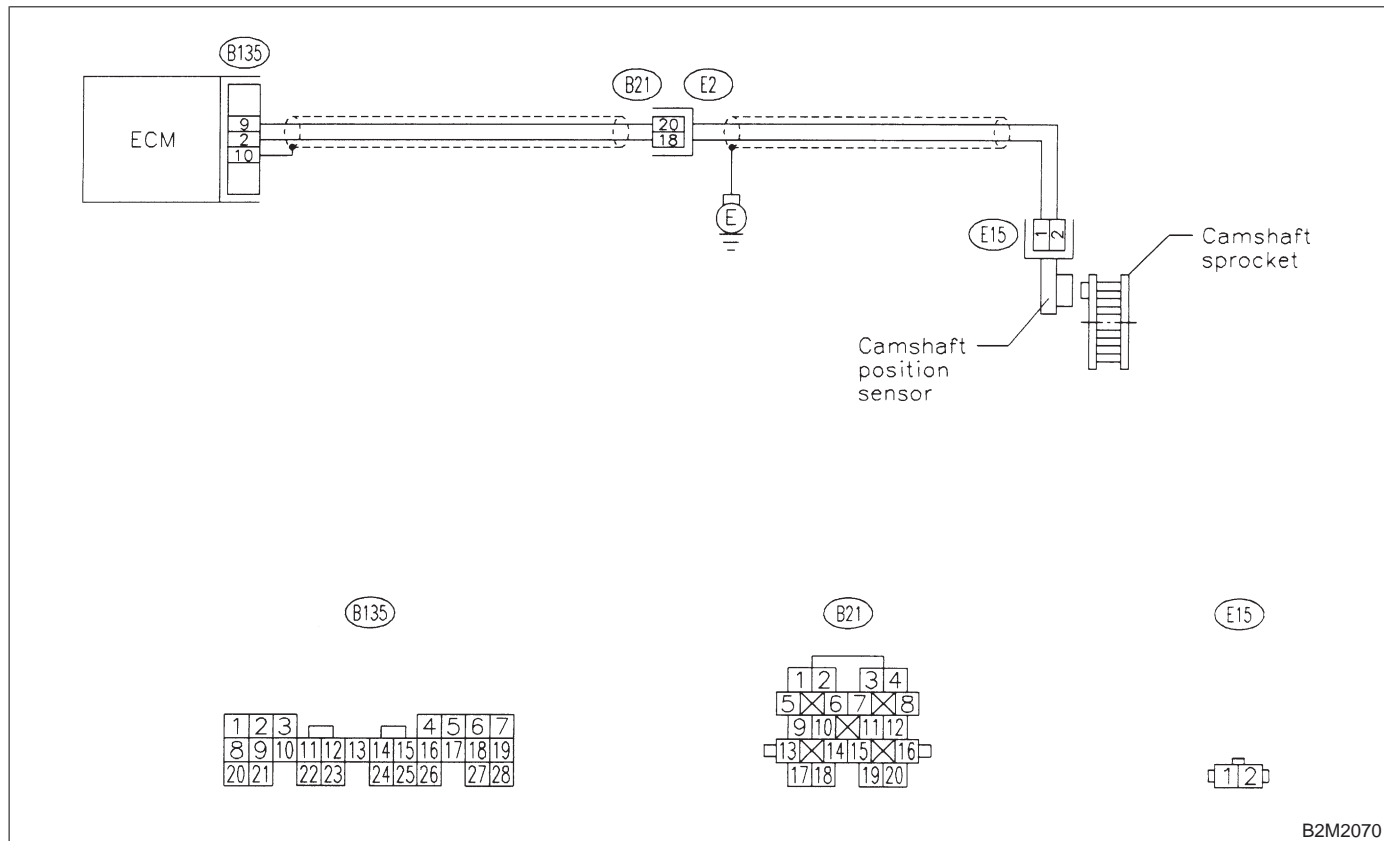
AF: DTC P0341 — CAMSHAFT POSITION SENSOR CIRCUIT RANGE/PERFORMANCE PROBLEM —

- **DTC DETECTING CONDITION:**
 - Immediately at fault recognition
- **TROUBLE SYMPTOM:**
 - Engine stalls.
 - Failure of engine to start

CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to 2-7 [T3D0].> and INSPECTION MODE <Ref. to 2-7 [T3E0].>

● **WIRING DIAGRAM:**



B2M2070

11AF1 : CHECK ANY OTHER DTC ON DISPLAY.

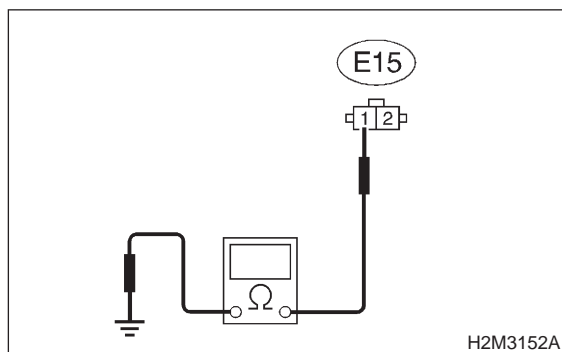
- CHECK** : Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0340?
- YES** : Inspect DTC P0340 using “11. Diagnostics Chart with Trouble Code for Except 2200 cc California Spec. Vehicles”. <Ref. to 2-7 [T11A0].>
- NO** : Go to step 11AF2.

11AF2 : CHECK HARNESS BETWEEN CAMSHAFT POSITION SENSOR AND ECM CONNECTOR.

- 1) Turn ignition switch to OFF.
- 2) Disconnect connector from camshaft position sensor.
- 3) Measure resistance of harness between camshaft position sensor connector and engine ground.

Connector & terminal

(E15) No. 1 — Engine ground:



CHECK : *Is the resistance more than 100 kΩ?*

YES : Repair harness and connector.

NOTE:

In this case, repair the following:

- Open circuit in harness between camshaft position sensor and ECM connector
- Poor contact in ECM connector
- Poor contact in coupling connector (B21)

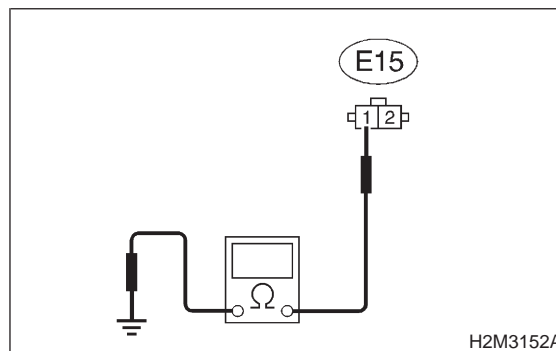
NO : Go to step **11AF3**.

11AF3 : CHECK HARNESS BETWEEN CAMSHAFT POSITION SENSOR AND ECM CONNECTOR.

Measure resistance of harness between camshaft position sensor connector and engine ground.

Connector & terminal

(E15) No. 1 — Engine ground:



CHECK : *Is the resistance less than 10 Ω?*

YES : Repair ground short circuit in harness between camshaft position sensor and ECM connector.

NOTE:

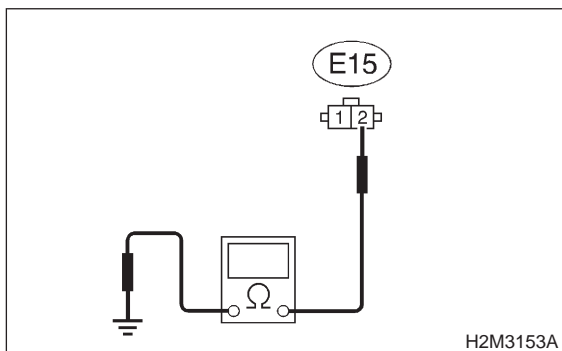
The harness between both connectors are shielded. Repair ground short circuit in harness together with shield.

NO : Go to step **11AF4**.

11AF4 : CHECK HARNESS BETWEEN CAMSHAFT POSITION SENSOR AND ECM CONNECTOR.

Measure resistance of harness between camshaft position sensor connector and engine ground.

Connector & terminal
(E15) No. 2 — Engine ground:



- CHECK** : *Is the resistance less than 5 Ω?*
- YES** : Go to step 11AF5.
- NO** : Repair harness and connector.

NOTE:

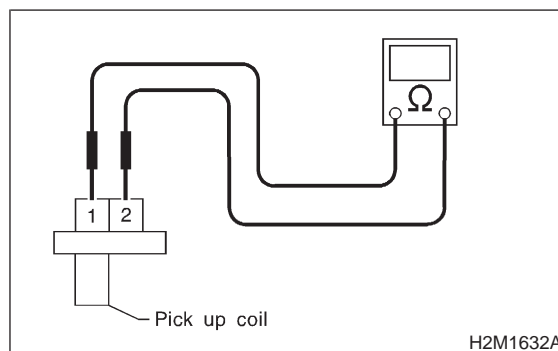
In this case, repair the following:

- Open circuit in harness between camshaft position sensor and ECM connector
- Poor contact in ECM connector
- Poor contact in coupling connector (B21)

11AF5 : CHECK CAMSHAFT POSITION SENSOR.

- 1) Remove camshaft position sensor.
- 2) Measure resistance between connector terminals of camshaft position sensor.

Terminals
No. 1 — No. 2:



- CHECK** : *Is the resistance between 1 and 4 kΩ?*
- YES** : Go to step 11AF6.
- NO** : Replace camshaft position sensor. <Ref. to 2-7 [W10A0].>

11AF6 : CHECK CONDITION OF CAMSHAFT POSITION SENSOR.

Turn ignition switch to OFF.

- CHECK** : *Is the camshaft position sensor installation bolt tightened securely?*
- YES** : Go to step 11AF7.
- NO** : Tighten camshaft position sensor installation bolt securely.

11AF7 : CHECK CAMSHAFT SPROCKET.

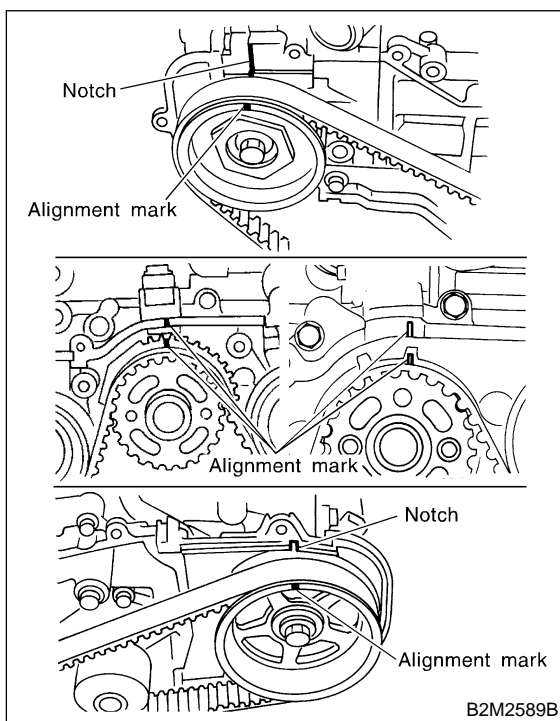
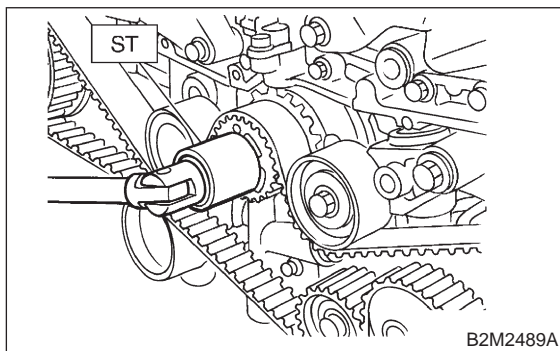
Remove front belt cover. <Ref. to 2-3 [W2A1].>

- CHECK** : *Are there any cracks or damages in the camshaft sprocket teeth?*
- YES** : Replace camshaft sprocket. <Ref. to 2-3 [W2A4].>
- NO** : Go to step 11AF8.

11AF8 : CHECK INSTALLATION CONDITION OF TIMING BELT.

Turn crankshaft using ST, and align alignment mark on crankshaft sprocket. Then, make sure left and right camshaft sprockets are matched with notches (alignment marks of belt cover and cylinder head).

ST 499987500 CRANKSHAFT SOCKET



- CHECK** : *Is timing belt installed properly in accordance with the correct position of crankshaft and camshaft sprockets?*
- YES** : Repair installation condition of timing belt. <Ref. to 2-3 [W2A0].>
- NO** : Replace camshaft position sensor. <Ref. to 2-7 [W10A0].>

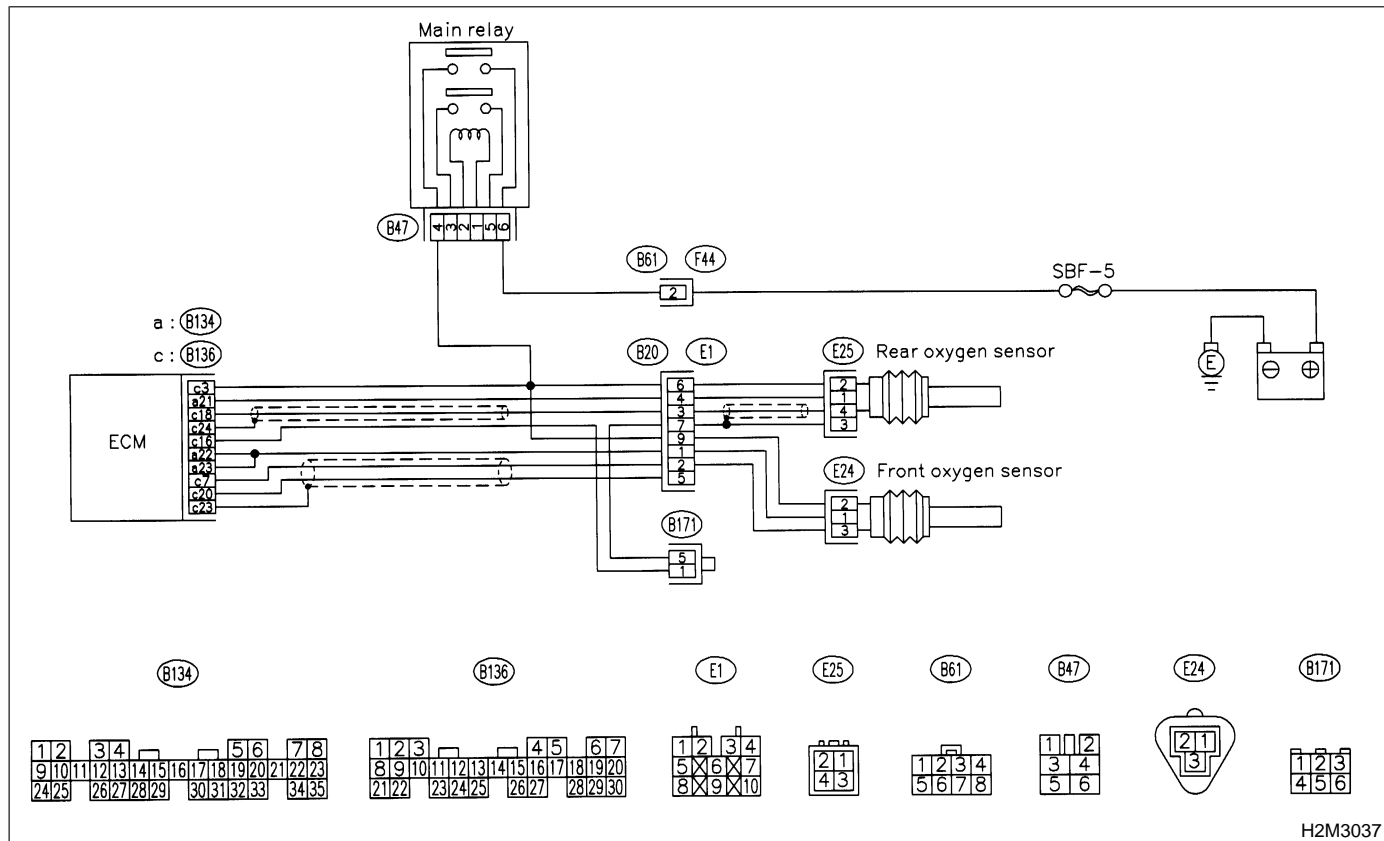
AG: DTC P0420 — CATALYST SYSTEM EFFICIENCY BELOW THRESHOLD

- **DTC DETECTING CONDITION:**
 - Two consecutive driving cycles with fault
- **TROUBLE SYMPTOM:**
 - Engine stalls.
 - Idle mixture is out of specifications.

CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to 2-7 [T3D0].> and INSPECTION MODE <Ref. to 2-7 [T3E0].>

● **WIRING DIAGRAM:**



H2M3037

11AG1 : CHECK ANY OTHER DTC ON DISPLAY.

CHECK : Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0130, P0133, P0135, P0136, P0139, P0141, P0301, P0302, P0303, P0304, P1150 and P1151?

YES : Inspect the relevant DTC using "11. Diagnostics Chart with Trouble Code for Except 2200 cc California Spec. Vehicles". <Ref. to 2-7 [T11A0].>

NOTE:

In this case, it is not necessary to inspect DTC P0420.

NO : Go to step 11AG2.

11AG2 : CHECK EXHAUST SYSTEM.

Check for gas leaks or air suction caused by loose or dislocated nuts and bolts, and open hole at exhaust pipes.

NOTE:

Check the following positions.

- Between cylinder head and front exhaust pipe
- Between front exhaust pipe and front catalytic converter
- Between front catalytic converter and rear catalytic converter

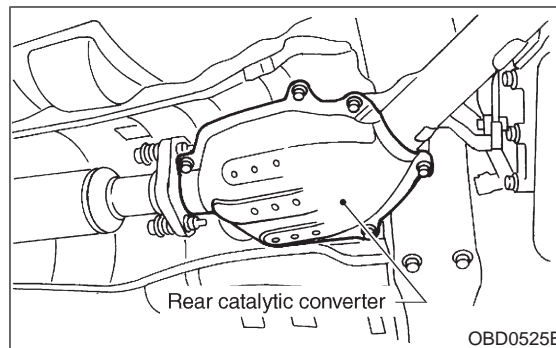
CHECK : Is there a fault in exhaust system?

YES : Repair or replace exhaust system. <Ref. to 2-9 [W1A0].>

NO : Go to step 11AG3.

11AG3 : CHECK REAR CATALYTIC CONVERTER.

Separate rear catalytic converter from rear exhaust pipe.



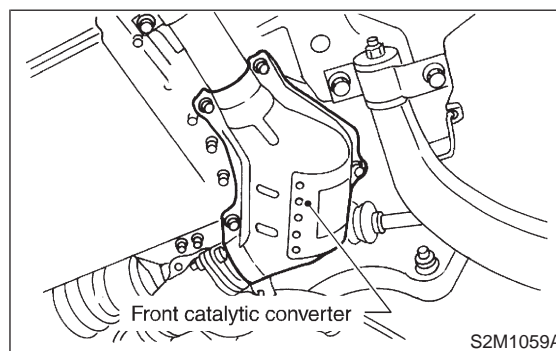
CHECK : Is there damage at rear face of rear catalyst?

YES : Replace front catalytic converter <Ref. to 2-1 [W1A0].> and rear catalytic converter <Ref. to 2-1 [W2A0].>

NO : Go to step 11AG4.

11AG4 : CHECK FRONT CATALYTIC CONVERTER.

Remove front catalytic converter.



CHECK : Is there damage at rear face or front face of front catalyst?

YES : Replace front catalytic converter. <Ref. to 2-1 [W1A0].>

NO : Contact with SOA service.

NOTE:

Inspection by DTM is required, because probable cause is deterioration of multiple parts.

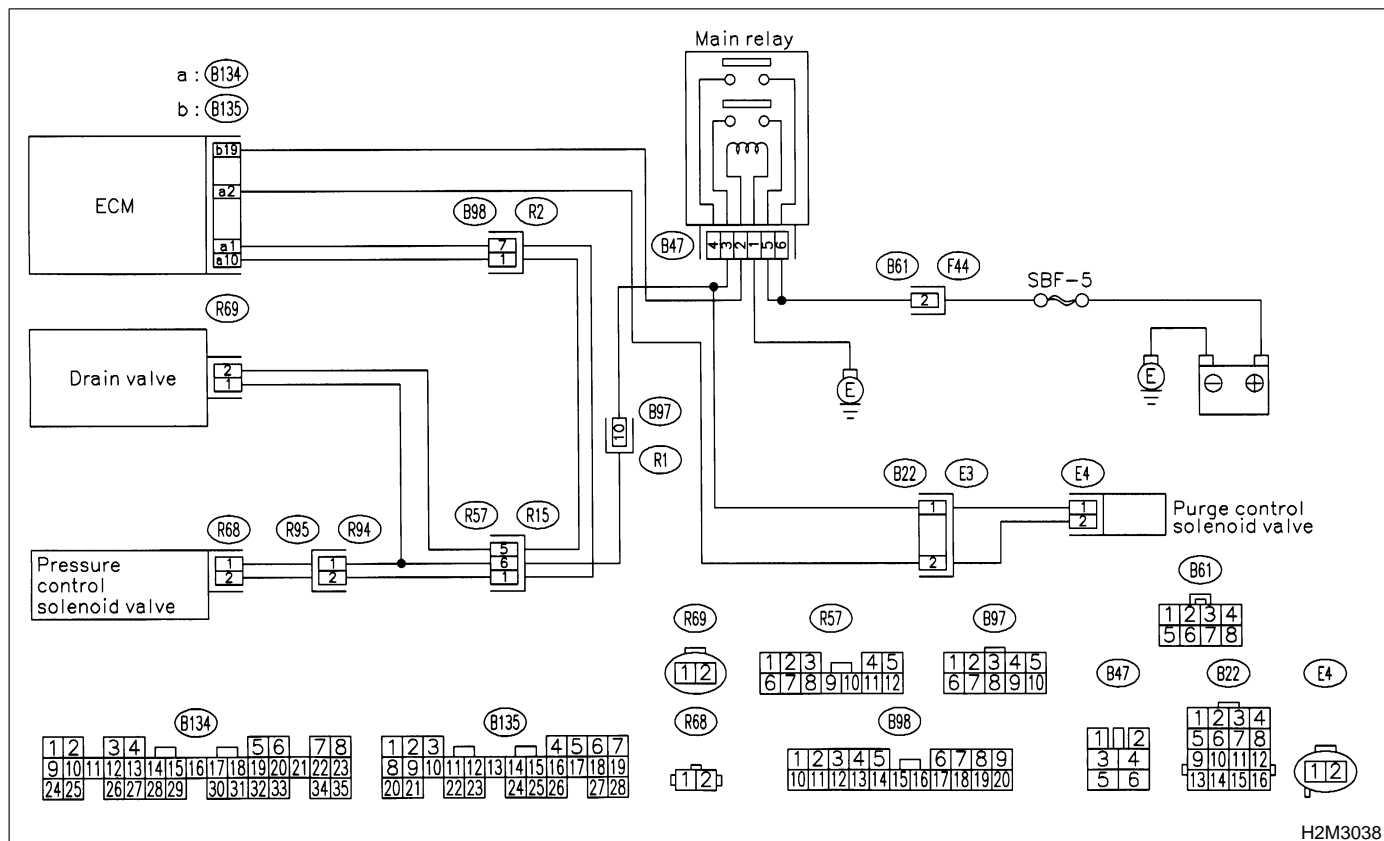
AH: DTC P0440 — EVAPORATIVE EMISSION CONTROL SYSTEM MALFUNCTION —

- **DTC DETECTING CONDITION:**
 - Two consecutive driving cycles with fault
- **TROUBLE SYMPTOM:**
 - Gasoline smell

CAUTION:

After repair or replacement of faulty parts, conduct **CLEAR MEMORY MODE** <Ref. to 2-7 [T3D0].> and **INSPECTION MODE** <Ref. to 2-7 [T3E0].>

● **WIRING DIAGRAM:**



H2M3038

11AH1 : CHECK ANY OTHER DTC ON DISPLAY.

- CHECK** : *Is there any other DTC on display?*
- YES** : Inspect the relevant DTC using "11. Diagnostics Chart with Trouble Code for Except 2200 cc California Spec. Vehicles". <Ref. to 2-7 [T11A0].>
- NO** : Go to step **11AH2**.

11AH2 : CHECK FUEL FILLER CAP.

- 1) Turn ignition switch to OFF.
 - 2) Open the fuel flap.
- CHECK** : *Is the fuel filler cap tightened securely?*
 - YES** : Go to step **11AH3**.
 - NO** : Tighten fuel filler cap securely.

11AH3 : CHECK FUEL FILLER PIPE PACKING.

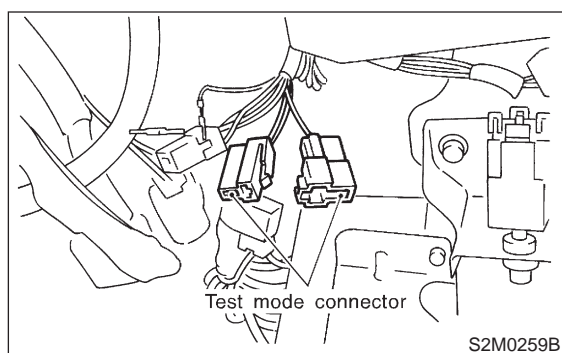
CHECK : *Is there any damage to the seal between fuel filler cap and fuel filler pipe?*

YES : Repair or replace fuel filler cap and fuel filler pipe. <Ref. to 2-8 [W3A0].>

NO : Go to step 11AH4.

11AH4 : CHECK DRAIN VALVE OR VENT CONTROL SOLENOID VALVE.

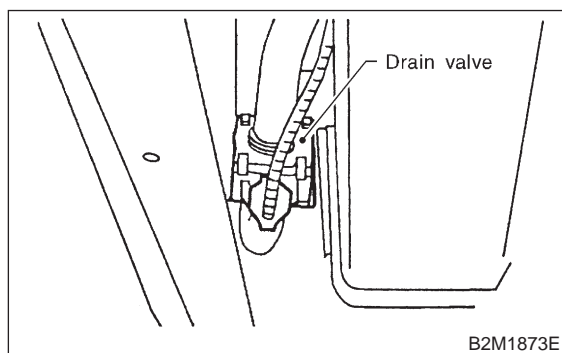
1) Connect test mode connector.



2) Turn ignition switch to ON.

NOTE:

Drain valve or vent control solenoid valve operation check can also be executed using Subaru Select Monitor. For the procedure, refer to "COMPULSORY VALVE OPERATION CHECK MODE". <Ref. to 2-7 [T3F0].>



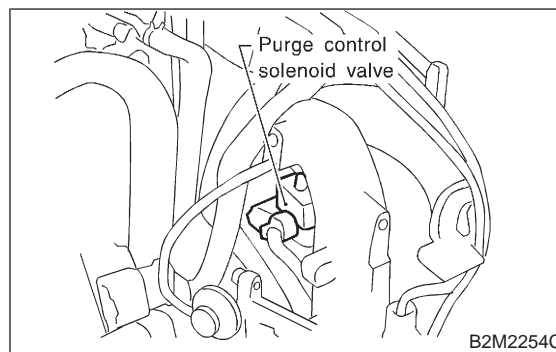
CHECK : *Does drain valve produce operating sound?*

YES : Go to step 11AH5.

NO : Replace drain valve. <Ref. to 2-1 [W13A0].>

11AH5 : CHECK PURGE CONTROL SOLENOID VALVE.**NOTE:**

Purge control solenoid valve operation check can also be executed using Subaru Select Monitor. For the procedure, refer to "COMPULSORY VALVE OPERATION CHECK MODE". <Ref. to 2-7 [T3F0].>



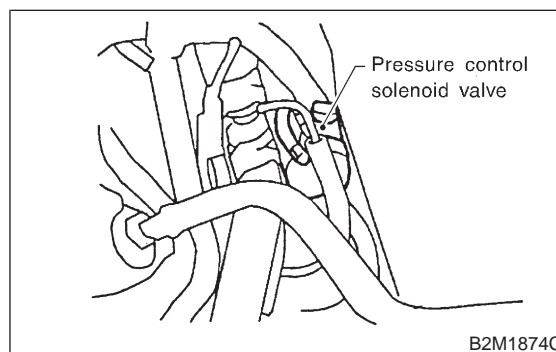
CHECK : *Does purge control solenoid valve produce operating sound?*

YES : Go to step 11AH6.

NO : Replace purge control solenoid valve. <Ref. to 2-1 [W4A0].>

11AH6 : CHECK PRESSURE CONTROL SOLENOID VALVE.**NOTE:**

Pressure control solenoid valve operation check can also be executed using Subaru Select Monitor. For the procedure, refer to "COMPULSORY VALVE OPERATION CHECK MODE". <Ref. to 2-7 [T3F0].>



CHECK : *Does pressure control solenoid valve produce operating sound?*

YES : Go to step 11AH7.

NO : Replace pressure control solenoid valve. <Ref. to 2-1 [W7A0].>

11AH7 : CHECK EVAPORATIVE EMISSION CONTROL SYSTEM LINE.

Turn ignition switch to OFF.

- CHECK** : ***Does fuel leak in fuel line?***
YES : Repair or replace fuel line. <Ref. to 2-8 [W7A0].>
NO : Go to step **11AH8**.

11AH8 : CHECK CANISTER.

- CHECK** : ***Is there any damage at canister?***
YES : Repair or replace canister. <Ref. to 2-1 [W3A0].>
NO : Go to step **11AH9**.

11AH9 : CHECK FUEL TANK.

- CHECK** : ***Is there any damage at fuel tank?***
YES : Repair or replace fuel tank. <Ref. to 2-8 [W2A0].>
NO : Go to step **11AH10**.

11AH10 : CHECK ANY OTHER MECHANICAL TROUBLE IN EVAPORATIVE EMISSION CONTROL SYSTEM.

- CHECK** : ***Are there holes, cracks, clogging or disconnections of hoses or pipes in evaporative emission control system?***
YES : Repair or replace hoses or pipes.
NO : Contact with SOA service.

NOTE:

Inspection by DTM is required, because probable cause is deterioration of multiple parts.

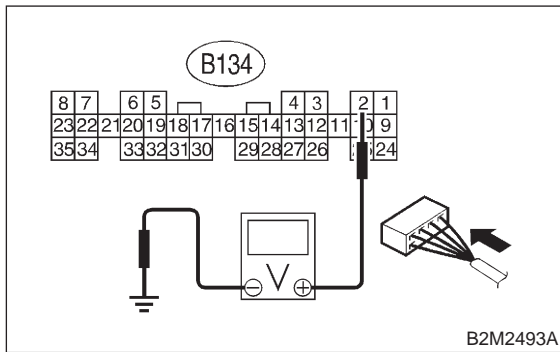
MEMO:

11A11 : CHECK OUTPUT SIGNAL FROM ECM.

- 1) Turn ignition switch to ON.
- 2) Measure voltage between ECM and chassis ground.

Connector & terminal

(B134) No. 2 (+) — Chassis ground (-):



- CHECK** : **Is the voltage more than 10 V?**
- YES** : Even if MIL lights up, the circuit has returned to a normal condition at this time. Contact with SOA service.

NOTE:
Inspection by DTM is required, because probable cause is deterioration of multiple parts.

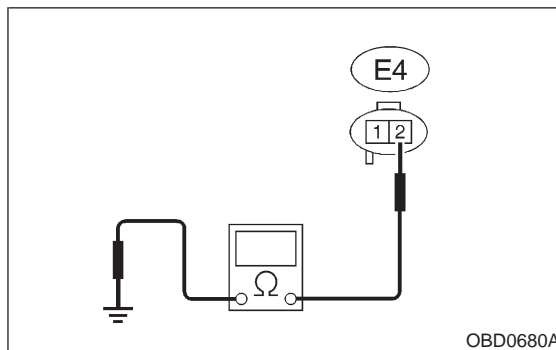
- NO** : Go to step **11A12**.

11A12 : CHECK HARNESS BETWEEN PURGE CONTROL SOLENOID VALVE AND ECM CONNECTOR.

- 1) Turn ignition switch to OFF.
- 2) Disconnect connectors from purge control solenoid valve and ECM.
- 3) Measure resistance of harness between purge control solenoid valve connector and engine ground.

Connector & terminal

(E4) No. 2 — Engine ground:



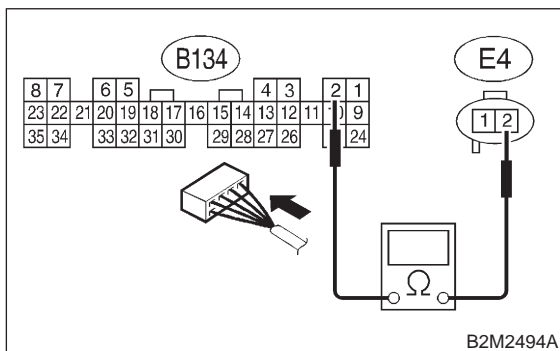
- CHECK** : **Is the resistance less than 10 Ω?**
- YES** : Repair ground short circuit in harness between ECM and purge control solenoid valve connector.
- NO** : Go to step **11A13**.

11A13 : CHECK HARNESS BETWEEN PURGE CONTROL SOLENOID VALVE AND ECM CONNECTOR.

Measure resistance of harness between ECM and purge control solenoid valve of harness connector.

Connector & terminal

(B134) No. 2 — (E4) No. 2:



- CHECK** : Is the resistance less than 1 Ω?
- YES** : Go to step 11A14.
- NO** : Repair open circuit in harness between ECM and purge control solenoid valve connector.

NOTE:

In this case, repair the following:

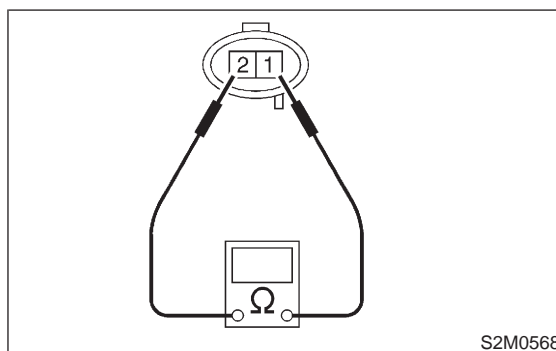
- Open circuit in harness between ECM and purge control solenoid valve connector
- Poor contact in coupling connector (B22)

11A14 : CHECK PURGE CONTROL SOLENOID VALVE.

- 1) Remove purge control solenoid valve.
- 2) Measure resistance between purge control solenoid valve terminals.

Terminals

No. 1 — No. 2:



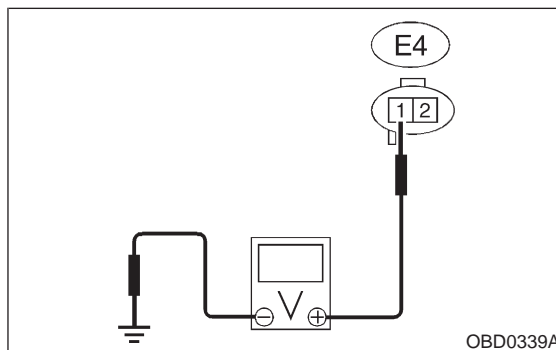
- CHECK** : Is the resistance between 10 and 100 Ω?
- YES** : Go to step 11A15.
- NO** : Replace purge control solenoid valve. <Ref. to 2-1 [W4A0].>

11A15 : CHECK POWER SUPPLY TO PURGE CONTROL SOLENOID VALVE.

- 1) Turn ignition switch to ON.
- 2) Measure voltage between purge control solenoid valve and engine ground.

Connector & terminal

(E4) No. 1 (+) — Engine ground (-):



- CHECK** : Is the voltage more than 10 V?
- YES** : Go to step 11A16.
- NO** : Repair open circuit in harness between main relay and purge control solenoid valve connector.

11A16 : CHECK POOR CONTACT.

Check poor contact in purge control solenoid valve connector. <Ref. to FOREWORD [T3C1].>

CHECK : *Is there poor contact in purge control solenoid valve connector?*

YES : Repair poor contact in purge control solenoid valve connector.

NO : Contact with SOA service.

NOTE:

Inspection by DTM is required, because probable cause is deterioration of multiple parts.

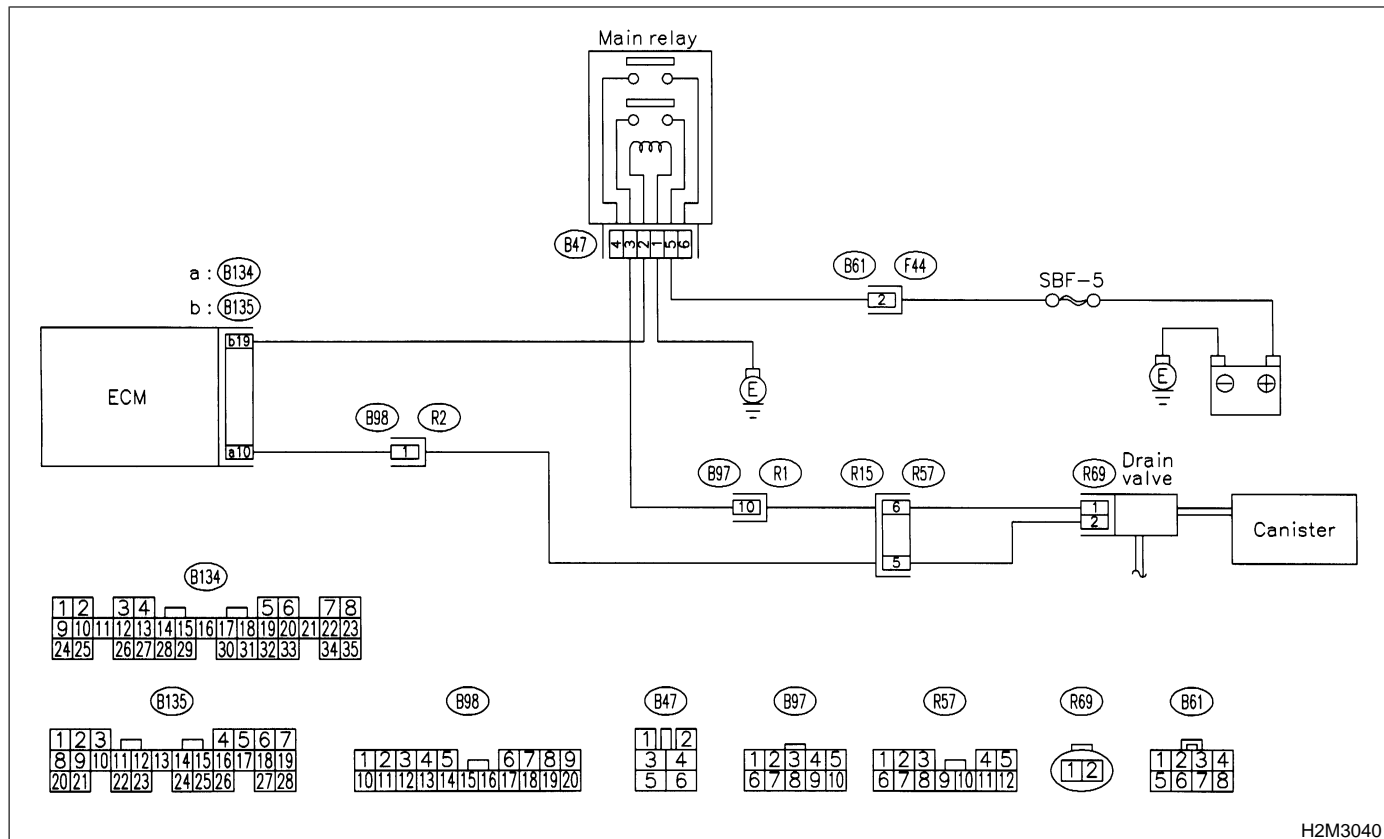
AJ: DTC P0446 — EVAPORATIVE EMISSION CONTROL SYSTEM VENT CONTROL LOW INPUT —

- **DTC DETECTING CONDITION:**
 - Two consecutive driving cycles with fault

CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to 2-7 [T3D0].> and INSPECTION MODE <Ref. to 2-7 [T3E0].>

● **WIRING DIAGRAM:**

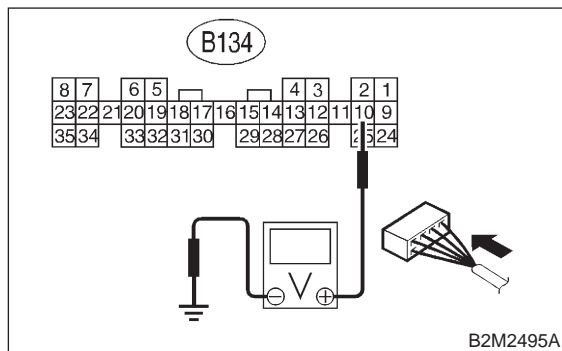


H2M3040

11AJ1 : CHECK OUTPUT SIGNAL FROM ECM.

- 1) Turn ignition switch to ON.
- 2) Measure voltage between ECM and chassis ground.

Connector & terminal
(B134) No. 10 (+) — Chassis ground (-):



- CHECK** : **Is the voltage more than 10 V?**
YES : Go to step 11AJ2.
NO : Go to step 11AJ3.

11AJ2 : CHECK POOR CONTACT.

Check poor contact in ECM connector. <Ref. to FOREWORD [T3C1].>

- CHECK** : **Is there poor contact in ECM connector?**
YES : Repair poor contact in ECM connector.
NO : Even if MIL lights up, the circuit has returned to a normal condition at this time. (However, the possibility of poor contact still remains.)

NOTE:

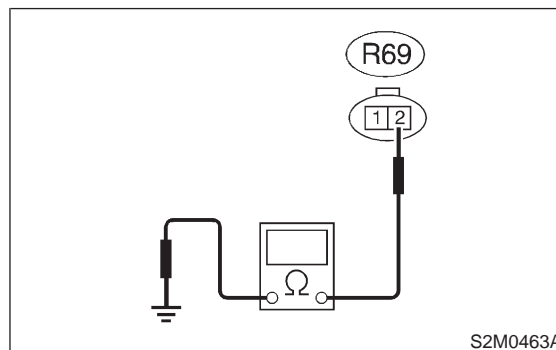
In this case, repair the following:

- Poor contact in drain valve connector
- Poor contact in ECM connector
- Poor contact in coupling connectors (B97), (B98) and (R57)

11AJ3 : CHECK HARNESS BETWEEN DRAIN VALVE AND ECM CONNECTOR.

- 1) Turn ignition switch to OFF.
- 2) Disconnect connectors from drain valve and ECM.
- 3) Measure resistance of harness between drain valve connector and chassis ground.

Connector & terminal
(R69) No. 2 — Chassis ground:



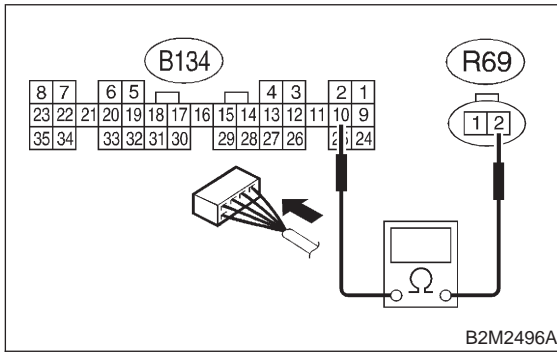
- CHECK** : **Is the resistance less than 10 Ω?**
YES : Repair ground short circuit in harness between ECM and drain valve connector.
NO : Go to step 11AJ4.

11AJ4 : CHECK HARNESS BETWEEN DRAIN VALVE AND ECM CONNECTOR.

Measure resistance of harness between ECM and drain valve connector.

Connector & terminal

(B134) No. 10 — (R69) No. 2:



- CHECK** : *Is the resistance less than 1 Ω?*
- YES** : Go to step 11AJ5.
- NO** : Repair harness and connector.

NOTE:

In this case, repair the following:

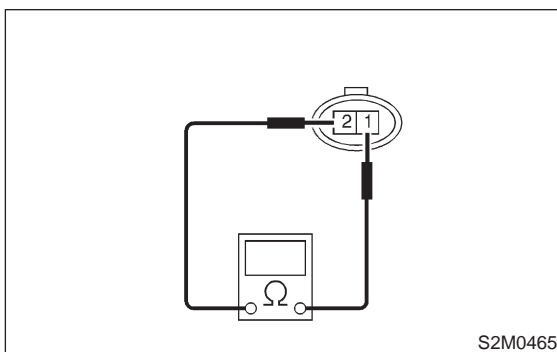
- Open circuit in harness between ECM and drain valve connector
- Poor contact in coupling connectors (B98) and (R57)

11AJ5 : CHECK DRAIN VALVE.

Measure resistance between drain valve terminals.

Terminals

No. 1 — No. 2:



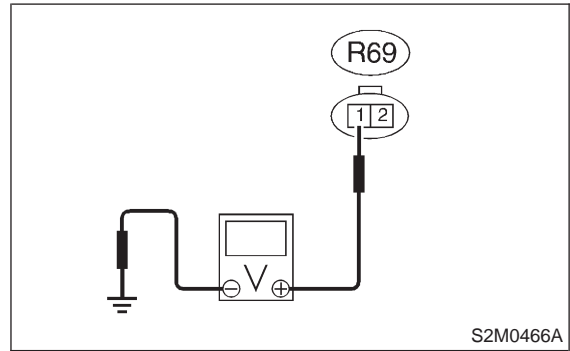
- CHECK** : *Is the resistance between 10 and 100 Ω?*
- YES** : Go to step 11AJ6.
- NO** : Replace drain valve. <Ref. to 2-1 [W13A0].>

11AJ6 : CHECK POWER SUPPLY TO DRAIN VALVE.

- 1) Turn ignition switch to ON.
- 2) Measure voltage between drain valve and chassis ground.

Connector & terminal

(R69) No. 1 (+) — Chassis ground (-):



- CHECK** : *Is the voltage more than 10 V?*
- YES** : Go to step 11AJ7.
- NO** : Repair harness and connector.

NOTE:

In this case, repair the following:

- Open circuit in harness between main relay and drain valve
- Poor contact in coupling connectors (B97) and (R57)
- Poor contact in main relay connector

11AJ7 : CHECK POOR CONTACT.

Check poor contact in drain valve connector. <Ref. to FOREWORD [T3C1].>

- CHECK** : *Is there poor contact in drain valve connector?*
- YES** : Repair poor contact in drain valve connector.
- NO** : Contact with SOA service.

NOTE:

Inspection by DTM is required, because probable cause is deterioration of multiple parts.

MEMO:

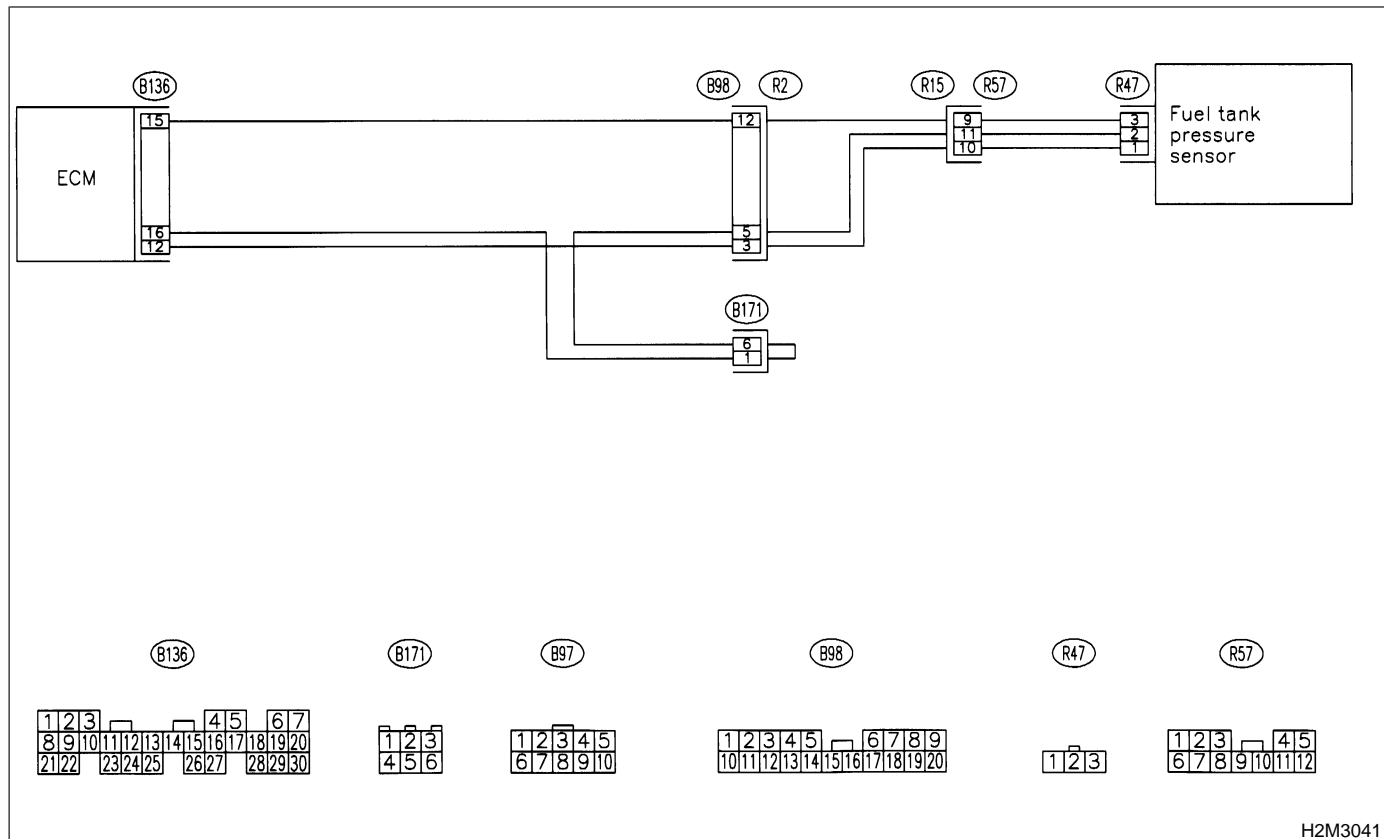
AK: DTC P0451 — EVAPORATIVE EMISSION CONTROL SYSTEM PRESSURE SENSOR RANGE/PERFORMANCE PROBLEM —

- **DTC DETECTING CONDITION:**
 - Two consecutive driving cycles with fault

CAUTION:

After repair or replacement of faulty parts, conduct **CLEAR MEMORY MODE** <Ref. to 2-7 [T3D0].> and **INSPECTION MODE** <Ref. to 2-7 [T3E0].>

● **WIRING DIAGRAM:**



11AK1 : CHECK ANY OTHER DTC ON DISPLAY.

- CHECK** : *Is there any DTC on display?*
- YES** : Inspect the relevant DTC using "11. Diagnostics Chart with Trouble Code for Except 2200 cc California Spec. Vehicles". <Ref. to 2-7 [T11A0].>
- NO** : Go to step **11AK2**.

11AK2 : CHECK FUEL FILLER CAP.

- 1) Turn ignition switch to OFF.
 - 2) Open the fuel flap.
- CHECK** : *Is the fuel filler cap tightened securely?*
 - YES** : Go to step **11AK3**.
 - NO** : Tighten fuel filler cap securely.

11AK3 : CHECK PRESSURE/VACUUM LINE.
--

NOTE:

Check the following items.

- Disconnection, leakage and clogging of the vacuum hoses and pipes between fuel tank pressure sensor and fuel tank
- Disconnection, leakage and clogging of air ventilation hoses and pipes between fuel filler pipe and fuel tank

CHECK : *Is there a fault in pressure/vacuum line?*

YES : Repair or replace hoses and pipes.

NO : Replace fuel tank pressure sensor.
<Ref. to 2-1 [W6A0].>

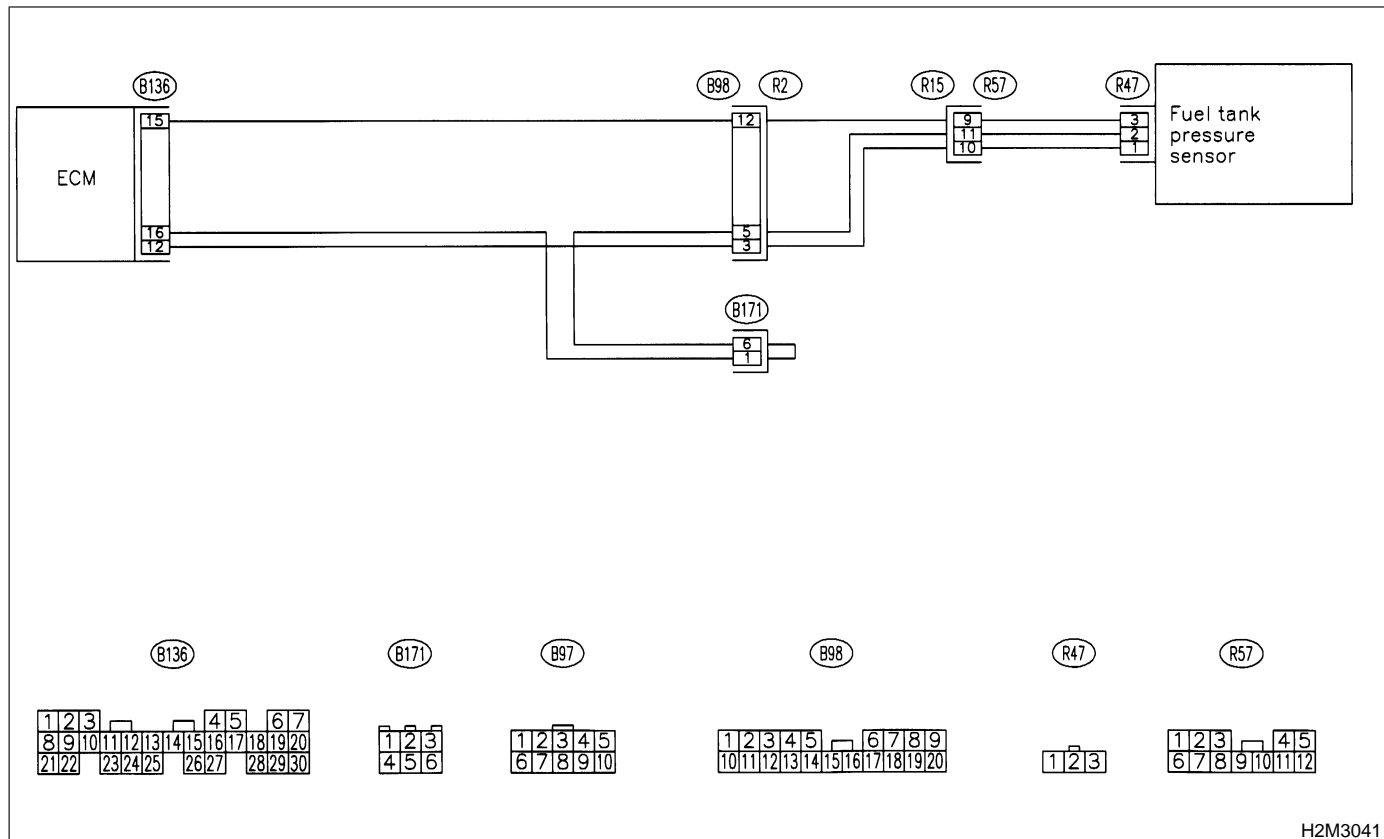
AL: DTC P0452 — EVAPORATIVE EMISSION CONTROL SYSTEM PRESSURE SENSOR LOW INPUT —

- **DTC DETECTING CONDITION:**
 - Immediately at fault recognition

CAUTION:

After repair or replacement of faulty parts, conduct **CLEAR MEMORY MODE** <Ref. to 2-7 [T3D0].> and **INSPECTION MODE** <Ref. to 2-7 [T3E0].>

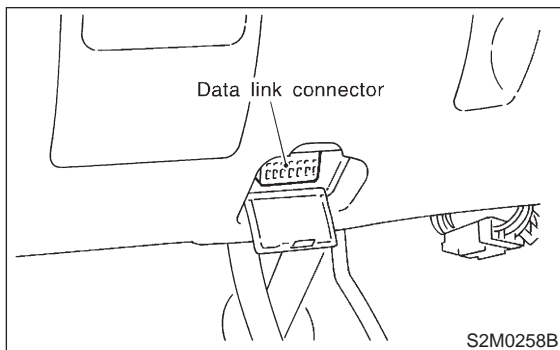
- **WIRING DIAGRAM:**



H2M3041

11AL1 : CONNECT SUBARU SELECT MONITOR OR THE OBD-II GENERAL SCAN TOOL, AND READ DATA.

- 1) Turn ignition switch to OFF.
- 2) Remove fuel filler cap.
- 3) Install fuel filler cap.
- 4) Connect Subaru Select Monitor or the OBD-II general scan tool to data link connector.



- 5) Turn ignition switch to ON and Subaru Select Monitor or the OBD-II general scan tool switch to ON.

- 6) Read the data of fuel tank pressure sensor signal using Subaru Select Monitor or the OBD-II general scan tool.

NOTE:

- Subaru Select Monitor

For detailed operation procedure, refer to the "READ CURRENT DATA SHOWN ON DISPLAY FOR ENGINE". <Ref. to 2-7 [T3C4].>

- OBD-II general scan tool

For detailed operation procedures, refer to the OBD-II General Scan Tool Instruction Manual.

CHECK : *Is the value less than -2.8 kPa (-21.0 mmHg, -0.827 inHg)?*

YES : Go to step 11AL2.

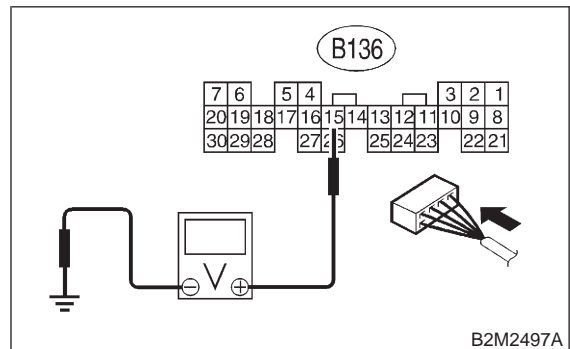
NO : Even if MIL lights up, the circuit has returned to a normal condition at this time.

11AL2 : CHECK POWER SUPPLY TO FUEL TANK PRESSURE SENSOR.

Measure voltage between ECM connector and chassis ground.

Connector & terminal

(B136) No. 15 (+) — Chassis ground (-):



CHECK : *Is the voltage more than 4.5 V?*

YES : Go to step 11AL4.

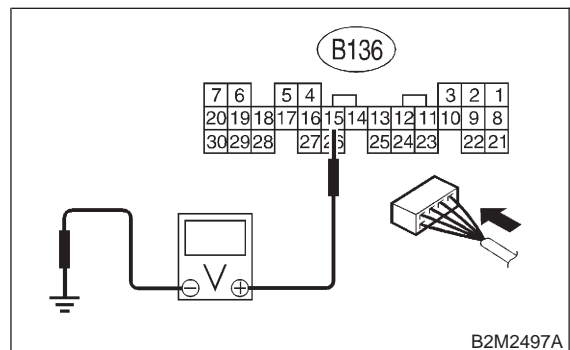
NO : Go to step 11AL3.

11AL3 : CHECK POWER SUPPLY TO FUEL TANK PRESSURE SENSOR.

Measure voltage between ECM connector and chassis ground.

Connector & terminal

(B136) No. 15 (+) — Chassis ground (-):



CHECK : *Does the voltage change more than 4.5 V by shaking harness and connector of ECM while monitoring the value with voltage meter?*

YES : Repair poor contact in ECM connector.

NO : Contact with SOA service.

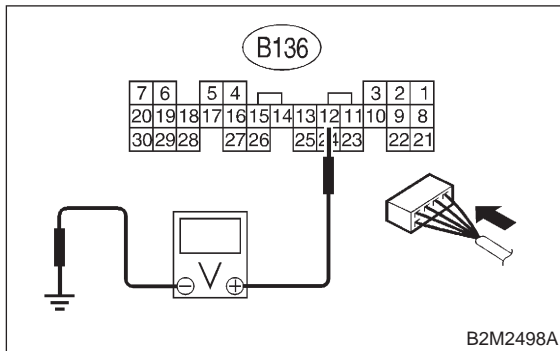
NOTE:

Inspection by DTM is required, because probable cause is deterioration of multiple parts.

11AL4 : CHECK INPUT SIGNAL FOR ECM.

Measure voltage between ECM and chassis ground.

Connector & terminal (B136) No. 12 (+) — Chassis ground (-):



- CHECK** : Is the voltage less than 0.2 V?
- YES** : Go to step 11AL6.
- NO** : Go to step 11AL5.

11AL5 : CHECK INPUT SIGNAL FOR ECM. (USING SUBARU SELECT MONITOR.)

Read data of fuel tank pressure sensor signal using Subaru Select Monitor.

NOTE:

- Subaru Select Monitor

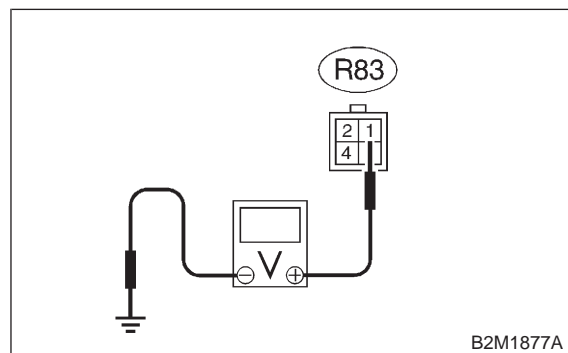
For detailed operation procedure, refer to the "READ CURRENT DATA SHOWN ON DISPLAY FOR ENGINE". <Ref. to 2-7 [T3C4].>

- CHECK** : Does the value change more than -2.8 kPa (-21.0 mmHg, -0.827 inHg) by shaking harness and connector of ECM while monitoring the value with Subaru Select Monitor?
- YES** : Repair poor contact in ECM connector.
- NO** : Go to step 11AL6.

11AL6 : CHECK HARNESS BETWEEN ECM AND COUPLING CONNECTOR IN REAR WIRING HARNESS.

- 1) Turn ignition switch to OFF.
- 2) Remove rear seat cushion (Sedan) or move rear seat cushion (Wagon).
- 3) Separate rear wiring harness and fuel tank cord.
- 4) Turn ignition switch to ON.
- 5) Measure voltage between rear wiring harness connector and chassis ground.

Connector & terminal (R83) No. 1 (+) — Chassis ground (-):



- CHECK** : Is the voltage more than 4.5 V?
- YES** : Go to step 11AL7.
- NO** : Repair harness and connector.

NOTE:

In this case, repair the following:

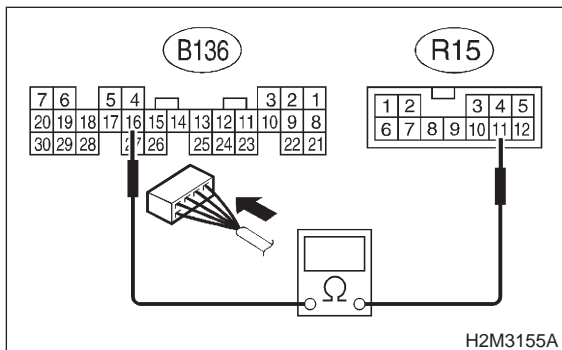
- Open circuit in harness between ECM and rear wiring harness connector (R83)
- Poor contact in coupling connector (B98)

11AL7 : CHECK HARNESS BETWEEN ECM AND COUPLING CONNECTOR IN REAR WIRING HARNESS.

- 1) Turn ignition switch to OFF.
- 2) Disconnect connector from ECM.
- 3) Measure resistance of harness between ECM and rear wiring harness connector.

Connector & terminal

(B136) No. 16 — (R15) No. 11:



- CHECK** : Is the resistance less than 1 Ω?
- YES** : Go to step 11AL8.
- NO** : Repair harness and connector.

NOTE:

In this case, repair the following:

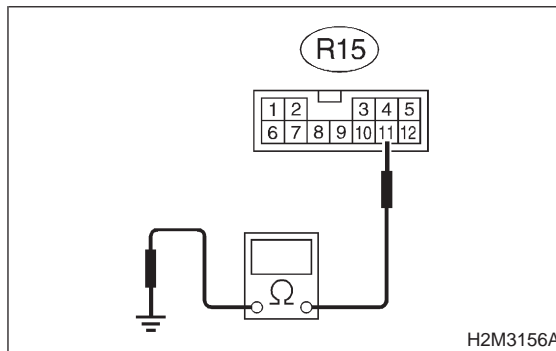
- Open circuit in harness between ECM and rear wiring harness connector (R15)
- Poor contact in coupling connector (B98)

11AL8 : CHECK HARNESS BETWEEN ECM AND COUPLING CONNECTOR IN REAR WIRING HARNESS.

Measure resistance of harness between rear wiring harness connector and chassis ground.

Connector & terminal

(R15) No. 11 — Chassis ground:



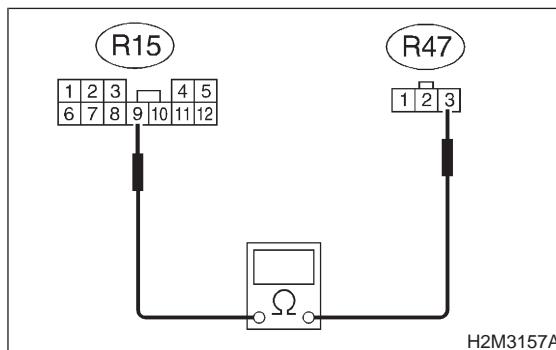
- CHECK** : Is the resistance more than 500 kΩ?
- YES** : Go to step 11AL9.
- NO** : Repair ground short circuit in harness between ECM and rear wiring harness connector (R15).

11AL9 : CHECK FUEL TANK CORD.

- 1) Remove fuel tank. <Ref. to 2-8 [W2A0].>
- 2) Disconnect connector from fuel tank pressure sensor.
- 3) Measure resistance of fuel tank cord.

Connector & terminal

(R15) No. 9 — (R47) No. 3:



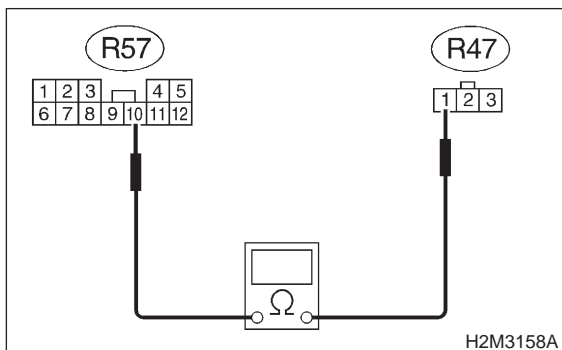
- CHECK** : Is the resistance less than 1 Ω?
- YES** : Go to step 11AL10.
- NO** : Repair open circuit in fuel tank cord.

11AL10 : CHECK FUEL TANK CORD.

Measure resistance of fuel tank cord.

Connector & terminal

(R57) No. 10 — (R47) No. 1:



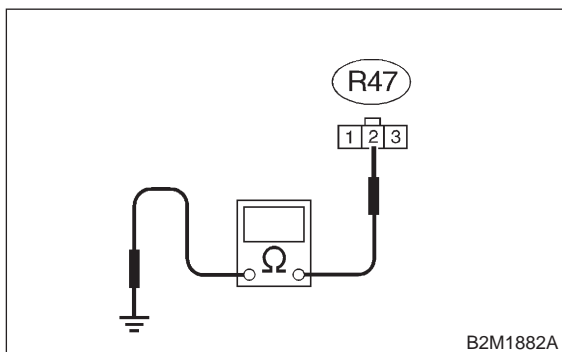
- CHECK** : *Is the resistance less than 1 Ω?*
- YES** : Go to step 11AL11.
- NO** : Repair open circuit in fuel tank cord.

11AL11 : CHECK FUEL TANK CORD.

Measure resistance of harness between fuel tank pressure sensor connector and chassis ground.

Connector & terminal

(R47) No. 2 — Chassis ground:



- CHECK** : *Is the resistance more than 500 kΩ?*
- YES** : Go to step 11AL12.
- NO** : Repair ground short circuit in fuel tank cord.

11AL12 : CHECK POOR CONTACT.

Check poor contact in fuel tank pressure sensor connector. <Ref. to FOREWORD [T3C1].>

- CHECK** : *Is there poor contact in fuel tank pressure sensor connector?*
- YES** : Repair poor contact in fuel tank pressure sensor connector.
- NO** : Replace fuel tank pressure sensor. <Ref. to 2-1 [W6A0].>

MEMO:

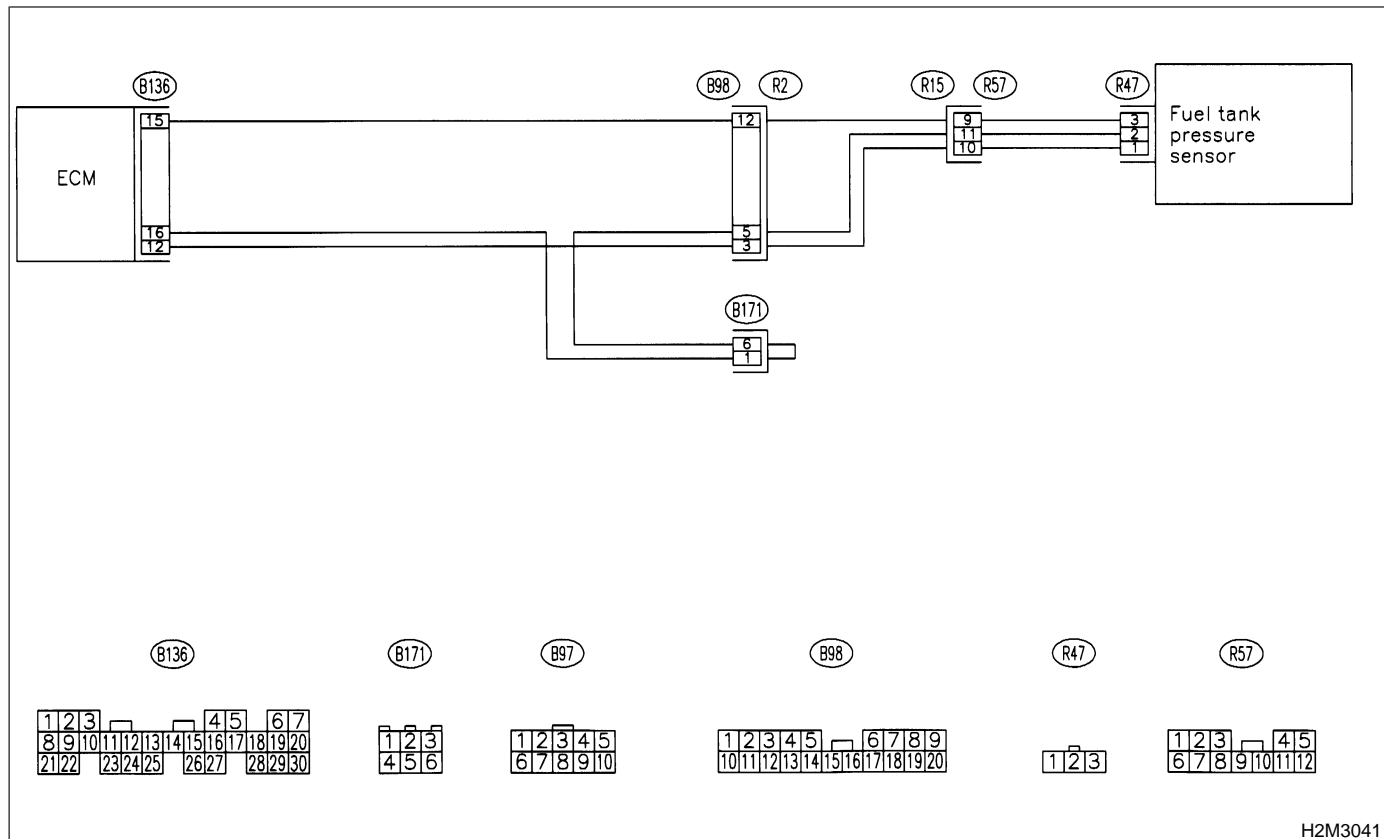
**AM: DTC P0453 — EVAPORATIVE EMISSION CONTROL SYSTEM
PRESSURE SENSOR HIGH INPUT —**

- **DTC DETECTING CONDITION:**
 - Immediately at fault recognition

CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to 2-7 [T3D0].> and INSPECTION MODE <Ref. to 2-7 [T3E0].>

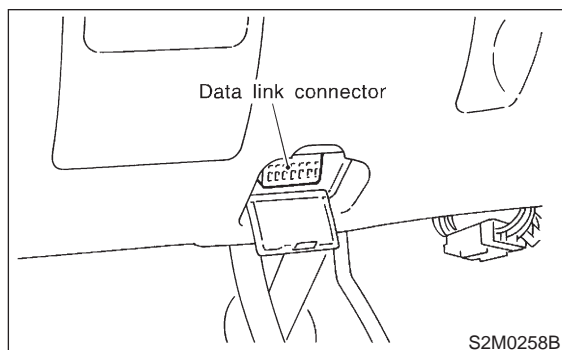
- **WIRING DIAGRAM:**



H2M3041

11AM1 : CONNECT SUBARU SELECT MONITOR OR THE OBD-II GENERAL SCAN TOOL, AND READ DATA.

- 1) Turn ignition switch to OFF.
- 2) Remove fuel filler cap.
- 3) Install fuel filler cap.
- 4) Connect Subaru Select Monitor or the OBD-II general scan tool to data link connector.



- 5) Turn ignition switch to ON and Subaru Select Monitor or the OBD-II general scan tool switch to ON.

- 6) Read data of fuel tank pressure sensor signal using Subaru Select Monitor or OBD-II general scan tool.

NOTE:

- Subaru Select Monitor

For detailed operation procedure, refer to the "READ CURRENT DATA SHOWN ON DISPLAY FOR ENGINE". <Ref. to 2-7 [T3C4].>

- OBD-II general scan tool

For detailed operation procedures, refer to the OBD-II General Scan Tool Instruction Manual.

CHECK : *Is the value more than 2.8 kPa (21.0 mmHg, 0.827 inHg)?*

YES : Go to step 11AM12.

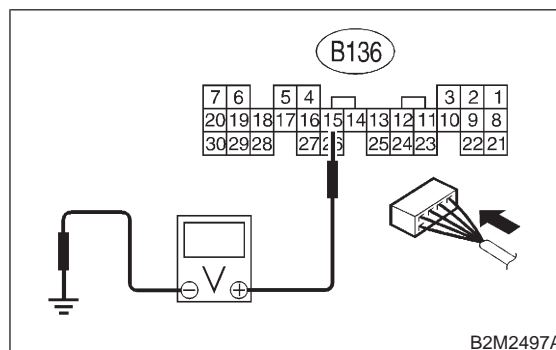
NO : Go to step 11AM2.

11AM2 : CHECK POWER SUPPLY TO FUEL TANK PRESSURE SENSOR.

Measure voltage between ECM connector and chassis ground.

Connector & terminal

(B136) No. 15 (+) — Chassis ground (-):



CHECK : *Is the voltage more than 4.5 V?*

YES : Go to step 11AM4.

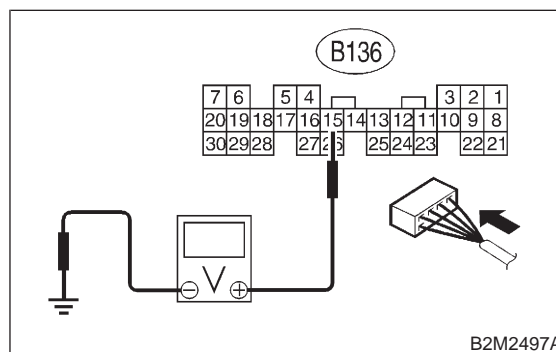
NO : Go to step 11AM3.

11AM3 : CHECK POWER SUPPLY TO FUEL TANK PRESSURE SENSOR.

Measure voltage between ECM connector and chassis ground.

Connector & terminal

(B136) No. 15 (+) — Chassis ground (-):



CHECK : *Does the voltage change more than 4.5 V by shaking harness and connector of ECM while monitoring the value with voltage meter?*

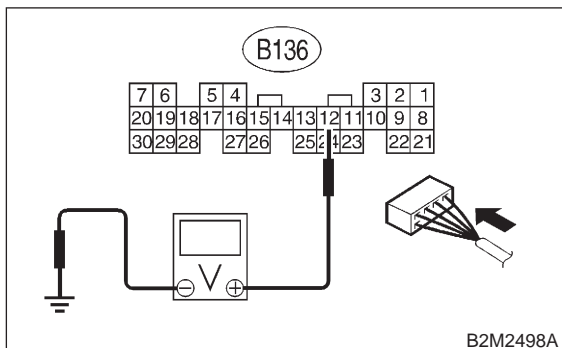
YES : Repair poor contact in ECM connector.

NO : Replace ECM. <Ref. to 2-7 [W15A0].>

11AM4 : CHECK INPUT SIGNAL FOR ECM.

Measure voltage between ECM and chassis ground.

Connector & terminal
(B136) No. 12 (+) — Chassis ground (-):



- CHECK** : *Is the voltage less than 0.2 V?*
- YES** : Go to step 11AM6.
- NO** : Go to step 11AM5.

11AM5 : CHECK INPUT SIGNAL FOR ECM. (USING SUBARU SELECT MONITOR.)

Read data of fuel tank pressure sensor signal using Subaru Select Monitor.

NOTE:

- Subaru Select Monitor

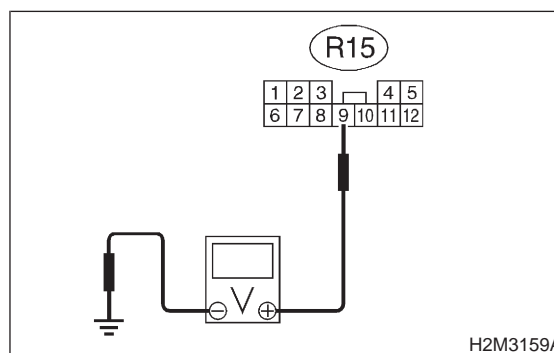
For detailed operation procedure, refer to the "READ CURRENT DATA SHOWN ON DISPLAY FOR ENGINE". <Ref. to 2-7 [T3C4].>

- CHECK** : *Does the value change more than -2.8 kPa (-21.0 mmHg, -0.827 inHg) by shaking harness and connector of ECM while monitoring the value with Subaru Select Monitor?*
- YES** : Repair poor contact in ECM connector.
- NO** : Go to step 11AM6.

11AM6 : CHECK HARNESS BETWEEN ECM AND COUPLING CONNECTOR IN REAR WIRING HARNESS.

- 1) Turn ignition switch to OFF.
- 2) Remove rear seat cushion (Sedan) or move rear seat cushion (Wagon).
- 3) Separate rear wiring harness and fuel tank cord.
- 4) Turn ignition switch to ON.
- 5) Measure voltage between rear wiring harness connector and chassis ground.

Connector & terminal
(R15) No. 9 (+) — Chassis ground (-):



- CHECK** : *Is the voltage more than 4.5 V?*
- YES** : Go to step 11AM7.
- NO** : Repair harness and connector.

NOTE:

In this case, repair the following:

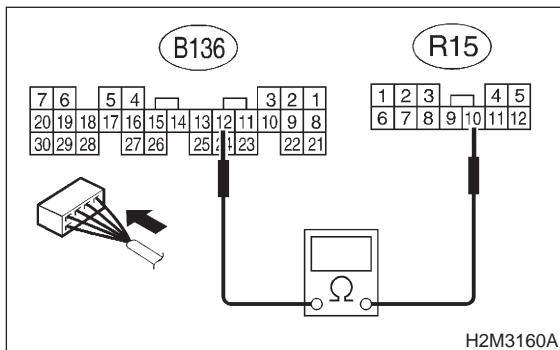
- Open circuit in harness between ECM and rear wiring harness connector (R15)
- Poor contact in coupling connector (B98)

11AM7 : CHECK HARNESS BETWEEN ECM AND COUPLING CONNECTOR IN REAR WIRING HARNESS.

- 1) Turn ignition switch to OFF.
- 2) Disconnect connector from ECM.
- 3) Measure resistance of harness between ECM and rear wiring harness connector.

Connector & terminal

(B136) No. 12 — (R15) No. 10:



- CHECK** : Is the resistance less than 1 Ω?
- YES** : Go to step 11AM8.
- NO** : Repair harness and connector.

NOTE:

In this case, repair the following:

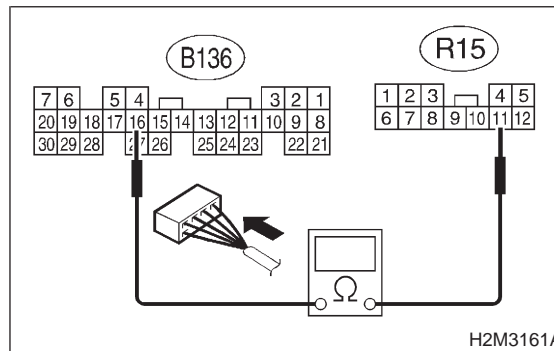
- Open circuit in harness between ECM and rear wiring harness connector (R15)
- Poor contact in coupling connector (B98)

11AM8 : CHECK HARNESS BETWEEN ECM AND COUPLING CONNECTOR IN REAR WIRING HARNESS.

Measure resistance of harness between rear wiring harness connector and chassis ground.

Connector & terminal

(B136) No. 16 — (R15) No. 11:



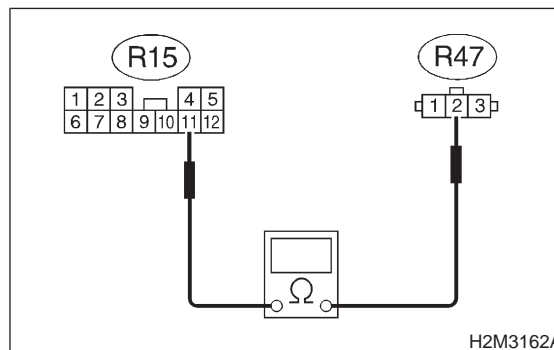
- CHECK** : Is the resistance less than 1 Ω?
- YES** : Go to step 11AM9.
- NO** : Repair ground short circuit in harness between ECM and rear wiring harness connector (R83).

11AM9 : CHECK FUEL TANK CORD.

- 1) Remove fuel tank. <Ref. to 2-8 [W2A0].>
- 2) Disconnect connector from fuel tank pressure sensor.
- 3) Measure resistance of fuel tank cord.

Connector & terminal

(R15) No. 11 — (R47) No. 2:



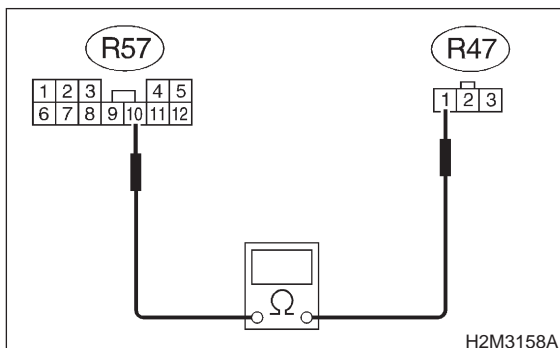
- CHECK** : Is the resistance less than 1 Ω?
- YES** : Go to step 11AM10.
- NO** : Repair open circuit in fuel tank cord.

11AM10 : CHECK FUEL TANK CORD.

Measure resistance of fuel tank cord.

Connector & terminal

(R57) No. 10 — (R47) No. 1:



- CHECK** : *Is the resistance less than 1 Ω?*
- YES** : Go to step 11AM11.
- NO** : Repair open circuit in fuel tank cord.

11AM11 : CHECK POOR CONTACT.

Check poor contact in fuel tank pressure sensor connector. <Ref. to FOREWORD [T3C1].>

- CHECK** : *Is there poor contact in fuel tank pressure sensor connector?*
- YES** : Repair poor contact in fuel tank pressure sensor connector.
- NO** : Replace fuel tank pressure sensor. <Ref. to 2-1 [W6A0].>

11AM12 : CHECK HARNESS BETWEEN ECM AND FUEL TANK PRESSURE SENSOR CONNECTOR.

- 1) Turn ignition switch to OFF and Subaru Select Monitor or the OBD-II general scan tool switch to OFF.
- 2) Remove fuel tank. <Ref. to 2-8 [W2A0].>
- 3) Remove fuel tank cord from fuel tank.
- 4) Connect fuel tank cord to rear wiring harness.
- 5) Remove fuel filler cap.
- 6) Install fuel filler cap.
- 7) Turn ignition switch to ON and Subaru Select Monitor or the OBD-II general scan tool switch to ON.
- 8) Read data of fuel tank pressure sensor signal using Subaru Select Monitor or the OBD-II general scan tool.

NOTE:

- Subaru Select Monitor
For detailed operation procedure, refer to the "READ CURRENT DATA SHOWN ON DISPLAY FOR ENGINE". <Ref. to 2-7 [T3C4].>
- OBD-II general scan tool
For detailed operation procedures, refer to the OBD-II General Scan Tool Instruction Manual.

- CHECK** : *Is the value more than 2.8 kPa (21.0 mmHg, 0.827 inHg)?*
- YES** : Repair battery short circuit in harness between ECM and fuel tank pressure sensor connector.
- NO** : Replace fuel tank pressure sensor. <Ref. to 2-1 [W6A0].>

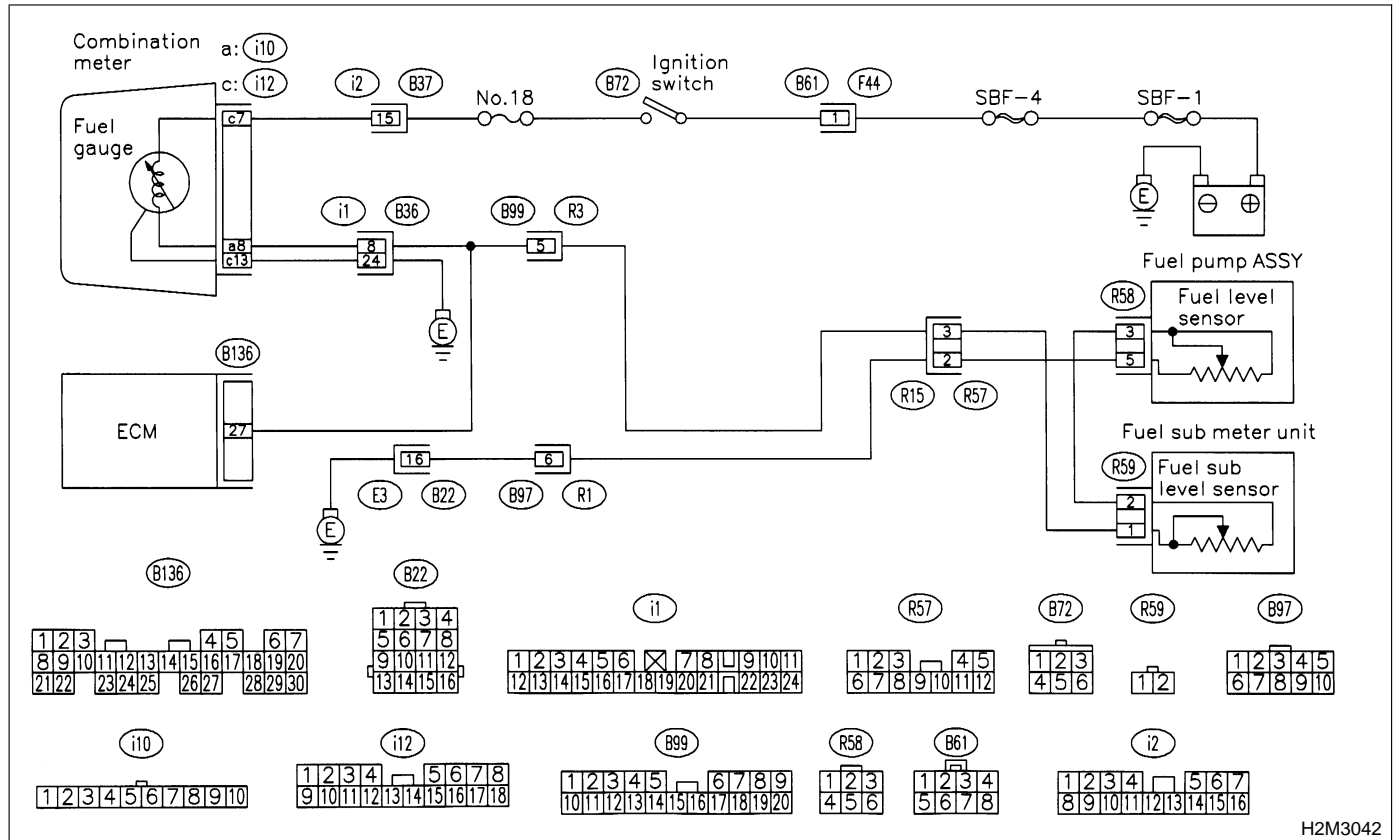
AN: DTC P0461 — FUEL LEVEL SENSOR CIRCUIT RANGE/ PERFORMANCE PROBLEM —

- **DTC DETECTING CONDITION:**
 - Two consecutive driving cycles with fault

CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to 2-7 [T3D0].> and INSPECTION MODE <Ref. to 2-7 [T3E0].>

● **WIRING DIAGRAM:**



H2M3042

11AN1 : CHECK ANY OTHER DTC ON DISPLAY.

- CHECK** : Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0462 or P0463?
- YES** : Inspect DTC P0462 or P0463 using "11. Diagnostics Chart with Trouble Code for Except 2200 cc California Spec. Vehicles". <Ref. to 2-7 [T11A0].>

NOTE:

In this case, it is not necessary to inspect this trouble.

- NO** : Replace fuel sending unit <Ref. to 2-1 [W8A0].> and fuel sub meter unit <Ref. to 2-1 [W10A0].>

AO: DTC P0462 — FUEL LEVEL SENSOR CIRCUIT LOW INPUT —

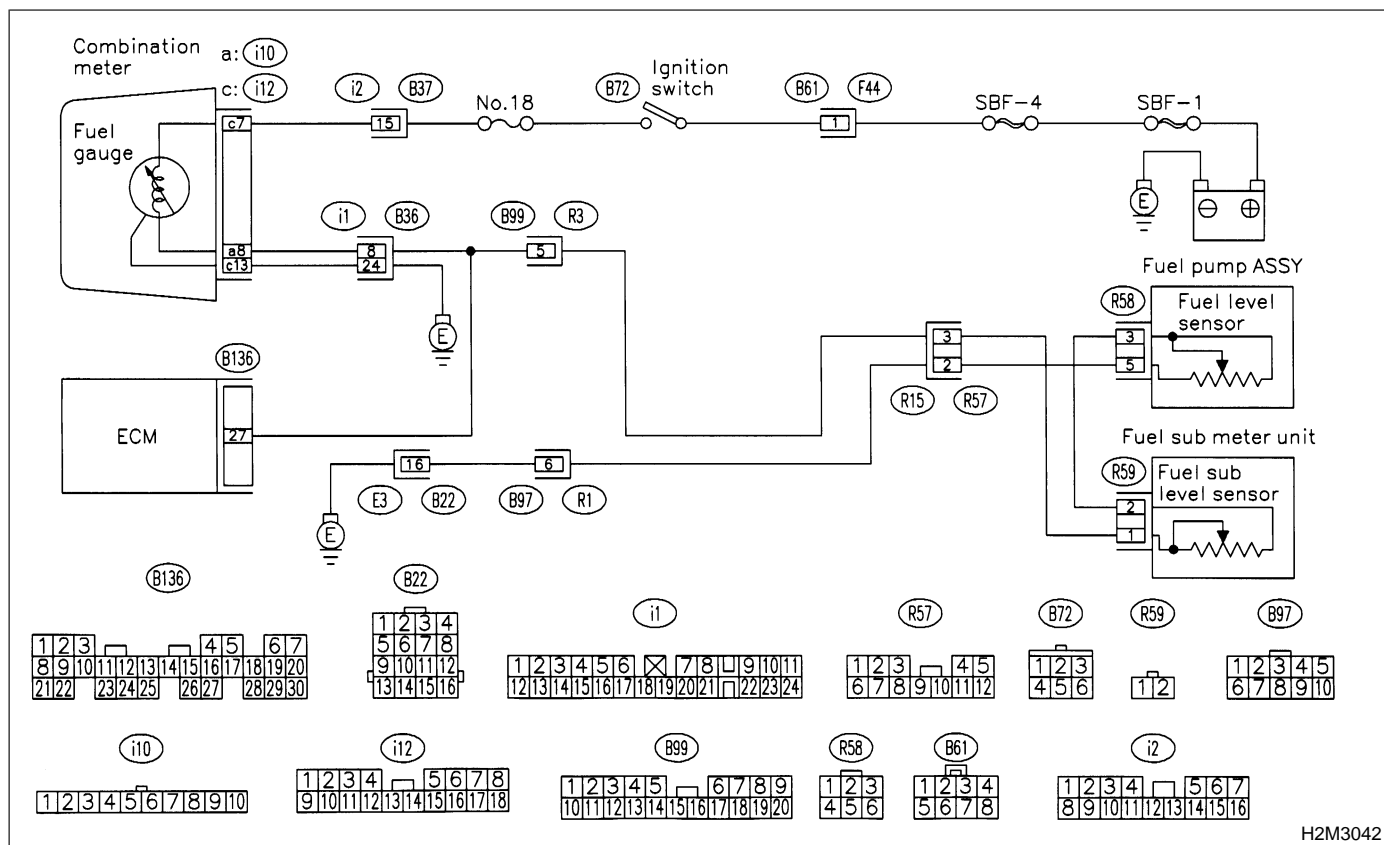
• DTC DETECTING CONDITION:

- Two consecutive driving cycles with fault

CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to 2-7 [T3D0].> and INSPECTION MODE <Ref. to 2-7 [T3E0].>

• WIRING DIAGRAM:



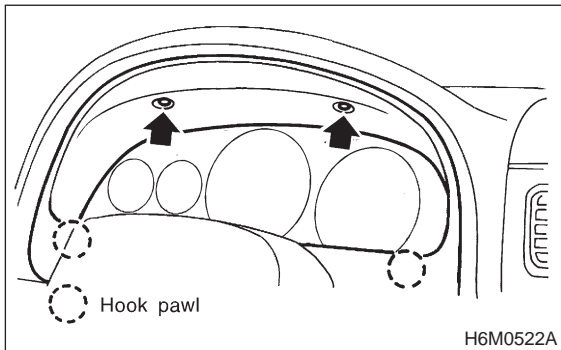
H2M3042

11A01 : CHECK SPEEDOMETER AND TACHOMETER OPERATION IN COMBINATION METER.

- CHECK** : Does speedometer and tachometer operate normally?
- YES** : Go to step 11A03.
- NO** : Go to step 11A02.

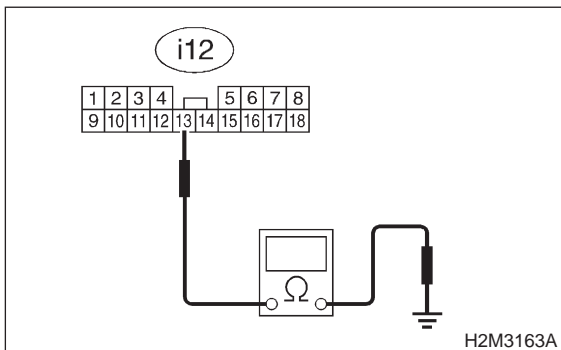
11A02 : CHECK GROUND CIRCUIT OF COMBINATION METER.

- 1) Turn ignition switch to OFF.
- 2) Pull out combination meter from instrument panel. <Ref. to 6-2 [W8A0].>



- 3) Disconnect connector from combination meter.
- 4) Measure resistance of harness between combination meter connector and chassis ground.

Connector & terminal
(i12) No. 13 — Chassis ground:



- CHECK** : **Is resistance less than 5 Ω?**
- YES** : Repair or replace combination meter. <Ref. to 6-2 [W8A0].>
- NO** : Repair harness and connector.

NOTE:

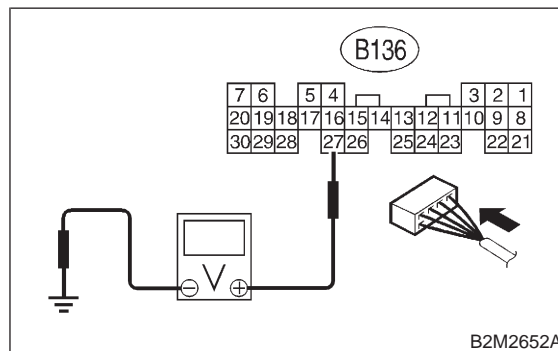
In this case, repair the following:

- Open circuit in harness between combination meter connector and grounding terminal
- Poor contact in combination meter connector
- Poor contact in grounding terminal

11A03 : CHECK INPUT SIGNAL FOR ECM.

- 1) Turn ignition switch to ON. (Engine OFF)
- 2) Measure voltage between ECM connector and chassis ground.

Connector & terminal
(B136) No. 27 (+) — Chassis ground (-):



- CHECK** : **Is the voltage less than 0.12 V?**
- YES** : Go to step 11A05.
- NO** : Go to step 11A04.

11A04 : CHECK INPUT SIGNAL FOR ECM. (USING SUBARU SELECT MONITOR.)

Read data of fuel level sensor signal using Subaru Select Monitor.

NOTE:

- Subaru Select Monitor
- For detailed operation procedure, refer to the "READ CURRENT DATA SHOWN ON DISPLAY FOR ENGINE". <Ref. to 2-7 [T3C4].>

CHECK : **Does the value change less than 0.12 V by shaking harness and connector of ECM while monitoring the value with Subaru Select Monitor?**

- YES** : Repair poor contact in ECM connector.
- NO** : Even if MIL lights up, the circuit has returned to a normal condition at this time. A temporary poor contact of the connector may be the cause.

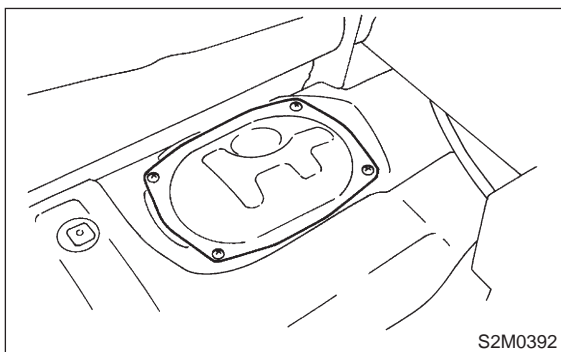
NOTE:

In this case, repair the following:

- Poor contact in fuel pump connector
- Poor contact in combination meter connector
- Poor contact in ECM connector
- Poor contact in coupling connectors (i1), (B22), (B99), (B97) and (R57)

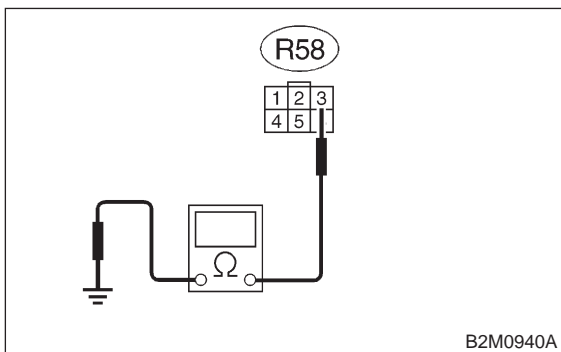
11A05 : CHECK HARNESS BETWEEN ECM, COMBINATION METER AND FUEL PUMP CONNECTOR.

- 1) Turn ignition switch to OFF.
- 2) Remove fuel pump access hole lid located on the right rear of trunk compartment floor (Sedan) or luggage compartment floor (Wagon).



- 3) Disconnect connector from fuel pump.
- 4) Measure resistance of harness between fuel pump connector and chassis ground.

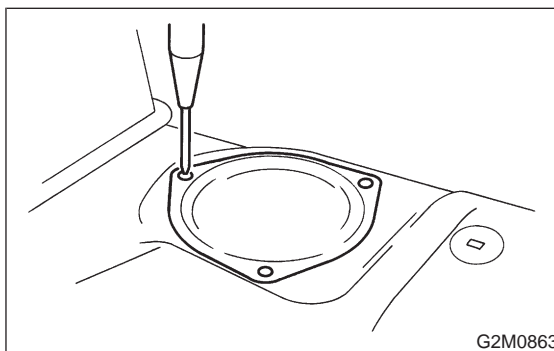
Connector & terminal
(R58) No. 3 — Chassis ground:



- CHECK** : **Is the resistance less than 10 Ω?**
- YES** : Go to step 11A06.
- NO** : Go to step 11A011.

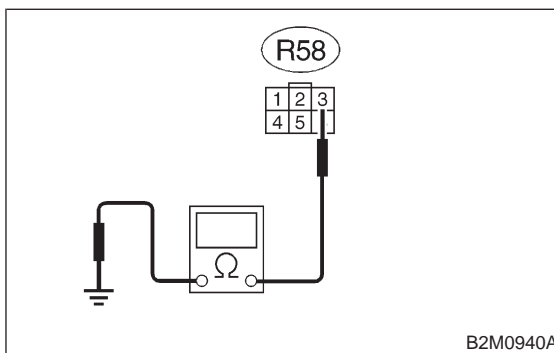
11A06 : CHECK FUEL TANK CORD.

- 1) Remove service hole cover located on the left rear of trunk compartment floor (Sedan) or luggage compartment floor (Wagon).



- 2) Disconnect connector from fuel sub meter unit.
- 3) Measure resistance of harness between fuel pump connector and chassis ground.

Connector & terminal
(R58) No. 3 — Chassis ground:



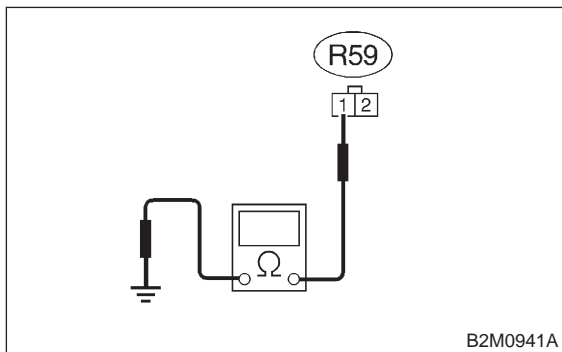
- CHECK** : **Is the resistance less than 10 Ω?**
- YES** : Repair ground short circuit in harness between fuel pump and fuel sub meter unit connector.
- NO** : Go to step 11A07.

11A07 : CHECK REAR WIRING HARNESS.

- 1) Separate fuel tank cord connector (R57) and rear wiring harness connector (R15).
- 2) Measure resistance of harness between fuel sub meter unit connector and chassis ground.

Connector & terminal

(R59) No. 1 — Chassis ground:



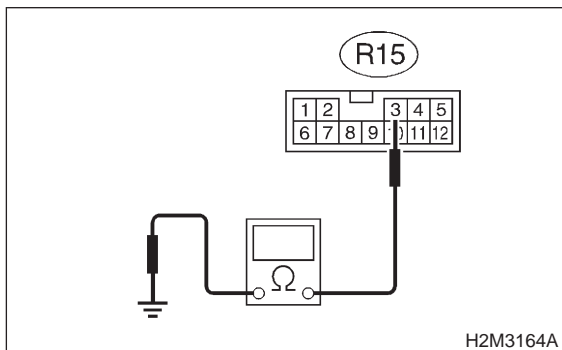
- CHECK** : Is the resistance less than 10 Ω?
- YES** : Repair ground short circuit in fuel tank cord.
- NO** : Go to step 11A08.

11A08 : CHECK REAR, BULKHEAD AND INSTRUMENT PANEL WIRING HARNESS.

- 1) Separate rear wiring harness connector (R3) and bulkhead wiring harness connector (B99).
- 2) Measure resistance of harness between rear wiring harness connector and chassis ground.

Connector & terminal

(R15) No. 3 — Chassis ground:



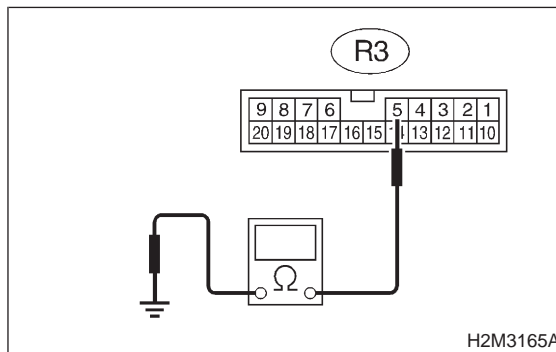
- CHECK** : Is the resistance less than 10 Ω?
- YES** : Go to step 11A09.
- NO** : Repair ground short circuit in bulkhead wiring harness.

11A09 : CHECK REAR WIRING HARNESS.

- 1) Separate rear wiring harness connector (R3) and bulkhead wiring harness connector (B99).
- 2) Measure resistance of harness between rear wiring harness connector and chassis ground.

Connector & terminal

(R3) No. 5 — Chassis ground:



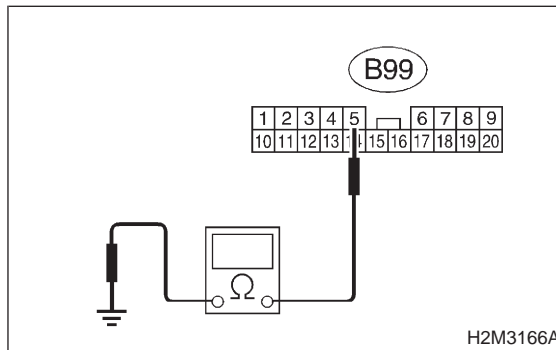
- CHECK** : Is the resistance less than 10 Ω?
- YES** : Repair ground short circuit in rear wiring harness.
- NO** : Go to step 11A010.

11A010 : CHECK BULKHEAD WIRING HARNESS.

- 1) Separate bulkhead wiring harness connector (B38) and instrument panel wiring harness connector (i3).
- 2) Measure resistance of harness between bulkhead wiring harness connector and chassis ground.

Connector & terminal

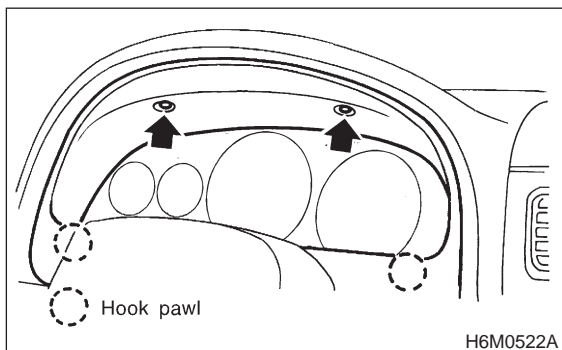
(B99) No. 5 — Chassis ground:



- CHECK** : Is the resistance less than 10 Ω?
- YES** : Repair ground short circuit in bulkhead wiring harness.
- NO** : Repair ground short circuit in instrument panel wiring harness.

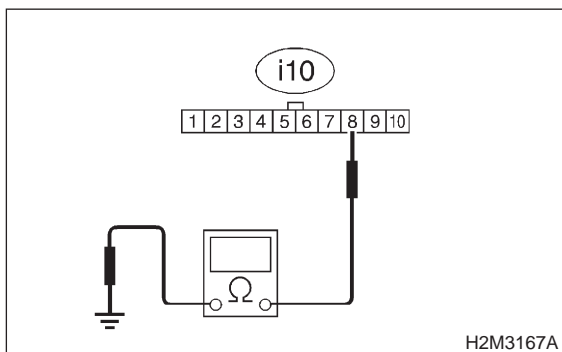
11A011 : CHECK HARNESS BETWEEN COMBINATION METER AND FUEL PUMP CONNECTOR.

- 1) Connect connector to fuel pump.
- 2) Pull out combination meter from instrument panel. <Ref. to 6-2 [W8A0].>



- 3) Disconnect connector from combination meter.
- 4) Measure resistance of harness between combination meter connector and chassis ground.

Connector & terminal
(i10) No. 8 — Chassis ground:



- CHECK** : **Is the resistance less than 200 Ω?**
- YES** : Go to step **11A012**.
- NO** : Repair harness and connector.

NOTE:

In this case, repair the following:

- Open circuit in harness between combination meter connector and junction A on rear wiring harness
- Poor contact in coupling connectors (i1) and (B99)

11A012 : CHECK COMBINATION METER.

Disconnect connector from combination meter and remove combination meter.

- CHECK** : **Is the fuel meter installation screw tightened securely?**
- YES** : Go to step **11A013**.
- NO** : Tighten fuel meter installation screw securely.

11A013 : CHECK COMBINATION METER PRINTED CIRCUIT PLATE.

Remove printed circuit plate assembly from combination meter assembly.

- CHECK** : **Is there flaw or burning on printed circuit plate assembly?**
- YES** : Replace printed circuit plate assembly.
- NO** : Replace fuel meter assembly. <Ref. to 6-2 [W8A0].>

MEMO:

AP: DTC P0463 — FUEL LEVEL SENSOR CIRCUIT HIGH INPUT —

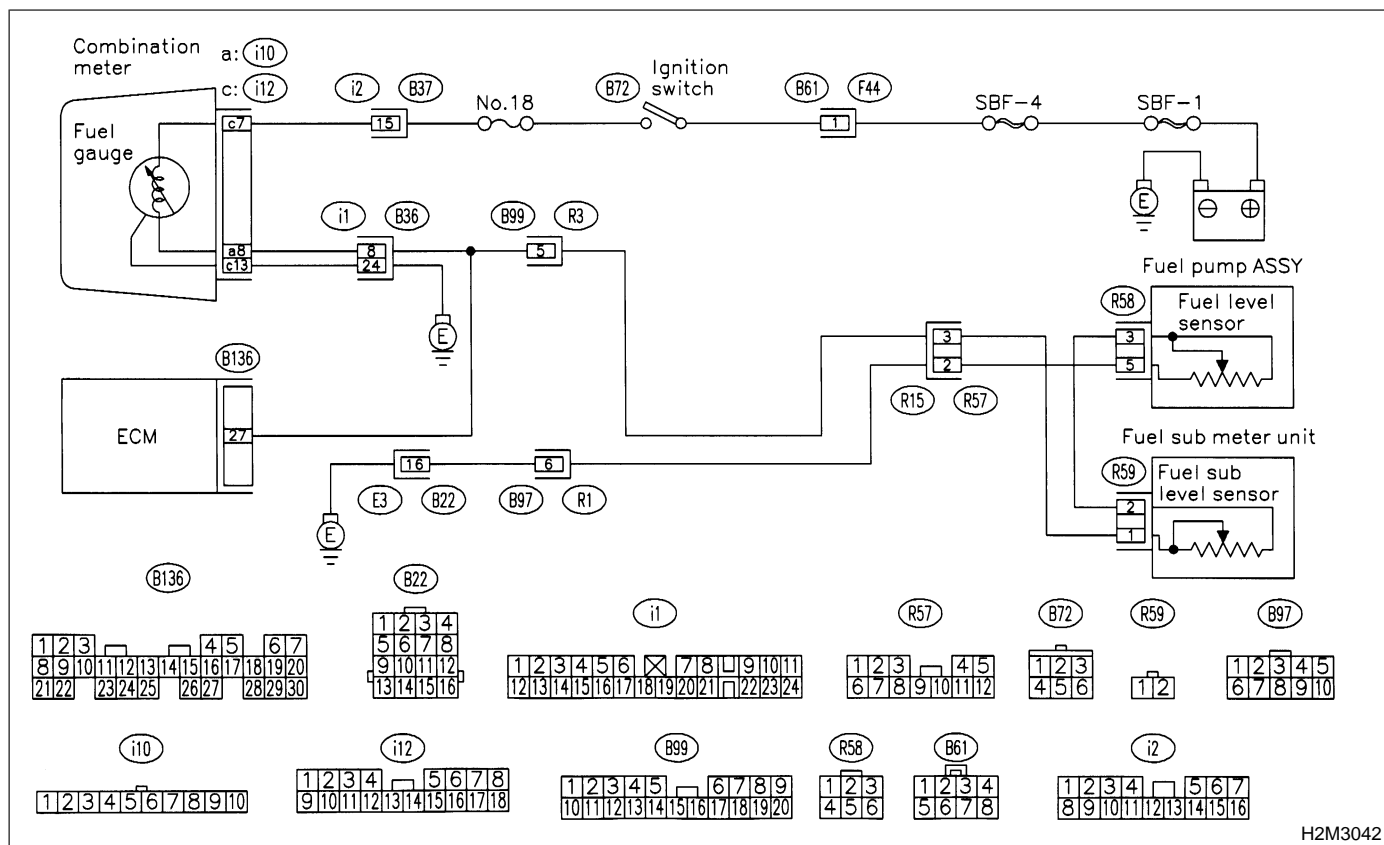
• DTC DETECTING CONDITION:

- Two consecutive driving cycles with fault

CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to 2-7 [T3D0].> and INSPECTION MODE <Ref. to 2-7 [T3E0].>

• WIRING DIAGRAM:



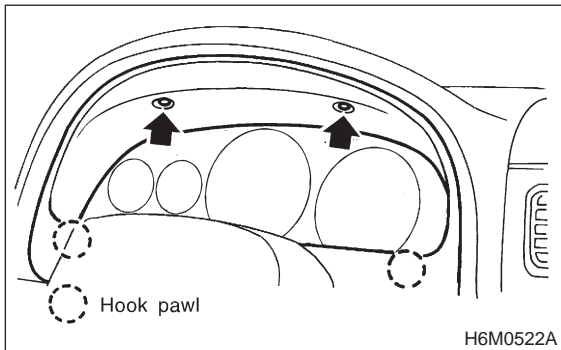
H2M3042

11AP1 : CHECK SPEEDOMETER AND TACHOMETER OPERATION IN COMBINATION METER.

- CHECK** : Does speedometer and tachometer operate normally?
- YES** : Go to step 11AP3.
- NO** : Go to step 11AP2.

11AP2 : CHECK GROUND CIRCUIT OF COMBINATION METER.

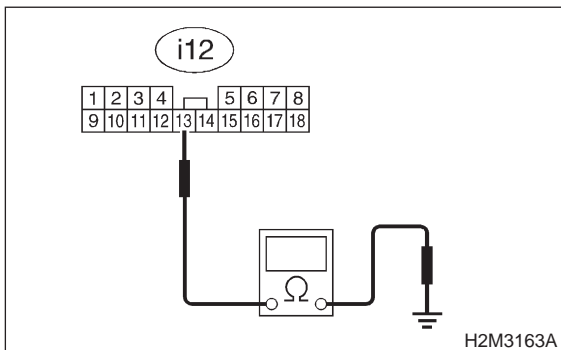
- 1) Turn ignition switch to OFF.
- 2) Pull out combination meter from instrument panel. <Ref. to 6-2 [W8A0].>



- 3) Disconnect connector from combination meter.
- 4) Measure resistance of harness between combination meter connector and chassis ground.

Connector & terminal

(i12) No. 13 — Chassis ground (-):



CHECK : **Is resistance less than 5 Ω?**

YES : Repair or replace combination meter. <Ref. to 6-2 [W8A0].>

NO : Repair harness and connector.

NOTE:

In this case, repair the following:

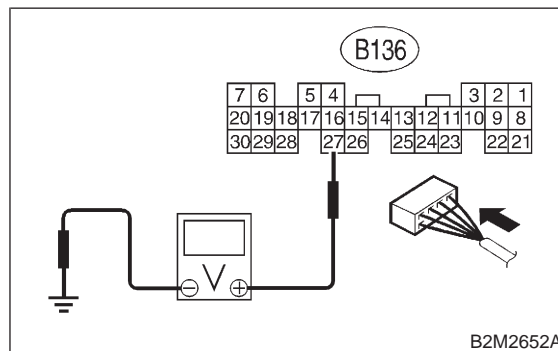
- Open circuit in harness between combination meter connector and grounding terminal
- Poor contact in combination meter connector
- Poor contact in grounding terminal

11AP3 : CHECK INPUT SIGNAL FOR ECM.

- 1) Turn ignition switch to ON. (Engine OFF)
- 2) Measure voltage between ECM connector and chassis ground.

Connector & terminal

(B136) No. 27 (+) — Chassis ground (-):



CHECK : **Is the voltage more than 4.75 V?**

YES : Go to step 11AP4.

NO : Even if MIL lights up, the circuit has returned to a normal condition at this time. A temporary poor contact of the connector may be the cause.

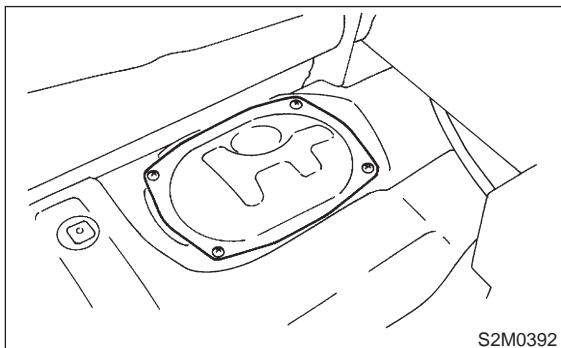
NOTE:

In this case, repair the following:

- Poor contact in fuel pump connector
- Poor contact in combination meter connector
- Poor contact in ECM connector
- Poor contact in coupling connector (i1), (B99), (B22), (B97) and (R57)

11AP4 : CHECK FUEL LEVEL SENSOR.

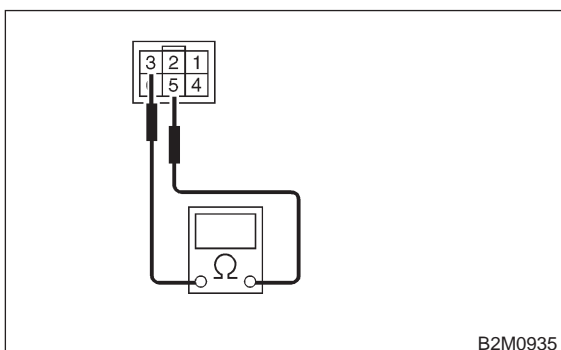
- 1) Turn ignition switch to OFF.
- 2) Remove fuel pump access hole lid located on the right rear of trunk compartment floor (Sedan) or luggage compartment floor (Wagon).



- 3) Disconnect connector from fuel pump.
- 4) Measure resistance between connector terminals of fuel pump.

Terminals

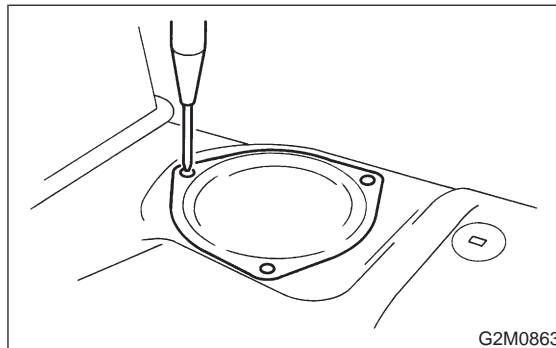
No. 3 — No. 5:



- CHECK** : *Is the resistance less than 100 Ω?*
- YES** : Go to step 11AP5.
- NO** : Replace fuel sending unit. <Ref. to 2-1 [W8A0].>

11AP5 : CHECK FUEL SUB LEVEL SENSOR.

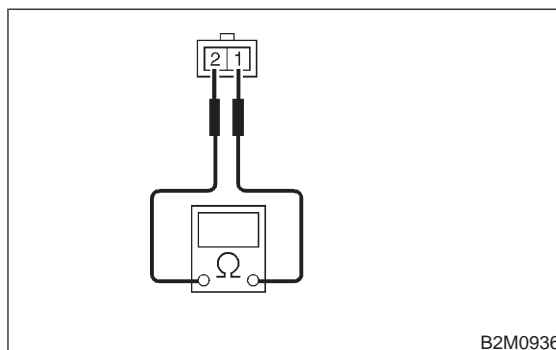
- 1) Remove service hole cover located on the left rear of trunk compartment floor (Sedan) or luggage compartment floor (Wagon).



- 2) Disconnect connector from fuel sub meter unit.
- 3) Measure resistance between connector terminals of fuel sub meter unit.

Terminals

No. 1 — No. 2:



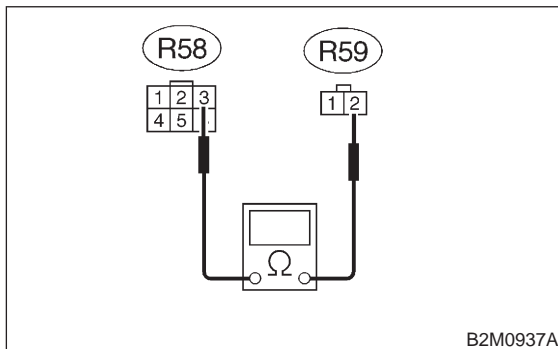
- CHECK** : *Is the resistance less than 100 Ω?*
- YES** : Go to step 11AP6.
- NO** : Replace fuel sub meter unit. <Ref. to 2-1 [W10A0].>

11AP6 : CHECK HARNESS BETWEEN FUEL PUMP AND FUEL SUB METER UNIT CONNECTOR.

Measure resistance of harness between fuel pump and fuel sub meter unit connector.

Connector & terminal

(R58) No. 3 — (R59) No. 2:



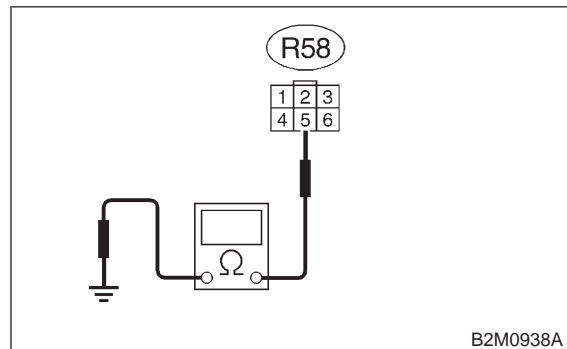
- CHECK** : Is the resistance less than 1 Ω ?
- YES** : Go to step 11AP7.
- NO** : Repair open circuit in harness between fuel pump and fuel sub meter unit connector.

11AP7 : CHECK GROUND CIRCUIT OF FUEL LEVEL SENSOR.

Measure resistance of harness between fuel pump connector and chassis ground.

Connector & terminal

(R58) No. 5 — Chassis ground:



- CHECK** : Is the resistance less than 5 Ω ?
- YES** : Go to step 11AP8.
- NO** : Repair harness and connector.

NOTE:

In this case, repair the following:

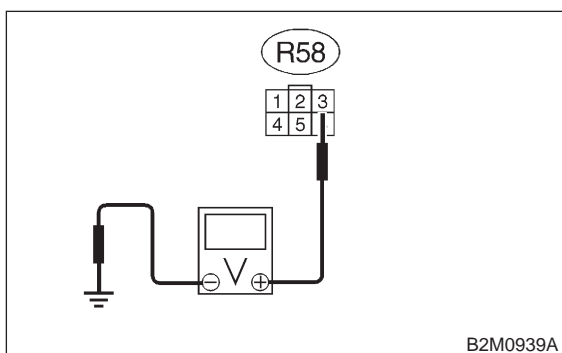
- Open circuit in harness between fuel pump connector and chassis grounding terminal
- Poor contact in fuel pump connector
- Poor contact in coupling connectors (R57), (B97) and (B22)

11AP8 : CHECK HARNESS BETWEEN ECM AND FUEL PUMP CONNECTOR.

- 1) Connect connector to fuel sub meter unit.
- 2) Turn ignition switch to ON.
- 3) Measure voltage between fuel pump connector and chassis ground.

Connector & terminal

(R58) No. 3 (+) — Chassis ground (-):



CHECK : *Is the voltage less than 1 V?*

YES : Repair harness and connector.

NOTE:

In this case, repair the following:

- Open circuit in harness between fuel pump connector and junction A on rear wiring harness
- Poor contact in fuel sub meter unit connector
- Poor contact in fuel pump connector
- Poor contact in coupling connector (R57)

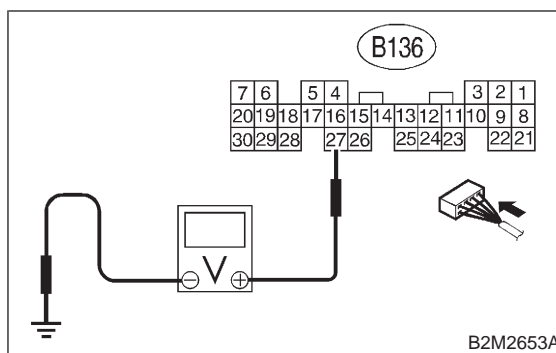
NO : Go to step **11AP9**.

11AP9 : CHECK HARNESS BETWEEN ECM AND FUEL PUMP CONNECTOR.

- 1) Turn ignition switch to OFF.
- 2) Disconnect connector from ECM.
- 3) Turn ignition switch to ON.
- 4) Measure voltage between ECM connector and chassis ground.

Connector & terminal

(B136) No. 27 (+) — Chassis ground (-):



CHECK : *Is the voltage less than 1 V?*

YES : Repair harness and connector.

NOTE:

In this case, repair the following:

- Open circuit in harness between ECM connector and junction A on rear wiring harness
- Poor contact in coupling connector (B97)

NO : Repair connector.

NOTE:

In this case, repair the following:

- Poor contact in fuel pump connector
- Poor contact in fuel sub meter unit
- Poor contact in ECM connector

MEMO:

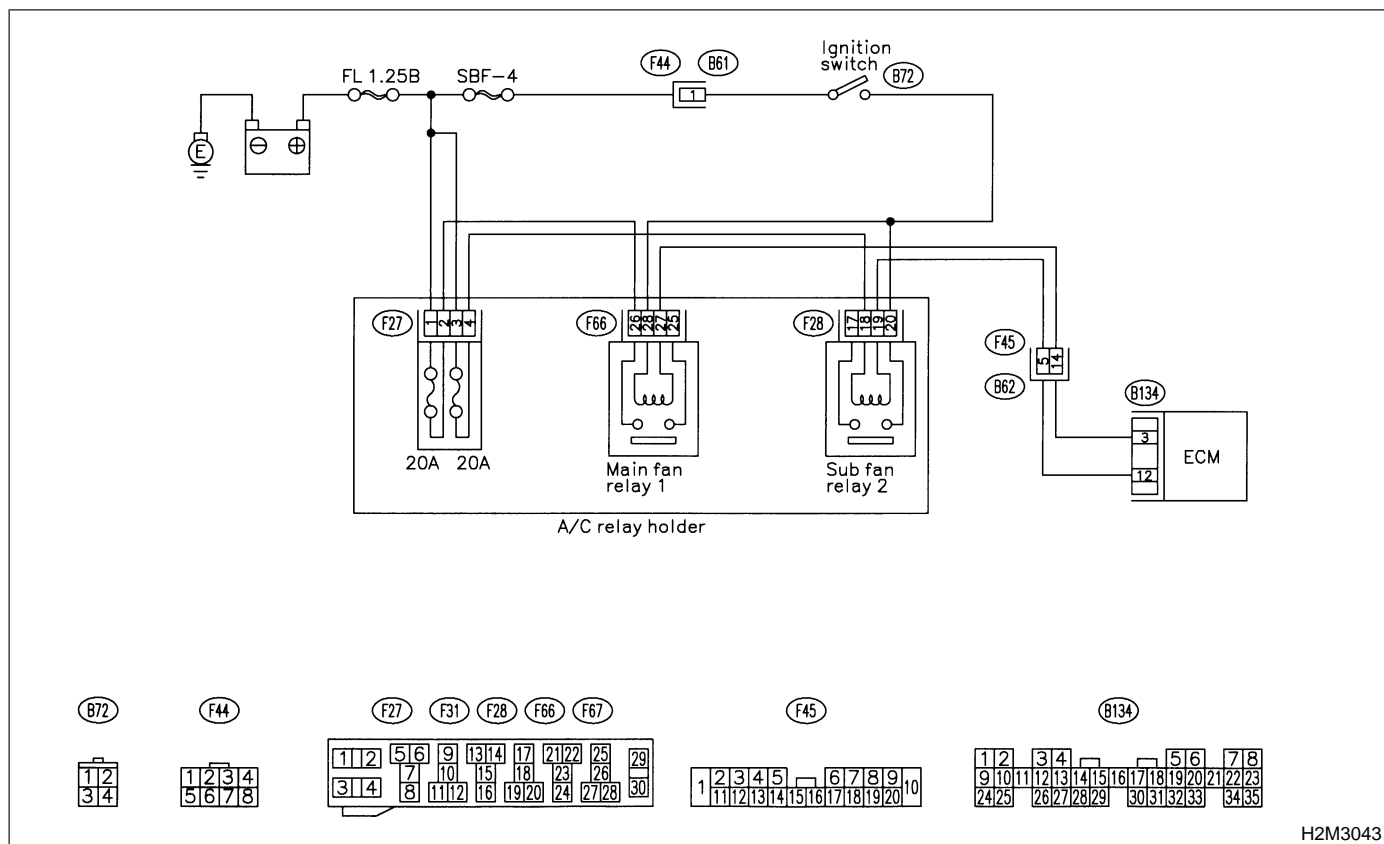
AQ: DTC P0480 — COOLING FAN RELAY 1 CIRCUIT LOW INPUT —

- **DTC DETECTING CONDITION:**
 - Two consecutive driving cycles with fault
- **TROUBLE SYMPTOM:**
 - Radiator fan does not operate properly.
 - Overheating

CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to 2-7 [T3D0].> and INSPECTION MODE <Ref. to 2-7 [T3E0].>

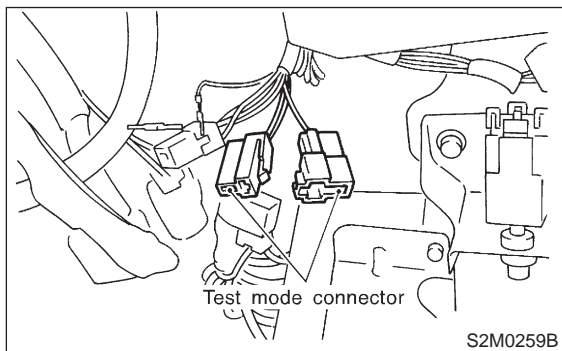
● **WIRING DIAGRAM:**



H2M3043

11AQ1 : CHECK OUTPUT SIGNAL FROM ECM.

- 1) Turn ignition switch to OFF.
- 2) Connect test mode connector at the lower portion of instrument panel (on the driver's side), to the side of the center console box.

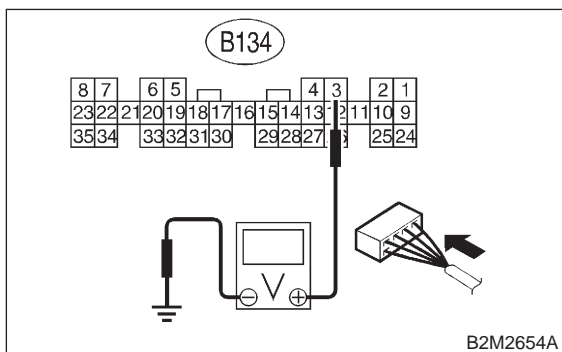


- 3) Turn ignition switch to ON.
- 4) Measure voltage between ECM and chassis ground.

NOTE:

Radiator fan relay operation check can be executed using Subaru Select Monitor. For procedure, refer to "COMPULSORY VALVE OPERATION CHECK MODE". <Ref. to 2-7 [T3F0].>

**Connector & terminal
(B134) No. 3 (+) — Chassis ground (-):**

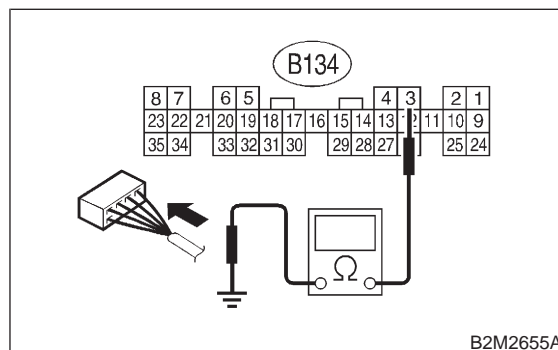


- CHECK** : Does voltage change between 0 and 10 volts?
- YES** : Repair poor contact in ECM connector.
- NO** : Go to step 11AQ2.

11AQ2 : CHECK GROUND SHORT CIRCUIT IN RADIATOR FAN RELAY 1 CONTROL CIRCUIT.

- 1) Turn ignition switch to OFF.
- 2) Disconnect connectors from ECM.
- 3) Measure resistance of harness between ECM connector and chassis ground.

**Connector & terminal
(B134) No. 3 — Chassis ground:**

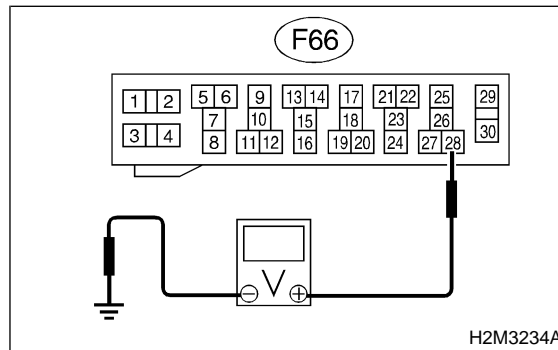


- CHECK** : Is the resistance less than 10 Ω?
- YES** : Repair ground short circuit in radiator fan relay 1 control circuit.
- NO** : Go to step 11AQ3.

11AQ3 : CHECK POWER SUPPLY FOR RELAY.

- 1) Remove main fan relay from A/C relay holder.
- 2) Turn ignition switch to ON.
- 3) Measure voltage between fuse and relay box (F/B) connector and chassis ground.

**Connector & terminal
(F66) No. 28 (+) — Chassis ground (-):**



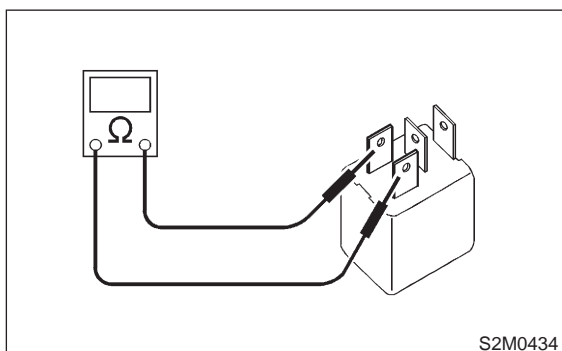
- CHECK** : Is the voltage more than 10 V?
- YES** : Go to step 11AQ4.
- NO** : Repair open circuit in harness between ignition switch and fuse and relay box (F/B) connector.

11AQ4 : CHECK MAIN FAN RELAY 1.

- 1) Turn ignition switch to OFF.
- 2) Measure resistance between main fan relay 1 terminals.

Terminal

No. 27 — No. 28:



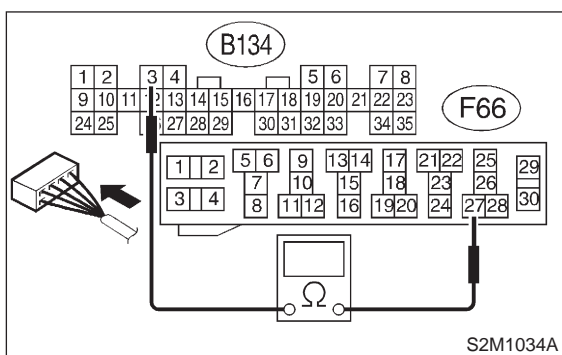
- CHECK** : *Is the resistance between 87 and 107 Ω ?*
- YES** : Go to step 11AQ5.
- NO** : Replace main fan relay 1.

11AQ5 : CHECK OPEN CIRCUIT IN MAIN FAN RELAY CONTROL CIRCUIT.

Measure resistance of harness between ECM and main fan relay connector.

Connector & terminal

(B134) No. 3 — (F66) No. 27:



- CHECK** : *Is the resistance less than 1 Ω ?*
- YES** : Go to step 11AQ6.
- NO** : Repair harness and connector.

NOTE:

In this case, repair the following:

- Open circuit in harness between ECM and main fan relay 1 connector
- Poor contact in coupling connector (F45)

11AQ6 : CHECK POOR CONTACT.

Check poor contact in ECM or main fan relay 1 connector. <Ref. to FOREWORD [T3C1].>

- CHECK** : *Is there poor contact in ECM or main fan relay 1 connector?*
- YES** : Repair poor contact in ECM or main fan relay 1 connector.
- NO** : Contact with SOA service.

MEMO:

AR: DTC P0483 — COOLING FAN FUNCTION PROBLEM —

- **DTC DETECTING CONDITION:**
 - Two consecutive driving cycles with fault
- **TROUBLE SYMPTOM:**
 - Occurrence of noise
 - Overheating

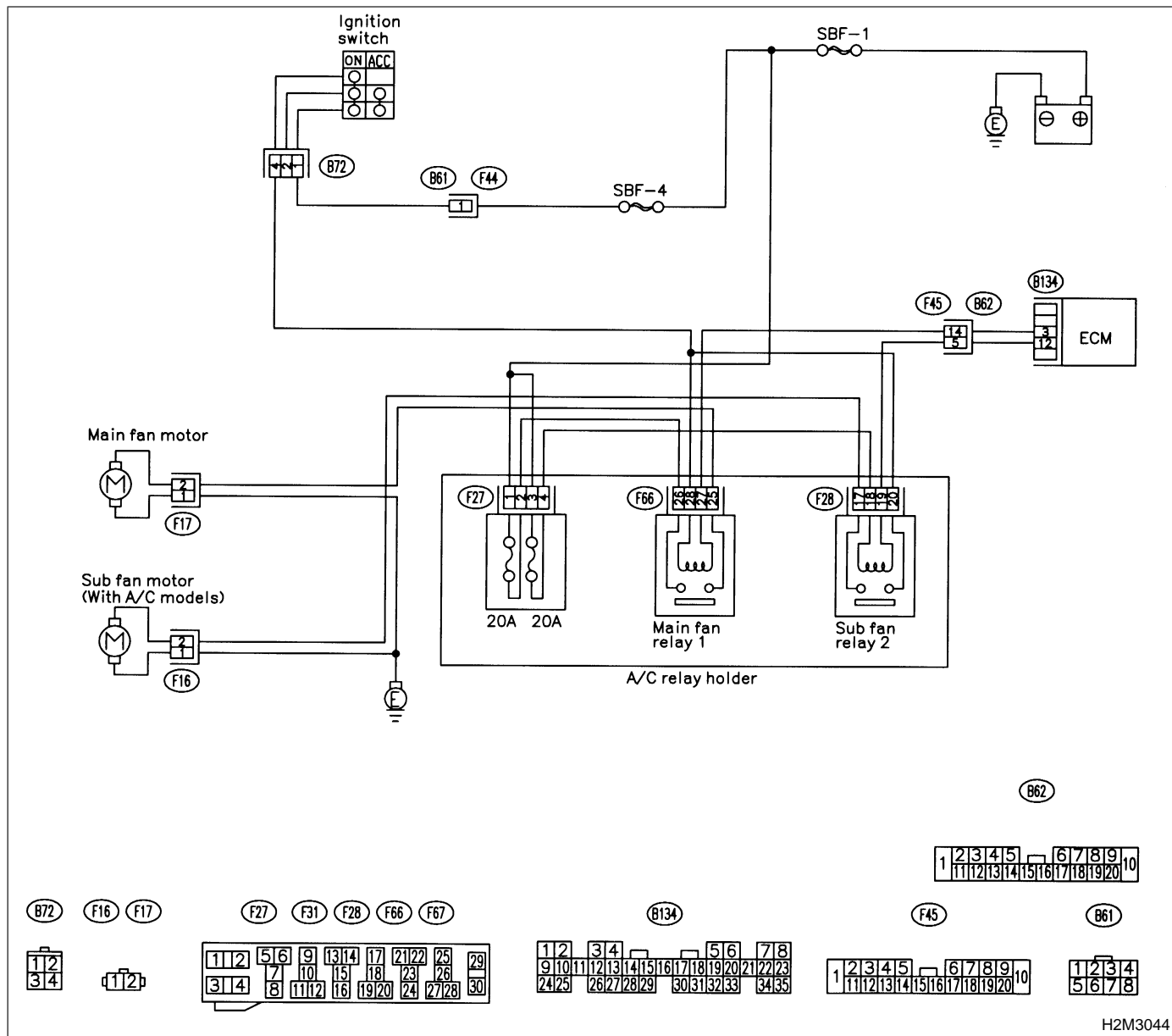
CAUTION:

After repair or replacement of faulty parts, conduct **CLEAR MEMORY MODE** <Ref. to 2-7 [T3D0].> and **INSPECTION MODE** <Ref. to 2-7 [T3E0].>

NOTE:

If the vehicle, with the engine idling, is placed very close to a wall or another vehicle, preventing normal cooling function, the OBD system may detect malfunction.

● **WIRING DIAGRAM:**



H2M3044

11AR1 : CHECK ANY OTHER DTC ON DISPLAY.

- CHECK** : *Is there any other DTC on display?*
- YES** : Inspect the relevant DTC using "11. Diagnostics Chart with Trouble Code for Except 2200 cc California Spec. Vehicles". <Ref. to 2-7 [T11A0].>
- NO** : Check engine cooling system. <Ref. to 2-5 [T100].>

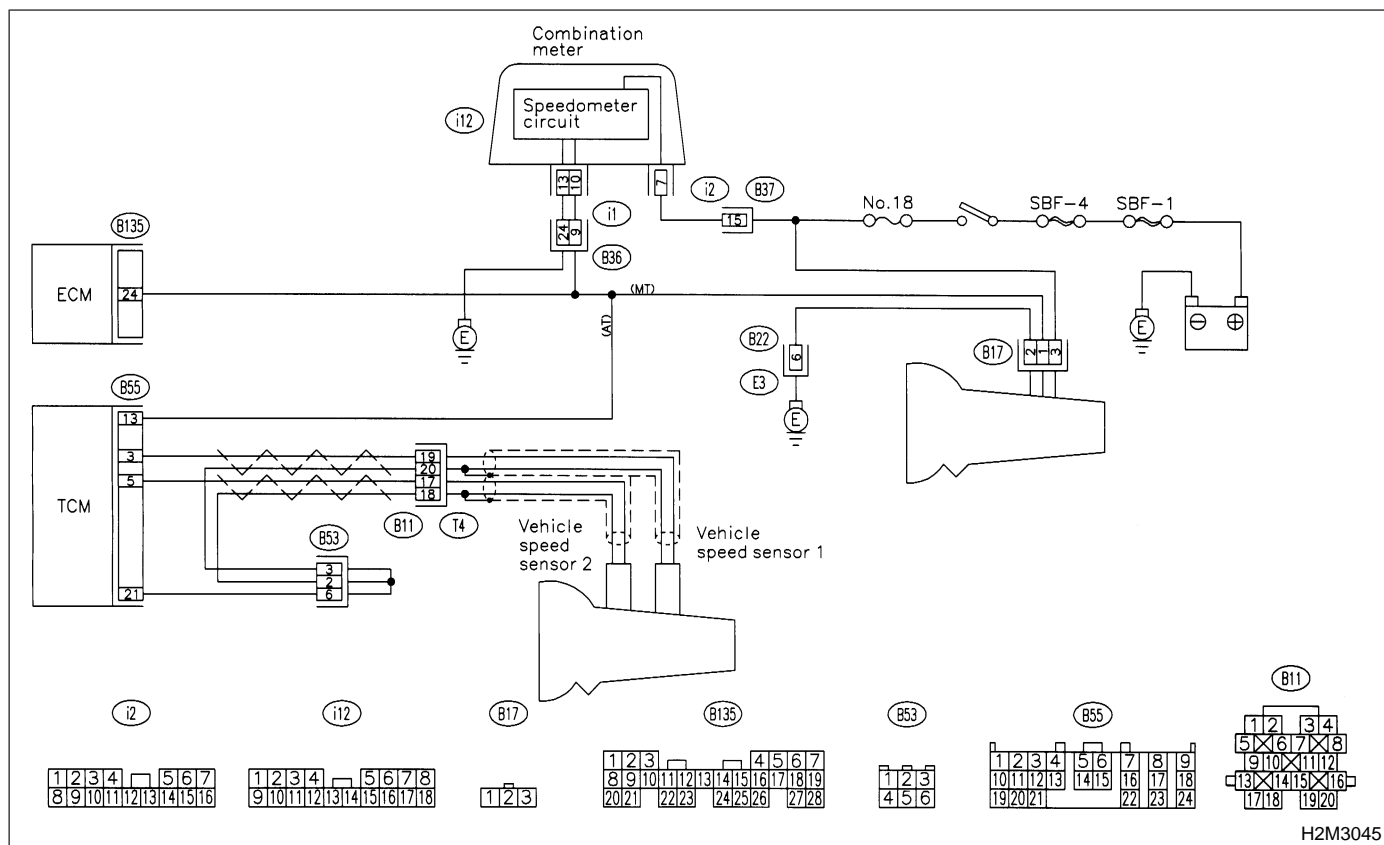
AS: DTC P0500 — VEHICLE SPEED SENSOR MALFUNCTION —

- **DTC DETECTING CONDITION:**
 - Immediately at fault recognition

CAUTION:

After repair or replacement of faulty parts, conduct **CLEAR MEMORY MODE** <Ref. to 2-7 [T3D0].> and **INSPECTION MODE** <Ref. to 2-7 [T3E0].>

● **WIRING DIAGRAM:**



H2M3045

11AS1 : CHECK TRANSMISSION TYPE.

- CHECK** : *Is transmission type AT?*
- YES** : Go to step 11AS2.
- NO** : Go to step 11AS3.

11AS2 : CHECK DTC P0720 ON DISPLAY.

- CHECK** : *Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0720?*
- YES** : Check vehicle speed sensor 2 signal circuit. <Ref. to 3-2 [T8G0].>
- NO** : Go to step 11AS3.

11AS3 : CHECK SPEEDOMETER OPERATION IN COMBINATION METER.

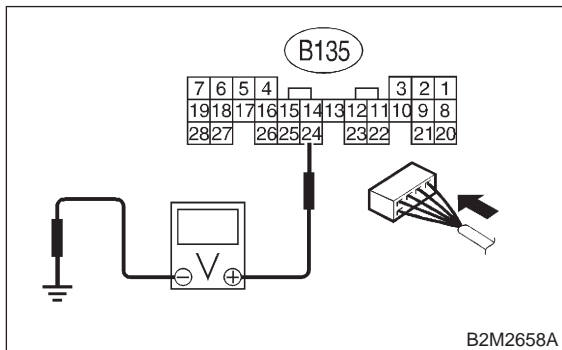
- CHECK** : *Does speedometer operate normally?*
- YES** : Go to step 11AS4.
- NO** : Check speedometer and vehicle speed sensor. <Ref. to 6-2 [K2A4].>

11AS4 : CHECK HARNESS BETWEEN ECM AND COMBINATION METER CONNECTOR.

- 1) Turn ignition switch to OFF.
- 2) Disconnect connector from TCM.
- 3) Turn ignition switch to ON.
- 4) Measure voltage between ECM and chassis ground.

Connector & terminal

(B135) No. 24 (+) — Chassis ground (-):



- CHECK** : *Is the voltage more than 2 V?*
- YES** : Repair harness and connector.

NOTE:

In this case, repair the following:

- Open circuit in harness between ECM and combination meter connector
- Poor contact in ECM connector
- Poor contact in combination meter connector
- Poor contact in coupling connector (B36)

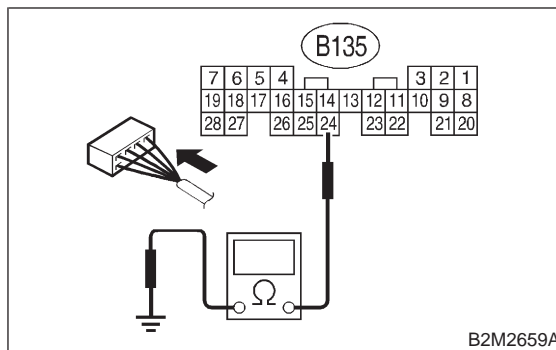
- NO** : Go to step **11AS5**.

11AS5 : CHECK HARNESS BETWEEN ECM AND COMBINATION METER CONNECTOR.

- 1) Turn ignition switch to OFF.
- 2) Disconnect connector from ECM.
- 3) Measure resistance of harness between ECM connector and chassis ground.

Connector & terminal

(B135) No. 24 — Chassis ground:



- CHECK** : *Is the resistance less than 10 Ω?*
- YES** : Repair ground short circuit in harness between ECM and combination meter connector.
- NO** : Repair poor contact in ECM connector.

AT: DTC P0506 — IDLE CONTROL SYSTEM RPM LOWER THAN EXPECTED

● **DTC DETECTING CONDITION:**

- Two consecutive driving cycles with fault

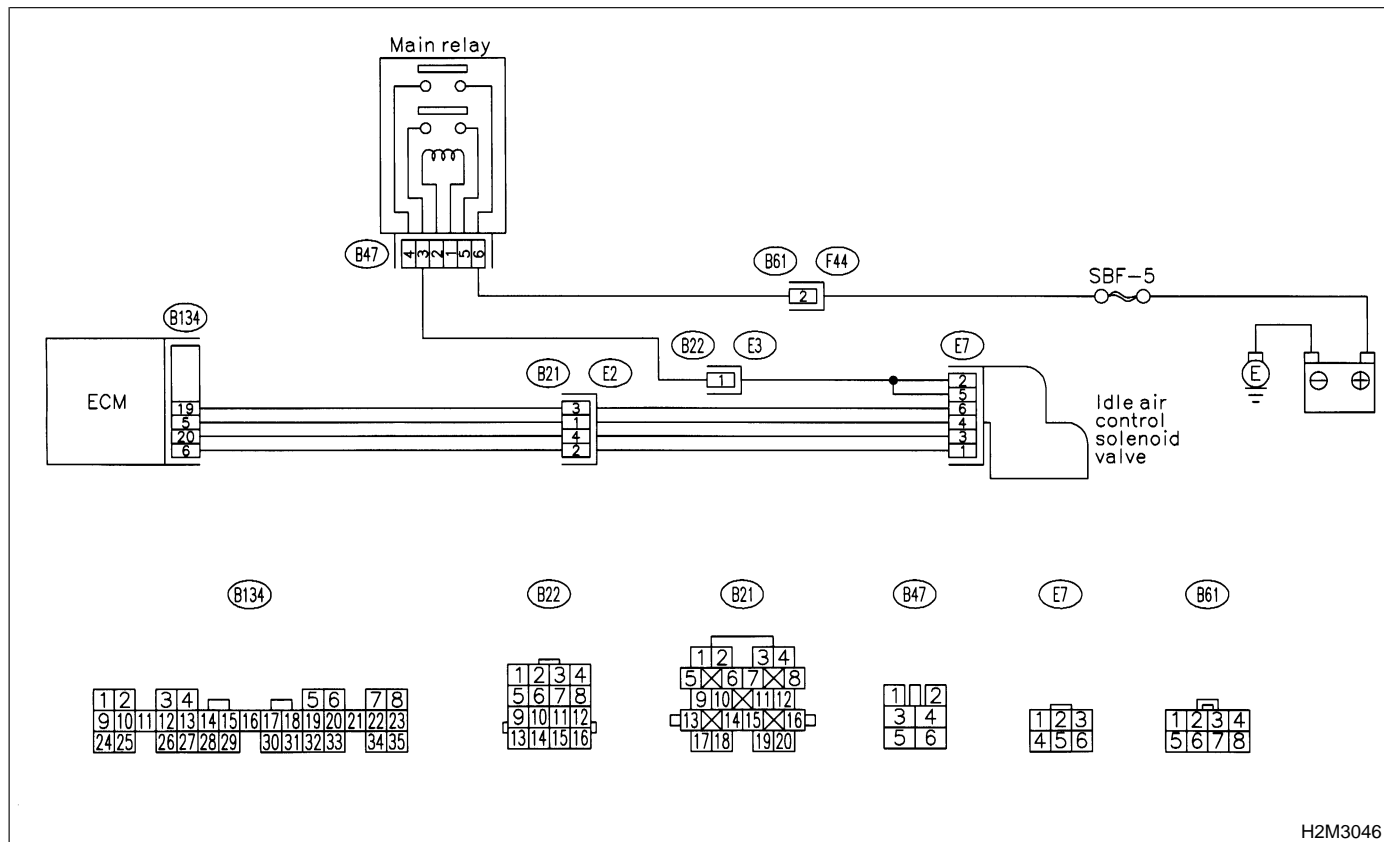
● **TROUBLE SYMPTOM:**

- Engine is difficult to start.
- Engine does not start.
- Erroneous idling
- Engine stalls.

CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to 2-7 [T3D0].> and INSPECTION MODE <Ref. to 2-7 [T3E0].>

● **WIRING DIAGRAM:**



H2M3046

11AT1 : CHECK ANY OTHER DTC ON DISPLAY.

CHECK : *Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P1510, P1511, P1512, P1513, P1514, P1515, P1516 or P1517?*

YES : Inspect DTC P1510, P1511, P1512, P1513, P1514, P1515, P1516 or P1517 using "11. Diagnostics Chart with Trouble Code for Except 2200 cc California Spec. Vehicles". <Ref. to 2-7 [T11A0].>

NOTE:

In this case, it is not necessary to inspect DTC P0506.

NO : Go to step 11AT2.

11AT2 : CHECK AIR BY-PASS LINE.

- 1) Turn ignition switch to OFF.
- 2) Remove idle air control solenoid valve from throttle body. <Ref. to 2-7 [W12A2].>
- 3) Remove throttle body from intake manifold. <Ref. to 2-7 [W3A2].>
- 4) Confirm that there is no foreign matter stuck in the air by-pass line.
- 5) Using an air gun, force air into idle air control solenoid valve installation area. Confirm that forced air subsequently escapes from throttle body interior.

CHECK : *Does air flow out?*

YES : Replace idle air control solenoid valve. <Ref. to 2-7 [W12A2].>

NO : Replace throttle body. <Ref. to 2-7 [W3A2].>

AU: DTC P0507 — IDLE CONTROL SYSTEM RPM HIGHER THAN EXPECTED

● **DTC DETECTING CONDITION:**

- Two consecutive driving cycles with fault

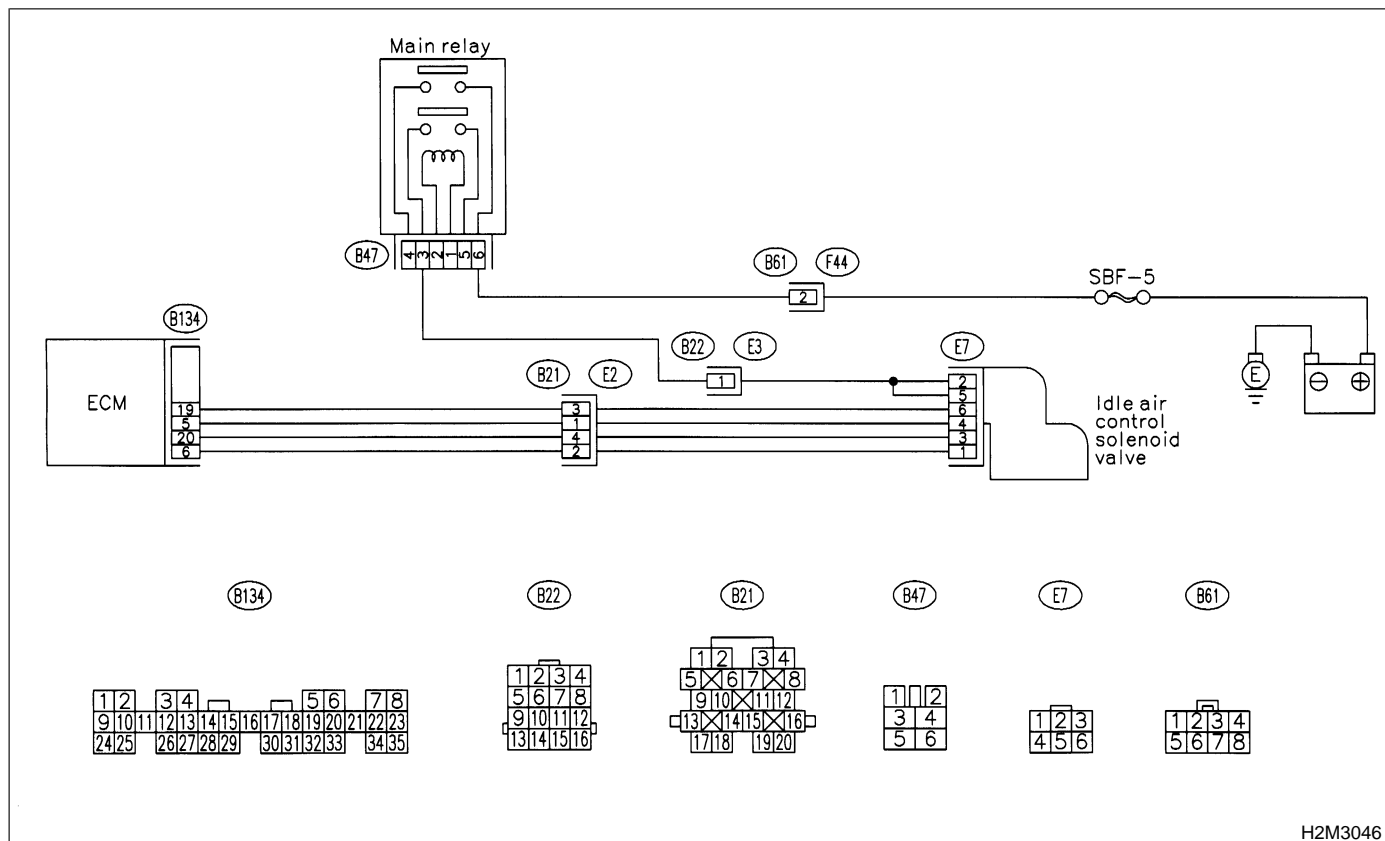
● **TROUBLE SYMPTOM:**

- Engine keeps running at higher revolution than specified idling revolution.

CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to 2-7 [T3D0].> and INSPECTION MODE <Ref. to 2-7 [T3E0].>

● **WIRING DIAGRAM:**



H2M3046

11AU1 : CHECK ANY OTHER DTC ON DISPLAY.

CHECK : ***Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P1510, P1511, P1512, P1513, P1514, P1515, P1516 or P1517?***

YES : Inspect DTC P1510, P1511, P1512, P1513, P1514, P1515, P1516 or P1517 using "11. Diagnostics Chart with Trouble Code for Except 2200 cc California Spec. Vehicles". <Ref. to 2-7 [T11A0].>

NOTE:

In this case, it is not necessary to inspect DTC P0507.

NO : Go to step **11AU2**.

11AU2 : CHECK AIR INTAKE SYSTEM.

- 1) Turn ignition switch to ON.
- 2) Start engine, and idle it.
- 3) Check the following items.
 - Loose installation of intake manifold, idle air control solenoid valve and throttle body
 - Cracks of intake manifold gasket, idle air control solenoid valve gasket and throttle body gasket
 - Disconnections of vacuum hoses

CHECK : ***Is there a fault in air intake system?***

YES : Repair air suction and leaks.

NO : Go to step **11AU3**.

11AU3 : CHECK AIR BY-PASS LINE.

- 1) Turn ignition switch to OFF.
- 2) Remove idle air control solenoid valve from throttle body. <Ref. to 2-7 [W12A2].>
- 3) Confirm that there are no foreign particles in by-pass air line.

CHECK : ***Are foreign particles in by-pass air line?***

YES : Remove foreign particles from by-pass air line.

NO : Replace idle air control solenoid valve. <Ref. to 2-7 [W12A2].>

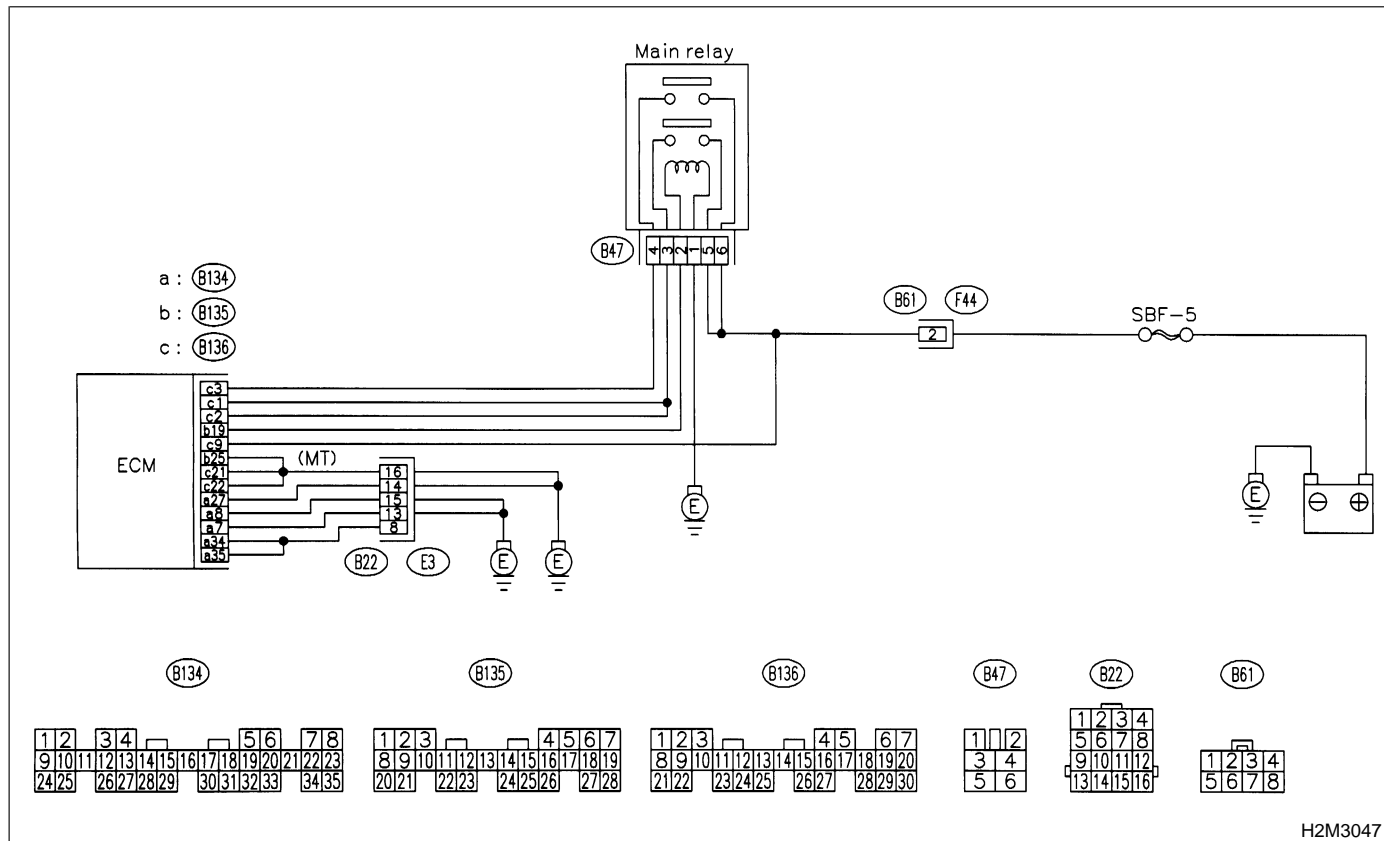
AV: DTC P0601 — INTERNAL CONTROL MODULE MEMORY CHECK SUM ERROR —

- **DTC DETECTING CONDITION:**
 - Two consecutive driving cycles with fault
- **TROUBLE SYMPTOM:**
 - Engine does not start.
 - Engine stalls.

CAUTION:

After repair or replacement of faulty parts, conduct **CLEAR MEMORY MODE** <Ref. to 2-7 [T3D0].> and **INSPECTION MODE** <Ref. to 2-7 [T3E0].>

● **WIRING DIAGRAM:**



H2M3047

11AV1 : CHECK ANY OTHER DTC ON DISPLAY.

- CHECK** : Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0601?
- YES** : Replace ECM. <Ref. to 2-7 [W15A0].>
- NO** : It is not necessary to inspect DTC P0601.

MEMO:

AW: DTC P0703 — BRAKE SWITCH INPUT MALFUNCTION —

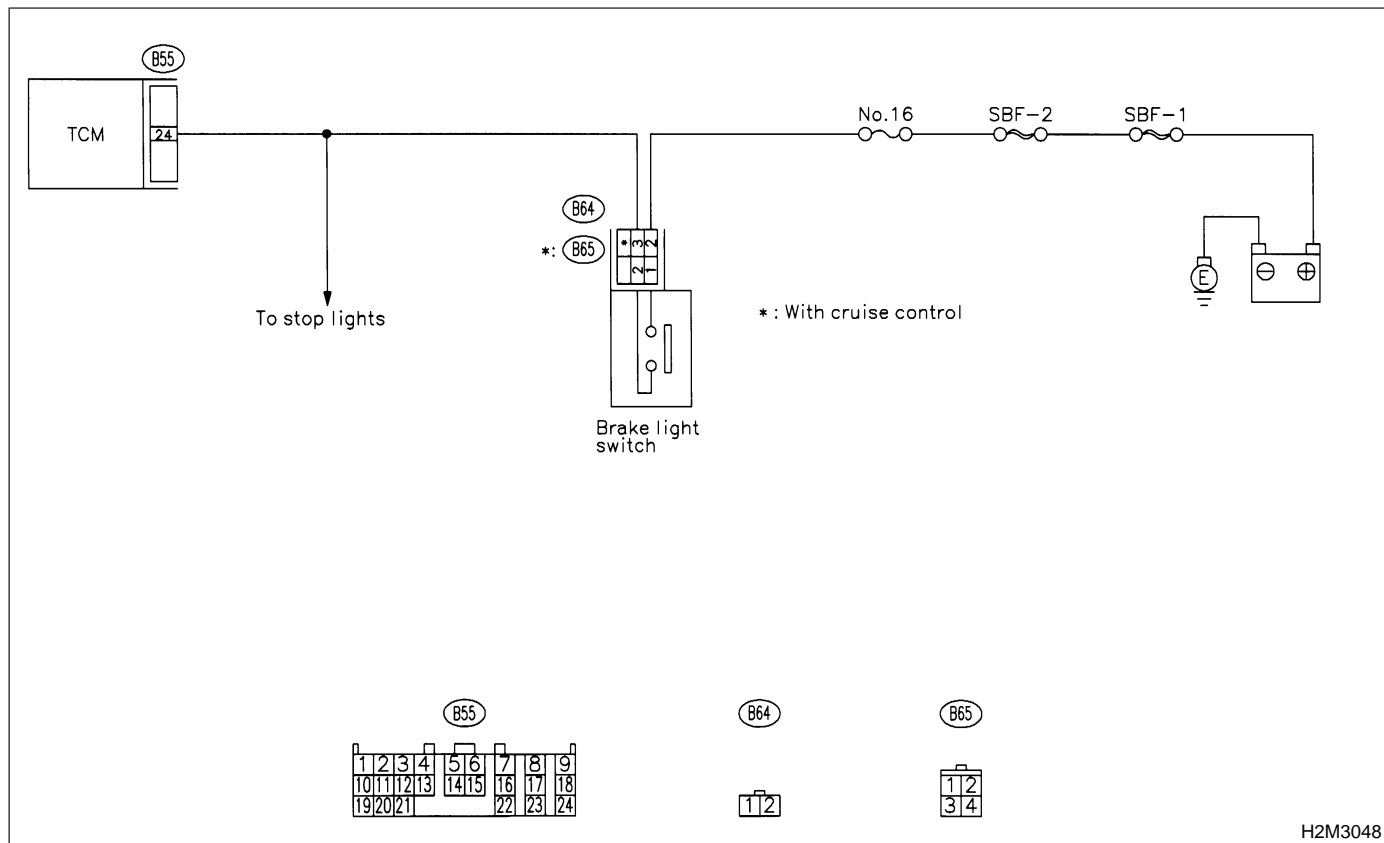
● **DTC DETECTING CONDITION:**

- Two consecutive driving cycles with fault

CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to 2-7 [T3D0].> and INSPECTION MODE <Ref. to 2-7 [T3E0].>

● **WIRING DIAGRAM:**



11AW1 : CHECK OPERATION OF BRAKE LIGHT.

- CHECK** : Does brake light come on when depressing the brake pedal?
- YES** : Go to step 11AW2.
- NO** : Repair or replace brake light circuit.

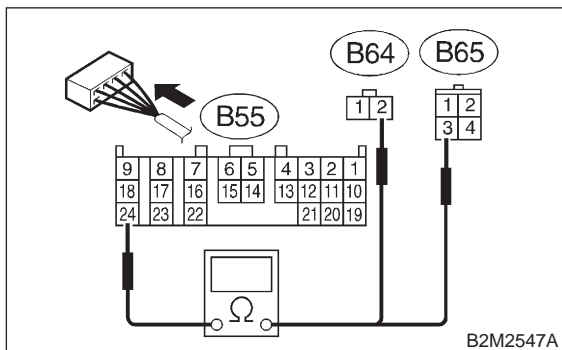
11AW2 : CHECK HARNESS BETWEEN TCM AND BRAKE LIGHT SWITCH CONNECTOR.

- 1) Disconnect connectors from TCM and brake light switch.
- 2) Measure resistance of harness between TCM and brake light switch connector.

Connector & terminal

(B55) No. 24 — (B64) No. 2:

(B55) No. 24 — (B65) No. 3 (With cruise control):



- CHECK** : Is the resistance less than 1 Ω?
- YES** : Go to step 11AW3.
- NO** : Repair or replace harness and connector.

NOTE:

In this case, repair the following:

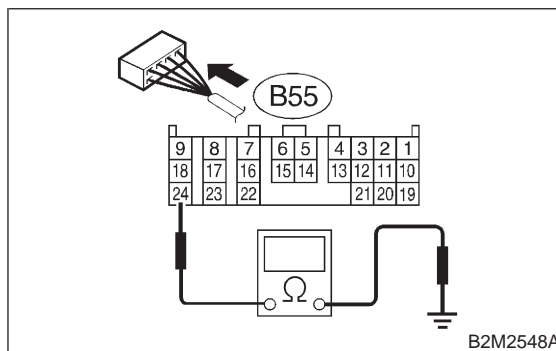
- Open circuit in harness between TCM and brake light switch connector
- Poor contact in TCM connector
- Poor contact in brake light switch connector

11AW3 : CHECK HARNESS BETWEEN TCM AND BRAKE LIGHT SWITCH CONNECTOR.

Measure resistance of harness between TCM and chassis ground.

Connector & terminal

(B55) No. 24 — Chassis ground:



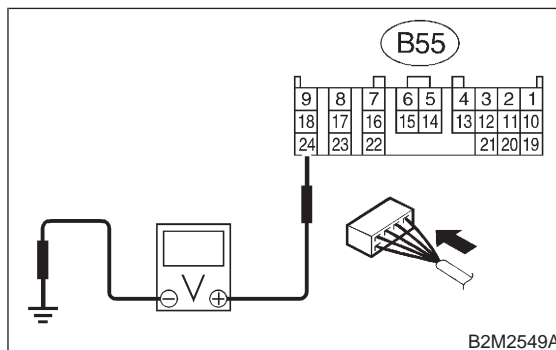
- CHECK** : Is the resistance more than 1 MΩ?
- YES** : Go to step 11AW4.
- NO** : Repair ground short circuit in harness between TCM and brake light switch connector.

11AW4 : CHECK INPUT SIGNAL FOR TCM.

- 1) Connect connectors to TCM and brake light switch.
- 2) Measure voltage between TCM and chassis ground.

Connector & terminal

(B55) No. 24 (+) — Chassis ground (-):



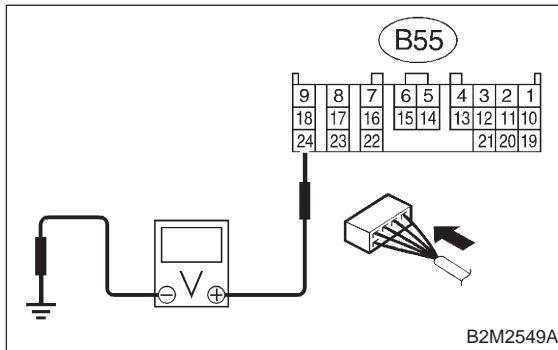
- CHECK** : Is the voltage less than 1 V when releasing the brake pedal?
- YES** : Go to step 11AW5.
- NO** : Adjust or replace brake light switch. <Ref. to 4-5 [W1A0].>

11AW5 : CHECK INPUT SIGNAL FOR TCM.

Measure voltage between TCM and chassis ground.

Connector & terminal

(B55) No. 24 (+) — Chassis ground (-):



- CHECK** : *Is the voltage more than 10 V when depressing the brake pedal?*
- YES** : Go to step 11AW6.
- NO** : Adjust or replace brake light switch. <Ref. to 4-5 [W1A0].>

11AW6 : CHECK POOR CONTACT.

Check poor contact in TCM connector. <Ref. to FOREWORD [T3C1].>

- CHECK** : *Is there poor contact in TCM connector?*
- YES** : Repair poor contact in TCM connector.
- NO** : Replace TCM. <Ref. to 3-2 [W22A0].>

MEMO:

AX: DTC P0705 — TRANSMISSION RANGE SENSOR CIRCUIT MALFUNCTION —

● **DTC DETECTING CONDITION:**

- Two consecutive driving cycles with fault

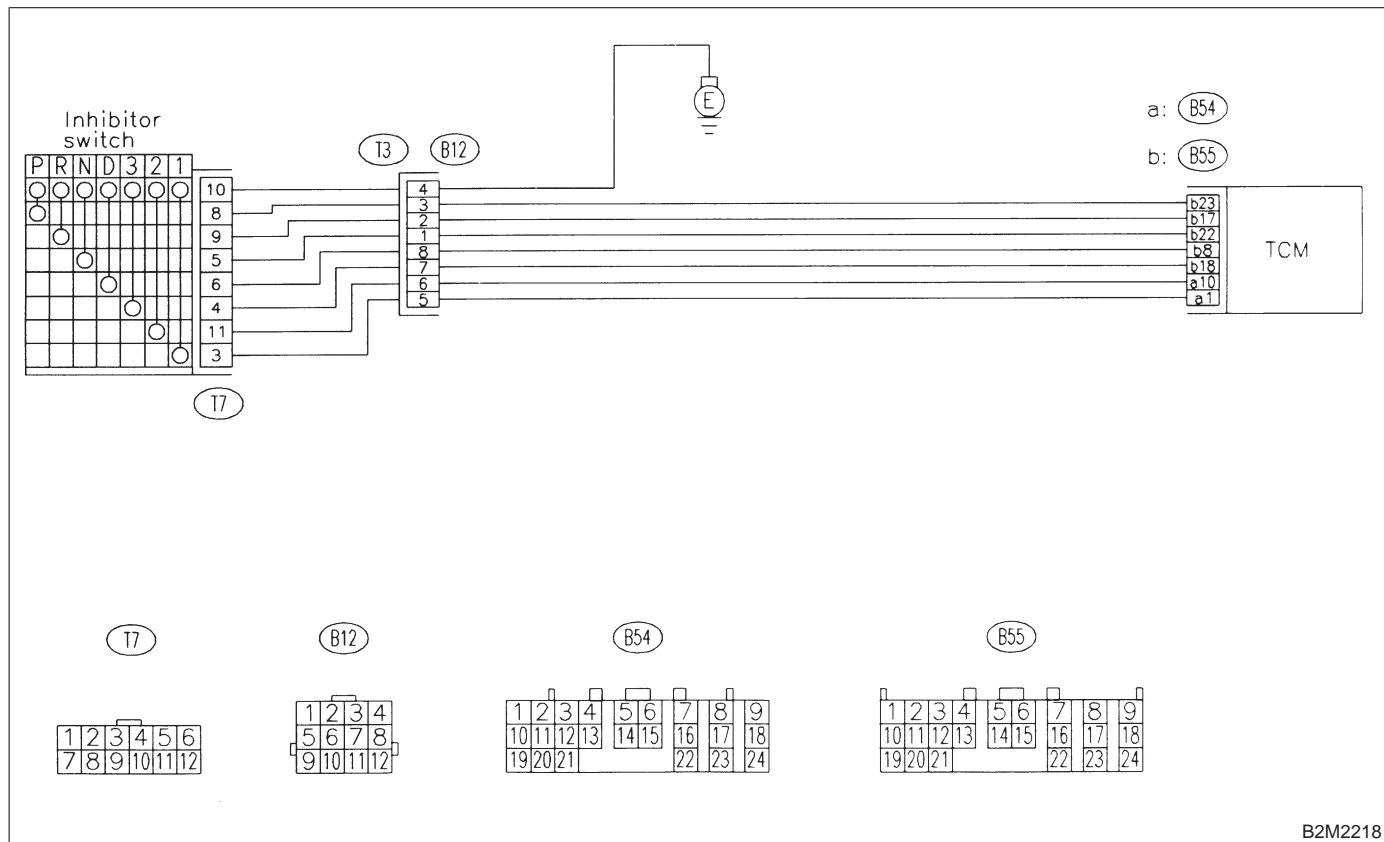
● **TROUBLE SYMPTOM:**

- Starter does not rotate when selector lever is in “P” or “N” range.
- Starter rotates when selector lever is in “R”, “D”, “3”, “2” or “1” range.
- Engine brake is not effected when selector lever is in “3” range.
- Shift characteristics are erroneous.

CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to 2-7 [T3D0].> and INSPECTION MODE <Ref. to 2-7 [T3E0].>

● **WIRING DIAGRAM:**



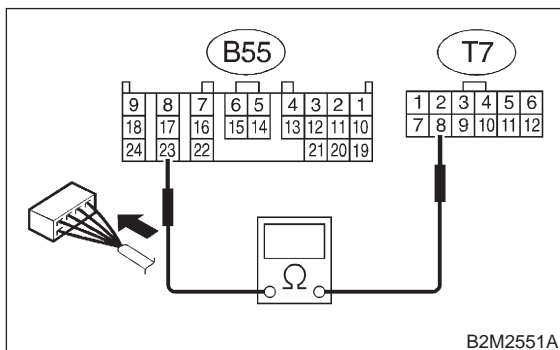
B2M2218

11AX1 : CHECK HARNESS BETWEEN TCM AND INHIBITOR SWITCH CONNECTOR.

- 1) Turn ignition switch to OFF.
- 2) Disconnect connectors from TCM and transmission.
- 3) Measure resistance of harness between TCM and transmission harness connector.

Connector & terminal

(B55) No. 23 — (T7) No. 8:



- CHECK** : Is the resistance less than 1 Ω?
- YES** : Go to step 11AX2.
- NO** : Repair harness and connector.

NOTE:

In this case, repair the following:

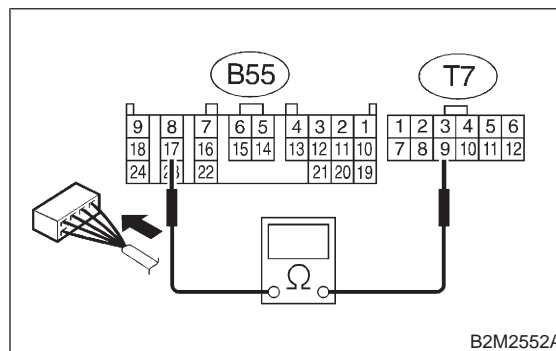
- Open circuit in harness between ECM and inhibitor switch connector
- Poor contact in coupling connector (B12)

11AX2 : CHECK HARNESS BETWEEN TCM AND INHIBITOR SWITCH CONNECTOR.

Measure resistance of harness between TCM and transmission harness connector.

Connector & terminal

(B55) No. 17 — (T7) No. 9:



- CHECK** : Is the resistance less than 1 Ω?
- YES** : Go to step 11AX3.
- NO** : Repair harness and connector.

NOTE:

In this case, repair the following:

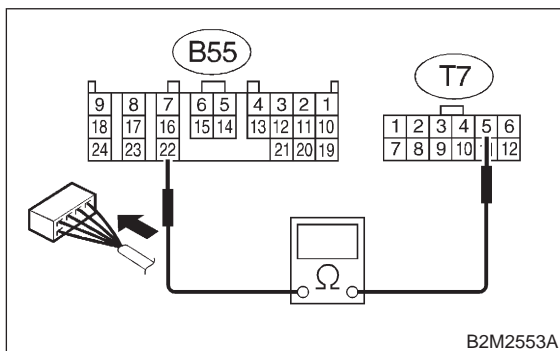
- Open circuit in harness between ECM and inhibitor switch connector
- Poor contact in coupling connector (B12)

11AX3 : CHECK HARNESS BETWEEN TCM AND INHIBITOR SWITCH CONNECTOR.

Measure resistance of harness between TCM and transmission harness connector.

Connector & terminal

(B55) No. 22 — (T7) No. 5:



CHECK : *Is the resistance less than 1 Ω?*

YES : Go to step 11AX4.

NO : Repair harness and connector.

NOTE:

In this case, repair the following:

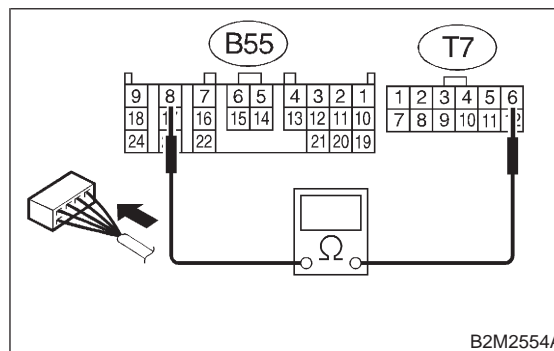
- Open circuit in harness between ECM and inhibitor switch connector.
- Poor contact in coupling connector (B12)

11AX4 : CHECK HARNESS BETWEEN TCM AND INHIBITOR SWITCH CONNECTOR.

Measure resistance of harness between TCM and transmission harness connector.

Connector & terminal

(B55) No. 8 — (T7) No. 6:



CHECK : *Is the resistance less than 1 Ω?*

YES : Go to step 11AX5.

NO : Repair harness and connector.

NOTE:

In this case, repair the following:

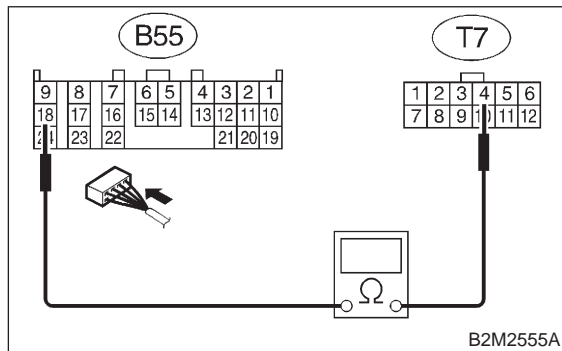
- Open circuit in harness between ECM and inhibitor switch connector.
- Poor contact in coupling connector (B12)

11AX5 : CHECK HARNESS BETWEEN TCM AND INHIBITOR SWITCH CONNECTOR.

Measure resistance of harness between TCM and transmission harness connector.

Connector & terminal

(B55) No. 18 — (T7) No. 4:



CHECK : *Is the resistance less than 1 Ω?*

YES : Go to step 11AX6.

NO : Repair harness and connector.

NOTE:

In this case, repair the following:

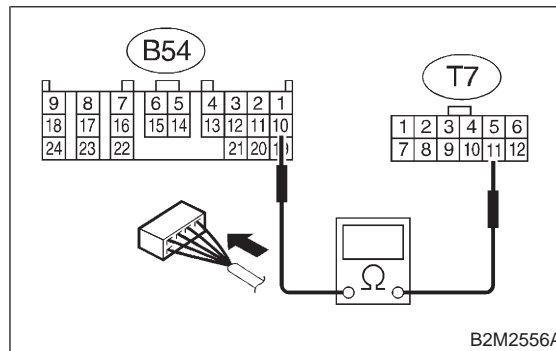
- Open circuit in harness between ECM and inhibitor switch connector.
- Poor contact in coupling connector (B12)

11AX6 : CHECK HARNESS BETWEEN TCM AND INHIBITOR SWITCH CONNECTOR.

Measure resistance of harness between TCM and transmission harness connector.

Connector & terminal

(B54) No. 10 — (T7) No. 11:



CHECK : *Is the resistance less than 1 Ω?*

YES : Go to step 11AX7.

NO : Repair harness and connector.

NOTE:

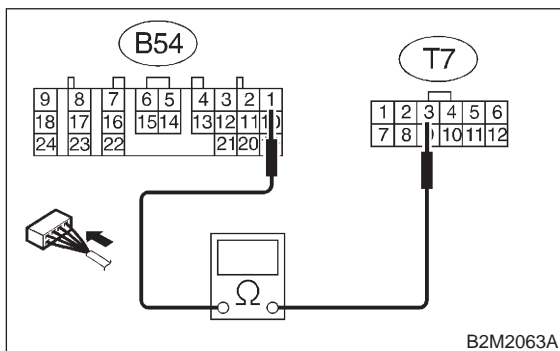
In this case, repair the following:

- Open circuit in harness between ECM and inhibitor switch connector.
- Poor contact in coupling connector (B12)

11AX7 : CHECK HARNESS BETWEEN TCM AND INHIBITOR SWITCH CONNECTOR.

Measure resistance of harness between TCM and transmission harness connector.

Connector & terminal
(B54) No. 1 — (T7) No. 3:



- CHECK** : Is the resistance less than 1 Ω?
- YES** : Go to step 11AX8.
- NO** : Repair harness and connector.

NOTE:

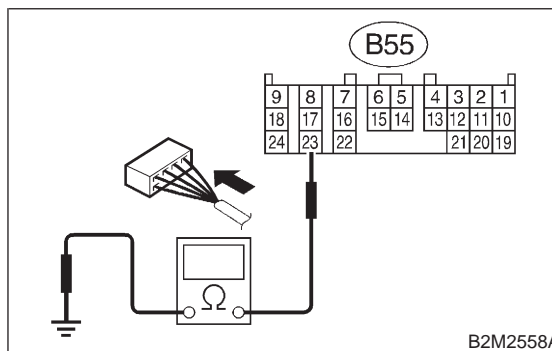
In this case, repair the following:

- Open circuit in harness between ECM and inhibitor switch connector.
- Poor contact in coupling connector (B12)

11AX8 : CHECK HARNESS BETWEEN TCM AND INHIBITOR SWITCH CONNECTOR.

Measure resistance of harness between TCM and chassis ground.

Connector & terminal
(B55) No. 23 — Chassis ground:

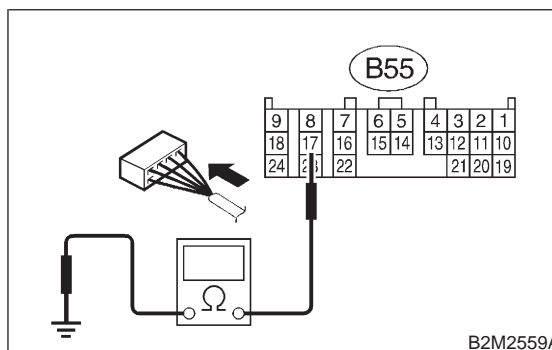


- CHECK** : Is the resistance more than 1 MΩ?
- YES** : Go to step 11AX9.
- NO** : Repair ground short circuit in harness between TCM and transmission harness connector.

11AX9 : CHECK HARNESS BETWEEN TCM AND INHIBITOR SWITCH CONNECTOR.

Measure resistance of harness between TCM and chassis ground.

Connector & terminal
(B55) No. 17 — Chassis ground:

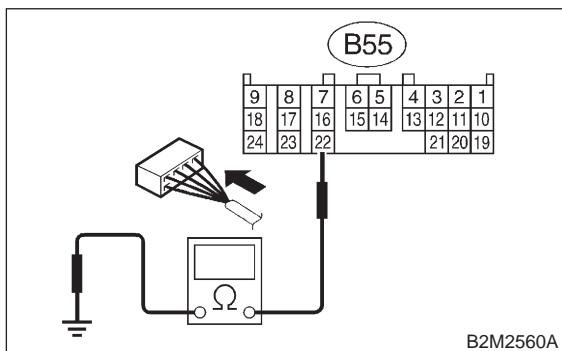


- CHECK** : Is the resistance more than 1 MΩ?
- YES** : Go to step 11AX10.
- NO** : Repair ground short circuit in harness between TCM and transmission harness connector.

11AX10 : CHECK HARNESS BETWEEN TCM AND INHIBITOR SWITCH CONNECTOR.

Measure resistance of harness between TCM and chassis ground.

Connector & terminal
(B55) No. 22 — Chassis ground:

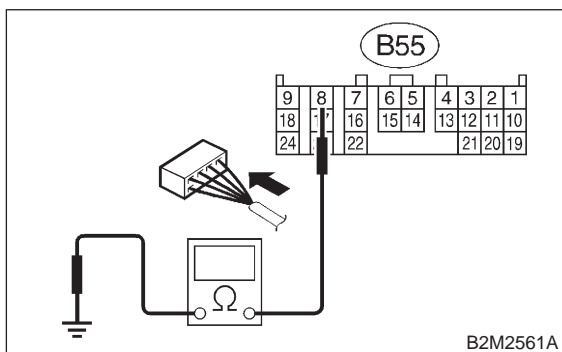


- CHECK** : Is the resistance more than 1 MΩ?
- YES** : Go to step 11AX11.
- NO** : Repair ground short circuit in harness between TCM and transmission harness connector.

11AX11 : CHECK HARNESS BETWEEN TCM AND INHIBITOR SWITCH CONNECTOR.

Measure resistance of harness between TCM and chassis ground.

Connector & terminal
(B55) No. 8 — Chassis ground:

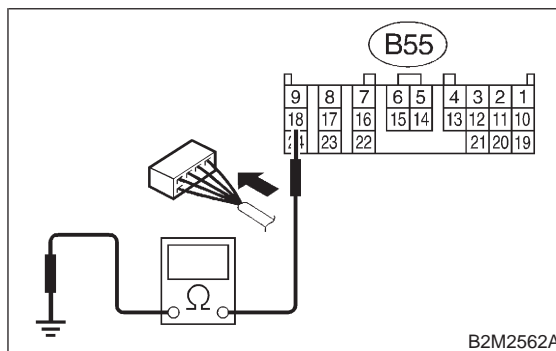


- CHECK** : Is the resistance more than 1 MΩ?
- YES** : Go to step 11AX12.
- NO** : Repair ground short circuit in harness between TCM and transmission harness connector.

11AX12 : CHECK HARNESS BETWEEN TCM AND INHIBITOR SWITCH CONNECTOR.

Measure resistance of harness between TCM and chassis ground.

Connector & terminal
(B55) No. 18 — Chassis ground:

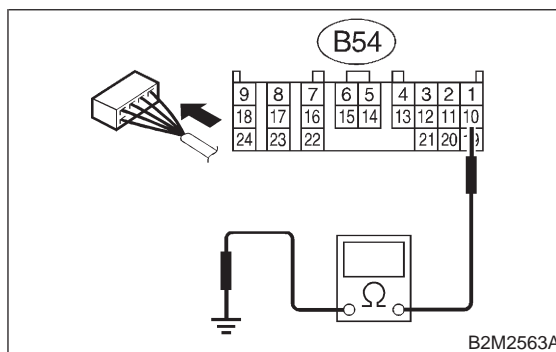


- CHECK** : Is the resistance more than 1 MΩ?
- YES** : Go to step 11AX13.
- NO** : Repair ground short circuit in harness between TCM and transmission harness connector.

11AX13 : CHECK HARNESS BETWEEN TCM AND INHIBITOR SWITCH CONNECTOR.

Measure resistance of harness between TCM and chassis ground.

Connector & terminal
(B54) No. 10 — Chassis ground:

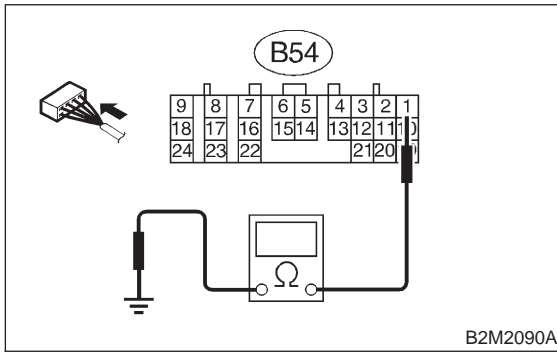


- CHECK** : Is the resistance more than 1 MΩ?
- YES** : Go to step 11AX14.
- NO** : Repair ground short circuit in harness between TCM and transmission harness connector.

11AX14 : CHECK HARNESS BETWEEN TCM AND INHIBITOR SWITCH CONNECTOR.

Measure resistance of harness between TCM and chassis ground.

Connector & terminal
(B54) No. 1 — Chassis ground:

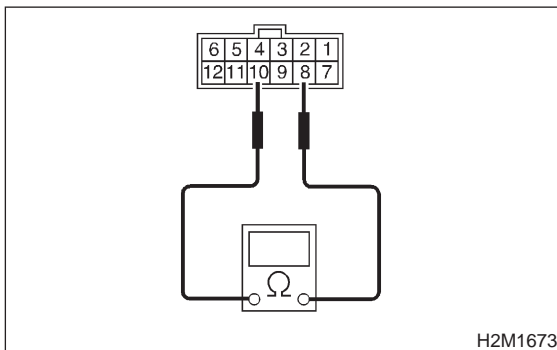


- CHECK** : Is the resistance more than 1 MΩ?
- YES** : Go to step 11AX15.
- NO** : Repair ground short circuit in harness between TCM and transmission harness connector.

11AX15 : CHECK INHIBITOR SWITCH.

Measure resistance between inhibitor switch connector receptacle's terminals in selector lever "P" position.

Terminals
No. 8 — No. 10:

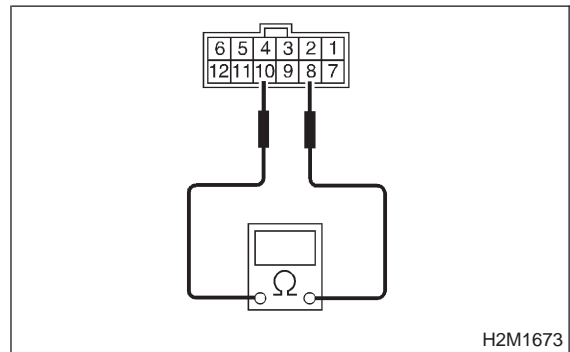


- CHECK** : Is the resistance less than 1 Ω?
- YES** : Go to step 11AX16.
- NO** : Go to step 11AX29.

11AX16 : CHECK INHIBITOR SWITCH.

Measure resistance between inhibitor switch connector receptacle's terminals in selector lever except for "P" position.

Terminals
No. 8 — No. 10:

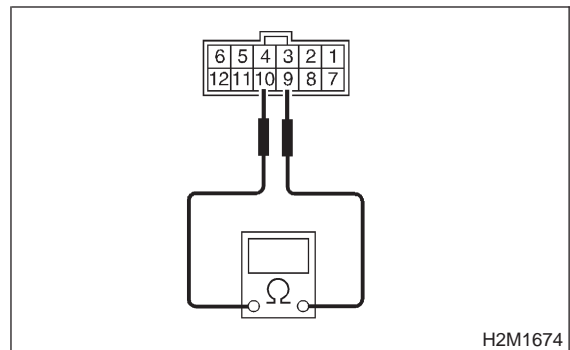


- CHECK** : Is the resistance more than 1 MΩ?
- YES** : Go to step 11AX17.
- NO** : Go to step 11AX29.

11AX17 : CHECK INHIBITOR SWITCH.

Measure resistance between inhibitor switch connector receptacle's terminals in selector lever for "R" position.

Terminals
No. 9 — No. 10:



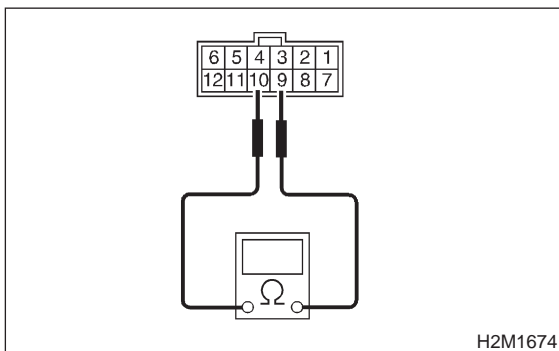
- CHECK** : Is the resistance less than 1 Ω?
- YES** : Go to step 11AX18.
- NO** : Go to step 11AX29.

11AX18 : CHECK INHIBITOR SWITCH.

Measure resistance between inhibitor switch connector receptacle's terminals in selector lever except for "R" position.

Terminals

No. 9 — No. 10:



H2M1674

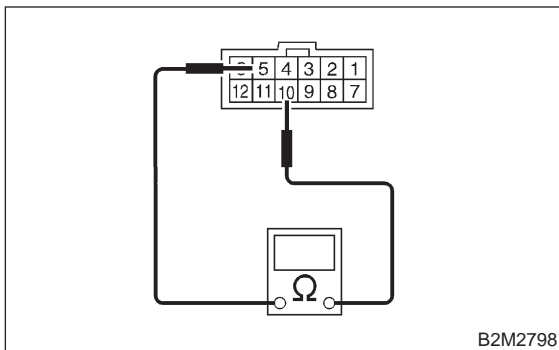
- CHECK** : Is the resistance more than 1 MΩ?
- YES** : Go to step 11AX19.
- NO** : Go to step 11AX29.

11AX19 : CHECK INHIBITOR SWITCH.

Measure resistance between inhibitor switch connector receptacle's terminals in selector lever for "N" position.

Terminals

No. 5 — No. 10:



B2M2798

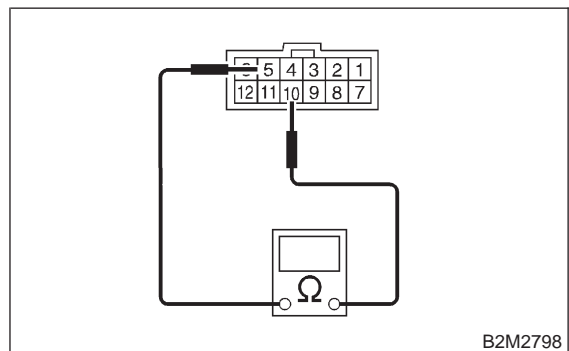
- CHECK** : Is the resistance less than 1 Ω?
- YES** : Go to step 11AX20.
- NO** : Go to step 11AX29.

11AX20 : CHECK INHIBITOR SWITCH.

Measure resistance between inhibitor switch connector receptacle's terminals in selector lever except for "N" position.

Terminals

No. 5 — No. 10:



B2M2798

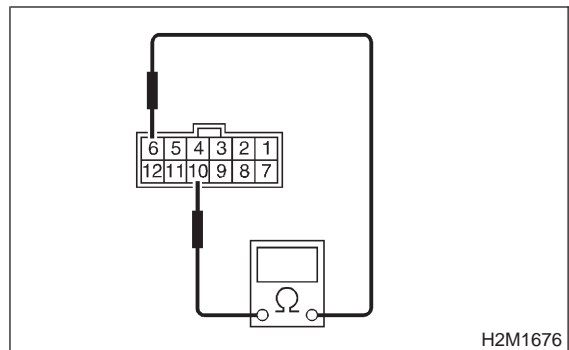
- CHECK** : Is the resistance more than 1 MΩ?
- YES** : Go to step 11AX21.
- NO** : Go to step 11AX29.

11AX21 : CHECK INHIBITOR SWITCH.

Measure resistance between inhibitor switch connector receptacle's terminals in selector lever except for "D" position.

Terminals

No. 6 — No. 10:



H2M1676

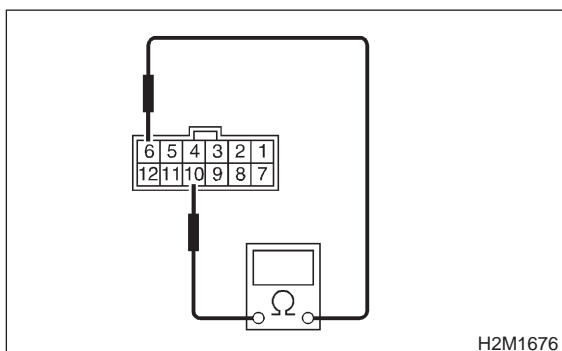
- CHECK** : Is the resistance less than 1 Ω?
- YES** : Go to step 11AX22.
- NO** : Go to step 11AX29.

11AX22 : CHECK INHIBITOR SWITCH.

Measure resistance between inhibitor switch connector receptacle's terminals in selector lever except for "D" position.

Terminals

No. 6 — No. 10:



H2M1676

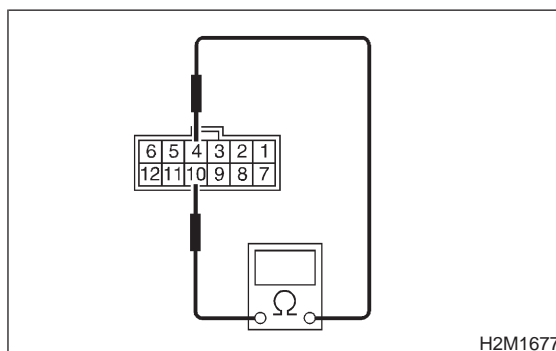
- CHECK** : *Is the resistance more than 1 MΩ?*
- YES** : Go to step 11AX23.
- NO** : Go to step 11AX29.

11AX24 : CHECK INHIBITOR SWITCH.

Measure resistance between inhibitor switch connector receptacle's terminals in selector lever except for "3" position.

Terminals

No. 4 — No. 10:



H2M1677

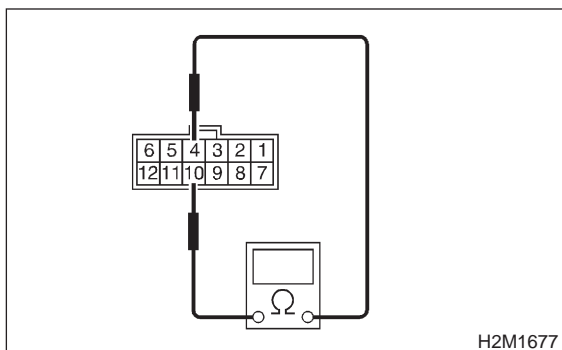
- CHECK** : *Is the resistance more than 1 MΩ?*
- YES** : Go to step 11AX25.
- NO** : Go to step 11AX29.

11AX23 : CHECK INHIBITOR SWITCH.

Measure resistance between inhibitor switch connector receptacle's terminals in selector lever for "3" position.

Terminals

No. 4 — No. 10:



H2M1677

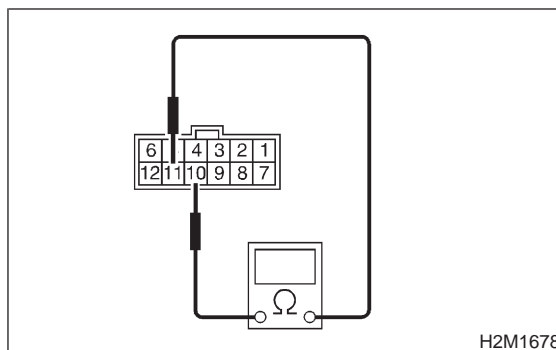
- CHECK** : *Is the resistance less than 1 Ω?*
- YES** : Go to step 11AX24.
- NO** : Go to step 11AX29.

11AX25 : CHECK INHIBITOR SWITCH.

Measure resistance between inhibitor switch connector receptacle's terminals in selector lever except for "2" position.

Terminals

No. 11 — No. 10:

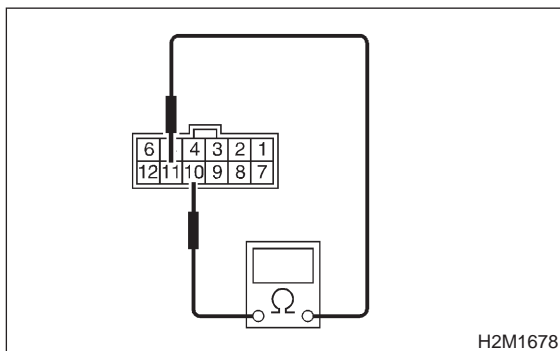


H2M1678

- CHECK** : *Is the resistance less than 1 Ω?*
- YES** : Go to step 11AX26.
- NO** : Go to step 11AX29.

11AX26 : CHECK INHIBITOR SWITCH.

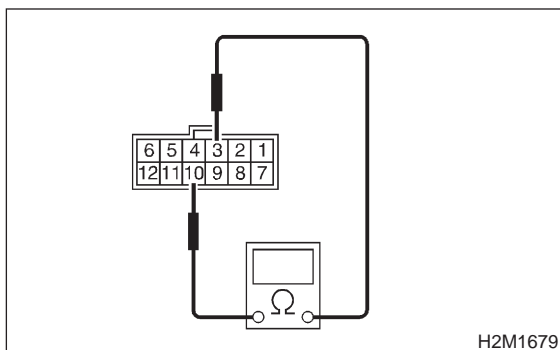
Measure resistance between inhibitor switch connector receptacle's terminals in selector lever except for "R" position.

Terminals**No. 11 — No. 10:**

- CHECK** : *Is the resistance more than 1 MΩ?*
YES : Go to step 11AX27.
NO : Go to step 11AX29.

11AX27 : CHECK INHIBITOR SWITCH.

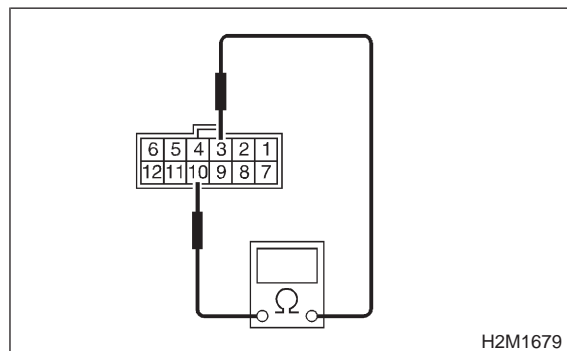
Measure resistance between inhibitor switch connector receptacle's terminals in selector lever except for "1" position.

Terminals**No. 3 — No. 10:**

- CHECK** : *Is the resistance less than 1 Ω?*
YES : Go to step 11AX28.
NO : Go to step 11AX29.

11AX28 : CHECK INHIBITOR SWITCH.

Measure resistance between inhibitor switch connector receptacle's terminals in selector lever except for "1" position.

Terminals**No. 3 — No. 10:**

- CHECK** : *Is the resistance more than 1 MΩ?*
YES : Go to step 11AX30.
NO : Go to step 11AX29.

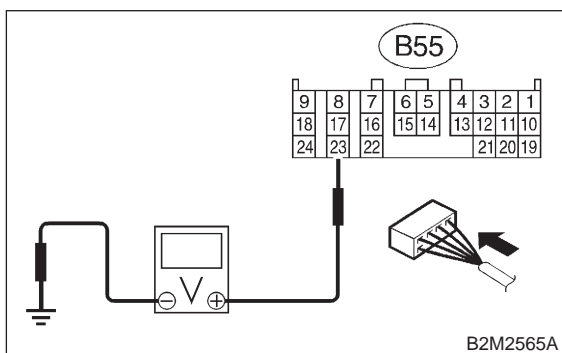
11AX29 : CHECK SELECTOR CABLE.

- CHECK** : *Is there faulty connection in the selector cable?*
YES : Repair connection of selector cable.
NO : Replace inhibitor switch. <Ref. to 3-2 [W2C0].>

11AX30 : CHECK INPUT SIGNAL FOR TCM.

- 1) Turn ignition switch to OFF.
- 2) Connect connector to TCM and transmission.
- 3) Turn ignition switch to ON.
- 4) Measure voltage between TCM and chassis ground.

Connector & terminal
(B55) No. 23 (+) — Chassis ground (-):

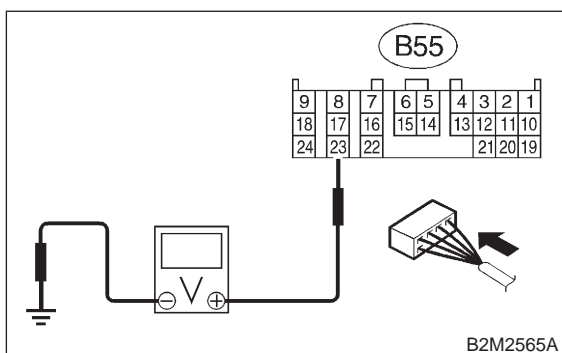


- CHECK** : *Is the voltage less than 1 V?*
- YES** : Go to step 11AX31.
- NO** : Go to step 11AX44.

11AX31 : CHECK INPUT SIGNAL FOR TCM.

Measure voltage between TCM chassis ground in selector lever except for "P" and "N" positions.

Connector & terminal
(B55) No. 23 (+) — Chassis ground (-):

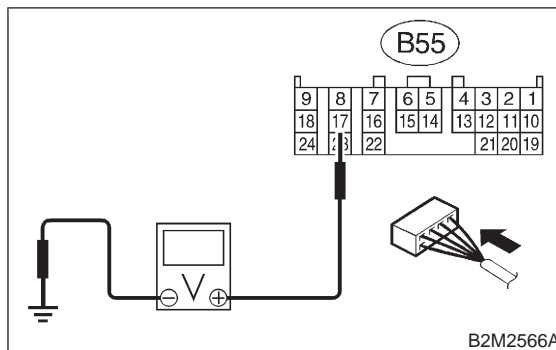


- CHECK** : *Is the voltage more than 8 V?*
- YES** : Go to step 11AX32.
- NO** : Go to step 11AX44.

11AX32 : CHECK INPUT SIGNAL FOR TCM.

Measure voltage between TCM chassis ground in selector lever "R" position.

Connector & terminal
(B55) No. 17 (+) — Chassis ground (-):

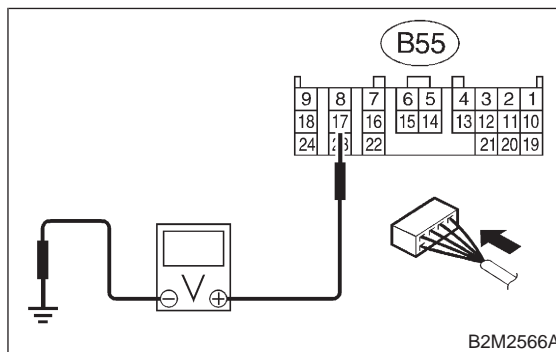


- CHECK** : *Is the voltage less than 1 V?*
- YES** : Go to step 11AX33.
- NO** : Go to step 11AX44.

11AX33 : CHECK INPUT SIGNAL FOR TCM.

Measure voltage between TCM chassis ground in selector lever except for "R" position.

Connector & terminal
(B55) No. 17 (+) — Chassis ground (-):



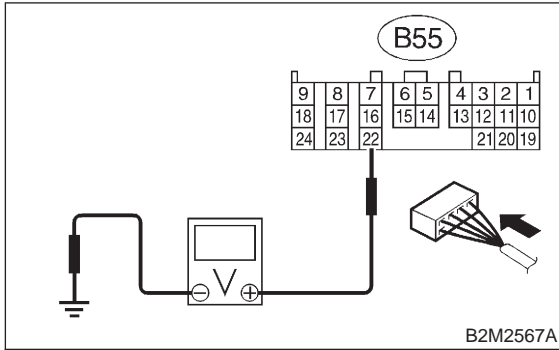
- CHECK** : *Is the voltage more than 6 V?*
- YES** : Go to step 11AX34.
- NO** : Go to step 11AX44.

11AX34 : CHECK INPUT SIGNAL FOR TCM.

Measure voltage between TCM chassis ground in selector lever "P" and "N" positions.

Connector & terminal

(B55) No. 22 (+) — Chassis ground (-):



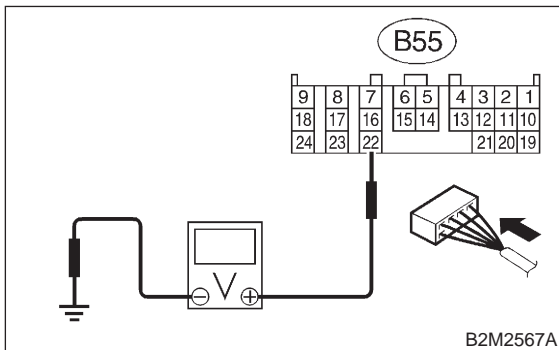
- CHECK** : Is the voltage less than 1 V?
- YES** : Go to step 11AX35.
- NO** : Go to step 11AX44.

11AX35 : CHECK INPUT SIGNAL FOR TCM.

Measure voltage between TCM chassis ground in selector lever except for "N" and "P" positions.

Connector & terminal

(B55) No. 22 (+) — Chassis ground (-):



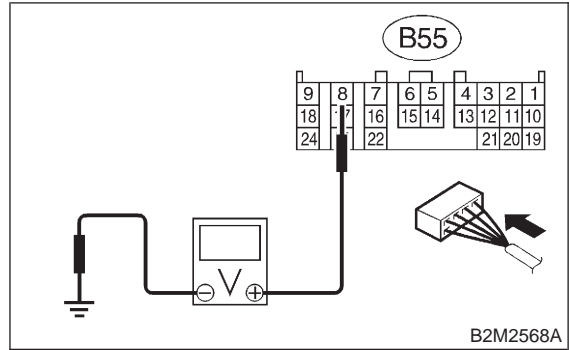
- CHECK** : Is the voltage more than 8 V?
- YES** : Go to step 11AX36.
- NO** : Go to step 11AX44.

11AX36 : CHECK INPUT SIGNAL FOR TCM.

Measure voltage between TCM and chassis ground in selector lever "D" position.

Connector & terminal

(B55) No. 8 (+) — Chassis ground (-):



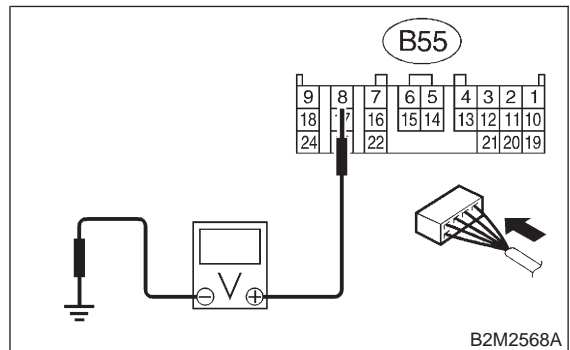
- CHECK** : Is the voltage less than 1 V?
- YES** : Go to step 11AX37.
- NO** : Go to step 11AX44.

11AX37 : CHECK INPUT SIGNAL FOR TCM.

Measure voltage between TCM chassis ground in selector lever except for "N" and "P" positions.

Connector & terminal

(B55) No. 8 (+) — Chassis ground (-):

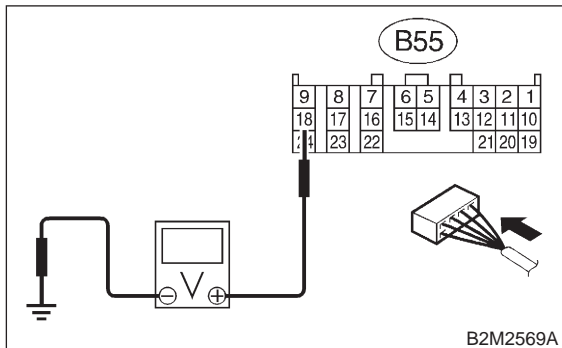


- CHECK** : Is the voltage more than 6 V?
- YES** : Go to step 11AX38.
- NO** : Go to step 11AX44.

11AX38 : CHECK INPUT SIGNAL FOR TCM.

Measure voltage between TCM chassis ground in selector lever "3" position.

Connector & terminal
(B55) No. 18 (+) — Chassis ground (-):

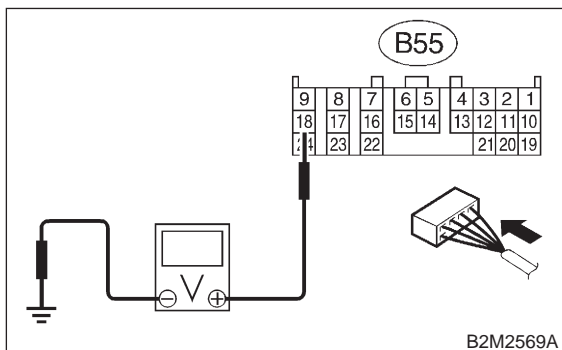


- CHECK** : Is the voltage less than 1 V?
- YES** : Go to step 11AX39.
- NO** : Go to step 11AX44.

11AX39 : CHECK INPUT SIGNAL FOR TCM.

Measure voltage between TCM and chassis ground in selector lever except for "3" position.

Connector & terminal
(B55) No. 18 (+) — Chassis ground (-):

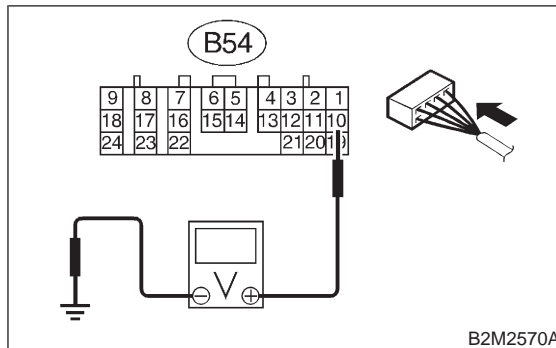


- CHECK** : Is the voltage more than 6 V?
- YES** : Go to step 11AX40.
- NO** : Go to step 11AX44.

11AX40 : CHECK INPUT SIGNAL FOR TCM.

Measure voltage between TCM chassis ground in selector lever "2" position.

Connector & terminal
(B54) No. 10 (+) — Chassis ground (-):

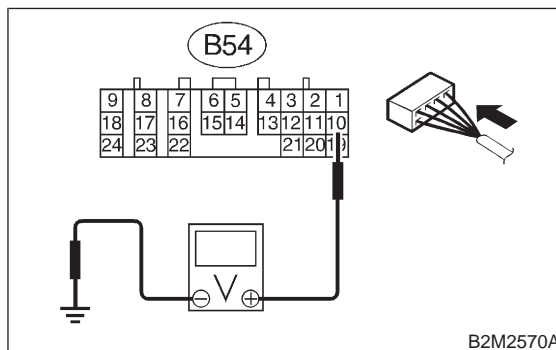


- CHECK** : Is the voltage less than 1 V?
- YES** : Go to step 11AX41.
- NO** : Go to step 11AX44.

11AX41 : CHECK INPUT SIGNAL FOR TCM.

Measure voltage between TCM and chassis ground in selector lever except for "2" position.

Connector & terminal
(B54) No. 10 (+) — Chassis ground (-):

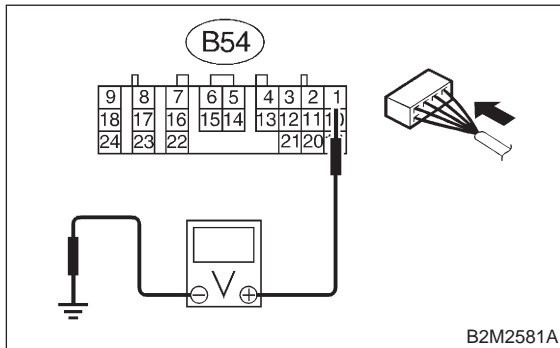


- CHECK** : Is the voltage more than 6 V?
- YES** : Go to step 11AX42.
- NO** : Go to step 11AX44.

11AX42 : CHECK INPUT SIGNAL FOR TCM.

Measure voltage between TCM chassis ground in selector lever "1" position.

Connector & terminal
(B54) No. 1 (+) — Chassis ground (-):



CHECK : *Is the voltage less than 1 V?*

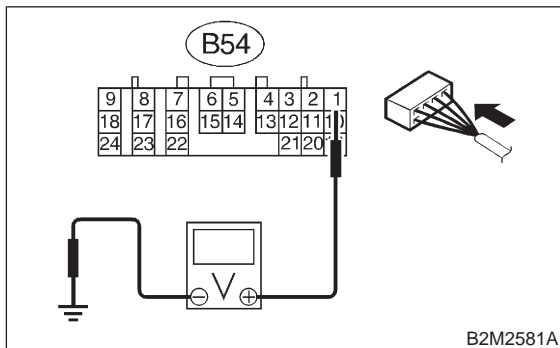
YES : Go to step 11AX43.

NO : Go to step 11AX44.

11AX43 : CHECK INPUT SIGNAL FOR TCM.

Measure voltage between TCM chassis ground in selector lever except for "1" position.

Connector & terminal
(B54) No. 1 (+) — Chassis ground (-):



CHECK : *Is the voltage more than 6 V?*

YES : Repair poor contact in TCM connector.

NO : Go to step 11AX44.

11AX44 : CHECK POOR CONTACT.

Check poor contact in TCM connector. <Ref. to FOREWORD [T3C1].>

CHECK : *Is there poor contact in TCM connector?*

YES : Repair poor contact in TCM connector.

NO : Replace TCM. <Ref. to 3-2 [W22A0].>

AY: DTC P0710 — TRANSMISSION FLUID TEMPERATURE SENSOR CIRCUIT MALFUNCTION —

● **DTC DETECTING CONDITION:**

- Two consecutive driving cycles with fault

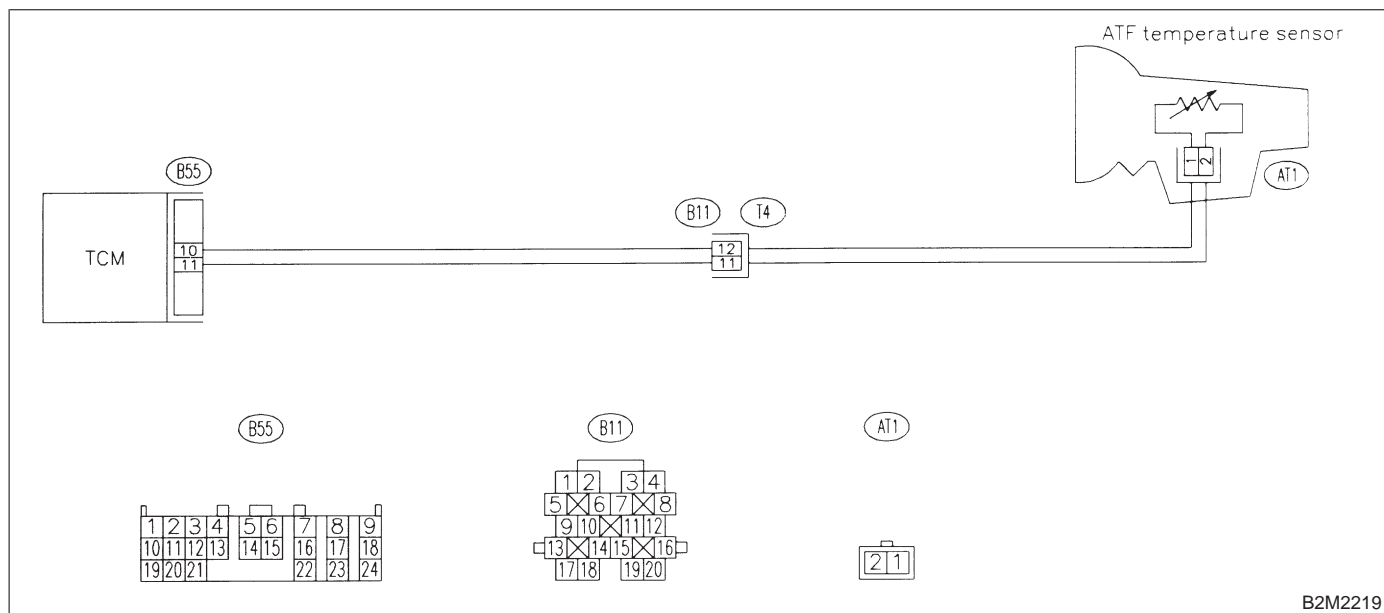
● **TROUBLE SYMPTOM:**

- No shift up to 4th speed (after engine warm-up)
- No lock-up (after engine warm-up)
- Excessive shift shock

CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to 2-7 [T3D0].> and INSPECTION MODE <Ref. to 2-7 [T3E0].>

● **WIRING DIAGRAM:**



B2M2219

11AY1 : CHECK DTC P0710 ON DISPLAY.

- CHECK** : Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0710?
- YES** : Check ATF temperature sensor circuit. <Ref. to 3-2 [T8E0].>
- NO** : It is not necessary to inspect DTC P0710.

AZ: DTC P0715 — TORQUE CONVERTER TURBINE SPEED SENSOR CIRCUIT MALFUNCTION —

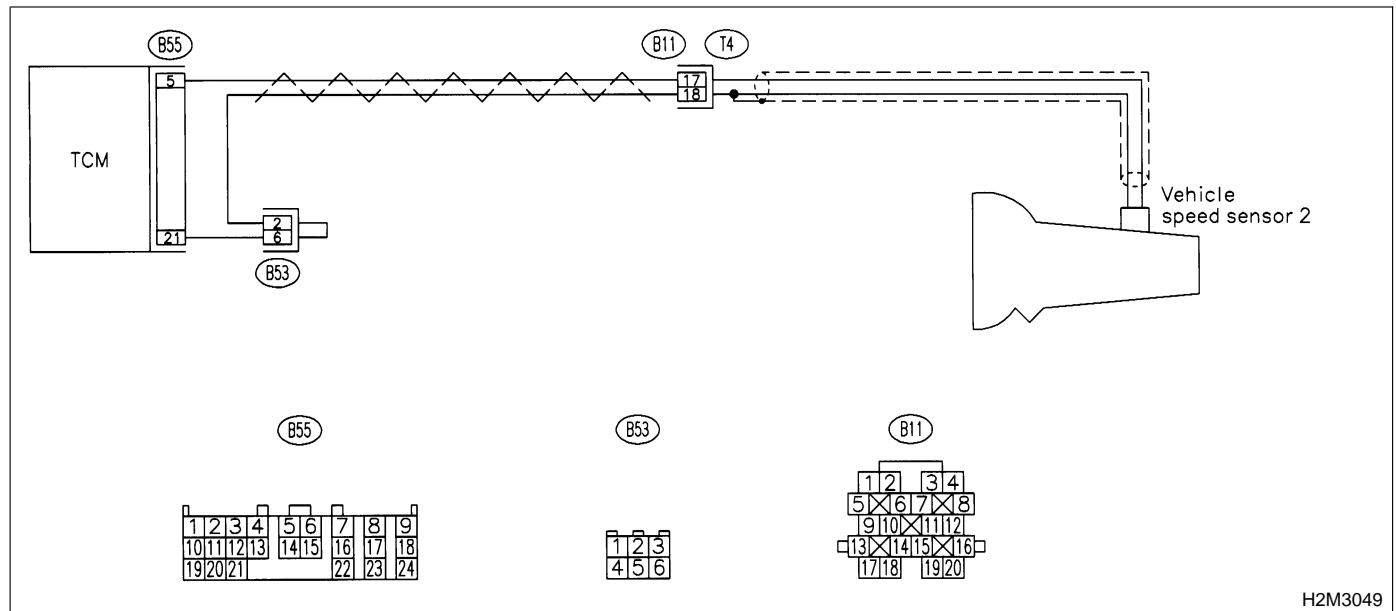
● **DTC DETECTING CONDITION:**

- Two consecutive driving cycles with fault

CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to 2-7 [T3D0].> and INSPECTION MODE <Ref. to 2-7 [T3E0].>

● **WIRING DIAGRAM:**



H2M3049

11AZ1 : CHECK DTC P0715 ON DISPLAY.

- CHECK** : Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0715?
- YES** : Check torque converter turbine speed sensor circuit. <Ref. to 3-2 [T8H0].>
- NO** : It is not necessary to inspect DTC P0715.

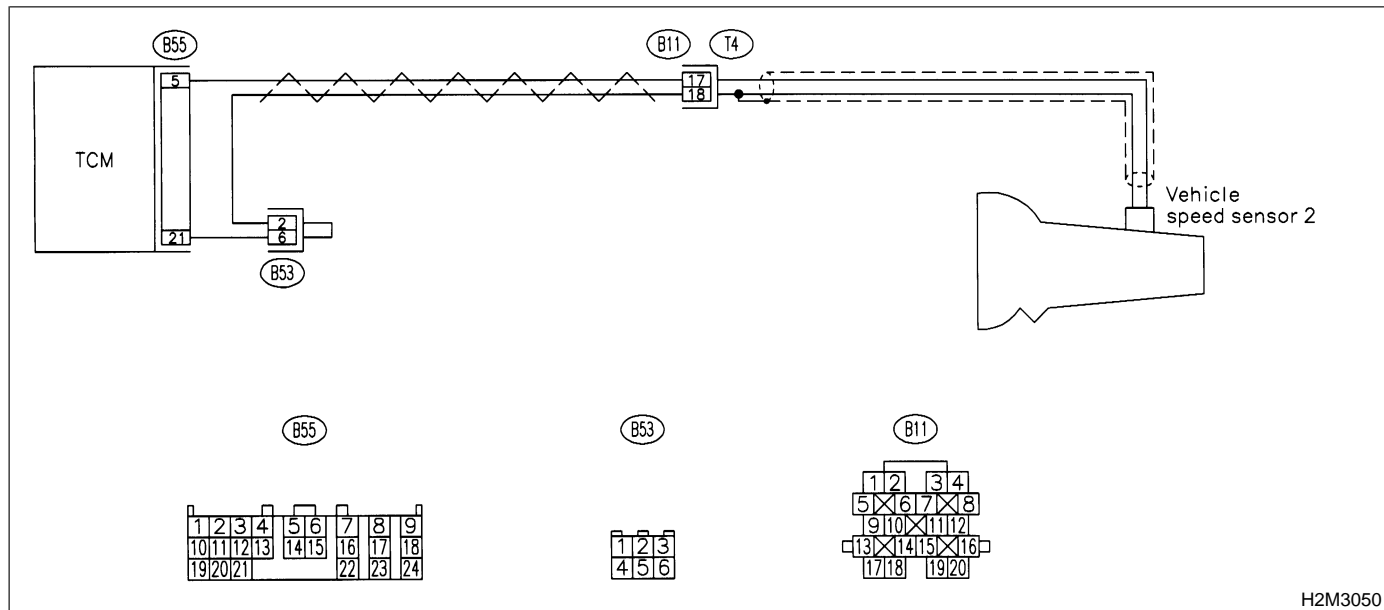
BA: DTC P0720 — OUTPUT SPEED SENSOR (VEHICLE SPEED SENSOR 2) CIRCUIT MALFUNCTION —

- **DTC DETECTING CONDITION:**
 - Two consecutive driving cycles with fault
- **TROUBLE SYMPTOM:**
 - No shift or excessive tight corner “braking”

CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to 2-7 [T3D0].> and INSPECTION MODE <Ref. to 2-7 [T3E0].>

● **WIRING DIAGRAM:**



H2M3050

11BA1 : CHECK DTC P0720 ON DISPLAY.

- CHECK** : Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0720?
- YES** : Check vehicle speed sensor 2 circuit. <Ref. to 3-2 [T8G0].>
- NO** : It is not necessary to inspect DTC P0720.

BB: DTC P0725 — ENGINE SPEED INPUT CIRCUIT MALFUNCTION —● **DTC DETECTING CONDITION:**

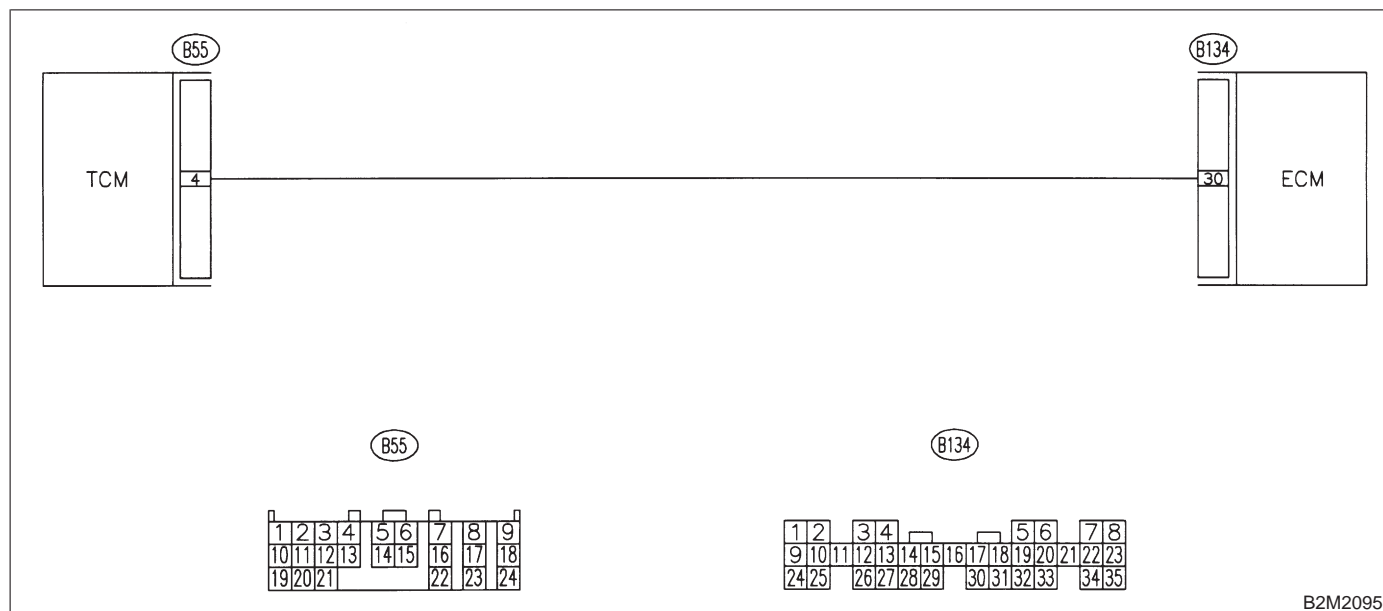
- Two consecutive driving cycles with fault

● **TROUBLE SYMPTOM:**

- No lock-up (after engine warm-up)
- AT diagnostic indicator light (AT OIL TEMP indicator light) remains on when vehicle speed is "0".

CAUTION:

After repair or replacement of faulty parts, conduct **CLEAR MEMORY MODE** <Ref. to 2-7 [T3D0].> and **INSPECTION MODE** <Ref. to 2-7 [T3E0].>.

● **WIRING DIAGRAM:**

B2M2095

11BB1 : CHECK DTC P0725 ON DISPLAY.

CHECK : Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0725?

YES : Check engine speed input signal circuit. <Ref. to 3-2 [T8C0].>

NO : It is not necessary to inspect DTC P0725.

BC: DTC P0731 — GEAR 1 INCORRECT RATIO —**NOTE:**

For the diagnostic procedure, refer to 2-7 [T11BF0]. <Ref. to 2-7 [T11BF0].>

BD: DTC P0732 — GEAR 2 INCORRECT RATIO —**NOTE:**

For the diagnostic procedure, refer to 2-7 [T11BF0]. <Ref. to 2-7 [T11BF0].>

BE: DTC P0733 — GEAR 3 INCORRECT RATIO —**NOTE:**

For the diagnostic procedure, refer to 2-7 [T11BF0]. <Ref. to 2-7 [T11BF0].>

BF: DTC P0734 — GEAR 4 INCORRECT RATIO —**● DTC DETECTING CONDITION:**

- Two consecutive driving cycles with fault

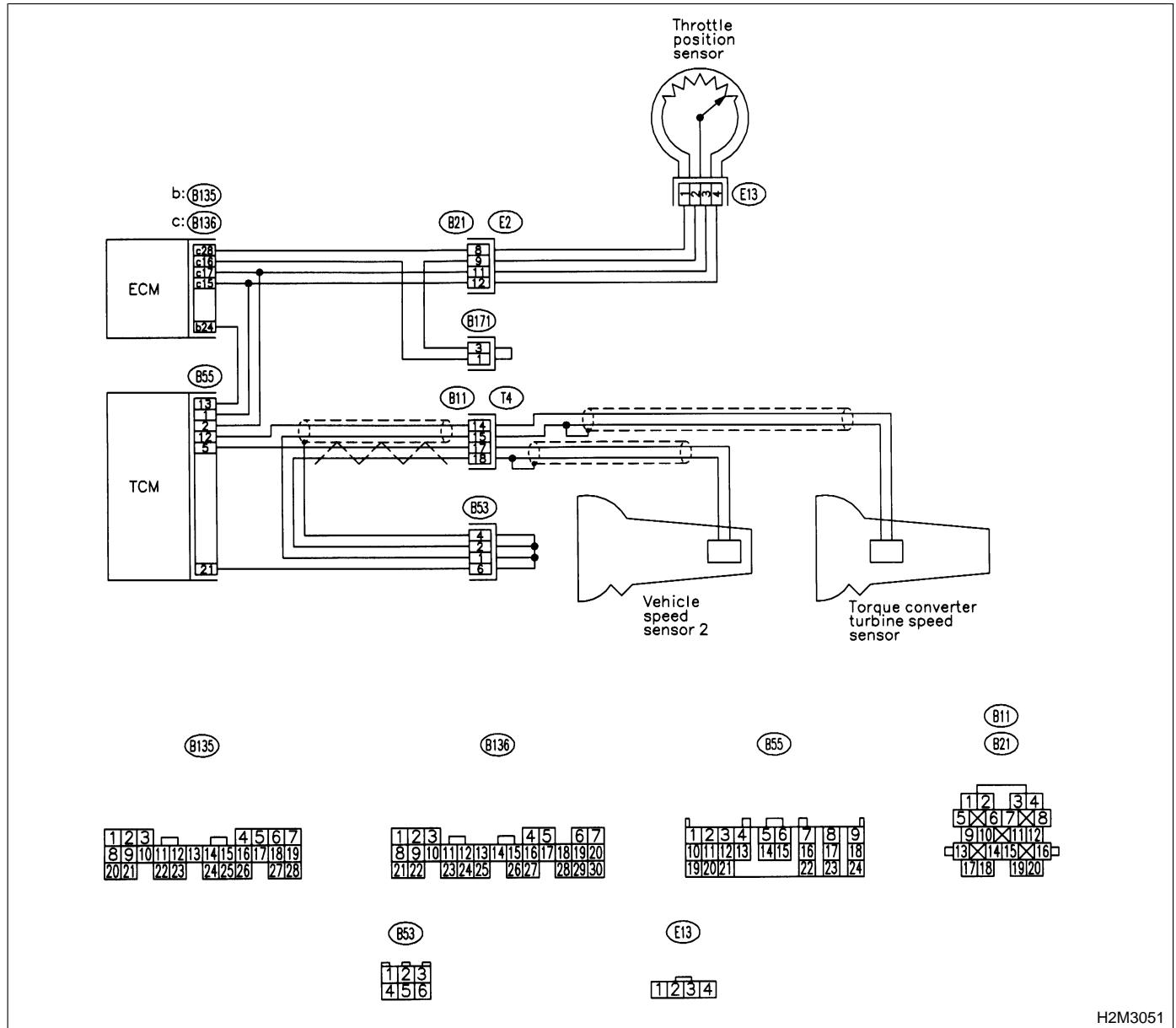
● TROUBLE SYMPTOM:

- Shift point too high or too low; engine brake not effected in “3” range; excessive shift shock; excessive tight corner “braking”

CAUTION:

After repair or replacement of faulty parts, conduct **CLEAR MEMORY MODE** <Ref. to 2-7 [T3D0].> and **INSPECTION MODE** <Ref. to 2-7 [T3E0].>.

● WIRING DIAGRAM:



H2M3051

11BF1 : CHECK ANY OTHER DTC ON DISPLAY.

- CHECK** : *Is there any other DTC on display?*
- YES** : Inspect relevant DTC using "11. Diagnostics Chart with Trouble Code for Except 2200 cc California Spec. Vehicles". <Ref. to 2-7 [T11A0].>
- NO** : Go to step **11BF2**.

11BF2 : CHECK THROTTLE POSITION SENSOR CIRCUIT.

- Check throttle position sensor circuit. <Ref. to 3-2 [T8F0].>
- CHECK** : *Is there any trouble in throttle position sensor circuit?*
- YES** : Repair or replace throttle position sensor circuit.
- NO** : Go to step **11BF3**.

11BF3 : CHECK VEHICLE SPEED SENSOR 2 CIRCUIT.

Check vehicle speed sensor 2 circuit. <Ref. to 3-2 [T8G0].>

- CHECK** : *Is there any trouble in vehicle speed sensor 2 circuit?*
- YES** : Repair or replace vehicle speed sensor 2 circuit.
- NO** : Go to step **11BF4**.

11BF4 : CHECK TORQUE CONVERTER TURBINE SPEED SENSOR CIRCUIT.

Check torque converter turbine speed sensor circuit. <Ref. to 3-2 [T8H0].>

- CHECK** : *Is there any trouble in torque converter turbine speed sensor circuit?*
- YES** : Repair or replace torque converter turbine speed sensor circuit.
- NO** : Go to step **11BF5**.

11BF5 : CHECK POOR CONTACT.

Check poor contact in TCM connector. <Ref. to FOREWORD [T3C1].>

- CHECK** : *Is there poor contact in TCM connector?*
- YES** : Repair poor contact in TCM connector.
- NO** : Go to step **11BF6**.

11BF6 : CHECK MECHANICAL TROUBLE.

Check mechanical trouble in automatic transmission.

- CHECK** : *Is there any mechanical trouble in automatic transmission?*
- YES** : Repair or replace automatic transmission. <Ref. to 3-2 [T1000].>
- NO** : Replace TCM. <Ref. to 3-2 [W22A0].>

MEMO:

BG: DTC P0740 — TORQUE CONVERTER CLUTCH SYSTEM MALFUNCTION

● **DTC DETECTING CONDITION:**

- Two consecutive driving cycles with fault

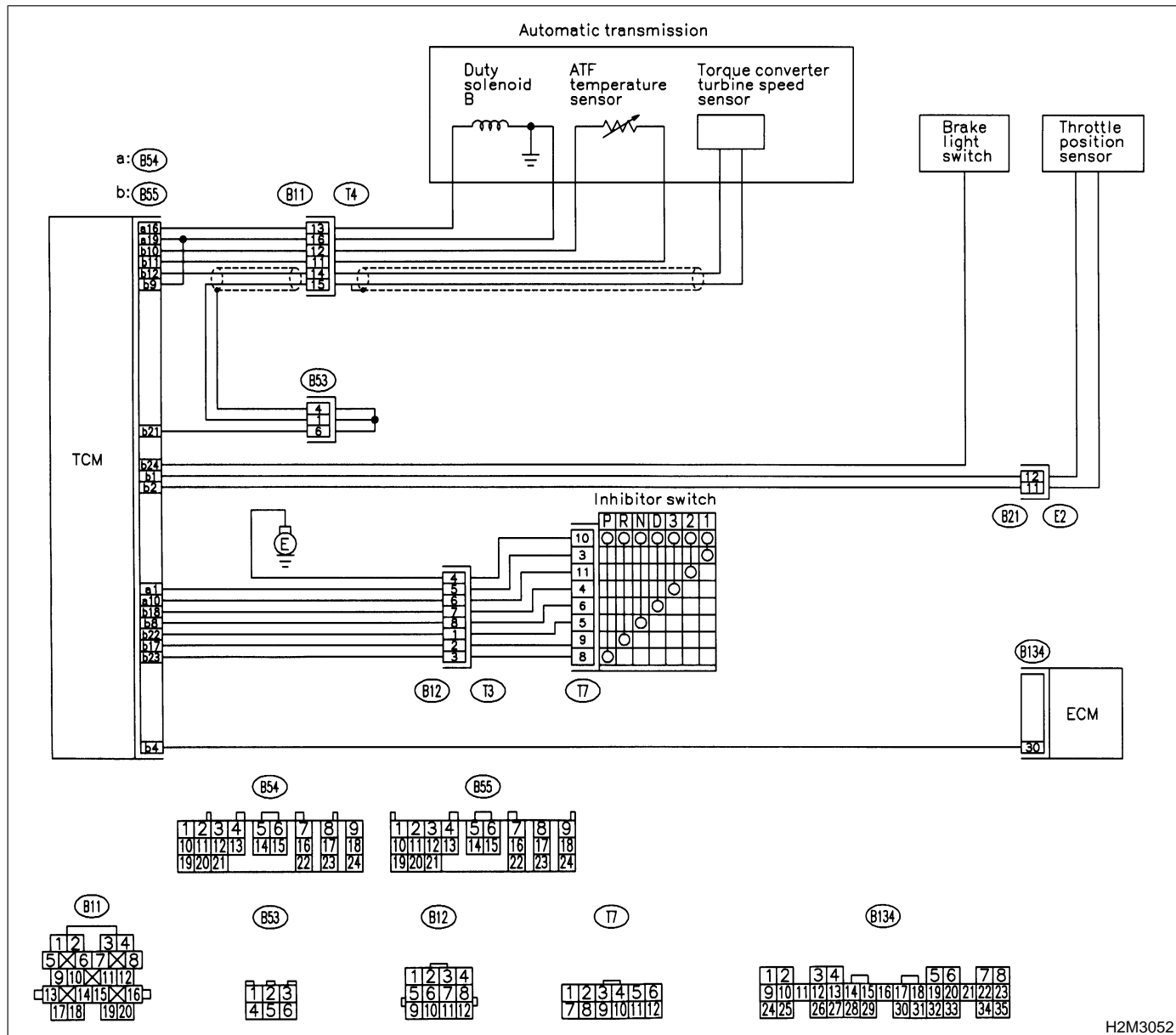
● **TROUBLE SYMPTOM:**

- No lock-up (after engine warm-up)
- No shift or excessive tight corner "braking"

CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to 2-7 [T3D0].> and INSPECTION MODE <Ref. to 2-7 [T3E0].>

● **WIRING DIAGRAM:**



H2M3052

11BG1 : CHECK ANY OTHER DTC ON DISPLAY.

- CHECK** : *Is there any other DTC on display?*
- YES** : Inspect the relevant DTC using "11. Diagnostics Chart with Trouble Code for Except 2200 cc California Spec. Vehicles". <Ref. to 2-7 [T11A0].>
- NO** : Go to step **11BG2**.

11BG2 : CHECK DUTY SOLENOID B CIRCUIT.

Check duty solenoid B circuit. <Ref. to 3-2 [T8Q0].>

- CHECK** : *Is there any trouble in duty solenoid B circuit?*
- YES** : Repair or replace duty solenoid B circuit.
- NO** : Go to step **11BG3**.

11BG3 : CHECK THROTTLE POSITION SENSOR CIRCUIT.

Check throttle position sensor circuit. <Ref. to 3-2 [T8F0].>

- CHECK** : *Is there any trouble in throttle position sensor circuit?*
- YES** : Repair or replace throttle position sensor circuit.
- NO** : Go to step **11BG4**.

11BG4 : CHECK TORQUE CONVERTER TURBINE SPEED SENSOR CIRCUIT.

Check torque converter turbine speed sensor circuit. <Ref. to 3-2 [T8H0].>

- CHECK** : *Is there any trouble in torque converter turbine speed sensor circuit?*
- YES** : Repair or replace torque converter turbine speed sensor circuit.
- NO** : Go to step **11BG5**.

11BG5 : CHECK INHIBITOR SWITCH CIRCUIT.

Check inhibitor switch circuit. <Ref. to 2-7 [T11AX0].>

- CHECK** : *Is there any trouble in inhibitor switch circuit?*
- YES** : Repair or replace inhibitor switch circuit.
- NO** : Go to step **11BG6**.

11BG6 : CHECK BRAKE LIGHT SWITCH CIRCUIT.

Check brake light switch circuit. <Ref. to 2-7 [T11AW0].>

- CHECK** : *Is there any trouble in brake light switch circuit?*
- YES** : Repair or replace brake light switch circuit.
- NO** : Go to step **11BG7**.

11BG7 : CHECK ATF TEMPERATURE SENSOR CIRCUIT.

Check ATF temperature sensor circuit. <Ref. to 3-2 [T8E0].>

- CHECK** : *Is there any trouble in ATF temperature sensor circuit?*
- YES** : Repair or replace ATF temperature sensor circuit.
- NO** : Go to step **11BG8**.

11BG8 : CHECK POOR CONTACT.

Check poor contact in TCM connector. <Ref. to FOREWORD [T3C1].>

- CHECK** : *Is there poor contact in TCM connector?*
- YES** : Repair poor contact in TCM connector.
- NO** : Go to step **11BG9**.

11BG9 : CHECK MECHANICAL TROUBLE.

Check mechanical trouble in automatic transmission.

- CHECK** : *Is there any mechanical trouble in automatic transmission?*
- YES** : Repair or replace automatic transmission. <Ref. to 3-2 [T1000].>
- NO** : Replace TCM. <Ref. to 3-2 [W22A0].>

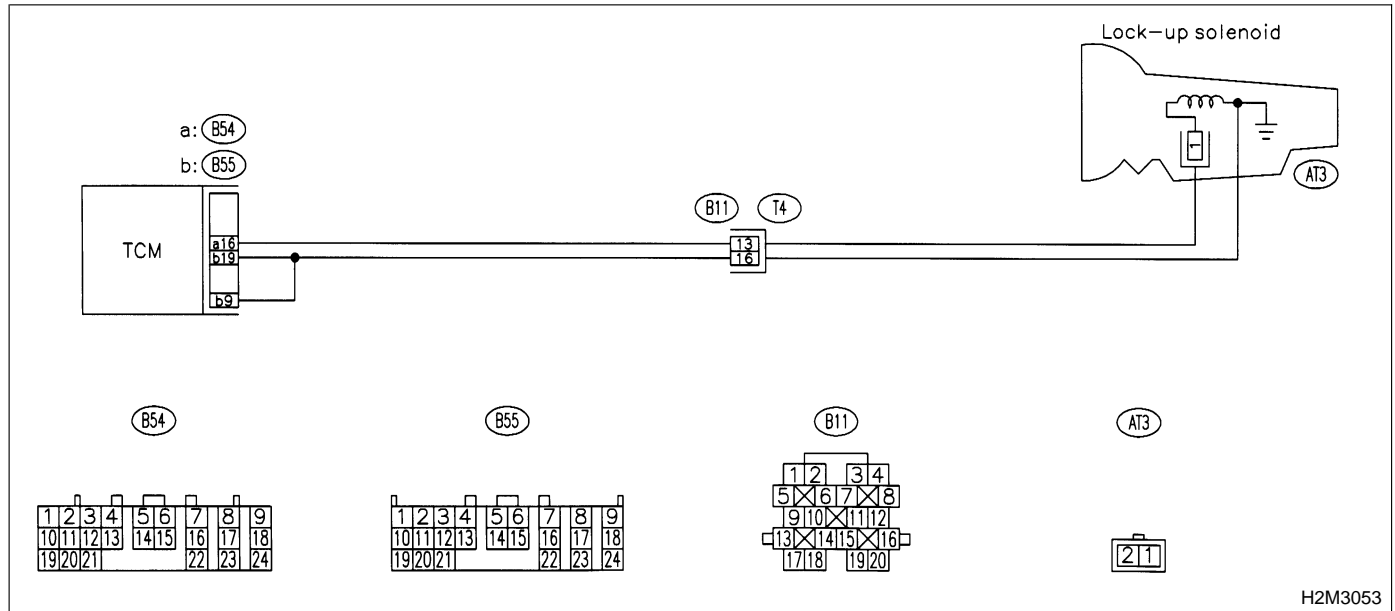
BH: DTC P0743 — TORQUE CONVERTER CLUTCH SYSTEM (DUTY SOLENOID B) ELECTRICAL —

- **DTC DETECTING CONDITION:**
 - Two consecutive driving cycles with fault
- **TROUBLE SYMPTOM:**
 - No lock-up (after engine warm-up)

CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to 2-7 [T3D0].> and INSPECTION MODE <Ref. to 2-7 [T3E0].>

● **WIRING DIAGRAM:**



H2M3053

11BH1 : CHECK DTC P0743 ON DISPLAY.

- CHECK** : Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0743?
- YES** : Check duty solenoid B circuit. <Ref. to 3-2 [T8Q0].>
- NO** : It is not necessary to inspect DTC P0743.

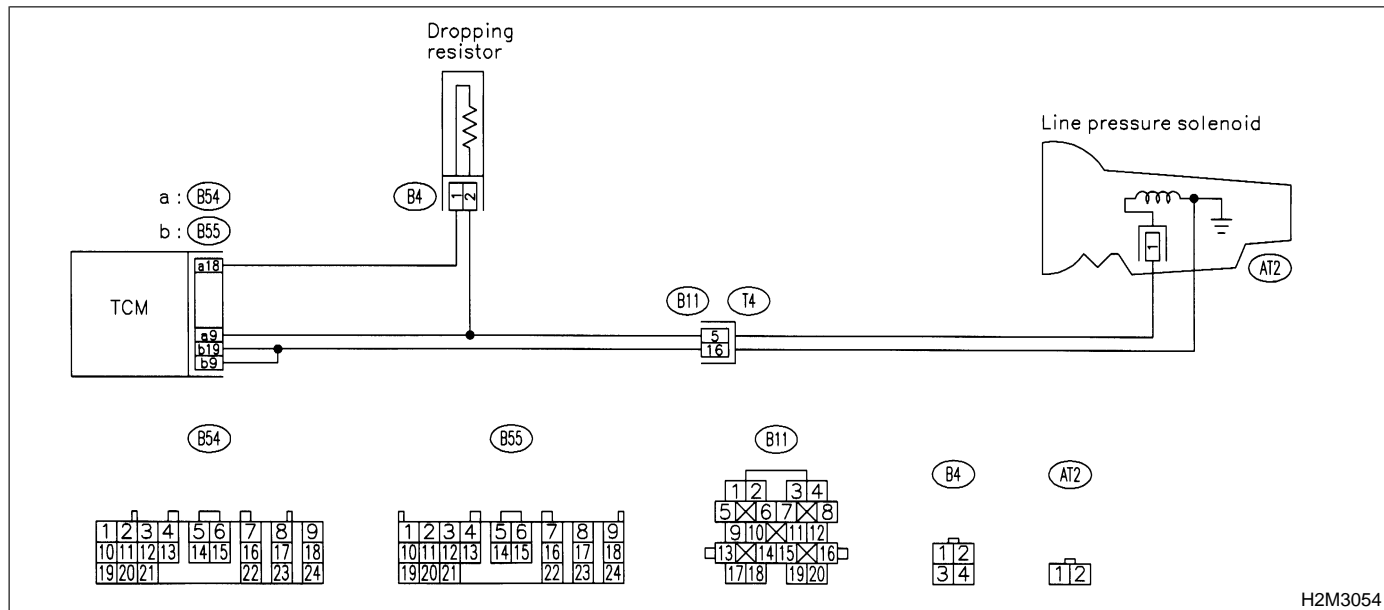
BI: DTC P0748 — PRESSURE CONTROL SOLENOID (DUTY SOLENOID A) ELECTRICAL —

- **DTC DETECTING CONDITION:**
 - Two consecutive driving cycles with fault
- **TROUBLE SYMPTOM:**
 - Excessive shift shock

CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to 2-7 [T3D0].> and INSPECTION MODE <Ref. to 2-7 [T3E0].>

● **WIRING DIAGRAM:**



H2M3054

11B11 : CHECK DTC P0748 ON DISPLAY.

- CHECK** : Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0748?
- YES** : Check duty solenoid A circuit. <Ref. to 3-2 [T800].>
- NO** : It is not necessary to inspect DTC P0748.

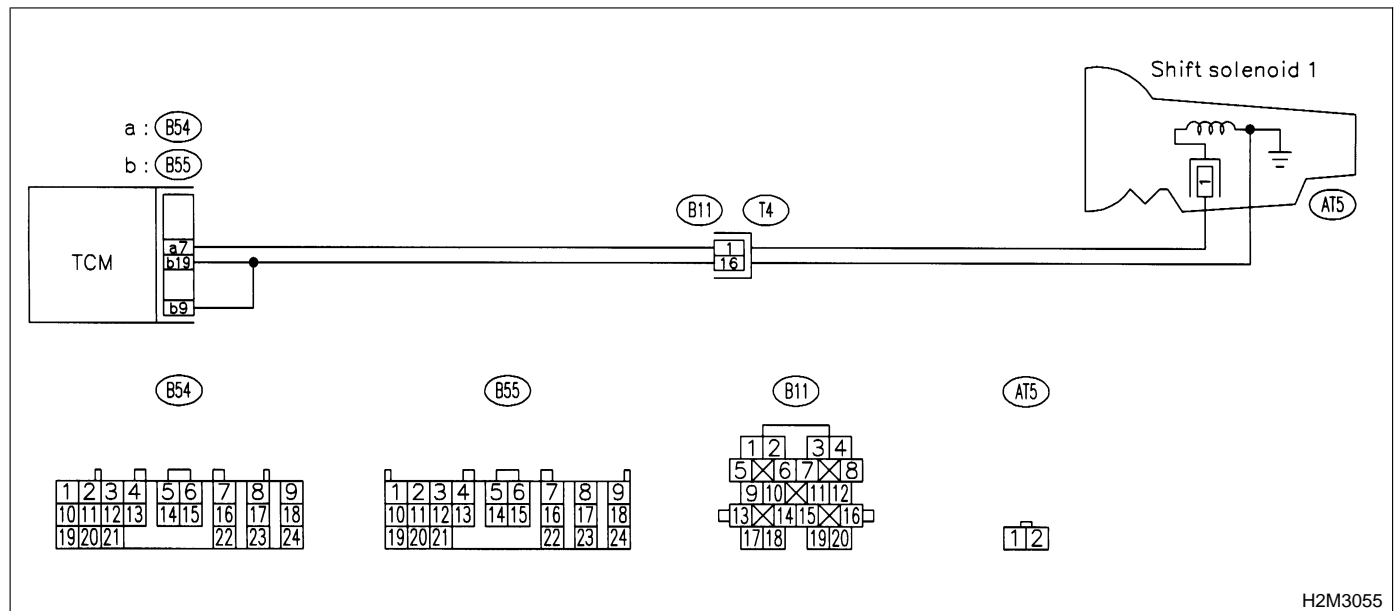
BJ: DTC P0753 — SHIFT SOLENOID A (SHIFT SOLENOID 1) ELECTRICAL —

- **DTC DETECTING CONDITION:**
 - Two consecutive driving cycles with fault
- **TROUBLE SYMPTOM:**
 - No shift

CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to 2-7 [T3D0].> and INSPECTION MODE <Ref. to 2-7 [T3E0].>

● **WIRING DIAGRAM:**



11BJ1 : CHECK DTC P0753 ON DISPLAY.

- CHECK** : Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0753?
- YES** : Check shift solenoid 1 circuit. <Ref. to 3-2 [T8K0].>
- NO** : It is not necessary to inspect DTC P0753.

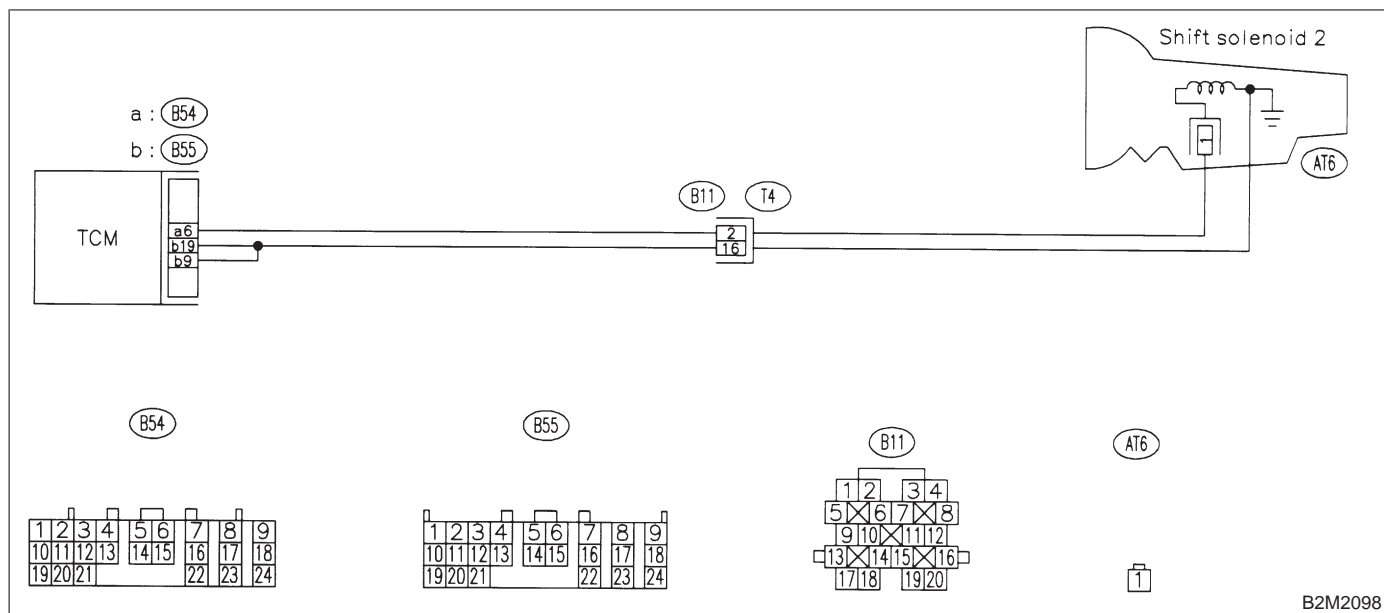
BK: DTC P0758 — SHIFT SOLENOID B (SHIFT SOLENOID 2) ELECTRICAL —

- **DTC DETECTING CONDITION:**
 - Two consecutive driving cycles with fault
- **TROUBLE SYMPTOM:**
 - No shift

CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to 2-7 [T3D0].> and INSPECTION MODE <Ref. to 2-7 [T3E0].>

● **WIRING DIAGRAM:**



11BK1 : CHECK DTC P0758 ON DISPLAY.

- CHECK** : Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0758?
- YES** : Check shift solenoid 2 circuit. <Ref. to 3-2 [T8L0].>
- NO** : It is not necessary to inspect DTC P0758.

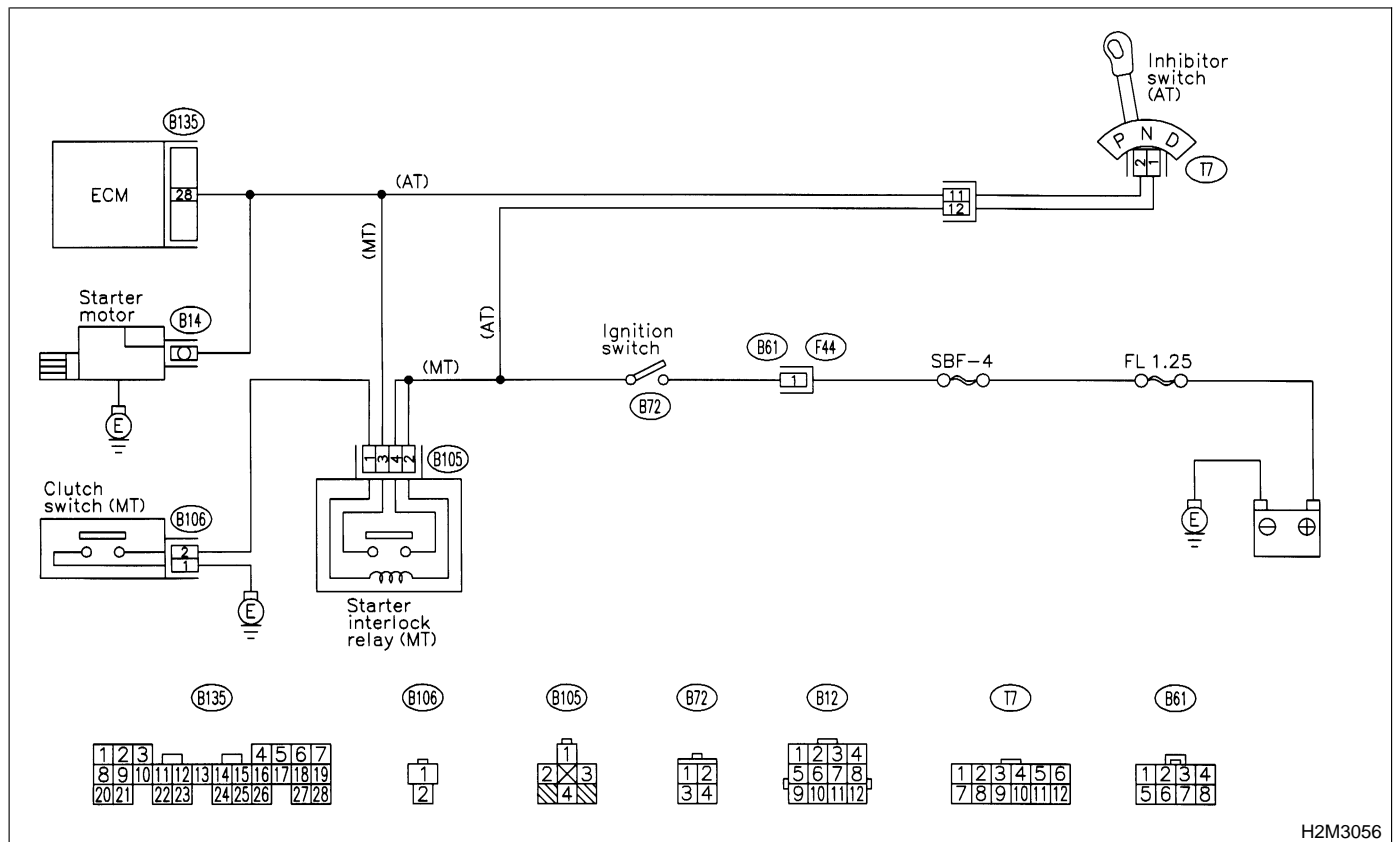
BL: DTC P1100 — STARTER SWITCH CIRCUIT LOW INPUT —

- **DTC DETECTING CONDITION:**
 - Two consecutive driving cycles with fault
- **TROUBLE SYMPTOM:**
 - Failure of engine to start

CAUTION:

After repair or replacement of faulty parts, conduct **CLEAR MEMORY MODE** <Ref. to 2-7 [T3D0].> and **INSPECTION MODE** <Ref. to 2-7 [T3E0].>

● **WIRING DIAGRAM:**



H2M3056

11BL1 : CHECK OPERATION OF STARTER MOTOR.

NOTE:

- On AT vehicles, place the inhibitor switch in the "P" or "N" position.
- On MT vehicles, depress the clutch pedal.

CHECK : *Does starter motor operate when ignition switch to "ST"?*

YES : Repair harness and connector.

NOTE:

In this case, repair the following:

- Open or ground short circuit in harness between ECM and starter motor connector.
- Poor contact in ECM connector.

NO : Check starter motor circuit. <Ref. to 2-7 [T8B0].>

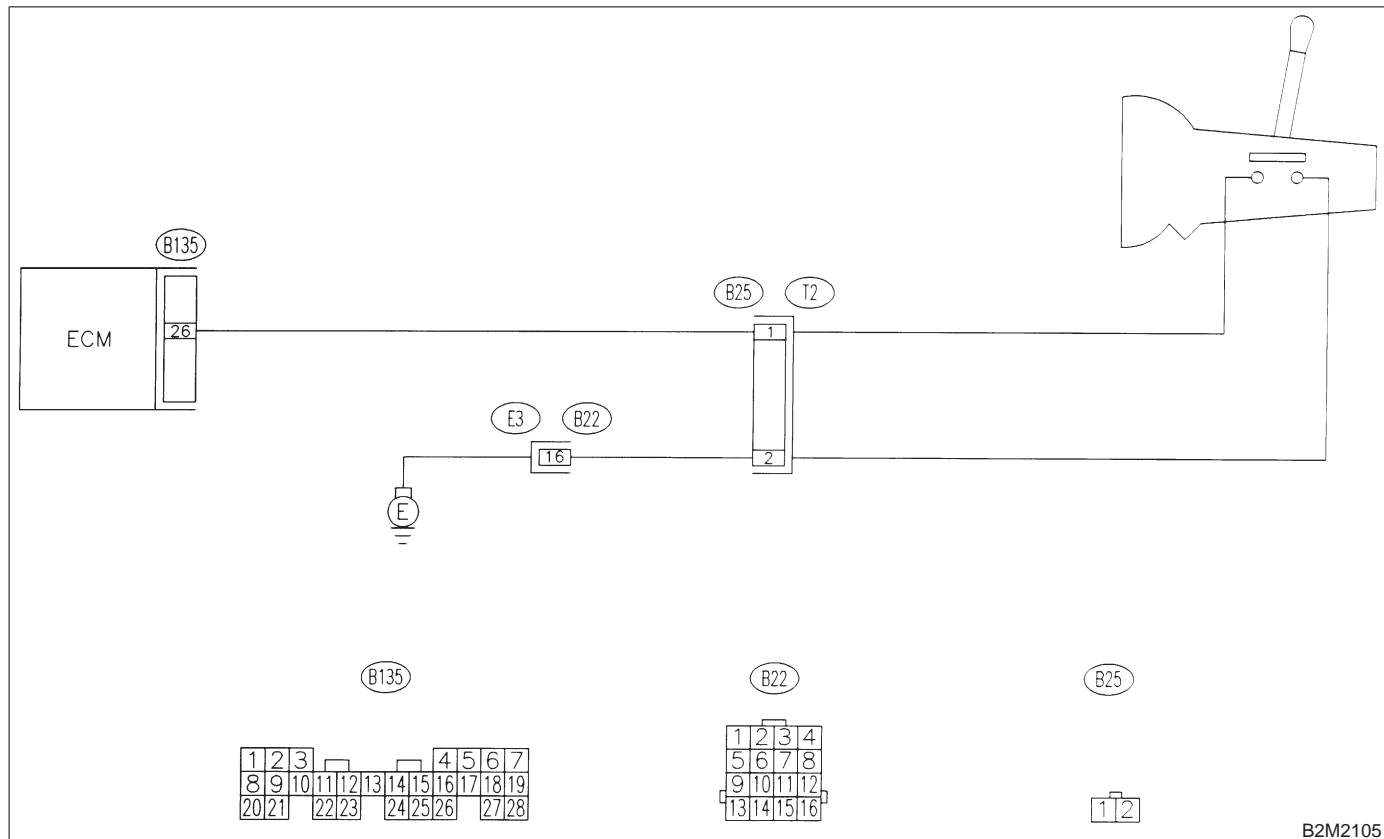
BM: DTC P1101 — NEUTRAL POSITION SWITCH CIRCUIT LOW INPUT [MT VEHICLES] —

- **DTC DETECTING CONDITION:**
 - Two consecutive driving cycles with fault
- **TROUBLE SYMPTOM:**
 - Erroneous idling

CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to 2-7 [T3D0].> and INSPECTION MODE <Ref. to 2-7 [T3E0].>

● **WIRING DIAGRAM:**



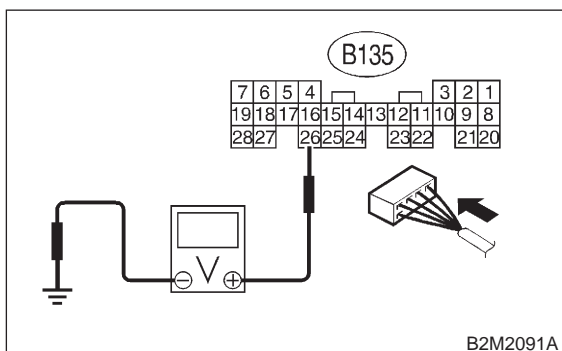
B2M2105

11BM1 : CHECK INPUT SIGNAL FOR ECM.

- 1) Turn ignition switch to ON.
- 2) Measure voltage between ECM and chassis ground.

Connector & terminal

(B135) No. 26 (+) — Chassis ground (-):



CHECK : *Is the voltage more than 10 V in neutral position?*

YES : Go to step 11BM2.

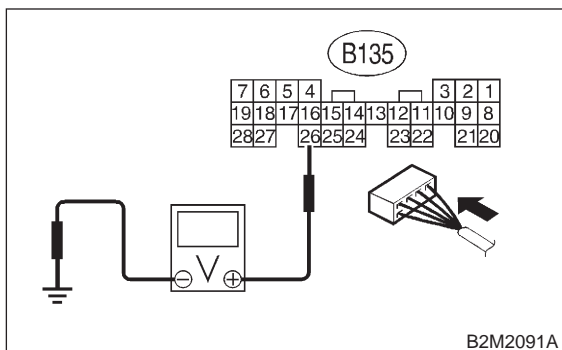
NO : Go to step 11BM4.

11BM2 : CHECK INPUT SIGNAL FOR ECM.

Measure voltage between ECM and chassis ground.

Connector & terminal

(B135) No. 26 (+) — Chassis ground (-):



CHECK : *Is the voltage less than 1 V in other positions?*

YES : Go to step 11BM3.

NO : Go to step 11BM4.

11BM3 : CHECK POOR CONTACT.

Check poor contact in ECM connector. <Ref. to FOREWORD [T3C1].>

CHECK : *Is there poor contact in ECM connector?*

YES : Repair poor contact in ECM connector.

NO : Contact with SOA service.

NOTE:

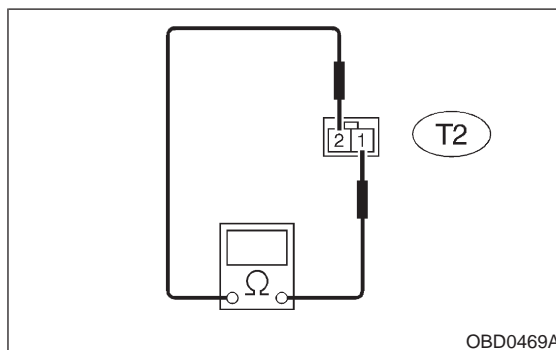
Inspection by DTM is required, because probable cause is deterioration of multiple parts.

11BM4 : CHECK NEUTRAL POSITION SWITCH.

- 1) Turn ignition switch to OFF.
- 2) Disconnect connector from transmission harness.
- 3) Measure resistance between transmission harness and connector terminals.

Connector & terminal

(T2) No. 1 — No. 2:



CHECK : *Is the resistance more than 1 MΩ in neutral position?*

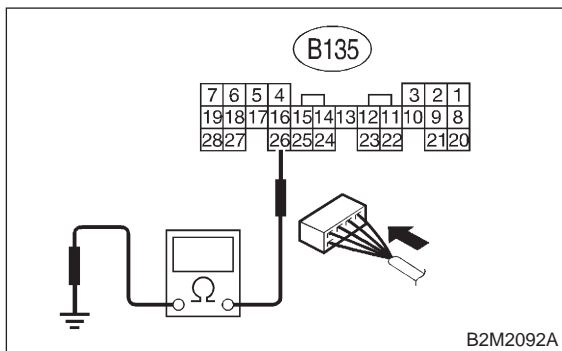
YES : Go to step 11BM5.

NO : Repair short circuit in transmission harness or replace neutral position switch.

11BM5 : CHECK HARNESS BETWEEN ECM AND NEUTRAL POSITION SWITCH CONNECTOR.

Measure resistance between ECM and chassis ground.

Connector & terminal
(B135) No. 26 — Chassis ground:



- CHECK** : **Is the resistance less than 10 Ω?**
- YES** : Repair ground short circuit in harness between ECM and transmission harness connector.
- NO** : Go to step **11BM6**.

11BM6 : CHECK POOR CONTACT.

Check poor contact in transmission harness connector. <Ref. to FOREWORD [T3C1].>

- CHECK** : **Is there poor contact in transmission harness connector?**
- YES** : Repair poor contact in transmission harness connector.
- NO** : Contact with SOA service.

NOTE:
Inspection by DTM is required, because probable cause is deterioration of multiple parts.

MEMO:

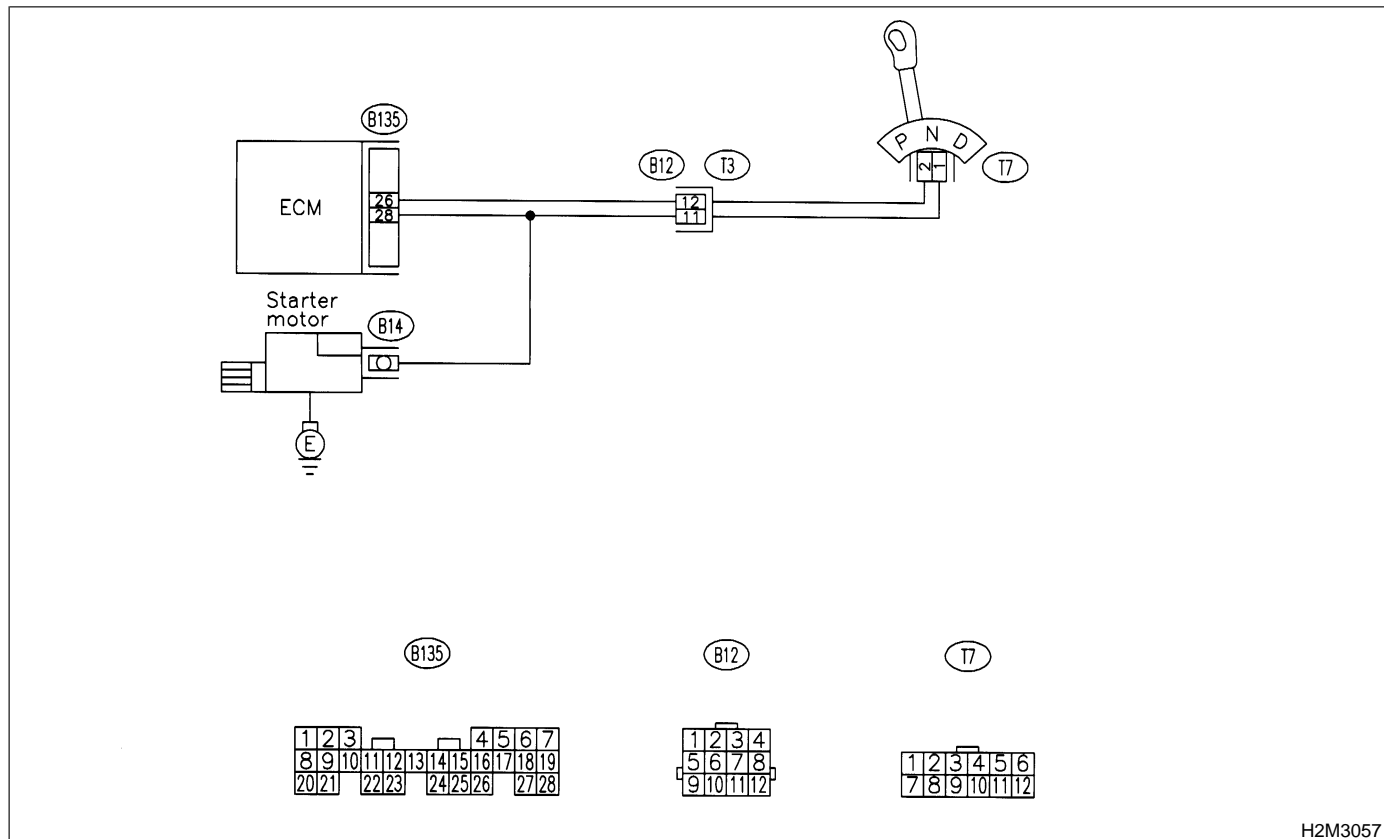
BN: DTC P1101 — NEUTRAL POSITION SWITCH CIRCUIT HIGH INPUT [AT VEHICLES] —

- **DTC DETECTING CONDITION:**
 - Two consecutive driving cycles with fault
- **TROUBLE SYMPTOM:**
 - Erroneous idling

CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to 2-7 [T3D0].> and INSPECTION MODE <Ref. to 2-7 [T3E0].>

● **WIRING DIAGRAM:**



11BN1 : CHECK DTC P0705 ON DISPLAY.

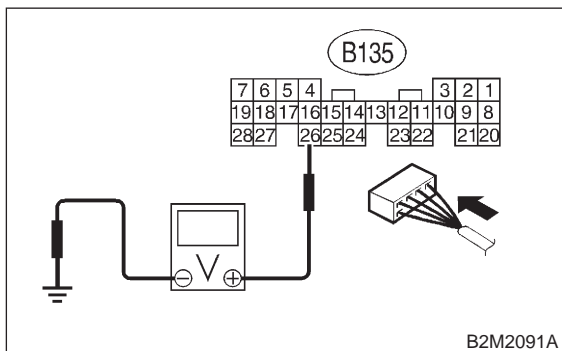
- CHECK** : Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0705?
- YES** : Inspect DTC P0705 using "11. Diagnostics Chart with Trouble Code for Except 2200 cc California Spec. Vehicles". <Ref. to 2-7 [T11A0].>
- NO** : Go to step **11BN2**.

11BN2 : CHECK INPUT SIGNAL FOR ECM.

- 1) Turn ignition switch to ON.
- 2) Measure voltage between ECM and chassis ground in selector lever "N" and "P" positions.

Connector & terminal

(B135) No. 26 (+) — Chassis ground (-):



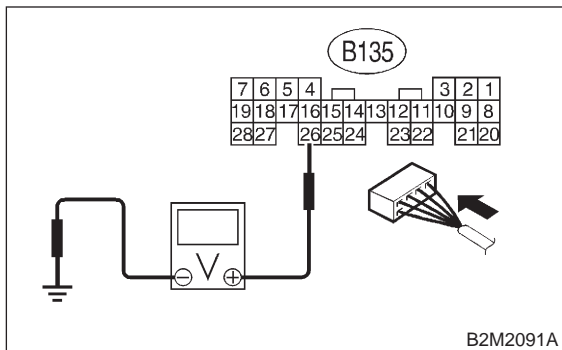
- CHECK** : **Is the voltage less than 1 V?**
- YES** : Go to step 11BN3.
- NO** : Go to step 11BN5.

11BN3 : CHECK INPUT SIGNAL FOR ECM.

Measure voltage between ECM and chassis ground in selector lever except for "N" and "P" positions.

Connector & terminal

(B135) No. 26 (+) — Chassis ground (-):



- CHECK** : **Is the voltage between 4.5 and 5.5 V?**
- YES** : Go to step 11BN4.
- NO** : Go to step 11BN5.

11BN4 : CHECK POOR CONTACT.

Check poor contact in ECM connector. <Ref. to FOREWORD [T3C1].>

- CHECK** : **Is there poor contact in ECM connector?**
- YES** : Repair poor contact in ECM connector.
- NO** : Contact with SOA service.

NOTE:

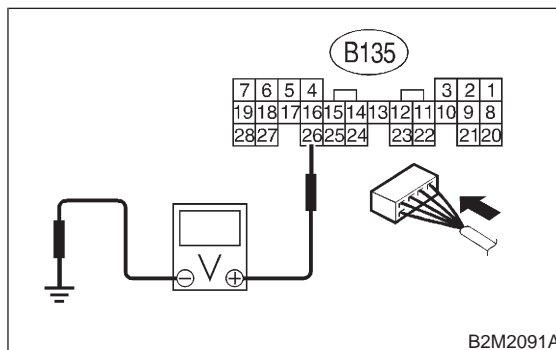
Inspection by DTM is required, because probable cause is deterioration of multiple parts.

11BN5 : CHECK INPUT SIGNAL FOR ECM.

Measure voltage between ECM and chassis ground.

Connector & terminal

(B135) No. 26 (+) — Chassis ground (-):



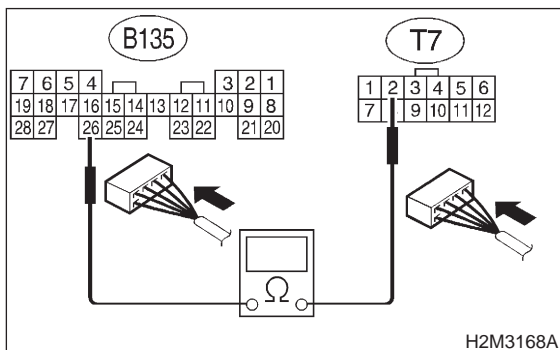
- CHECK** : **Is the voltage more than 10 V?**
- YES** : Repair battery short circuit in harness between ECM and inhibitor switch connector.
- NO** : Go to step 11BN6.

11BN6 : CHECK HARNESS BETWEEN ECM AND INHIBITOR SWITCH CONNECTOR.

- 1) Turn ignition switch to OFF.
- 2) Disconnect connectors from ECM and inhibitor switch.
- 3) Measure resistance of harness between ECM and inhibitor switch connector.

Connector & terminal

(B135) No. 26 — (T7) No. 2:



- CHECK** : Is the resistance less than 1 Ω?
- YES** : Go to step 11BN7.
- NO** : Repair harness and connector.

NOTE:

In this case, repair the following:

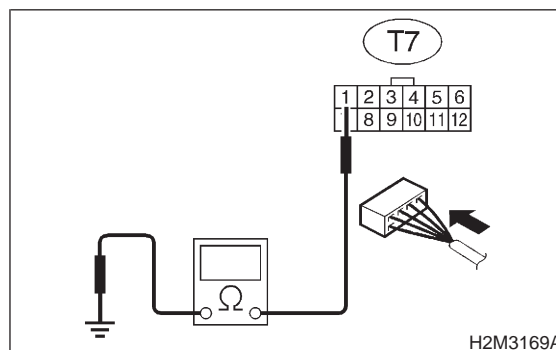
- Open circuit in harness between ECM and inhibitor switch connector
- Poor contact in coupling connector (B12)
- Poor contact in inhibitor switch connector
- Poor contact in ECM connector

11BN7 : CHECK INHIBITOR SWITCH GROUND LINE.

Measure resistance of harness between inhibitor switch connector and engine ground.

Connector & terminal

(T7) No. 1 — Engine ground:



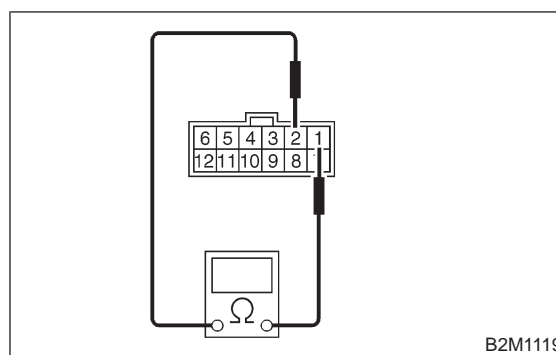
- CHECK** : Is the resistance less than 5 Ω?
- YES** : Go to step 11BN8.
- NO** : Repair open circuit in inhibitor switch ground line.

11BN8 : CHECK INHIBITOR SWITCH.

Measure resistance between inhibitor switch connector receptacle's terminals in selector lever "N" and "P" positions.

Terminals

No. 2 — No. 1:



- CHECK** : Is the resistance less than 1 Ω?
- YES** : Go to step 11BN9.
- NO** : Replace inhibitor switch. <Ref. to 3-2 [W2C0].>

11BN9 : CHECK SELECTOR CABLE CONNECTION.

CHECK : *Is there any fault in selector cable connection to inhibitor switch?*

YES : Repair selector cable connection. <Ref. to 3-2 [W2A0].>

NO : Contact with SOA service.

NOTE:

Inspection by DTM is required, because probable cause is deterioration of multiple parts.

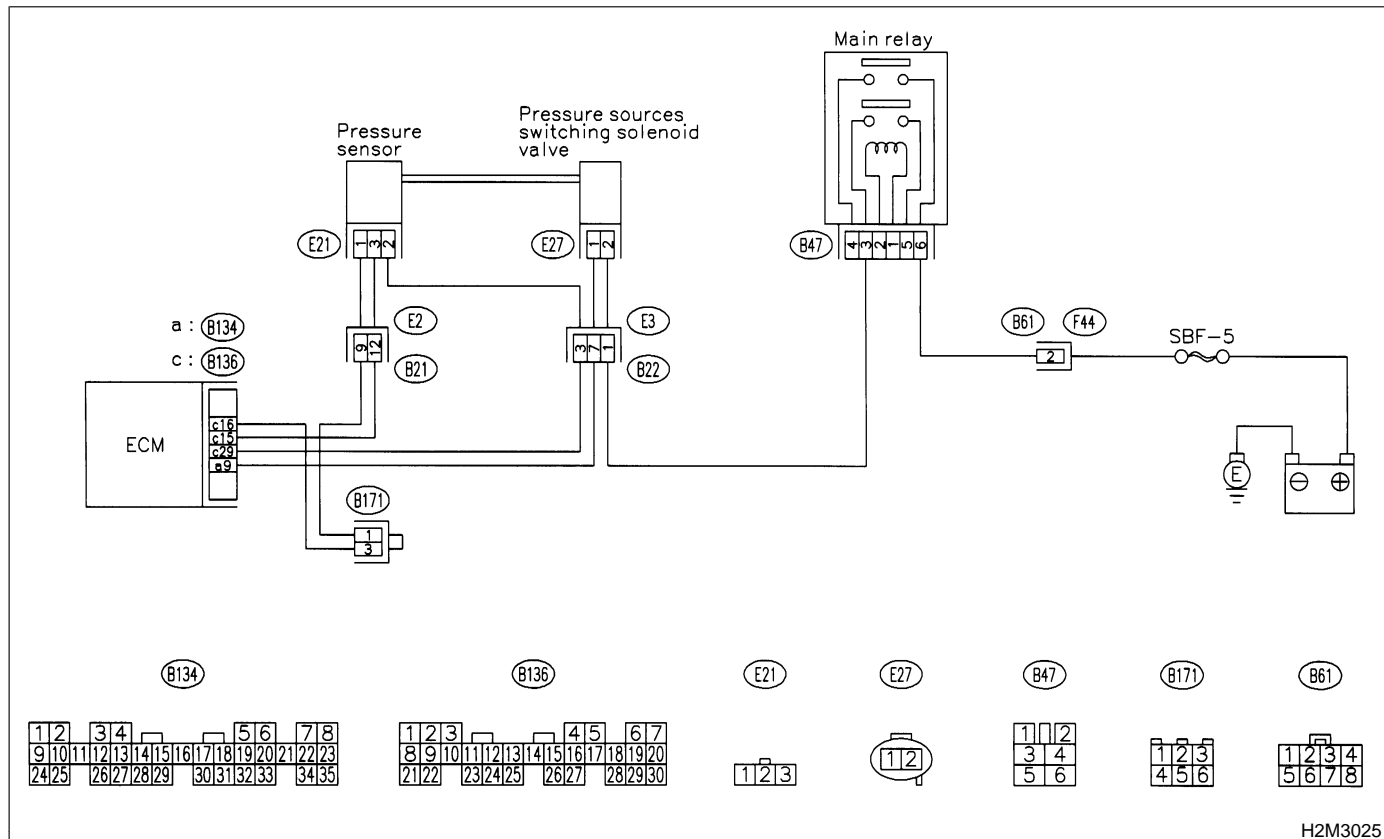
BO: DTC P1102 — PRESSURE SOURCES SWITCHING SOLENOID VALVE CIRCUIT LOW INPUT —

- **DTC DETECTING CONDITION:**
 - Two consecutive driving cycles with fault
- **TROUBLE SYMPTOM:**
 - Erroneous idling
 - Failure of engine to start

CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to 2-7 [T3D0].> and INSPECTION MODE <Ref. to 2-7 [T3E0].>

● **WIRING DIAGRAM:**



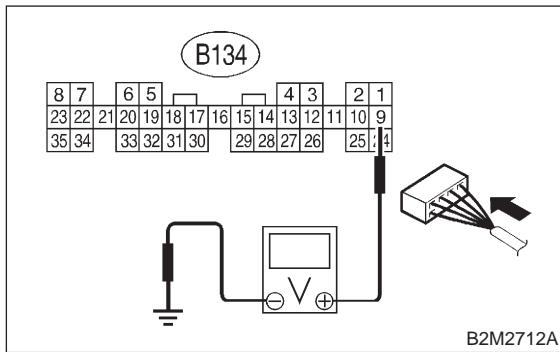
H2M3025

11B01 : CHECK OUTPUT SIGNAL FROM ECM.

- 1) Turn ignition switch to ON.
- 2) Measure voltage between ECM and chassis ground.

Connector & terminal

(B134) No. 9 (+) — Chassis ground (-):



- CHECK** : *Is the voltage more than 10 V?*
- YES** : Go to step 11B02.
- NO** : Go to step 11B03.

11B02 : CHECK POOR CONTACT.

Check poor contact in ECM connector. <Ref. to FOREWORD [T3C1].>

- CHECK** : *Is there poor contact in ECM connector?*
- YES** : Repair poor contact in ECM connector.
- NO** : Contact with SOA service.

NOTE:

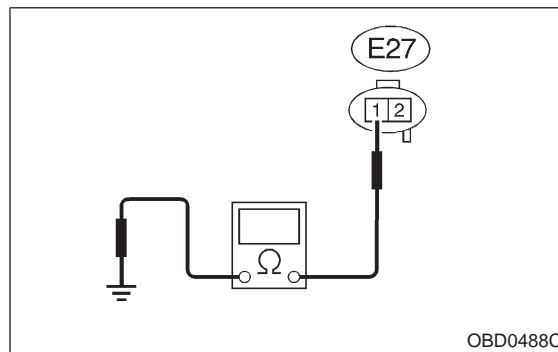
Inspection by DTM is required, because probable cause is deterioration of multiple parts.

11B03 : CHECK HARNESS BETWEEN ECM AND PRESSURE SOURCES SWITCHING SOLENOID VALVE CONNECTOR.

- 1) Turn ignition switch to OFF.
- 2) Disconnect connector from pressure sources switching solenoid valve and ECM.
- 3) Measure resistance of harness between pressure sources switching solenoid valve connector and engine ground.

Connector & terminal

(E27) No. 1 — Engine ground:

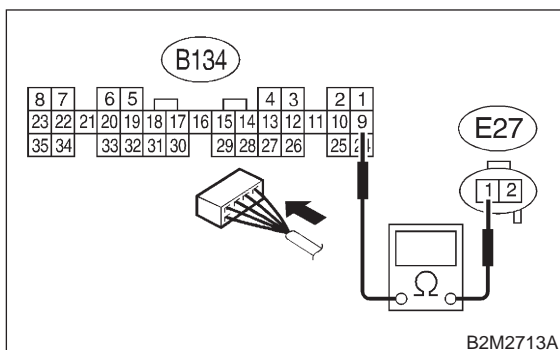


- CHECK** : *Is the resistance less than 10 Ω?*
- YES** : Repair ground short circuit in harness between ECM and pressure sources switching solenoid valve connector.
- NO** : Go to step 11B04.

11B04 : CHECK HARNESS BETWEEN ECM AND PRESSURE SOURCES SWITCHING SOLENOID VALVE CONNECTOR.

Measure resistance of harness between ECM and pressure sources switching solenoid valve connector.

Connector & terminal
(B134) No. 9 — (E27) No. 1:

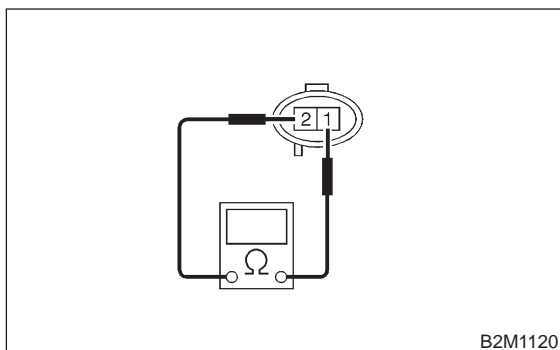


- CHECK** : *Is the resistance less than 1 Ω?*
- YES** : Go to step 11B05.
- NO** : Repair open circuit in harness between ECM and pressure sources switching solenoid valve connector.

11B05 : CHECK PRESSURE SOURCES SWITCHING SOLENOID VALVE.

Measure resistance between pressure sources switching solenoid valve connector terminals.

Terminals
No. 1 — No. 2:

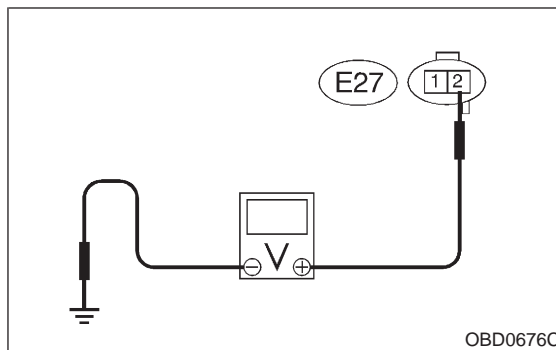


- CHECK** : *Is the resistance between 10 and 100 Ω?*
- YES** : Go to step 11B06.
- NO** : Replace pressure sources switching solenoid valve. <Ref. to 2-7 [W13A0].>

11B06 : CHECK POWER SUPPLY TO PRESSURE SOURCES SWITCHING SOLENOID VALVE.

- 1) Turn ignition switch to ON.
- 2) Measure voltage between pressure sources switching solenoid valve harness connector and engine ground.

Connector & terminal
(E27) No. 2 (+) — Engine ground (-):



- CHECK** : *Is the voltage more than 10 V?*
- YES** : Go to step 11B07.
- NO** : Repair open circuit in harness between main relay and pressure sources switching solenoid valve connector.

11B07 : CHECK POOR CONTACT.

Check poor contact in pressure sources switching solenoid valve connector. <Ref. to FOREWORD [T3C1].>

- CHECK** : *Is there poor contact in pressure sources switching solenoid valve connector?*
- YES** : Repair poor contact in pressure sources switching solenoid valve connector.
- NO** : Contact with SOA service.

NOTE:
Inspection by DTM is required, because probable cause is deterioration of multiple parts.

MEMO:

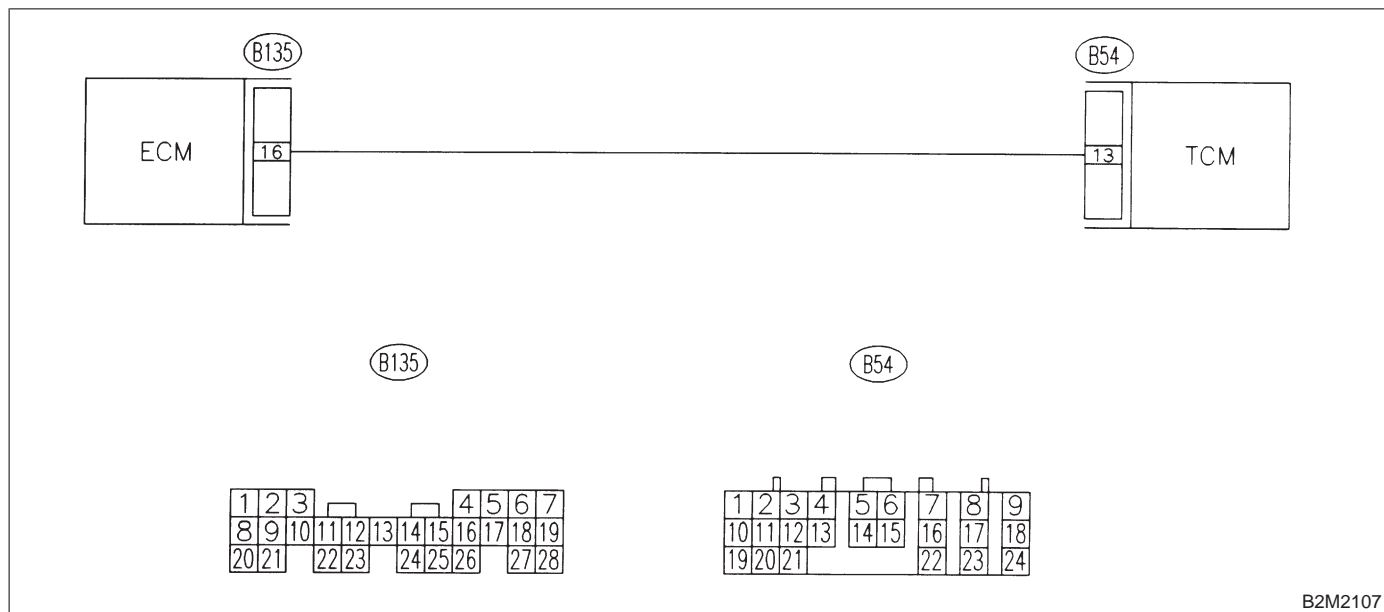
BP: DTC P1103 — ENGINE TORQUE CONTROL SIGNAL 1 CIRCUIT MALFUNCTION —

- **DTC DETECTING CONDITION:**
 - Two consecutive driving cycles with fault
- **TROUBLE SYMPTOM:**
 - Excessive shift shock

CAUTION:

After repair or replacement of faulty parts, conduct **CLEAR MEMORY MODE** <Ref. to 2-7 [T3D0].> and **INSPECTION MODE** <Ref. to 2-7 [T3E0].>

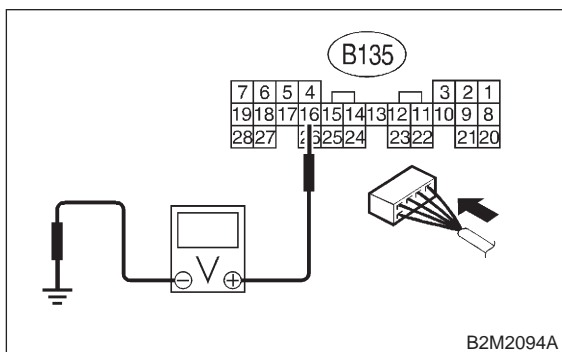
● **WIRING DIAGRAM:**



11BP1 : CHECK INPUT SIGNAL FOR ECM.

- 1) Turn ignition switch to ON.
- 2) Measure voltage between ECM and chassis ground.

Connector & terminal
(B135) No. 16 (+) — Chassis ground (-):

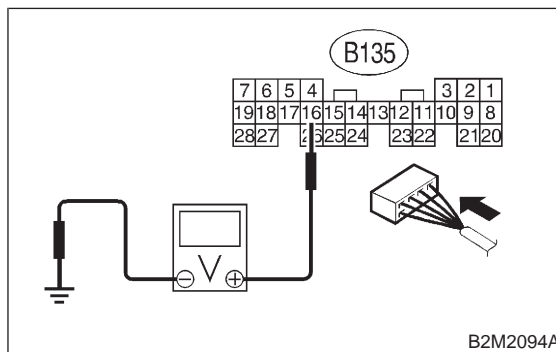


- CHECK** : Is the voltage more than 4.5 V?
- YES** : Go to step 11BP2.
- NO** : Go to step 11BP4.

11BP2 : CHECK INPUT SIGNAL FOR ECM.

Measure voltage between ECM and chassis ground.

Connector & terminal
(B135) No. 16 (+) — Chassis ground (-):



- CHECK** : Is the voltage more than 10 V?
- YES** : Repair battery short circuit in harness between ECM and TCM connector.
- NO** : Go to step 11BP3.

11BP3 : CHECK POOR CONTACT.

Check poor contact in ECM connector. <Ref. to FOREWORD [T3C1].>

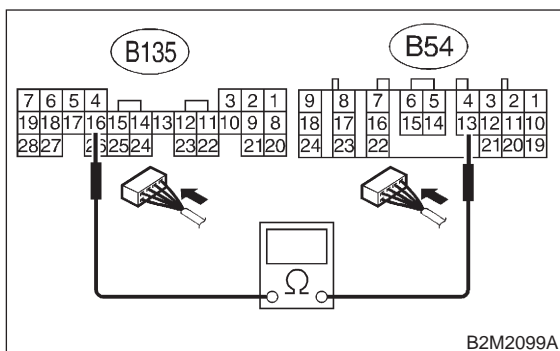
- CHECK** : *Is there poor contact in ECM connector?*
- YES** : Repair poor contact in ECM connector.
- NO** : Replace ECM. <Ref. to 2-7 [W15A0].>

11BP4 : CHECK HARNESS BETWEEN ECM AND TCM CONNECTOR.

- 1) Turn ignition switch to OFF.
- 2) Disconnect connectors from ECM and TCM.
- 3) Measure resistance of harness between ECM and TCM connector.

Connector & terminal

(B135) No. 16 — (B54) No. 13:



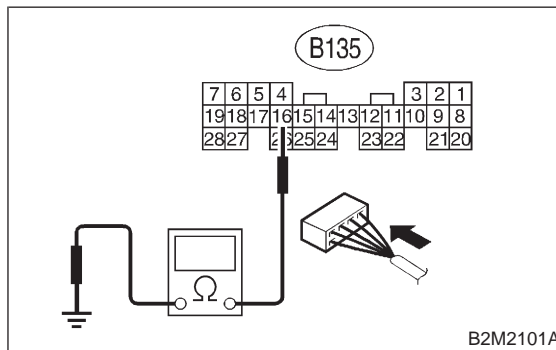
- CHECK** : *Is the resistance less than 1 Ω?*
- YES** : Go to step 11BP5.
- NO** : Repair open circuit in harness between ECM and TCM connector.

11BP5 : CHECK HARNESS BETWEEN ECM AND TCM CONNECTOR.

Measure resistance of harness between ECM and chassis ground.

Connector & terminal

(B135) No. 16 — Chassis ground:



- CHECK** : *Is the resistance less than 10 Ω?*
- YES** : Repair ground short circuit in harness between ECM and TCM connector.
- NO** : Go to step 11BP6.

11BP6 : CHECK POOR CONTACT.

Check poor contact in TCM connector. <Ref. to FOREWORD [T3C1].>

- CHECK** : *Is there poor contact in TCM connector?*
- YES** : Repair poor contact in TCM connector.
- NO** : Replace TCM. <Ref. to 3-2 [W22A0].>

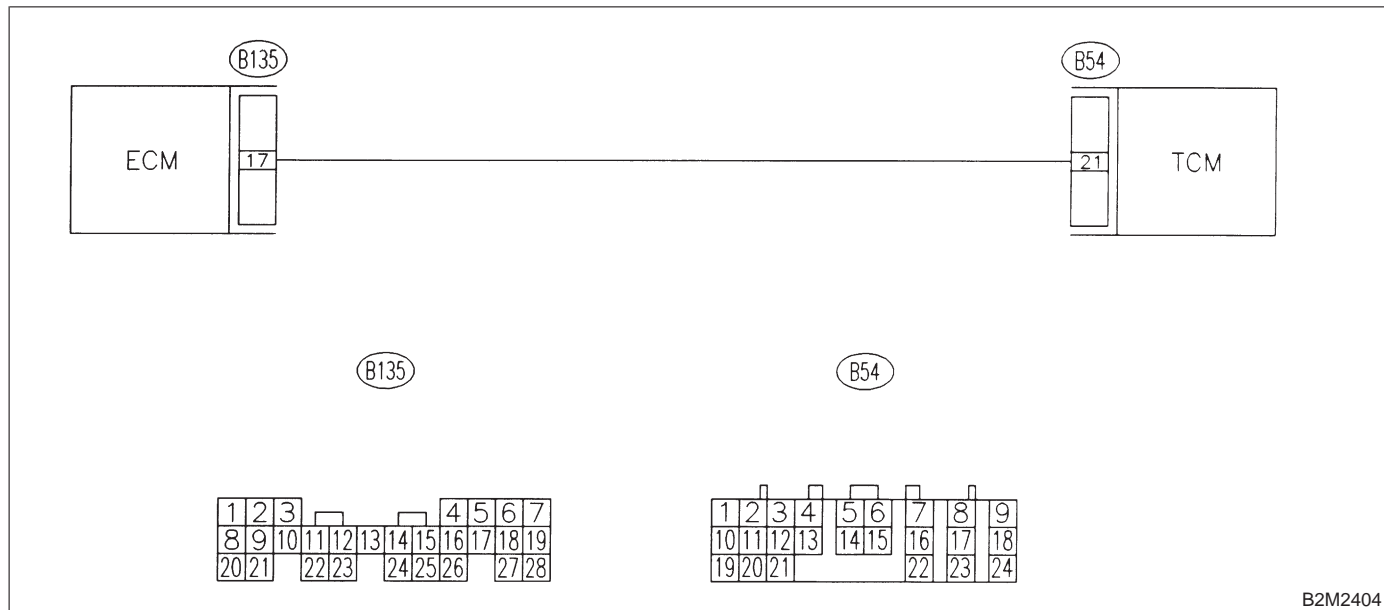
BQ: DTC P1106 — ENGINE TORQUE CONTROL SIGNAL 2 CIRCUIT MALFUNCTION —

- **DTC DETECTING CONDITION:**
 - Two consecutive driving cycles with fault
- **TROUBLE SYMPTOM:**
 - Excessive shift shock

CAUTION:

After repair or replacement of faulty parts, conduct **CLEAR MEMORY MODE** <Ref. to 2-7 [T3D0].> and **INSPECTION MODE** <Ref. to 2-7 [T3E0].>

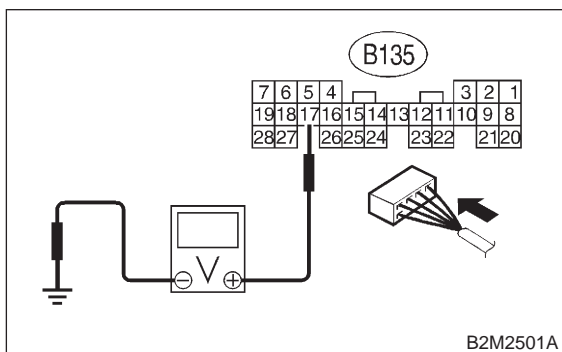
● **WIRING DIAGRAM:**



11BQ1 : CHECK INPUT SIGNAL FOR ECM.

- 1) Turn ignition switch to ON.
- 2) Measure voltage between ECM and chassis ground.

Connector & terminal
(B135) No. 17 (+) — Chassis ground (-):

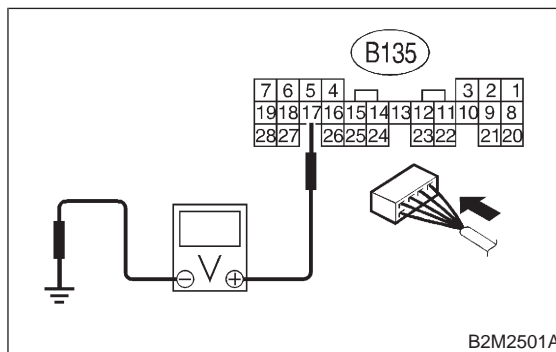


- CHECK** : Is the voltage more than 4.5 V?
- YES** : Go to step 11BQ2.
- NO** : Go to step 11BQ4.

11BQ2 : CHECK INPUT SIGNAL FOR ECM.

Measure voltage between ECM and chassis ground.

Connector & terminal
(B135) No. 17 (+) — Chassis ground (-):



- CHECK** : Is the voltage more than 10 V?
- YES** : Repair battery short circuit in harness between ECM and TCM connector.
- NO** : Go to step 11BQ3.

11BQ3 : CHECK POOR CONTACT.

Check poor contact in ECM connector. <Ref. to FOREWORD [T3C1].>

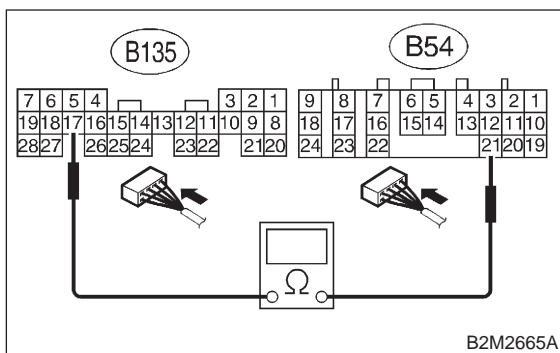
- CHECK** : *Is there poor contact in ECM connector?*
- YES** : Repair poor contact in ECM connector.
- NO** : Replace ECM. <Ref. to 2-7 [W15A0].>

11BQ4 : CHECK HARNESS BETWEEN ECM AND TCM CONNECTOR.

- 1) Turn ignition switch to OFF.
- 2) Disconnect connectors from ECM and TCM.
- 3) Measure resistance of harness between ECM and TCM connector.

Connector & terminal

(B135) No. 17 — (B54) No. 21:



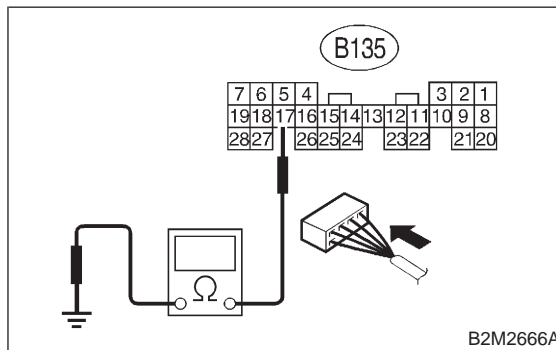
- CHECK** : *Is the resistance less than 1 Ω?*
- YES** : Go to step 11BQ5.
- NO** : Repair open circuit in harness between ECM and TCM connector.

11BQ5 : CHECK HARNESS BETWEEN ECM AND TCM CONNECTOR.

Measure resistance of harness between ECM and chassis ground.

Connector & terminal

(B135) No. 17 — Chassis ground:



- CHECK** : *Is the resistance less than 10 Ω?*
- YES** : Repair ground short circuit in harness between ECM and TCM connector.
- NO** : Go to step 11BQ6.

11BQ6 : CHECK POOR CONTACT.

Check poor contact in TCM connector. <Ref. to FOREWORD [T3C1].>

- CHECK** : *Is there poor contact in TCM connector?*
- YES** : Repair poor contact in TCM connector.
- NO** : Replace TCM. <Ref. to 3-2 [W22A0].>

BR: DTC P1115 — ENGINE TORQUE CONTROL CUT SIGNAL CIRCUIT HIGH INPUT —

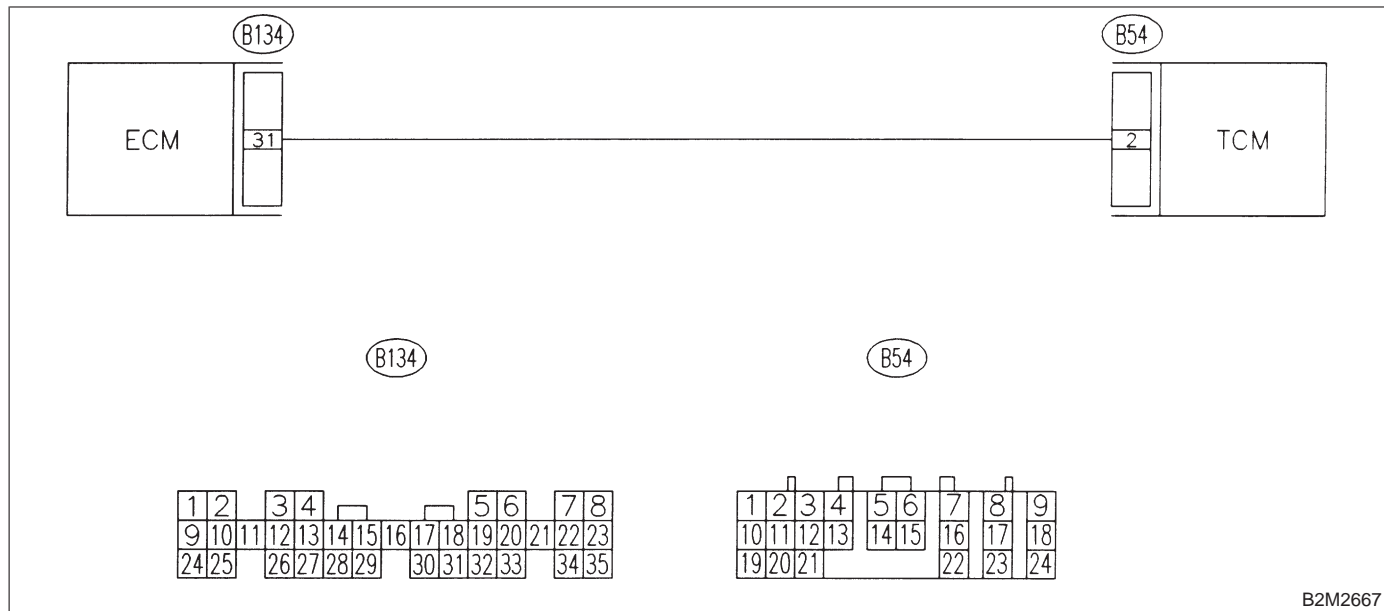
● DTC DETECTING CONDITION:

- Two consecutive driving cycles with fault

CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to 2-7 [T3D0].> and INSPECTION MODE <Ref. to 2-7 [T3E0].>

● WIRING DIAGRAM:

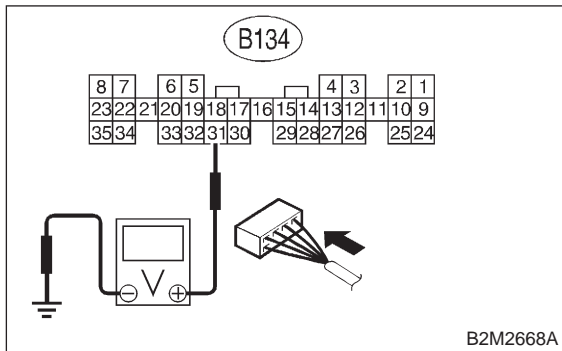


B2M2667

11BR1 : CHECK OUTPUT SIGNAL FROM ECM.

- 1) Start engine, and warm-up the engine.
- 2) Turn ignition switch to OFF.
- 3) Disconnect connector from TCM.
- 4) Turn ignition switch to ON.
- 5) Measure voltage between ECM and chassis ground.

Connector & terminal
(B134) No. 31 (+) — Chassis ground (-):

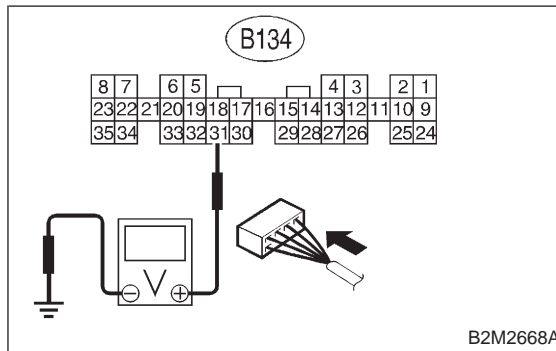


- CHECK** : **Is the voltage less than 3 V?**
- YES** : Go to step 11BR2.
- NO** : Repair battery short circuit in harness between ECM and TCM connector. After repair, replace ECM. <Ref. to 2-7 [W15A0].>

11BR2 : CHECK HARNESS BETWEEN ECM AND TCM CONNECTOR.

- 1) Turn ignition switch to OFF.
- 2) Measure voltage between ECM and chassis ground.

Connector & terminal
(B134) No. 31 (+) — Chassis ground (-):



- CHECK** : **Does the voltage change more than 10 V by shaking harness and connector of ECM while monitoring the value with voltage meter?**
- YES** : Repair battery short circuit in harness between ECM and TCM connector. After repair, replace ECM. <Ref. to 2-7 [W15A0].>
- NO** : Contact with SOA service.

NOTE:
 Inspection by DTM is required, because probable cause is deterioration of multiple parts.

BS: DTC P1116 — ENGINE TORQUE CONTROL CUT SIGNAL CIRCUIT LOW INPUT —

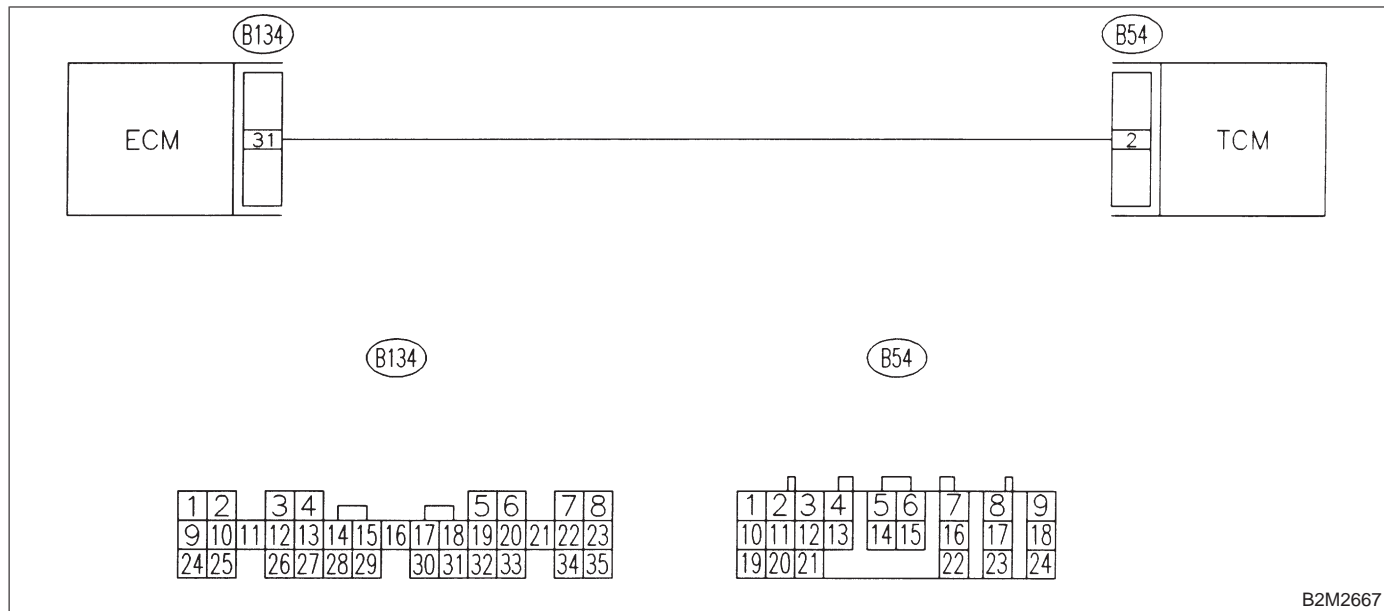
● DTC DETECTING CONDITION:

- Two consecutive driving cycles with fault

CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to 2-7 [T3D0].> and INSPECTION MODE <Ref. to 2-7 [T3E0].>

● WIRING DIAGRAM:



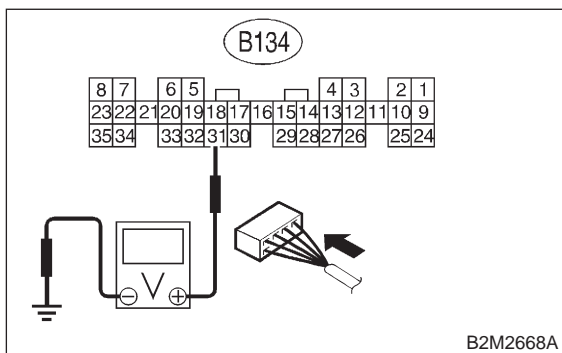
B2M2667

11BS1 : CHECK OUTPUT SIGNAL FROM ECM.

- 1) Start engine, and warm-up the engine.
- 2) Turn ignition switch to OFF.
- 3) Turn ignition switch to ON.
- 4) Measure voltage between ECM and chassis ground.

Connector & terminal

(B134) No. 31 (+) — Chassis ground (-):



B2M2668A

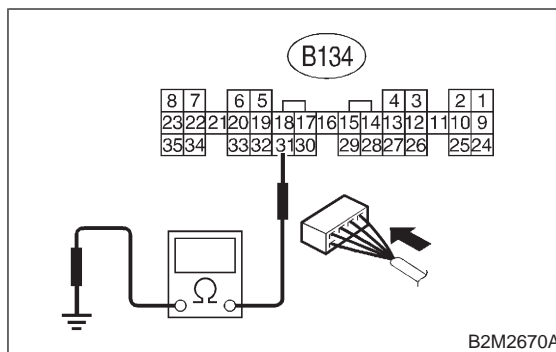
- CHECK** : Is the voltage more than 3 V?
- YES** : Repair poor contact in ECM connector.
- NO** : Go to step 11BS2.

11BS2 : CHECK HARNESS BETWEEN ECM AND TCM CONNECTOR.

- 1) Turn ignition switch to OFF.
- 2) Disconnect connectors from ECM and TCM.
- 3) Measure resistance of harness between ECM and chassis ground.

Connector & terminal

(B134) No. 31 — Chassis ground:



B2M2670A

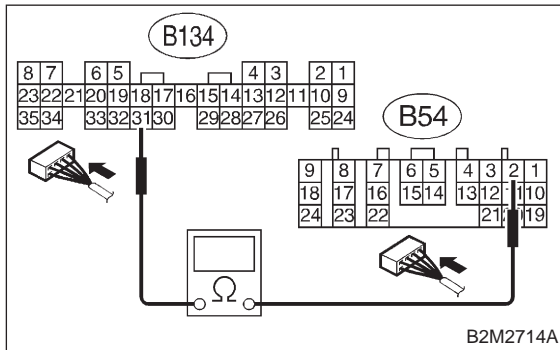
- CHECK** : Is the resistance less than 10 Ω?
- YES** : Repair ground short circuit in harness between ECM and TCM connector.
- NO** : Go to step 11BS3.

11BS3 : CHECK HARNESS BETWEEN ECM AND TCM CONNECTOR.

Measure resistance of harness between ECM and TCM connector.

Connector & terminal

(B134) No. 31 — (B54) No. 2:



- CHECK** : **Is the resistance less than 1 Ω?**
- YES** : Repair poor contact in ECM or TCM connector.
- NO** : Repair open circuit in harness between ECM and TCM connector.

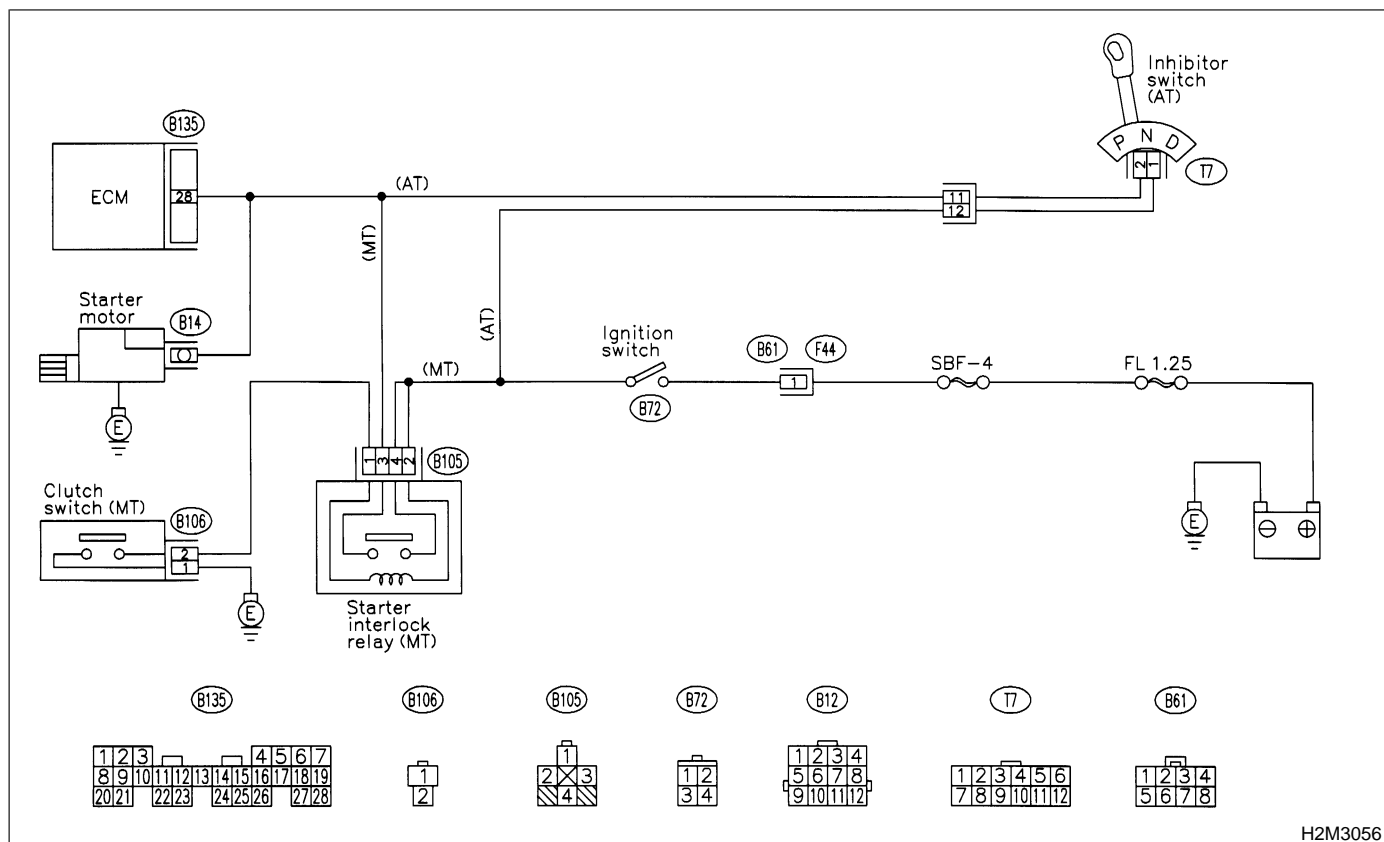
BT: DTC P1120 — STARTER SWITCH CIRCUIT HIGH INPUT —

- **DTC DETECTING CONDITION:**
 - Two consecutive driving cycles with fault
- **TROUBLE SYMPTOM:**
 - Failure of engine to start

CAUTION:

After repair or replacement of faulty parts, conduct **CLEAR MEMORY MODE** <Ref. to 2-7 [T3D0].> and **INSPECTION MODE** <Ref. to 2-7 [T3E0].>

● **WIRING DIAGRAM:**



H2M3056

11BT1 : CHECK OPERATION OF STARTER MOTOR.

NOTE:

- On AT vehicles, place the inhibitor switch in each position.
- On MT vehicles, depress or release the clutch pedal.

- CHECK** : **Does starter motor operate when ignition switch to "ON"?**
- YES** : Repair battery short circuit in starter motor circuit. After repair, replace ECM. <Ref. to 2-7 [W15A0].>
- NO** : Check starter motor circuit. <Ref. to 2-7 [T8B0].>

MEMO:

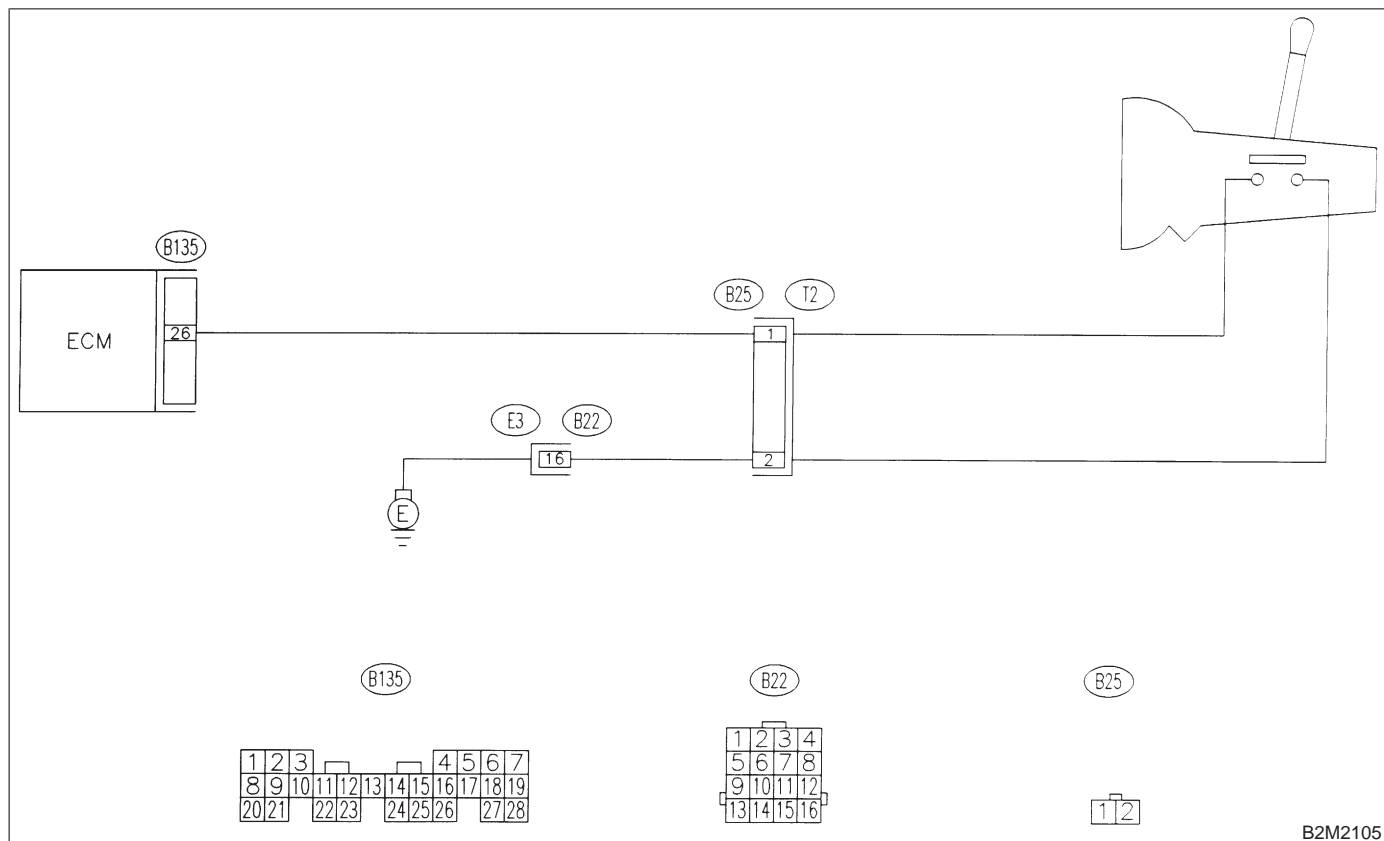
BU: DTC P1121 — NEUTRAL POSITION SWITCH CIRCUIT HIGH INPUT [MT VEHICLES] —

- **DTC DETECTING CONDITION:**
 - Two consecutive driving cycles with fault
- **TROUBLE SYMPTOM:**
 - Erroneous idling

CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to 2-7 [T3D0].> and INSPECTION MODE <Ref. to 2-7 [T3E0].>

● **WIRING DIAGRAM:**



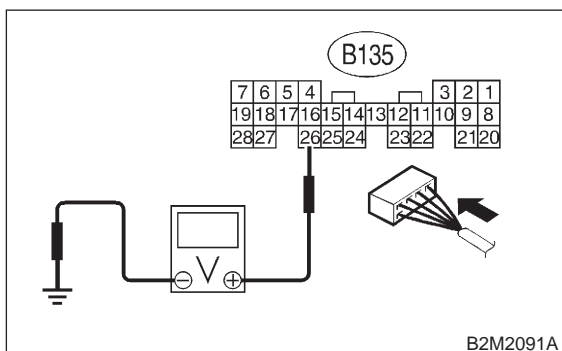
B2M2105

11BU1 : CHECK INPUT SIGNAL FOR ECM.

- 1) Turn ignition switch to ON.
- 2) Measure voltage between ECM and chassis ground.

Connector & terminal

(B135) No. 26 (+) — Chassis ground (-):



CHECK : *Is the voltage between 4.5 and 5.5 V in neutral position?*

YES : Go to step 11BU2.

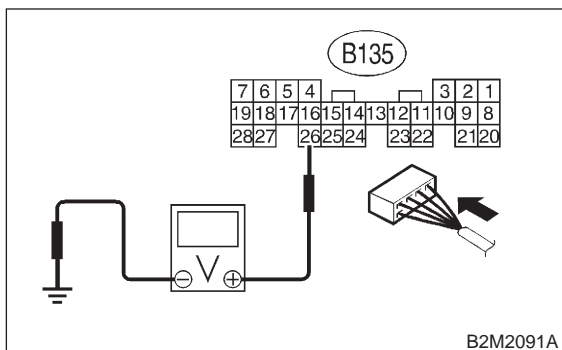
NO : Go to step 11BU4.

11BU2 : CHECK INPUT SIGNAL FOR ECM.

Measure voltage between ECM and chassis ground.

Connector & terminal

(B135) No. 26 (+) — Chassis ground (-):



CHECK : *Is the voltage less than 1 V in other positions?*

YES : Go to step 11BU3.

NO : Go to step 11BU4.

11BU3 : CHECK POOR CONTACT.

Check poor contact in ECM connector. <Ref. to FOREWORD [T3C1].>

CHECK : *Is there poor contact in ECM connector?*

YES : Repair poor contact in ECM connector.

NO : Contact with SOA service.

NOTE:

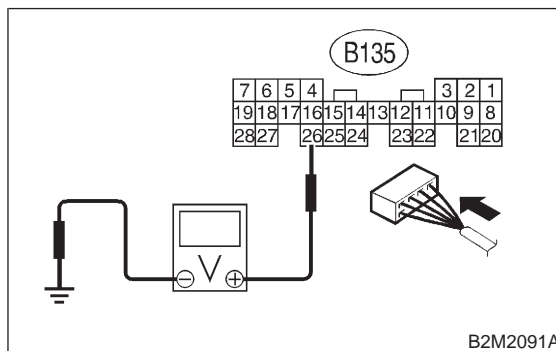
Inspection by DTM is required, because probable cause is deterioration of multiple parts.

11BU4 : CHECK HARNESS BETWEEN ECM AND TCM CONNECTOR.

- 1) Turn ignition switch to OFF.
- 2) Measure voltage between ECM and chassis ground.

Connector & terminal

(B135) No. 26 (+) — Chassis ground (-):



CHECK : *Is the voltage more than 10 V?*

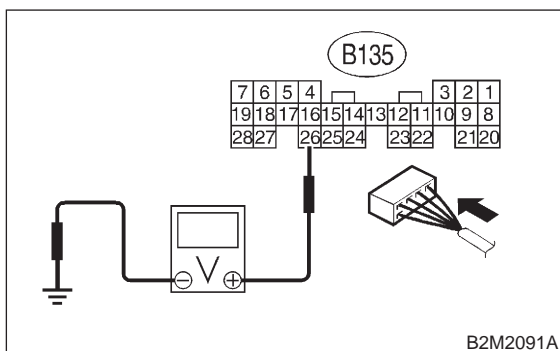
YES : Repair battery short circuit in harness between ECM and transmission harness connector.

NO : Go to step 11BU5.

11BU5 : CHECK HARNESS BETWEEN ECM AND TCM CONNECTOR.

- 1) Turn ignition switch to ON.
- 2) Measure voltage between ECM and chassis ground.

Connector & terminal
(B135) No. 26 (+) — Chassis ground (-):

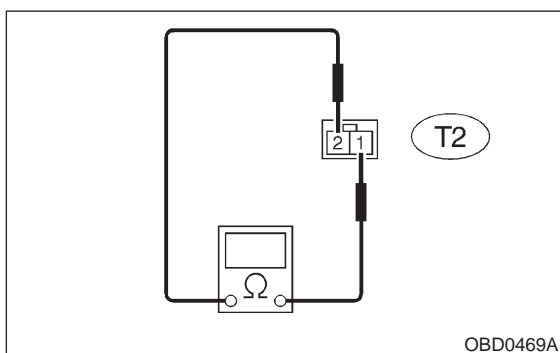


- CHECK** : **Is the voltage more than 10 V?**
- YES** : Repair battery short circuit in harness between ECM and transmission harness connector.
- NO** : Go to step 11BU6.

11BU6 : CHECK NEUTRAL POSITION SWITCH.

Measure resistance between transmission harness connector terminals.

Connector & terminal
(T2) No. 1 — No. 2:

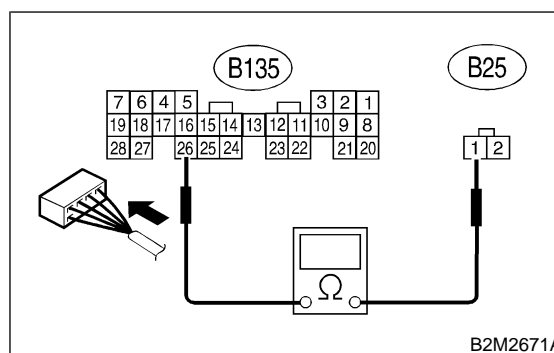


- CHECK** : **Is the resistance less than 1 Ω in other positions?**
- YES** : Go to step 11BU7.
- NO** : Repair open circuit in transmission harness or replace neutral position switch.

11BU7 : CHECK HARNESS BETWEEN ECM AND NEUTRAL POSITION SWITCH CONNECTOR.

- 1) Disconnect connector from ECM.
- 2) Measure resistance of harness between ECM and transmission harness connector.

Connector & terminal
(B135) No. 26 — (B25) No. 1:

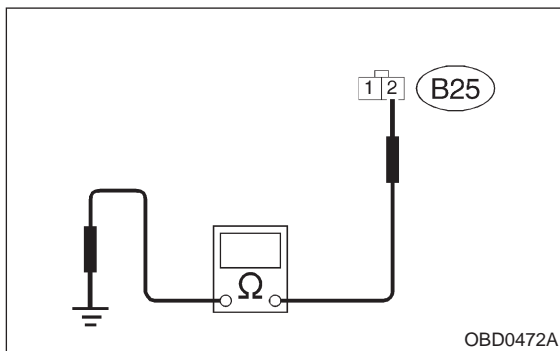


- CHECK** : **Is the resistance less than 1 Ω?**
- YES** : Go to step 11BU8.
- NO** : Repair open circuit in harness between ECM and transmission harness connector.

11BU8 : CHECK HARNESS BETWEEN ECM AND NEUTRAL POSITION SWITCH CONNECTOR.

Measure resistance of harness between transmission harness connector and engine ground.

**Connector & terminal
(B25) No. 2 — Engine ground:**



CHECK : *Is the resistance less than 5 Ω?*

YES : Go to step 11BU9.

NO : Repair harness and connector.

NOTE:

In this case, repair the following:

- Open circuit in harness between transmission harness connector and engine grounding terminal
- Poor contact in coupling connector (B22)

11BU9 : CHECK POOR CONTACT.

Check poor contact in transmission harness connector. <Ref. to FOREWORD [T3C1].>

CHECK : *Is there poor contact in transmission harness connector?*

YES : Repair poor contact in transmission harness connector.

NO : Contact with SOA service.

NOTE:

Inspection by DTM is required, because probable cause is deterioration of multiple parts.

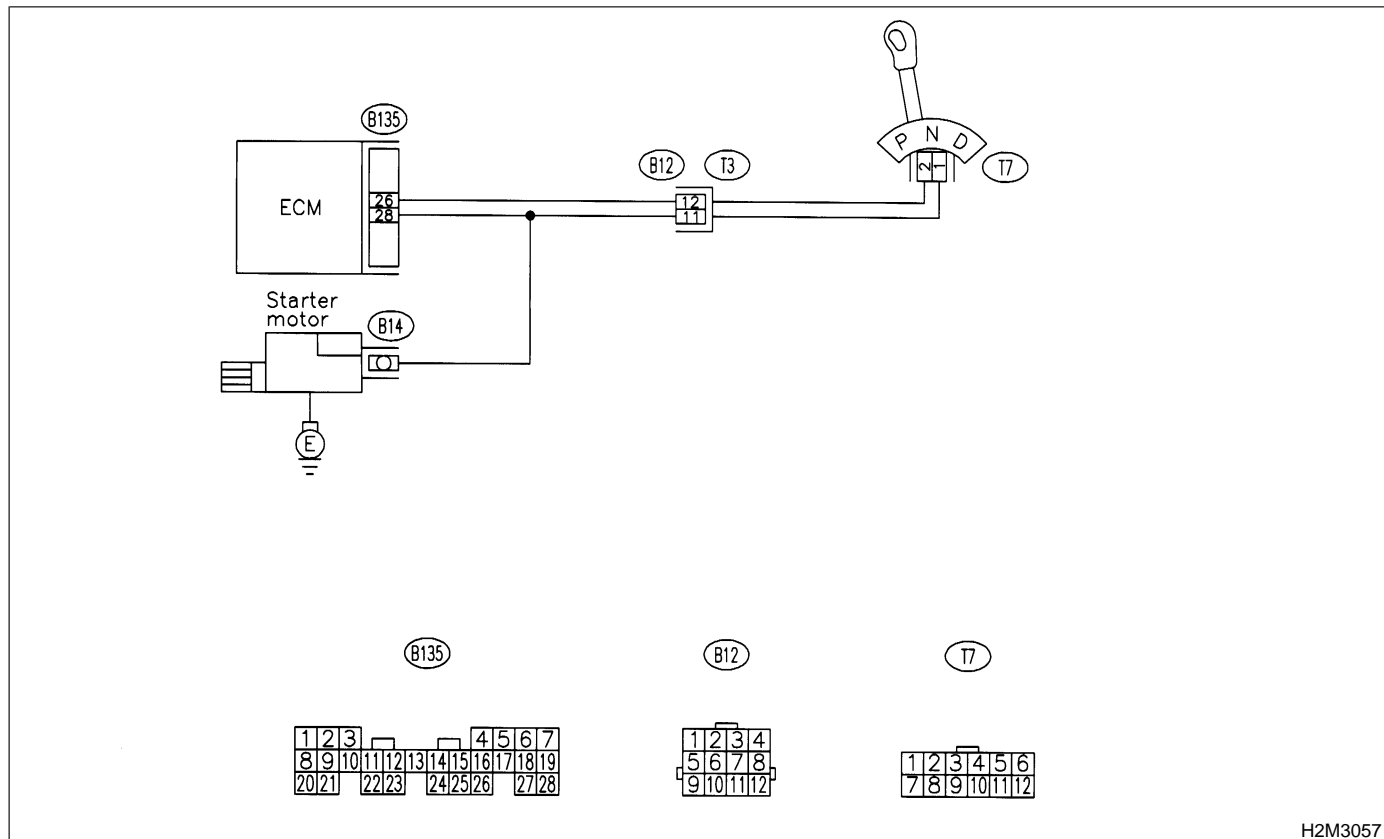
BV: DTC P1121 — NEUTRAL POSITION SWITCH CIRCUIT LOW INPUT [AT VEHICLES] —

- **DTC DETECTING CONDITION:**
 - Two consecutive driving cycles with fault
- **TROUBLE SYMPTOM:**
 - Erroneous idling

CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to 2-7 [T3D0].> and INSPECTION MODE <Ref. to 2-7 [T3E0].>

● **WIRING DIAGRAM:**

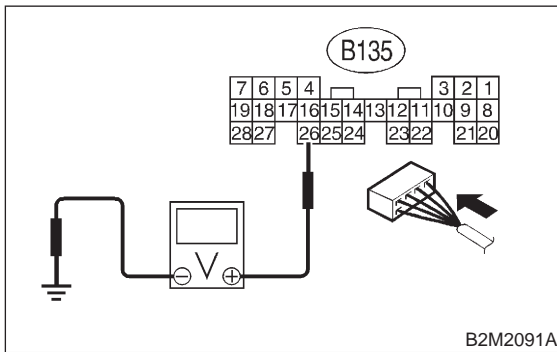


11BV1 : CHECK DTC P0705 ON DISPLAY.

- CHECK** : Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0705?
- YES** : Inspect DTC P0705 using "11. Diagnostics Chart with Trouble Code for Except 2200 cc California Spec. Vehicles". <Ref. to 2-7 [T11A0].>
- NO** : Go to step **11BV2**.

11BV2 : CHECK INPUT SIGNAL FOR ECM.

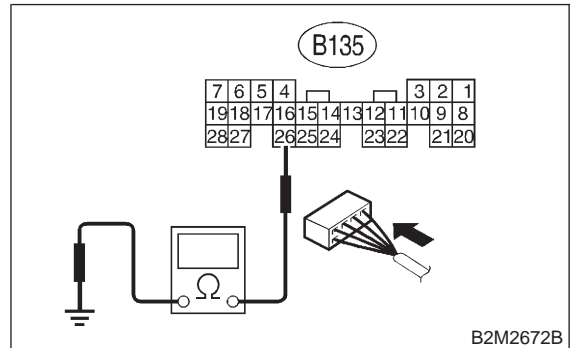
- 1) Turn ignition switch to ON.
- 2) Measure voltage between ECM and chassis ground.

Connector & terminal**(B135) No. 26 (+) — Chassis ground (-):**

- CHECK** : **Is the voltage between 4.5 and 5.5 V in other positions?**
- YES** : Even if MIL lights up, the circuit has returned to a normal condition at this time.
- NO** : Go to step **11BV3**.

11BV3 : CHECK HARNESS BETWEEN ECM AND TRANSMISSION HARNESS CONNECTOR.

- 1) Turn ignition switch to OFF.
- 2) Disconnect connectors from ECM and transmission harness connector.
- 3) Measure resistance of harness between ECM connector and chassis ground.

Connector & terminal**(B135) No. 26 — Chassis ground:**

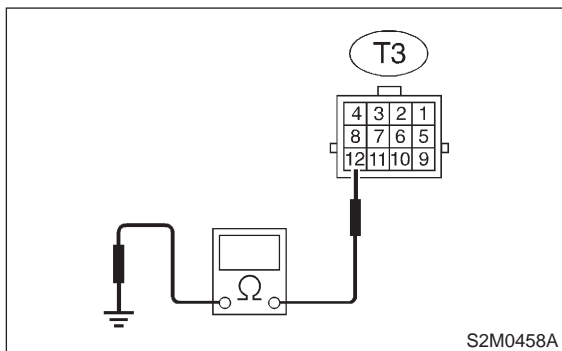
- CHECK** : **Is the resistance less than 10 Ω?**
- YES** : Repair ground short circuit in harness between ECM and transmission harness connector.
- NO** : Go to step **11BV4**.

11BV4 : CHECK TRANSMISSION HARNESS CONNECTOR.

- 1) Disconnect connector from inhibitor switch.
- 2) Measure resistance of harness between transmission harness connector and engine ground.

Connector & terminal

(T3) No. 12 — Engine ground:



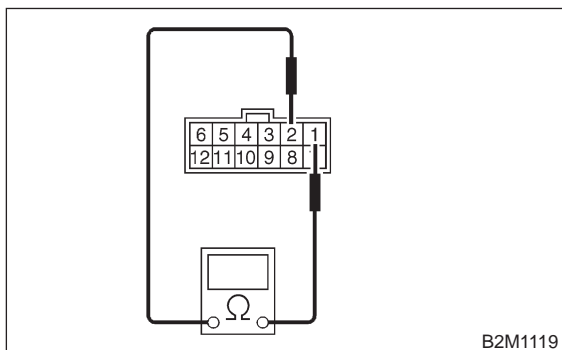
- CHECK** : **Is the resistance less than 10 Ω?**
- YES** : Repair ground short circuit in harness between transmission harness and inhibitor switch connector.
- NO** : Go to step **11BV5**.

11BV5 : CHECK INHIBITOR SWITCH.

Measure resistance between inhibitor switch connector receptacle's terminals in selector lever except for "N" position.

Terminals

No. 2 — No. 1:



- CHECK** : **Is the resistance more than 1 MΩ in other positions?**
- YES** : Go to step **11BV6**.
- NO** : Replace inhibitor switch. <Ref. to 3-2 [W2C0].>

11BV6 : CHECK SELECTOR CABLE CONNECTION.

- CHECK** : **Is there any fault in selector cable connection to inhibitor switch?**
- YES** : Repair selector cable connection. <Ref. to 3-2 [W2A0].>
- NO** : Contact with SOA service.

NOTE:

Inspection by DTM is required, because probable cause is deterioration of multiple parts.

MEMO:

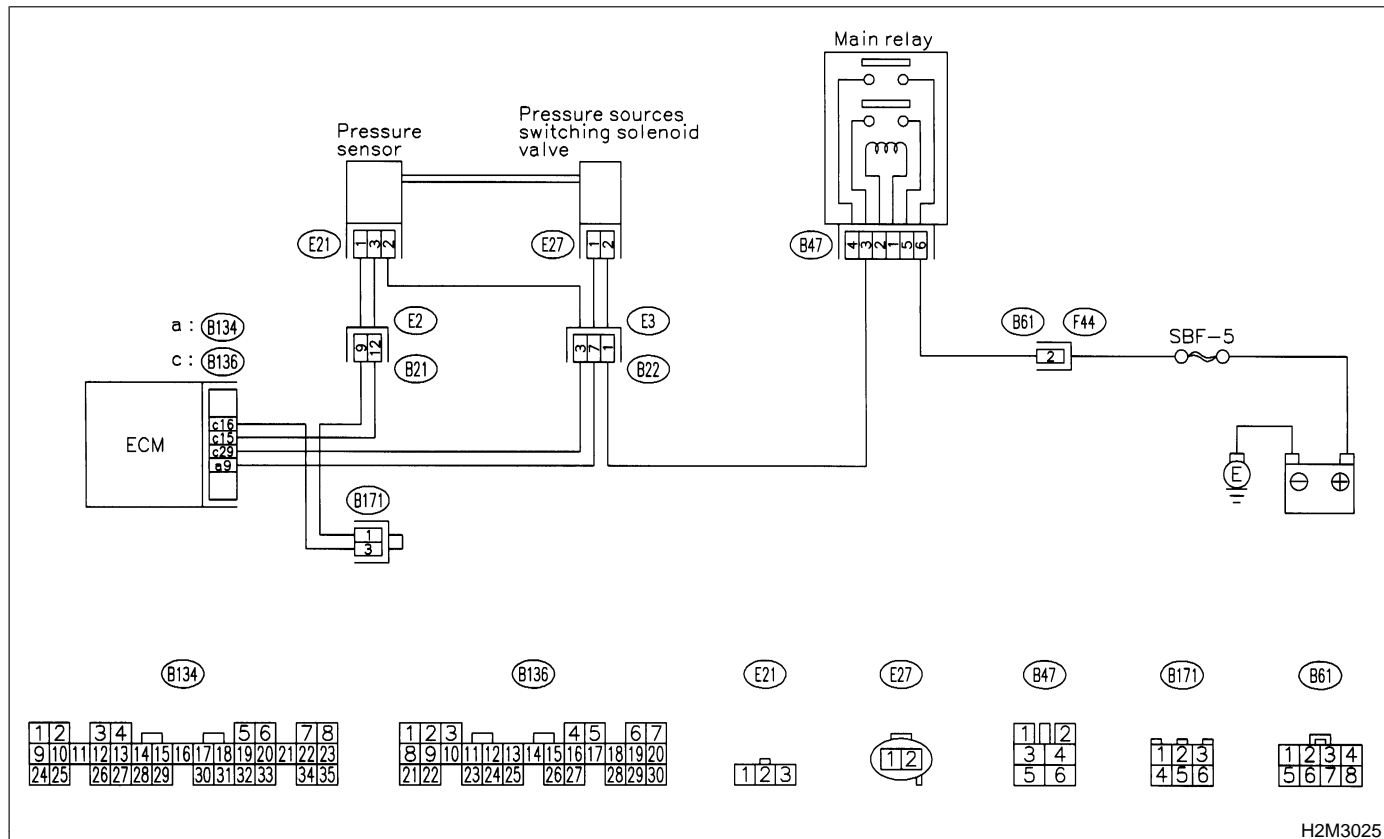
BW: DTC P1122 — PRESSURE SOURCES SWITCHING SOLENOID VALVE CIRCUIT HIGH INPUT —

- **DTC DETECTING CONDITION:**
 - Two consecutive driving cycles with fault
- **TROUBLE SYMPTOM:**
 - Erroneous idling
 - Failure of engine to start

CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to 2-7 [T3D0].> and INSPECTION MODE <Ref. to 2-7 [T3E0].>

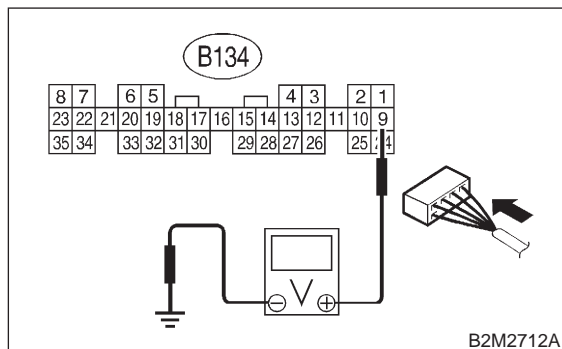
● **WIRING DIAGRAM:**



H2M3025

11BW1 : CHECK OUTPUT SIGNAL FROM ECM.

- 1) Turn ignition switch to ON.
- 2) Measure voltage between ECM and chassis ground.

Connector & terminal
(B134) No. 9 (+) — Chassis ground (-):

CHECK : *Is the voltage more than 10 V?*
YES : Go to step 11BW3.

NO : Go to step 11BW2.

11BW2 : CHECK POOR CONTACT.

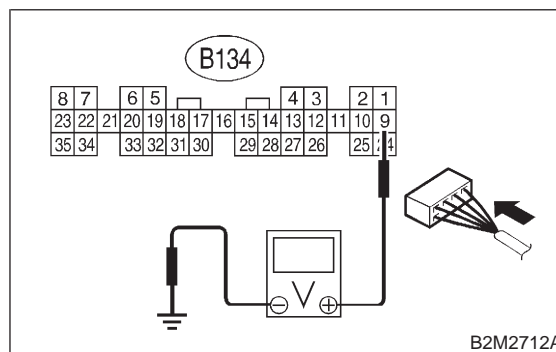
Check poor contact in ECM connector. <Ref. to FOREWORD [T3C1].>

CHECK : *Is there poor contact in ECM connector?*
YES : Repair poor contact in ECM connector.

NO : Replace ECM. <Ref. to 2-7 [W15A0].>

11BW3 : CHECK HARNESS BETWEEN ECM AND PRESSURE SOURCES SWITCHING SOLENOID VALVE CONNECTOR.

- 1) Turn ignition switch to OFF.
- 2) Disconnect connector from pressure sources switching solenoid valve.
- 3) Turn ignition switch to ON.
- 4) Measure voltage between ECM and chassis ground.

Connector & terminal
(B134) No. 9 (+) — Chassis ground (-):

CHECK : *Is the voltage more than 10 V?*
YES : Repair battery short circuit in harness between ECM and pressure sources switching solenoid valve connector. After repair, replace ECM. <Ref. to 2-7 [W15A0].>

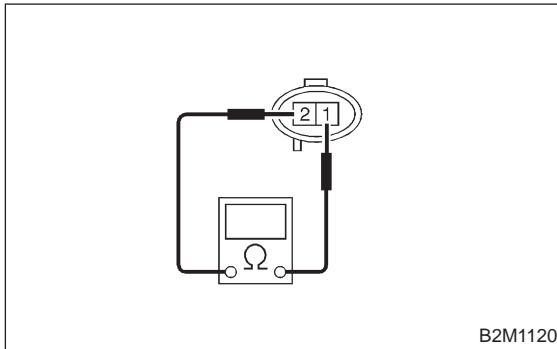
NO : Go to step 11BW4.

**11BW4 : CHECK PRESSURE SOURCES
SWITCHING SOLENOID VALVE.**

- 1) Turn ignition switch to OFF.
- 2) Measure resistance between pressure sources switching solenoid valve connector terminals.

Terminals

No. 2 — No. 1:



- CHECK** : *Is the resistance less than 1 Ω?*
- YES** : Replace pressure sources switching solenoid valve <Ref. to 2-7 [W13A0].> and ECM <Ref. to 2-7 [W15A0].>.
- NO** : Go to step **11BW5**.

11BW5 : CHECK POOR CONTACT.

Check poor contact in ECM connector. <Ref. to FOREWORD [T3C1].>

- CHECK** : *Is there poor contact in ECM connector?*
- YES** : Repair poor contact in ECM connector.
- NO** : Replace ECM. <Ref. to 2-7 [W15A0].>

MEMO:

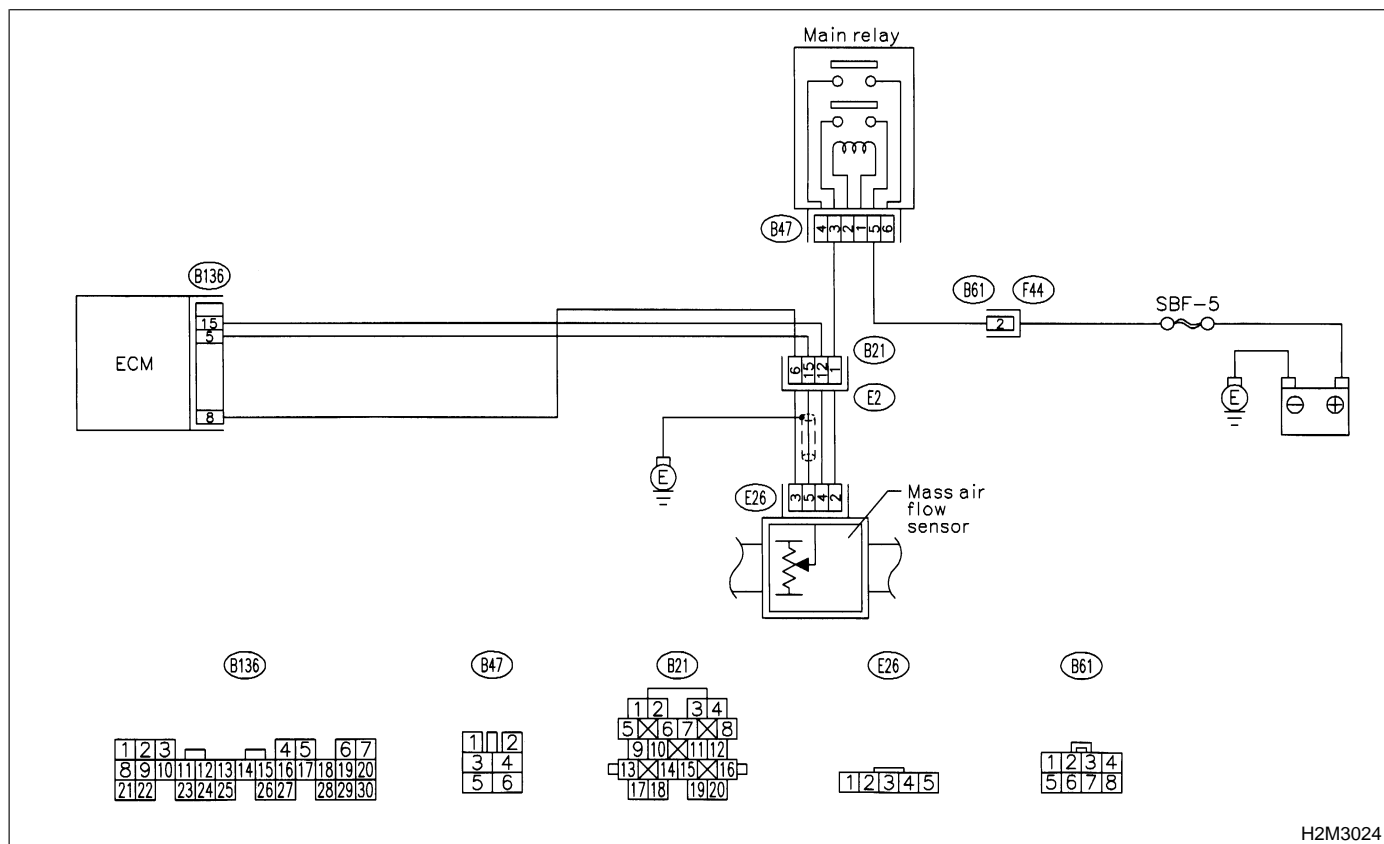
BX: DTC P1141 — MASS AIR FLOW SENSOR CIRCUIT RANGE/PERFORMANCE PROBLEM (LOW INPUT) —

- **DTC DETECTING CONDITION:**
 - Two consecutive driving cycles with fault
- **TROUBLE SYMPTOM:**
 - Erroneous idling
 - Engine stalls.
 - Poor driving performance

CAUTION:

After repair or replacement of faulty parts, conduct **CLEAR MEMORY MODE** <Ref. to 2-7 [T3D0].> and **INSPECTION MODE** <Ref. to 2-7 [T3E0].>

● **WIRING DIAGRAM:**



H2M3024

11BX1 : CHECK ANY OTHER DTC ON DISPLAY.

CHECK : *Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0102, P0103 or P0122?*

YES : Inspect DTC P0102, P0103 or P0122 using "11. Diagnostics Chart with Trouble Code for Except 2200 cc California Spec. Vehicles". <Ref. to 2-7 [T11A0].>

NOTE:

In this case, it is not necessary to inspect DTC P1141.

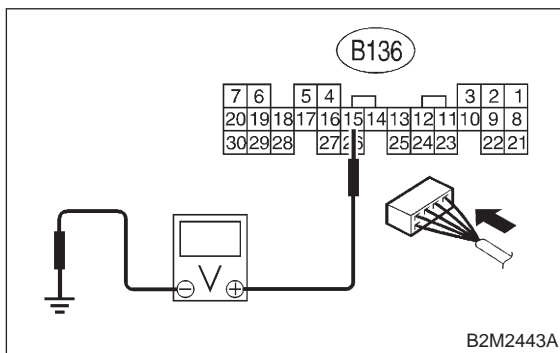
NO : Go to step 11BX2.

11BX2 : CHECK THROTTLE POSITION SENSOR.

Measure voltage between ECM and chassis ground while throttle valve is fully closed.

Connector & terminal

(B136) No. 15 (+) — Chassis ground (-):



CHECK : *Is the voltage less than 0.1 V?*

YES : Go to step 11BX3.

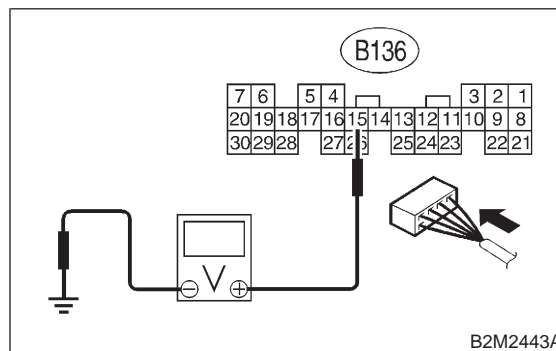
NO : Check throttle position sensor circuit. <Ref. to 2-7 [T11K0].>

11BX3 : CHECK THROTTLE POSITION SENSOR.

Measure voltage between ECM and chassis ground while throttle valve is fully opened.

Connector & terminal

(B136) No. 15 (+) — Chassis ground (-):



CHECK : *Is the voltage more than 4.5 V?*

YES : Replace mass air flow sensor. <Ref. to 2-7 [W2A1].>

NO : Check throttle position sensor circuit. <Ref. to 2-7 [T11K0].>

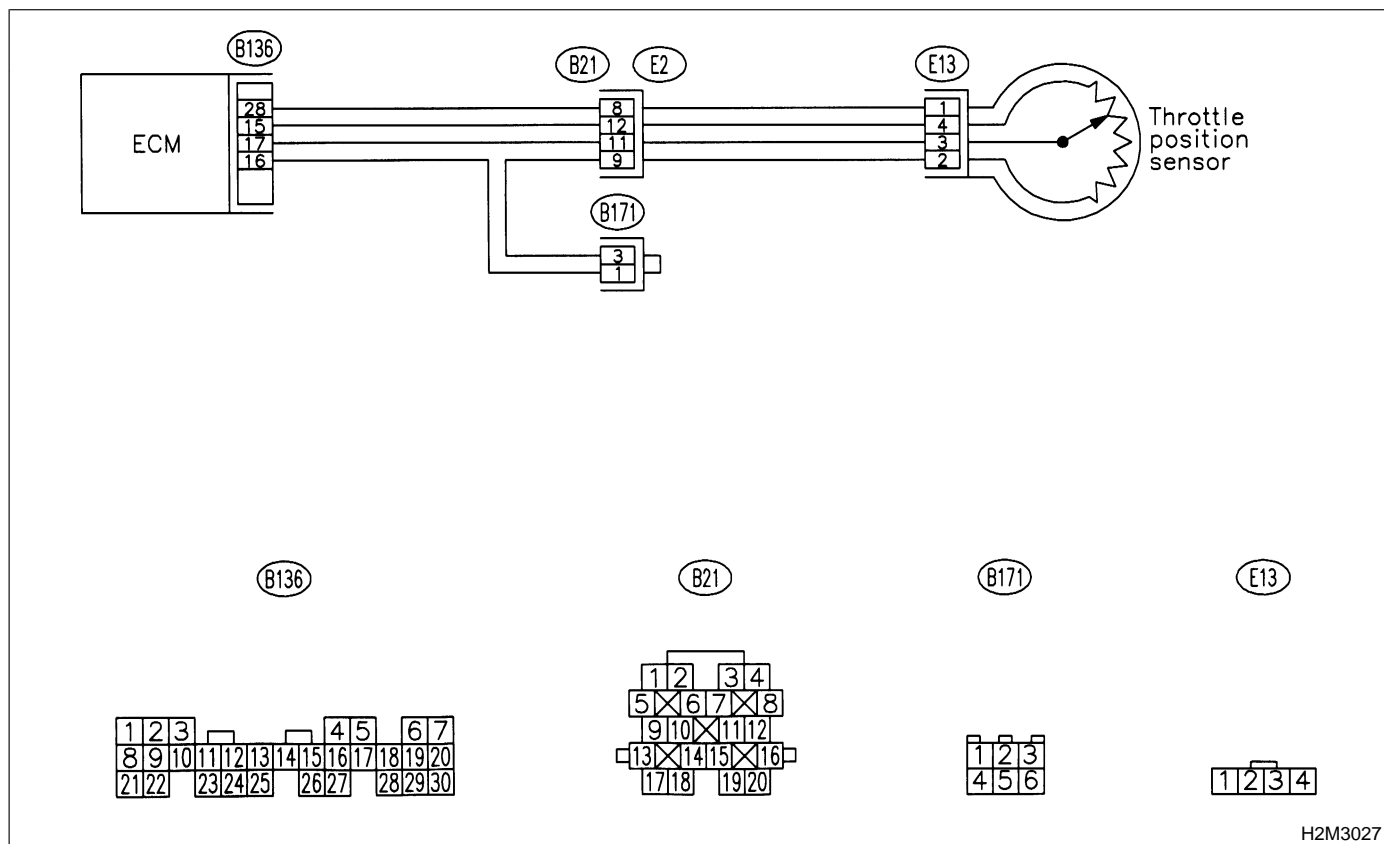
BY: DTC P1142 — THROTTLE POSITION SENSOR CIRCUIT RANGE/PERFORMANCE PROBLEM (LOW INPUT) —

- **DTC DETECTING CONDITION:**
 - Two consecutive driving cycles with fault
- **TROUBLE SYMPTOM:**
 - Erroneous idling
 - Engine stalls.
 - Poor driving performance

CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to 2-7 [T3D0].> and INSPECTION MODE <Ref. to 2-7 [T3E0].>

● **WIRING DIAGRAM:**



H2M3027

11BY1 : CHECK ANY OTHER DTC ON DISPLAY.

CHECK : *Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0122 or P0123?*

YES : Inspect DTC P0122 or P0123 using "11. Diagnostics Chart with Trouble Code for Except 2200 cc California Spec. Vehicles". <Ref. to 2-7 [T11A0].>

NOTE:

In this case, it is not necessary to inspect DTC P1142.

NO : Replace throttle position sensor. <Ref. to 2-7 [W9A0].>

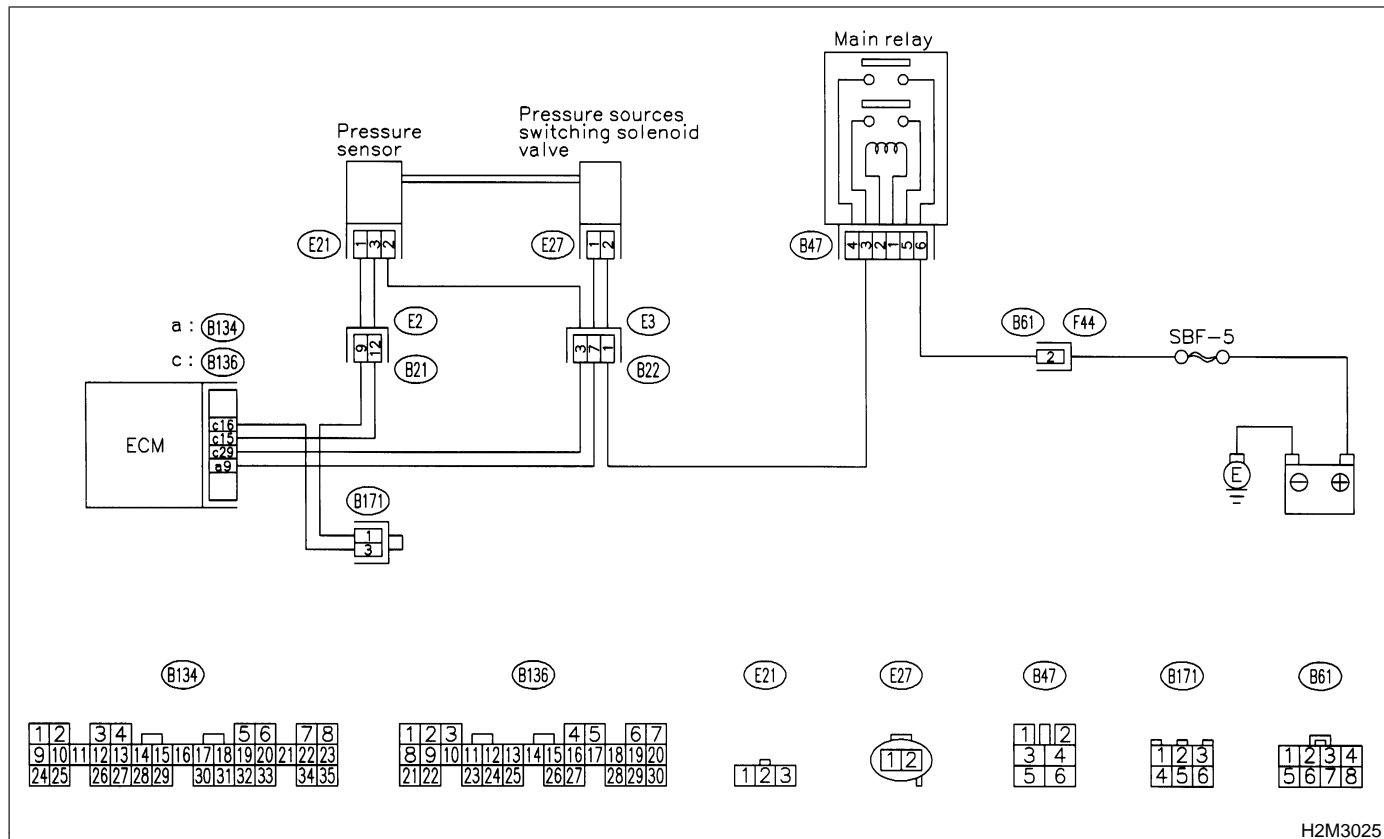
BZ: DTC P1143 — PRESSURE SENSOR CIRCUIT RANGE/PERFORMANCE PROBLEM (LOW INPUT) —

- **DTC DETECTING CONDITION:**
 - Two consecutive driving cycles with fault

CAUTION:

After repair or replacement of faulty parts, conduct **CLEAR MEMORY MODE** <Ref. to 2-7 [T3D0].> and **INSPECTION MODE** <Ref. to 2-7 [T3E0].>

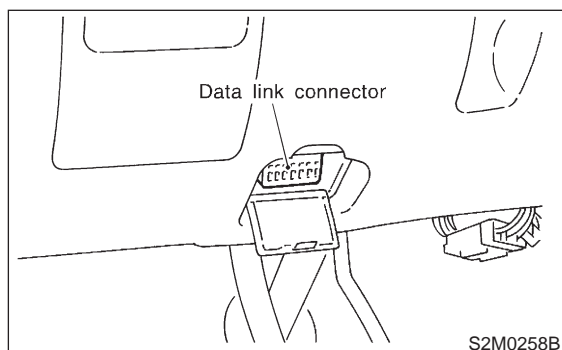
● **WIRING DIAGRAM:**



H2M3025

11BZ1 : CHECK IDLE SWITCH SIGNAL.

- 1) Turn ignition switch to OFF.
- 2) Connect Subaru Select Monitor to data link connector.



- 3) Turn ignition switch to ON and Subaru Select Monitor switch to ON.
- 4) Operate the LED operation mode for engine using Subaru Select Monitor.

NOTE:

- Subaru Select Monitor

For detailed operation procedure, refer to the "LED OPERATION MODE FOR ENGINE". <Ref. to 2-7 [T3C8].>

CHECK : **Does the LED of {Idle Switch Signal} come on?**

YES : Go to step **11BZ2**.

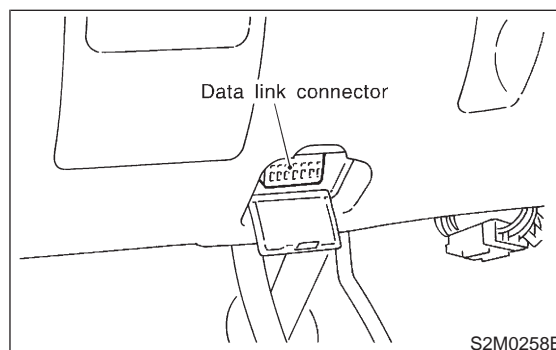
NO : Check throttle position sensor circuit. <Ref. to 2-7 [T11K0].>

NOTE:

In this case, it is not necessary to inspect DTC P1143.

11BZ2 : CHECK DATA FOR CONTROL.

- 1) Turn ignition switch to OFF.
- 2) Connect Subaru Select Monitor or the OBD-II general scan tool to data link connector.



- 3) Turn ignition switch ON and Subaru Select Monitor or the OBD-II general scan tool switch ON.
- 4) Start engine.
- 5) Read data of atmospheric absolute pressure signal using Subaru Select Monitor or OBD-II general scan tool.

NOTE:

- Subaru Select Monitor

For detailed operation procedure, refer to the "READ CURRENT DATA SHOWN ON DISPLAY FOR ENGINE". <Ref. to 2-7 [T3C4].>

- OBD-II general scan tool

For detailed operation procedures, refer to the OBD-II General Scan Tool Instruction Manual.

CHECK : **Is the value less than 32 kPa (240 mmHg, 9.45 inHg)?**

YES : Go to step **11BZ4**.

NO : Go to step **11BZ3**.

11BZ3 : CHECK PRESSURE SENSOR.

- 1) Measure actual atmospheric pressure.
- 2) Read data of atmospheric absolute pressure signal using Subaru Select Monitor or OBD-II general scan tool.

NOTE:

- Subaru Select Monitor

For detailed operation procedure, refer to the "READ CURRENT DATA SHOWN ON DISPLAY FOR ENGINE". <Ref. to 2-7 [T3C4].>

CHECK : *Is the difference between absolute value of Subaru Selector Monitor indication and actual atmospheric pressure greater than 10 kPa (75 mmHg, 2.95 inHg)?*

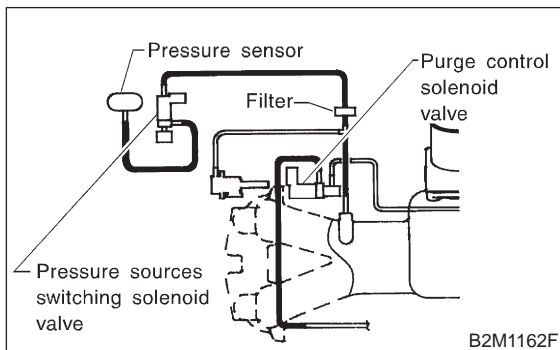
- YES** : Replace pressure sensor.
- NO** : Even if MIL lights up, the circuit has returned to a normal condition at this time. Contact with SOA service.

NOTE:

Inspection by DTM is required, because probable cause is deterioration of multiple parts.

11BZ4 : CHECK VACUUM HOSES.

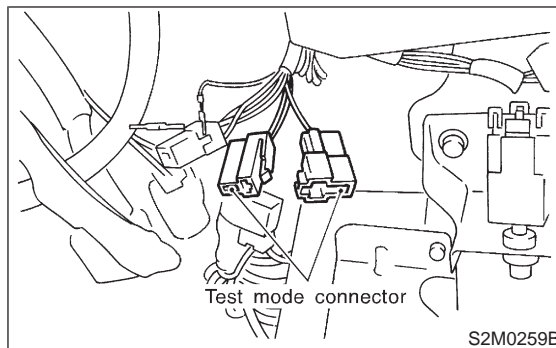
Check the following item. Incorrect hose connections in line between the pressure sources switching solenoid valve and pressure sensor, intake manifold and/or purge control solenoid valve.



- CHECK** : *Is there a fault in vacuum hose?*
- YES** : Repair or replace hoses or filter.
- NO** : Go to step 11BZ5.

11BZ5 : CHECK PRESSURE SOURCES SWITCHING SOLENOID VALVE.

- 1) Turn ignition switch to OFF.
- 2) Connect test mode connector.



- 3) Turn ignition switch to ON.

NOTE:

Pressure sources switching solenoid valve operation check can also be executed using Subaru Select Monitor. For the procedure, refer to the "COMPULSORY VALVE OPERATION CHECK MODE". <Ref. to 2-7 [T3F0].>

- CHECK** : *Does pressure sources switching solenoid valve produce operating sound? (ON ↔ OFF each 1.5 sec.)*
- YES** : Replace pressure sensor. <Ref. to 2-7 [W11A0].>
- NO** : Replace pressure sources switching solenoid valve. <Ref. to 2-7 [W13A0].>

MEMO:

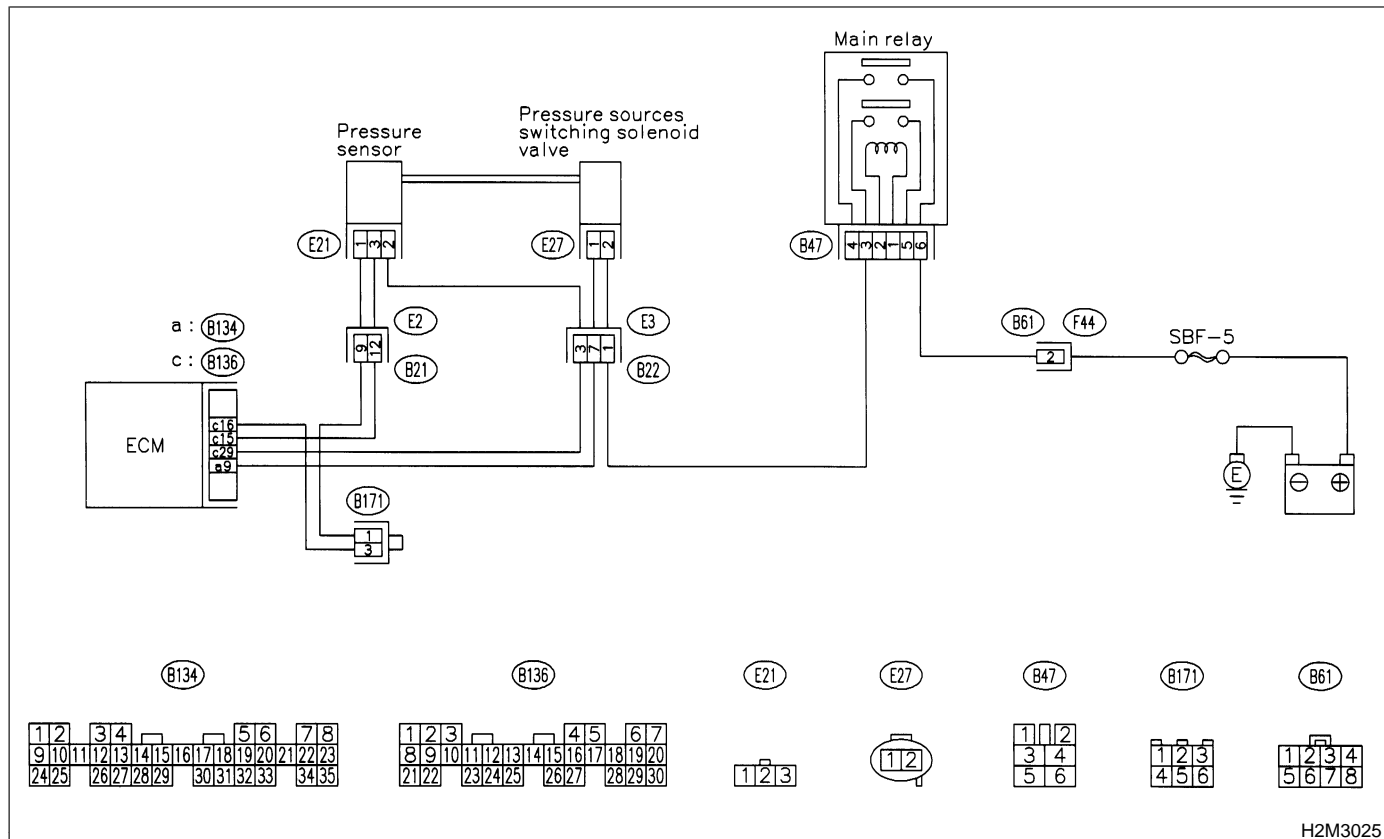
CA: DTC P1144 — PRESSURE SENSOR CIRCUIT RANGE/PERFORMANCE PROBLEM (HIGH INPUT) —

- **DTC DETECTING CONDITION:**
 - Two consecutive driving cycles with fault

CAUTION:

After repair or replacement of faulty parts, conduct **CLEAR MEMORY MODE** <Ref. to 2-7 [T3D0].> and **INSPECTION MODE** <Ref. to 2-7 [T3E0].>

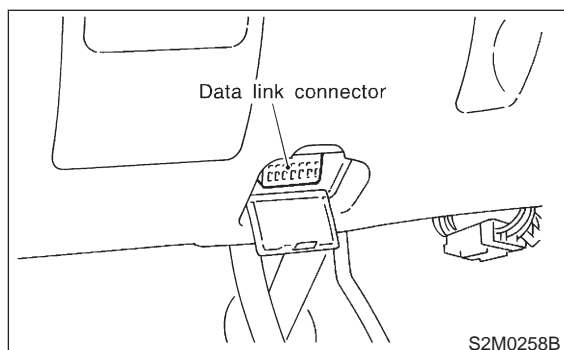
● **WIRING DIAGRAM:**



H2M3025

11CA1 : CHECK IDLE SWITCH SIGNAL.

- 1) Turn ignition switch to OFF.
- 2) Connect Subaru Select Monitor to data link connector.



- 3) Turn ignition switch to ON and Subaru Select Monitor switch to ON.
- 4) Operate the LED operation mode for engine using Subaru Select Monitor.

NOTE:

- Subaru Select Monitor

For detailed operation procedure, refer to the "LED OPERATION MODE FOR ENGINE". <Ref. to 2-7 [T3C8].>

CHECK : **Does the LED of {Idle Switch Signal} come on?**

YES : Go to step **11CA2**.

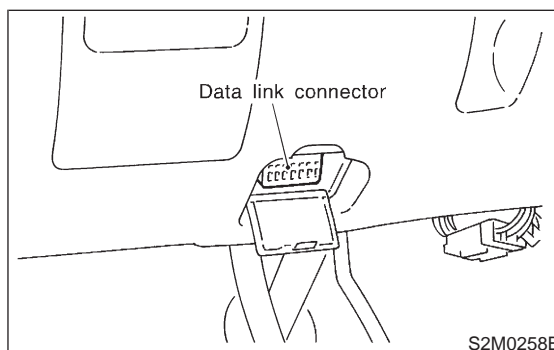
NO : Check throttle position sensor circuit. <Ref. to 2-7 [T11K0].>

NOTE:

In this case, it is not necessary to inspect DTC P1144.

11CA2 : CHECK DATA FOR CONTROL.

- 1) Turn ignition switch to OFF.
- 2) Connect Subaru Select Monitor or the OBD-II general scan tool to data link connector.



- 3) Turn ignition switch ON and Subaru Select Monitor or the OBD-II general scan tool switch ON.
- 4) Start engine.
- 5) Read data of atmospheric absolute pressure signal using Subaru Select Monitor or OBD-II general scan tool.

NOTE:

- Subaru Select Monitor

For detailed operation procedure, refer to the "READ CURRENT DATA SHOWN ON DISPLAY FOR ENGINE". <Ref. to 2-7 [T3C4].>

- OBD-II general scan tool

For detailed operation procedures, refer to the OBD-II General Scan Tool Instruction Manual.

CHECK : **Is the value more than 133 kPa (998 mmHg, 39.29 inHg)?**

YES : Replace pressure sensor. <Ref. to 2-7 [W11A0].>

NO : Even if MIL lights up, the circuit has returned to a normal condition at this time. Contact with SOA service.

NOTE:

Inspection by DTM is required, because probable cause is deterioration of multiple parts.

CB: DTC P1150 — FRONT OXYGEN SENSOR HEATER CIRCUIT HIGH INPUT

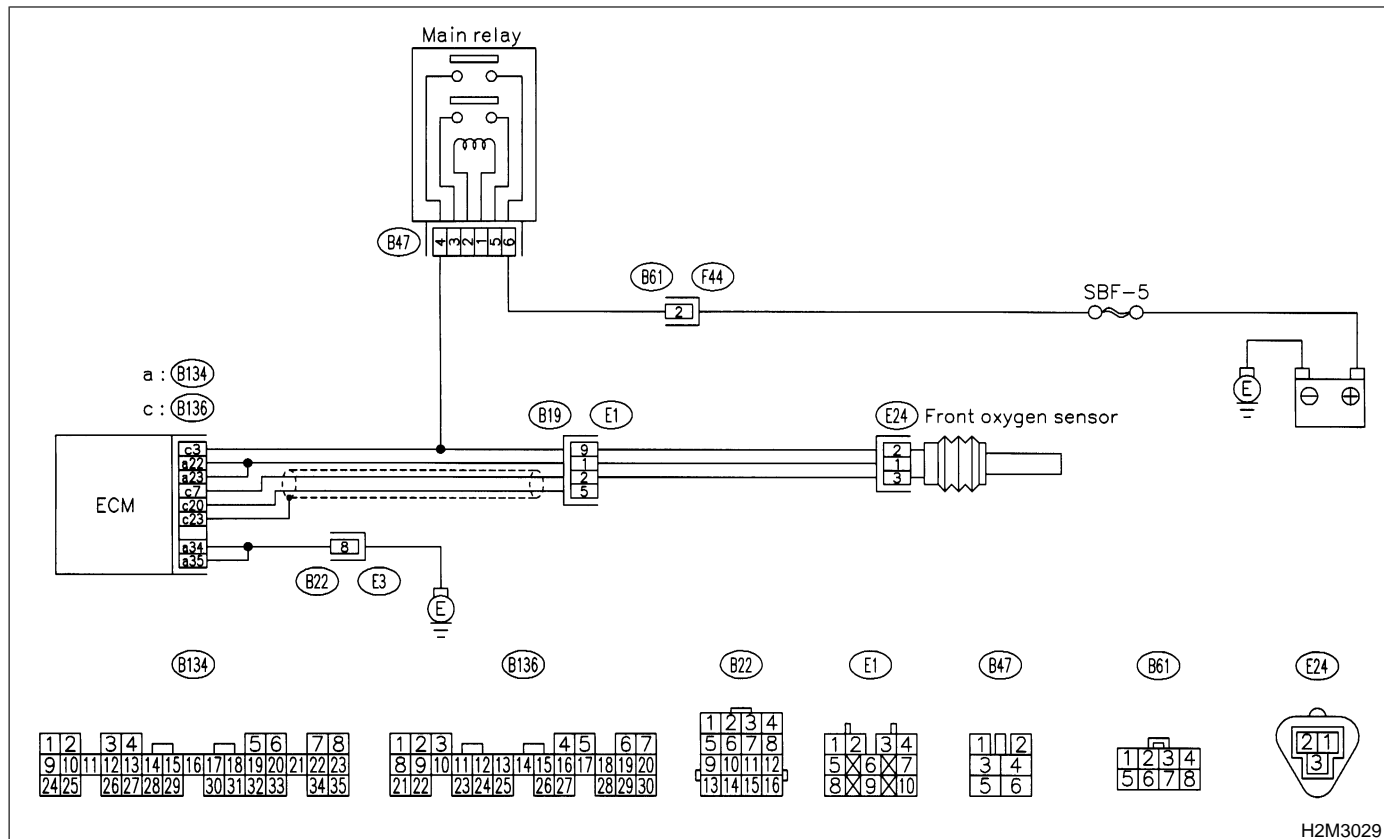
● DTC DETECTING CONDITION:

- Two consecutive driving cycles with fault

CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to 2-7 [T3D0].> and INSPECTION MODE <Ref. to 2-7 [T3E0].>

● WIRING DIAGRAM:

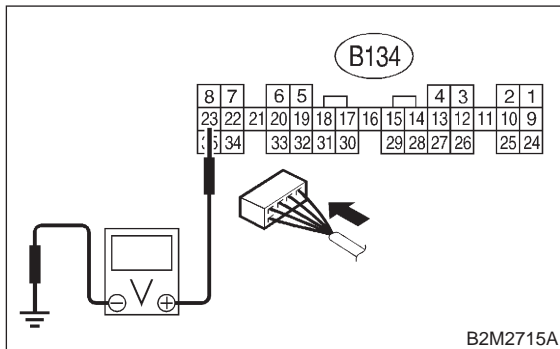


H2M3029

11CB1 : CHECK OUTPUT SIGNAL FROM ECM.

- 1) Turn ignition switch to ON.
- 2) Measure voltage between ECM connector and chassis ground.

Connector & terminal
(B134) No. 23 (+) — Chassis ground (-):

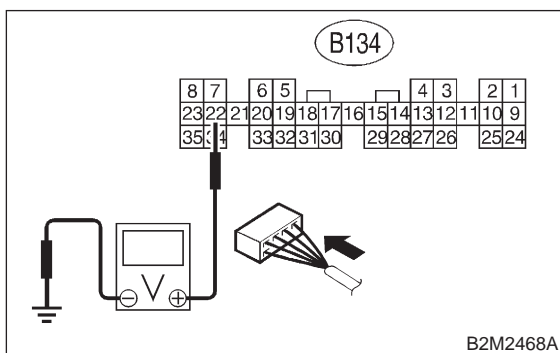


- CHECK** : **Is the voltage more than 8 V?**
YES : Go to step 11CB3.
NO : Go to step 11CB2.

11CB2 : CHECK OUTPUT SIGNAL FROM ECM.

Measure voltage between ECM connector and chassis ground.

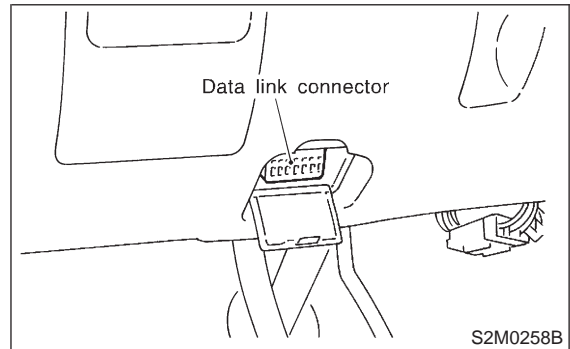
Connector & terminal
(B134) No. 22 (+) — Chassis ground (-):



- CHECK** : **Is the voltage more than 8 V?**
YES : Go to step 11CB3.
NO : Go to step 11CB4.

11CB3 : CHECK FRONT OXYGEN SENSOR HEATER CURRENT.

- 1) Turn ignition switch to OFF.
- 2) Repair battery short circuit in harness between ECM and front oxygen sensor connector.
- 3) Connect Subaru Select Monitor or the OBD-II general scan tool to data link connector.



- 4) Turn ignition switch to ON and Subaru Select Monitor or OBD-II general scan tool switch to ON.
- 5) Read data of front oxygen sensor heater current using Subaru Select Monitor or the OBD-II general scan tool.

NOTE:

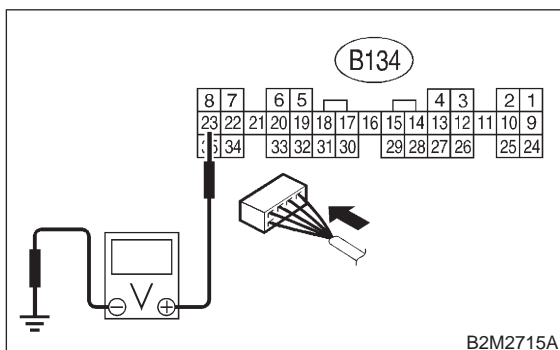
- Subaru Select Monitor
 For detailed operation procedure, refer to the "READ CURRENT DATA SHOWN ON DISPLAY FOR ENGINE". <Ref. to 2-7 [T3C4].>
- OBD-II general scan tool
 For detailed operation procedure, refer to the OBD-II General Scan Tool Instruction Manual.

- CHECK** : **Is the value more than 7 A?**
YES : Replace ECM. <Ref. to 2-7 [W15A0].>
NO : END

11CB4 : CHECK OUTPUT SIGNAL FROM ECM.

Measure voltage between ECM connector and chassis ground.

Connector & terminal
(B134) No. 23 (+) — Chassis ground (-):

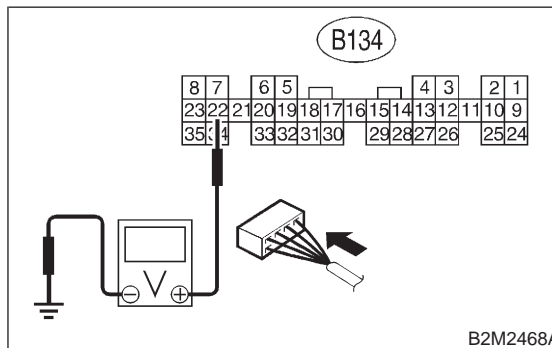


- CHECK** : Does the voltage change more than 8 V by shaking harness and connector of ECM while monitoring the value with voltage meter?
- YES** : Repair battery short circuit in harness between ECM and front oxygen sensor connector.
- NO** : Go to step 11CB5.

11CB5 : CHECK OUTPUT SIGNAL FROM ECM.

Measure voltage between ECM connector and chassis ground.

Connector & terminal
(B134) No. 22 (+) — Chassis ground (-):



- CHECK** : Does the voltage change more than 8 V by shaking harness and connector of ECM while monitoring the value with voltage meter?
- YES** : Repair battery short circuit in harness between ECM and front oxygen sensor connector.
- NO** : END

MEMO:

CC: DTC P1151 — REAR OXYGEN SENSOR HEATER CIRCUIT HIGH INPUT

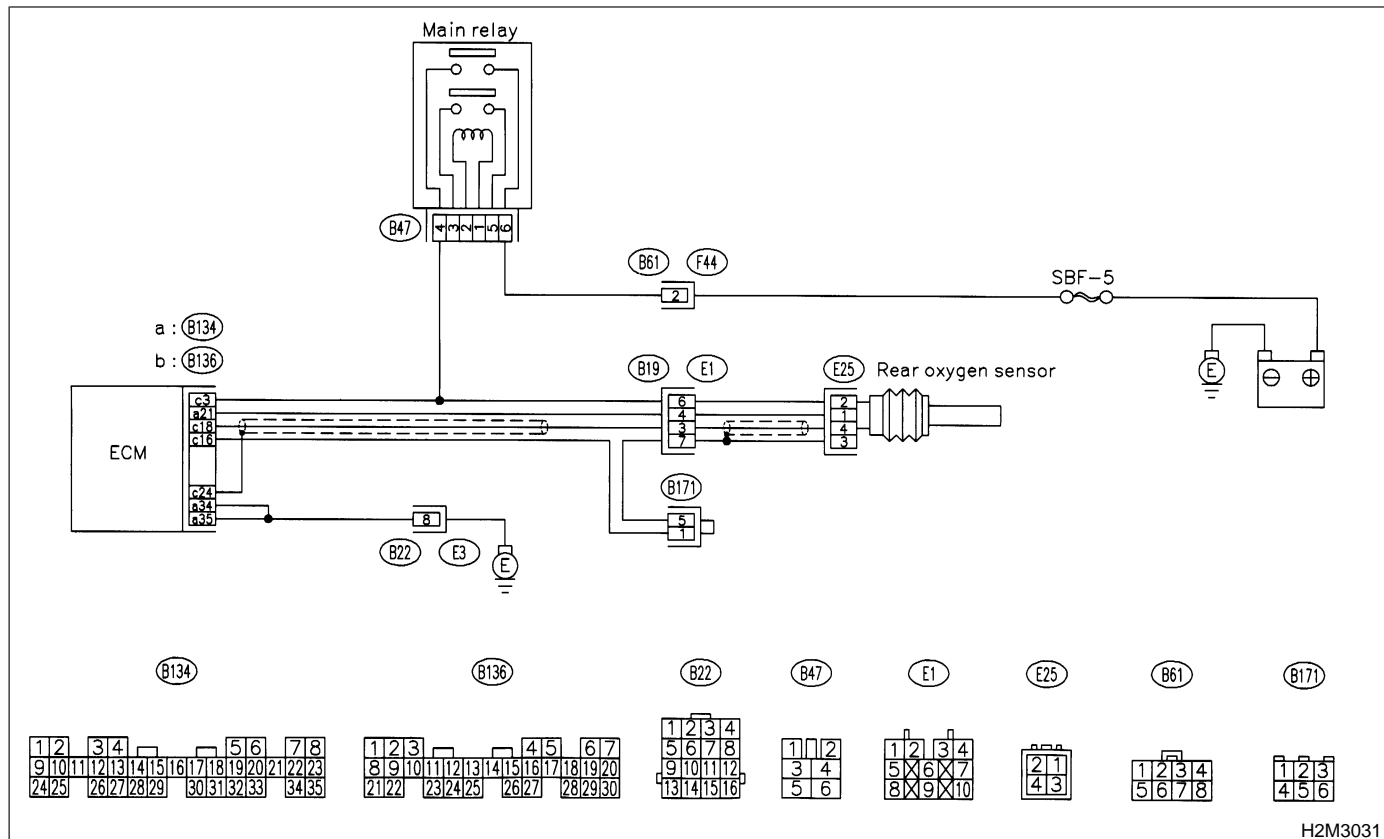
• DTC DETECTING CONDITION:

- Two consecutive driving cycles with fault

CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to 2-7 [T3D0].> and INSPECTION MODE <Ref. to 2-7 [T3E0].>

• WIRING DIAGRAM:



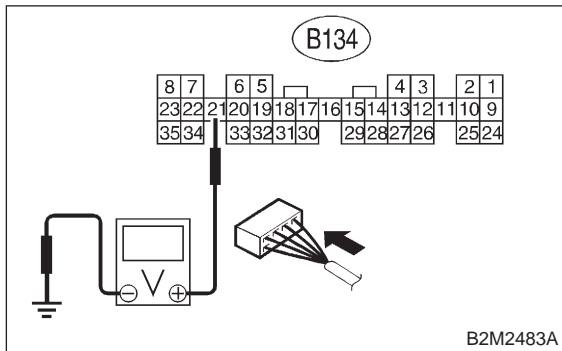
H2M3031

11CC1 : CHECK INPUT SIGNAL FOR ECM.

Measure voltage between ECM connector and chassis ground.

Connector & terminal

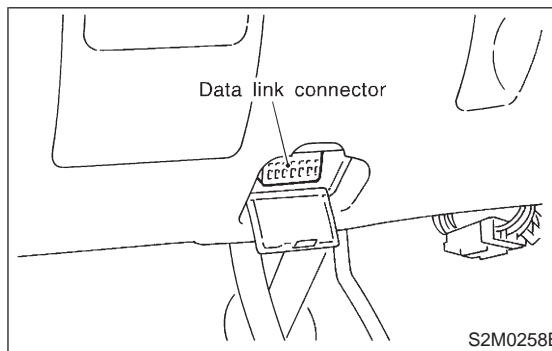
(B134) No. 21 (+) — Chassis ground (-):



- CHECK** : *Is the voltage more than 8 V?*
- YES** : Go to step 11CC2.
- NO** : Go to step 11CC3.

11CC2 : CHECK FRONT OXYGEN SENSOR HEATER CURRENT.

- 1) Turn ignition switch to OFF.
- 2) Repair battery short circuit in harness between ECM and front oxygen sensor connector.
- 3) Connect Subaru Select Monitor or the OBD-II general scan tool to data link connector.



- 4) Turn ignition switch to ON and Subaru Select Monitor or OBD-II general scan tool switch to ON.
- 5) Read data of rear oxygen sensor heater current using Subaru Select Monitor or the OBD-II general scan tool.

NOTE:

- Subaru Select Monitor
For detailed operation procedure, refer to the "READ CURRENT DATA SHOWN ON DISPLAY FOR ENGINE". <Ref. to 2-7 [T3C4].>
- OBD-II general scan tool
For detailed operation procedure, refer to the OBD-II General Scan Tool Instruction Manual.

- CHECK** : *Is the value more than 7 A?*
- YES** : Replace ECM. <Ref. to 2-7 [W15A0].>
- NO** : END

11CC3 : CHECK POOR CONTACT.

Check poor contact in ECM connector. <Ref. to FOREWORD [T3C1].>

- CHECK** : *Is there poor contact in ECM connector?*
- YES** : Repair poor contact in ECM connector.
- NO** : END.

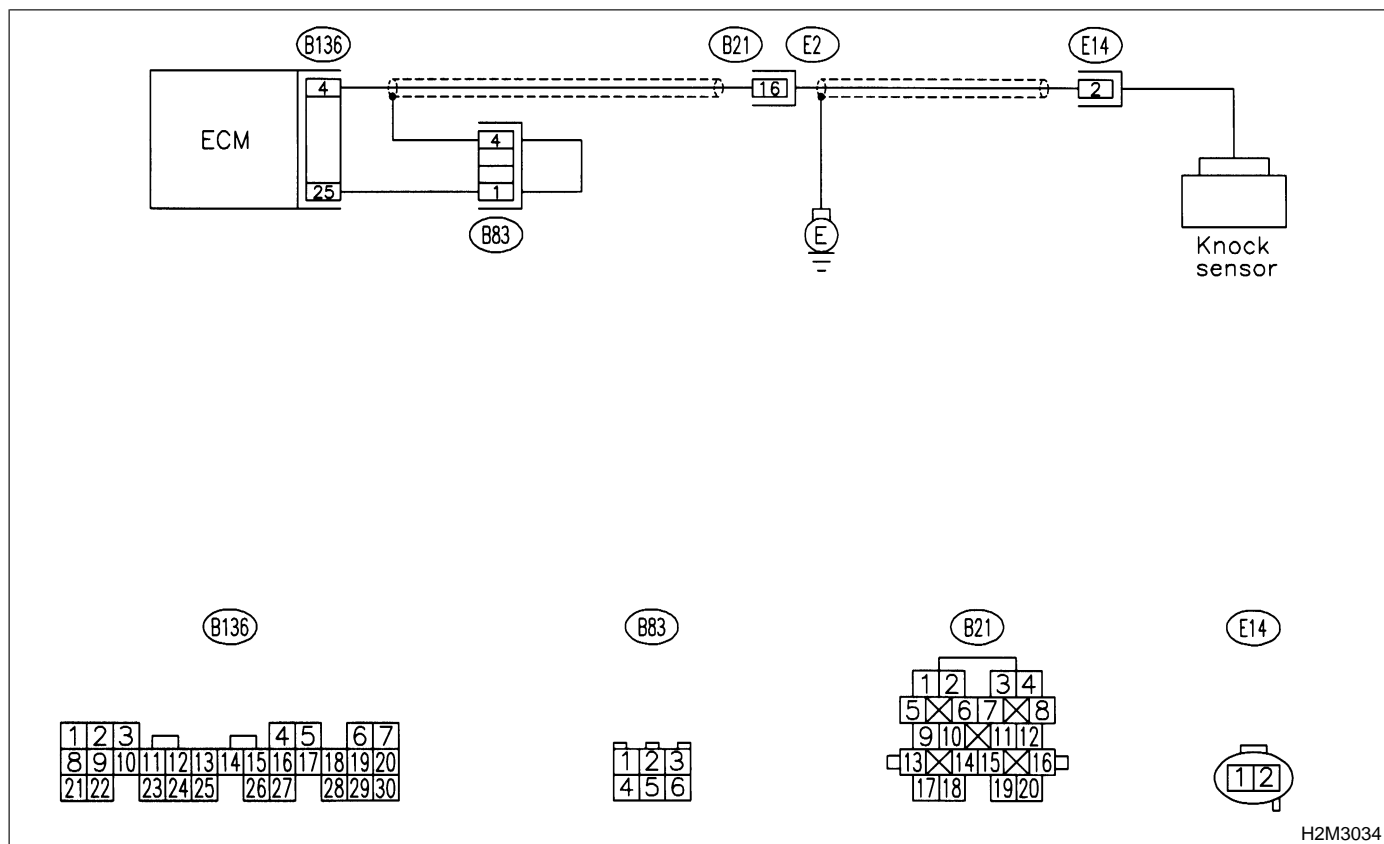
CD: DTC P1325 — KNOCK SENSOR CIRCUIT LOW INPUT —

- **DTC DETECTING CONDITION:**
 - Immediately at fault recognition
- **TROUBLE SYMPTOM:**
 - Poor driving performance
 - Knocking occurs.

CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to 2-7 [T3D0].> and INSPECTION MODE <Ref. to 2-7 [T3E0].>

● **WIRING DIAGRAM:**



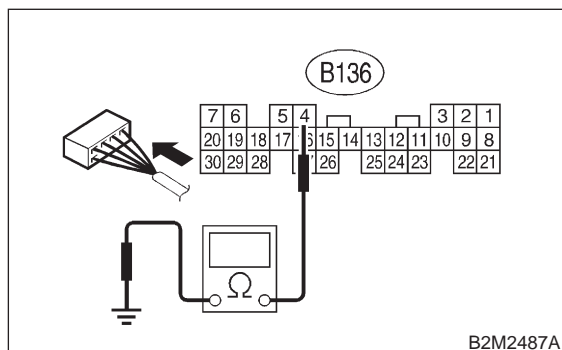
H2M3034

11CD1 : CHECK HARNESS BETWEEN KNOCK SENSOR AND ECM CONNECTOR.

- 1) Turn ignition switch to OFF.
- 2) Disconnect connector from ECM.
- 3) Measure resistance between ECM harness connector and chassis ground.

Connector & terminal

(B136) No. 4 — Chassis ground:



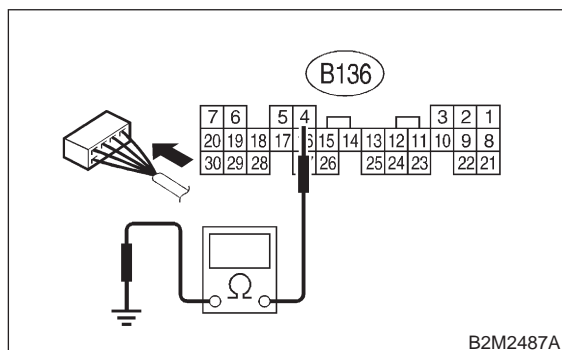
- CHECK** : Is the resistance more than 700 k Ω ?
- YES** : Go to step 11CD3.
- NO** : Go to step 11CD2.

11CD2 : CHECK HARNESS BETWEEN KNOCK SENSOR AND ECM CONNECTOR.

Measure resistance of harness between ECM connector and chassis ground.

Connector & terminal

(B136) No. 4 — Chassis ground:



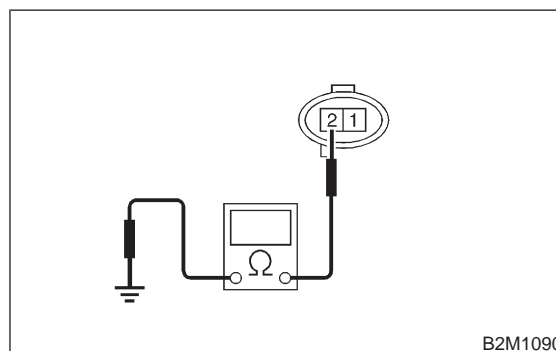
- CHECK** : Is the resistance less than 400 k Ω ?
- YES** : Go to step 11CD5.
- NO** : Go to step 11CD6.

11CD3 : CHECK KNOCK SENSOR.

- 1) Disconnect connector from knock sensor.
- 2) Measure resistance between knock sensor connector terminal and engine ground.

Terminal

No. 2 — Engine ground:



- CHECK** : Is the resistance more than 700 k Ω ?
- YES** : Go to step 11CD4.
- NO** : Repair harness and connector.

NOTE:

In this case, repair the following:

- Open circuit in harness between knock sensor and ECM connector
- Poor contact in knock sensor connector
- Poor contact in coupling connector (B21)

11CD4 : CHECK CONDITION OF KNOCK SENSOR INSTALLATION.

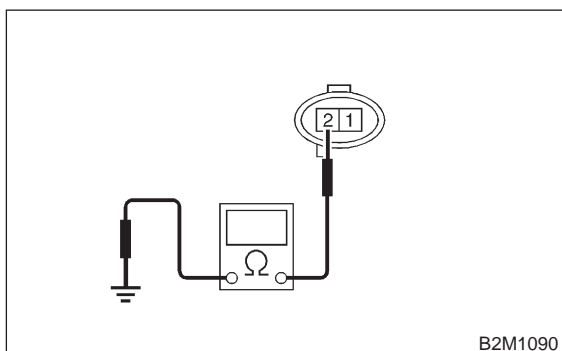
- CHECK** : Is the knock sensor installation bolt tightened securely?
- YES** : Replace knock sensor. <Ref. to 2-7 [W19A0].>
- NO** : Tighten knock sensor installation bolt securely.

11CD5 : CHECK KNOCK SENSOR.

- 1) Disconnect connector from knock sensor.
- 2) Measure resistance between knock sensor connector terminal and engine ground.

Terminal

No. 2 — Engine ground:



- CHECK** : **Is the resistance less than 400 kΩ?**
- YES** : Replace knock sensor. <Ref. to 2-7 [W19A0].>
- NO** : Repair ground short circuit in harness between knock sensor connector and ECM connector.

NOTE:

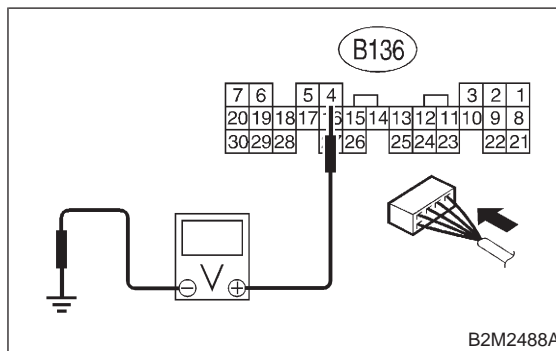
The harness between both connectors is shielded. Repair short circuit of harness together with shield.

11CD6 : CHECK INPUT SIGNAL FOR ECM.

- 1) Connect connectors to ECM and knock sensor.
- 2) Turn ignition switch to ON.
- 3) Measure voltage between ECM and chassis ground.

Connector & terminal

(B136) No. 4 (+) — Chassis ground (-):



- CHECK** : **Is the voltage more than 2 V?**
- YES** : Even if MIL lights up, the circuit has returned to a normal condition at this time. (However, the possibility of poor contact still remains.)

NOTE:

In this case, repair the following:

- Poor contact in knock sensor connector
- Poor contact in ECM connector
- Poor contact in coupling connector (B21)
- NO** : Repair poor contact in ECM connector.

MEMO:

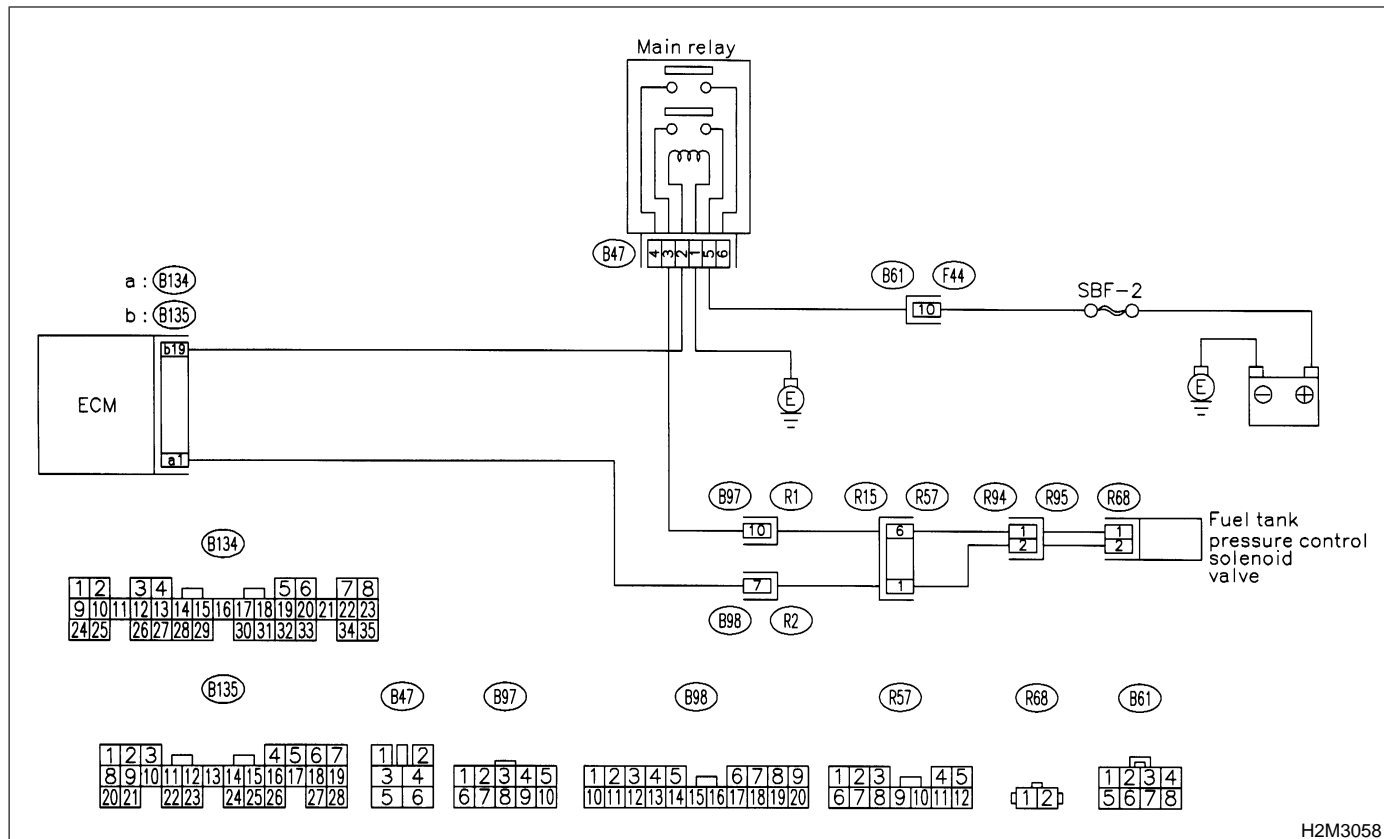
CE: DTC P1400 — FUEL TANK PRESSURE CONTROL SOLENOID VALVE CIRCUIT LOW INPUT —

- **DTC DETECTING CONDITION:**
 - Two consecutive driving cycles with fault

CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to 2-7 [T3D0].> and INSPECTION MODE <Ref. to 2-7 [T3E0].>

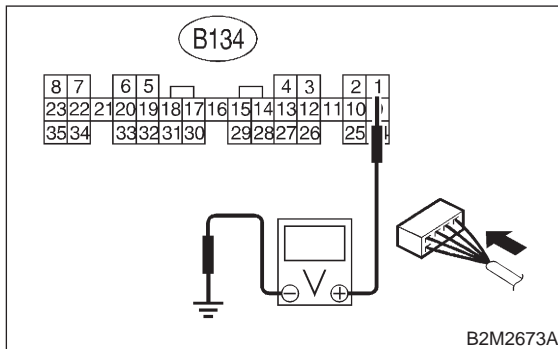
● **WIRING DIAGRAM:**



H2M3058

11CE1 : CHECK OUTPUT SIGNAL FROM ECM.

- 1) Turn ignition switch to ON.
- 2) Measure voltage between ECM and chassis ground.

Connector & terminal
(B134) No. 1 (+) — Chassis ground (-):


- CHECK** : Is the voltage more than 10 V?
- YES** : Go to step 11CE2.
- NO** : Go to step 11CE3.

11CE2 : CHECK POOR CONTACT.

Check poor contact in ECM connector. <Ref. to FOREWORD [T3C1].>

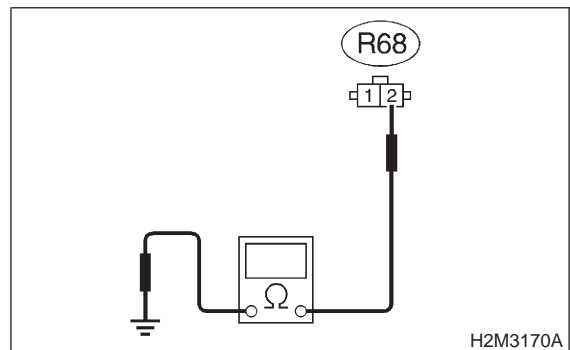
- CHECK** : Is there poor contact in ECM connector?
- YES** : Repair poor contact in ECM connector.
- NO** : Contact with SOA service.

NOTE:

Inspection by DTM is required, because probable cause is deterioration of multiple parts.

11CE3 : CHECK HARNESS BETWEEN FUEL TANK PRESSURE CONTROL SOLENOID VALVE AND ECM CONNECTOR.

- 1) Turn ignition switch to OFF.
- 2) Disconnect connectors from fuel tank pressure control solenoid valve and ECM.
- 3) Measure resistance of harness between fuel tank pressure control solenoid valve connector and chassis ground.

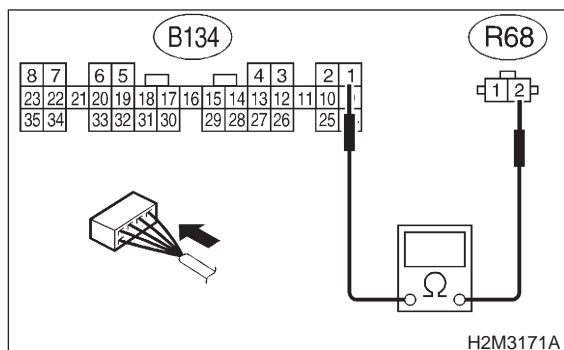
Connector & terminal
(R68) No. 2 — Chassis ground:


- CHECK** : Is the resistance less than 10 Ω?
- YES** : Repair ground short circuit in harness between ECM and fuel tank pressure control solenoid valve connector.
- NO** : Go to step 11CE4.

11CE4 : CHECK HARNESS BETWEEN FUEL TANK PRESSURE CONTROL SOLENOID VALVE AND ECM CONNECTOR.

Measure resistance of harness between ECM and fuel tank pressure control solenoid valve connector.

Connector & terminal
(B134) No. 1 — (R68) No. 2:



- CHECK** : *Is the resistance less than 1 Ω?*
- YES** : Go to step 11CE5.
- NO** : Repair harness and connector.

NOTE:

In this case, repair the following:

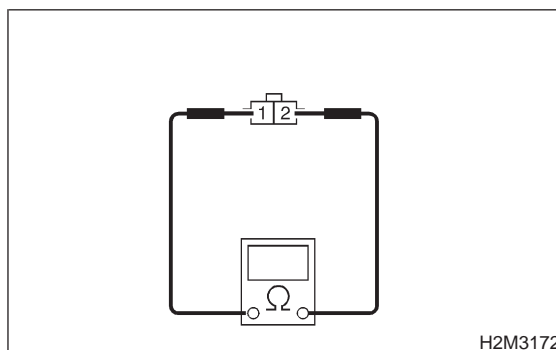
- Open circuit in harness between ECM and fuel tank pressure control solenoid valve connector
- Poor contact in coupling connectors (R94), (B98) and (R57)

11CE5 : CHECK FUEL TANK PRESSURE CONTROL SOLENOID VALVE.

Measure resistance between fuel tank pressure control solenoid valve terminals.

Terminals

No. 1 — No. 2:



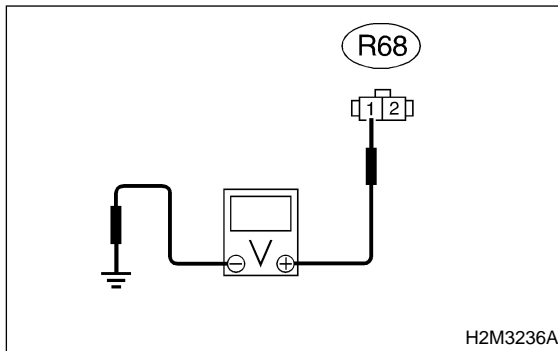
- CHECK** : *Is the resistance between 10 and 100 Ω?*
- YES** : Go to step 11CE6.
- NO** : Replace fuel tank pressure control solenoid valve. <Ref. to 2-1 [W7A0].>

11CE6 : CHECK POWER SUPPLY TO FUEL TANK PRESSURE CONTROL SOLENOID VALVE.

- 1) Turn ignition switch to ON.
- 2) Measure voltage between fuel tank pressure control solenoid valve and chassis ground.

Connector & terminal

(R68) No. 1 (+) — Chassis ground (-):



CHECK : **Is the voltage more than 10 V?**

YES : Go to step 11CE7.

NO : Repair harness and connector.

NOTE:

In this case, repair the following:

- Open circuit in harness between main relay and fuel tank pressure control solenoid valve connector
- Poor contact in coupling connectors (R94), (B97) and (R57)
- Poor contact in main relay connector

11CE7 : CHECK POOR CONTACT.

Check poor contact in fuel tank pressure control solenoid valve connector. <Ref. to FOREWORD [T3C1].>

CHECK : **Is there poor contact in fuel tank pressure control solenoid valve connector?**

YES : Repair poor contact in fuel tank pressure control solenoid valve connector.

NO : Contact with SOA service.

NOTE:

Inspection by DTM is required, because probable cause is deterioration of multiple parts.

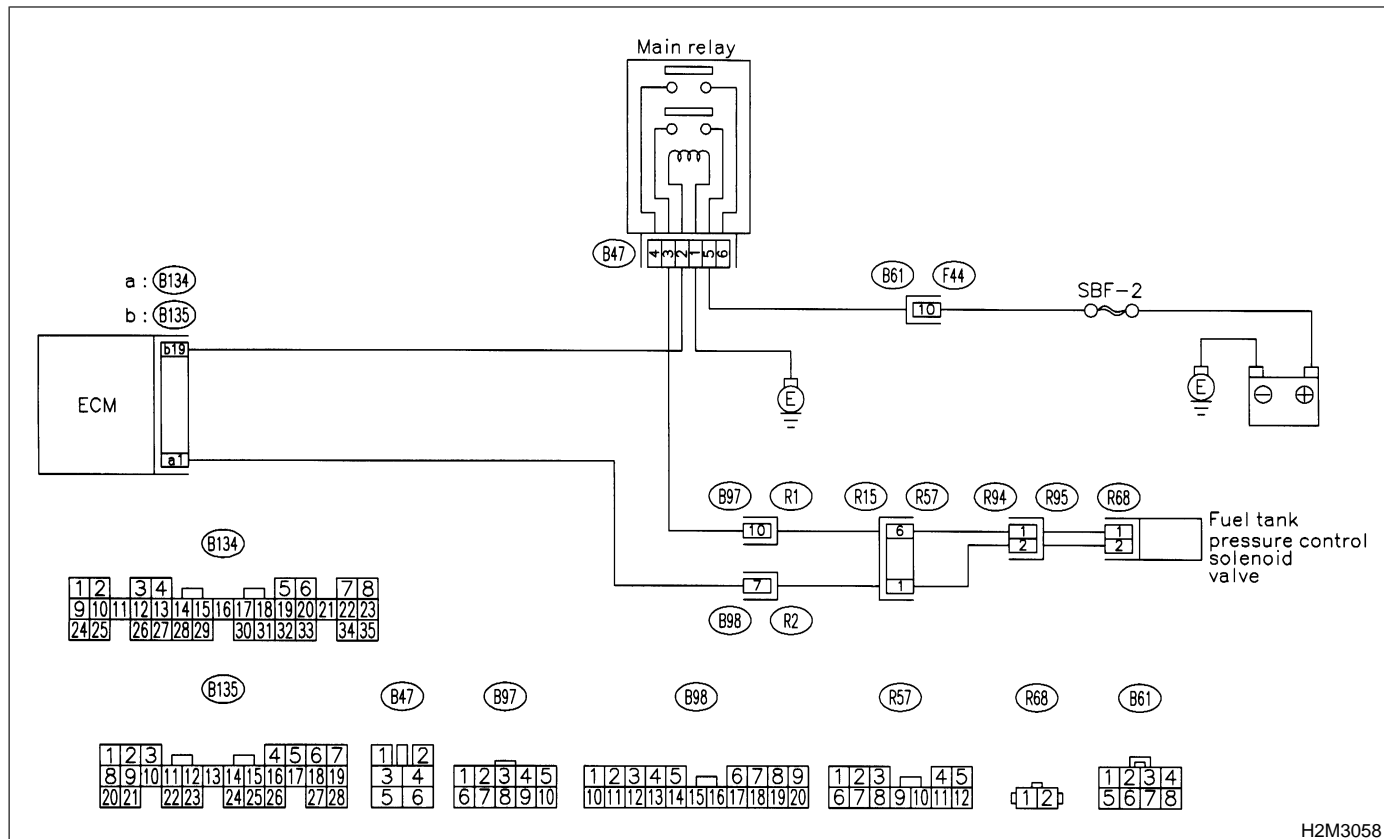
CF: DTC P1420 — FUEL TANK PRESSURE CONTROL SOLENOID VALVE CIRCUIT HIGH INPUT —

- **DTC DETECTING CONDITION:**
 - Two consecutive driving cycles with fault

CAUTION:

After repair or replacement of faulty parts, conduct **CLEAR MEMORY MODE** <Ref. to 2-7 [T3D0].> and **INSPECTION MODE** <Ref. to 2-7 [T3E0].>

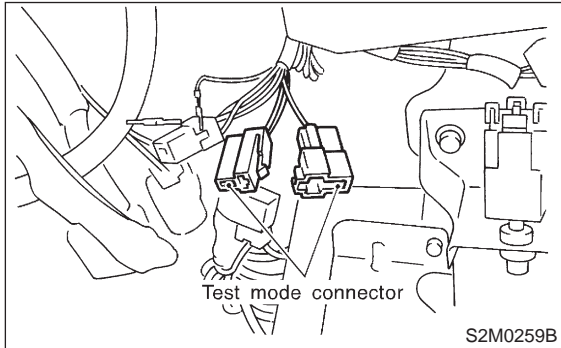
● **WIRING DIAGRAM:**



H2M3058

11CF1 : CHECK OUTPUT SIGNAL FROM ECM.

- 1) Turn ignition switch to OFF.
- 2) Connect test mode connector at the lower portion of instrument panel (on the driver's side), to the side of the center console box.



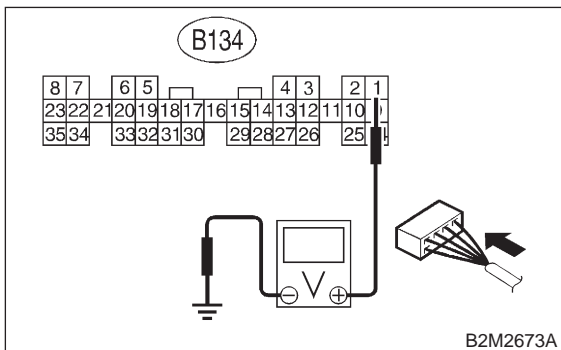
- 3) Turn ignition switch to ON.
- 4) Measure voltage between ECM and chassis ground.

NOTE:

Fuel tank pressure control solenoid valve operation check can be executed using Subaru Select Monitor. For procedure, refer to "COMPULSORY VALVE OPERATION CHECK MODE". <Ref. to 2-7 [T3F0].>

Connector & terminal

(B134) No. 1 (+) — Chassis ground (-):



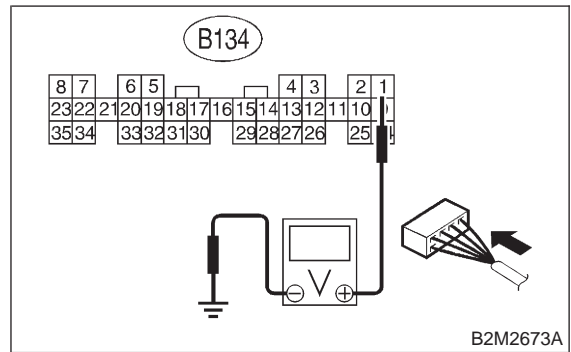
- CHECK** : Does voltage change between 0 and 10 volts?
- YES** : Go to step 11CF2.
- NO** : Even if MIL light up, the circuit has returned to a normal condition at this time. In this case, repair poor contact in ECM connector.

11CF2 : CHECK OUTPUT SIGNAL FROM ECM.

- 1) Turn ignition switch to ON.
- 2) Measure voltage between ECM and chassis ground.

Connector & terminal

(B134) No. 1 (+) — Chassis ground (-):



- CHECK** : Is the voltage more than 10 V?
- YES** : Go to step 11CF4.
- NO** : Go to step 11CF3.

11CF3 : CHECK POOR CONTACT.

Check poor contact in ECM connector. <Ref. to FOREWORD [T3C1].>

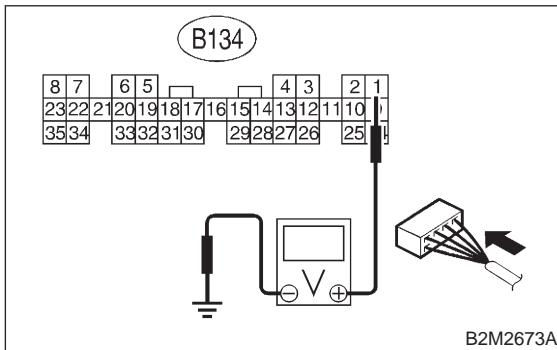
- CHECK** : Is there poor contact in ECM connector?
- YES** : Repair poor contact in ECM connector.
- NO** : Replace ECM. <Ref. to 2-7 [W15A0].>

11CF4 : CHECK HARNESS BETWEEN FUEL TANK PRESSURE CONTROL SOLENOID VALVE AND ECM CONNECTOR.

- 1) Turn ignition switch to OFF.
- 2) Disconnect connector from fuel tank pressure control solenoid valve.
- 3) Turn ignition switch to ON.
- 4) Measure voltage between ECM and chassis ground.

Connector & terminal

(B134) No. 1 (+) — Chassis ground (-):



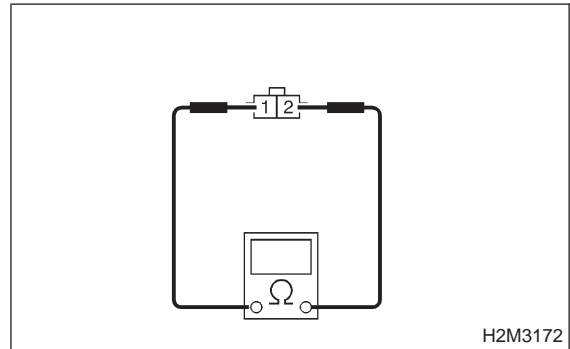
- CHECK** : **Is the voltage more than 10 V?**
- YES** : Repair battery short circuit in harness between ECM and fuel tank pressure control solenoid valve connector. After repair, replace ECM. <Ref. to 2-7 [W15A0].>
- NO** : Go to step 11CF5.

11CF5 : CHECK FUEL TANK PRESSURE CONTROL SOLENOID VALVE.

- 1) Turn ignition switch to OFF.
- 2) Measure resistance between fuel tank pressure control solenoid valve terminals.

Terminals

No. 1 — No. 2:



- CHECK** : **Is the resistance less than 1 Ω?**
- YES** : Replace fuel tank pressure control solenoid valve <Ref. to 2-1 [W7A0].> and ECM <Ref. to 2-7 [W15A0].>.
- NO** : Go to step 11CF6.

11CF6 : CHECK POOR CONTACT.

Check poor contact in ECM connector. <Ref. to FOREWORD [T3C1].>

- CHECK** : **Is there poor contact in ECM connector?**
- YES** : Repair poor contact in ECM connector.
- NO** : Replace ECM. <Ref. to 2-7 [W15A0].>

MEMO:

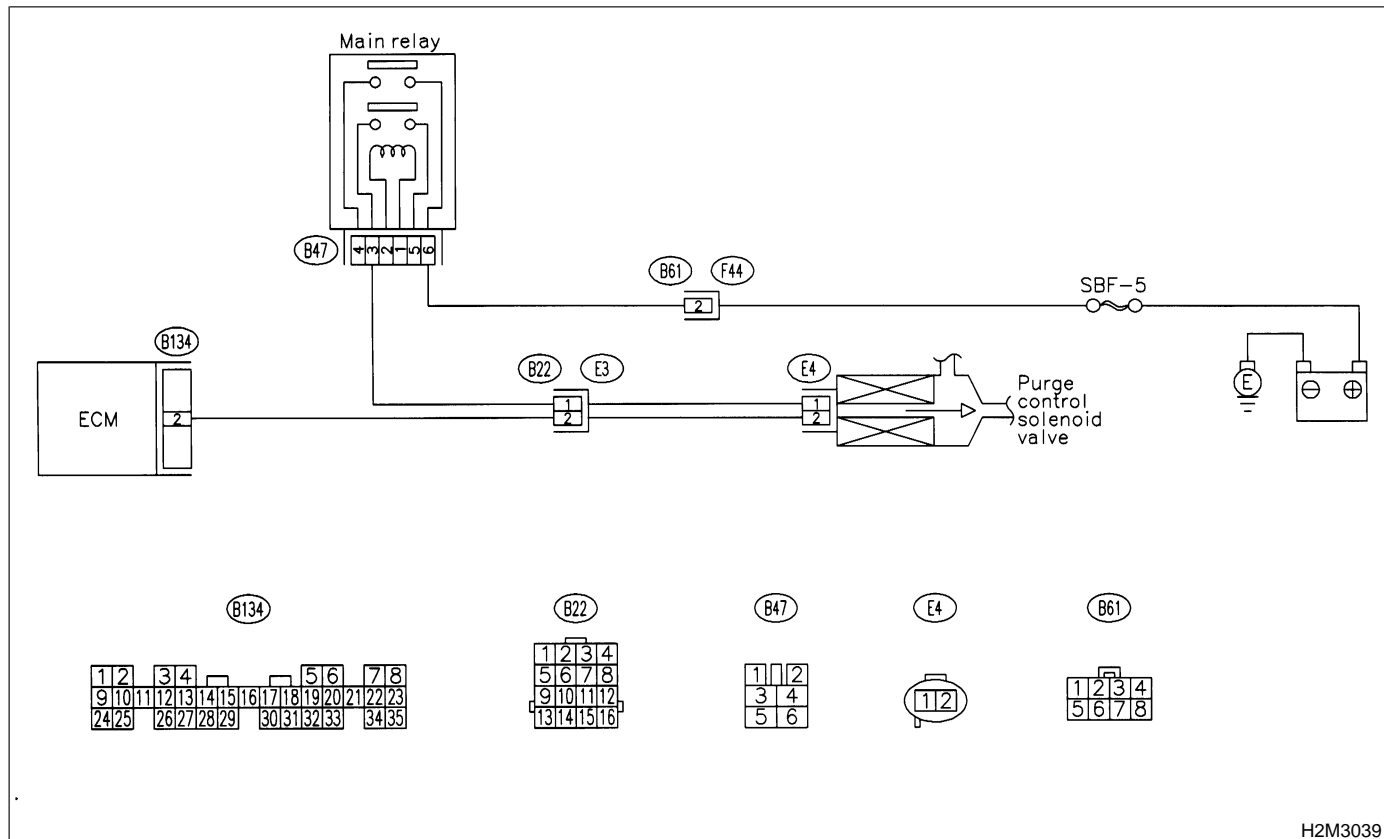
CG: DTC P1422 — EVAPORATIVE EMISSION CONTROL SYSTEM PURGE CONTROL VALVE CIRCUIT HIGH INPUT —

- **DTC DETECTING CONDITION:**
 - Two consecutive driving cycles with fault
- **TROUBLE SYMPTOM:**
 - Erroneous idling

CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to 2-7 [T3D0].> and INSPECTION MODE <Ref. to 2-7 [T3E0].>

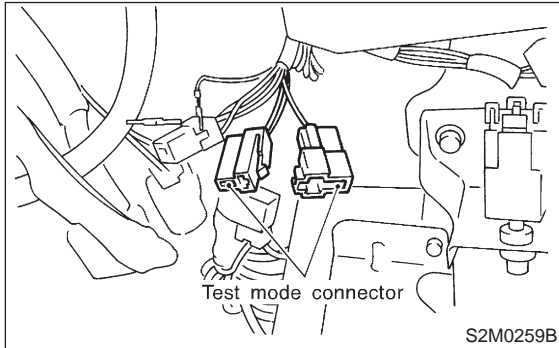
● **WIRING DIAGRAM:**



H2M3039

11CG1 : CHECK OUTPUT SIGNAL FROM ECM.

- 1) Turn ignition switch to OFF.
- 2) Connect test mode connector at the lower portion of instrument panel (on the driver's side), to the side of the center console box.



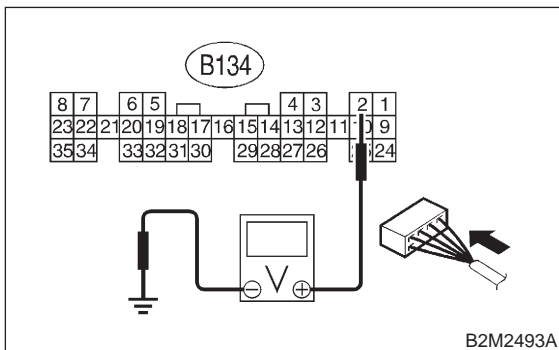
- 3) Turn ignition switch to ON.
- 4) Measure voltage between ECM and chassis ground.

NOTE:

Purge control solenoid valve operation check can be executed using Subaru Select Monitor. For procedure, refer to "COMPULSORY VALVE OPERATION CHECK MODE". <Ref. to 2-7 [T3F0].>

Connector & terminal

(B134) No. 2 (+) — Chassis ground (-):



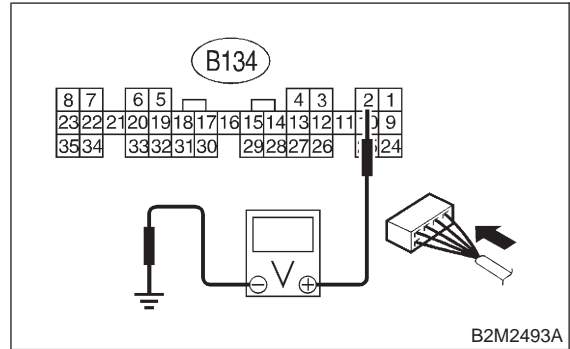
- CHECK** : Does voltage change between 0 and 10 volts?
- YES** : Go to step 11CG2.
- NO** : Even if MIL light up, the circuit has returned to a normal condition at this time. In this case, repair poor contact in ECM connector.

11CG2 : CHECK OUTPUT SIGNAL FROM ECM.

- 1) Turn ignition switch to ON.
- 2) Measure voltage between ECM and chassis ground.

Connector & terminal

(B134) No. 2 (+) — Chassis ground (-):



- CHECK** : Is the voltage more than 10 V?
- YES** : Go to step 11CG4.
- NO** : Go to step 11CG3.

11CG3 : CHECK POOR CONTACT.

Check poor contact in ECM connector. <Ref. to FOREWORD [T3C1].>

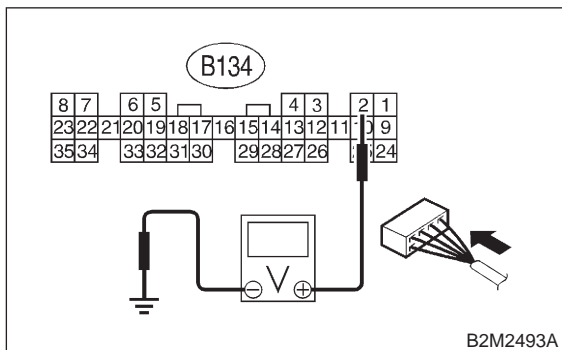
- CHECK** : Is there poor contact in ECM connector?
- YES** : Repair poor contact in ECM connector.
- NO** : Replace ECM. <Ref. to 2-7 [W15A0].>

11CG4 : CHECK HARNESS BETWEEN PURGE CONTROL SOLENOID VALVE AND ECM CONNECTOR.

- 1) Turn ignition switch to OFF.
- 2) Disconnect connector from purge control solenoid valve.
- 3) Turn ignition switch to ON.
- 4) Measure voltage between ECM and chassis ground.

Connector & terminal

(B134) No. 2 (+) — Chassis ground (-):



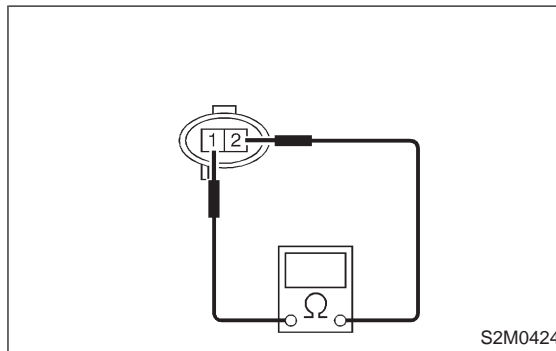
- CHECK** : **Is the voltage more than 10 V?**
- YES** : Repair battery short circuit in harness between ECM and purge control solenoid valve connector. After repair, replace ECM. <Ref. to 2-7 [W15A0].>
- NO** : Go to step **11CG5**.

11CG5 : CHECK PURGE CONTROL SOLENOID VALVE.

- 1) Turn ignition switch to OFF.
- 2) Measure resistance between purge control solenoid valve terminals.

Terminals

No. 1 — No. 2:



- CHECK** : **Is the resistance less than 1 Ω?**
- YES** : Replace purge control solenoid valve <Ref. to 2-1 [W4A0].> and ECM <Ref. to 2-7 [W15A0].>.
- NO** : Go to step **11CG6**.

11CG6 : CHECK POOR CONTACT.

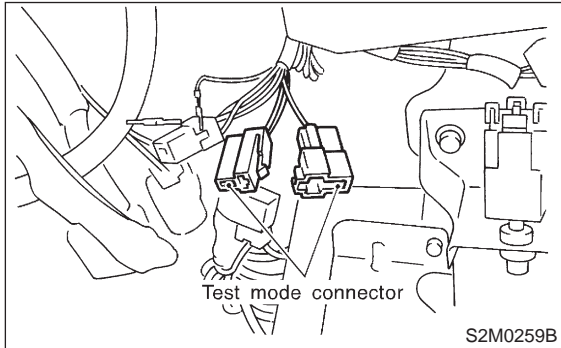
Check poor contact in ECM connector. <Ref. to FOREWORD [T3C1].>

- CHECK** : **Is there poor contact in ECM connector?**
- YES** : Repair poor contact in ECM connector.
- NO** : Replace ECM. <Ref. to 2-7 [W15A0].>

MEMO:

11CH1 : CHECK OUTPUT SIGNAL FROM ECM.

- 1) Turn ignition switch to OFF.
- 2) Connect test mode connector at the lower portion of instrument panel (on the driver's side), to the side of the center console box.



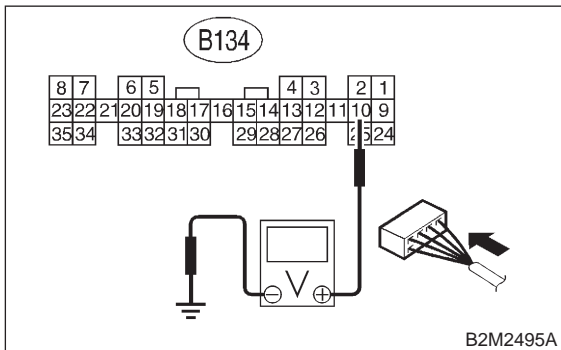
- 3) Turn ignition switch to ON.
- 4) Measure voltage between ECM and chassis ground.

NOTE:

Drain valve operation check can be executed using Subaru Select Monitor. For procedure, refer to "COMPULSORY VALVE OPERATION CHECK MODE". <Ref. to 2-7 [T3F0].>

Connector & terminal

(B134) No. 10 (+) — Chassis ground (-):



CHECK : **Does voltage change between 0 and 10 volts?**

YES : Go to step 11CH2.

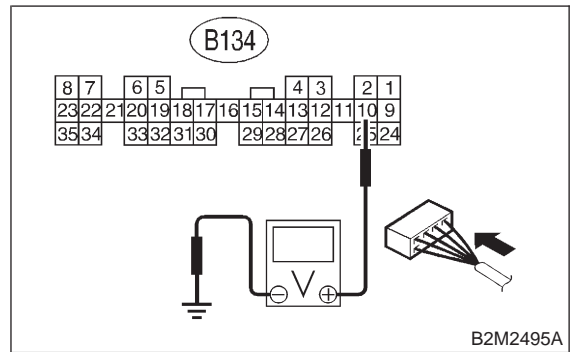
NO : Even if MIL light up, the circuit has returned to a normal condition at this time. In this case, repair poor contact in ECM connector.

11CH2 : CHECK OUTPUT SIGNAL FROM ECM.

- 1) Turn ignition switch to ON.
- 2) Measure voltage between ECM and chassis ground.

Connector & terminal

(B134) No. 10 (+) — Chassis ground (-):



CHECK : **Is the voltage more than 10 V?**

YES : Go to step 11CH4.

NO : Go to step 11CH3.

11CH3 : CHECK POOR CONTACT.

Check poor contact in ECM connector. <Ref. to FOREWORD [T3C1].>

CHECK : **Is there poor contact in ECM connector?**

YES : Repair poor contact in ECM connector.

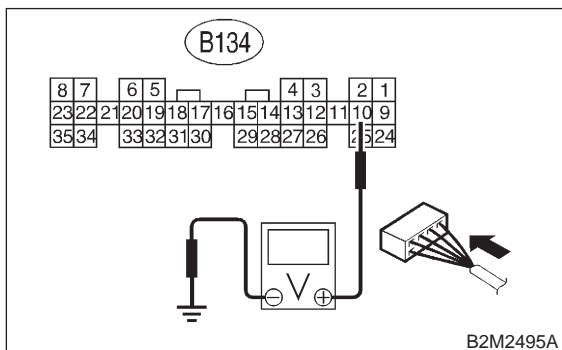
NO : Replace ECM. <Ref. to 2-7 [W15A0].>

11CH4 : CHECK HARNESS BETWEEN DRAIN VALVE AND ECM CONNECTOR.

- 1) Turn ignition switch to OFF.
- 2) Disconnect connector from drain valve.
- 3) Turn ignition switch to ON.
- 4) Measure voltage between ECM and chassis ground.

Connector & terminal

(B134) No. 10 (+) — Chassis ground (-):



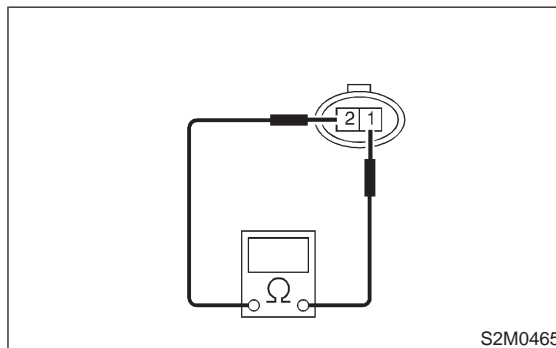
- CHECK** : **Is the voltage more than 10 V?**
- YES** : Repair battery short circuit in harness between ECM and drain valve connector. After repair, replace ECM. <Ref. to 2-7 [W15A0].>
- NO** : Go to step 11CH5.

11CH5 : CHECK DRAIN VALVE.

- 1) Turn ignition switch to OFF.
- 2) Measure resistance between drain valve terminals.

Terminals

No. 1 — No. 2:



- CHECK** : **Is the resistance less than 1 Ω?**
- YES** : Replace drain valve <Ref. to 2-1 [W13A0].> and ECM <Ref. to 2-7 [W15A0].>.
- NO** : Go to step 11CH6.

11CH6 : CHECK POOR CONTACT.

Check poor contact in ECM connector. <Ref. to FOREWORD [T3C1].>

- CHECK** : **Is there poor contact in ECM connector?**
- YES** : Repair poor contact in ECM connector.
- NO** : Replace ECM. <Ref. to 2-7 [W15A0].>

CI: DTC P1442 — FUEL LEVEL SENSOR CIRCUIT RANGE/PERFORMANCE PROBLEM 2 —

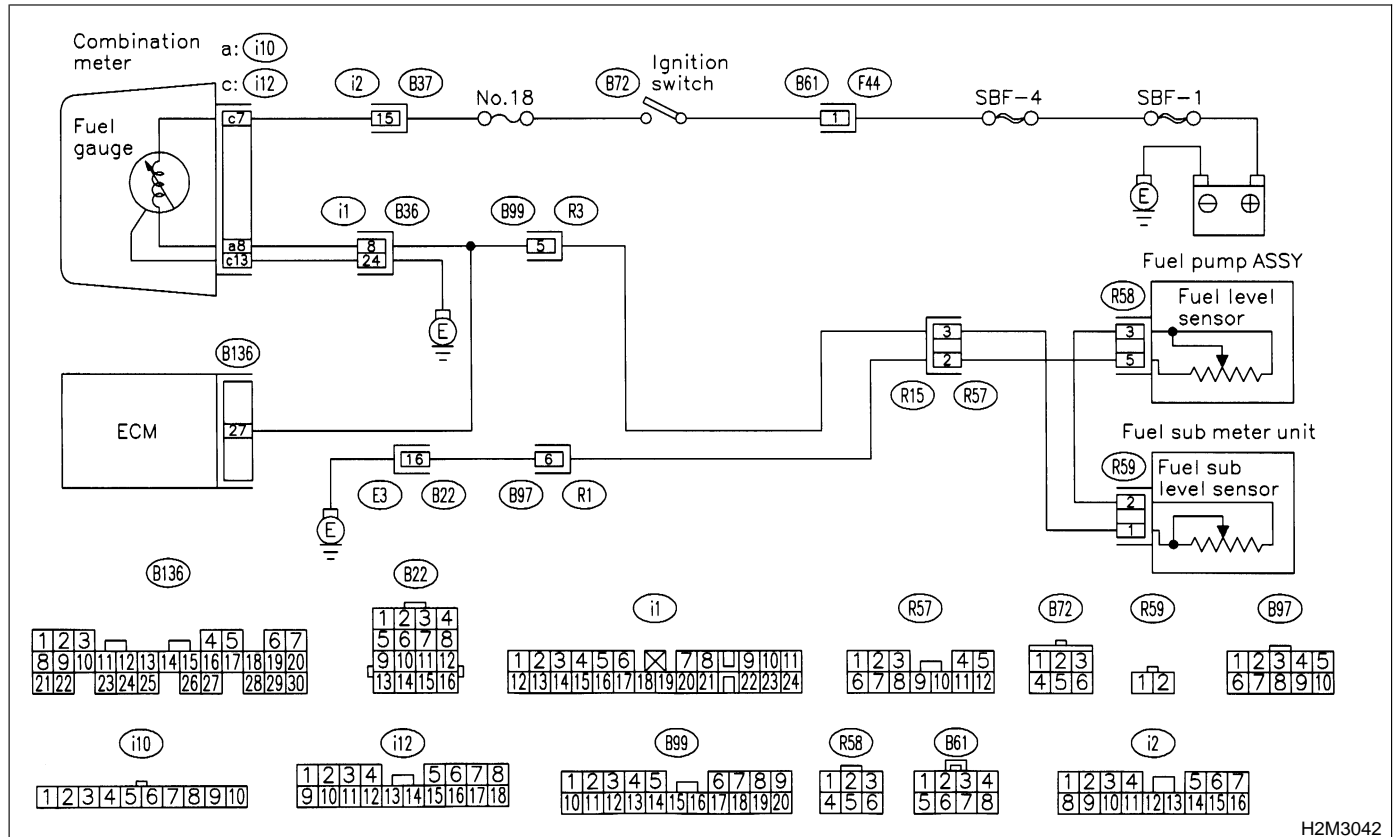
• DTC DETECTING CONDITION:

- Two consecutive driving cycles with fault

CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to 2-7 [T3D0].> and INSPECTION MODE <Ref. to 2-7 [T3E0].>

• WIRING DIAGRAM:



11C11 : CHECK ANY OTHER DTC ON DISPLAY.

- CHECK** : Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0461, P0462 or P0463?
- YES** : Inspect DTC P0461, P0462 or P0463 using "11. Diagnostics Chart with Trouble Code for Except 2200 cc California Spec. Vehicles". <Ref. to 2-7 [T11A0].>

NOTE:

In this case, it is not necessary to inspect this trouble.

- NO** : Replace fuel sending unit <Ref. to 2-1 [W8A0].> and fuel sub meter unit.

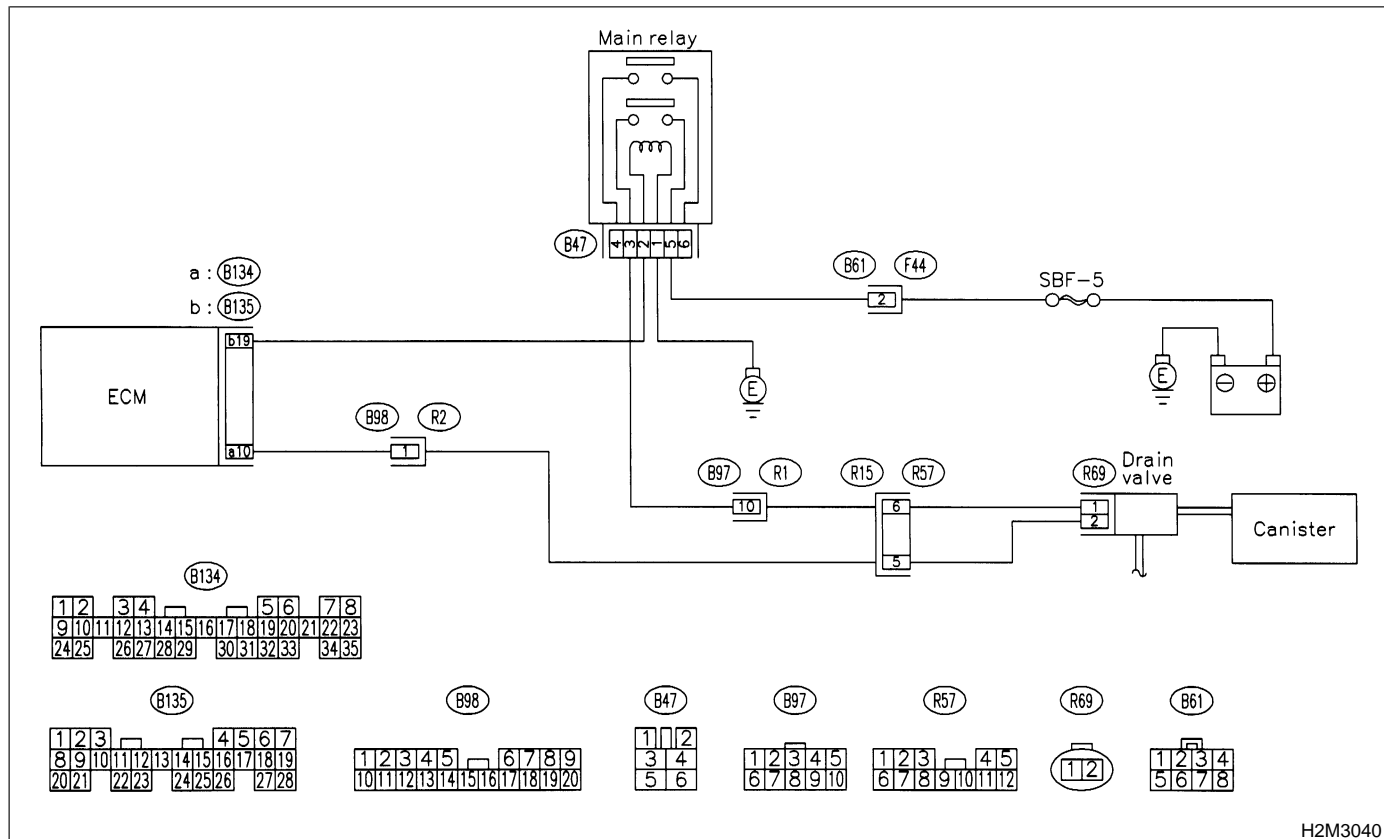
CJ: DTC P1443 — EVAPORATIVE EMISSION CONTROL SYSTEM VENT CONTROL FUNCTION PROBLEM —

- **DTC DETECTING CONDITION:**
 - Immediately after fault occurrence
- **TROUBLE SYMPTOM:**
 - Improper fuel supply

CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to 2-7 [T3D0].> and INSPECTION MODE <Ref. to 2-7 [T3E0].>

● **WIRING DIAGRAM:**



H2M3040

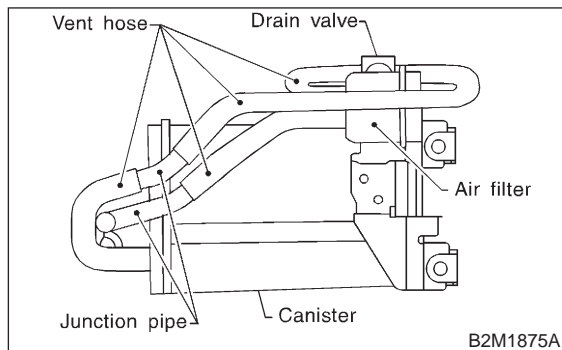
11CJ1 : CHECK ANY OTHER DTC ON DISPLAY.

- CHECK** : *Is there any other DTC on display?*
- YES** : Inspect the relevant DTC using “11. Diagnostics Chart with Trouble Code for Except 2200 cc California Spec. Vehicles”. <Ref. to 2-7 [T11A0].>
- NO** : Go to step **11CJ2**.

11CJ2 : CHECK VENT LINE HOSES.

Check the following items.

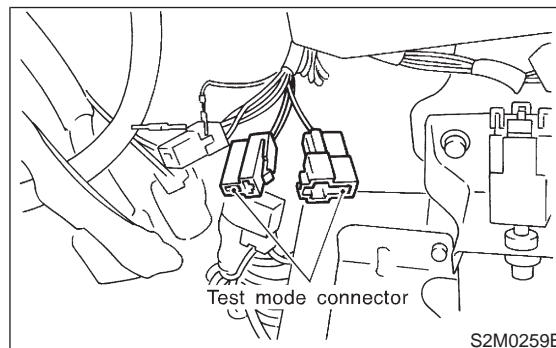
- Clogging of vent hoses between canister and drain valve
- Clogging of vent hose between drain valve and air filter
- Clogging of vent hose between air filter and junction pipe
- Clogging of junction pipe
- Clogging of air filter



- CHECK** : ***Is there a fault in vent line?***
- YES** : Repair or replace the faulty part.
- NO** : Go to step **11CJ3**.

11CJ3 : CHECK DRAIN VALVE OPERATION.

- 1) Turn ignition switch to OFF.
- 2) Connect test mode connector at the lower portion of instrument panel (on the driver's side), to the side of the center console box.



- 3) Turn ignition switch to ON.

NOTE:

Drain valve operation check can also be executed using Subaru Select Monitor. For the procedure, refer to the "COMPULSORY VALVE OPERATION CHECK MODE". <Ref. to 2-7 [T3F0].>

- CHECK** : ***Does drain valve produce operating sound?***

- YES** : Contact with SOA service.

NOTE:

Inspection by DTM is required, because probable cause is deterioration of multiple parts.

- NO** : Replace drain valve. <Ref. to 2-1 [W13A0].>

CK: DTC P1507 — IDLE CONTROL SYSTEM MALFUNCTION (FAIL-SAFE) —

• DTC DETECTING CONDITION:

- Two consecutive driving cycles with fault

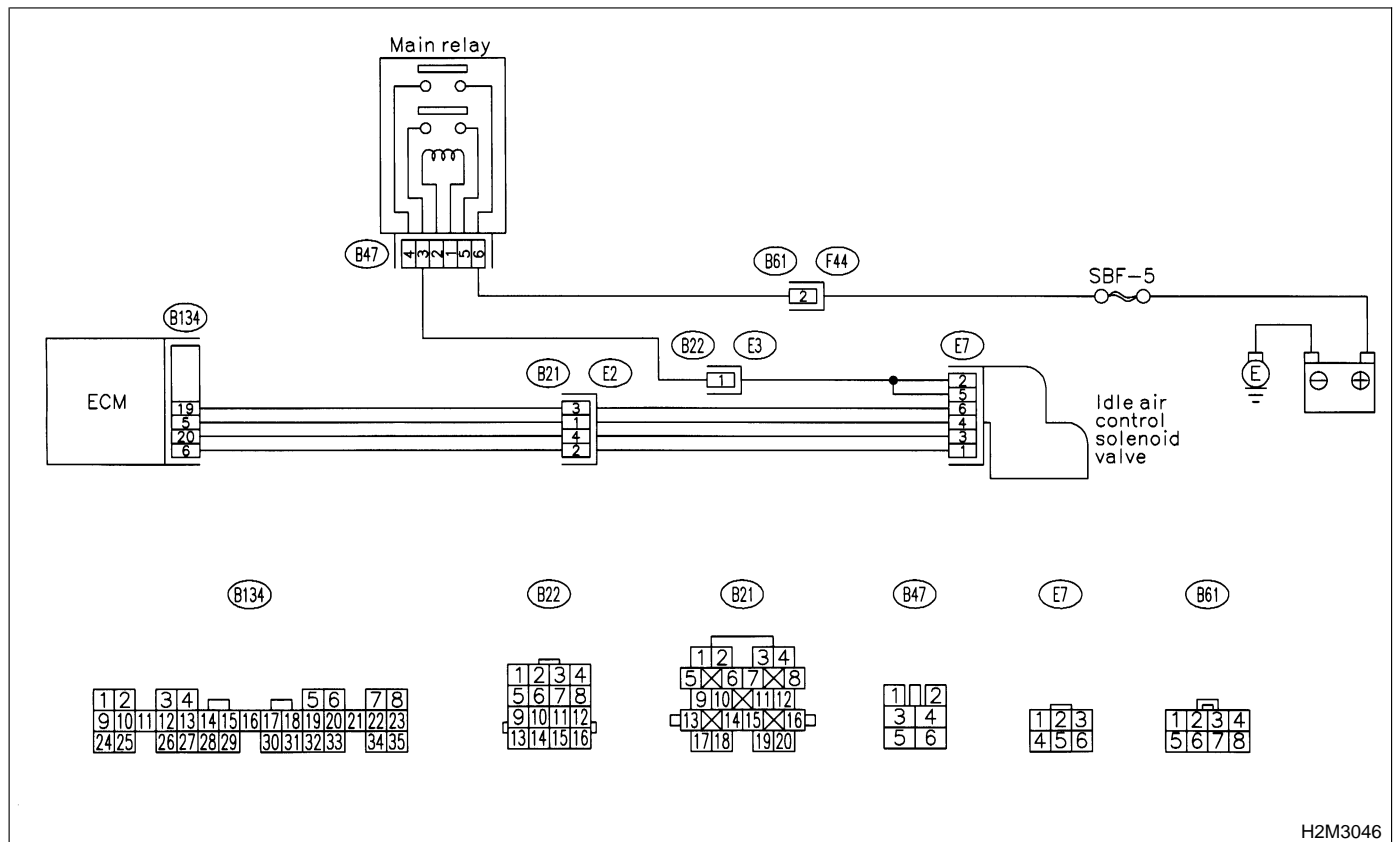
• TROUBLE SYMPTOM:

- Engine keeps running at higher revolution than specified idling revolution.

CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to 2-7 [T3D0].> and INSPECTION MODE <Ref. to 2-7 [T3E0].>

• WIRING DIAGRAM:



H2M3046

11CK1 : CHECK ANY OTHER DTC ON DISPLAY.

CHECK : Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0116 or P0117 or P0505 or P1505?

YES : Inspect DTC P0116 or P0117 or P0505 or P1505 using "11. Diagnostics Chart with Trouble Code for Except 2200 cc California Spec. Vehicles". <Ref. to 2-7 [T11A0].>

NOTE:
In this case, it is not necessary to inspect DTC P1507.

NO : Go to step 11CK2.

11CK2 : CHECK AIR INTAKE SYSTEM.

- 1) Turn ignition switch to ON.
- 2) Start engine, and idle it.
- 3) Check the following items.
 - Loose installation of intake manifold, idle air control solenoid valve and throttle body
 - Cracks of intake manifold gasket, idle air control solenoid valve gasket and throttle body gasket
 - Disconnections of vacuum hoses

CHECK : Is there a fault in air intake system?

YES : Repair air suction and leaks.

NO : Replace idle air control solenoid valve. <Ref. to 2-7 [W12A2].>

MEMO:

**CL: DTC P1510 — IDLE AIR CONTROL SOLENOID VALVE SIGNAL 1
CIRCUIT LOW INPUT —****NOTE:**

For the diagnostic procedure, refer to 2-7 [T11CR0]. <Ref. to 2-7 [T11CR0].>

**CM: DTC P1511 — IDLE AIR CONTROL SOLENOID VALVE SIGNAL 1
CIRCUIT HIGH INPUT —****NOTE:**

For the diagnostic procedure, refer to 2-7 [T11CS0]. <Ref. to 2-7 [T11CS0].>

**CN: DTC P1512 — IDLE AIR CONTROL SOLENOID VALVE SIGNAL 2
CIRCUIT LOW INPUT —****NOTE:**

For the diagnostic procedure, refer to 2-7 [T11CR0]. <Ref. to 2-7 [T11CR0].>

**CO: DTC P1513 — IDLE AIR CONTROL SOLENOID VALVE SIGNAL 2
CIRCUIT HIGH INPUT —****NOTE:**

For the diagnostic procedure, refer to 2-7 [T11CR0]. <Ref. to 2-7 [T11CR0].>

**CP: DTC P1514 — IDLE AIR CONTROL SOLENOID VALVE SIGNAL 3
CIRCUIT LOW INPUT —****NOTE:**

For the diagnostic procedure, refer to 2-7 [T11CR0]. <Ref. to 2-7 [T11CR0].>

**CQ: DTC P1515 — IDLE AIR CONTROL SOLENOID VALVE SIGNAL 3
CIRCUIT HIGH INPUT —****NOTE:**

For the diagnostic procedure, refer to 2-7 [T11CR0]. <Ref. to 2-7 [T11CR0].>

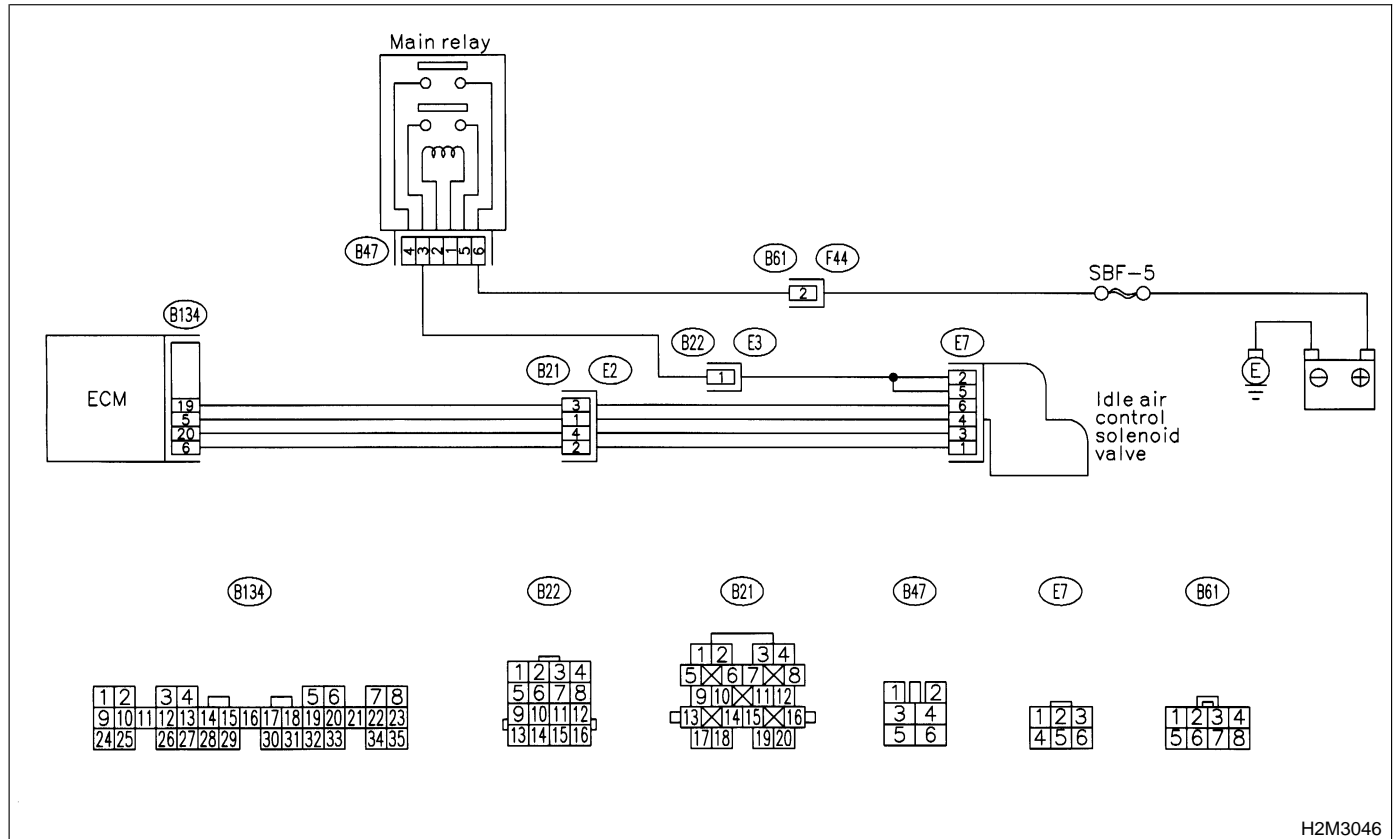
**CR: DTC P1516 — IDLE AIR CONTROL SOLENOID VALVE SIGNAL 4
CIRCUIT LOW INPUT —**

- **DTC DETECTING CONDITION:**
 - Immediately at fault recognition
- **TROUBLE SYMPTOM:**
 - Erroneous idling
 - Engine stalls.
 - Engine breathing

CAUTION:

After repair or replacement of faulty parts, conduct **CLEAR MEMORY MODE** <Ref. to 2-7 [T3D0].> and **INSPECTION MODE** <Ref. to 2-7 [T3E0].>

● **WIRING DIAGRAM:**

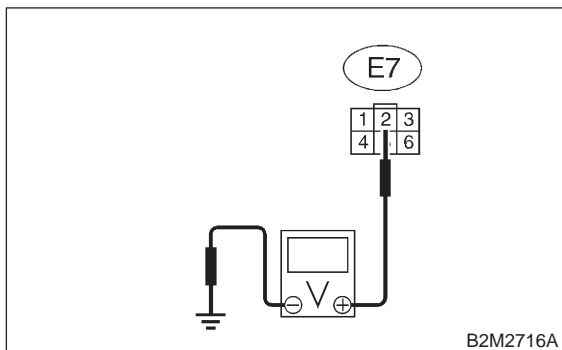


11CR1 : CHECK POWER SUPPLY TO IDLE AIR CONTROL SOLENOID VALVE.

- 1) Turn ignition switch to OFF.
- 2) Disconnect connector from idle air control solenoid valve.
- 3) Turn ignition switch to ON.
- 4) Measure voltage between idle air control solenoid valve connector and engine ground.

Connector & terminal

(E7) No. 2 (+) — Engine ground (-):



CHECK : *Is the voltage more than 10 V?*

YES : Go to step 11CR2.

NO : Repair harness and connector.

NOTE:

In this case, repair the following:

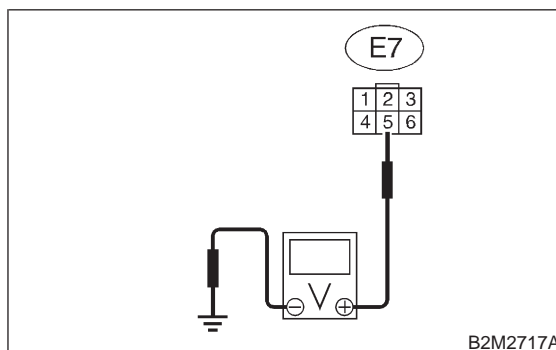
- Open circuit in harness between idle air control solenoid valve and main relay connector
- Poor contact in coupling connector (B22)

11CR2 : CHECK POWER SUPPLY TO IDLE AIR CONTROL SOLENOID VALVE.

Measure voltage between idle air control solenoid valve connector and engine ground.

Connector & terminal

(E7) No. 5 (+) — Engine ground (-):



CHECK : *Is the voltage more than 10 V?*

YES : Go to step 11CR3.

NO : Repair harness and connector.

NOTE:

In this case, repair the following:

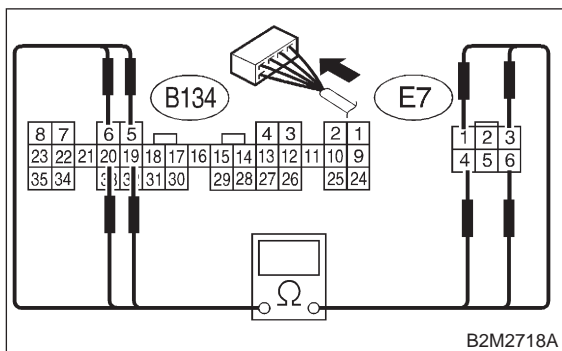
- Open circuit in harness between idle air control solenoid valve and main relay connector
- Poor contact in coupling connector (B22)

11CR3 : CHECK HARNESS BETWEEN ECM AND IDLE AIR CONTROL SOLENOID VALVE CONNECTOR.

- 1) Turn ignition switch to OFF.
- 2) Measure resistance between ECM and idle air control solenoid valve connector.

Connector & terminal

- #1; (B134) No. 5 — (E7) No. 4:
- #2; (B134) No. 6 — (E7) No. 1:
- #3; (B134) No. 19 — (E7) No. 6:
- #4; (B134) No. 20 — (E7) No. 3:



- CHECK** : Is the resistance less than 1 Ω?
- YES** : Go to step 11CR4.
- NO** : Repair harness and connector.

NOTE:

In this case, repair the following:

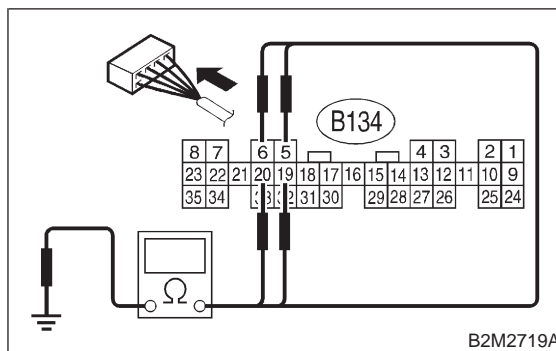
- Open circuit in harness between ECM and idle air control solenoid valve connector
- Poor contact in coupling connector (B21)

11CR4 : CHECK HARNESS BETWEEN ECM AND IDLE AIR CONTROL SOLENOID VALVE CONNECTOR.

- 1) Disconnect connector from ECM.
- 2) Measure resistance between ECM connector and chassis ground.

Connector & terminal

- #1; (B134) No. 5 — Chassis ground:
- #2; (B134) No. 6 — Chassis ground:
- #3; (B134) No. 19 — Chassis ground:
- #4; (B134) No. 20 — Chassis ground:



- CHECK** : Is the resistance less than 10 Ω?
- YES** : Repair ground short circuit in harness between ECM and idle air control solenoid valve connector.
- NO** : Go to step 11CR5.

11CR5 : CHECK POOR CONTACT.

Check poor contact in ECM connector and idle air control solenoid valve connector. <Ref. to FOREWORD [T3C1].>

CHECK : *Is there poor contact in ECM connector or idle air control solenoid valve connector?*

YES : Repair poor contact in ECM connector or idle air control solenoid valve connector.

NO : Replace idle air control solenoid valve. <Ref. to 2-7 [W12A0].>

MEMO:

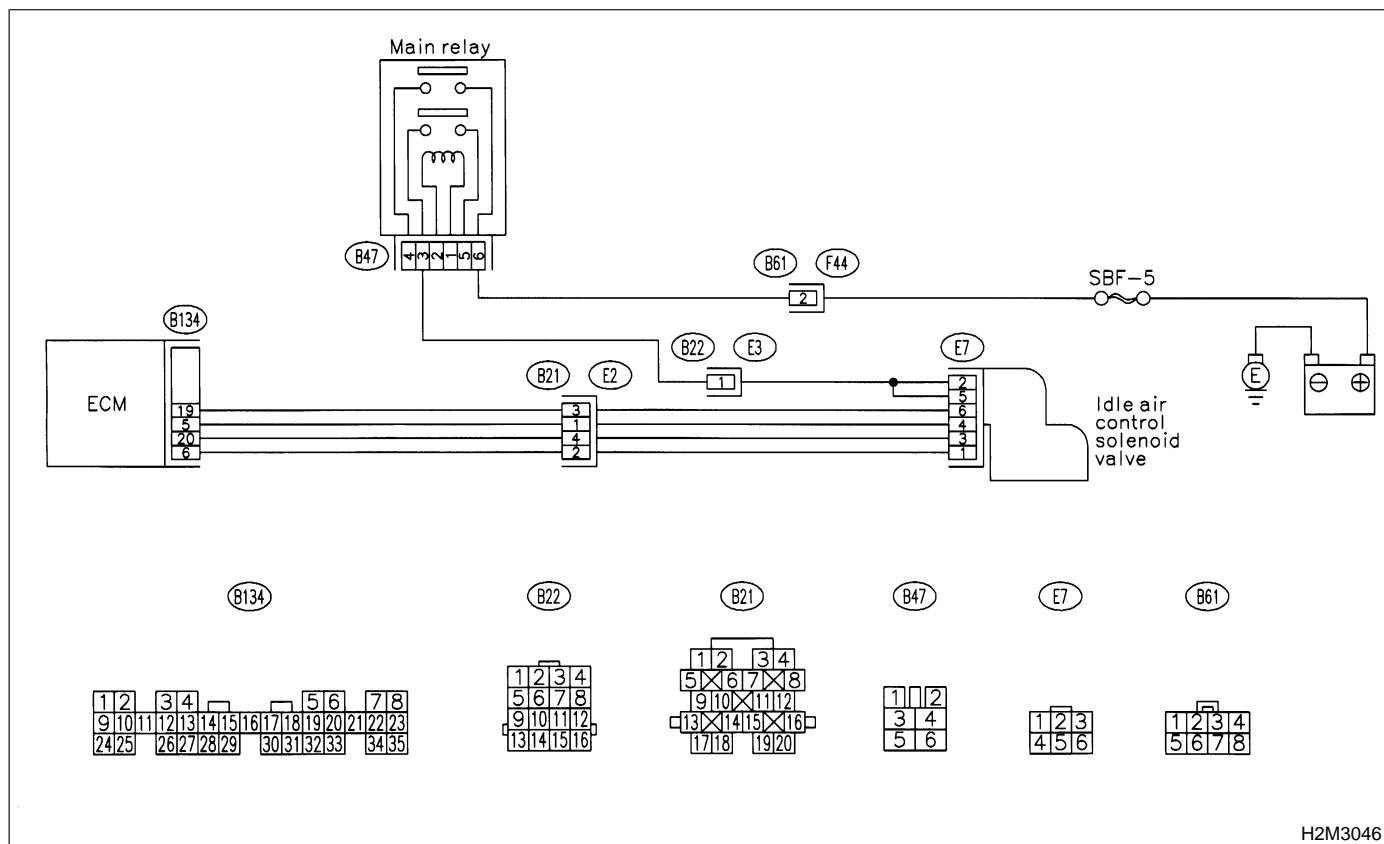
**CS: DTC P1517 — IDLE AIR CONTROL SOLENOID VALVE SIGNAL 4
CIRCUIT HIGH INPUT —**

- **DTC DETECTING CONDITION:**
 - Immediately at fault recognition
- **TROUBLE SYMPTOM:**
 - Erroneous idling
 - Engine stalls.
 - Engine breathing

CAUTION:

After repair or replacement of faulty parts, conduct **CLEAR MEMORY MODE** <Ref. to 2-7 [T3D0].> and **INSPECTION MODE** <Ref. to 2-7 [T3E0].>

● **WIRING DIAGRAM:**



H2M3046

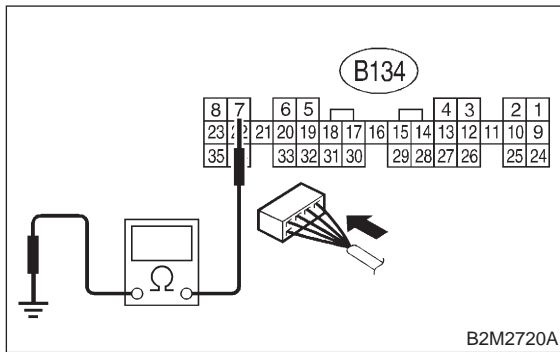
11CS1 : CHECK ANY OTHER DTC ON DISPLAY.

- CHECK** : Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P1511, P1513, P1515 and P1517 at same time?
- YES** : Go to step 11CS2.
- NO** : Go to step 11CS3.

11CS2 : CHECK GROUND CIRCUIT FOR ECM.

- 1) Turn ignition switch to OFF.
- 2) Measure resistance between ECM connector and chassis ground.

Connector & terminal
(B134) No. 7 — Chassis ground:



- CHECK** : Is the resistance less than 5 Ω?
- YES** : Go to step 11CS3.
- NO** : Repair harness and connector.

NOTE:

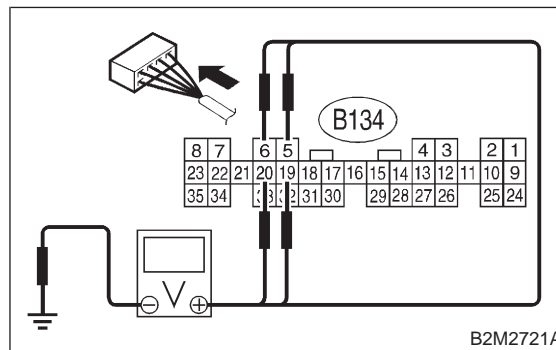
In this case, repair the following:

- Open circuit in harness between ECM connector and engine ground terminal
- Poor contact in ECM connector
- Poor contact in coupling connector (B22)

11CS3 : CHECK HARNESS BETWEEN ECM AND IDLE AIR CONTROL SOLENOID VALVE CONNECTOR.

- 1) Turn ignition switch to OFF.
- 2) Disconnect connector from idle air control solenoid valve.
- 3) Turn ignition switch to ON.
- 4) Measure voltage between ECM connector and chassis ground.

Connector & terminal
#1; (B134) No. 5 (+) — Chassis ground
(-):
#2; (B134) No. 6 (+) — Chassis ground
(-):
#3; (B134) No. 19 (+) — Chassis ground
(-):
#4; (B134) No. 20 (+) — Chassis ground
(-):



- CHECK** : Is the voltage more than 10 V?
- YES** : Repair battery short circuit in harness between ECM and idle air control solenoid valve connector. After repair, replace ECM. <Ref. to 2-7 [W15A0].>
- NO** : Replace ECM. <Ref. to 2-7 [W15A0].>

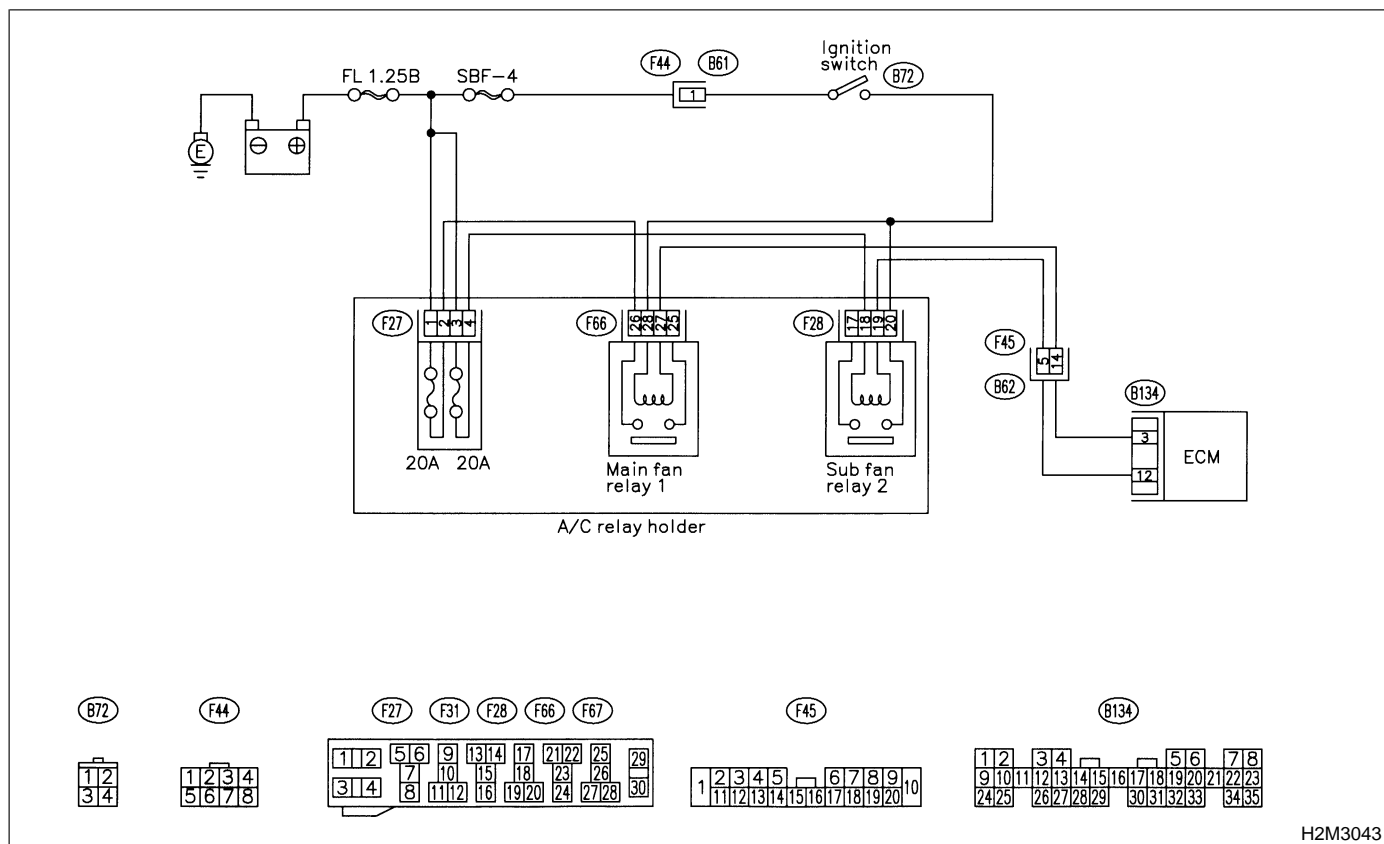
CT: DTC P1520 — COOLING FAN RELAY 1 CIRCUIT HIGH INPUT —

- **DTC DETECTING CONDITION:**
 - Two consecutive driving cycles with fault
- **TROUBLE SYMPTOM:**
 - Radiator fan does not operate properly.
 - Overheating

CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to 2-7 [T3D0].> and INSPECTION MODE <Ref. to 2-7 [T3E0].>

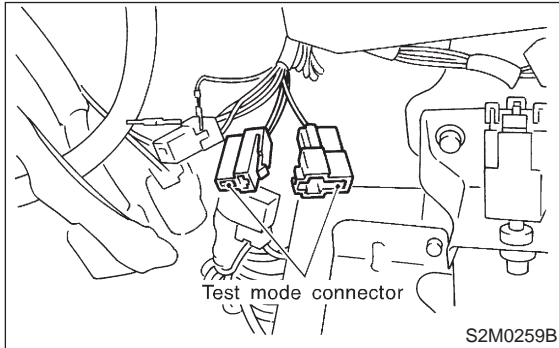
● **WIRING DIAGRAM:**



H2M3043

11CT1 : CHECK OUTPUT SIGNAL FROM ECM.

- 1) Turn ignition switch to OFF.
- 2) Connect test mode connector at the lower portion of instrument panel (on the driver's side), to the side of the center console box.



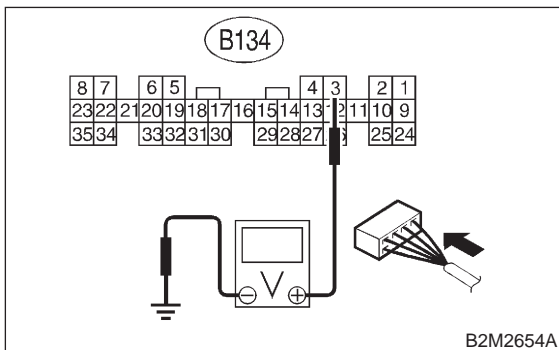
- 3) Turn ignition switch to ON.
- 4) Measure voltage between ECM and chassis ground.

NOTE:

Radiator fan relay operation check can be executed using Subaru Select Monitor. For procedure, refer to "COMPULSORY VALVE OPERATION CHECK MODE". <Ref. to 2-7 [T3F0].>

Connector & terminal

(B134) No. 3 (+) — Chassis ground (-):



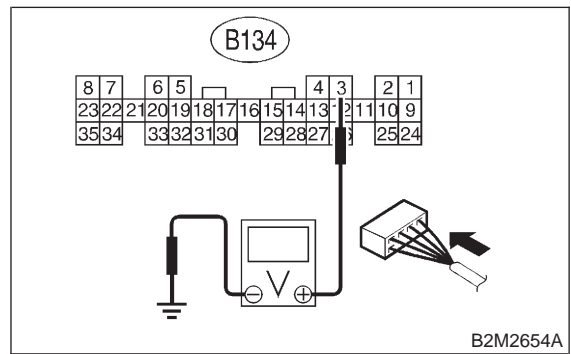
- CHECK** : **Does voltage change between 0 and 10 volts?**
- YES** : Even if MIL lights up, the circuit has returned to a normal condition at this time. In this case, repair poor contact in ECM connector.
- NO** : Go to step **11CT2**.

11CT2 : CHECK SHORT CIRCUIT IN RADIATOR FAN RELAY 1 CONTROL CIRCUIT.

- 1) Turn ignition switch to OFF.
- 2) Remove main fan relay 1 and sub fan relay 1. (with A/C models)
Remove main fan relay. (without A/C models)
- 3) Disconnect test mode connector.
- 4) Turn ignition switch to ON.
- 5) Measure voltage between ECM and chassis ground.

Connector & terminal

(B134) No. 3 (+) — Chassis ground (-):



- CHECK** : **Is the voltage more than 10 V?**
- YES** : Repair battery short circuit in radiator fan relay 1 control circuit. After repair, replace ECM. <Ref. to 2-7 [W15A0].>
- NO** : Go to step **11CT3**.

11CT3 : CHECK VEHICLE MODEL.

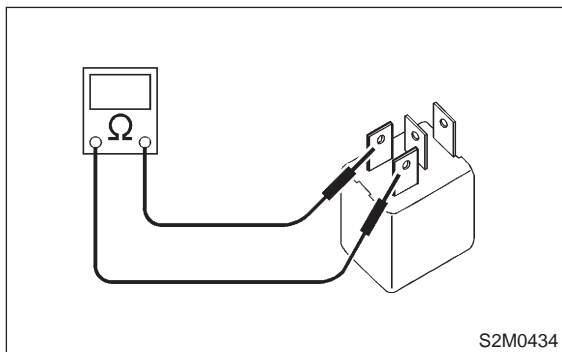
- CHECK** : **Is the vehicle equipped with A/C?**
- YES** : Go to step **11CT4**.
- NO** : Go to step **11CT6**.

11CT4 : CHECK MAIN FAN RELAY 1.

- 1) Turn ignition switch to OFF.
- 2) Remove main fan relay 1.
- 3) Measure resistance between main fan relay 1 terminals.

Terminal

No. 27 — No. 28:



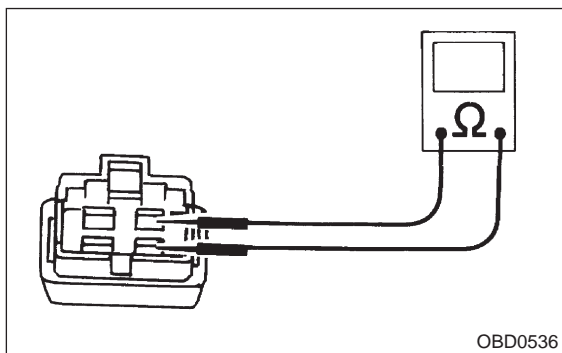
- CHECK** : **Is the resistance less than 1 Ω?**
- YES** : Replace main fan relay 1 and ECM <Ref. to 2-7 [W15A0].>
- NO** : Go to step 11CT5.

11CT5 : CHECK SUB FAN RELAY 1.

- 1) Remove sub fan relay 1.
- 2) Measure resistance between sub fan relay 1 terminals.

Terminal

No. 20 — No. 19



- CHECK** : **Is the resistance less than 1 Ω?**
- YES** : Replace sub fan relay 1 and ECM <Ref. to 2-7 [W15A0].>
- NO** : Go to step 11CT6.

11CT6 : CHECK POOR CONTACT.

Check poor contact in ECM connector. <Ref. to FOREWORD [T3C1].>

- CHECK** : **Is there poor contact in ECM connector?**
- YES** : Repair poor contact in ECM connector.
- NO** : Replace ECM. <Ref. to 2-7 [W15A0].>

MEMO:

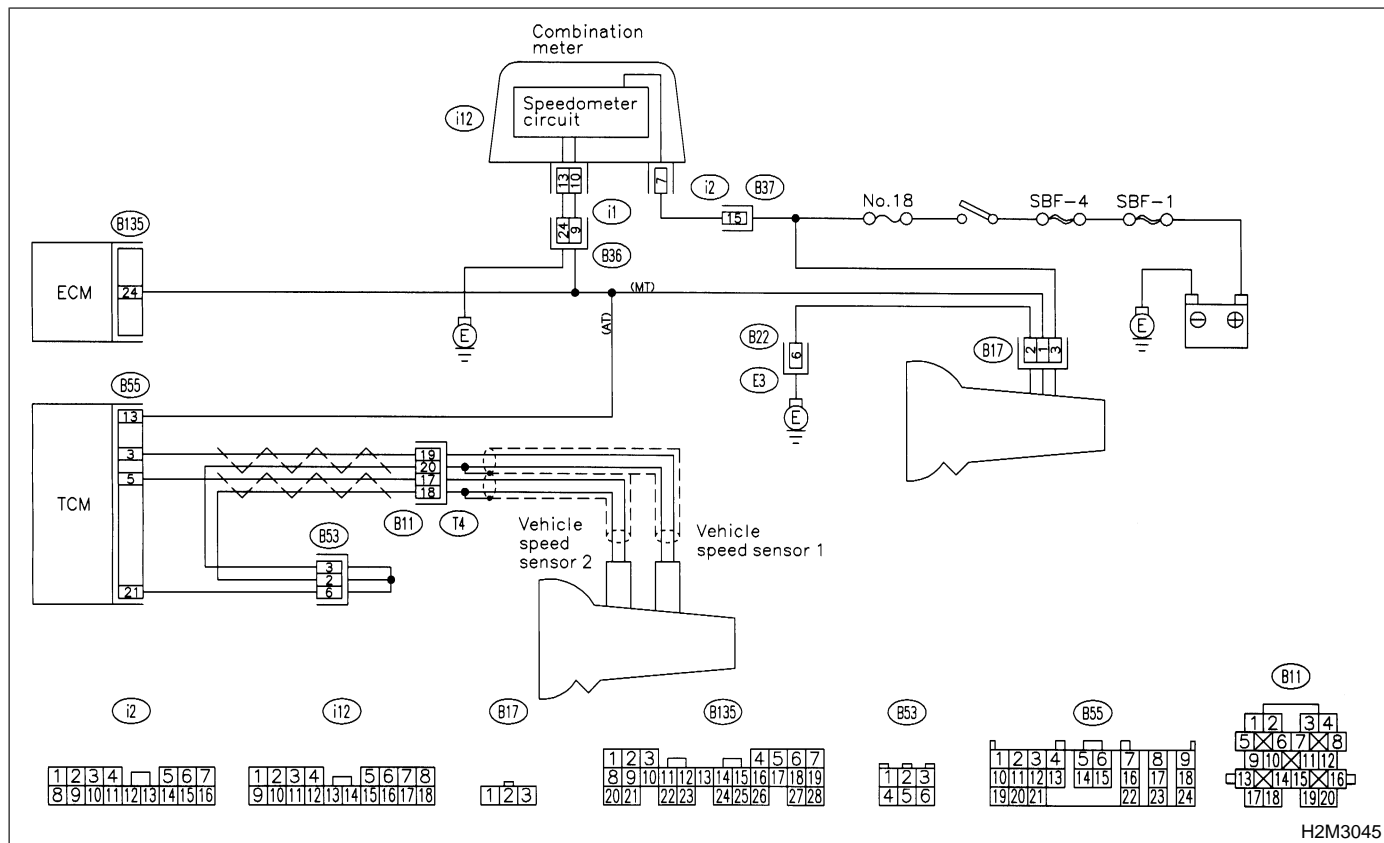
CU: DTC P1540 — VEHICLE SPEED SENSOR MALFUNCTION 2 —

- **DTC DETECTING CONDITION:**
 - Immediately at fault recognition

CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to 2-7 [T3D0].> and INSPECTION MODE <Ref. to 2-7 [T3E0].>

● **WIRING DIAGRAM:**



11CU1 : CHECK TRANSMISSION TYPE.

- CHECK** : *Is transmission type AT?*
- YES** : Go to step 11CU2.
- NO** : Go to step 11CU3.

11CU2 : CHECK DTC P0720 ON DISPLAY.

- CHECK** : *Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0720?*
- YES** : Check vehicle speed sensor 2 signal circuit. <Ref. to 3-2 [T8G0].>
- NO** : Go to step 11CU3.

11CU3 : CHECK SPEEDOMETER OPERATION IN COMBINATION METER.

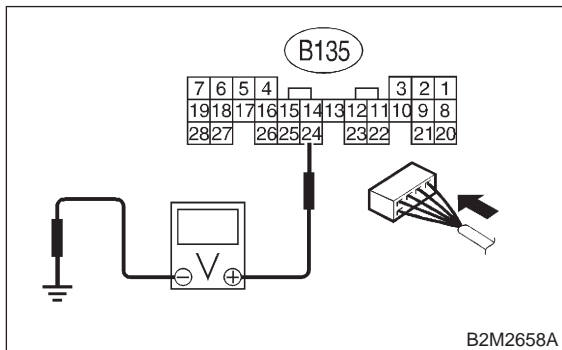
- CHECK** : *Does speedometer operate normally?*
- YES** : Go to step 11CU4.
- NO** : Check speedometer and vehicle speed sensor. <Ref. to 6-2 [K2A4].>

11CU4 : CHECK HARNESS BETWEEN ECM AND COMBINATION METER CONNECTOR.

- 1) Turn ignition switch to OFF.
- 2) Disconnect connector from TCM.
- 3) Turn ignition switch to ON.
- 4) Measure voltage between ECM and chassis ground.

Connector & terminal

(B135) No. 24 (+) — Chassis ground (-):



- CHECK** : *Is the voltage more than 2 V?*
- YES** : Repair harness and connector.

NOTE:

In this case, repair the following:

- Open circuit in harness between ECM and combination meter connector
- Poor contact in ECM connector
- Poor contact in combination meter connector

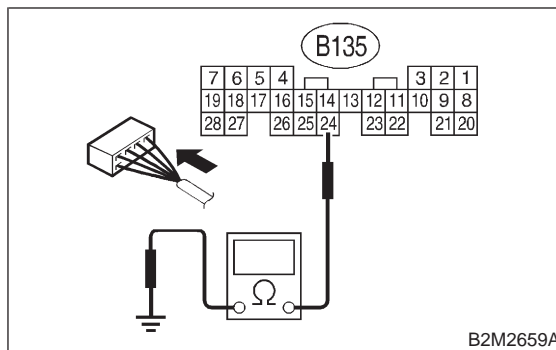
- NO** : Go to step **11CU5**.

11CU5 : CHECK HARNESS BETWEEN ECM AND COMBINATION METER CONNECTOR.

- 1) Turn ignition switch to OFF.
- 2) Disconnect connector from ECM.
- 3) Measure resistance of harness between ECM connector and chassis ground.

Connector & terminal

(B135) No. 24 — Chassis ground:



- CHECK** : *Is the resistance less than 10 Ω?*
- YES** : Repair ground short circuit in harness between ECM and combination meter connector.
- NO** : Repair poor contact in ECM connector.

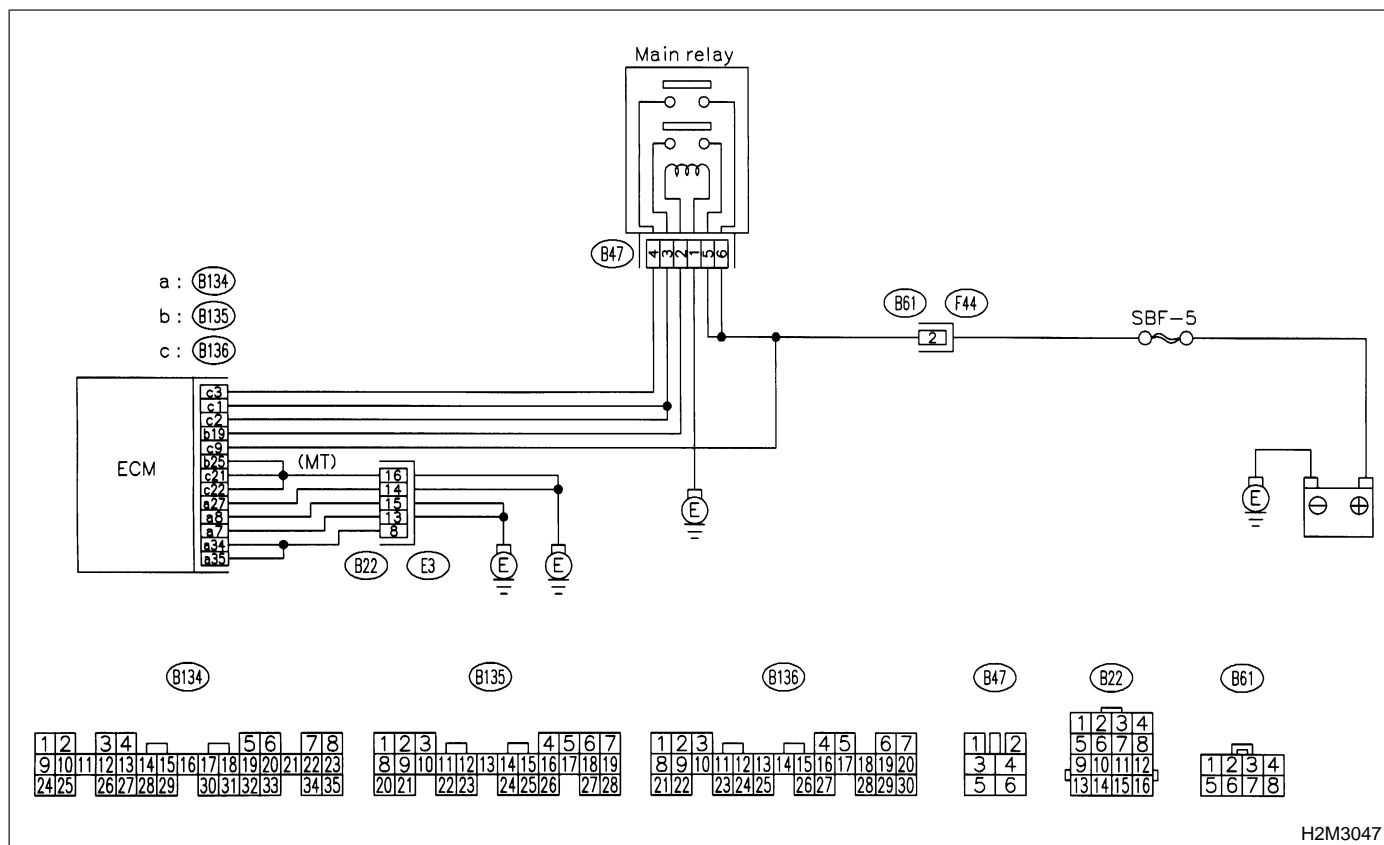
CV: DTC P1560 — BACK-UP VOLTAGE CIRCUIT MALFUNCTION —

- **DTC DETECTING CONDITION:**
 - Two consecutive driving cycles with fault

CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to 2-7 [T3D0].> and INSPECTION MODE <Ref. to 2-7 [T3E0].>

● **WIRING DIAGRAM:**



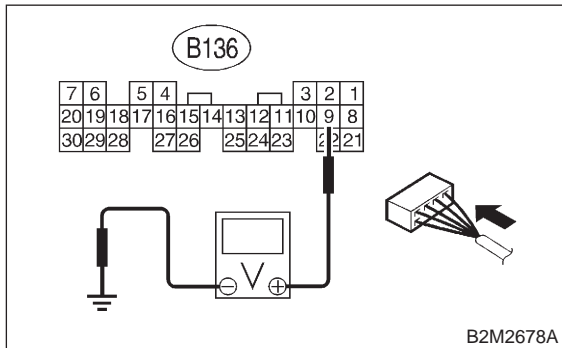
H2M3047

11CV1 : CHECK INPUT SIGNAL FOR ECM.

- 1) Turn ignition switch to OFF.
- 2) Measure voltage between ECM and chassis ground.

Connector & terminal

(B136) No. 9 (+) — Chassis ground (-):



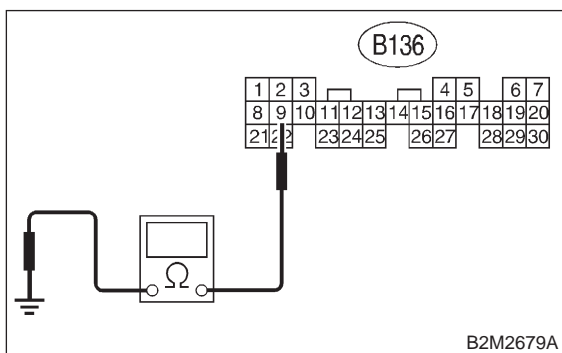
- CHECK** : **Is the voltage more than 10 V?**
- YES** : Repair poor contact in ECM connector.
- NO** : Go to step 11CV2.

11CV2 : CHECK HARNESS BETWEEN ECM AND MAIN FUSE BOX CONNECTOR.

- 1) Disconnect connector from ECM.
- 2) Measure resistance of harness between ECM and chassis ground.

Connector & terminal

(B136) No. 9 — Chassis ground:



- CHECK** : **Is the resistance less than 10 Ω?**
- YES** : Repair ground short circuit in harness between ECM connector and battery terminal.
- NO** : Go to step 11CV3.

11CV3 : CHECK FUSE SBF-2.

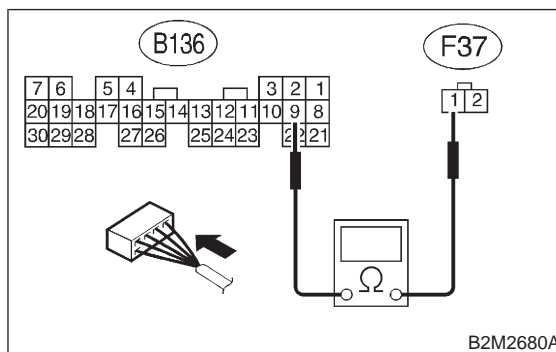
- CHECK** : **Is fuse blown?**
- YES** : Replace fuse. <Ref. to 6-3 [D6B1].>
- NO** : Go to step 11CV4.

11CV4 : CHECK HARNESS BETWEEN ECM AND MAIN FUSE BOX CONNECTOR.

- 1) Disconnect connector from main fuse box.
- 2) Measure resistance of harness between ECM and main fuse box connector.

Connector & terminal

(B136) No. 9 — (F37) No. 1:



- CHECK** : **Is the resistance less than 1 Ω?**
- YES** : Repair poor contact in ECM and main fuse box connector.
- NO** : Repair harness and connector.

NOTE:

In this case, repair the following:

- Open circuit in harness between ECM and main fuse box connector
- Poor contact in coupling connector (F44)
- Poor contact in ECM connector
- Poor contact in main fuse box connector

CW: DTC P1700 — THROTTLE POSITION SENSOR CIRCUIT MALFUNCTION FOR AUTOMATIC TRANSMISSION —

● **DTC DETECTING CONDITION:**

- Two consecutive driving cycles with fault

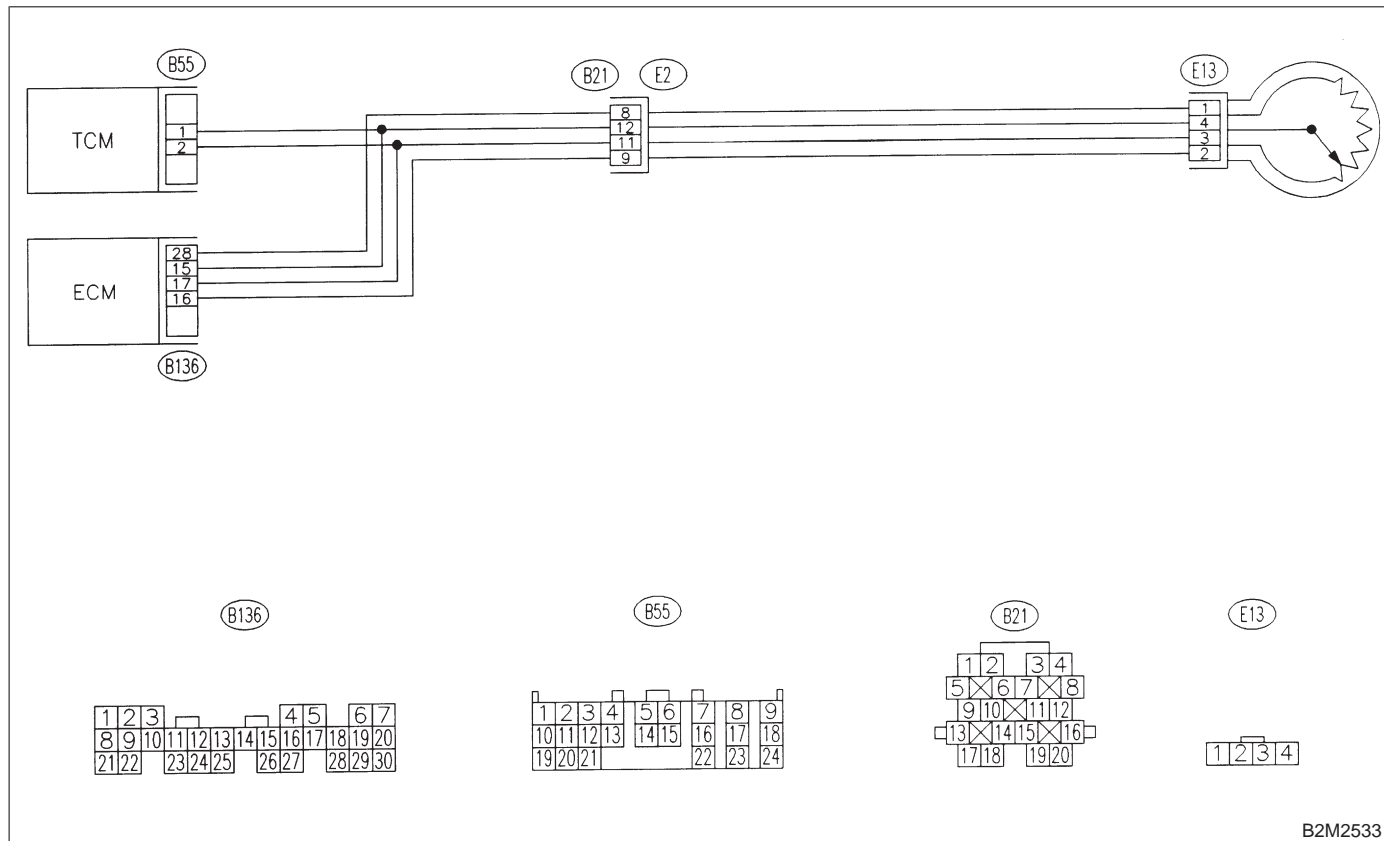
● **TROUBLE SYMPTOM:**

- Shift point too high or too low; engine brake not effected in “3” range; excessive shift shock; excessive tight corner “braking”

CAUTION:

After repair or replacement of faulty parts, conduct **CLEAR MEMORY MODE** <Ref. to 2-7 [T3D0].> and **INSPECTION MODE** <Ref. to 2-7 [T3E0].>

● **WIRING DIAGRAM:**



B2M2533

11CW1 : CHECK DTC P1700 ON DISPLAY.

CHECK : Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P1700?

YES : Check throttle position sensor circuit. <Ref. to 3-2 [T8F0].>

NO : It is not necessary to inspect DTC P1700.

MEMO:

CX: DTC P1701 — CRUISE CONTROL SET SIGNAL CIRCUIT MALFUNCTION FOR AUTOMATIC TRANSMISSION —

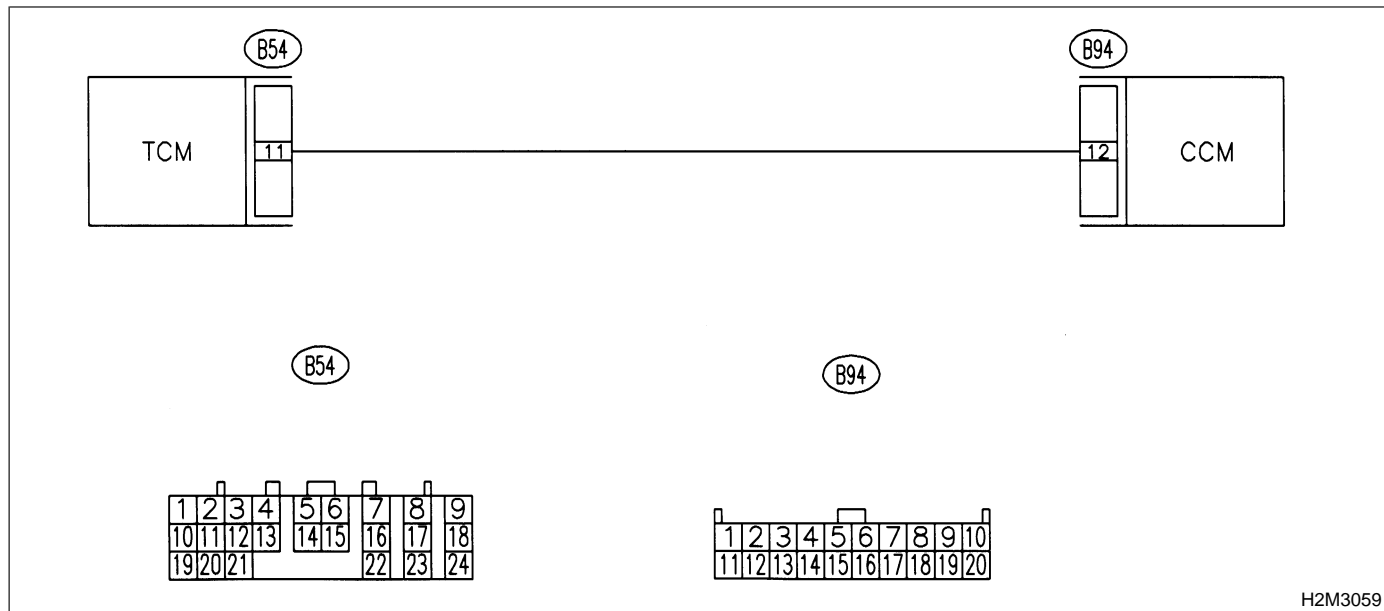
● DTC DETECTING CONDITION:

- Two consecutive driving cycles with fault

CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to 2-7 [T3D0].> and INSPECTION MODE <Ref. to 2-7 [T3E0].>

● WIRING DIAGRAM:

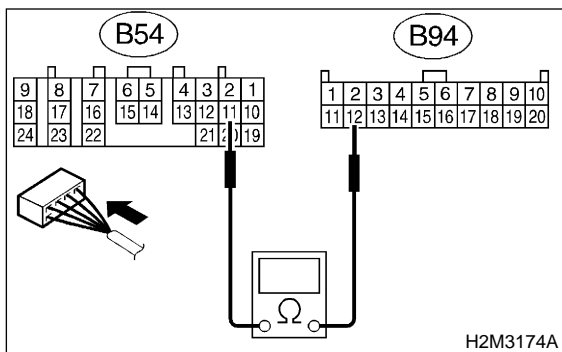


11CX1 : CHECK HARNESS BETWEEN TCM AND CCM CONNECTOR.

- 1) Turn ignition switch to OFF.
- 2) Disconnect connectors from TCM and CCM.
- 3) Measure resistance of harness between TCM and CCM connector.

Connector & terminal

(B54) No. 11 — (B94) No. 12:



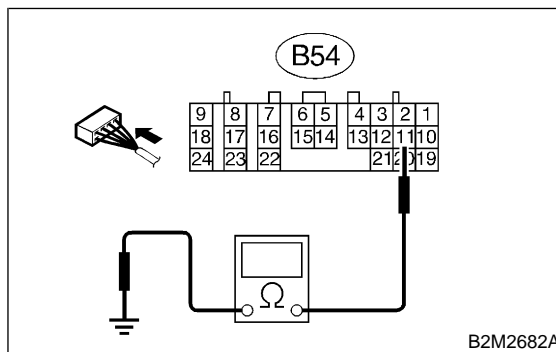
- CHECK** : Is the resistance less than 1 Ω?
- YES** : Go to step 11CX2.
- NO** : Repair open circuit in harness between TCM and CCM connector.

11CX2 : CHECK HARNESS BETWEEN TCM AND CCM CONNECTOR.

Measure resistance of harness between TCM and chassis ground.

Connector & terminal

(B54) No. 11 — Chassis ground:



- CHECK** : Is the resistance less than 10 Ω?
- YES** : Repair short circuit in harness between TCM and CCM connector.
- NO** : Go to step 11CX3.

11CX3 : CHECK INPUT SIGNAL FOR TCM.

- 1) Connect connector to TCM and CCM.
- 2) Lift-up the vehicle or set the vehicle on free rollers.

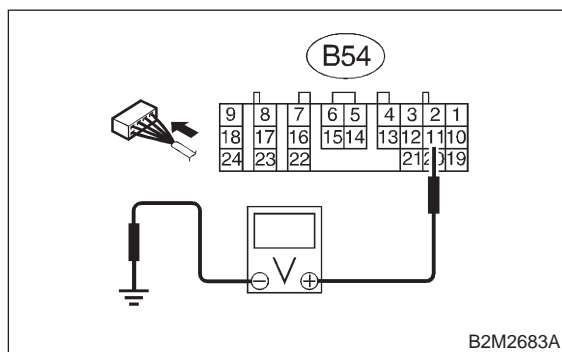
CAUTION:

On AWD models, raise all wheels off ground.

- 3) Start the engine.
- 4) Cruise control main switch to ON.
- 5) TCS OFF switch to ON. (with TCS models only)
- 6) Move selector lever to "D" and slowly increase vehicle speed to 50 km/h (31 MPH).
- 7) Cruise control set switch to ON.
- 8) Measure voltage between TCM and chassis ground.

Connector & terminal

(B54) No. 11 (+) — Chassis ground (-):



- CHECK** : **Is the voltage less than 1 V?**
- YES** : Go to step **11CX4**.
- NO** : Check cruise control set circuit.

11CX4 : CHECK POOR CONTACT.

Check poor contact in TCM connector. <Ref. to FOREWORD [T3C1].>

- CHECK** : **Is there poor contact in TCM connector?**
- YES** : Repair poor contact in TCM connector.
- NO** : Replace TCM. <Ref. to 3-2 [W22A0].>

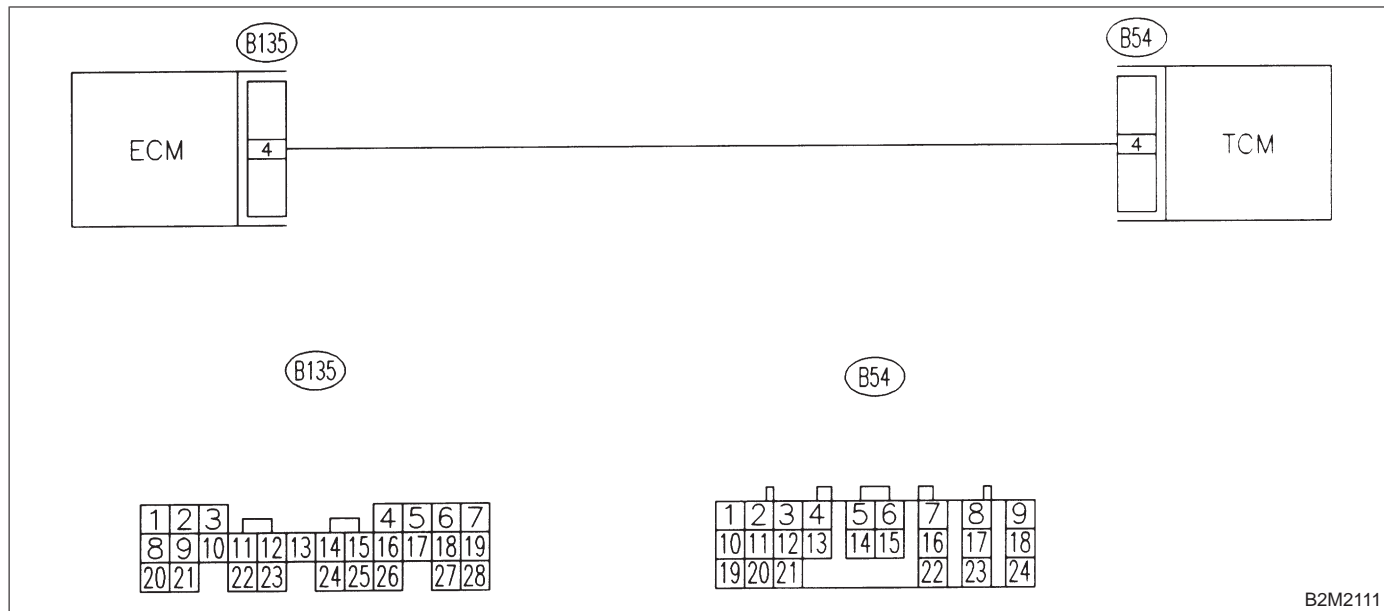
CY: DTC P1702 — AUTOMATIC TRANSMISSION DIAGNOSIS INPUT SIGNAL CIRCUIT LOW INPUT —

- **DTC DETECTING CONDITION:**
 - Two consecutive driving cycles with fault

CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to 2-7 [T3D0].> and INSPECTION MODE <Ref. to 2-7 [T3E0].>

● **WIRING DIAGRAM:**



B2M2111

11CY1 : CHECK TRANSMISSION TYPE.

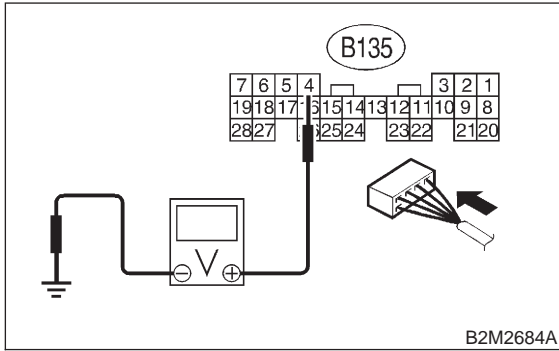
- CHECK** : *Is transmission type AT?*
- YES** : Go to step 11CY2.
- NO** : Check AT/MT identification circuit. <Ref. to 2-7 [T11DE0].>

11CY2 : CHECK HARNESS BETWEEN ECM AND TCM CONNECTOR.

- 1) Turn ignition switch to ON.
- 2) Measure voltage between ECM and chassis ground.

Connector & terminal

(B135) No. 4 (+) — Chassis ground (-):



- CHECK** : **Is the voltage less than 1 V?**
- YES** : Go to step 11CY3.
- NO** : Even if MIL lights up, the circuit has returned to a normal condition at this time.

NOTE:

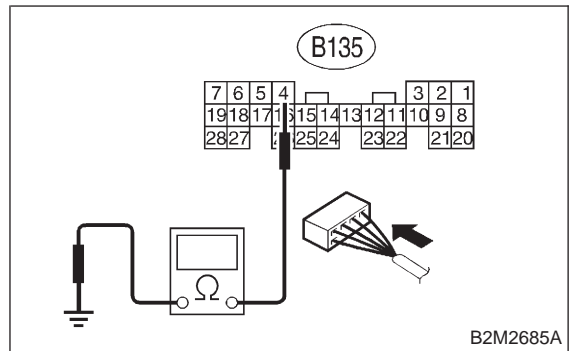
- In this case, repair the following:
- Poor contact in ECM connector
 - Poor contact in TCM connector

11CY3 : CHECK HARNESS BETWEEN ECM AND TCM CONNECTOR.

- 1) Turn ignition switch to OFF.
- 2) Disconnect connector from ECM and TCM.
- 3) Measure resistance of harness between ECM and chassis ground.

Connector & terminal

(B135) No. 4 — Chassis ground:



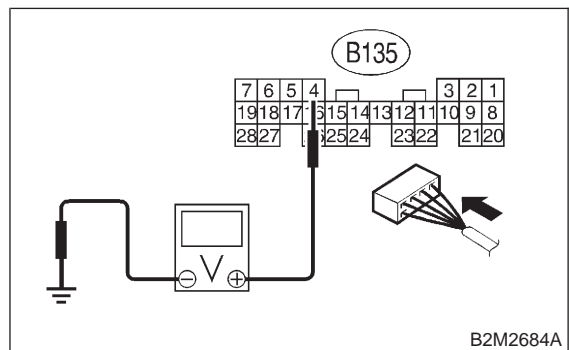
- CHECK** : **Is the resistance less than 10 Ω?**
- YES** : Repair ground short circuit in harness between ECM and TCM connector.
- NO** : Go to step 11CY4.

11CY4 : CHECK OUTPUT SIGNAL FOR ECM.

- 1) Connect connector to ECM.
- 2) Turn ignition switch to ON.
- 3) Measure voltage between ECM and chassis ground.

Connector & terminal

(B135) No. 4 (+) — Chassis ground (-):



- CHECK** : **Is the voltage more than 5 V?**
- YES** : Replace TCM. <Ref. to 3-2 [W22A0].>
- NO** : Repair poor contact in ECM connector.

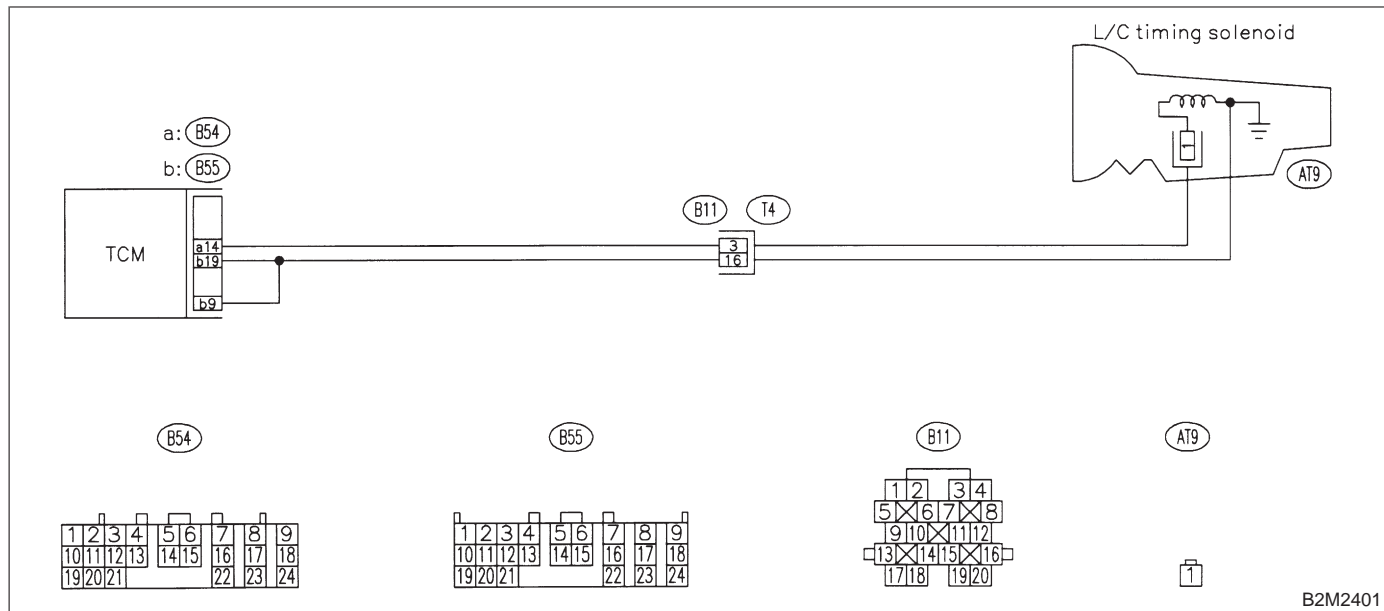
CZ: DTC P1703 — LOW CLUTCH TIMING CONTROL SOLENOID VALVE CIRCUIT MALFUNCTION —

- **DTC DETECTING CONDITION:**
 - Two consecutive driving cycles with fault

CAUTION:

After repair or replacement of faulty parts, conduct **CLEAR MEMORY MODE** <Ref. to 2-7 [T3D0].> and **INSPECTION MODE** <Ref. to 2-7 [T3E0].>

● **WIRING DIAGRAM:**



11CZ1 : CHECK DTC P1703 ON DISPLAY.

- CHECK** : Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P1703?
- YES** : Check low clutch timing control solenoid valve circuit. <Ref. to 3-2 [T8M0].>
- NO** : It is not necessary to inspect DTC P1703.

DA: DTC P1704 — 2-4 BRAKE TIMING CONTROL SOLENOID VALVE CIRCUIT MALFUNCTION —

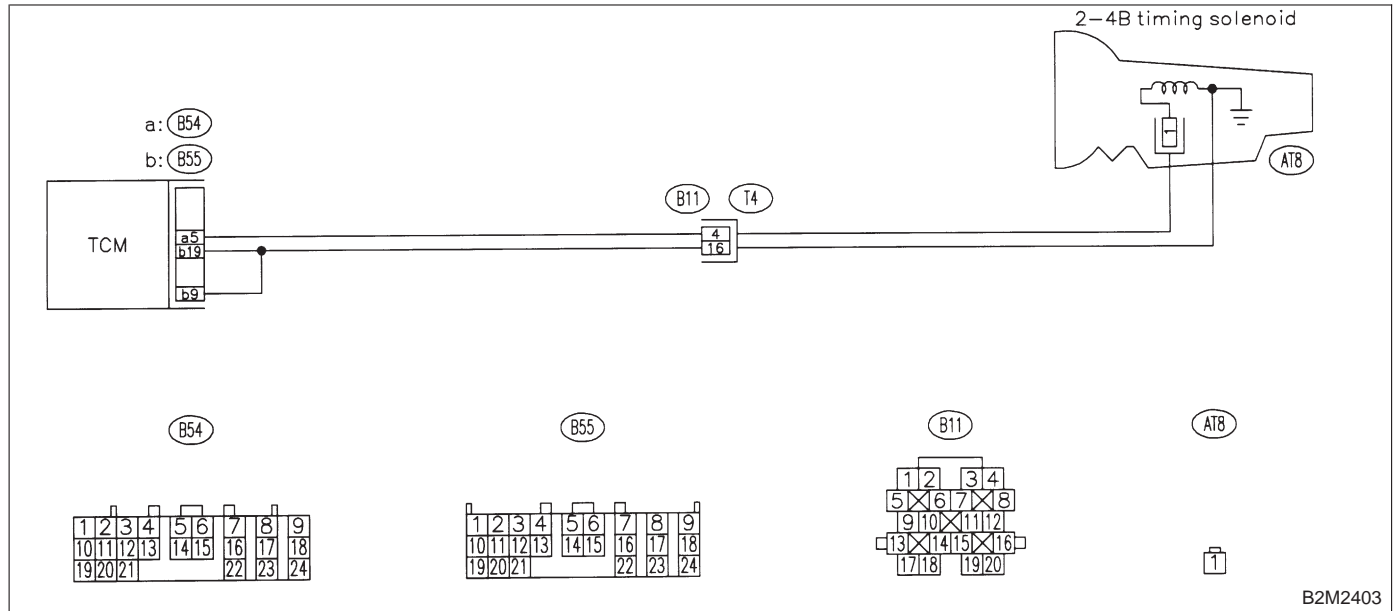
● **DTC DETECTING CONDITION:**

- Two consecutive driving cycles with fault

CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to 2-7 [T3D0].> and INSPECTION MODE <Ref. to 2-7 [T3E0].>

● **WIRING DIAGRAM:**



B2M2403

11DA1 : CHECK DTC P1704 ON DISPLAY.

- CHECK** : Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P1704?
- YES** : Check 2-4 brake timing control solenoid valve circuit. <Ref. to 3-2 [T8N0].>
- NO** : It is not necessary to inspect DTC P1704.

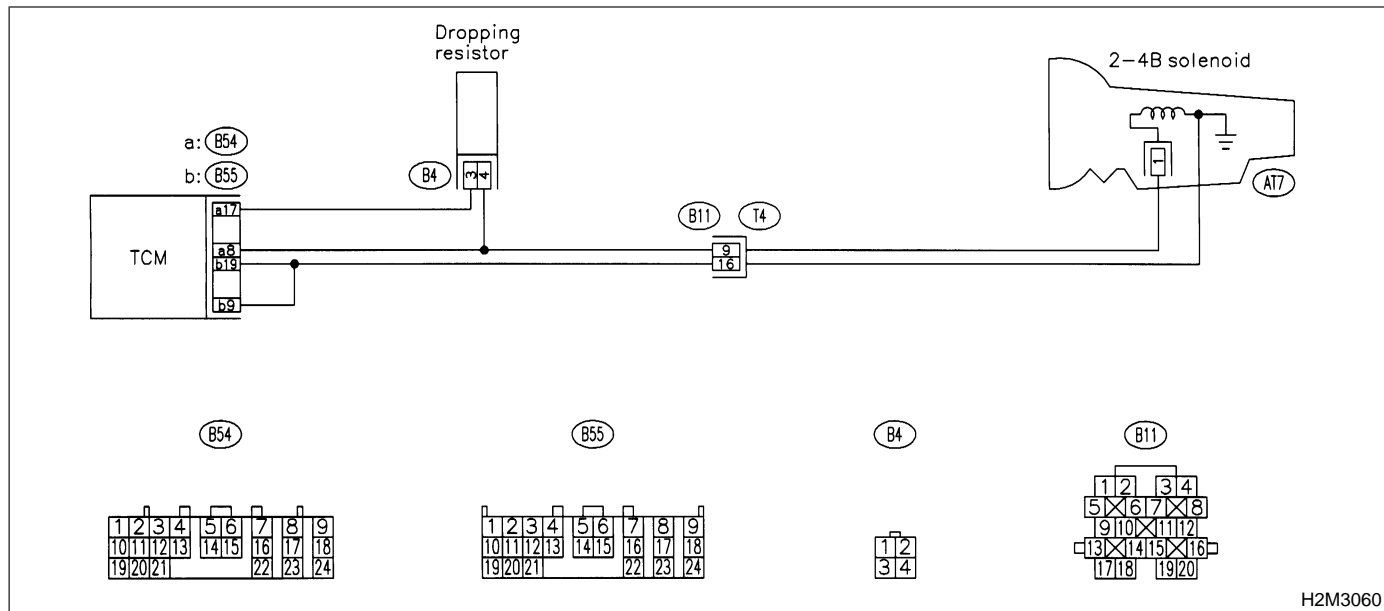
DB: DTC P1705 — 2-4 BRAKE PRESSURE CONTROL SOLENOID VALVE (DUTY SOLENOID D) CIRCUIT MALFUNCTION —

- **DTC DETECTING CONDITION:**
 - Two consecutive driving cycles with fault

CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to 2-7 [T3D0].> and INSPECTION MODE <Ref. to 2-7 [T3E0].>

● **WIRING DIAGRAM:**



11DB1 : CHECK DTC P1705 ON DISPLAY.

- CHECK** : Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P1705?
- YES** : Check 2-4 brake pressure control solenoid valve circuit. <Ref. to 3-2 [T8P0].>
- NO** : It is not necessary to inspect DTC P1705.

MEMO:

DC: DTC P1722 — AUTOMATIC TRANSMISSION DIAGNOSIS INPUT SIGNAL CIRCUIT HIGH INPUT —

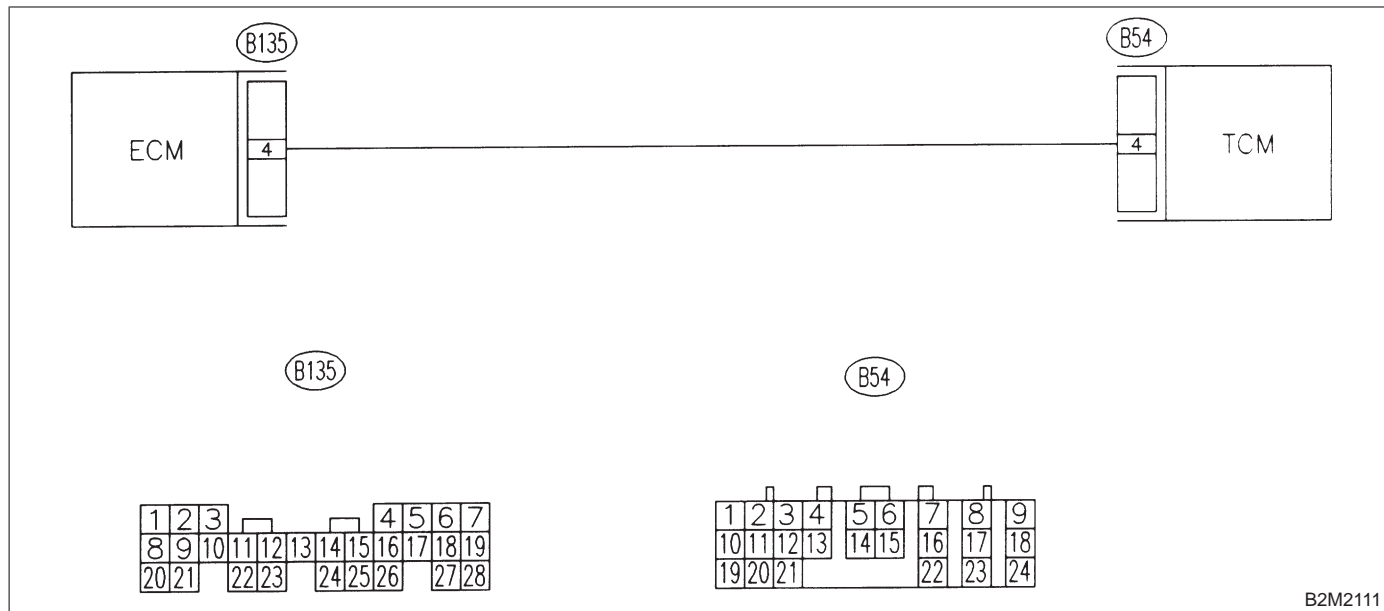
● **DTC DETECTING CONDITION:**

- Two consecutive driving cycles with fault

CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to 2-7 [T3D0].> and INSPECTION MODE <Ref. to 2-7 [T3E0].>

● **WIRING DIAGRAM:**



B2M2111

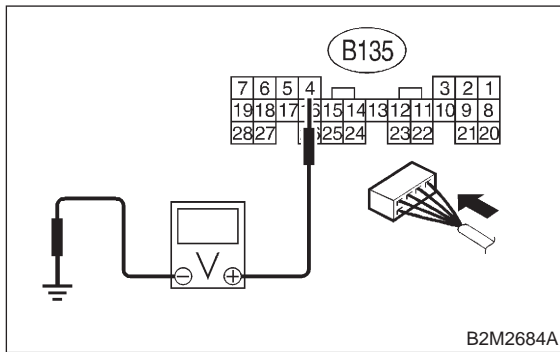
11DC1 : CHECK TRANSMISSION TYPE.

- CHECK** : *Is transmission type AT?*
- YES** : Go to step 11DC2.
- NO** : Check AT/MT identification circuit. <Ref. to 2-7 [T11DE0].>

11DC2 : CHECK HARNESS BETWEEN ECM AND TCM CONNECTOR.

- 1) Turn ignition switch to ON.
- 2) Measure voltage between ECM and chassis ground.

Connector & terminal
(B135) No. 4 (+) — Chassis ground (-):

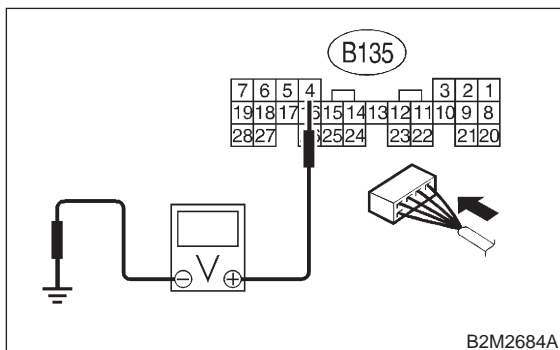


- CHECK** : **Is the voltage more than 10 V?**
- YES** : Repair battery short circuit in harness between ECM and TCM connector. After repair, replace ECM. <Ref. to 2-7 [W15A0].>
- NO** : Go to step 11DC3.

11DC3 : CHECK HARNESS BETWEEN ECM AND TCM CONNECTOR.

Measure voltage between ECM connector and chassis ground.

Connector & terminal
(B135) No. 4 (+) — Chassis ground (-):

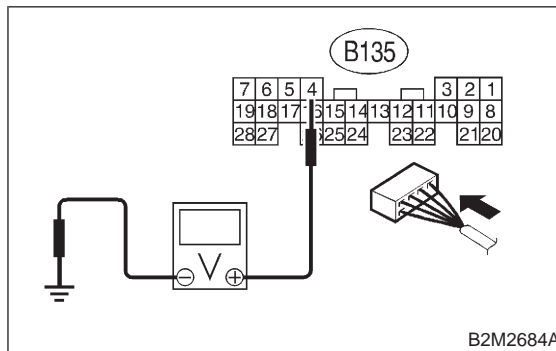


- CHECK** : **Is the voltage more than 4 V?**
- YES** : Go to step 11DC6.
- NO** : Go to step 11DC4.

11DC4 : CHECK HARNESS BETWEEN ECM AND TCM CONNECTOR.

Measure voltage between ECM connector and chassis ground.

Connector & terminal
(B135) No. 4 (+) — Chassis ground (-):

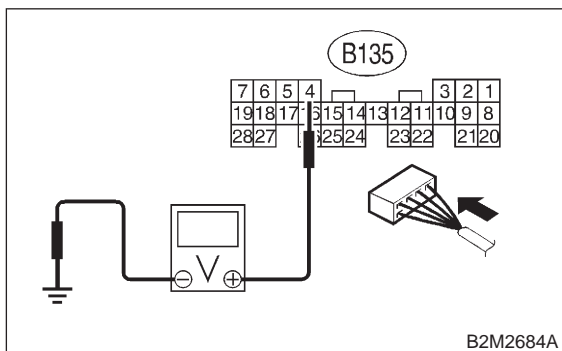


- CHECK** : **Is the voltage less than 1 V?**
- YES** : Repair poor contact in ECM connector.
- NO** : Go to step 11DC5.

11DC5 : CHECK OUTPUT SIGNAL FROM ECM.

Measure voltage between ECM and chassis ground.

Connector & terminal
(B135) No. 4 (+) — Chassis ground (-):



CHECK : Does the voltage change from 1 V to 4 V while monitoring the value with voltage meter?

YES : Even if MIL lights up, the circuit has returned to a normal condition at this time.

NOTE:

In this case, repair the following:

- Poor contact in ECM connector
- Poor contact in TCM connector

NO : Contact with SOA service.

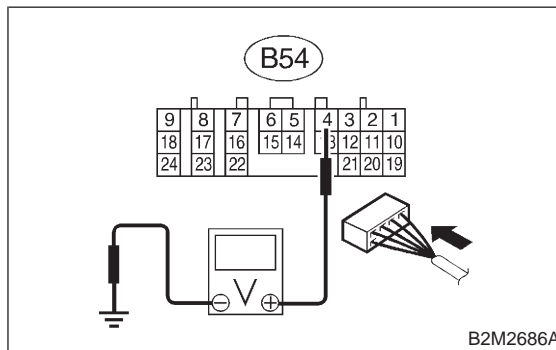
NOTE:

Inspection by DTM is required, because probable cause is deterioration of multiple parts.

11DC6 : CHECK HARNESS BETWEEN ECM AND TCM CONNECTOR.

Measure voltage between TCM and chassis ground.

Connector & terminal
(B54) No. 4 (+) — Chassis ground (-):



CHECK : Is the voltage more than 4 V?

YES : Go to step 11DC7.

NO : Repair open circuit in harness between ECM and TCM connector.

11DC7 : CHECK POOR CONTACT.

Check poor contact in TCM connector. <Ref. to FOREWORD [T3C1].>

CHECK : Is there poor contact in TCM connector?

YES : Repair poor contact in TCM connector.

NO : Check TCM power supply line and grounding line.

DD: DTC P1742 — AUTOMATIC TRANSMISSION DIAGNOSIS INPUT SIGNAL CIRCUIT MALFUNCTION —

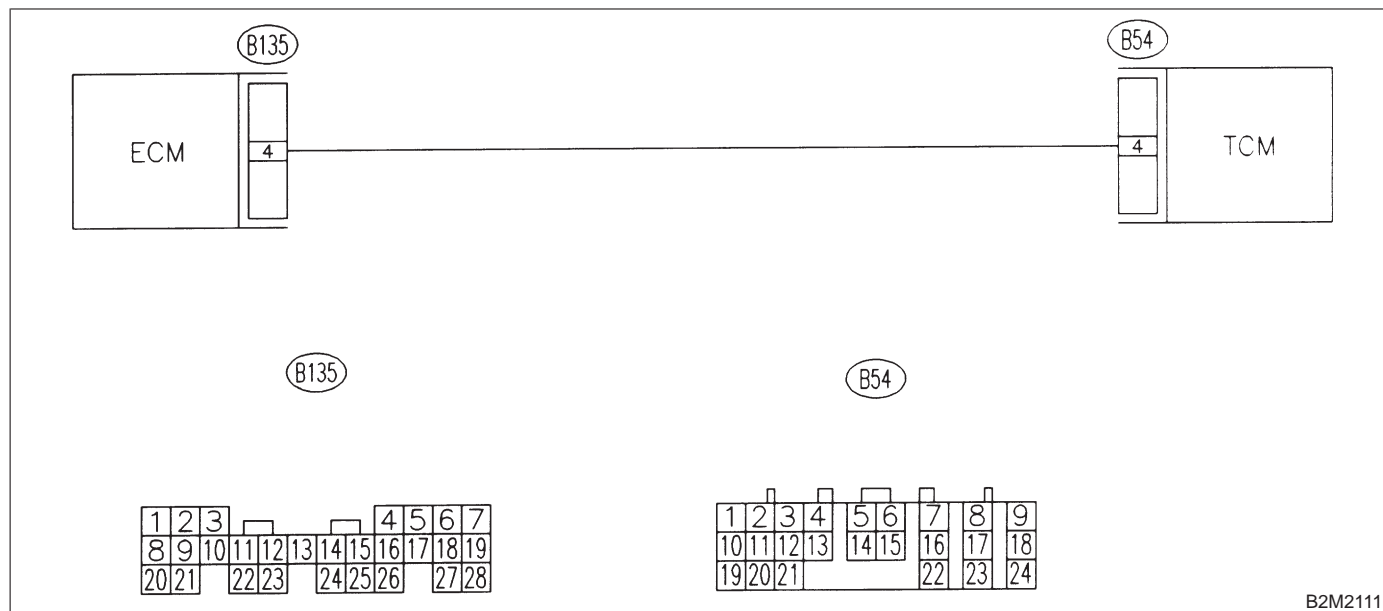
● DTC DETECTING CONDITION:

- Two consecutive driving cycles with fault

CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to 2-7 [T3D0].> and INSPECTION MODE <Ref. to 2-7 [T3E0].>

● WIRING DIAGRAM:



B2M2111

11DD1 : CHECK TRANSMISSION TYPE.

- CHECK** : *Is transmission type AT?*
- YES** : Go to step 11DD2.
- NO** : Check AT/MT identification circuit. <Ref. to 2-7 [T11DE0].>

11DD2 : CHECK DRIVING CONDITION.

- 1) Start and warm-up the engine until the radiator fan makes one complete rotation.
- 2) Drive the vehicle.

- CHECK** : *Is AT shift control functioning properly?*
- YES** : Go to step 11DD3.
- NO** : Replace TCM. <Ref. to 3-2 [W22A0].>

11DD3 : CHECK ACCESSORY.

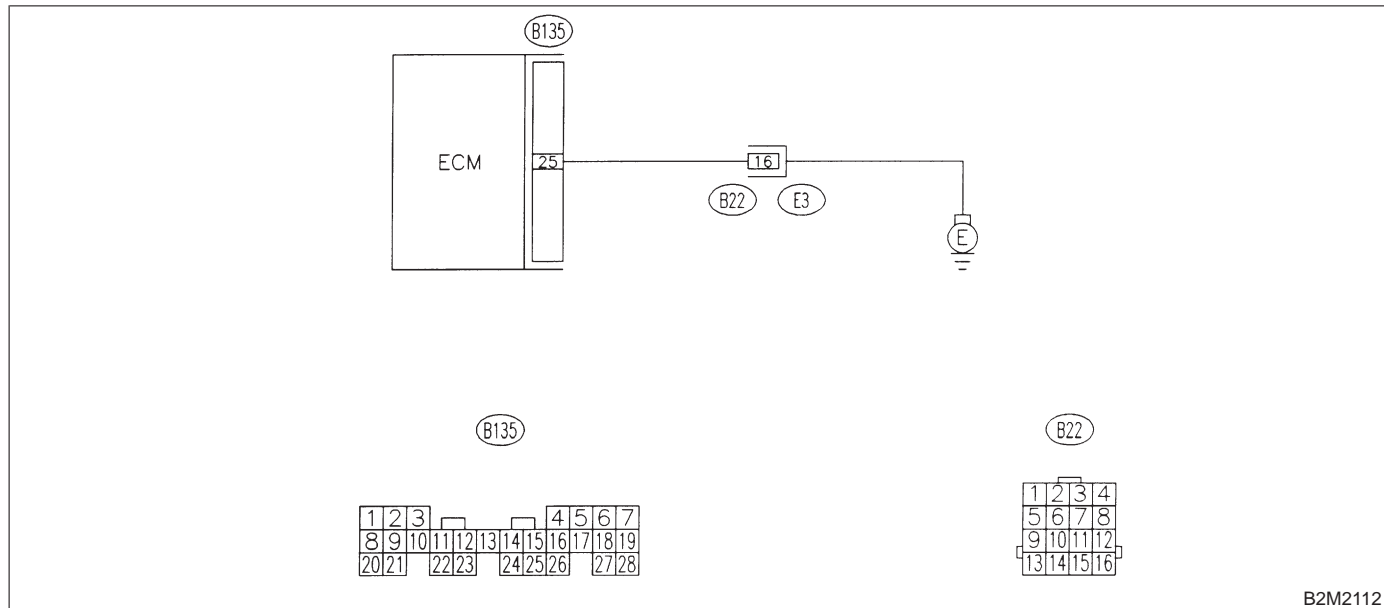
- CHECK** : *Are car phone and/or CB installed on vehicle?*
- YES** : Repair grounding line of car phone or CB system.
- NO** : Replace TCM. <Ref. to 3-2 [W22A0].>

DE: — AT/MT IDENTIFICATION CIRCUIT MALFUNCTION [MT VEHICLES] —

CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to 2-7 [T3D0].> and INSPECTION MODE <Ref. to 2-7 [T3E0].>

● **WIRING DIAGRAM:**

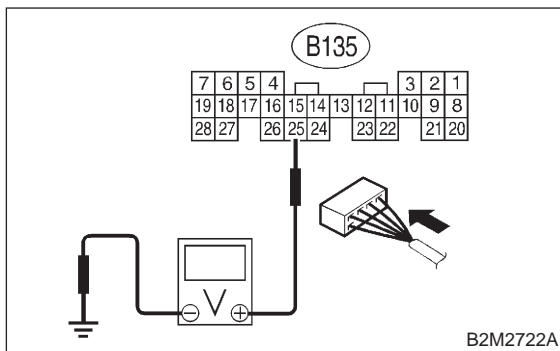


11DE1 : CHECK HARNESS BETWEEN ECM CONNECTOR AND ENGINE GROUNDING TERMINAL.

- 1) Turn ignition switch to ON.
- 2) Measure voltage between ECM and chassis ground.

Connector & terminal

(B135) No. 25 (+) — Chassis ground (-):



CHECK : *Is the voltage more than 2 V?*

YES : Repair harness and connector.

NOTE:

In this case, repair the following:

- Open circuit in harness between ECM connector and engine grounding terminal
- Poor contact in engine grounding terminal
- Poor contact in coupling connector (B22)

NO : Go to step **11DE2**.

11DE2 : CHECK POOR CONTACT.

Check poor contact in ECM connector. <Ref. to FOREWORD [T3C1].>

CHECK : *Is there poor contact in ECM connector?*

YES : Repair poor contact in ECM connector.

NO : Contact with SOA service.

NOTE:

Inspection by DTM is required, because probable cause is deterioration of multiple parts.