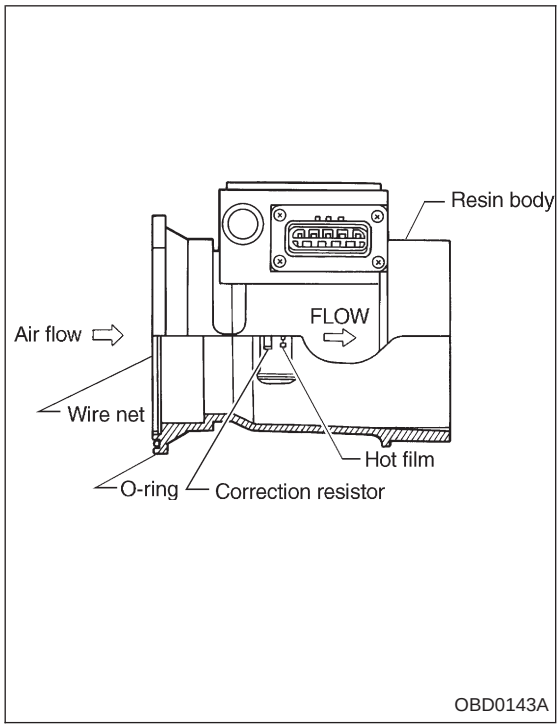
11. Diagnostics Chart with Trouble Code

A: DIAGNOSTIC TROUBLE CODE (DTC) LIST

DTC No.	Abbreviation (Subaru select monitor)	Item	Page
P0100	QA	Mass air flow sensor circuit malfunction	135
P0101	QA — R	Mass air flow sensor circuit range/performance problem	141
P0105	P — S	Pressure sensor circuit malfunction	144
P0106	P — R	Pressure sensor circuit range/performance problem	151
P0115	TW	Engine coolant temperature sensor circuit malfunction	156
P0120	THV	Throttle position sensor circuit malfunction	161
P0121	TH — R	Throttle position sensor circuit range/performance problem	167
P0125	TW — CL	Insufficient coolant temperature for closed loop fuel control	169
P0130	FO2 — V	Front oxygen sensor circuit malfunction	171
P0133	FO2 — R	Front oxygen sensor circuit slow response	177
P0135	FO2H	Front oxygen sensor heater circuit malfunction	180
P0136	RO2 — V	Rear oxygen sensor circuit malfunction	185
P0139	RO2 — R	Rear oxygen sensor circuit slow response	190
P0141	RO2H	Rear oxygen sensor heater circuit malfunction	193
P0170	FUEL	Fuel trim malfunction	198
P0201	INJ1	Fuel injector circuit malfunction - #1	203
P0202	INJ2	Fuel injector circuit malfunction - #2	
P0203	INJ3	Fuel injector circuit malfunction - #3	
P0204	INJ4	Fuel injector circuit malfunction - #4	
P0301	MIS — 1	Cylinder 1 misfire detected	210
P0302	MIS — 2	Cylinder 2 misfire detected	
P0303	MIS — 3	Cylinder 3 misfire detected	
P0304	MIS — 4	Cylinder 4 misfire detected	
P0325	KNOCK	Knock sensor circuit malfunction	217
P0335	CRANK	Crankshaft position sensor circuit malfunction	221
P0340	CAM	Camshaft position sensor circuit malfunction	225
P0400	EGR	Exhaust gas recirculation flow malfunction	229
P0403	EGRSOL	Exhaust gas recirculation circuit malfunction	235
P0420	CAT	Catalyst system efficiency below threshold	240
P0441	CPC — F	Evaporative emission control system incorrect purge flow	244
P0443	CPC	Evaporative emission control system purge control valve circuit malfunction	248
P0500	VSP	Vehicle speed sensor malfunction	253
P0505	ISC	Idle control system malfunction	256
P0506	ISC — L	Idle control system RPM lower than expected	262
P0507	ISC — H	Idle control system RPM higher than expected	264
P0600	—	Serial communication link malfunction	266
P0601	RAM	Internal control module memory check sum error	268
P0703	BRK	Brake switch input malfunction	271

DTC No.	Abbreviation (Subaru select monitor)	Item	Page
P0705	RNG	Transmission range sensor circuit malfunction	274
P0710	ATF	Transmission fluid temperature sensor circuit malfunction	279
P0720	ATVSP	Output speed sensor (vehicle speed sensor 1) circuit malfunction	281
P0725	ATNE	Engine speed input circuit malfunction	283
P0731	GR — 1	Gear 1 incorrect ratio	285
P0732	GR — 2	Gear 2 incorrect ratio	
P0733	GR — 3	Gear 3 incorrect ratio	
P0734	GR — 4	Gear 4 incorrect ratio	
P0740	LU — F	Torque converter clutch system malfunction	289
P0743	LU	Torque converter clutch system electrical	294
P0748	PL	Pressure control solenoid electrical	296
P0753	SFT1	Shift solenoid A electrical	298
P0758	SFT2	Shift solenoid B electrical	300
P0760	OVR — F	Shift solenoid C malfunction	302
P0763	OVR	Shift solenoid C electrical	307
P1100	ST — SW	Starter switch circuit malfunction	309
P1101	N — SW	Neutral position switch circuit malfunction [MT vehicles]	311
P1101	N — SW	Neutral position switch circuit malfunction [AT vehicles]	315
P1102	BR	Pressure sources switching solenoid valve circuit malfunction	319
P1103	TRQ	Engine torque control signal circuit malfunction	325
P1104	TCS	TCS signal circuit malfunction	328
P1500	FAN — 1	Radiator fan relay 1 circuit malfunction	331
P1502	FAN — F	Radiator fan function problem	338
P1700	ATTH	Throttle position sensor circuit malfunction for automatic transmission	341
P1701	CRS	Cruise control set signal circuit malfunction for automatic transmission	343
P1702	ATDIAG	Automatic transmission diagnosis input signal circuit malfunction	346

B: DTC P0100 — MASS AIR FLOW SENSOR CIRCUIT MALFUNCTION (QA) —



DESCRIPTION:

● The MFI system employs a hot film type air flow sensor. These mass air flow sensors convert the amount of air taken into the engine into an electric signal by utilizing the heat transfer phenomenon between the incoming air and a heating resistor (hot film) located in the air intake.
● The features of these flow sensor types are as follows:
1) High-altitude compensation is made automatically.
2) Quick response
3) These are no moving parts.
4) They are compact.

DTC DETECTING CONDITION:

● Immediately at fault recognition

TROUBLE SYMPTOM:

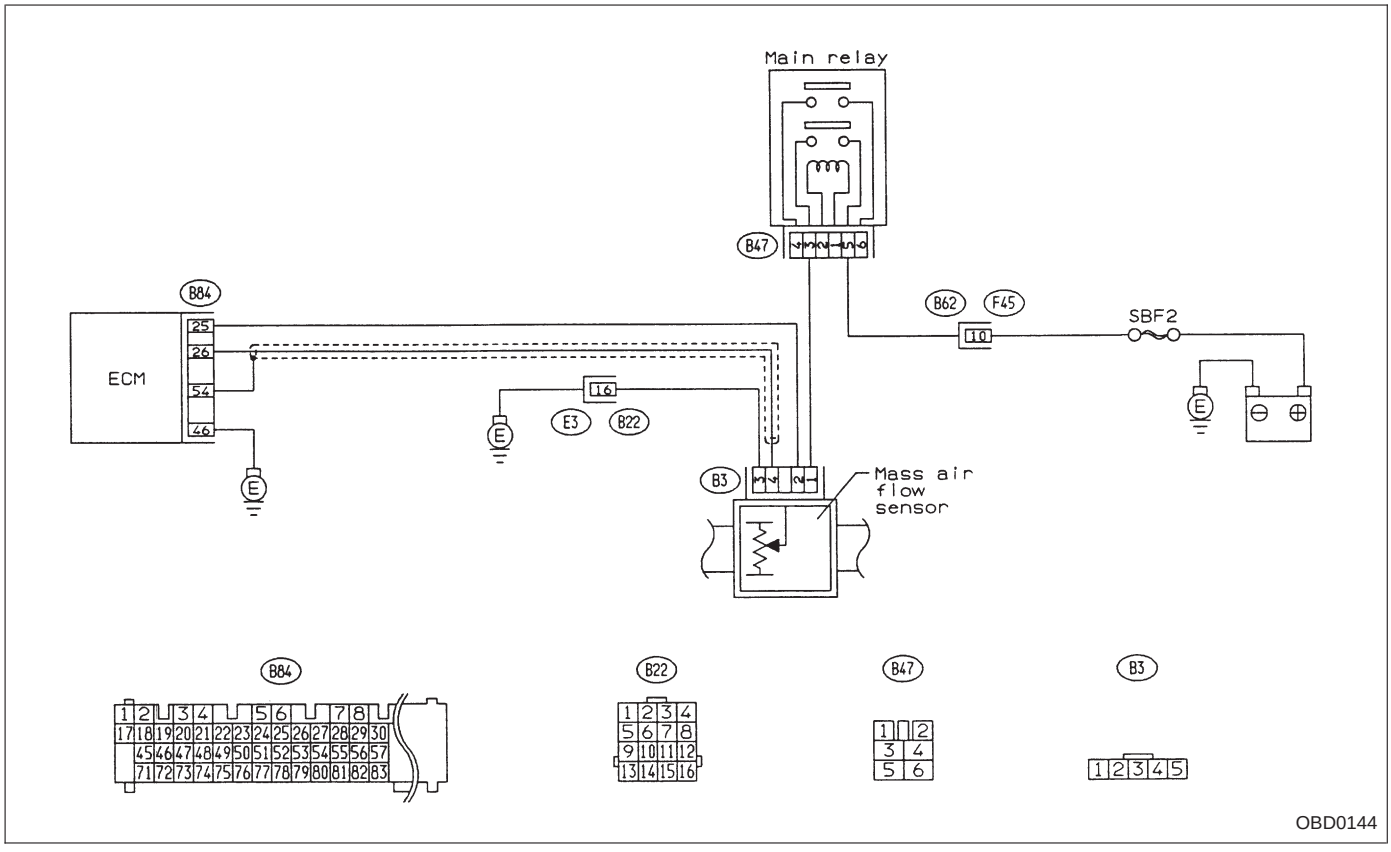
● Erroneous idling
● Engine stalls.
● Poor driving performance

1.	Connect Subaru Select Monitor or the OBD-II general scan tool, and read data.
2.	Check input signal for ECM. (Using voltage meter and Subaru Select Monitor.)
3.	Check power supply to mass air flow sensor.
4.	Check harness connector between ECM and mass air flow sensor.
5.	Check harness.

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY and INSPECTION MODES. <Ref. to [T3D0] and [T3E0].>

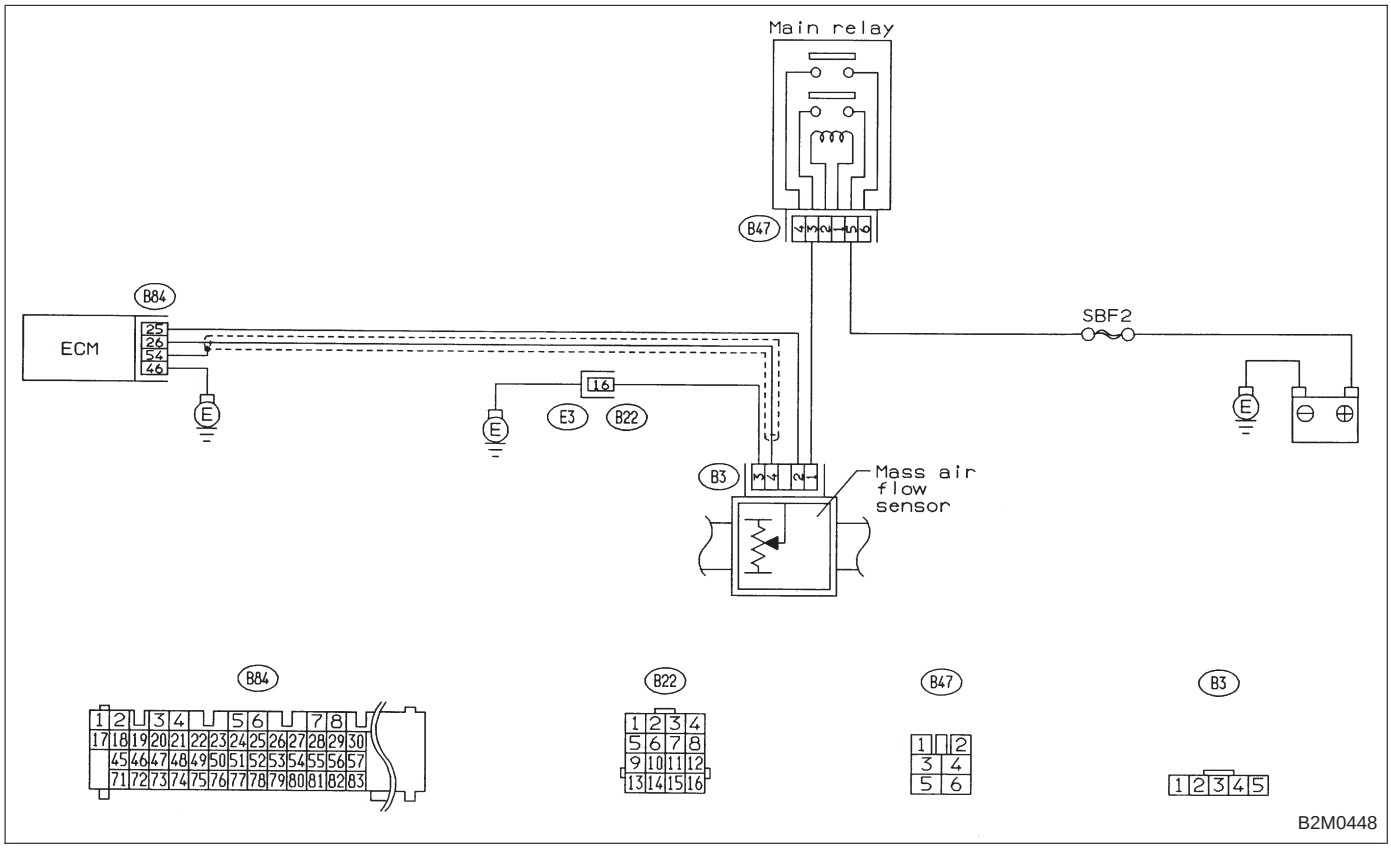
WIRING DIAGRAM:

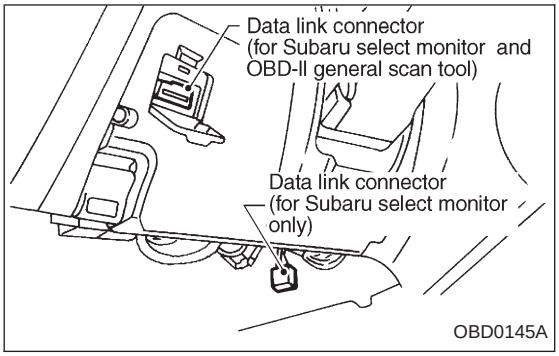
- **LHD model**



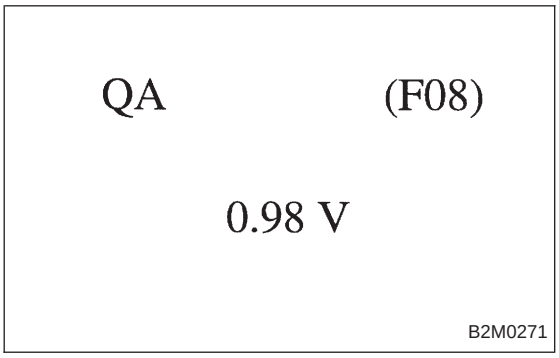
WIRING DIAGRAM:

- **RHD model**

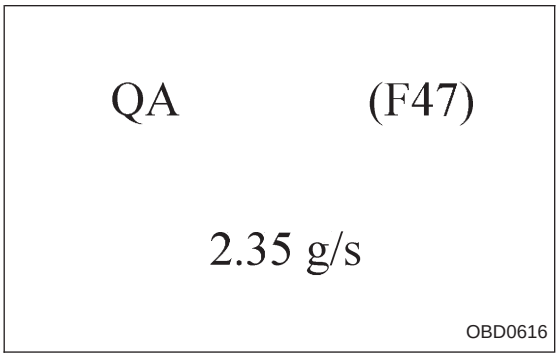




OBD0145A



B2M0271



OBD0616

1	**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 on Subaru Select Monitor or OBD-II general scan tool.

● Subaru Select Monitor

Designate mode using function key.

Function mode: F08 or F47

● F08: Voltage input from mass air flow sensor is shown on display.
● F47: Mass air flow is shown on display.

CHECK
- ***F08: Is sensor output equal to or more than 0.3 V and equal to or less than 5.0 V?***
- ***F47: Is sensor output equal to or more than 1.3 g/sec and equal to or less than 250 g/sec?***

Probable cause: Poor connect of connectors, circuit and grounding line.

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 of the mass air flow sensor.

HINT: ① Open or short circuit between mass air flow sensor and ECM.
② Poor contact of connectors for mass air flow sensor or ECM.

NO : Go to next CHECK .

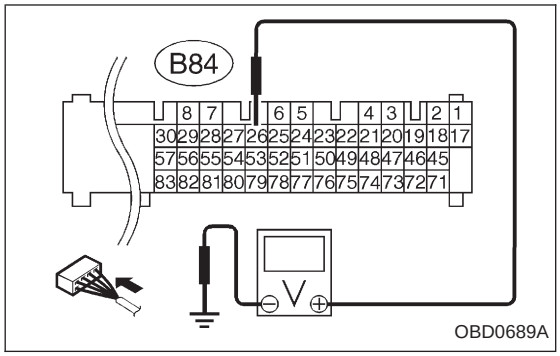
CHECK ***: Is the value less than 0.3 V (1.3 g/sec)?***

YES : Go to step 2.

NO : Go to step 5.

● OBD-II general scan tool

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



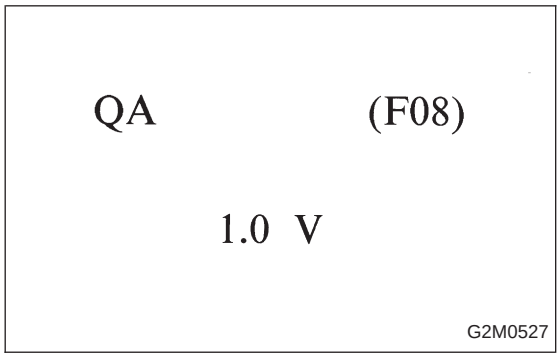
2	CHECK INPUT SIGNAL FOR ECM. (USING VOLTAGE METER AND SUBARU SELECT MONITOR.)

Measure voltage between ECM and body while engine is idling.

CHECK ***: Connector & terminal (B84) No. 26 — Body/0.3 V, or less***

YES : Go to step 3.

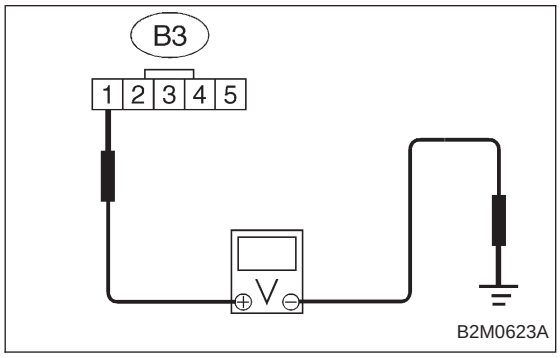
NO : Go to next CHECK .



CHECK ***: Is the voltage more than 0.3 V while shaking harness and connector of ECM and monitoring the value with Subaru select monitor?***

YES : Repair poor contact in ECM connector.

NO : Replace ECM with a new one.



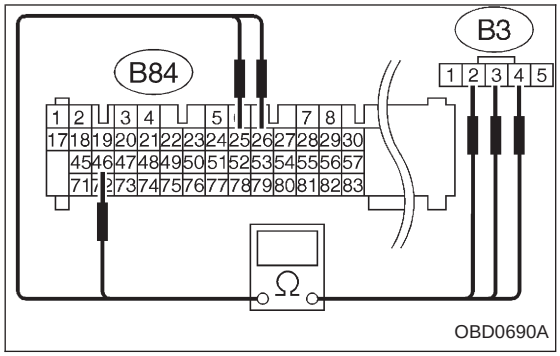
3	CHECK POWER SUPPLY TO MASS AIR FLOW SENSOR.

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 body.

CHECK ***: Connector & terminal (B3) No. 1 — Body/10 V, or more***

YES : Go to step 4.

NO : Repair open circuit of harness between main relay connector and mass air flow sensor connector.



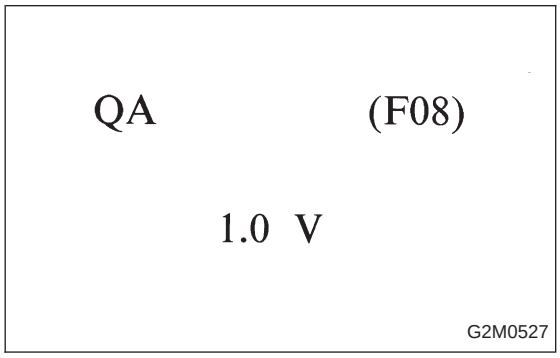
4	CHECK HARNESS CONNECTOR BETWEEN ECM AND MASS AIR FLOW SENSOR.

1) Turn ignition switch to OFF.
2) Disconnect connector from ECM.
3) Measure resistance of harness connector between ECM and mass air flow sensor.

CHECK ***: Connector & terminal***
- ① ***(B84) No. 26 — (B3) No. 4/10 Ω, or less***
- ② ***(B84) No. 46 — (B3) No. 3/10 Ω, or less***
- ③ ***(B84) No. 25 — (B3) No. 2/10 Ω, or less***

YES : Replace mass air flow sensor with a new one.

NO : Repair poor contact and open circuit of harness between ECM and mass air flow sensor connector.



5	CHECK HARNESS.

1) Turn ignition switch to OFF.
2) Disconnect connector from mass air flow sensor.
3) Connect Subaru Select Monitor or OBD-II General Scan Tool to data link connector.
4) Turn ignition switch to ON.
5) Read data on Subaru select monitor or OBD-II general scan tool.

● Subaru Select Monitor
Designate mode using function key.

Function mode: F08

CHECK ***: Is the value more than 5 V?***

YES : Repair short circuit of harness between mass air flow sensor and ECM.

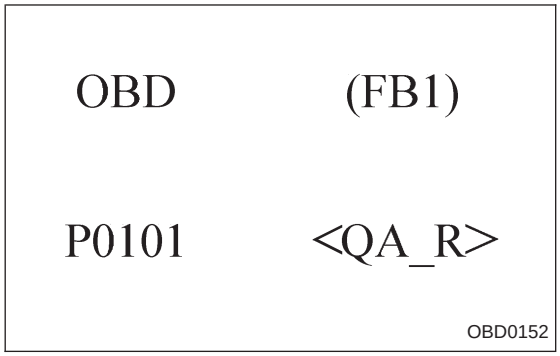
NO : Go to next CHECK .

CHECK ***: Is there poor contact in mass air flow sensor connector?***

YES : Repair poor contact in mass air flow sensor connector.

NO : Replace mass air flow sensor.

● OBD-II general scan tool
For detailed operation procedures, refer to OBD-II General Scan Tool Instruction Manual.



C: DTC P0101 — MASS AIR FLOW SENSOR CIRCUIT RANGE/PERFORMANCE PROBLEM (QA — R) —

DESCRIPTION:

Refer to “B: DTC P0100 — MASS AIR FLOW SENSOR CIRCUIT MALFUNCTION — [T11B0]”.

DTC DETECTING CONDITION:

- Two consecutive trips with fault

TROUBLE SYMPTOM:

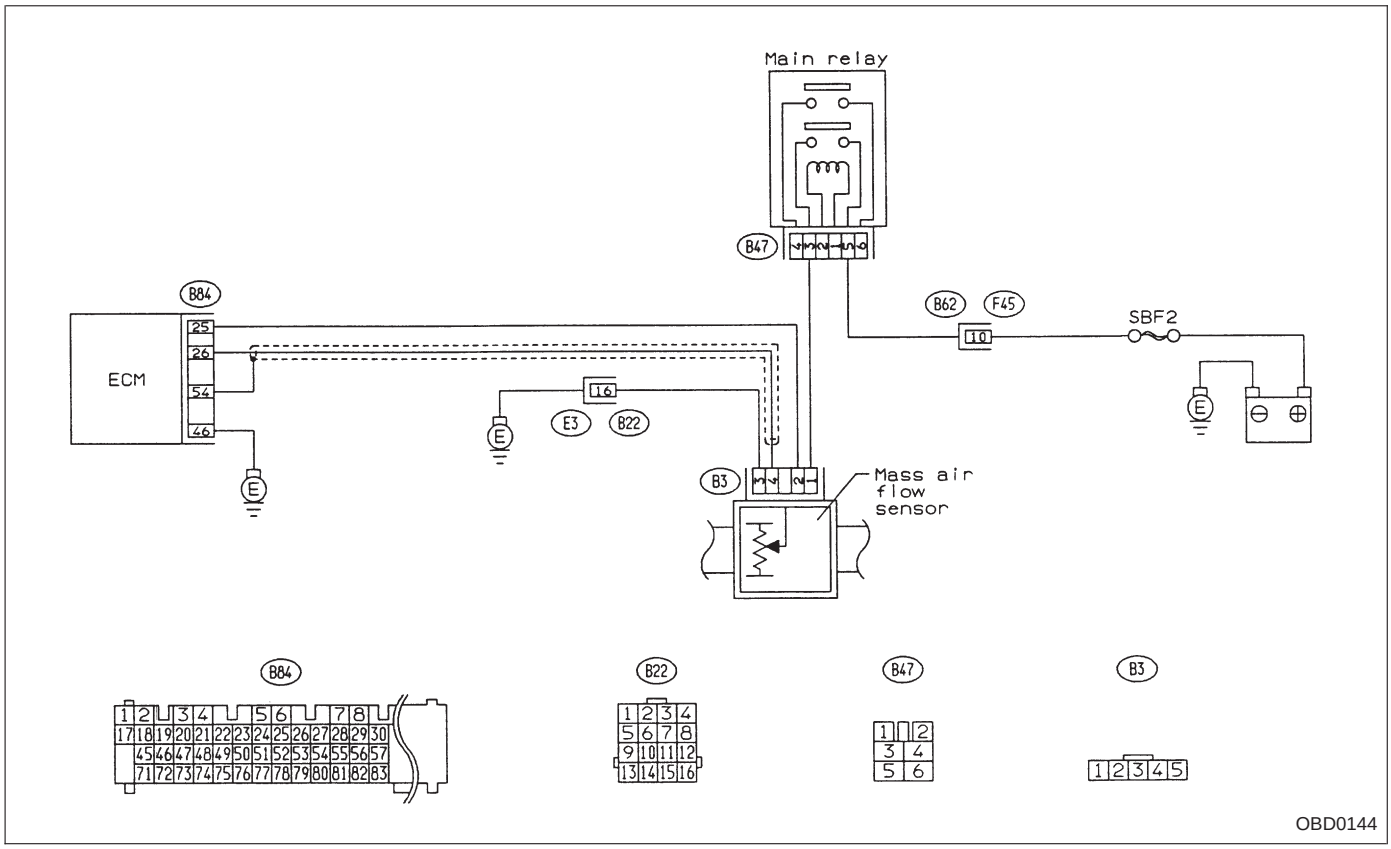
- Erroneous idling
- Engine stalls.
- Poor driving performance

1.	**Check DTC P0100 on display.**	Yes	● Inspect DTC P0100 using “11. Diagnostics Chart with Trouble Code [T1100]”. ● In this case, it is unnecessary to inspect DTC P0101.
		No	Replace mass air flow sensor.

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY and INSPECTION MODES. <Ref. to [T3D0] and [T3E0].>

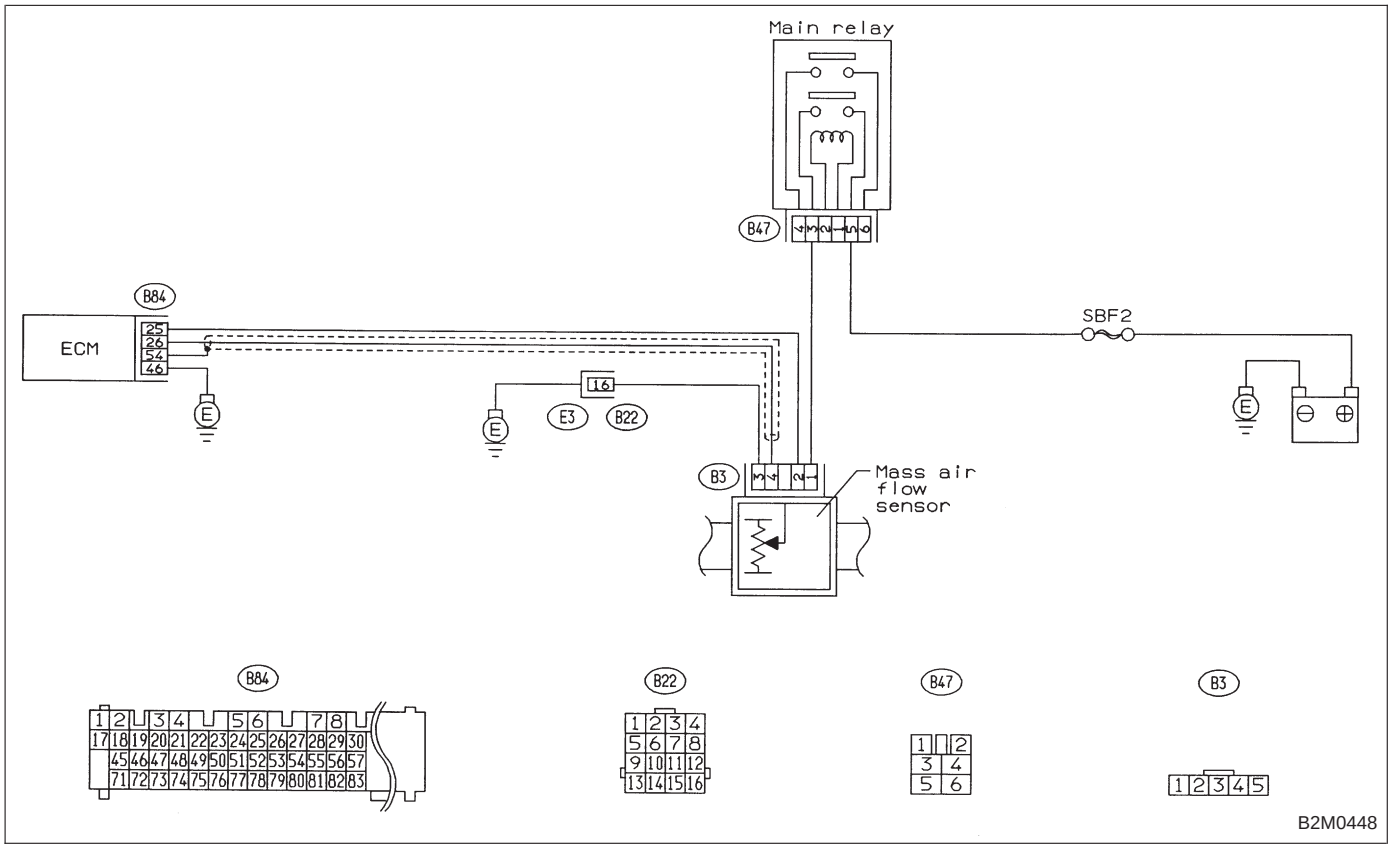
WIRING DIAGRAM:

● **LHD model**

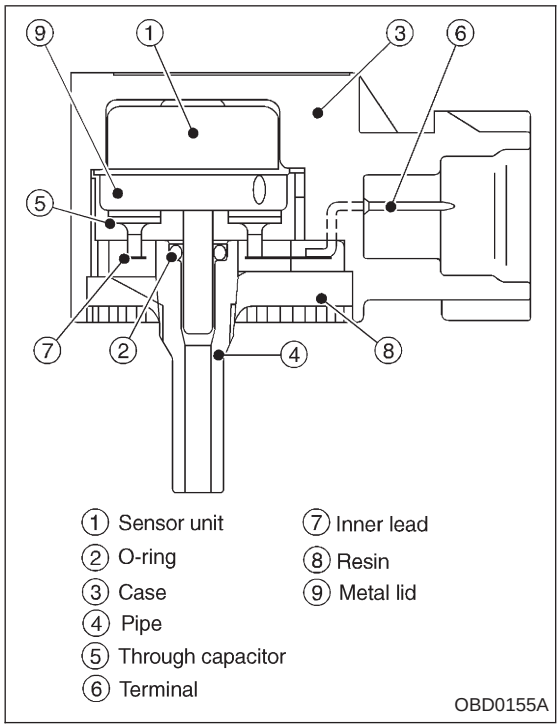


WIRING DIAGRAM:

- **RHD model**



D: DTC P0105 — PRESSURE SENSOR CIRCUIT MALFUNCTION (P – S) —



DESCRIPTION:

The pressure sensor is used in AT vehicles. It is located in the engine compartment, at the front of the right-hand suspension. It consists of a solenoid, which switches between the atmospheric pressure and suction pressure lines and a pressure sensor. This arrangement allows either pressure line to be monitored.
A sensor output signal is sent to the ECM to diagnose the EGR system and evaporative emission control system.
(The pressure sensor is not used in MT vehicles.)

DTC DETECTING CONDITION:

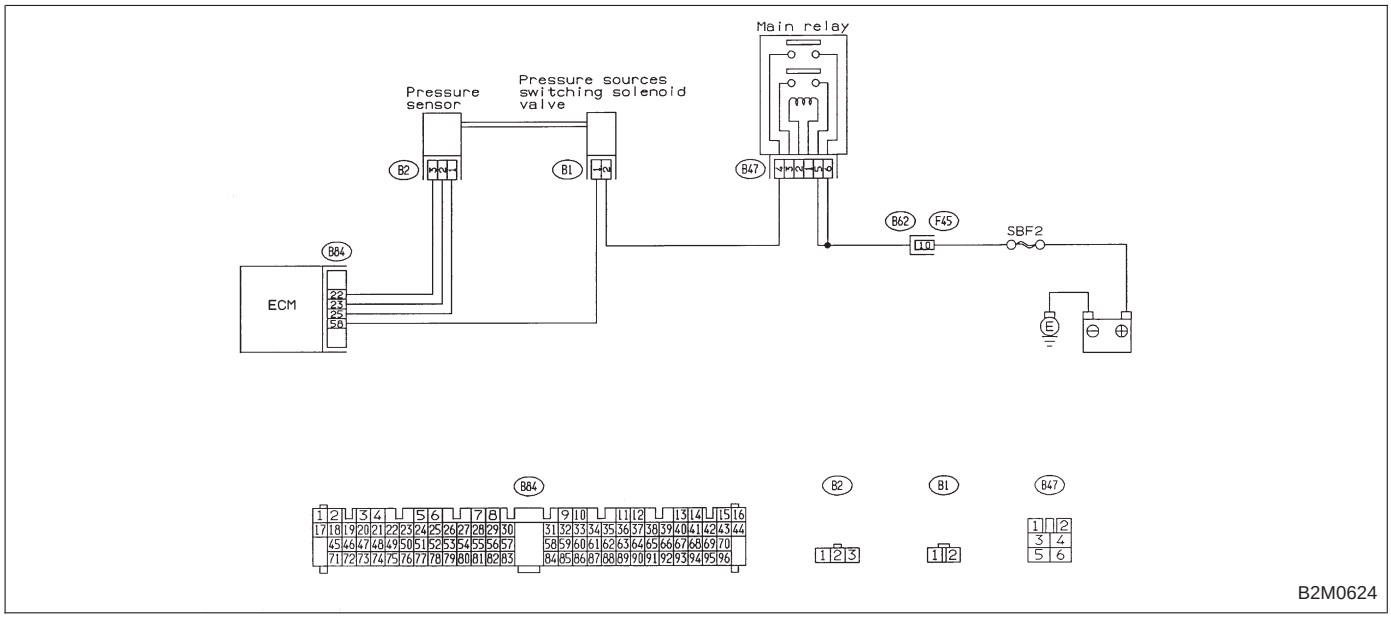
- Immediately at fault recognition

1.	**Check transmission type.**	MT	Check AT/MT identification circuit. <Ref. to [T11BN0].>
		AT	
2.	**Connect Subaru Select Monitor or the OBD-II general scan tool, and read data.**		
3.	**Check input signal for ECM. (Using voltage meter and Subaru Select Monitor.)**		
4.	**Check harness connector between ECM and pressure sensor.**		
5.	**Check harness connector between ECM and pressure sensor.**		

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY and INSPECTION MODES. <Ref. to [T3D0] and [T3E0].>

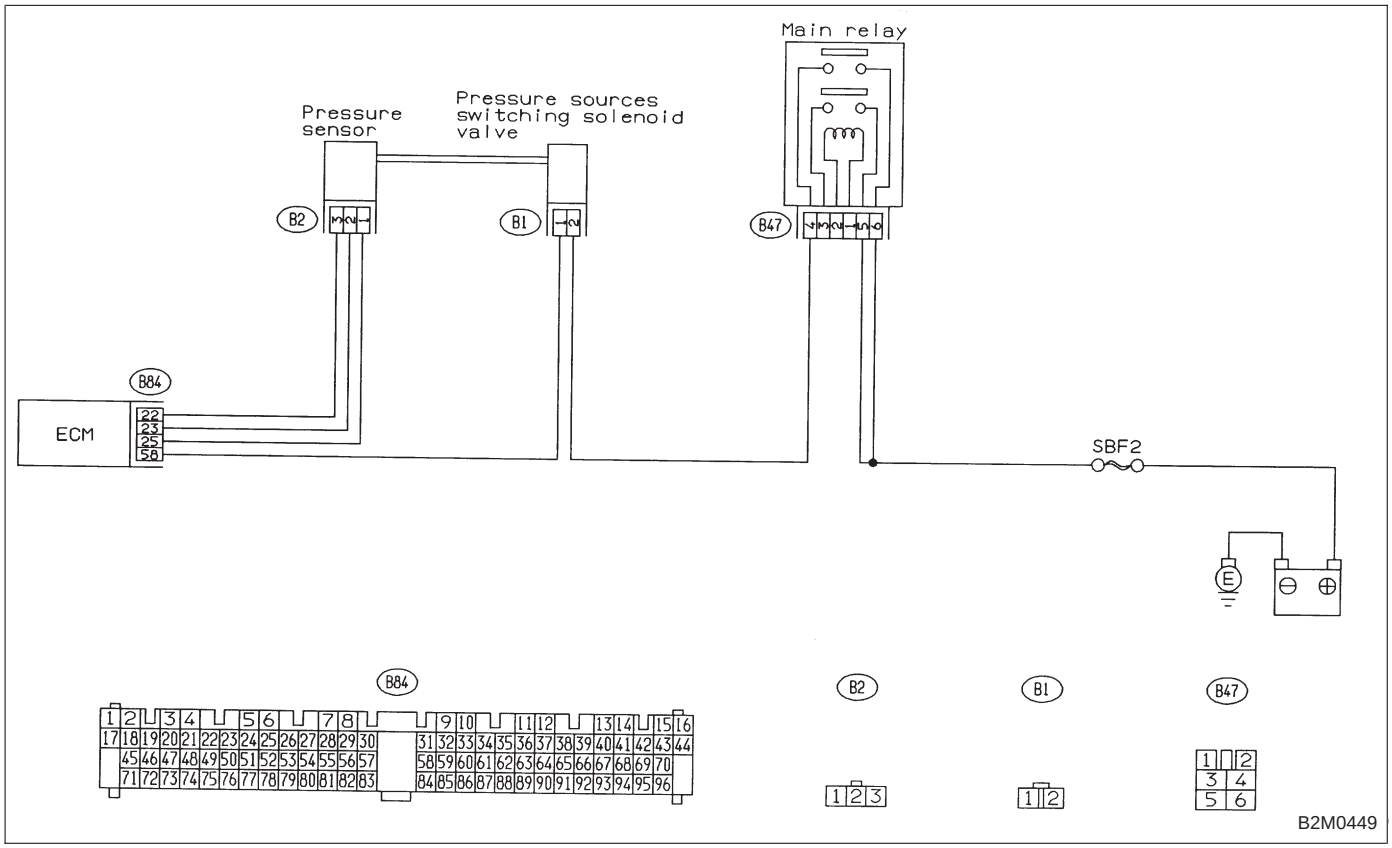
WIRING DIAGRAM:

- **LHD model**



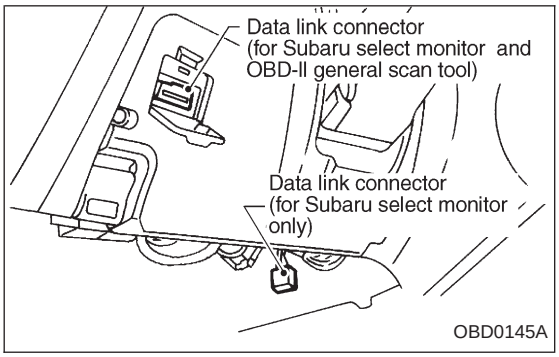
WIRING DIAGRAM:

- **RHD model**



1	CHECK TRANSMISSION TYPE.

Refer to the flow chart on page 145.



OBD0145A

2	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 on Subaru Select Monitor or the OBD-II general scan tool.

- Subaru Select Monitor

Designate mode using function key.

Function mode: F24 or F49

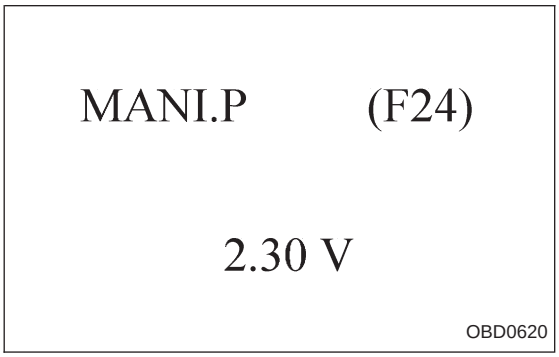
- F24: Display shows voltage signal value sent from pressure sensor.
- F49: Display shows pressure signal value sent from pressure sensor.

CHECK ***: Less than 0.2 V or 0 kPa***
YES : Go to step 3.
NO : Go to next CHECK .
CHECK ***: More than 4.9 V or 140 kPa***
YES : Go to step 5.
NO : Repair the harness and connector between pressure sensor and ECM.

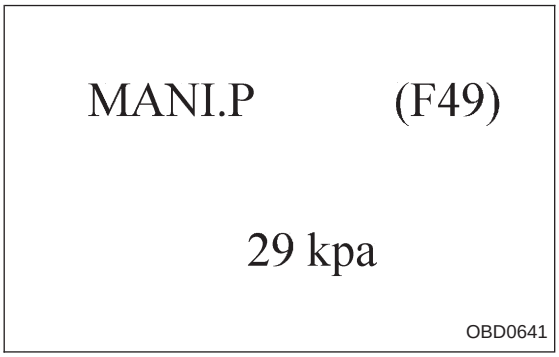
HINT: ① Open or short circuit of harness between pressure sensor and ECM.
② Poor contact of pressure sensor connector and ECM connector.

- OBD-II general scan tool

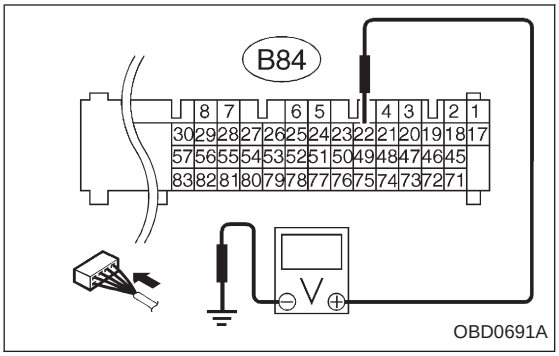
For detailed operation procedures, refer to the OBD-II General Scan Tool Instruction Manual.



OBD0620



OBD0641



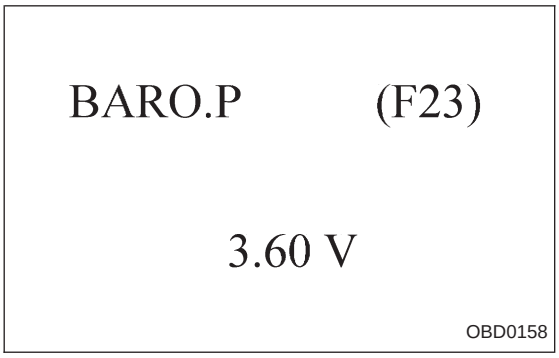
3	CHECK INPUT SIGNAL FOR ECM. (USING VOLTAGE METER AND SUBARU SELECT MONITOR.)

1) Measure voltage between ECM and body.

CHECK ***: Connector & terminal (B84) No. 22 — Body/4.5 V, or more***

YES : Go to next step.

NO : Go to next CHECK .



CHECK ***: Is the voltage more than 4.5 V while shaking harness and connector of ECM?***

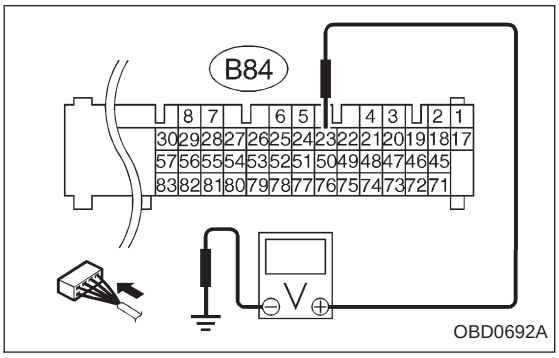
● Subaru Select Monitor
Designate mode using function key.

Function mode: F23

● F23: Display shows voltage signal value sent from pressure sensor.

YES : Repair poor contact in ECM connector.

NO : Replace ECM with a new one.

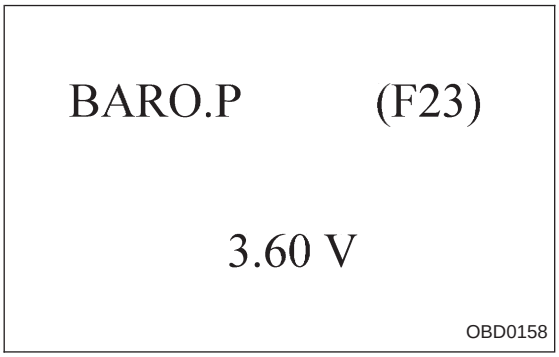


2) Measure voltage between ECM and body.

CHECK ***: Connector & terminal (B84) No. 23 — Body/0.2 V, or less***

NO : Go to next CHECK .

YES : Go to step 4.



CHECK ***: Is the voltage more than 0.2 V while shaking harness and connector of ECM and monitoring the value with Subaru select monitor?***

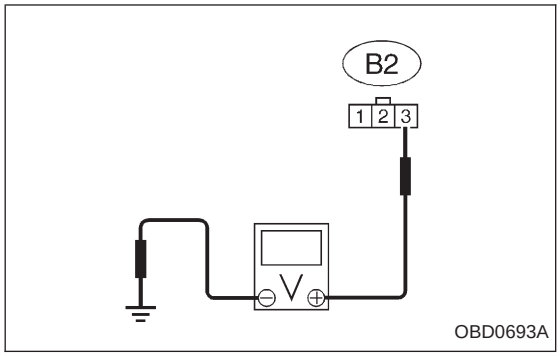
● Subaru Select Monitor
Designate mode using function key.

Function mode: F23

● F23: Display shows voltage signal value sent from pressure sensor.

YES : Repair poor contact in ECM connector.

NO : Go to step 4.



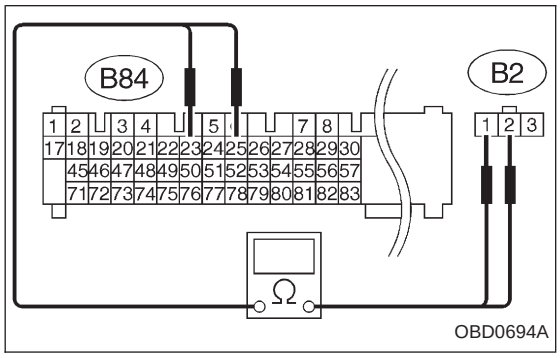
4	CHECK HARNESS CONNECTOR BETWEEN ECM AND PRESSURE SENSOR.

1) Turn ignition switch to OFF.
2) Disconnect connector pressure sensor.
3) Turn ignition switch to ON.
4) Measure voltage of harness connector between pressure sensor and body.

CHECK ***: Connector & terminal***
(B2) No. 3 — Body/4.5 V, or more

NO : Repair open circuit of harness between ECM and pressure sensor.

YES : Go to the next step.

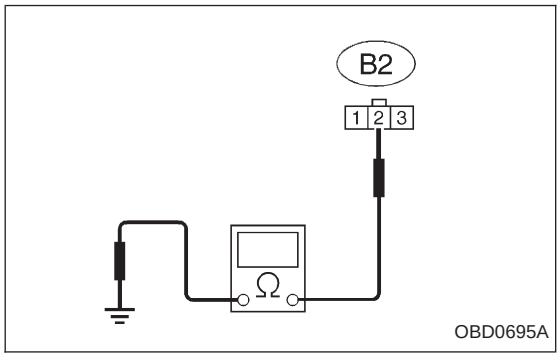


5) Turn ignition switch to OFF.
6) Disconnect connector from ECM.
7) Measure resistance of harness connector between ECM and pressure sensor.

CHECK ***: Connector & terminal***
(B84) No. 23 — (B2) No. 2/10 Ω, or less
(B84) No. 25 — (B2) No. 1/10 Ω, or less

NO : Repair open circuit of harness between ECM and pressure sensor connector.

YES : Go to the next step.



8) Measure resistance of the connector between pressure sensor and body.

CHECK ***: Connector & terminal***
(B2) No. 2 — Body/500 kΩ, or more

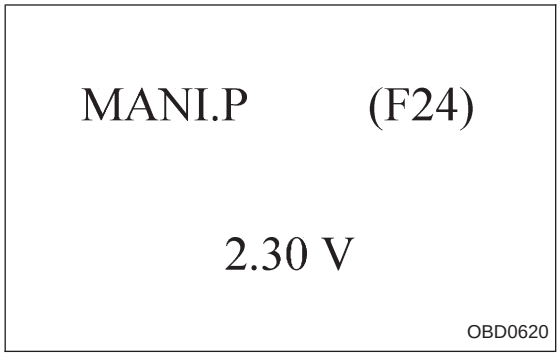
NO : Repair short circuit of the harness between ECM and pressure sensor connector.

YES : Go to the next CHECK .

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

YES : Repair poor contact in pressure sensor connector.

NO : Replace pressure sensor with a new one.



5	CHECK HARNESS CONNECTOR BETWEEN ECM AND PRESSURE SENSOR.

1) Turn ignition switch to OFF.
2) Disconnect connector from pressure sensor.
3) Turn ignition switch to ON.
4) Read data on Subaru select monitor or the OBD-II general scan tool.

● Subaru Select Monitor

Designate mode using function key.

Function mode: F24

CHECK ***: Is the value more than 4.9 V?***

YES : Repair short circuit of harness between ECM and pressure sensor connector.

NO : Replace pressure sensor with a new one.

● OBD-II general scan tool

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

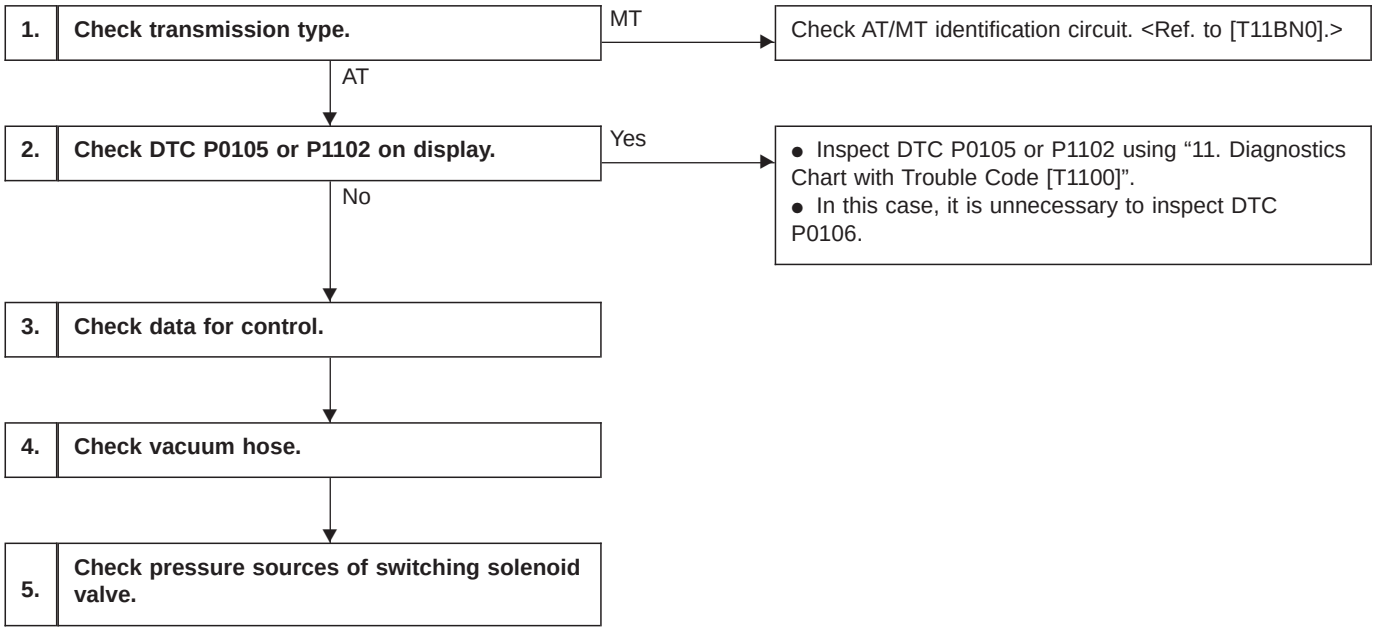
E: DTC P0106 — PRESSURE SENSOR CIRCUIT RANGE/PERFORMANCE PROBLEM (P – R) —

DESCRIPTION:

Refer to “D: DTC P0105 — PRESSURE SENSOR CIRCUIT MALFUNCTION — [T11D0]”.

DTC DETECTING CONDITION:

- Two consecutive trips with fault

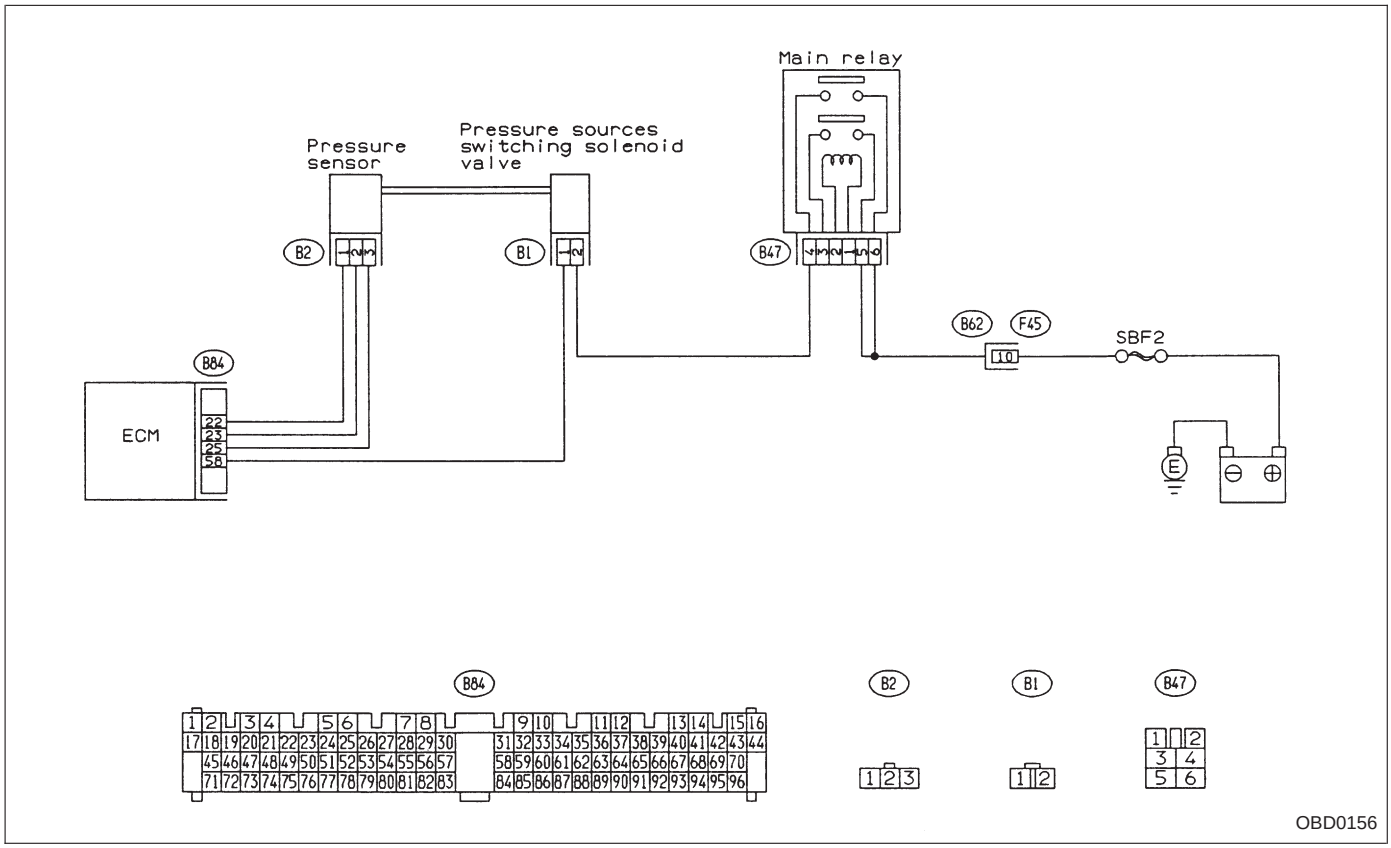


CAUTION:

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

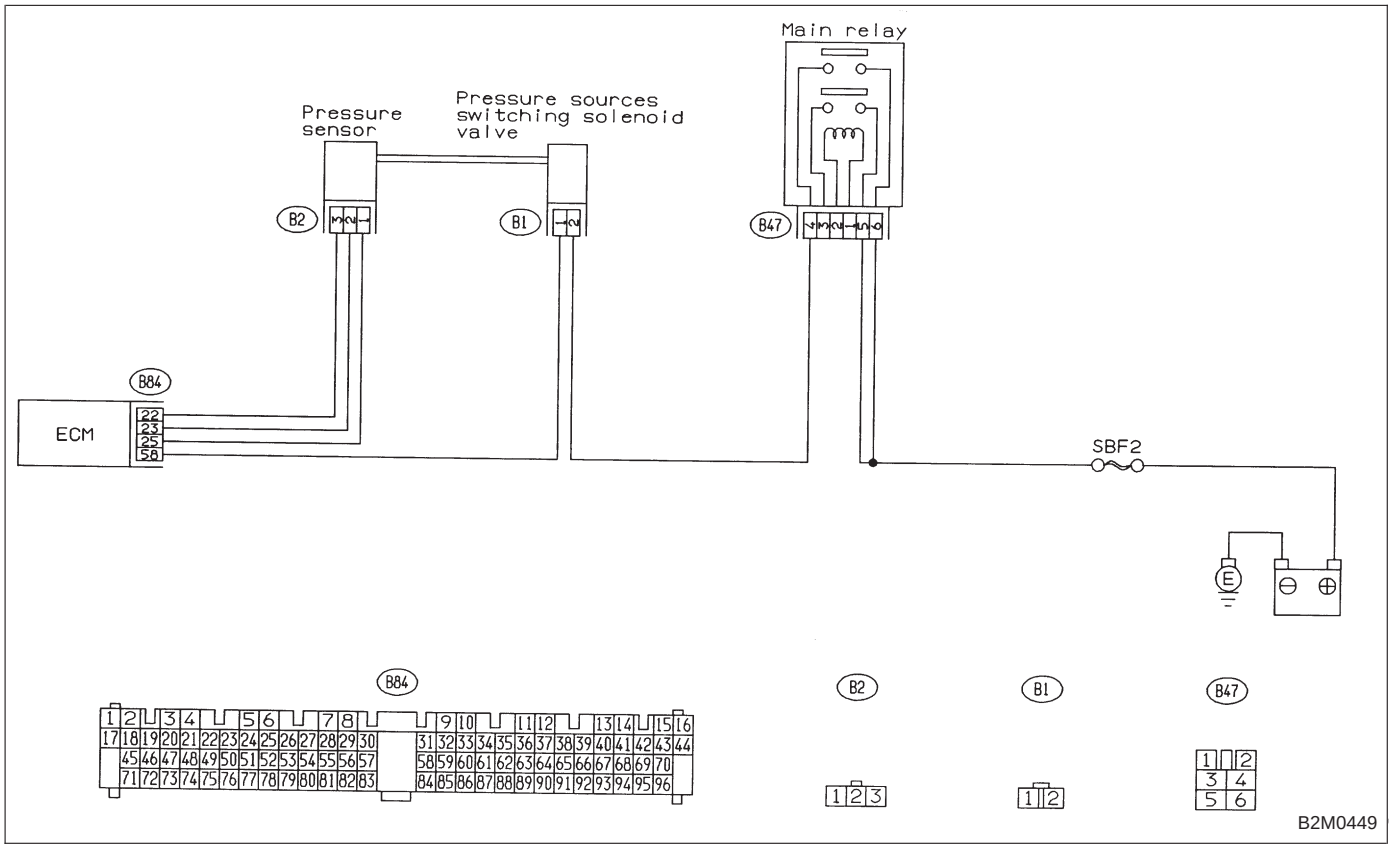
WIRING DIAGRAM:

- **LHD model**



WIRING DIAGRAM:

- **RHD model**

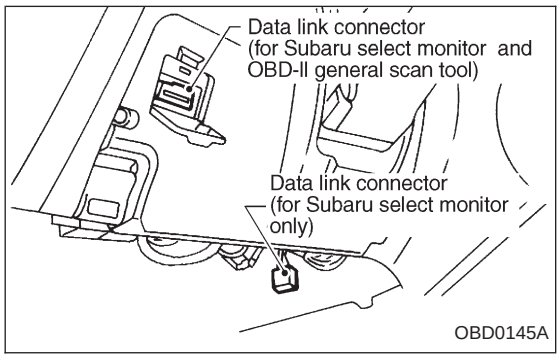


1	CHECK TRANSMISSION TYPE.

Refer to the flow chart on page 151.

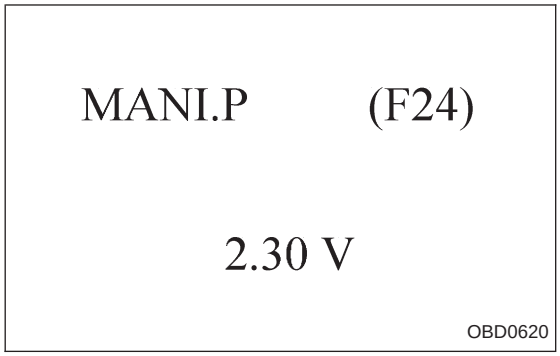
2	CHECK DTC P0105 OR P1102 ON DISPLAY.

Refer to the flow chart on page 151.



3	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 on Subaru Select Monitor or the OBD-II general scan tool.

● Subaru Select Monitor
Designate mode using function key.

Function mode: F24 and F23

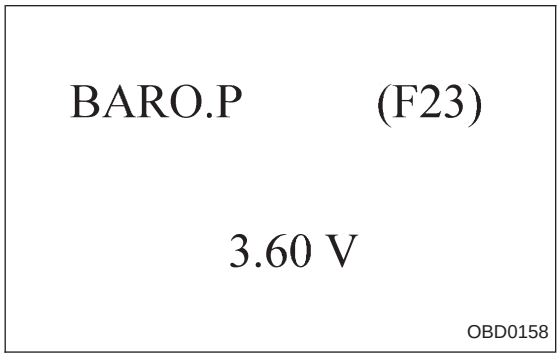
● F24: Display shows a voltage signal value sent from the pressure sensor.

● F23: Display shows a voltage signal value sent from the pressure sensor.

CHECK ***: Is the voltage more than 3.24 V with function mode F24?***

YES : Go to step 4.

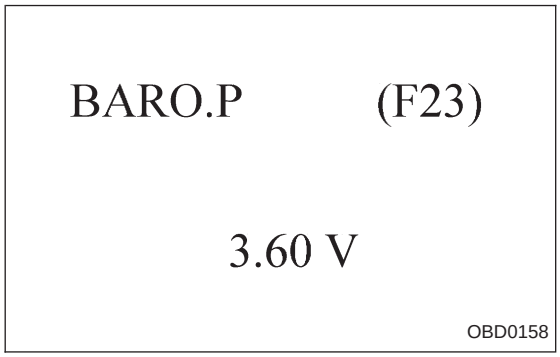
NO : Go to next CHECK .



CHECK ***: Is the voltage less than 1.6 V with function mode F23?***

YES : Go to step 5.

NO : Go to next CHECK .



CHECK ***: Is the voltage more than 4.7 V with function mode F23?***

YES : Replace pressure sensor.

NO : Repair poor contact in pressure sensor connector, pressure sources switching solenoid valve connector, and ECM connector.

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

4	CHECK VACUUM HOSE.

CHECK ***: Check for disconnection, holes, or clogging of the vacuum hoses.***

NOTE:
Check the hoses;
● From pressure sources switching solenoid valve to intake manifold.
● From pressure sensor to pressure sources switching solenoid valve.

YES : Repair hoses.
NO : Go to step 5.

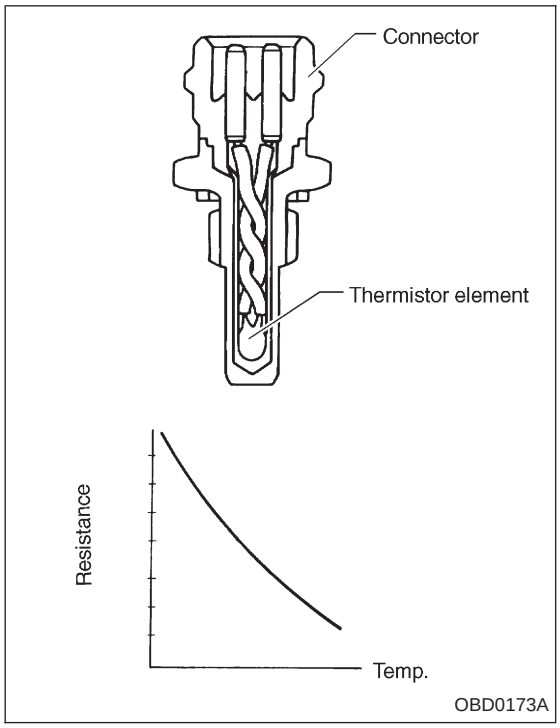
5	CHECK PRESSURE SOURCES OF SWITCHING SOLENOID VALVE.

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

CHECK ***: Is operation sound of the pressure sources solenoid valve heard? (ON ↔ OFF each 1.5 sec.)***

YES : Replace pressure sensor.
NO : Replace pressure sources switching solenoid valve.

F: DTC P0115 — ENGINE COOLANT TEMPERATURE SENSOR CIRCUIT MALFUNCTION (TW) —



DESCRIPTION:

The engine coolant temperature sensor is located on the engine coolant pipe which is made of aluminum alloy. Its thermistor changes resistance with respect to temperature. A engine coolant temperature signal converted into resistance is transmitted to the ECM to control the amount of fuel injection, ignition timing, purge control solenoid valve, etc.

DTC DETECTING CONDITION:

- Immediately at fault recognition

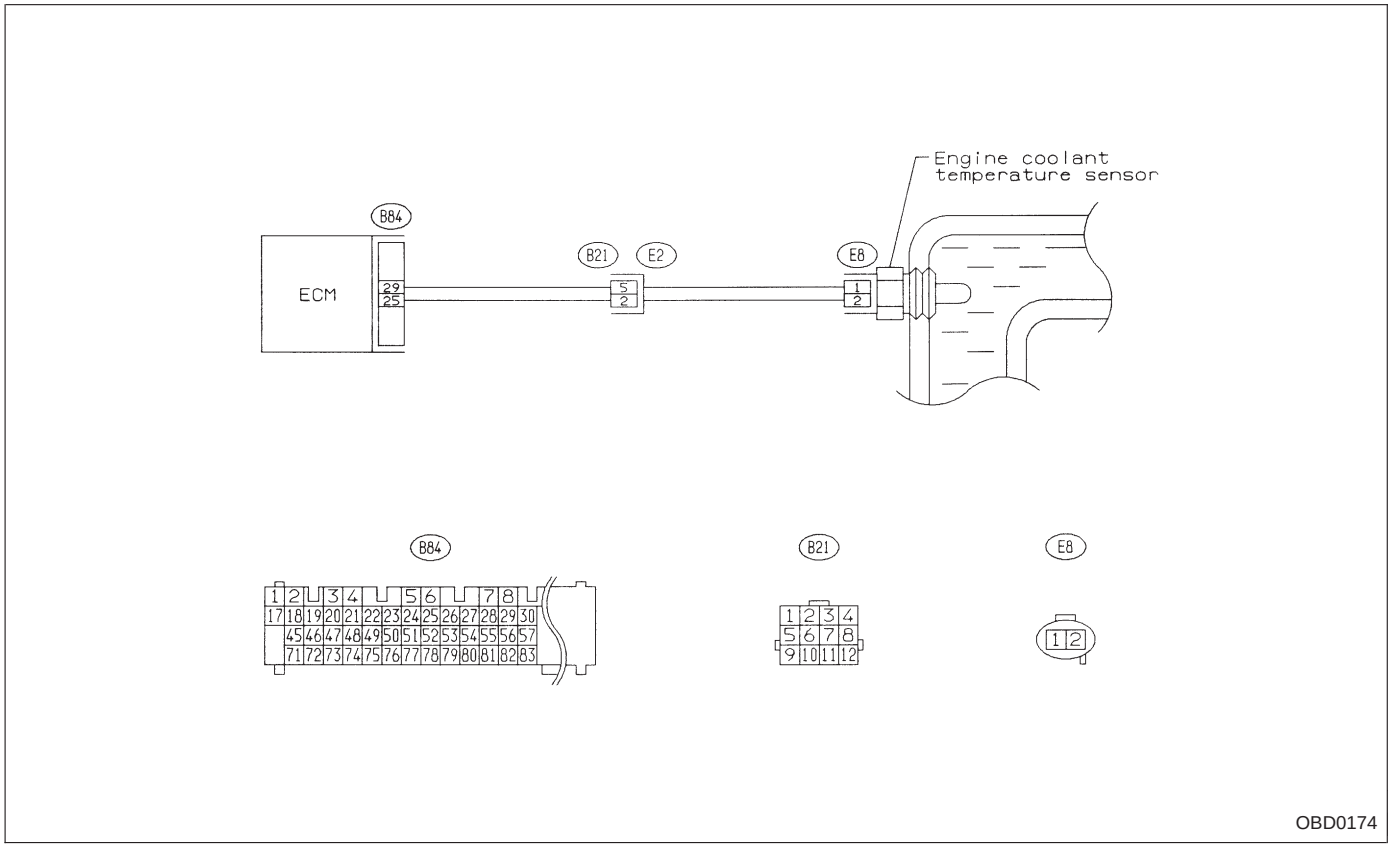
TROUBLE SYMPTOM:

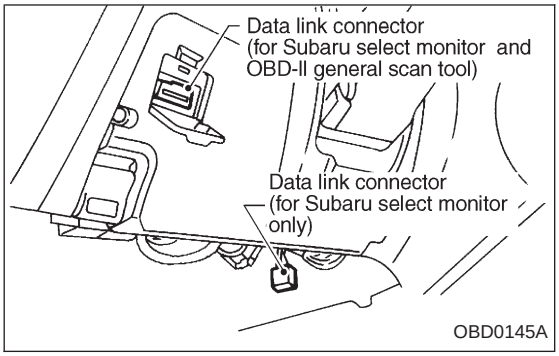
- Hard to start
- Erroneous idling
- Poor driving performance

1.	Connect Subaru Select Monitor or the OBD-II general scan tool, and read data.
2.	Check harness.
3.	Check harness.

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY and INSPECTION MODES. <Ref. to [T3D0] and [T3E0].>

WIRING DIAGRAM:

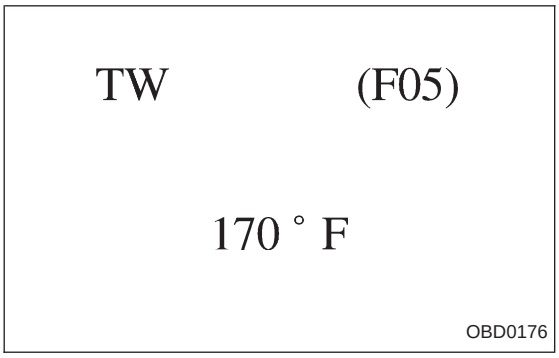




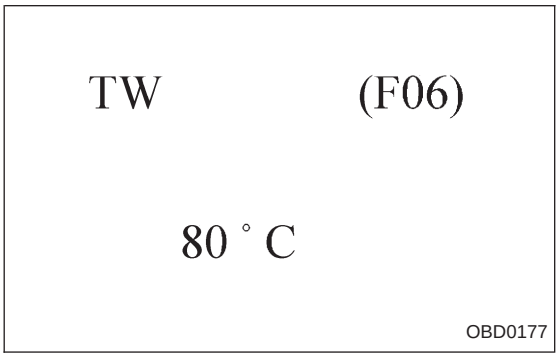
OBD0145A

1	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.



OBD0176



OBD0177

5) Read data on Subaru Select Monitor or OBD-II general scan tool.

● Subaru Select Monitor
Designate mode using function key.

Function mode: F05 or F06

● F05: Water temperature is indicated in "°F".
● F06: Water temperature is indicated in "°C".

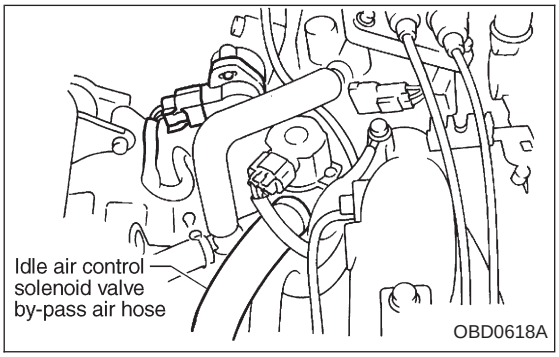
CHECK ***: ● Is the value greater than 300°F with function mode F05?***
● Is the value greater than 150°C with function mode F06?

YES : Go to step 2.
NO : Go to next CHECK .

CHECK ***: ● Is the value less than −40°F with function mode F05?***
● Is the value less than −40°C with function mode F06?

YES : Go to step 3.
NO : Repair poor contact in connectors or harness.
- Engine coolant temperature sensor connector
- ECM connector
- Coupling connector (B21)

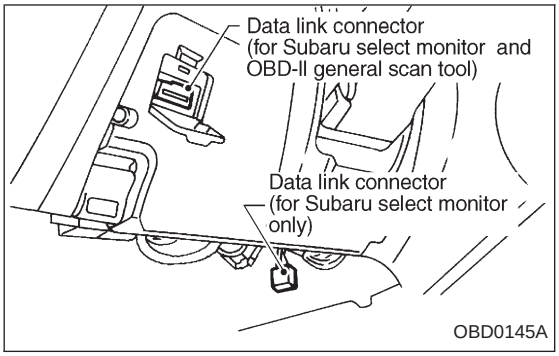
● OBD-II general scan tool
For detailed operation procedures, refer to the OBD-II General Scan Tool Instruction Manual.



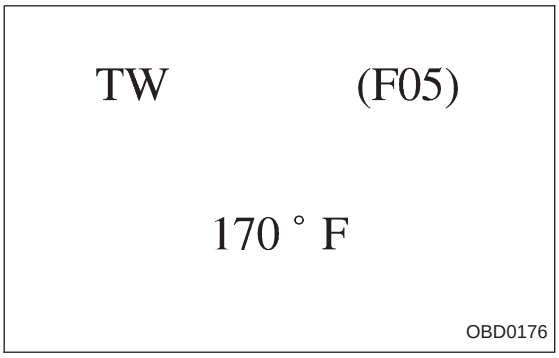
OBD0618A

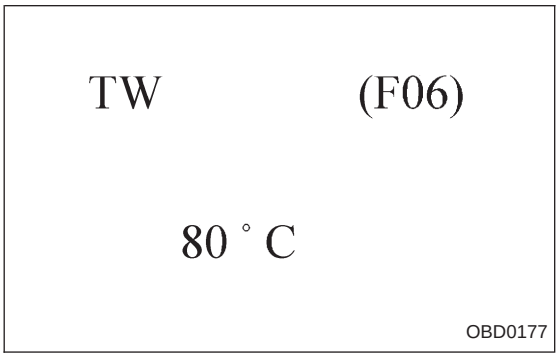
2	CHECK HARNESS.

1) Turn ignition switch to OFF.
2) Remove idle air control solenoid valve by-pass air hose.
3) Disconnect connector from engine coolant temperature sensor.



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 on Subaru Select Monitor or the OBD-II general scan tool.

- Subaru Select Monitor

Designate mode using function key.

Function mode: F05 or F06

- F05: Water temperature is indicated in "°F".
- F06: Water temperature is indicated in "°C".

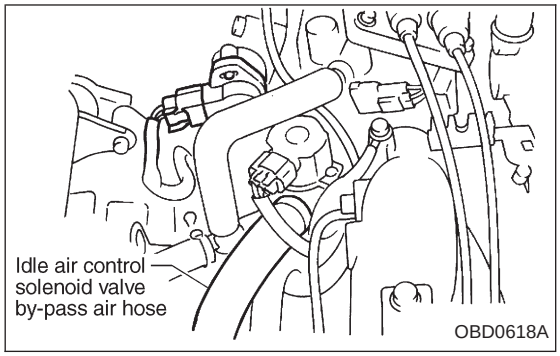
CHECK ***: ● Is the value less than −40°F with function mode F05?***
● Is the value less than −40°C with function mode F06?

YES : Replace engine coolant temperature sensor.

NO : Repair short circuit of harness between engine coolant temperature sensor connector and ECM connector.

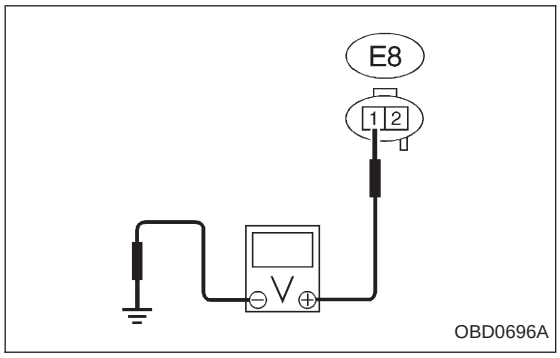
- OBD-II general scan tool

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



3	CHECK HARNESS.

1) Turn ignition switch to OFF.
2) Remove idle air control solenoid valve by-pass air hose.
3) Disconnect connector from engine coolant temperature sensor.
4) Turn ignition switch to ON.



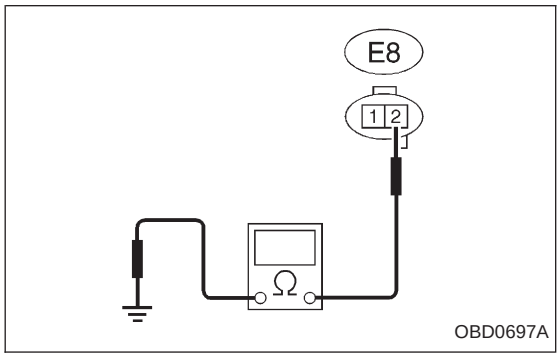
5) Measure voltage between engine coolant temperature sensor and body.

CHECK ***: Connector & terminal (E8) No. 1 — Body/4 V, or more***

NO : Repair open circuit of harness or poor contact in ECM and engine coolant temperature sensor connector.

YES : Go to the next step.

6) Turn ignition switch to OFF.



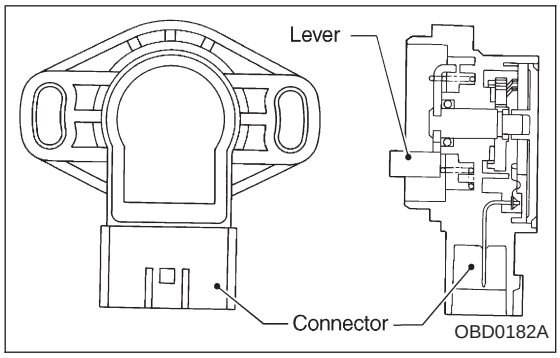
7) Measure resistance of harness between engine coolant temperature sensor connector and body.

CHECK ***: Connector & terminal (E8) No. 2 — Body/10 Ω, or less***

NO : Repair open circuit of harness or poor contact in ECM and engine coolant temperature sensor connector.

YES : Replace engine coolant temperature sensor.

G: DTC P0120 — THROTTLE POSITION SENSOR CIRCUIT MALFUNCTION (THV) —



DESCRIPTION:

- A throttle position sensor is provided with a potentiometer which is interlocked with the throttle valve shaft.
- This throttle position sensor sends the ECM a potentiometer output signal corresponding to the opening of the throttle valve. When the level of this signal exceeds a predetermined value, the ECM interprets it as complete closure of the throttle valve and makes a control most suitable for the engine operation with the throttle valve fully closed. For correcting error of this signal, the ECM is provided with a learning function.
- Thus, the ECM precisely controls the air-fuel ratio during acceleration and deceleration as well as engine idling.

DTC DETECTING CONDITION:

- Immediately at fault recognition

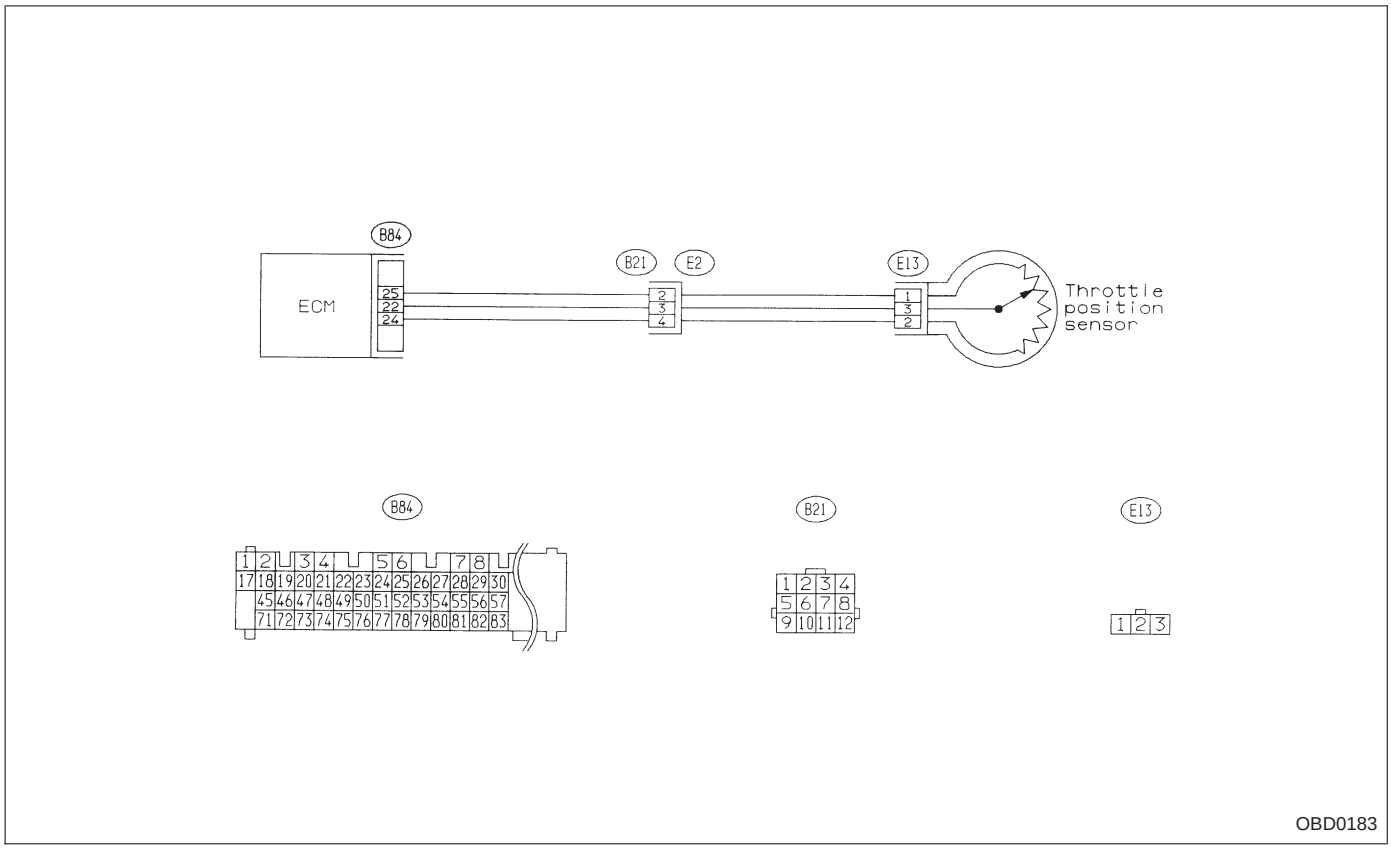
TROUBLE SYMPTOM:

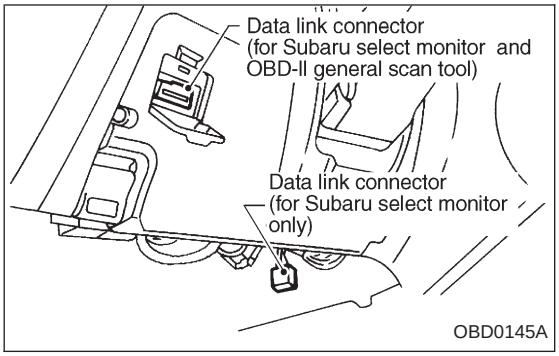
- Erroneous idling
- Engine stalls.
- Poor driving performance

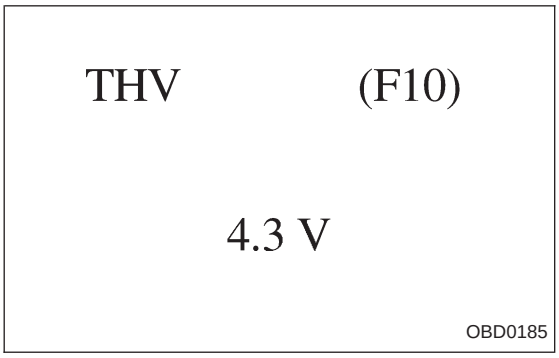
1.	Connect Subaru Select Monitor or OBD-II general scan tool and read data.
2.	Check input signal for ECM. (Using voltage meter and Subaru select monitor.)
3.	Check harness connector between ECM and throttle position sensor.
4.	Check harness connector between throttle position sensor and body.

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY and INSPECTION MODES. <Ref. to [T3D0] and [T3E0].>

WIRING DIAGRAM:







1	**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 on Subaru Select Monitor or OBD-II general scan tool.
- Subaru Select Monitor

Designate mode using function key.

Function mode: F10

- F10: Throttle position sensor output signal is indicated.

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

YES : Go to step 2.

NO : Go to next CHECK .

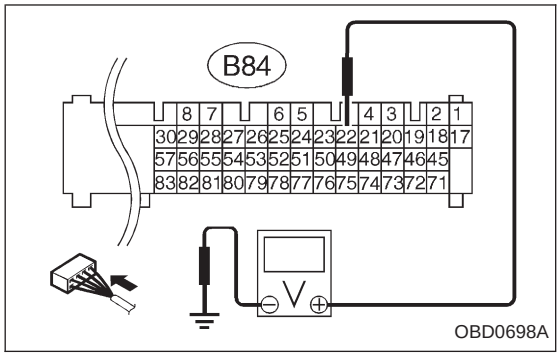
CHECK ***: Is the voltage more than 4.9 V?***

YES : Go to step 4.

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. Check and repair the following connectors.
- Throttle position sensor connector.
- ECM connector
- Coupling connector (B21)

- OBD-II general scan tool

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



2	CHECK INPUT SIGNAL FOR ECM. (USING VOLTAGE METER AND SUBARU SELECT MONITOR.)

1) Measure voltage between ECM and body while throttle valve is fully closed.

CHECK ***: Connector & terminal (B84) No. 22 — Body/4.5 V, or more***

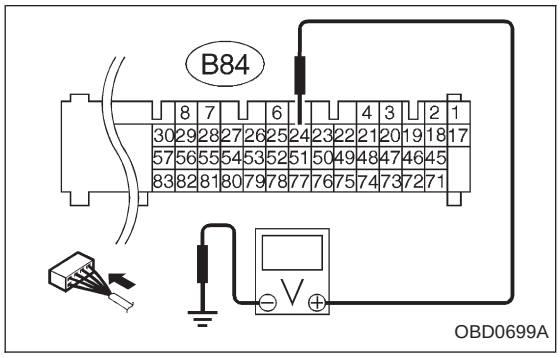
YES : Go to next step.

NO : Go to next CHECK .

CHECK ***: Is the voltage more than 4.5 V while shaking harness and connector of ECM?***

YES : Repair poor contact in ECM connector.

NO : Replace ECM.



2) Measure signal voltage between ECM and body.

CHECK ***: Connector & terminal (B84) No. 24 — Body/0.1 V, or less***

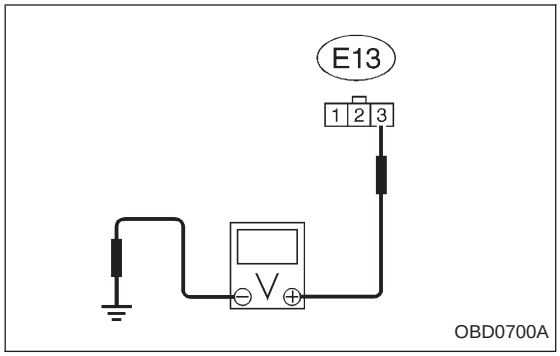
NO : Go to next CHECK .

YES : Go to step 3.

CHECK ***: Is the voltage more than 0.1 V while shaking harness and connector of ECM and monitoring the value with Subaru select monitor?***

YES : Repair poor contact in ECM connector.

NO : Go to step 3.



3	CHECK HARNESS CONNECTOR BETWEEN ECM AND THROTTLE POSITION SENSOR.

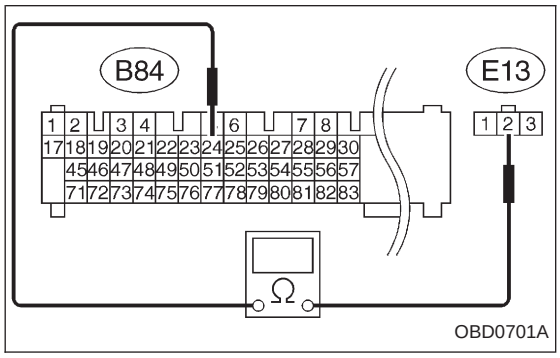
1) Turn ignition switch to OFF.
2) Disconnect connectors from throttle position sensor.
3) Turn ignition switch to ON.
4) Measure voltage between throttle position sensor connector and body.

CHECK ***: Connector & terminal***
(E13) No. 3 — Body/4.5 V, or more

NO : Repair harness and connector.

NOTE:
In this case, the possible causes are:
① Open circuit of the harness between connector (E13) terminal No. 3 and connector (B84) terminal No. 22, or the following:
② Poor contact in throttle position sensor connector
③ Poor contact in ECM connector
④ Poor contact in coupling connector (B21)

YES : Go to the next step.



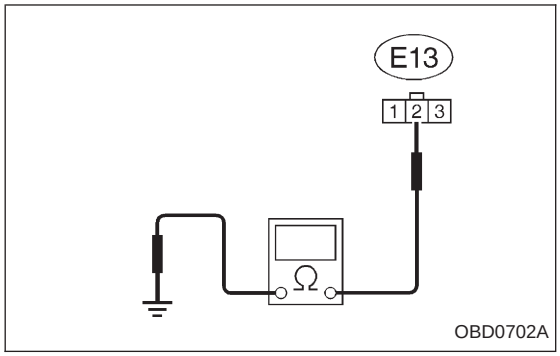
5) Turn ignition switch to OFF.
6) Measure resistance of harness between ECM connector and throttle position sensor connector.

CHECK ***: Connector & terminal***
(B84) No. 24 — (E13) No. 2/10 Ω, or less

NO : Repair harness and connector.

NOTE:
In this case, the following are the possible causes.
① Open circuit between connector (B84) terminal No. 24 and connector (E13) terminal No. 2.
② Poor contact in ECM connector.
③ Poor contact in throttle position sensor connector
④ Poor contact in coupling connector (B21)

YES : Go to next step.



7) Measure resistance of harness between throttle position sensor connector and body.

CHECK ***: Connector & terminal (E13) No. 2 — Body/10 Ω, or less***

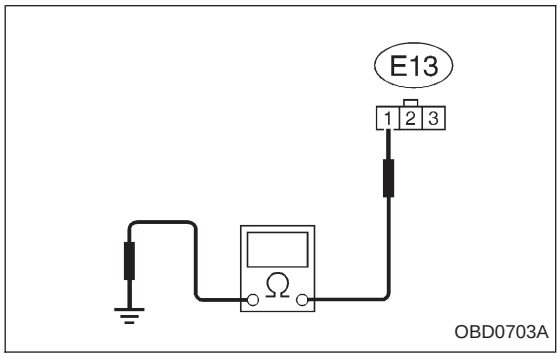
YES : Repair short circuit of harness between throttle position sensor and ECM connector.

NO : Go to next CHECK .

CHECK ***: Is there poor contact in throttle position sensor connector?***

YES : Repair poor contact in throttle position sensor connector.

NO : Replace throttle position sensor.



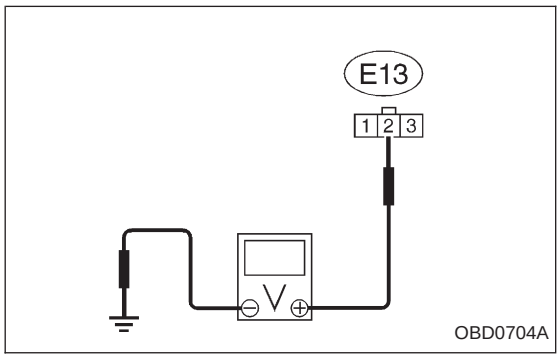
4	CHECK HARNESS CONNECTOR BETWEEN THROTTLE POSITION SENSOR AND BODY.

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

CHECK ***: Connector & terminal (E13) No. 1 — Body/10 Ω, or less***

NO : Repair open circuit of harness between throttle position sensor and ECM connector.

YES : Go to the next step.



4) Turn ignition switch to ON.
5) Measure voltage between throttle position sensor connector and body.

CHECK ***: Connector & terminal (E13) No. 2 — Body/4.9 V, or more***

YES : Repair short circuit of harness between throttle position sensor and ECM connector.

NO : Replace throttle position sensor.

H: DTC P0121 — THROTTLE POSITION SENSOR CIRCUIT RANGE/PERFORMANCE PROBLEM (TH — R) —

DESCRIPTION:

Refer to “G: DTC P0120 — THROTTLE POSITION SENSOR CIRCUIT MALFUNCTION — [T11G0]”.

DTC DETECTING CONDITION:

- Two consecutive trips with fault

TROUBLE SYMPTOM:

- Erroneous idling
- Engine stalls.
- Poor driving performance

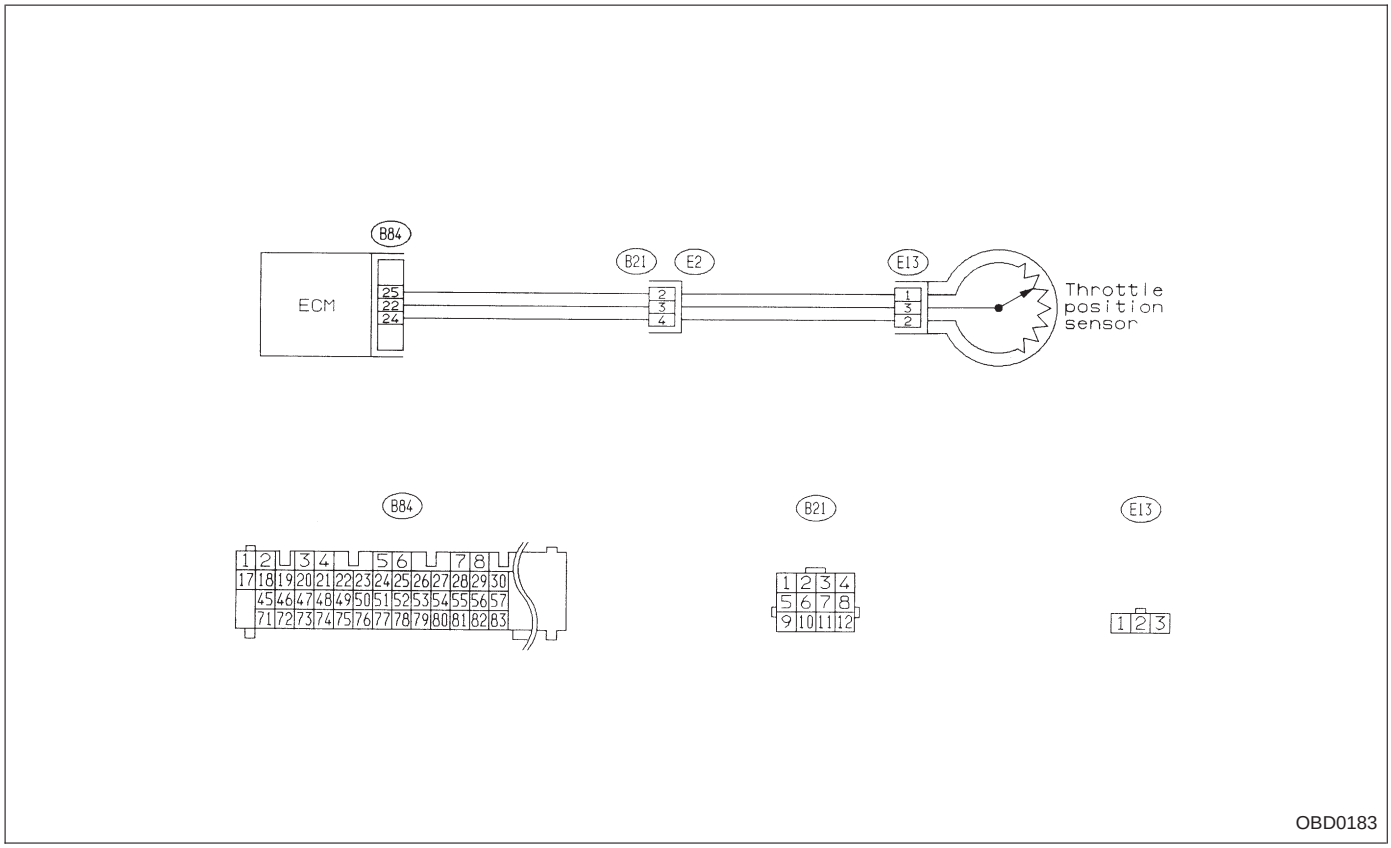
Check DTC P0120 on display.

Yes → ● Inspect DTC P0120 using “11. Diagnostics Chart with Trouble Code [T1100]”.
● In this case, it is unnecessary to inspect DTC P0121.

No → Replace throttle position sensor.

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY and INSPECTION MODES. <Ref. to [T3D0] and [T3E0].>

WIRING DIAGRAM:



I: DTC P0125 — INSUFFICIENT COOLANT TEMPERATURE FOR CLOSED LOOP FUEL CONTROL (TW – CL) —

DESCRIPTION:

Refer to “F: DTC P0115 — ENGINE COOLANT TEMPERATURE SENSOR CIRCUIT MALFUNCTION — [T11F0]”.

DTC DETECTING CONDITION:

- Two consecutive trips with fault

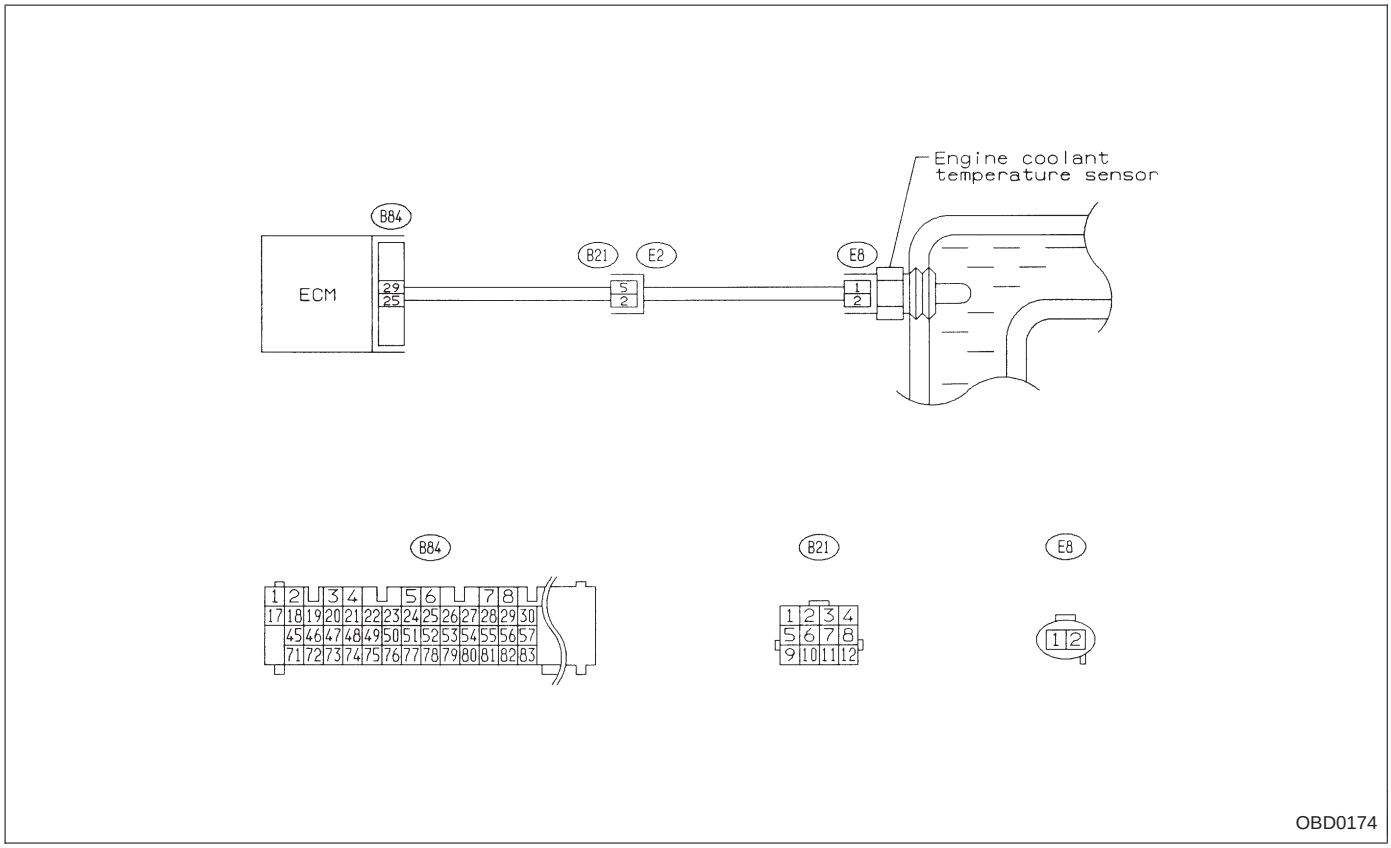
TROUBLE SYMPTOM:

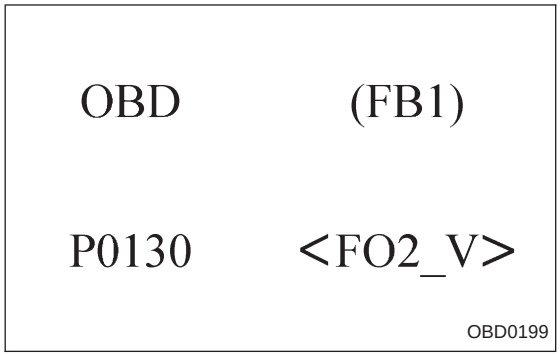
- Engine would not return to idling.

1.	**Check DTC P0115 on display.**	Yes	• Inspect DTC P0115 using “11. Diagnostics Chart with Trouble Code [T1100]”. • In this case, it is unnecessary to inspect DTC P0125.
		No	Replace engine coolant temperature sensor.

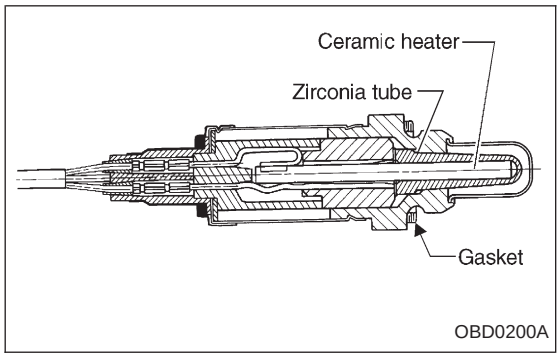
CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY and INSPECTION MODES. <Ref. to [T3D0] and [T3E0].>

WIRING DIAGRAM:





J: DTC P0130 — FRONT OXYGEN SENSOR CIRCUIT MALFUNCTION (FO2 — V) —



DESCRIPTION:

- The oxygen sensor is used to sense oxygen concentration in the exhaust gas. If the fuel ratio is leaner than the stoichiometric ratio in the mixture (i.e. excessive amount of air), the exhaust gas contains more oxygen. To the contrary, if the fuel ratio is richer than the stoichiometric ratio, the exhaust gas contains hardly any oxygen.
- Therefore, examination of the oxygen concentration in exhaust gas makes it possible to show whether the air/fuel ratio is leaner or richer than the stoichiometric ratio.
- The oxygen sensor has a zirconia tube (ceramic) which generates voltage if there is a difference in oxygen concentration between the inside and outside of the tube. Platinum is coated on the inside and outside of the zirconia tube for the purpose of catalysis and electrode provision. The hexagon screw on the outside is grounded to the exhaust pipe, and the inside is connected to the ECM through the harness.
- A ceramic heater is employed to improve performance at low temperature.
- When rich air-fuel mixture is burnt in the cylinder, the oxygen in the exhaust gases reacts almost completely through the catalytic action of the platinum coating on the surface of the zirconia tube. This result is a very large difference in the oxygen concentration between the inside and outside, and the electromotive force generated is large.
- When a lean air-fuel mixture is burnt in the cylinder, oxygen remains in the exhaust gases even after the catalytic action, and this results in a small difference in the oxygen concentration. The electromotive force is very small.

● The difference in oxygen concentration changes greatly in the vicinity of the optimum air-fuel ratio, and hence the change in the electromotive force is also large. By inputting this information into the MFI control module, the air-fuel ratio of the supplied mixture can be determined easily. The oxygen sensor does not generate much electromotive force when the temperature is low. The characteristics of the electromotive force stabilize at temperature of approximately 300 to 400°C (572 to 752°F).

DTC DETECTING CONDITION:

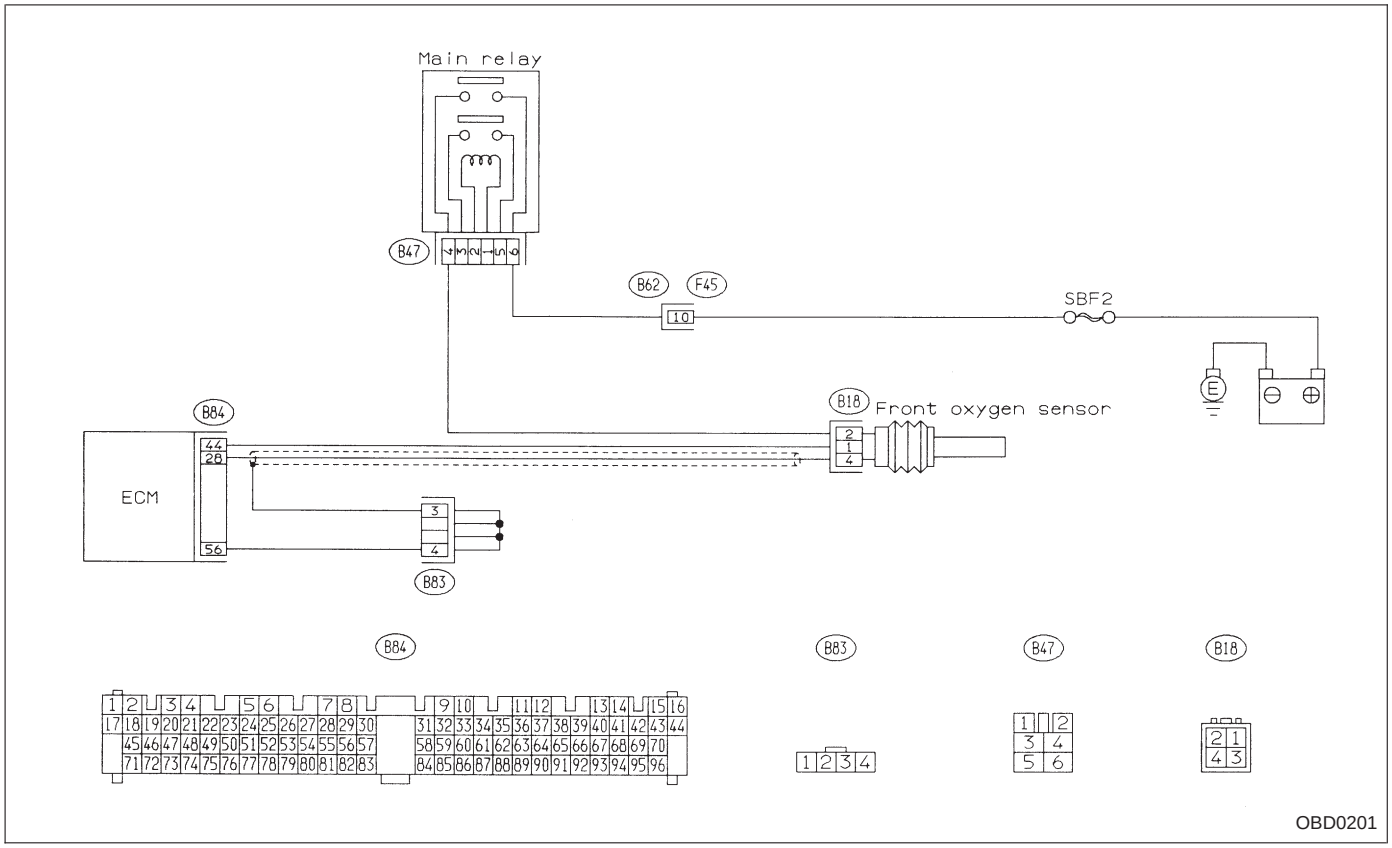
● Two consecutive trips with fault

1.	Check for other causes affecting exhaust gas.
2.	Check front oxygen sensor data.
3.	Check harness connector.

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY and INSPECTION MODES. <Ref. to [T3D0] and [T3E0].>

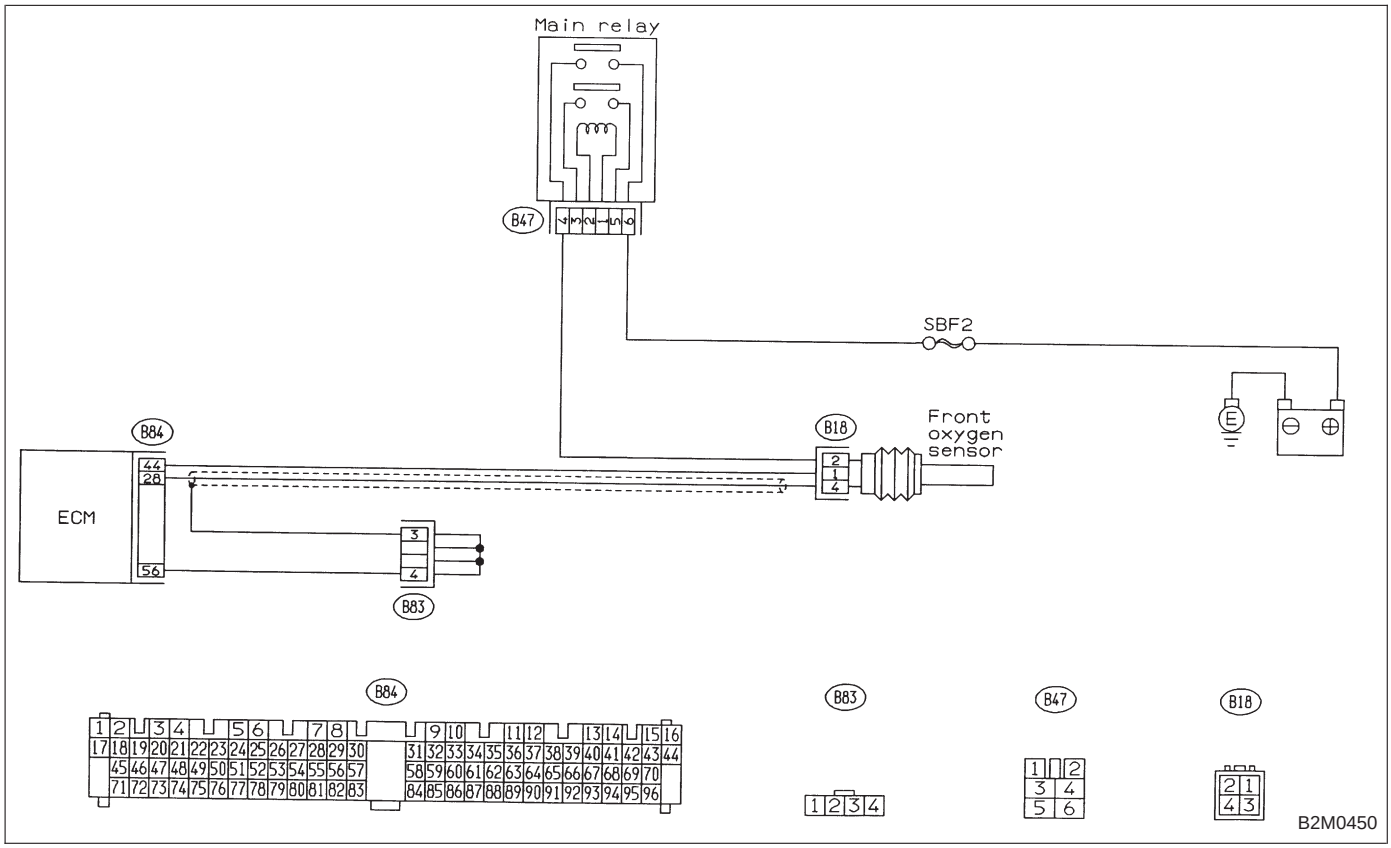
WIRING DIAGRAM:

- **LHD model**



WIRING DIAGRAM:

- **RHD model**



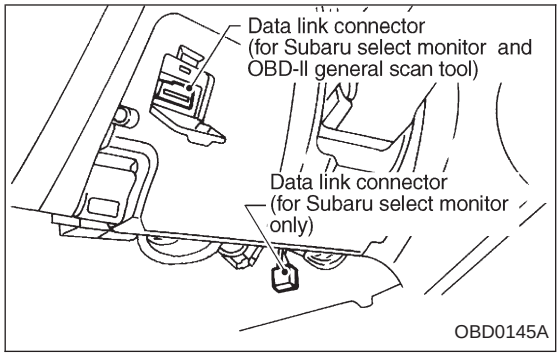
1	CHECK FOR OTHER CAUSES AFFECTING EXHAUST GAS.

CHECK ***: Is CO % more than 2 % after engine warm-up?***

YES : Check fuel system.

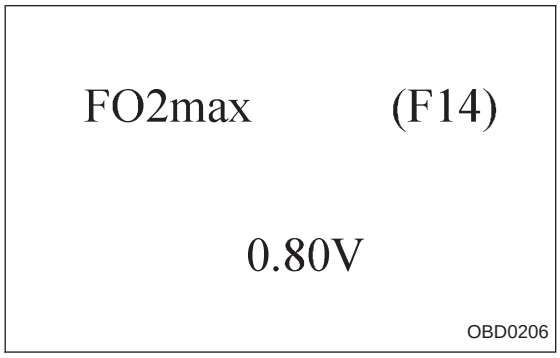
NOTE:
Check for use of improper fuel.
Check if engine oil or coolant level is extremely low.

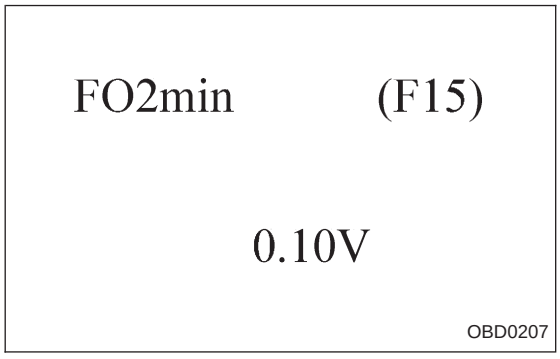
NO : Go to step 2.



2	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 on Subaru Select Monitor or the OBD-II general scan tool.





- Subaru Select Monitor

Designate mode using function key.

Function mode: F14 or F15

- F14: Front oxygen sensor max. output signal is indicated.
- F15: Front oxygen sensor min. output signal is indicated.

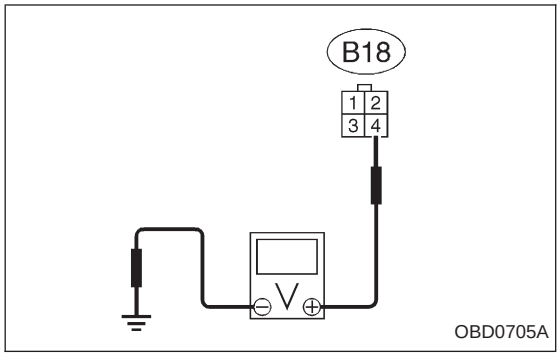
CHECK ***: Is the difference of voltage between F14 and F15 0.1 V, or less?***

YES : Go to step 3.

NO : Replace front oxygen sensor.

- OBD-II general scan tool

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



3	CHECK HARNESS 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 body.

CHECK ***: Connector & terminal (B18) No. 4 — Body/0.2 V, or more***

NO : Repair harness and connector.

NOTE:
In this case, the following are the possible causes.
① Open circuit of harness between ECM and front oxygen sensor.
② Poor contact in the ECM connector.

YES : Go to next CHECK .

CHECK ***: Is there poor contact in front oxygen sensor connector?***

YES : Repair poor contact in front oxygen sensor connector.

NO : Replace front oxygen sensor.

K: DTC P0133 — FRONT OXYGEN SENSOR CIRCUIT SLOW RESPONSE (FO2 – R) —

DESCRIPTION:

Refer to “J: DTC P0130 — FRONT OXYGEN SENSOR CIRCUIT MALFUNCTION — [T11J0]”.

DTC DETECTING CONDITION:

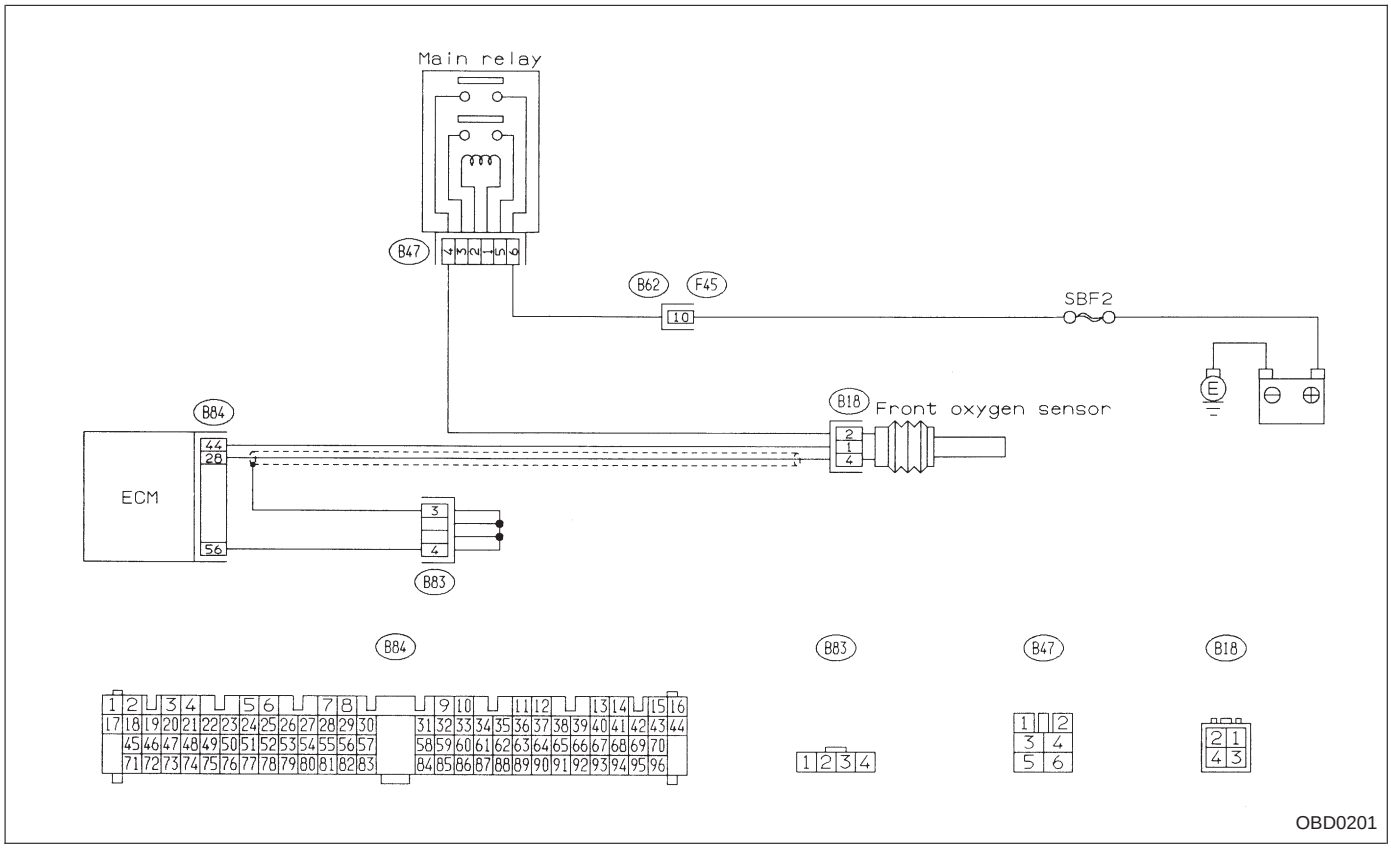
- Two consecutive trips with fault

1.	Check DTC P0130 on display.	Yes	• Inspect DTC P0130 using “11. Diagnostics Chart with Trouble Code [T1100]”. • In this case, it is unnecessary to inspect DTC P0133.
		No	
2.	**Check exhaust system.**		

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY and INSPECTION MODES. <Ref. to [T3D0] and [T3E0].>

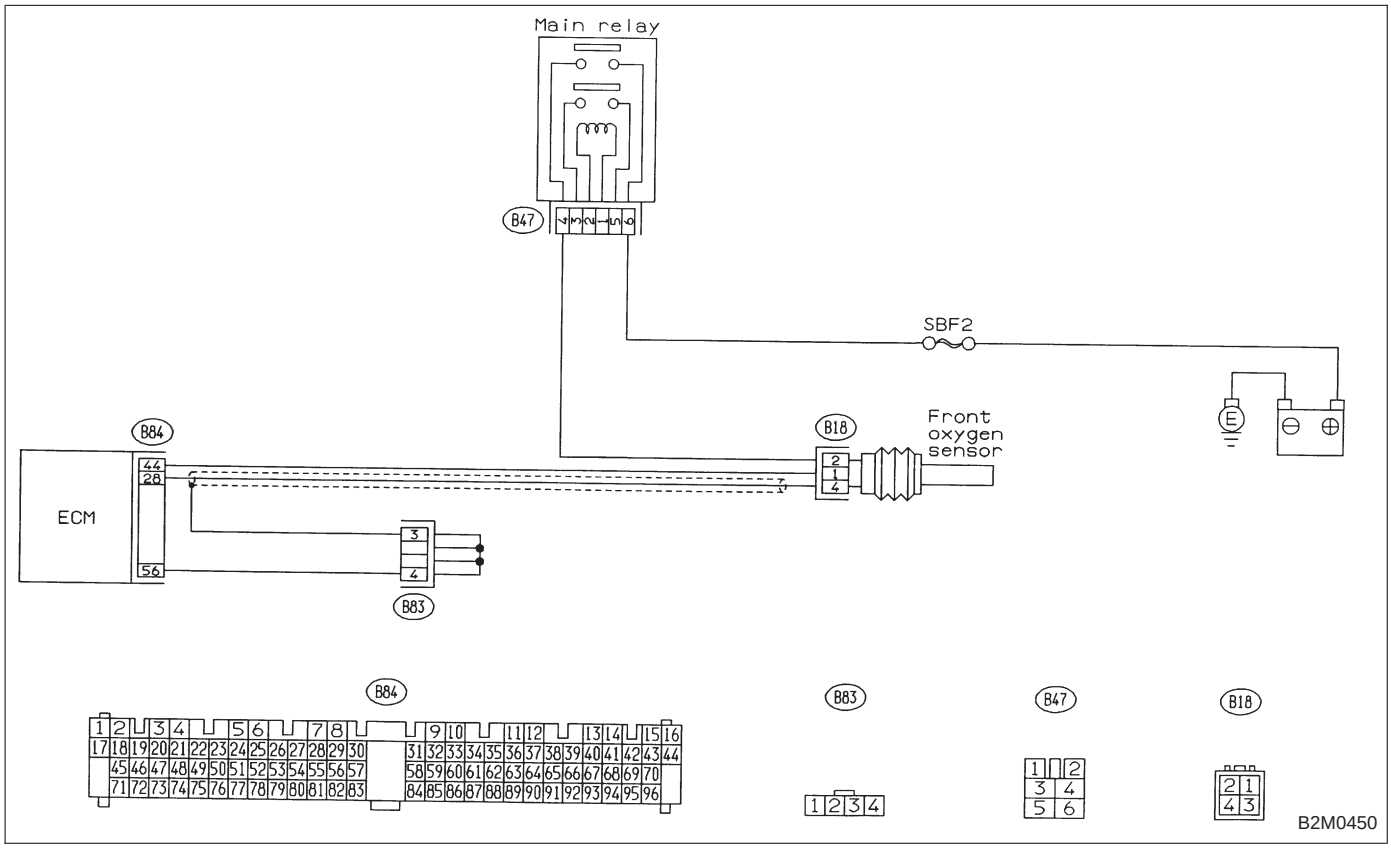
WIRING DIAGRAM:

- **LHD model**



WIRING DIAGRAM:

- **RHD model**



2	CHECK EXHAUST SYSTEM.

CHECK ***: Check the following.***

- ***Looseness of installation portion of front exhaust pipe onto cylinder heads***
- ***Loosened connection of front exhaust pipe and front catalytic converter***
- ***Damage of exhaust pipe which make a hole***

YES : Repair exhaust system.

NO : Replace front oxygen sensor.

L: DTC P0135 — FRONT OXYGEN SENSOR HEATER CIRCUIT MALFUNCTION (FO2H) —

DESCRIPTION:

Refer to “J: DTC P0130 — FRONT OXYGEN SENSOR CIRCUIT MALFUNCTION — [T11J0]”.

DTC DETECTING CONDITION:

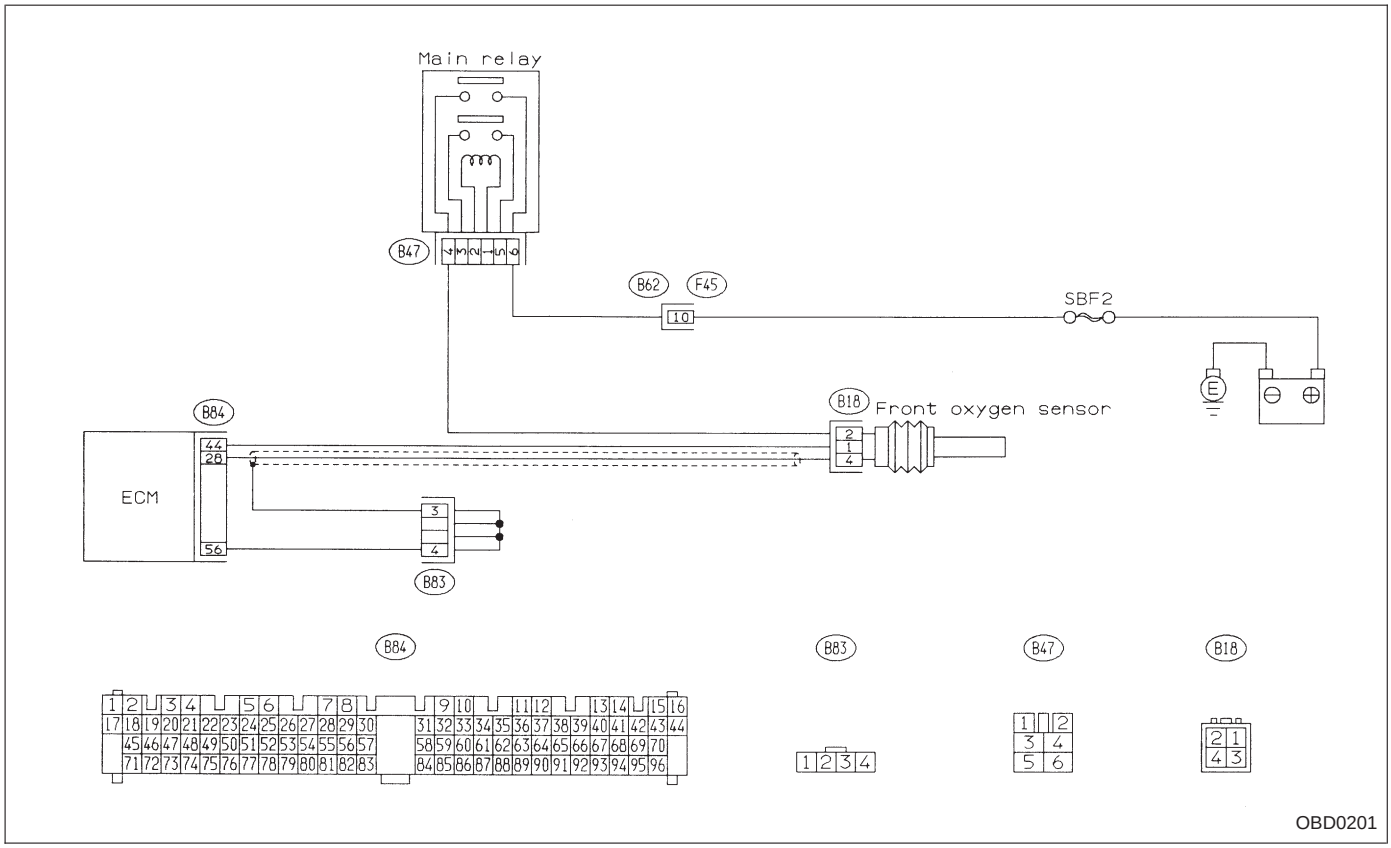
- Two consecutive trips with fault

1.	Connect Subaru Select Monitor or the OBD-II general scan tool, and read data.
2.	Check output signal from ECM. (Using voltage meter.)
3.	Check power supply to front oxygen sensor.
4.	Check front oxygen sensor.

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY and INSPECTION MODES. <Ref. to [T3D0] and [T3E0].>

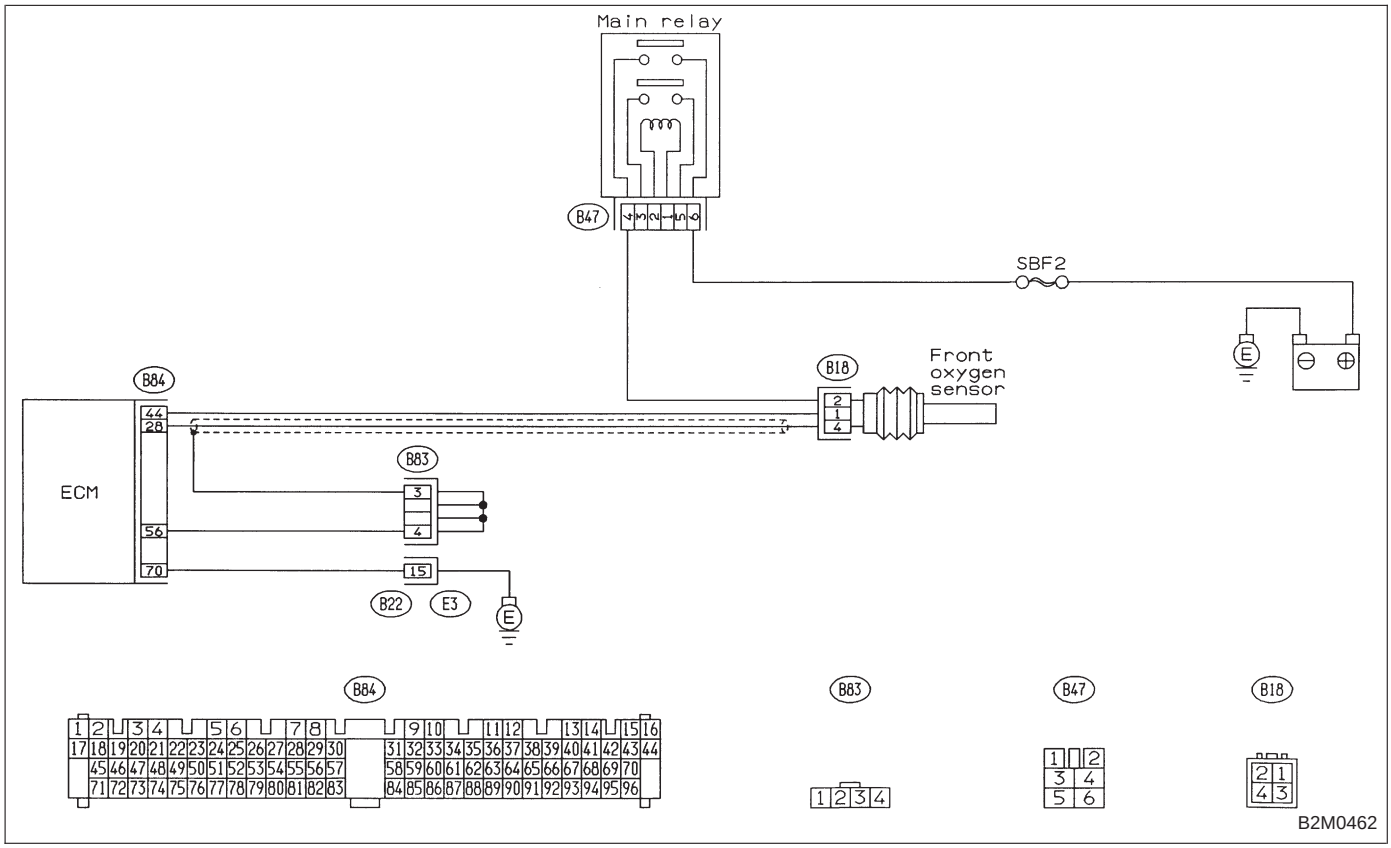
WIRING DIAGRAM:

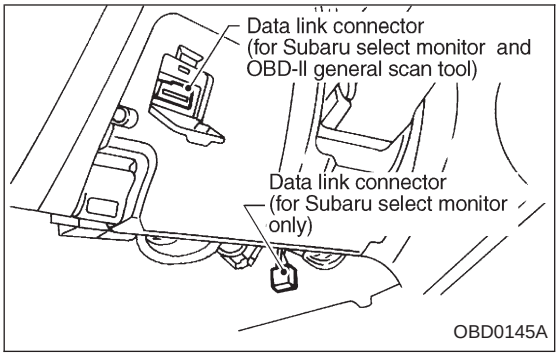
- **LHD model**



WIRING DIAGRAM:

- **RHD model**





1	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 on Subaru Select Monitor or OBD-II general scan tool.
● Subaru Select Monitor
Designate mode using function key.

Function mode: F29

● F29: Front oxygen sensor heater current is indicated.

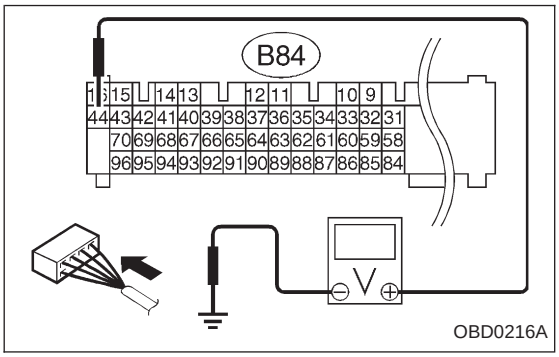
CHECK ***: Is the reading of F29 0.2 A, or more?***

NO : Go to step 2.

YES : Repair connector.

NOTE:
In this case, poor contact in front oxygen sensor connector and ECM connector can be the possible cause.

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



2	CHECK OUTPUT SIGNAL FROM ECM. (USING VOLTAGE METER.)

1) Start and idle the engine.
2) Measure voltage between ECM and body.

CHECK ***: Connector & terminal (B84) No. 44 — Body/1.0 V, or less***

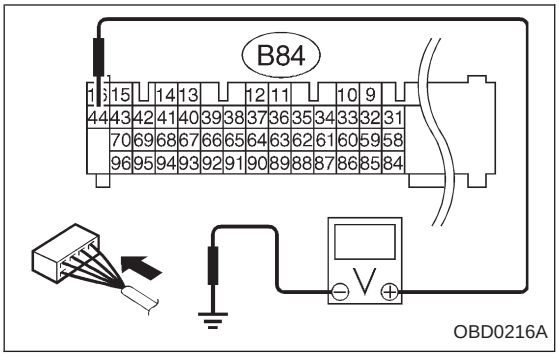
YES : Go to step 3.

NO : Go to next CHECK .

CHECK ***: Is the voltage less than 1.0 V while shaking harness and connector of ECM?***

YES : Repair poor contact in ECM connector.

NO : Go to next step.

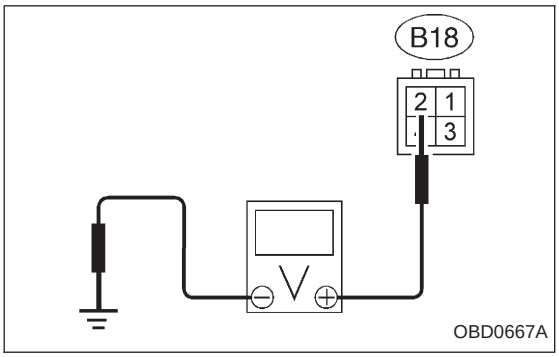


3) Disconnect connector from front oxygen sensor.
4) Measure voltage between ECM and body.

CHECK ***: Connector & terminal***
(B84) No. 44 — Body/1.0 V, or less

YES : Replace ECM.

NO : Repair short circuit of harness between ECM and front oxygen sensor connector. After repair short circuit of harness, replace ECM.



3	CHECK POWER SUPPLY TO FRONT OXYGEN SENSOR.

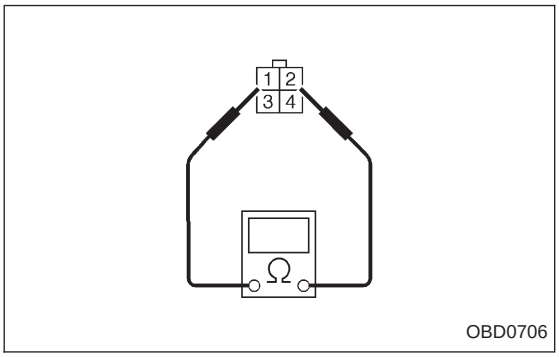
1) Turn ignition switch to OFF.
2) Disconnect connector from front oxygen sensor.
3) Turn ignition switch to ON.
4) Measure voltage between front oxygen sensor connector and body.

CHECK ***: Connector & terminal***
(B18) No. 2 — Body/10 V, or more

YES : Go to step 4.

NO : Repair power supply line.

NOTE:
In this case, repair poor contact in connector or open circuit of harness between main relay and front oxygen sensor.



4	CHECK FRONT OXYGEN SENSOR.

1) Turn ignition switch to OFF.
2) Measure resistance between front oxygen sensor connector terminals.

CHECK ***: Terminals***
No. 1 — No. 2/30 Ω, or less

YES : Repair harness and connector.

NOTE:
In this case, repair the following:
① Open circuit of harness between the front oxygen sensor connector and the ECM connector
② Poor contact in front oxygen sensor connector
③ Poor contact in ECM connector

NO : Replace front oxygen sensor.

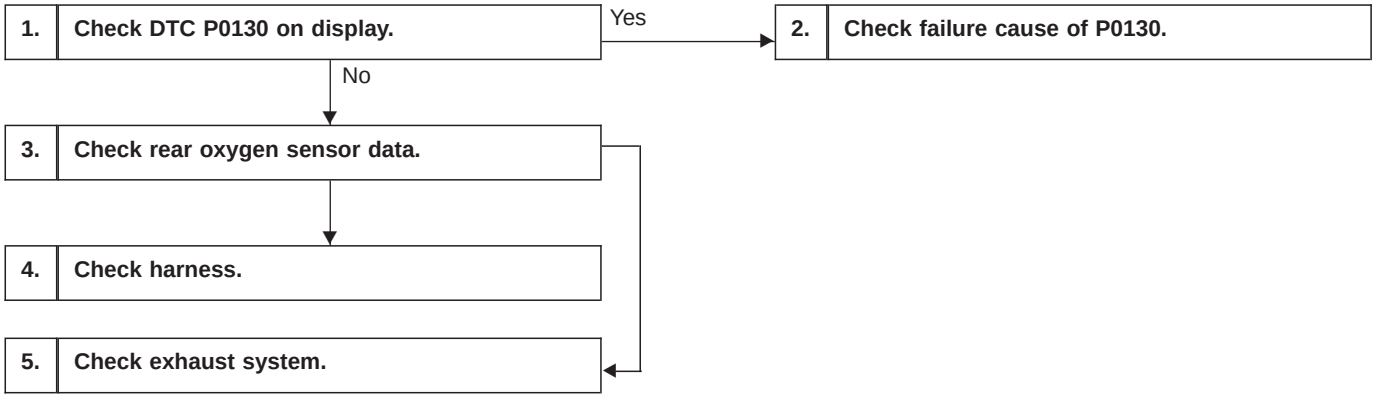
M: DTC P0136 — REAR OXYGEN SENSOR CIRCUIT MALFUNCTION (RO2 — V) —

DESCRIPTION:

- In order to monitor purifying efficiency of the catalyzer, the rear oxygen sensor sends a signal to the ECM.
- Refer to “J: DTC P0130 — FRONT OXYGEN SENSOR CIRCUIT MALFUNCTION — [T11J0]”.

DTC DETECTING CONDITION:

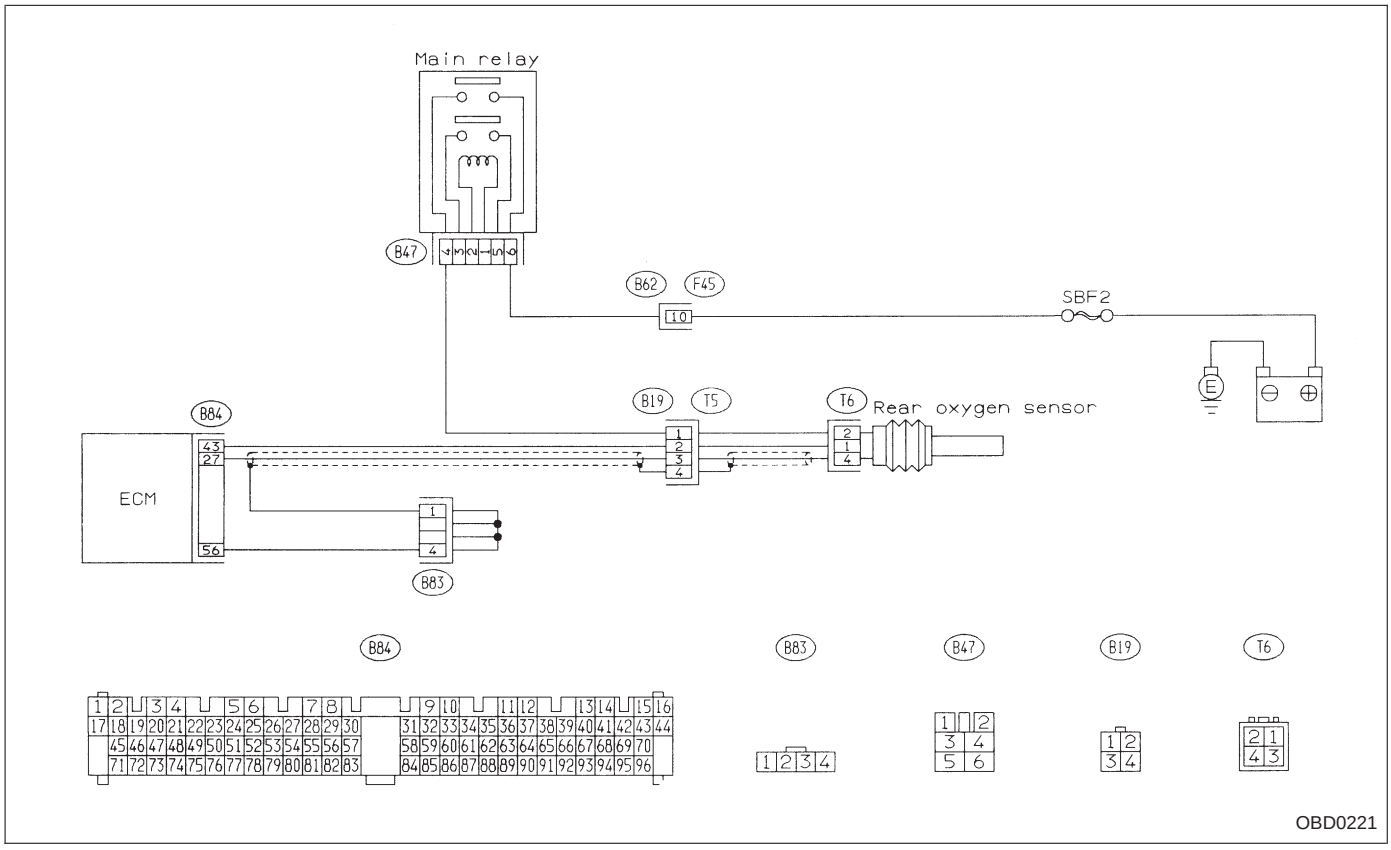
- Two consecutive trips with fault



CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY and INSPECTION MODES. <Ref. to [T3D0] and [T3E0].>

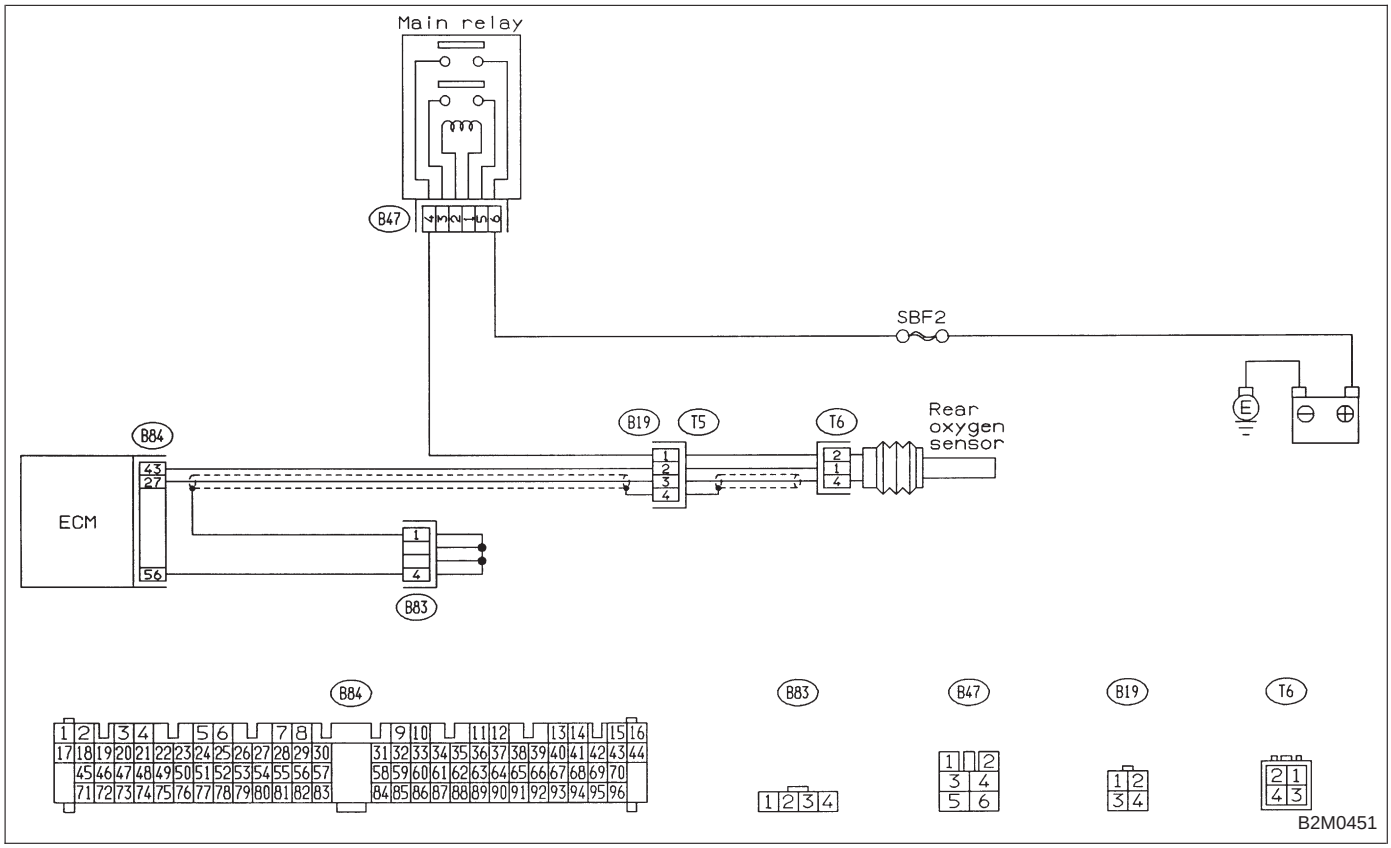
WIRING DIAGRAM:

- **LHD model**



WIRING DIAGRAM:

- **RHD model**



1	CHECK DTC P0130 ON DISPLAY.

CHECK : ***Check that Subaru Select Monitor or the OBD-II general scan tool shows P0130.***

YES : Go to step 2.

NO : Go to step 3.

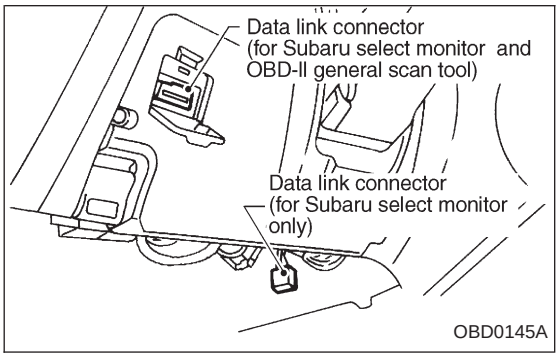
2	CHECK FAILURE CAUSE OF P0130.

Perform the step 1 of DTC P0130.

CHECK : ***Is the failure cause of P0130 in the fuel system?***

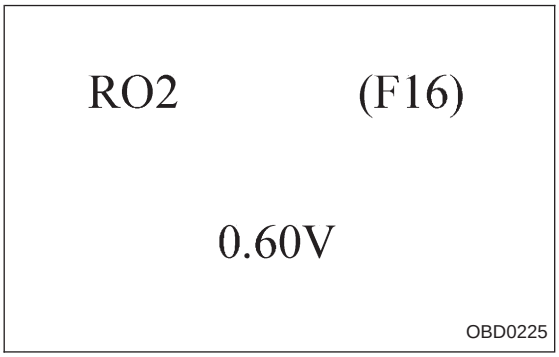
YES : Check fuel system. In this case, inspection of P0136 is not necessary.

NO : Go to step 3.



3	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 on Subaru Select Monitor or OBD-II general scan tool.

- Subaru Select Monitor

Designate mode using function key.

Function mode: F16

- F16: Rear oxygen sensor output signal is indicated.

CHECK : ***Is the indicated data fluctuate?***

YES : Go to step 5.

NO : Go to next CHECK .

CHECK : ***Is the indicated data fixed at 0.3±0.1 V?***

YES : Go to step 4.

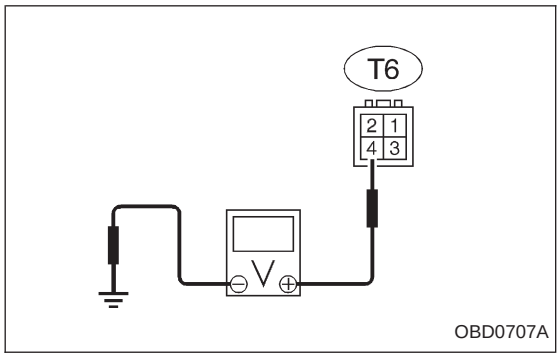
NO : Replace rear oxygen sensor.

- OBD-II general scan tool

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

4	CHECK HARNESS.

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 body.

CHECK ***: Connector & terminal (T6) No. 4 — Body/0.2 V, or more***

NO : Repair harness and connector.

NOTE:
In this case, the following are the possible causes.
① Open circuit of harness between rear oxygen sensor and ECM connector.
② Poor contact in rear oxygen sensor connector.
③ Poor contact in ECM connector.
④ Poor contact in rear oxygen sensor connecting harness connector.

YES : Replace rear oxygen sensor.

5	CHECK EXHAUST SYSTEM.

CHECK ***: Check the following items.***
- ***Looseness of installation portions***
- ***Damage (crack, hole etc.) of parts***
- ***Looseness and opening of parts between front oxygen sensor and rear oxygen sensor.***

YES : Repair or replace faulty parts.

NO : Replace rear oxygen sensor.

N: DTC P0139 — REAR OXYGEN SENSOR CIRCUIT SLOW RESPONSE (RO2 – R) —

DESCRIPTION:

Refer to “M: DTC P0136 — REAR OXYGEN SENSOR CIRCUIT MALFUNCTION — [T11M0]”.

DTC DETECTING CONDITION:

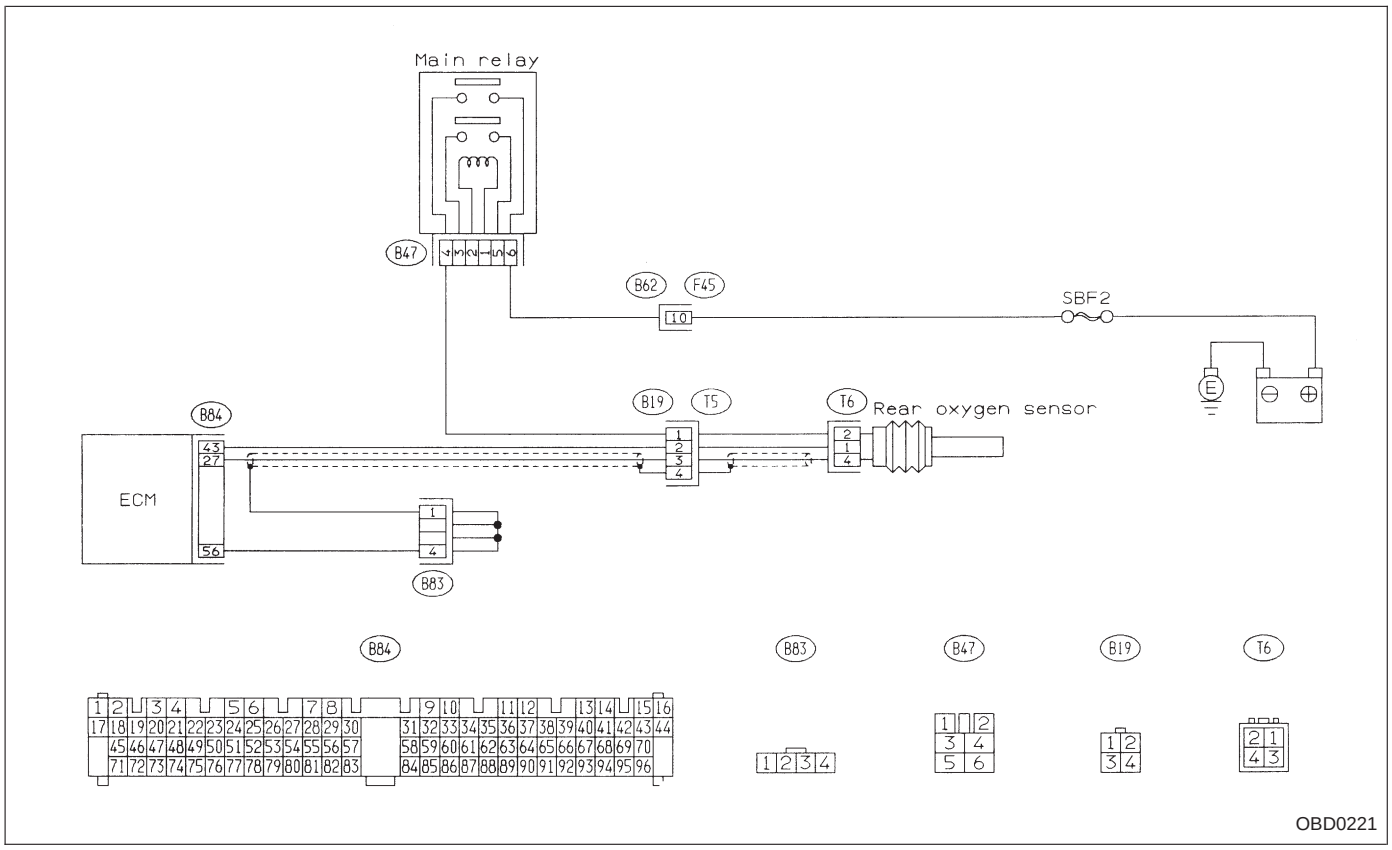
- Two consecutive trips with fault

1.	**Check DTC P0136 on display.**	Yes	• Inspect DTC P0136 using “11. Diagnostics Chart with Trouble Code [T1100]”. • In this case, it is unnecessary to inspect DTC P0139.
	No		
2.	**Replace rear oxygen sensor.**		

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY and INSPECTION MODES. <Ref. to [T3D0] and [T3E0].>

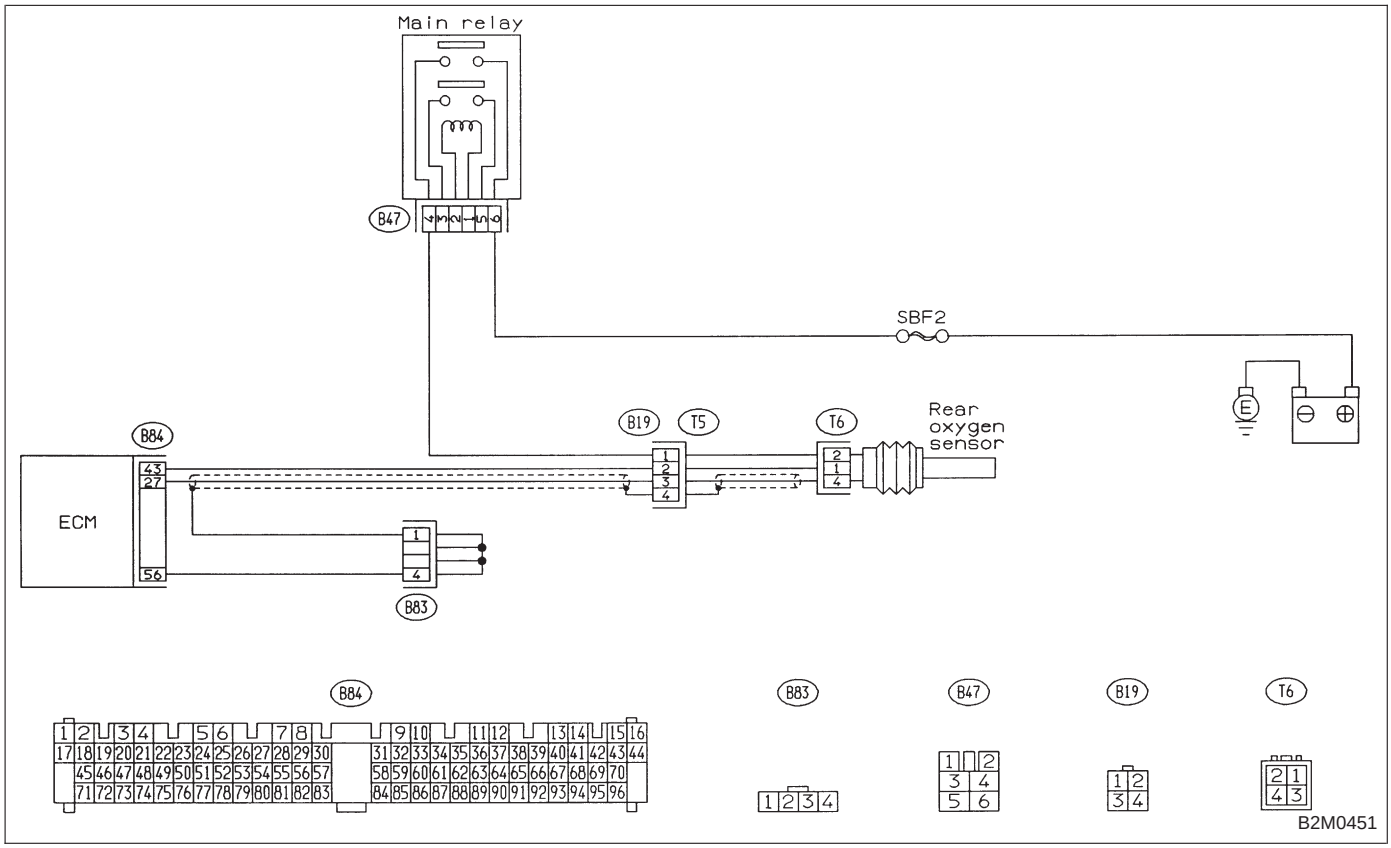
WIRING DIAGRAM:

- **LHD model**



WIRING DIAGRAM:

- **RHD model**



O: DTC P0141 — REAR OXYGEN SENSOR HEATER CIRCUIT MALFUNCTION (RO2H) —

DESCRIPTION:

Refer to “M: DTC P0136 — REAR OXYGEN SENSOR CIRCUIT MALFUNCTION — [T11M0]”.

DTC DETECTING CONDITION:

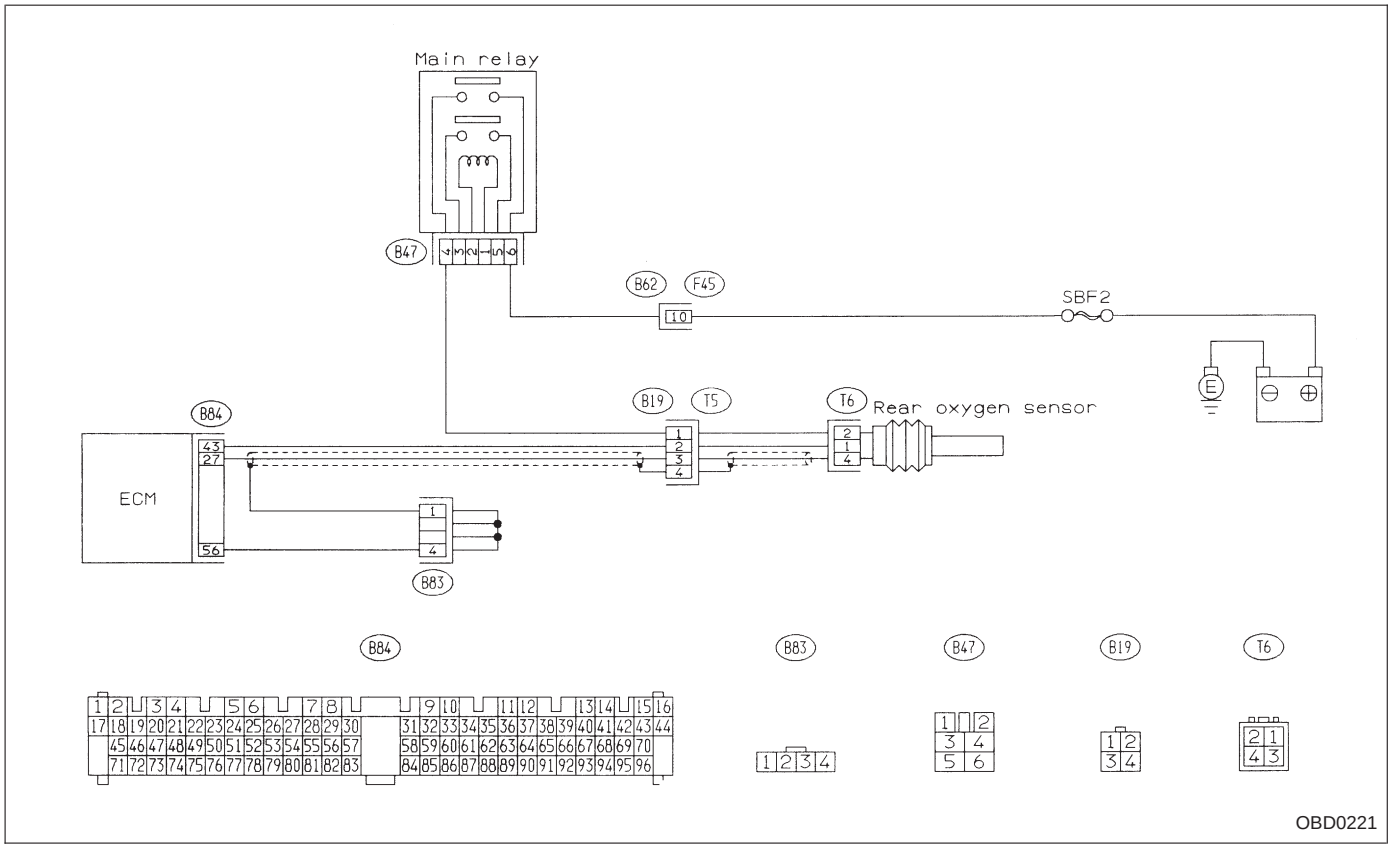
- Two consecutive trips with fault

1.	**Connect Subaru Select Monitor or the OBD-II general scan tool, and read data.**
2.	**Check output signal from ECM. (Using voltage meter.)**
3.	**Check power supply to rear oxygen sensor.**
4.	**Check rear oxygen sensor.**

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY and INSPECTION MODES. <Ref. to [T3D0] and [T3E0].>

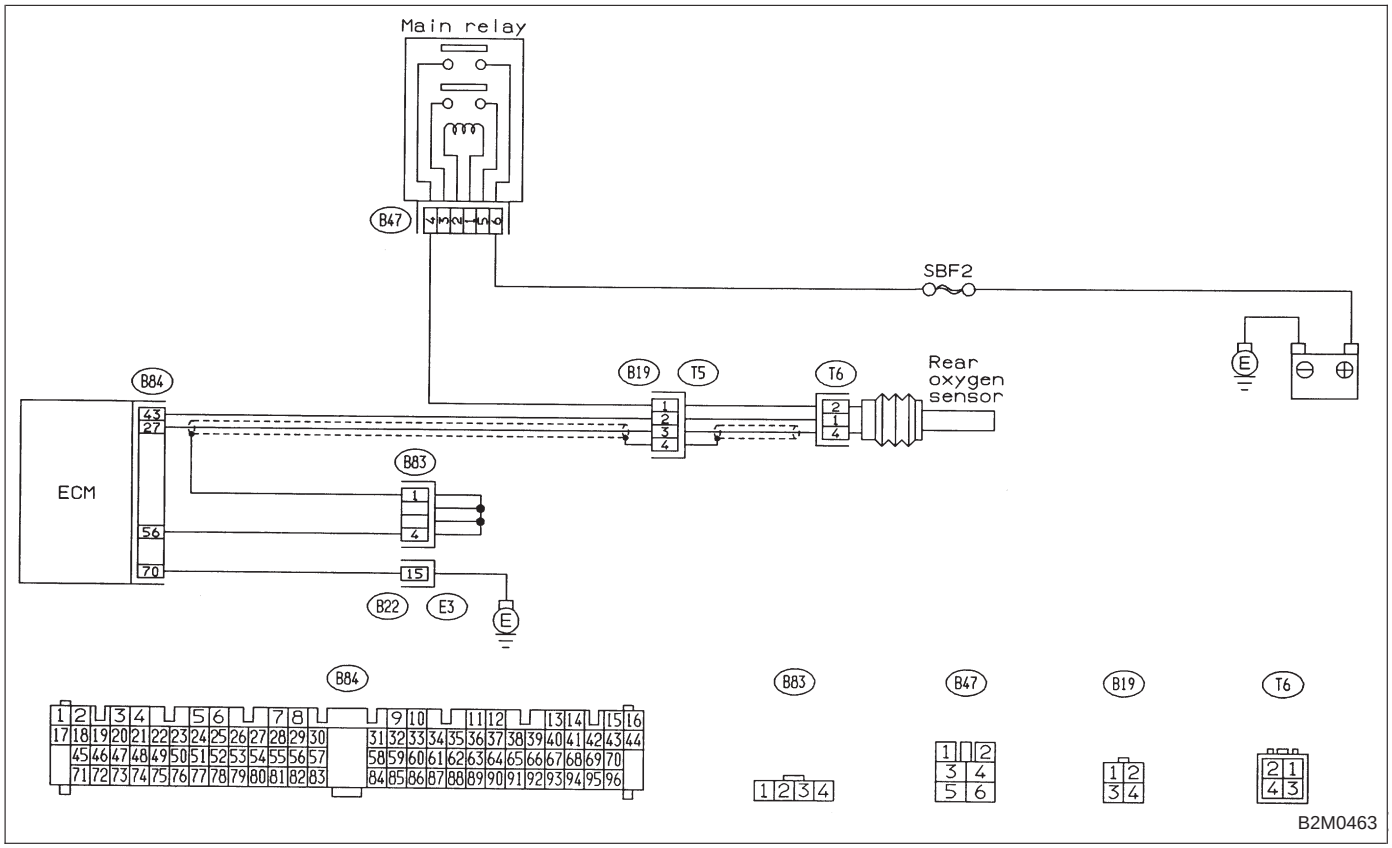
WIRING DIAGRAM:

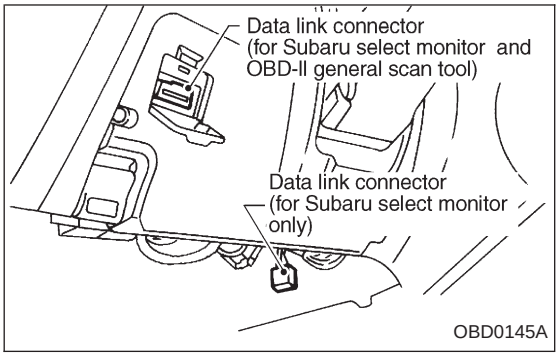
- **LHD model**



WIRING DIAGRAM:

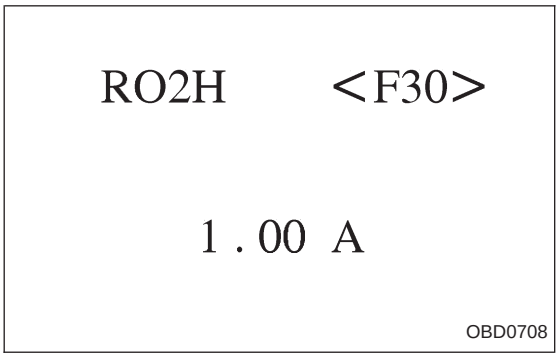
- **RHD model**



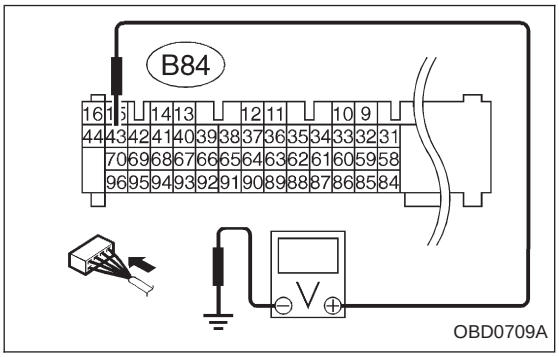


1	CONNECT SUBARU SELECT MONITOR OR THE OBD-II GENERAL SCAN TOOL, AND READ DATA.

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.

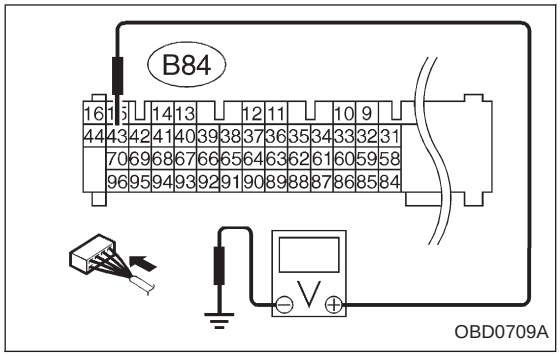


5) Read data on Subaru Select Monitor or OBD-II general scan tool.
● Subaru Select Monitor
Designate mode using function key.
Function mode: F30
● F30: Rear oxygen sensor heater current is indicated.
CHECK ***: Is the reading of F30 0.2 A, or more?***
NO : Go to step 2.
YES : Repair connector.
NOTE:
In this case, poor contact of rear oxygen sensor connector and ECM connector can be the possible cause.
● OBD-II scan tool
For detailed operation procedures, refer to the OBD-II General Scan Tool Instruction Manual.



2	CHECK OUTPUT SIGNAL FROM ECM. (USING VOLTAGE METER.)

1) Start and idle the engine.
2) Measure voltage between ECM and body.
CHECK ***: Connector & terminal (B84) No. 43 — Body/1.0 V, or less***
YES : Go to step 3.
NO : Go to next CHECK .
CHECK ***: Is the voltage less than 1.0 V while shaking harness and connector of ECM?***
YES : Repair poor contact in ECM connector.
NO : Go to next step.

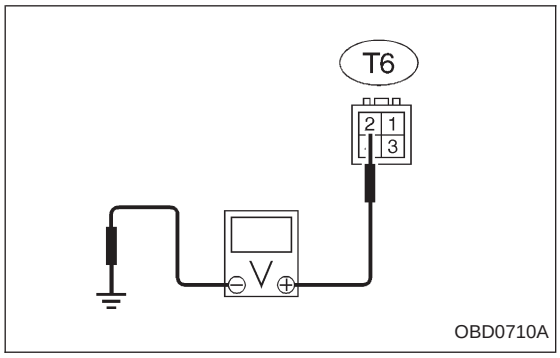


3) Disconnect connector from rear oxygen sensor.
4) Measure voltage between ECM and body.

CHECK ***: Connector & terminal***
(B84) No. 43 — Body/1.0 V, or less

YES : Replace ECM.

NO : Repair short circuit of harness between ECM and rear oxygen sensor connector. After repair short circuit of harness, replace ECM.



3	CHECK POWER SUPPLY TO REAR OXYGEN SENSOR.

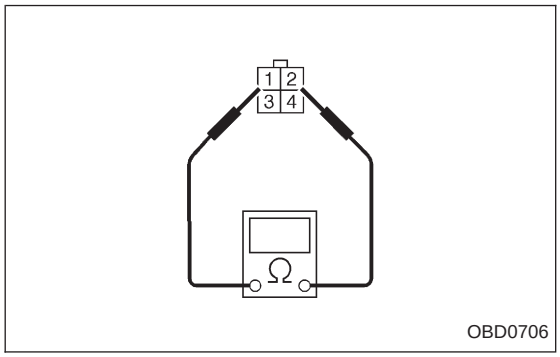
1) Turn ignition switch to OFF.
2) Disconnect connector from rear oxygen sensor.
3) Turn ignition switch to ON.
4) Measure voltage between rear oxygen sensor connector and body.

CHECK ***: Connector & terminal***
(T6) No. 2 — Body/10 V, or more

YES : Go to step 4.

NO : Repair power supply line.

NOTE:
In this case, repair poor contact in connector or open circuit of harness between main relay and rear oxygen sensor.



4	CHECK REAR OXYGEN SENSOR.

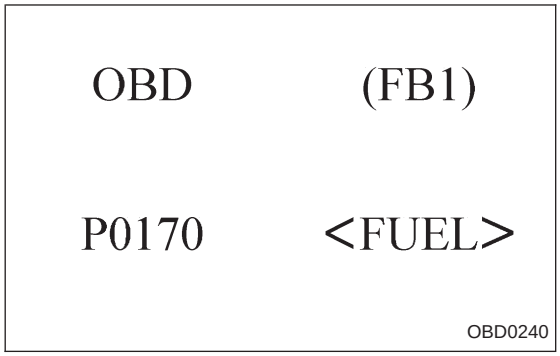
1) Turn ignition switch to OFF.
2) Measure resistance between rear oxygen sensor connector terminals.

CHECK ***: Terminals***
No. 1 — No. 2/30 Ω, or less

YES : Repair harness and connector.

NOTE:
In this case, repair the following.
① Open circuit of harness between rear oxygen sensor connector and ECM connector
② Poor contact in rear oxygen sensor connector
③ Poor contact in ECM connector
④ Poor contact in rear oxygen sensor connecting harness connector

NO : Replace rear oxygen sensor.



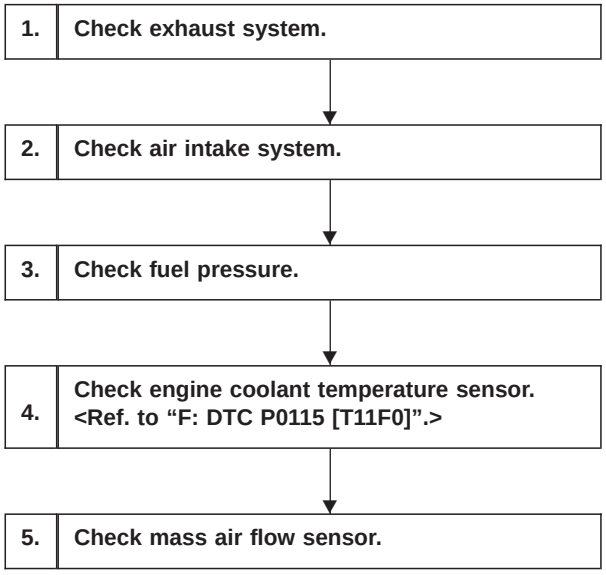
P: DTC P0170
— FUEL TRIM MALFUNCTION (FUEL) —

DTC DETECTING CONDITION:

- Two consecutive trips with fault

TROUBLE SYMPTOM:

- Erroneous idling
- Engine stalls.
- Poor driving performance



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

1	CHECK EXHAUST SYSTEM.

CHECK : ***Are there holes or loose bolts on exhaust system?***

YES : Repair exhaust system.

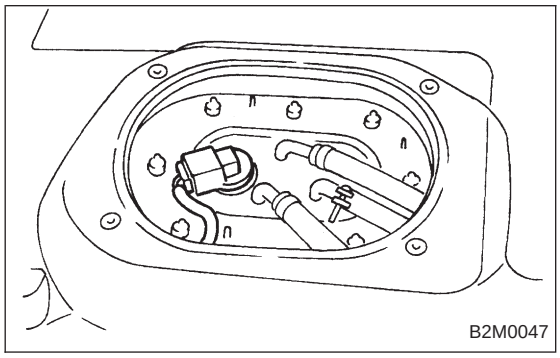
NO : Go to step 2.

2	CHECK AIR INTAKE SYSTEM.

CHECK : ***Are there holes, loose bolts or disconnection of hose on air intake system?***

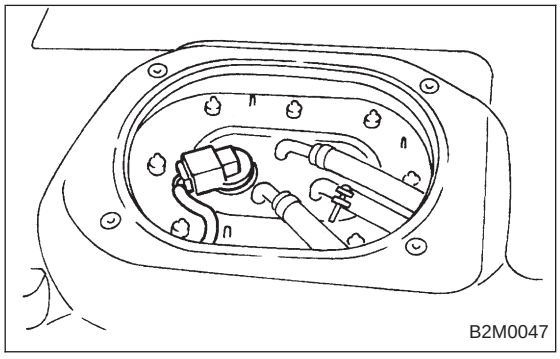
YES : Repair air intake system.

NO : Go to step 3.

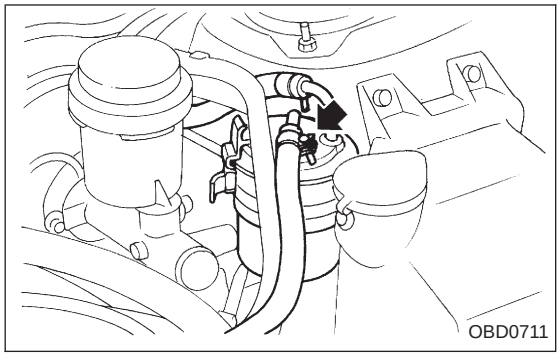


3	CHECK FUEL PRESSURE.

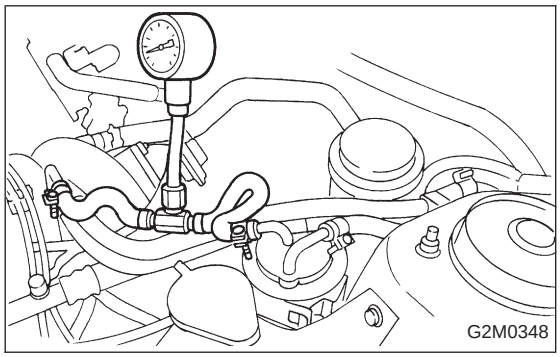
1) Release fuel pressure.
   (1) Remove fuel pump access hole lid located on the right rear of trunk compartment floor (Sedan) or luggage compartment floor (Wagon).
   (2) Disconnect connector from fuel tank.
   (3) Start the engine, and run it until it stalls.
   (4) After stopping the engine, crank the engine for 5 to 7 seconds to reduce fuel pressure.
   (5) Turn ignition switch to OFF.



2) Connect connector to fuel tank.



3) Disconnect fuel delivery hose from fuel filter, and connect fuel pressure gauge.



4) Start the engine and idle while gear position is neutral.
5) Measure fuel pressure while disconnecting pressure regulator vacuum hose from intake manifold.

CHECK ***: Fuel pressure: 226 — 275 kPa (2.3 — 2.8 kg/cm², 33 — 40 psi)***

YES : Go to next step.

NO : Repair the following items.

Fuel pressure too high	● Clogged fuel return line or bent hose
Fuel pressure too low	● Improper fuel pump discharge ● Clogged fuel supply line

6) After connecting pressure regulator vacuum hose, measure fuel pressure.

CHECK ***: Fuel pressure: 157 — 206 kPa (1.6 — 2.1 kg/cm², 23 — 30 psi)***

YES : Go to step 4.

NO : Repair the following items.

Fuel pressure too high	● Faulty pressure regulator ● Clogged fuel return line or bent hose
Fuel pressure too low	● Faulty pressure regulator ● Improper fuel pump discharge ● Clogged fuel supply line

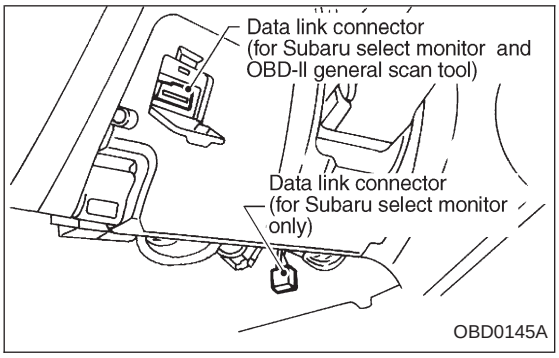
WARNING:
Before removing fuel pressure gauge, release fuel pressure.

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 step 6), check or replace pressure regulator and pressure regulator vacuum hose.

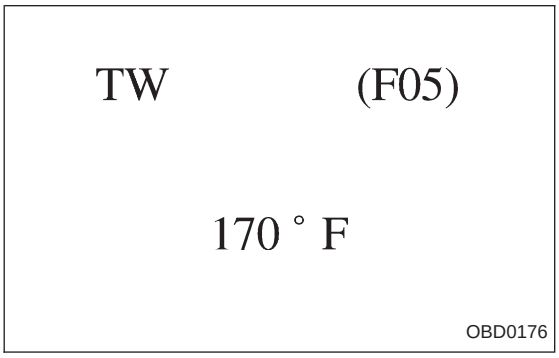
4	**CHECK ENGINE COOLANT TEMPERATURE SENSOR.** **< REF. TO “F: DTC P0115 [T11F0].” >**

1) Turn ignition switch to OFF.

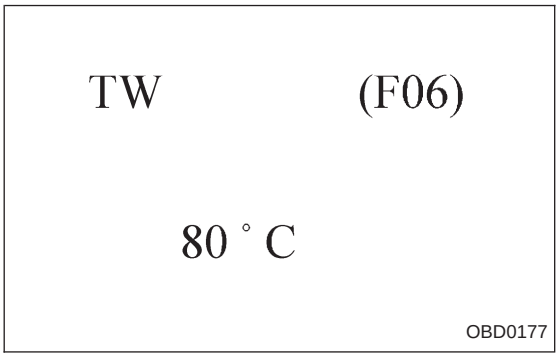


OBD0145A

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.



OBD0176



OBD0177

4) Read data on Subaru Select Monitor or the OBD-II general scan tool.

- Subaru Select Monitor

Designate mode using function key.

Function mode: F05 or F06

- F05: Water temperature is indicated in “°F”.
- F06: Water temperature is indicated in “°C”.

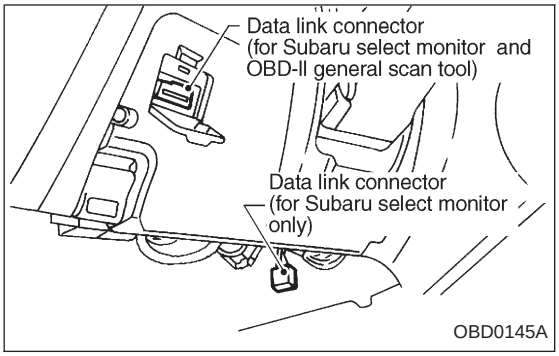
CHECK ***: Is temperature indicated on Subaru Select Monitor (F05) greater than 140°F?***
Is temperature indicated on Subaru Select Monitor (F06) greater than 60°C?

YES : Go to step 5.

NO : Replace engine coolant temperature sensor.

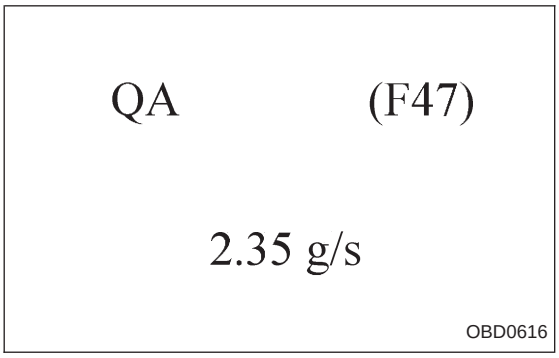
- OBD-II general scan tool

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



5	CHECK MASS AIR FLOW SENSOR.

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 engine until coolant temperature is greater than 60°C (140°F).



4) Read data on Subaru Select Monitor or OBD-II general scan tool.

● Subaru Select Monitor
Designate mode using function key.

Function mode: F47

● F47: Mass air flow is shown on display.

CHECK ***: Is the voltage within the specifications shown in the following table?***

Engine speed	Specified value
Idling	1.9 — 3.6 (g/sec)
2,500 rpm	7.0 — 14.8 (g/sec)

NO : Replace mass air flow sensor.

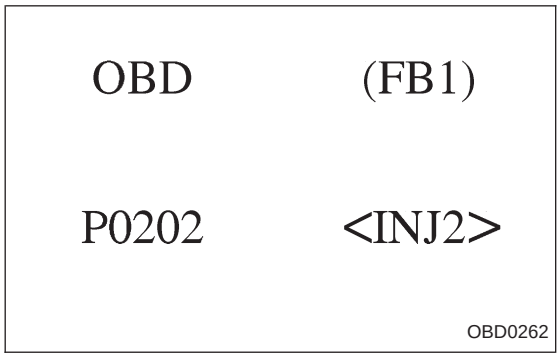
YES : Contact with SOA service.

Note: Inspection by DTM is required.

Probable cause: Deterioration of plural parts

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

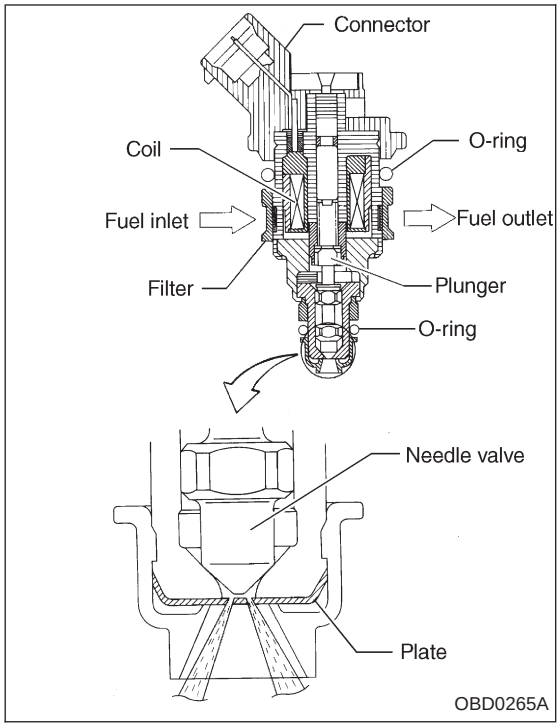
Q: DTC P0201
— FUEL INJECTOR CIRCUIT MALFUNCTION - #1 (INJ1) —



R: DTC P0202
— FUEL INJECTOR CIRCUIT MALFUNCTION - #2 (INJ2) —

S: DTC P0203
— FUEL INJECTOR CIRCUIT MALFUNCTION - #3 (INJ3) —

T: DTC P0204
— FUEL INJECTOR CIRCUIT MALFUNCTION - #4 (INJ4) —



DESCRIPTION:

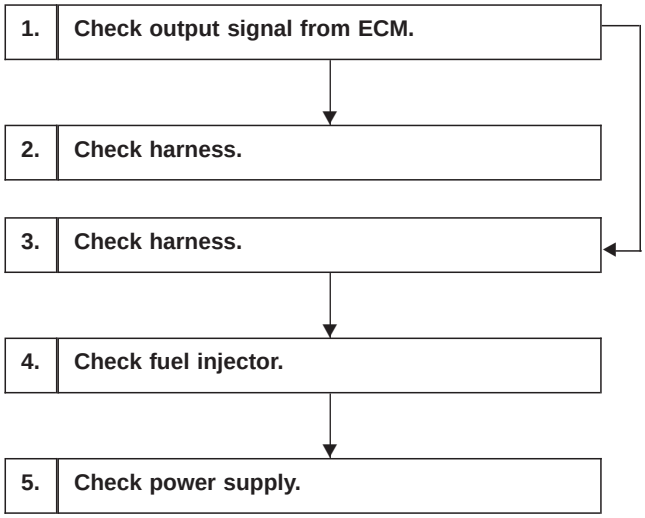
● The MFI system employs a gallery type (side-feed type) fuel injector.
● The gallery type fuel injector is installed in the fuel pipe to allow cooling of the injector by the fuel.
● The features of this type of fuel injector are as follows:
1) High heat resistance
2) Low driving noise
3) Easy to service
4) Small size
● The fuel injector injects fuel according to the valve open signal received from the ECM.
● The nozzle is attached on the top of the fuel injector. The needle valve is lifted by the solenoid coil through the plunger on arrival of the valve open signal.
● Since the injection opening, the lifted level of valve and the regulator-controlled fuel pressure are kept constant, the amount of fuel to be injected can be controlled only by the valve open signal from the ECM.

DTC DETECTING CONDITION:

● Immediately at fault recognition

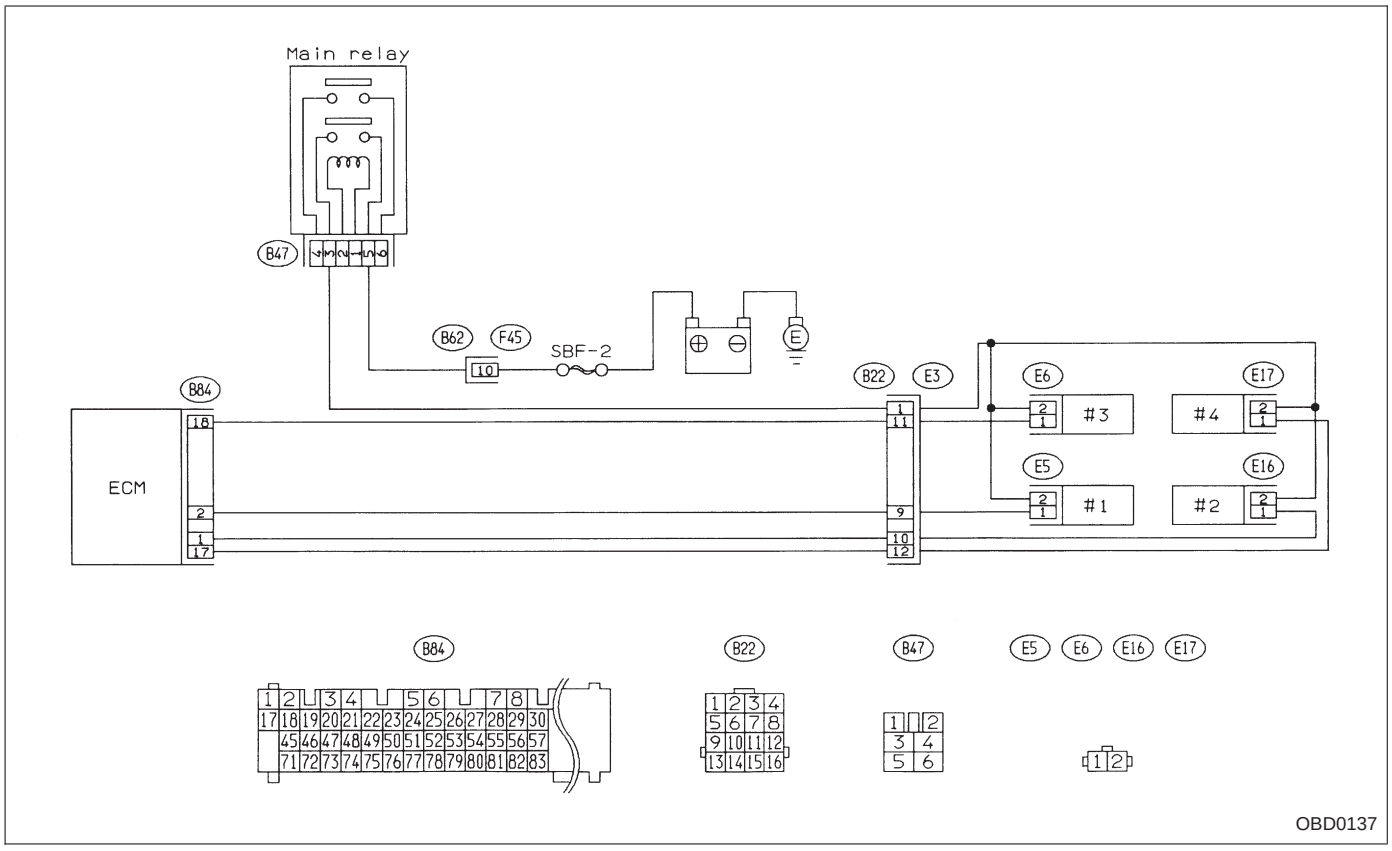
TROUBLE SYMPTOM:

● Failure of engine to start
● Engine stalls.
● Erroneous idling
● Rough driving



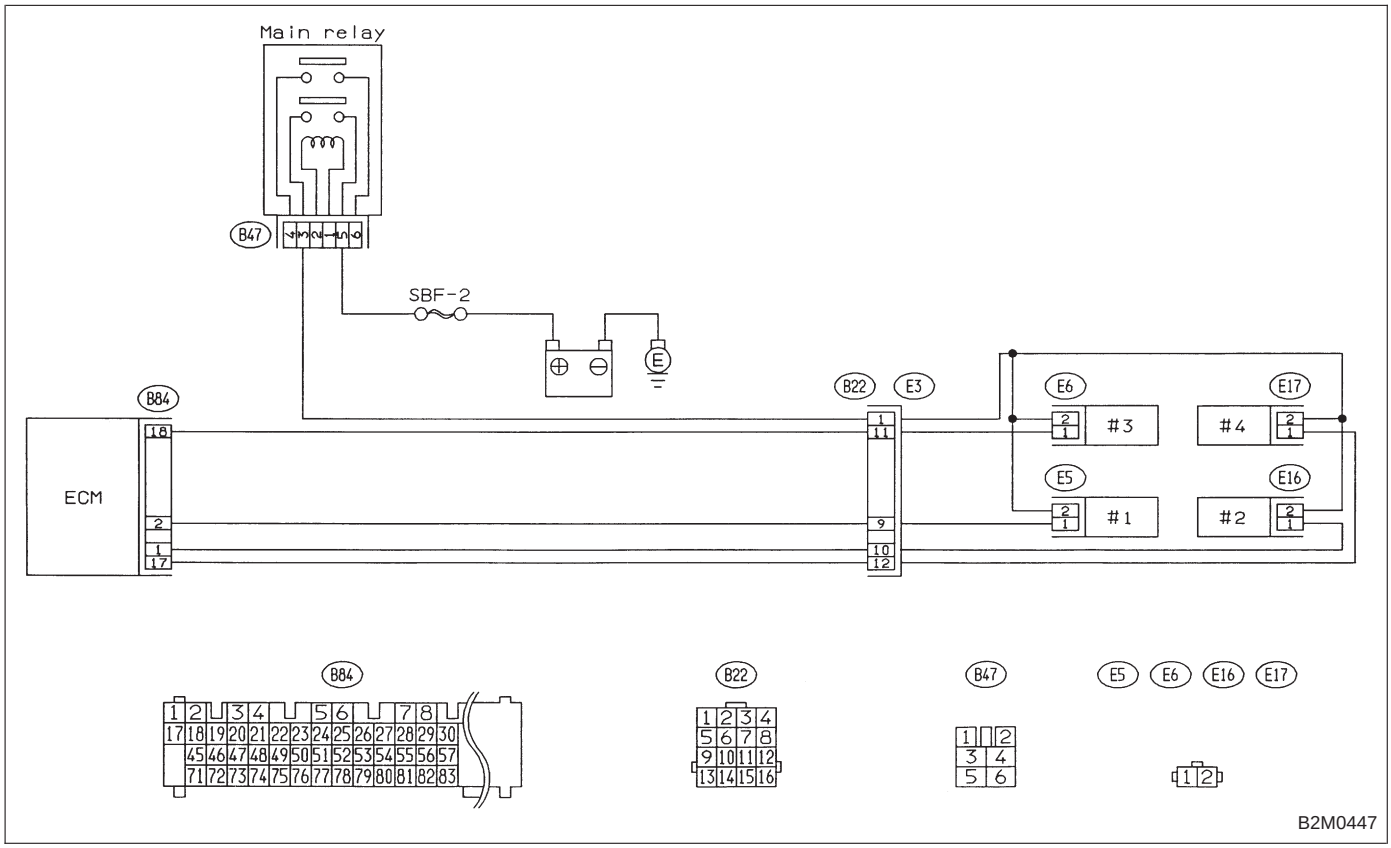
CAUTION:
- **Check or repair only faulty cylinders.**
- **After repair or replacement of faulty parts, conduct CLEAR MEMORY and INSPECTION MODES. <Ref. to [T3D0] and [T3E0].>**

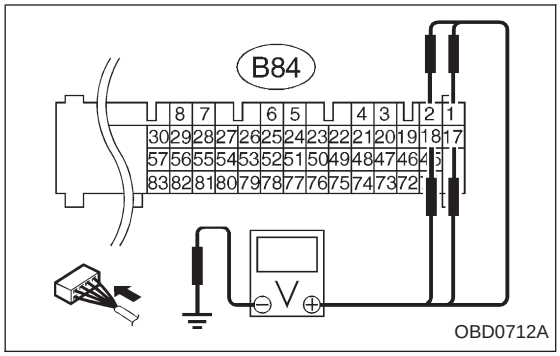
WIRING DIAGRAM:
- **LHD model**



WIRING DIAGRAM:

- **RHD model**



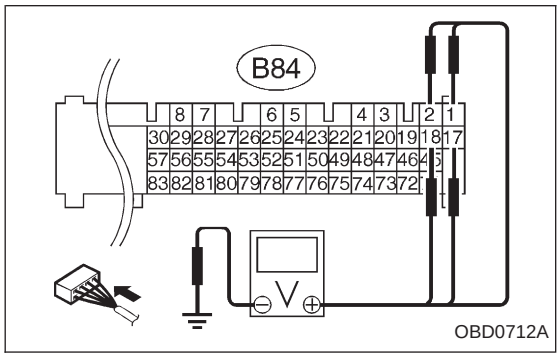


1	CHECK OUTPUT SIGNAL FROM ECM.

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

CHECK ***: Connector & terminal***
#1 (B84) No. 2 — Body/10 V, or more
#2 (B84) No. 1 — Body/10 V, or more
#3 (B84) No. 18 — Body/10 V, or more
#4 (B84) No. 17 — Body/10 V, or more

YES : Go to step 2.
NO : Go to step 3.

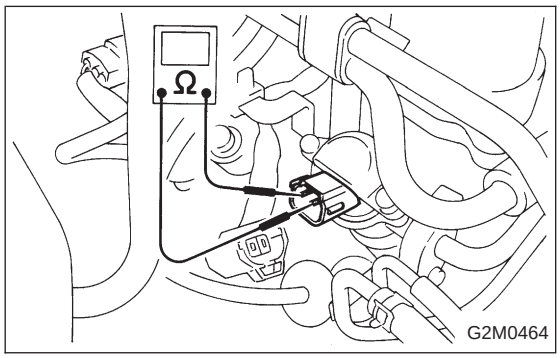


2	CHECK HARNESS.

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 body on faulty cylinders.

CHECK ***: Connector & terminal***
#1 (B84) No. 2 — Body/10 V, or more
#2 (B84) No. 1 — Body/10 V, or more
#3 (B84) No. 18 — Body/10 V, or more
#4 (B84) No. 17 — Body/10 V, or more

YES : Repair short circuit of harness between ECM and fuel injector. After repair, replace ECM.
NO : Go to next step.

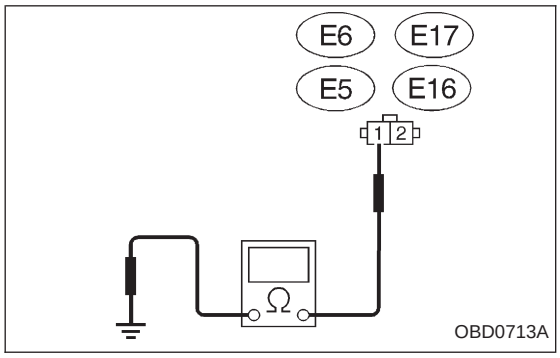


5) Turn ignition switch to OFF.
6) Measure resistance between fuel injector terminals on faulty cylinder.

CHECK ***: Terminals***
No. 1 — No. 2/1 Ω, or less

YES : Replace faulty fuel injector and ECM.
NO : Go to next CHECK .

CHECK ***: Is there poor contact in ECM connector?***
NO : Repair poor contact in ECM connector.
YES : Replace ECM.

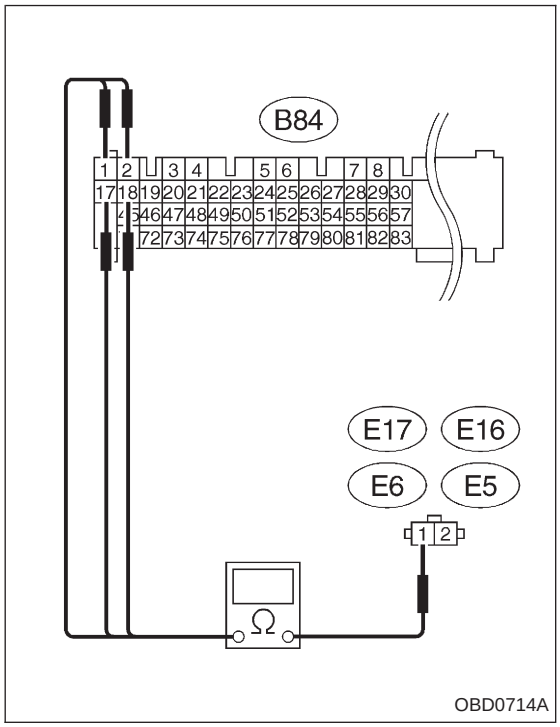


3	CHECK HARNESS.

1) Turn ignition switch to OFF.
2) Disconnect connector from fuel injector on faulty cylinders.
3) Measure resistance between fuel injector on faulty cylinders and body.

CHECK ***: Connector & terminal***
#1 (E5) No. 1 — Body/10 Ω, or less
#2 (E16) No. 1 — Body/10 Ω, or less
#3 (E6) No. 1 — Body/10 Ω, or less
#4 (E17) No. 1 — Body/10 Ω, or less

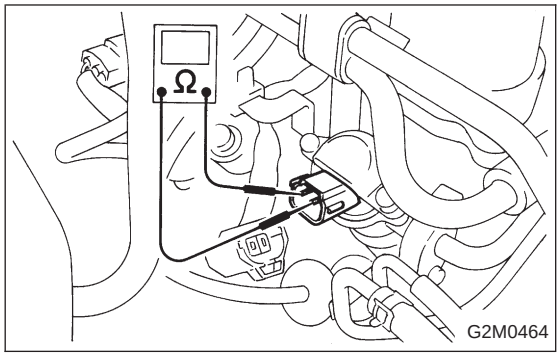
YES : Repair short circuit of harness between fuel injector and body.
NO : Go to the next step.



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

CHECK ***: Connector & terminal***
#1 (B84) No. 2 — (E5) No. 1/10 Ω, or less
#2 (B84) No. 1 — (E16) No. 1/10 Ω, or less
#3 (B84) No. 18 — (E6) No. 1/10 Ω, or less
#4 (B84) No. 17 — (E17) No. 1/10 Ω, or less

NO : Repair open circuit of harness between ECM and fuel injector.
YES : Go to step 4.



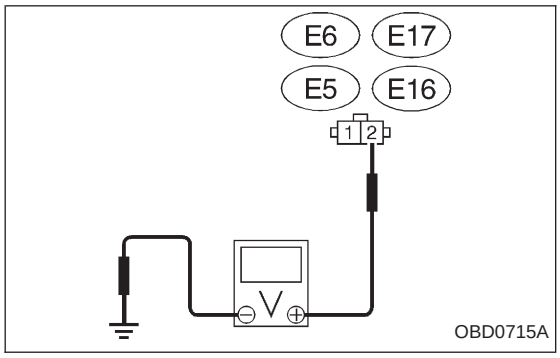
4	CHECK FUEL INJECTOR.

Measure resistance between fuel injector terminals on faulty cylinder.

CHECK ***: Terminals***
No. 1 — No. 2/5 — 20 Ω

NO : Replace faulty fuel injector.

YES : Go to step 5.



5	CHECK POWER SUPPLY.

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

CHECK ***: Connector & terminal***
#1 (E5) No. 2 — Body/10 V, or more
#2 (E16) No. 2 — Body/10 V, or more
#3 (E6) No. 2 — Body/10 V, or more
#4 (E17) No. 2 — Body/10 V, or more

NO : Check and repair the following items.
- Open circuit of harness between main relay and fuel injector for faulty cylinders
- Poor contact in main relay connector
- Poor contact in fuel injector connector for the faulty cylinders

YES : Check for poor contact of all connectors in WIRING DIAGRAM on page 205, 206.

U: DTC P0301
— CYLINDER 1 MISFIRE DETECTED (MIS — 1) —

V: DTC P0302
— CYLINDER 2 MISFIRE DETECTED (MIS — 2) —

W: DTC P0303
— CYLINDER 3 MISFIRE DETECTED (MIS — 3) —

X: DTC P0304
— CYLINDER 4 MISFIRE DETECTED (MIS — 4) —

DTC DETECTING CONDITION:

- Two consecutive trips with fault
- Immediately at fault recognition (A misfire which could damage catalyst occurs.)

TROUBLE SYMPTOM:

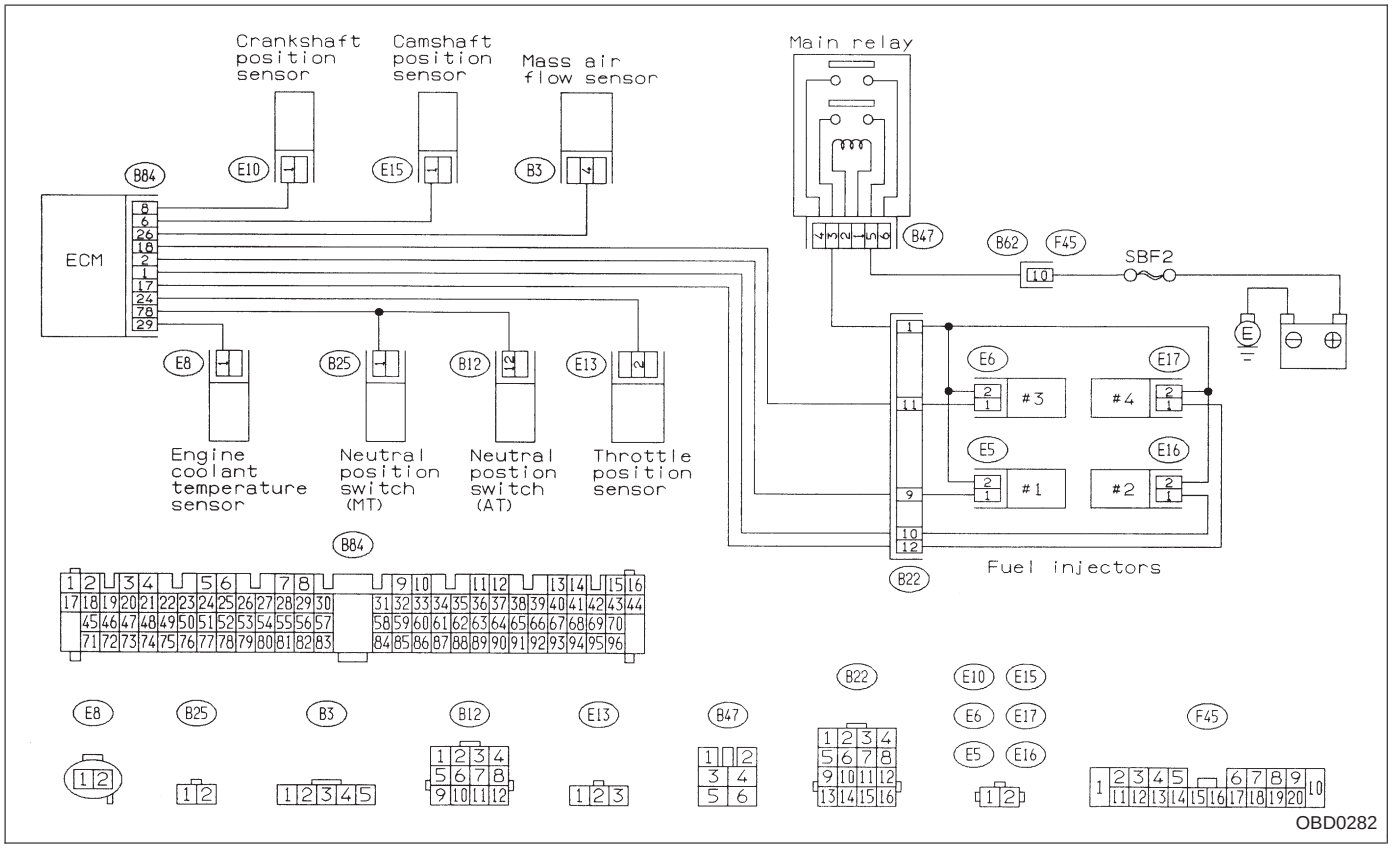
- Engine stalls.
- Erroneous idling
- Rough driving

1.	Check DTC P0100, P0101, P0115, P0125, P0201, P0202, P0203 and P0204 on display.	Yes	• Inspect DTC P0100, P0101, P0115, P0125, P0201, P0202, P0203 and P0204 using “11. Diagnostics Chart with Trouble Code [T1100]”. • In this case, it is unnecessary to inspect DTC P0301, P0302, P0303 and P0304.
		No	
2.	**Connect Subaru Select Monitor and read data.**		
3.	**Check air intake system.**		
4.	**Check misfire symptom.**		

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY and INSPECTION MODES. <Ref. to [T3D0] and [T3E0].>

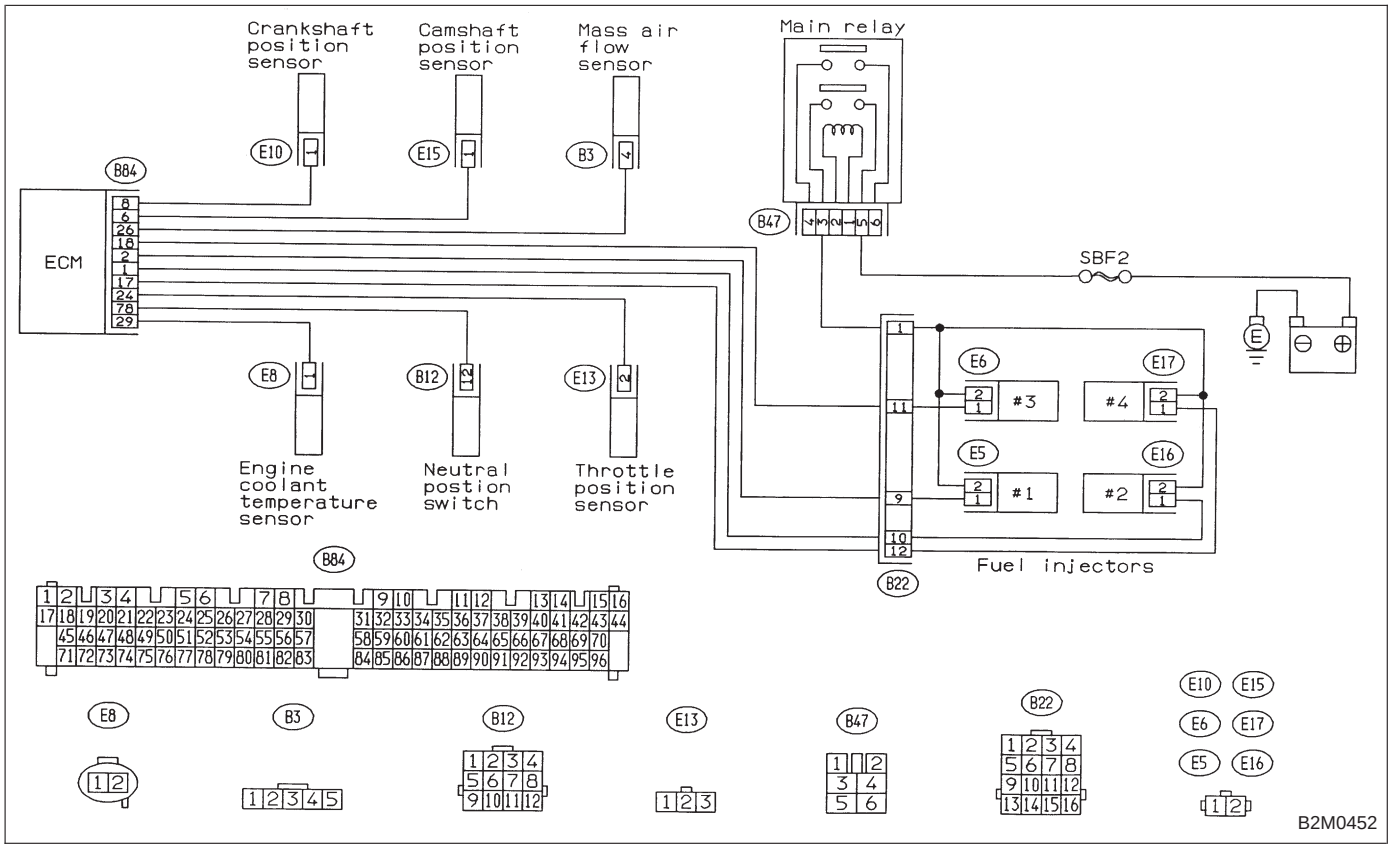
WIRING DIAGRAM:

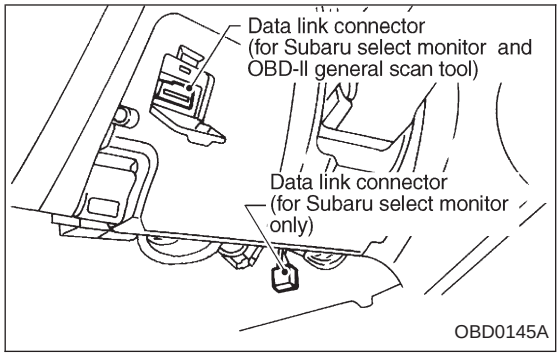
- **LHD model**



WIRING DIAGRAM:

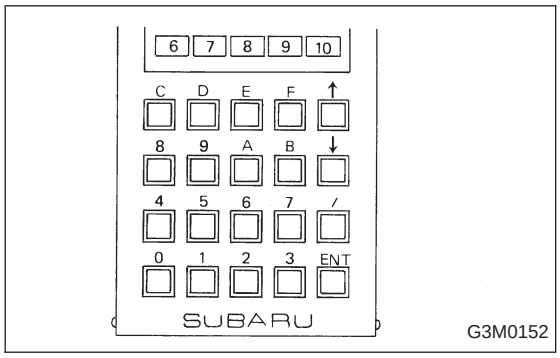
- **RHD model**





2	CONNECT SUBARU SELECT MONITOR AND READ DATA.

1) Turn ignition switch to OFF.
2) Connect Subaru Select Monitor to the data link connector.
3) Turn ignition switch to ON, and turn Subaru Select Monitor switch to ON.

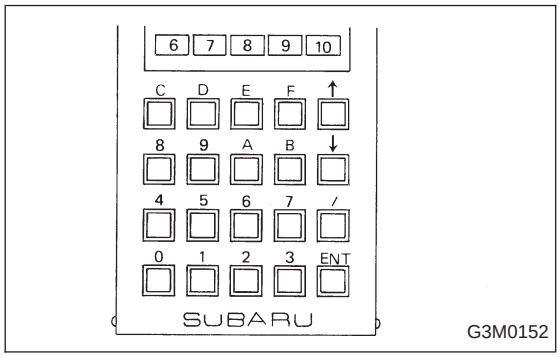


4) Read data on Subaru Select Monitor.
Designate mode use function key.

Function mode: F33, F34, F35, F36, F37 and F38

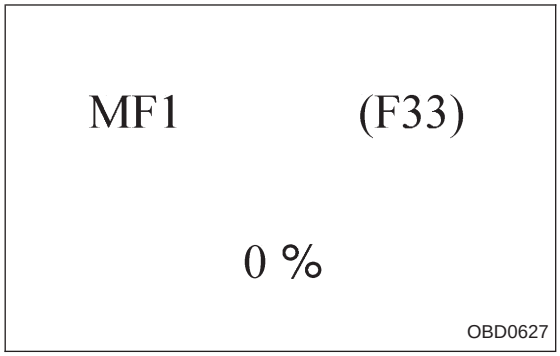
NOTE:
F37 and F38 are AT models only.

- F33: Maximum misfire rate of cylinder #1 is indicated.
- F34: Maximum misfire rate of cylinder #2 is indicated.
- F35: Maximum misfire rate of cylinder #3 is indicated.
- F36: Maximum misfire rate of cylinder #4 is indicated.
- F37: Maximum EGR system pressure value is indicated.
- F38: Minimum EGR system pressure value is indicated.



5) Clear memory on Subaru Select Monitor.
Designate mode use function key.
Press [F], [C], [0], [ENT] in that order.

6) Start engine, and drive the vehicle more than 10 minutes.



7) Read data on Subaru Select Monitor.
Designate mode use function key.

Function mode: F33, F34, F35 and F36

CHECK ***: Is the maximum misfire rate of each cylinder less than 2 %?***

YES : Go to next CHECK .

NO : Go to step 3.

CHECK ***: The vehicle has been empty of fuel.***

YES : ● The engine has no abnormality.
● Finish diagnostics operation.

NO : Go to next CHECK .

CHECK ***: Check if the cause of misfire was made when the engine is running.***
Ex. Remove spark plug cord, etc.

YES : ● The engine has no abnormality.
● Finish diagnostics operation.

NO : Repair poor contact in ignitor, ignition coil, fuel injector, ECM and coupling harness connector.

3	CHECK AIR INTAKE SYSTEM.

CHECK ***: Check the following items.***
① Are there air leaks or air suction caused by loose or dislocated nuts and bolts?
② Are there cracks or any disconnection of hoses?

YES : Repair air intake system.

NO : Go to step 4.

4	CHECK MISFIRE SYMPTOM.

NOTE:
- Perform diagnosis according to the items listed below.
- Use the MAX. misfire rate values read in step 2-4).

DTC	MAX. misfire rate	Next CHECK
Only one cylinder	—	Go to step ①.
P0301 and P0302	Both rate are at 100 %, or more.	Go to step ②.
P0303 and P0304	Both rate are at 100 %, or more.	Go to step ③.
P0301 and P0303	Both rate are at 100 %, or more.	Go to step ④.
P0302 and P0304	Both rate are at 100 %, or more.	Go to step ⑤.
Others	—	Go to step ⑥.

① ONLY ONE CYLINDER

CHECK ***: Check the following items for that cylinder.***
- ***Spark plug***
- ***Spark plug cord***
- ***Fuel injector***
- ***Compression ratio***

② GROUP OF #1 AND #2 CYLINDERS

CHECK ***: Check the following items for #1 and #2 cylinders.***
- ***Spark plugs***
- ***Fuel injectors***

NOTE:
If no abnormal is discovered, check for “9. F: IGNITION SYSTEM” of #1 and #2 cylinders side.

③ GROUP OF #3 AND #4 CYLINDERS

CHECK ***: Check the following items for #3 and #4 cylinders.***
- ***Spark plugs***
- ***Fuel injectors***

NOTE:
If no abnormal is discovered, check for “9. F: IGNITION SYSTEM” of #3 and #4 cylinders side.

④ GROUP OF #1 AND #3 CYLINDERS

CHECK ***: Check the following items for #1 and #3 cylinders.***
- ***Spark plugs***
- ***Fuel injectors***
- ***Skipping timing belt teeth***

⑤ **GROUP OF #2 AND #4 CYLINDERS**

CHECK ***: Check the following items for #2 and #4 cylinders.***
- ***Spark plugs***
- ***Fuel injectors***
- ***Skipping timing belt teeth***

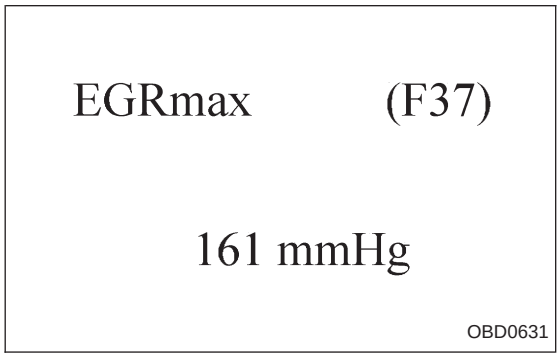
⑥ **THE CYLINDER AT RANDOM**

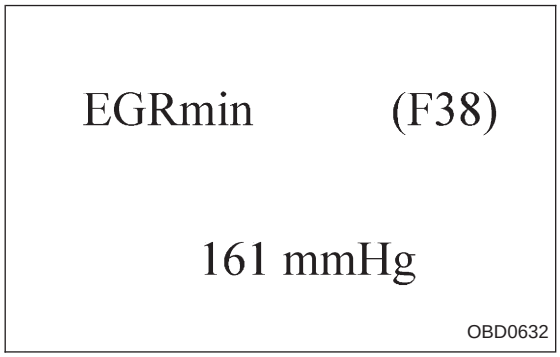
CHECK ***: Is the engine idle rough?***

YES : Go to next CHECK . (AT models only)

NO : Go to DTC P0170 [T11P3], [T11P4] and [T11P5].

NOTE:
On MT models, go to DTC P0170 [T11P3], [T11P4] and [T11P5].



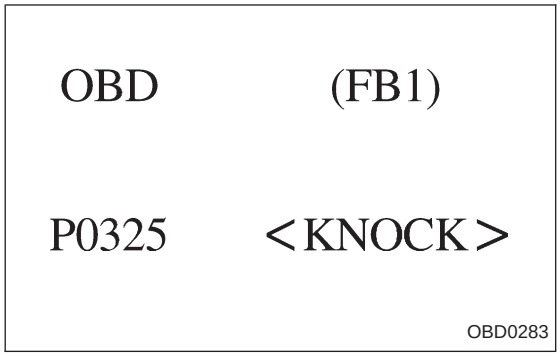


CHECK ***: Is the differential pressure between maximum EGR system pressure (value of function mode F37) and minimum EGR system pressure (value of function mode F38) less than 10 mmHg?***

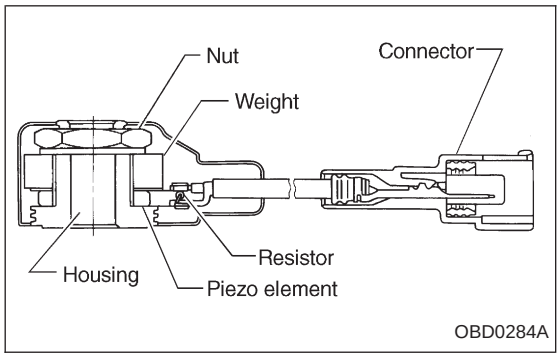
NOTE:
Use the values read in step 3 for function modes F37 and F38.

YES : Replace EGR valve.

NO : Go to DTC P0170 [T11P3], [T11P4] and [T11P5].



Y: DTC P0325 — KNOCK SENSOR CIRCUIT MALFUNCTION (KNOCK) —



DESCRIPTION:

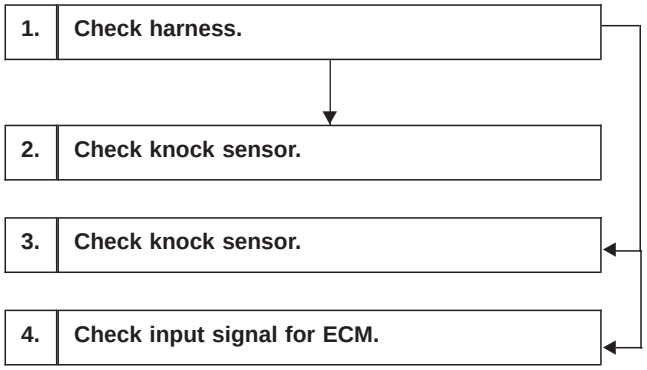
The knock sensor senses engine knocks and send a voltage signal to the ECM depending on the degree of the knock.
This signal information is used for spark timing learning control to provide optimal spark timing.
The knock sensor is bolted to the cylinder block at #4 piston. It senses knocks which can occur in any cylinder. Its components are a weight, which moves up and down when it senses vibrations, a piezo element, which produces a voltage, and a resistor, which senses a broken circuit (all these are molded into a single unit). When the sensor senses engine knocks, knocking vibration is conveyed to the weight. The up or down movement of the weight is applied to the piezo element as a pressure difference. The knock sensor will then produce a voltage signal in relation to the degree of the knock.

DTC DETECTING CONDITION:

- Immediately at fault recognition

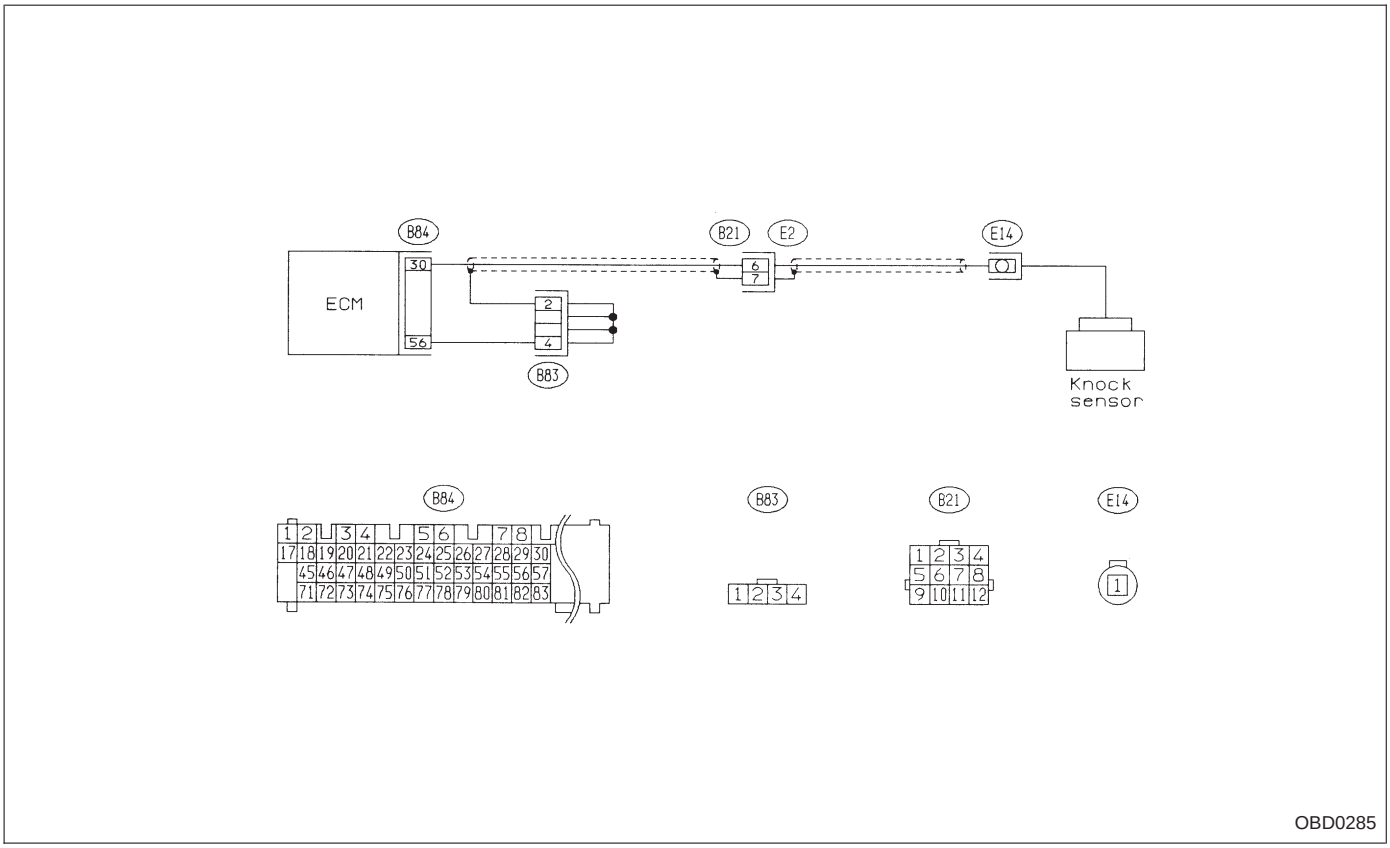
TROUBLE SYMPTOM:

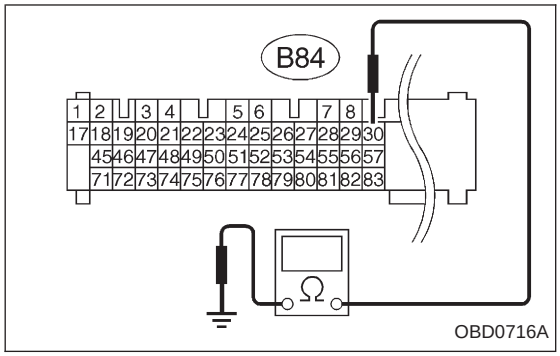
- Poor driving performance
- Knocking occurs.

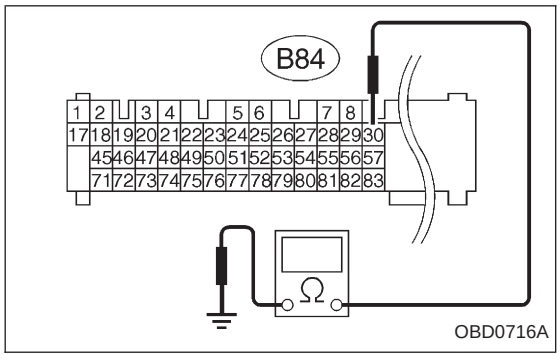


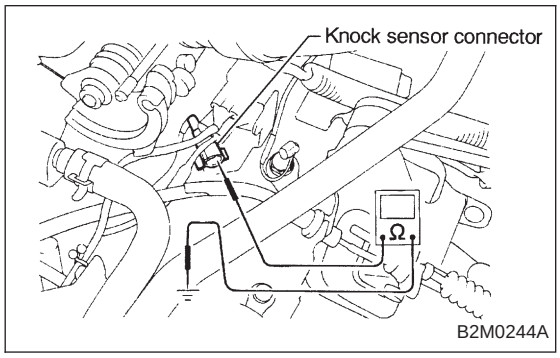
CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY and INSPECTION MODES.
<Ref. to [T3D0] and [T3E0].>

WIRING DIAGRAM:









1	CHECK HARNESS.

1) Turn ignition switch to OFF.
2) Disconnect connector from ECM.
3) Measure resistance between ECM harness connector and body.

CHECK : ***Connector & terminal (B84) No. 30 — Body/700 kΩ, or more***

YES : Go to step 2.

NO : Go to next CHECK .

CHECK : ***Connector & terminal (B84) No. 30 — Body/400 kΩ, or less***

YES : Go to step 3.

NO : Go to step 4.

2	CHECK KNOCK SENSOR.

1) Disconnect connector from knock sensor.
2) Measure voltage between knock sensor connector and body.

CHECK : ***Connector & terminal (E14) No. 1 — Body/700 kΩ, or more***

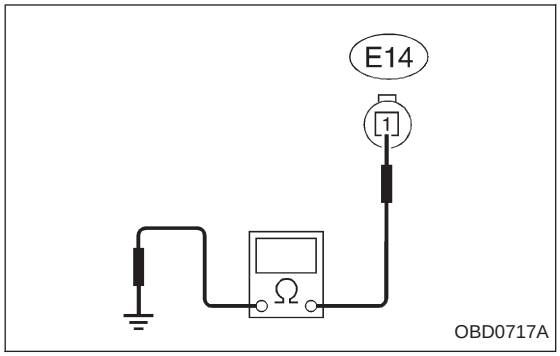
NO : Check and repair the following items.
- Open circuit of the harness between knock sensor connector and ECM connector
- Poor contact of the knock sensor connector
- Poor contact of coupling connector (B21)

YES : Go to next CHECK .

CHECK : ***Check for secure tightening of the knock sensor installation bolts.***

NO : Tighten knock sensor installation bolts securely.

YES : Replace knock sensor.



3	CHECK KNOCK SENSOR.

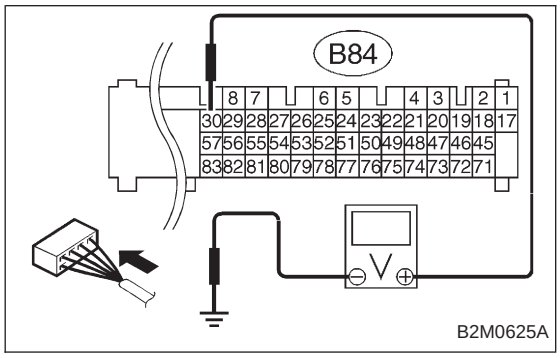
1) Disconnect connector from knock sensor.
2) Measure resistance of harness between knock sensor connector and body.

CHECK ***: Connector & terminal (E14) No. 1 — Body/400 kΩ, or less***

YES : Replace knock sensor.

NO : Repair short circuit of harness between knock sensor connector and ECM connector.

NOTE:
The harness between both connectors is shielded. Repair short circuit of harness together with shield.



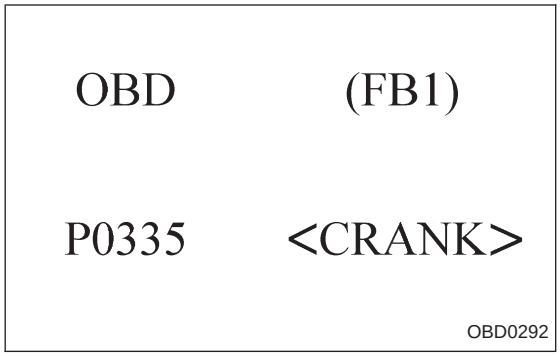
4	CHECK INPUT SIGNAL FOR ECM.

1) Connect connectors to ECM and knock sensor.
2) Turn ignition switch to ON.
3) Measure voltage between ECM and body.

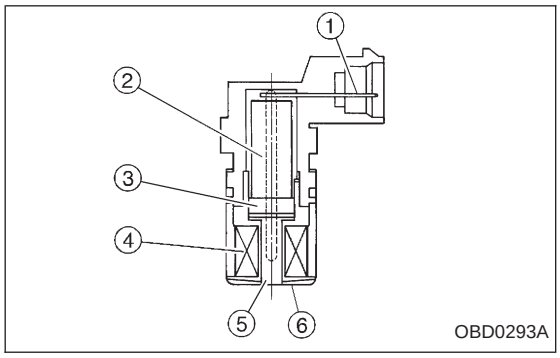
CHECK ***: Connector & terminal (B84) No. 30 — Body/2 V, or more***

NO : Repair poor contact in ECM connector.

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.)
Check and repair the following connectors.
- Knock sensor connector
- ECM connector
- Coupling connector (B21)



Z: DTC P0335 — CRANKSHAFT POSITION SENSOR CIRCUIT MALFUNCTION (CRANK) —

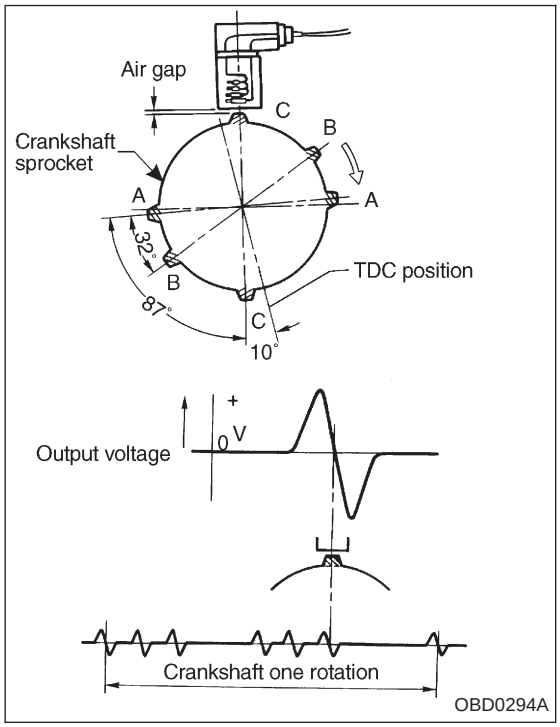


DESCRIPTION:

● The crankshaft position sensor is installed on the oil pump, located in the front center portion of the cylinder block, to detect the crankshaft position. It is designed so that the ECM accurately reads the number of pulses which occur when protrusions provided at the perimeter of the crankshaft sprocket (rotating together with the crankshaft) cross the crankshaft position sensor.

● The crankshaft position sensor is a molded type which consists of a magnet, core, coil, terminals, etc.

① Terminal
② Yoke core
③ Magnet
④ Coil
⑤ Core
⑥ Cover



● The crankshaft sprocket is provided with six protrusions. Crankshaft rotation causes these protrusions to cross the crankshaft position sensor so that magnetic fluxes in the coil change with the change in air gap between the sensor pick-up and the sprocket. The change in air gap induces an electromotive force which is transmitted to the ECM.

DTC DETECTING CONDITION:

- Immediately at fault recognition

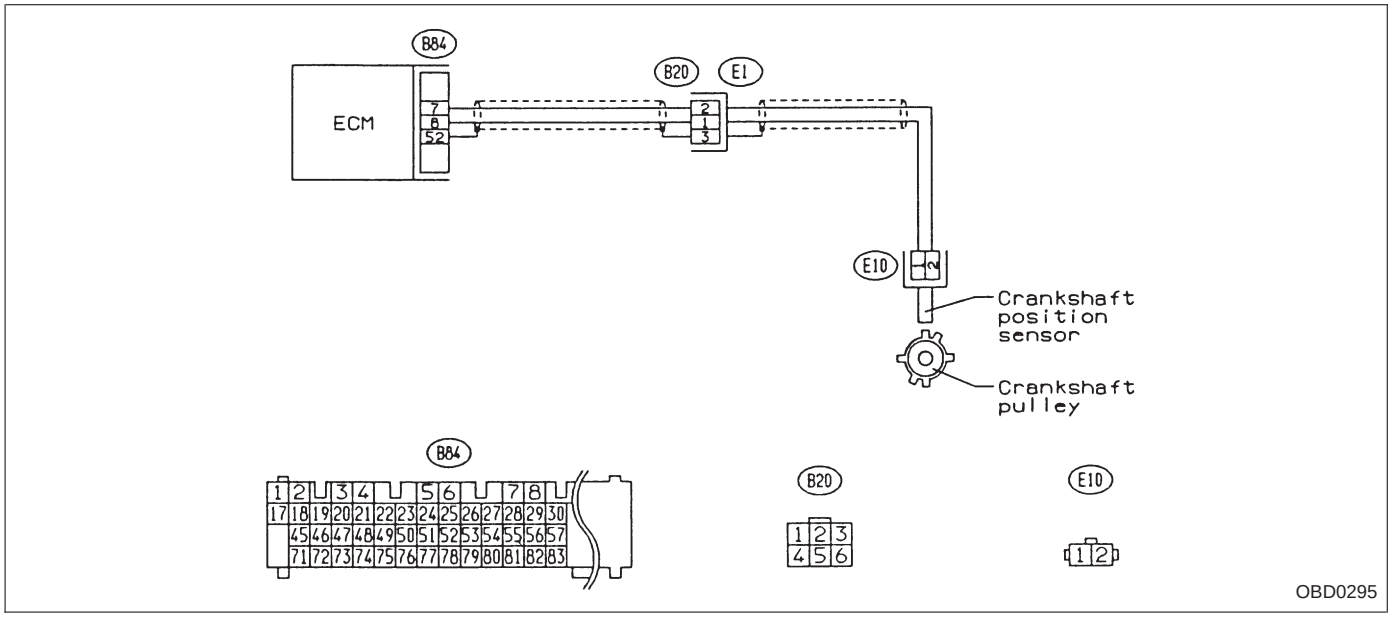
TROUBLE SYMPTOM:

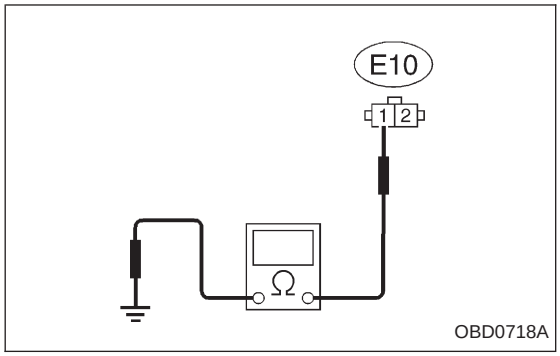
- Engine stalls.
- Failure of engine to start

1.	**Check harness.**
2.	**Check crankshaft position sensor.**

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY and INSPECTION MODES.
<Ref. to [T3D0] and [T3E0].>

WIRING DIAGRAM:





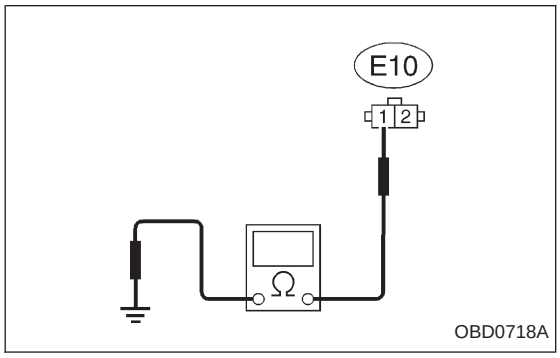
1	CHECK HARNESS.

1) Turn ignition switch to OFF.
2) Disconnect connector from crankshaft position sensor.
3) Measure resistance of harness between crankshaft position sensor connector and body.

CHECK : ***Connector & terminal (E10) No. 1 — Body/100 kΩ, or more***

YES : Check and repair the following items.
- Open circuit of harness between crankshaft position sensor connector and ECM connector
- Poor contact in ECM connector
- Poor contact in the coupling connector (B20)

NO : Go to next CHECK .

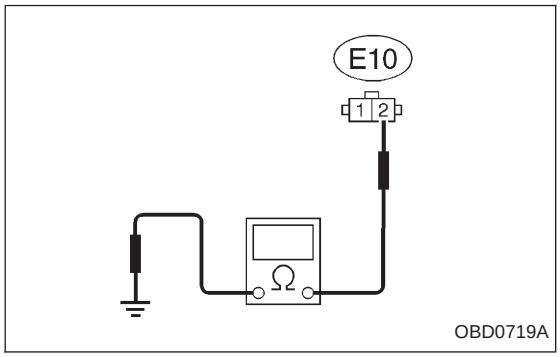


CHECK : ***Connector & terminal (E10) No. 1 — Body/10 Ω, or less***

YES : Repair short circuit of harness between crankshaft position sensor connector and ECM connector.

NOTE:
The harness between both connectors is shielded. Repair short circuit of harness together with shield.

NO : Go to next CHECK .



CHECK : ***Connector & terminal (E10) No. 2 — Body/10 Ω, or less***

NO : Check and repair the following items.
- Open circuit of harness between crankshaft position sensor connector and ECM connector
- Poor contact in ECM connector
- Poor contact in the coupling connector (B20)

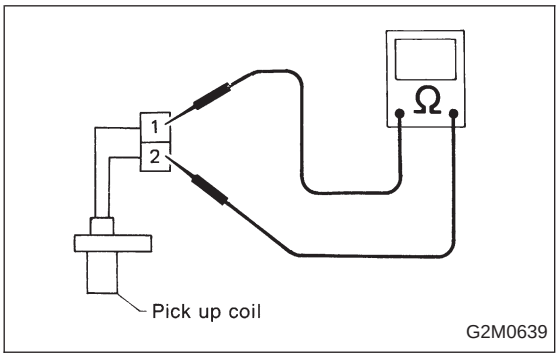
YES : Go to step 2.

2	CHECK CRANKSHAFT POSITION SENSOR.

CHECK : ***Check for secure tightening of the installation bolts of the crankshaft position sensor.***

NO : Tighten securely.

YES : Go to the next step.



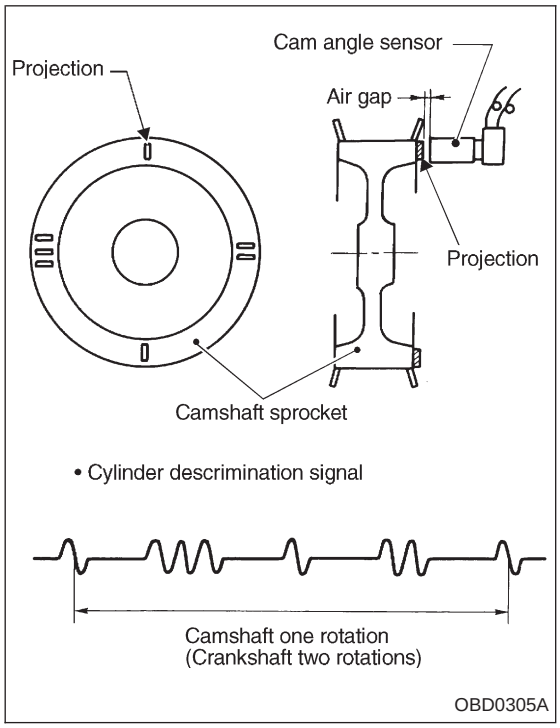
1) Remove crankshaft position sensor.
2) Measure resistance between connector terminals of crankshaft position sensor.

CHECK : ***Terminals***
No. 1 — No. 2/1 — 4 kΩ

YES : Repair poor contact in crankshaft position sensor connector.

NO : Replace crankshaft position sensor.

AA: DTC P0340 — CAMSHAFT POSITION SENSOR CIRCUIT MALFUNCTION (CAM) —



DESCRIPTION:

- The camshaft position sensor is located on the left-hand camshaft support to detect the combustion cylinder at any one moment.
- It is designed so that the ECM accurately reads the number of pulses which occur when protrusions provided on the back of the LH camshaft-drive sprocket cross the sensor.

Internal construction and the basic operating principle of the camshaft position sensor are similar to those of the crankshaft position sensor. A total of seven protrusions (one each at two locations, two at one location and three at one location) are arranged in four equal parts of the sprocket.

DTC DETECTING CONDITION:

- Immediately at fault recognition

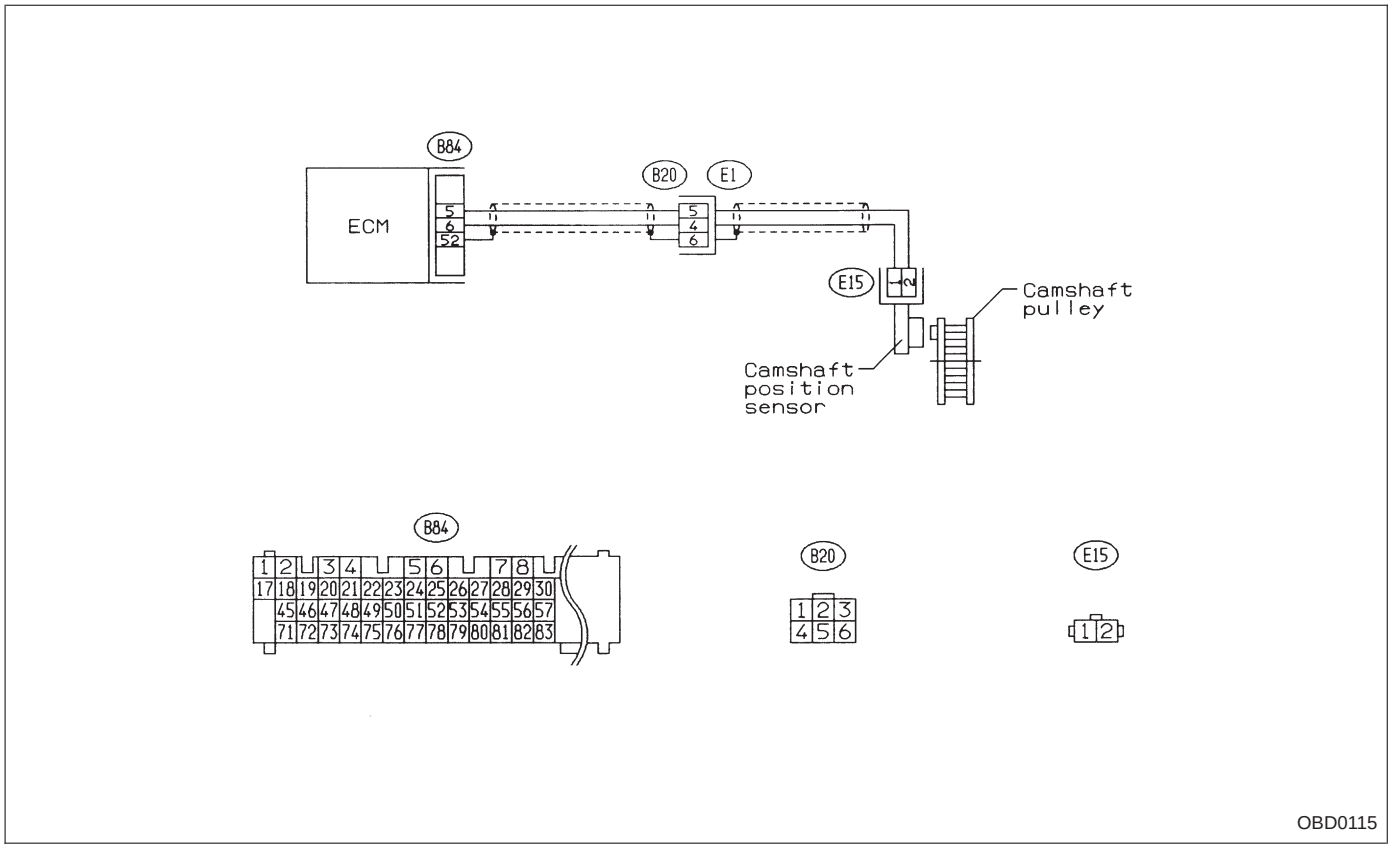
TROUBLE SYMPTOM:

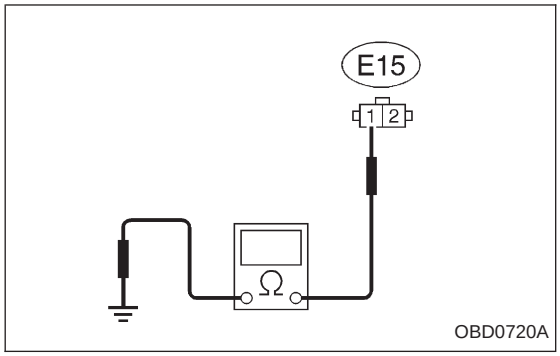
- Engine stalls.
- Failure of engine to start

1.	Check harness.
2.	Check camshaft position sensor.

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY and INSPECTION MODES.
<Ref. to [T3D0] and [T3E0].>

WIRING DIAGRAM:





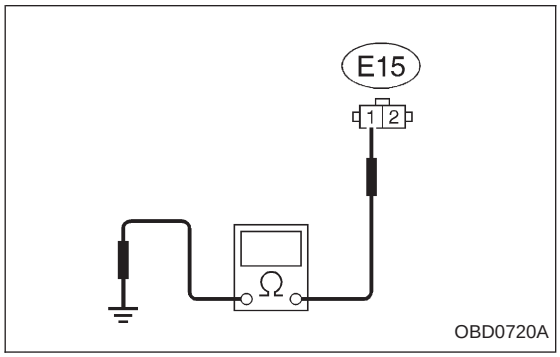
1	CHECK HARNESS.

1) Turn ignition switch to OFF.
2) Disconnect connector from camshaft position sensor.
3) Measure resistance of harness between camshaft position sensor connector and body.

CHECK ***: Connector & terminal (E15) No. 1 — Body/100 kΩ, or more***

YES : Check and repair the following items.
- Open circuit of harness between camshaft position sensor connector and ECM connector
- Poor contact in ECM connector
- Poor contact in the coupling connector (B20)

NO : Go to next CHECK .

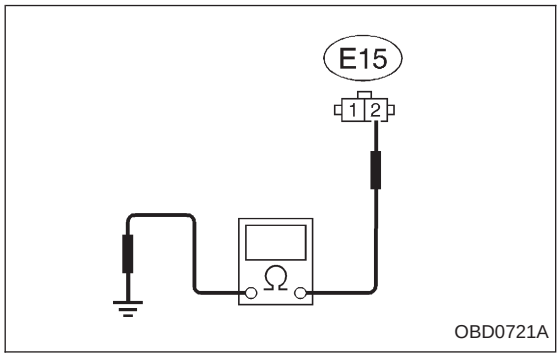


CHECK ***: Connector & terminal (E15) No. 1 — Body/10 Ω, or less***

YES : Repair short circuit of harness between camshaft position sensor connector and ECM connector.

NOTE:
The harness between both connectors is shielded. Repair short circuit of harness together with shield.

NO : Go to next CHECK .



CHECK ***: Connector & terminal (E15) No. 2 — Body/10 Ω, or less***

NO : Check and repair the following items.
- Open circuit of harness between camshaft position sensor connector and ECM connector
- Poor contact in ECM connector
- Poor contact in the coupling connector (B20)

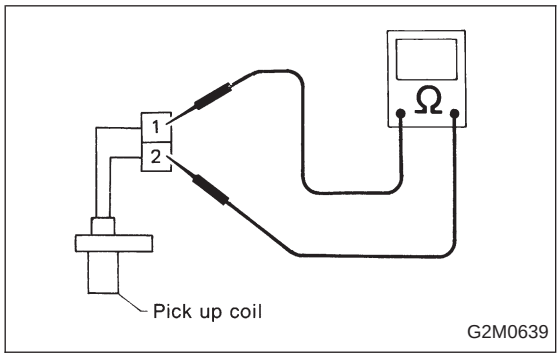
YES : Go to step 2.

2	CHECK CAMSHAFT POSITION SENSOR.

CHECK : ***Check for secure tightening of the installation bolts of the camshaft position sensor.***

NO : Tighten securely.

YES : Go to the next step.



1) Remove camshaft position sensor.
2) Measure resistance between connector terminals of camshaft position sensor.

CHECK : ***Terminals***
No. 1 — No. 2/1 — 4 kΩ

YES : Repair poor contact in camshaft position sensor connector.

NO : Replace camshaft position sensor.

OBD (FB1)

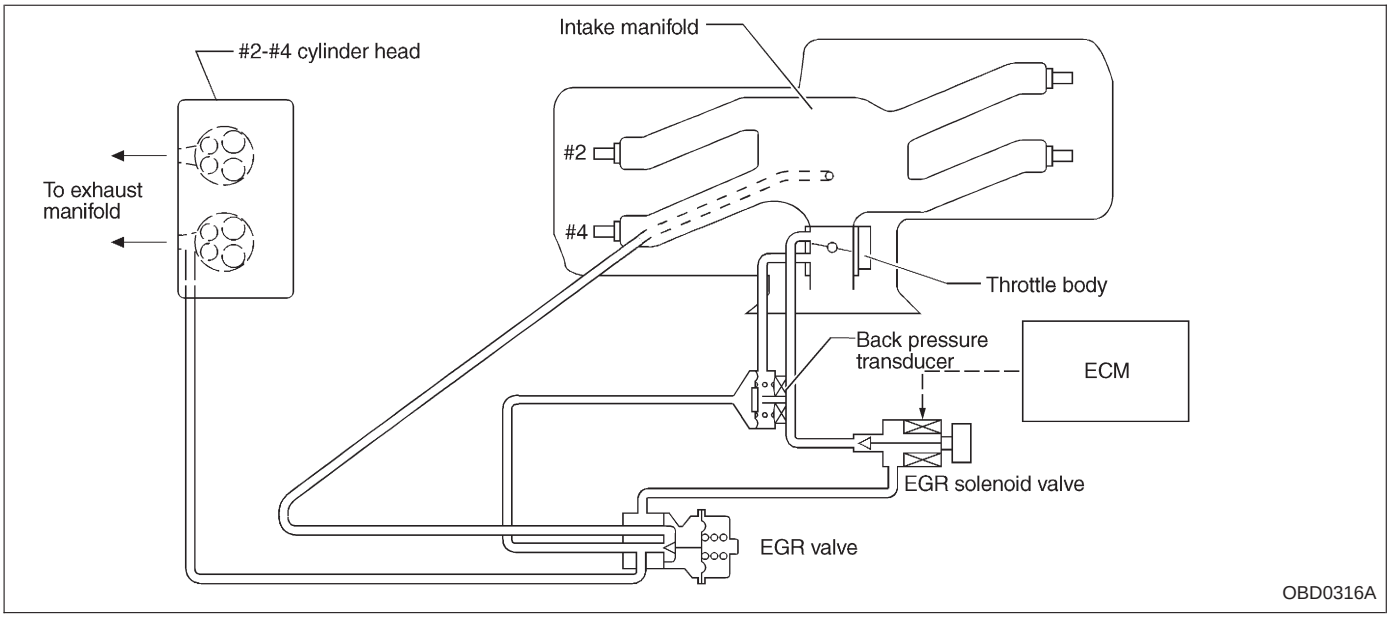
P0400 <EGR>

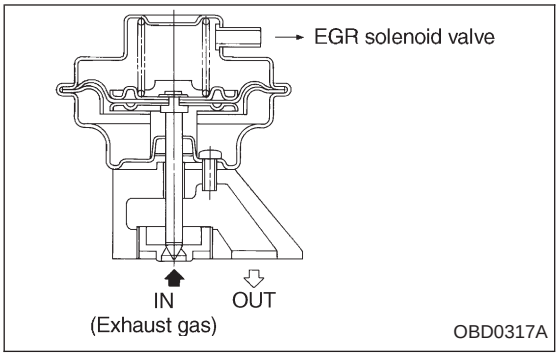
OBD0315

AB: DTC P0400 — EXHAUST GAS RECIRCULATION FLOW MALFUNCTION (EGR) —

DESCRIPTION:

● The EGR system aims at reduction of NOx by lowering the combustion temperature through recirculation of a part of exhaust gas into cylinders via the intake manifold.
● This system consists of the EGR valve, the EGR solenoid valve and BPT (Back Pressure Transducer). The EGR valve is operated by the vacuum pressure from throttle body via BPT and controls the exhaust gas flow from the exhaust manifold to the intake manifold by open/close operation of the EGR valve.
The EGR solenoid valve is controlled by the ECM according to the engine driving condition and opens/closes the vacuum line from the BPT to the EGR valve diaphragm.
The BPT controls the vacuum pressure to control the amount of EGR according to the engine load.





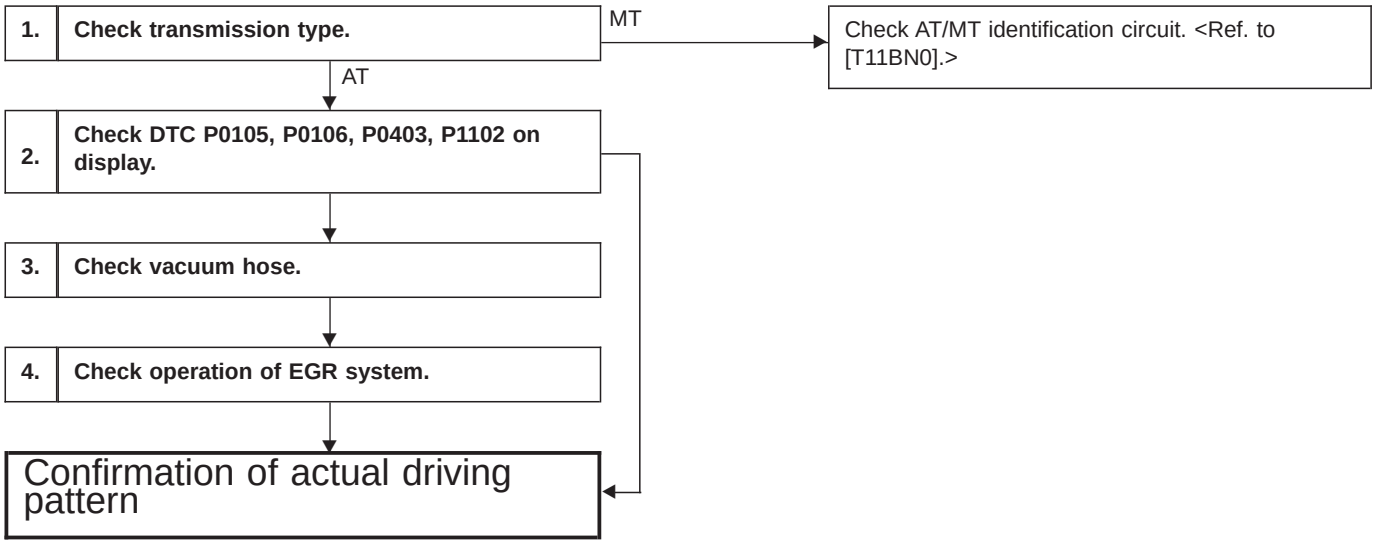
● The EGR valve is situated between the exhaust manifold and intake manifold. After opening EGR solenoid valve, EGR valve is opened for receiving throttle port pressure on diaphragm. Then, part of the exhaust gas is recirculated into intake manifold.

DTC DETECTING CONDITION:

● Two consecutive trips with fault

TROUBLE SYMPTOM:

● Poor driving performance on low engine speed

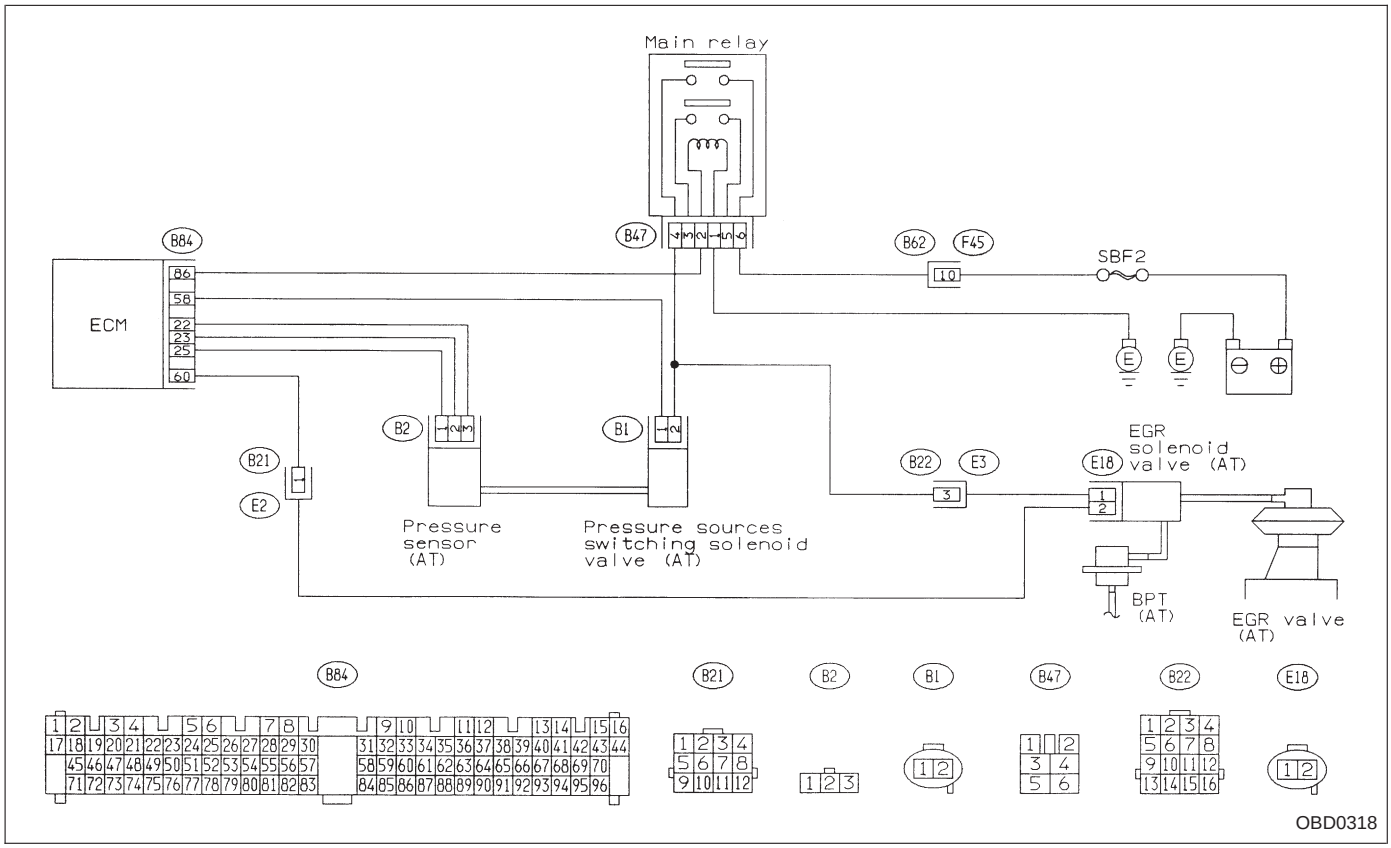


CAUTION:

Before confirmation of actual driving pattern, conduct CLEAR MEMORY and INSPECTION MODES. <Ref. to [T3D0] and [T3E0].>

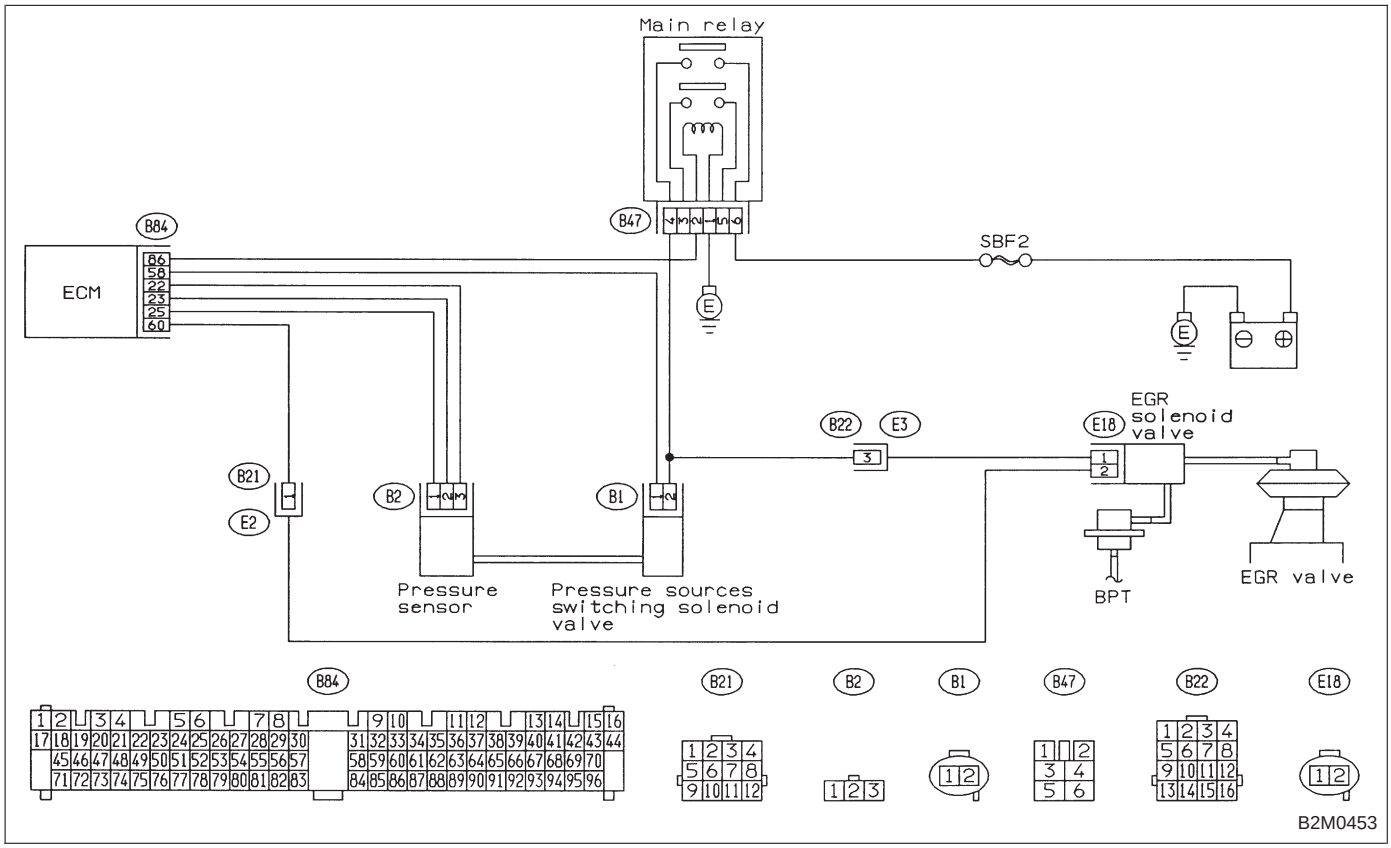
WIRING DIAGRAM:

- **LHD model**



WIRING DIAGRAM:

- **RHD model**



1	CHECK TRANSMISSION TYPE.

Refer to flow chart on page 230.

2	CHECK DTC P0105, P0106, P0403, P1102 ON DISPLAY.

CHECK : ***Check that Subaru Select Monitor or OBD-II general scan tool shows P0105, P0106, P0403 and P1102.***

YES : ● Inspect the relevant DTC using “11. Diagnostics Chart with Trouble Code [T1100]”.
● Manually check that EGR valve diaphragm is not stuck.
● In this case, inspection of P0400 is not necessary after the above items.

WARNING:
Be careful when checking EGR valve, since it may be extremely hot.

After checking the above item, go to **CONFIRMATION OF ACTUAL DRIVING PATTERN.**

NO : Go to step 3.

3	CHECK VACUUM HOSE.

CHECK : ***Check vacuum hoses for disconnection, leakage and clogging.***

YES : Check and repair the following items.
- Two lines of pipes and hoses running between throttle body and BPT
- Pipe and hose line connecting BPT and EGR solenoid valve
- Hose between EGR solenoid valve and EGR valve
- BPT pressure transmitting hose

NO : Go to step 4.

4	CHECK OPERATION OF EGR SYSTEM.

1) Turn ignition switch to OFF.
2) Connect the test mode connector.
3) Turn ignition switch to ON.

CHECK : ***Does EGR solenoid valve produce operating sound?***

NO : Replace EGR solenoid valve.

YES : Go to next step.

4) Turn ignition switch to OFF.
5) Disconnect connector from EGR solenoid valve.
6) Connect 12 V battery's ground ⊖ terminal to one terminal of the EGR solenoid valve. Then connect 12 V battery's ⊕ terminal to the other terminal of it.

CAUTION:
Do not use the 12 V battery installed in the vehicle, because the electrical system may be damaged.

7) Start the engine.

CHECK : ***Open throttle valve by 5 to 10 degrees and visually check EGR valve operation.***

YES : Possibly EGR valve malfunction may be due to freezing or clogging by foreign matter. At this point in time do not replace EGR valve, since it is not faulty. And after the checking, go to **CONFIRMATION OF ACTUAL DRIVING PATTERN.**

NOTE:

If malfunction is detected again in the confirmation of actual driving pattern, EGR valve is faulty. Go to next CHECK .

NO : Go to next CHECK .

CHECK ***: Is there clogging in the gas outlets of intake manifold or cylinder head, checking by breathing into the outlets?***

YES : Repair or replace intake manifold or cylinder head. And go to **CONFIRMATION OF ACTUAL DRIVING PATTERN.**

NO : Replace EGR valve. And go to **CONFIRMATION OF ACTUAL DRIVING PATTERN.**

CONFIRMATION OF ACTUAL DRIVING PATTERN.

1) Conduct CLEAR MEMORY and INSPECTION MODES. <Ref. to [T3D0] and [T3E0].>
2) Connect Subaru select monitor to its data link connector.
3) Start and warm-up the engine until the radiator fan makes one complete rotation. (All accessory switches are OFF.)
4) Turn Subaru select monitor switch to ON.
5) Designate mode using function key.

Function mode: FA4

6) Drive at 55±3 MPH (88±5 km/h) until the LED No. 5 is turned on.

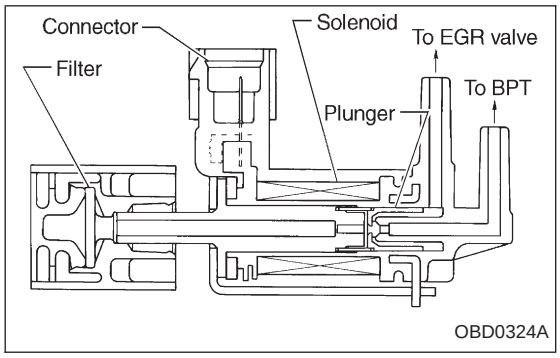
NOTE:
Keep the throttle valve opening at the same degree, since diagnosis will be interrupted when the opening varies.
Diagnosis starts in 190 seconds after starting engine and takes 4 seconds.
Put the gear to “D” range for the diagnosis.

7) Designate mode using function key.

Function mode: FB0

8) Confirm the “No trouble” indication on Subaru select monitor.

AC: DTC P0403 — EXHAUST GAS RECIRCULATION CIRCUIT MALFUNCTION (EGRSOL) —



DESCRIPTION:

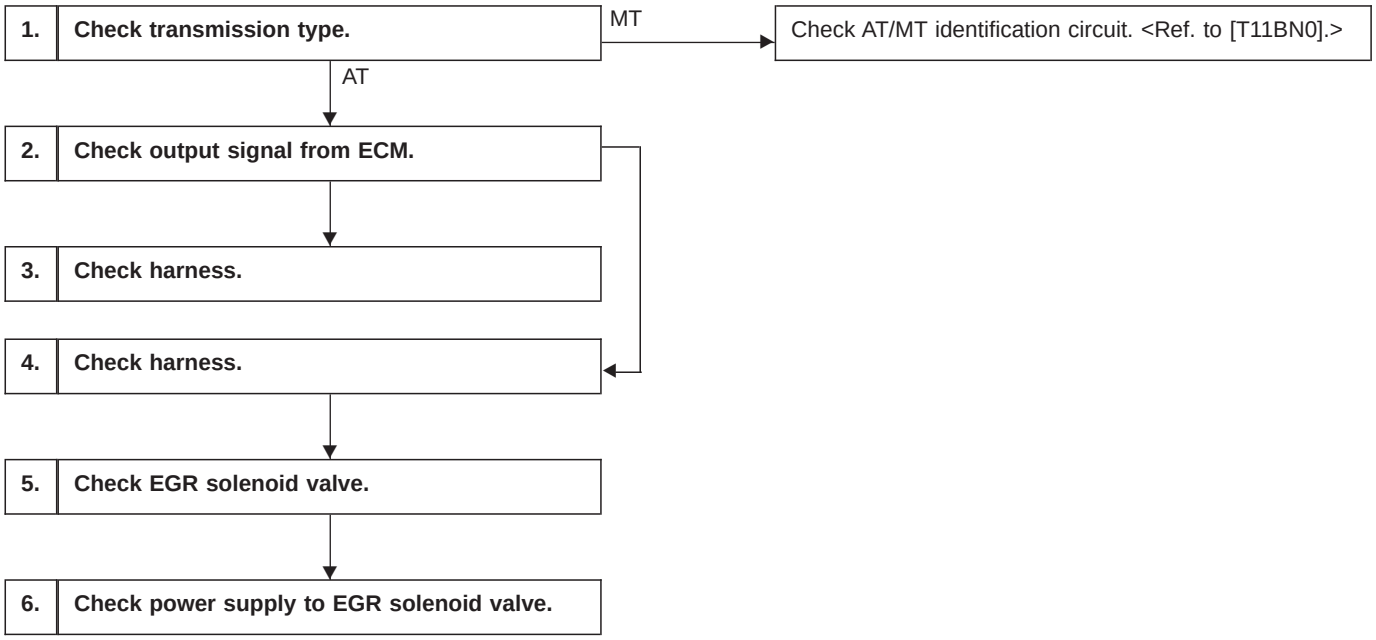
The EGR solenoid valve is situated between the BPT and EGR valve. EGR solenoid valve is opened by a signal emitted from the ECM. Therefore, throttle port pressure is transmitted to diaphragm of EGR valve.

DTC DETECTING CONDITION:

- Two consecutive trips with fault

TROUBLE SYMPTOM:

- Poor driving performance on low engine speed

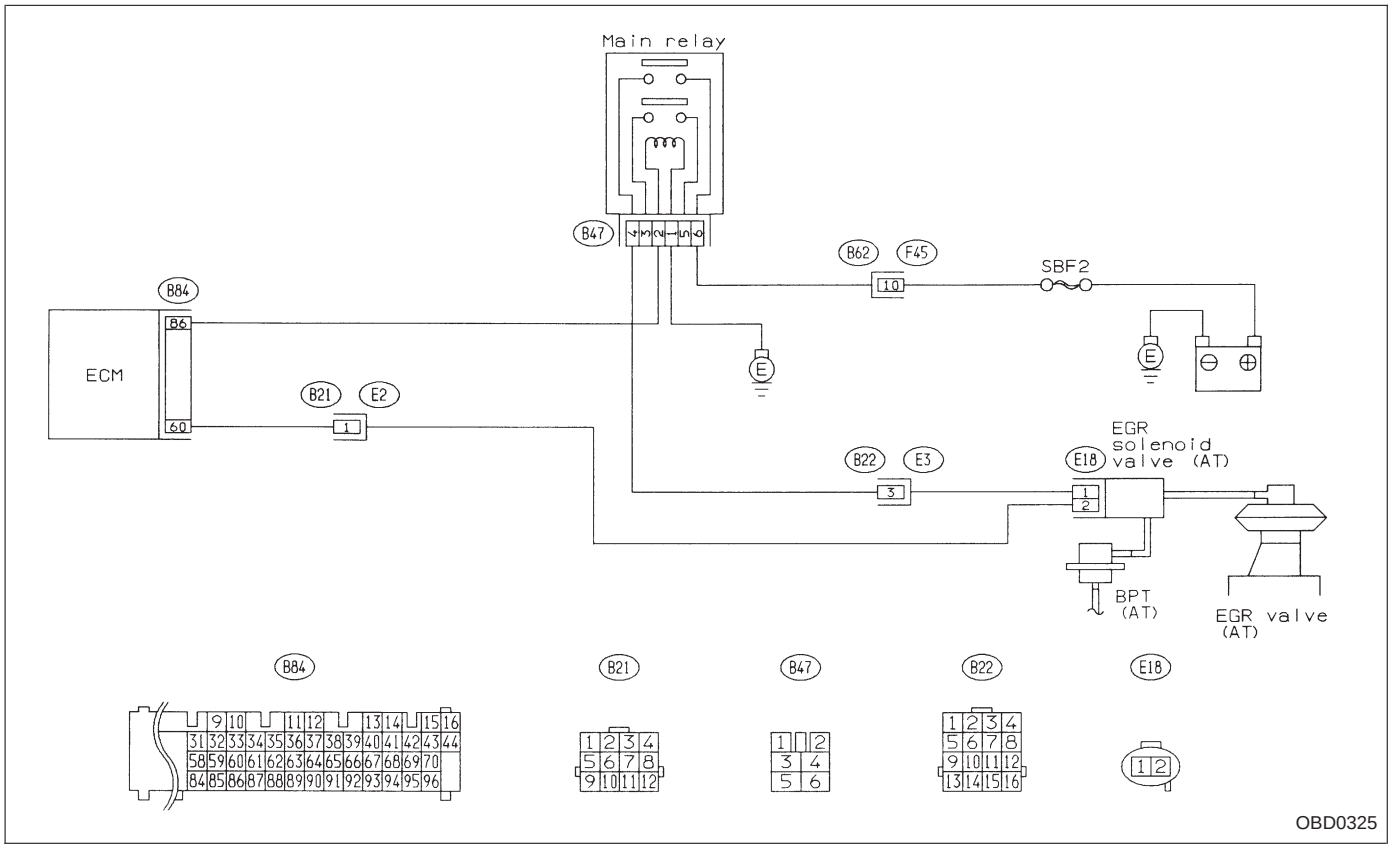


CAUTION:

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

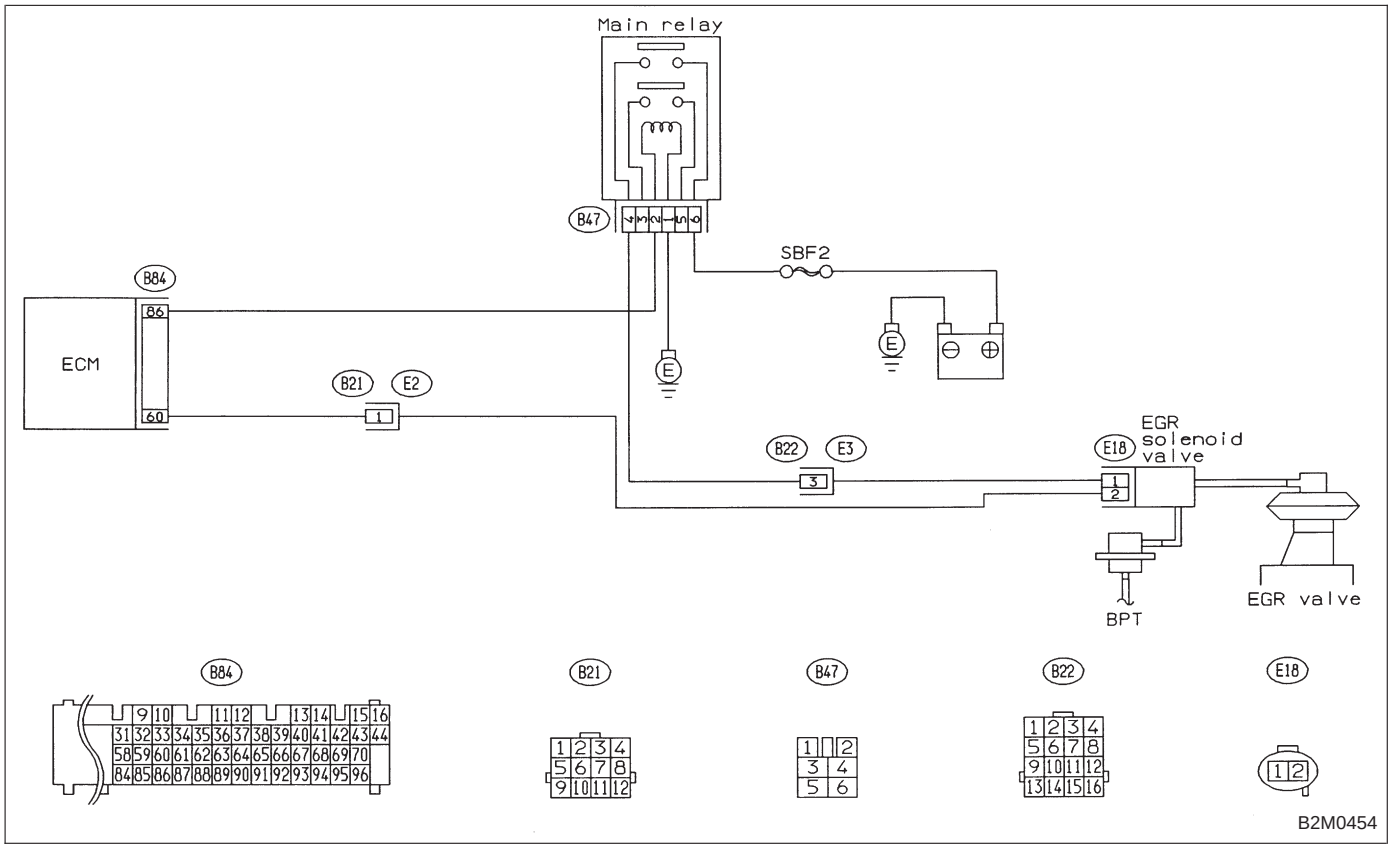
WIRING DIAGRAM:

- **LHD model**



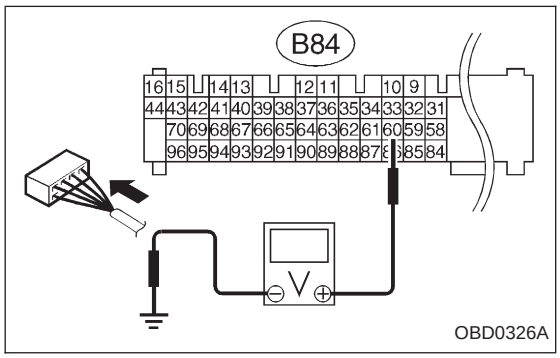
WIRING DIAGRAM:

- **RHD model**



1	CHECK TRANSMISSION TYPE.

Refer to flow chart on page 235.



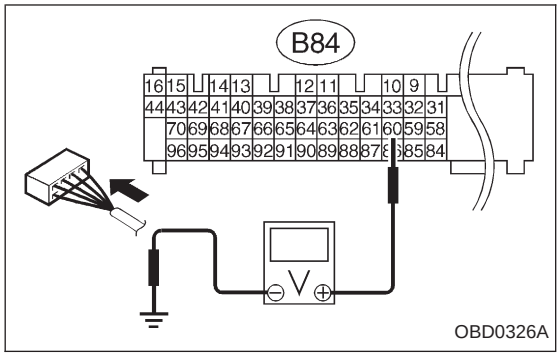
2	CHECK OUTPUT SIGNAL FROM ECM.

1) Turn ignition switch to ON.
2) Measure signal voltage between ECM and body.

CHECK ***: Connector & terminal (B84) No. 60 — Body / 10 V, or more***

YES : Go to step 3.

NO : Go to step 4.



3	CHECK HARNESS.

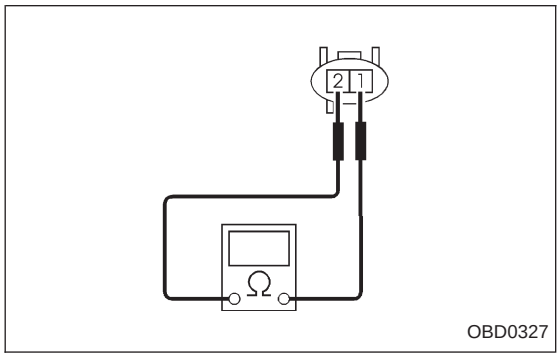
1) Turn ignition switch to OFF.
2) Disconnect connector from EGR solenoid valve.
3) Turn ignition switch to ON.
4) Measure voltage between ECM and body.

CHECK ***: Connector & terminal***
(B84) No. 60 — Body / 10 V, or more

YES : Repair short circuit of harness and replace ECM.

NOTE:
The harness between ECM and EGR solenoid valve is in short circuit.

NO : Go to next step.



5) Turn ignition switch to OFF.
6) Measure resistance between EGR solenoid valve terminals.

CHECK ***: Terminals***
No. 1 — No. 2/1 Ω, or less

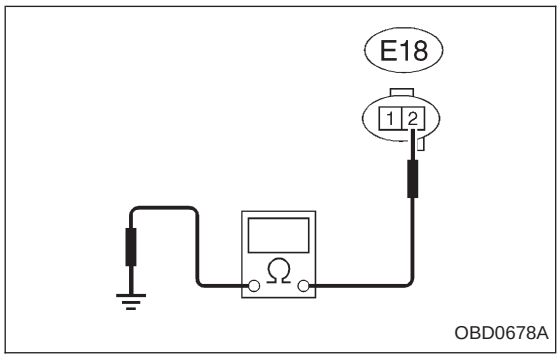
YES : Replace EGR solenoid valve and ECM.

NO : Go to next CHECK .

CHECK ***: Is there poor contact in ECM connector?***

NO : Replace ECM.

YES : Repair poor contact in ECM connector.



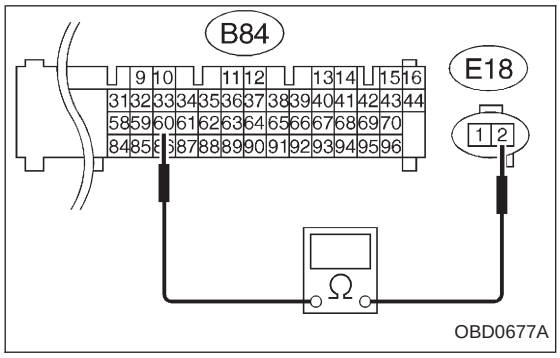
4	CHECK HARNESS.

1) Turn ignition switch to OFF.
2) Disconnect connectors from EGR solenoid valve and ECM.
3) Measure resistance of harness connector between EGR solenoid valve and body.

CHECK ***: Connector & terminal***
(E18) No. 2 — Body / 10 Ω, or less

YES : Repair short circuit of harness between ECM connector and EGR solenoid valve connector.

NO : Go to the next step.

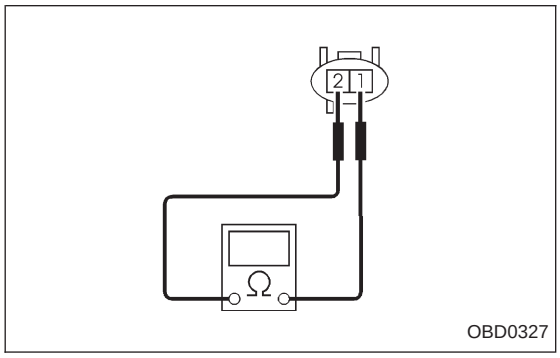


4) Measure resistance of harness connector between ECM and EGR solenoid valve.

CHECK : ***Connector & terminal***
(B84) No. 60 — (E18) No. 2 / 10 Ω, or less

YES : Go to step 5.

NO : Repair open circuit of harness between ECM connector and EGR solenoid valve connector.



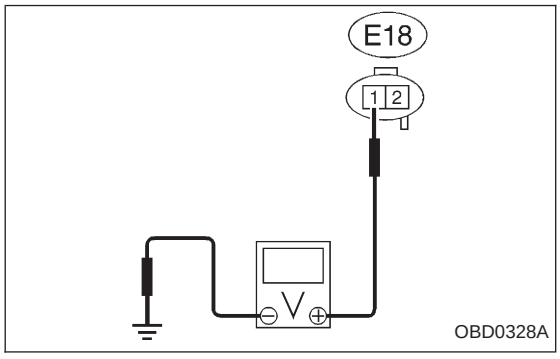
5	CHECK EGR SOLENOID VALVE.

Measure resistance between connector terminals of EGR solenoid valve.

CHECK : ***Terminals***
No. 1 — No. 2 / 10 — 100 Ω

YES : Go to step 6.

NO : Replace EGR solenoid valve.



6	CHECK POWER SUPPLY TO EGR SOLENOID VALVE.

1) Turn ignition switch to ON.
2) Measure voltage between EGR solenoid valve harness connector and body.

CHECK : ***Connector & terminal***
(E18) No. 1 — Body / 10 V, or more

YES : Confirm good connection at EGR solenoid valve connector.

NO : Repair open circuit of harness between main relay connector and EGR solenoid valve connector.

AD: DTC P0420 — CATALYST SYSTEM EFFICIENCY BELOW THRESHOLD (CAT) —

DESCRIPTION:

- The three-way catalyst is an oval shaped honeycomb monolith ceramic. Its porous surface is coated with platinum and rhodium.
- The catalyst is used to reduce HC, CO and NOx in exhaust gases, and permits simultaneous oxidation and reduction.

DTC DETECTING CONDITION:

- Immediately at fault recognition

TROUBLE SYMPTOM:

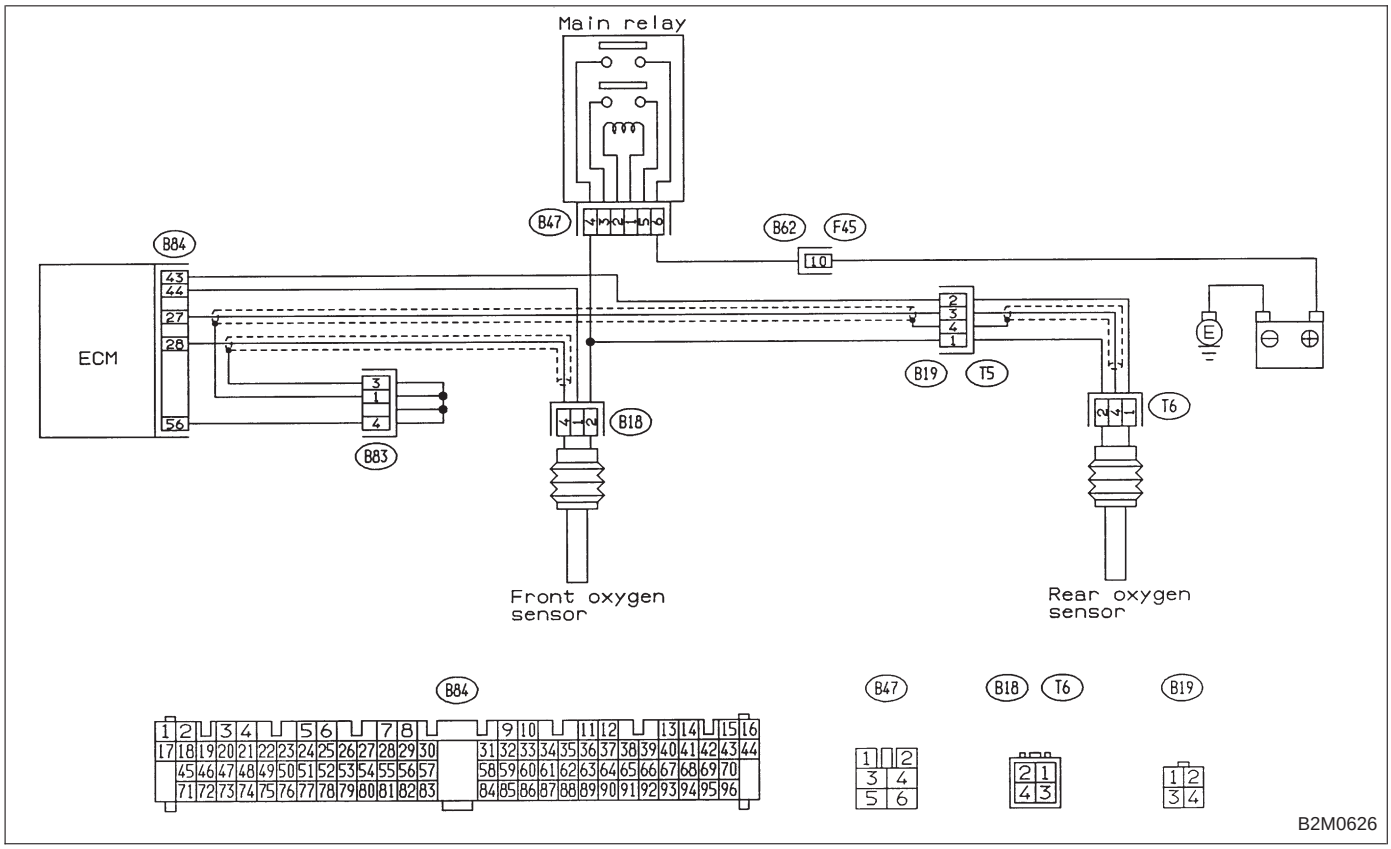
- Engine stalls.
- Idle mixture is out of specifications.

1.	Check any other DTC P0130, P0133, P0135, P0136, P0139 and P0141 on display.
2.	Check exhaust system.
3.	Check rear catalytic converter.

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY and INSPECTION MODES. <Ref. to [T3D0] and [T3E0].>

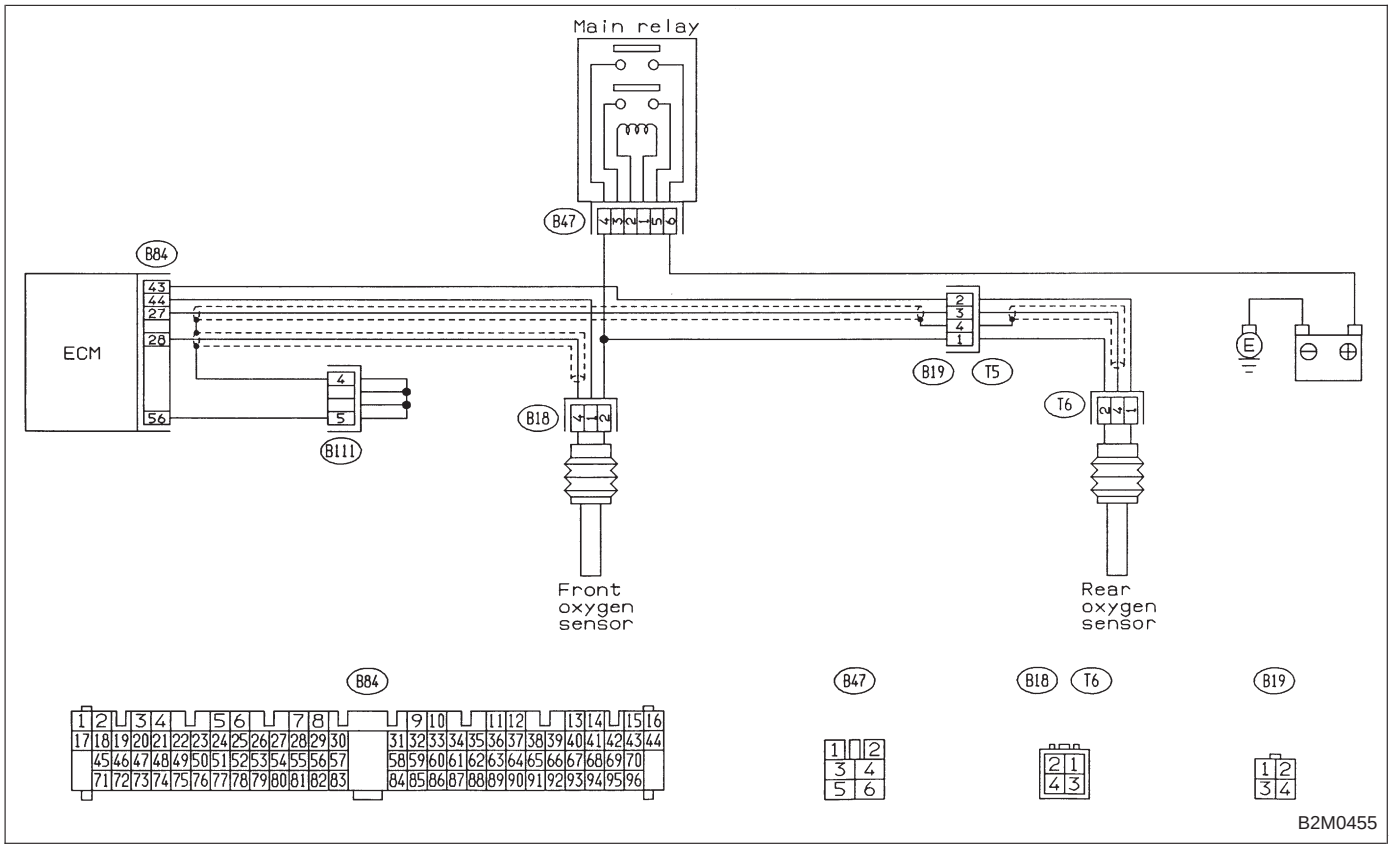
WIRING DIAGRAM:

- **LHD model**



WIRING DIAGRAM:

- **RHD model**



1	**CHECK ANY OTHER DTC P0130, P0133, P0135, P0136, P0139 AND P0141 ON DISPLAY.**

CHECK : ***Check that Subaru Select Monitor or the OBD-II general scan tool shows P0130, P0133, P0135, P0136, P0139 and P0141.***

YES : Inspect the relevant DTC using “11. Diagnostics Chart with Trouble Code”.
Inspection of P0420 is not necessary after above.

NO : Go to step 2.

2	**CHECK EXHAUST SYSTEM.**

Check for gas leaks or air suction caused by loose or dislocated nuts and bolts, and open hole at exhaust pipes.

CHECK : ***Check the following position of exhaust system.***

- ***Between cylinder head and front exhaust pipe.***
- ***Between front exhaust pipe and front catalytic converter.***
- ***Between front catalytic converter and rear catalytic converter.***

YES : Repair or replace exhaust system.

NO : Go to step 3.

3	**CHECK REAR CATALYTIC CONVERTER.**

1) Separate rear catalytic converter from rear exhaust pipe.

CHECK : ***Is there damage at rear face of rear catalyst?***

YES : Replace front and rear catalytic converters.

NO : Go to next step.

2) Remove front catalytic converter.

CHECK : ***Is there damage at rear face or front face of front catalyst?***

If there is damage in front catalyst, replace front catalytic converter.

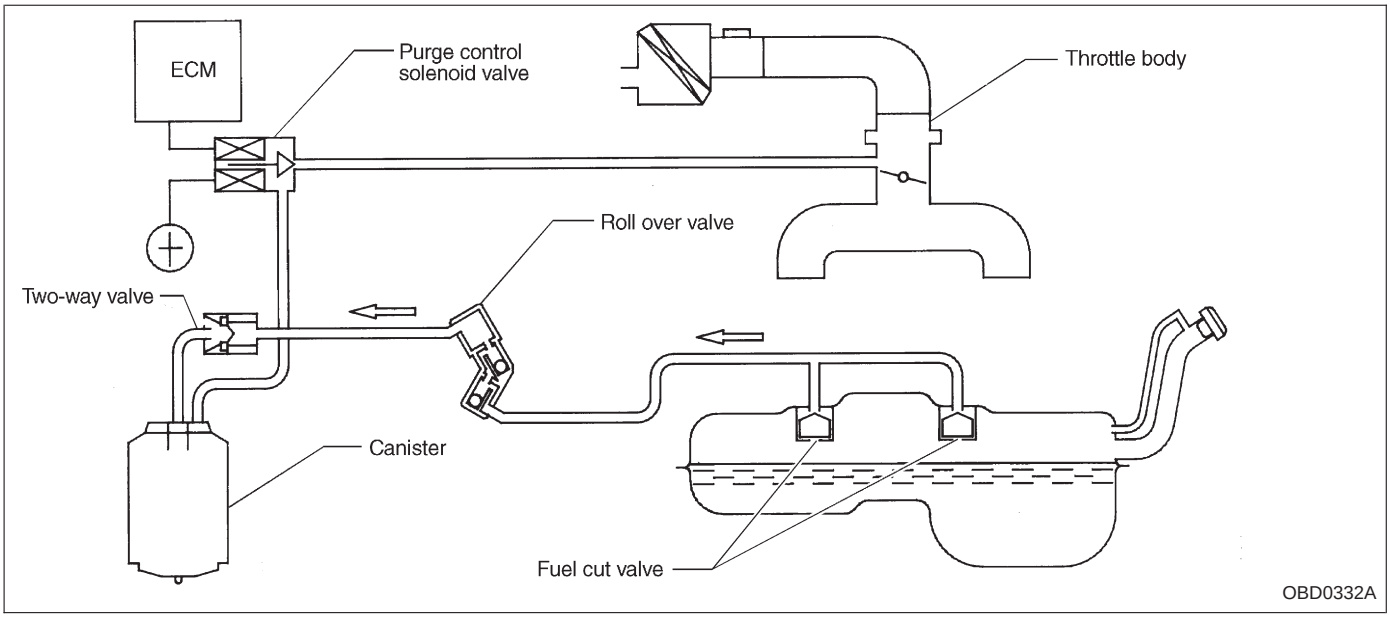
OBD	(FB1)
P0441	<CPC_F>

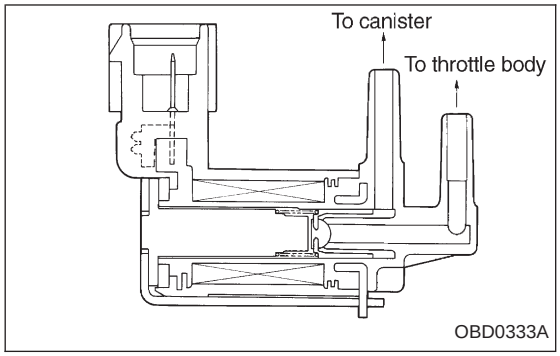
OBD0331

AE: DTC P0441 — EVAPORATIVE EMISSION CONTROL SYSTEM INCORRECT PURGE FLOW (CPC – F) —

DESCRIPTION:

- The evaporative emission control system is employed to prevent evaporative fuel from being discharged into ambient atmosphere. This system includes a canister, purge control solenoid valve, fuel cut valve, their connecting lines, etc.
- Gasoline vapor evaporated from the fuel tank is introduced into the canister located in the engine compartment through the evaporation line, and is absorbed on activated carbon in it. A fuel cut valve is also incorporated on the tank fuel line.
- The purge control solenoid valve is controlled by the ECM and provides optimal purge control according to the engine coolant temperature, engine load and vehicle speed.





● The purge control solenoid valve is on the evaporation line between canister and throttle body. It is built on the below of intake manifold.

DTC DETECTING CONDITION:

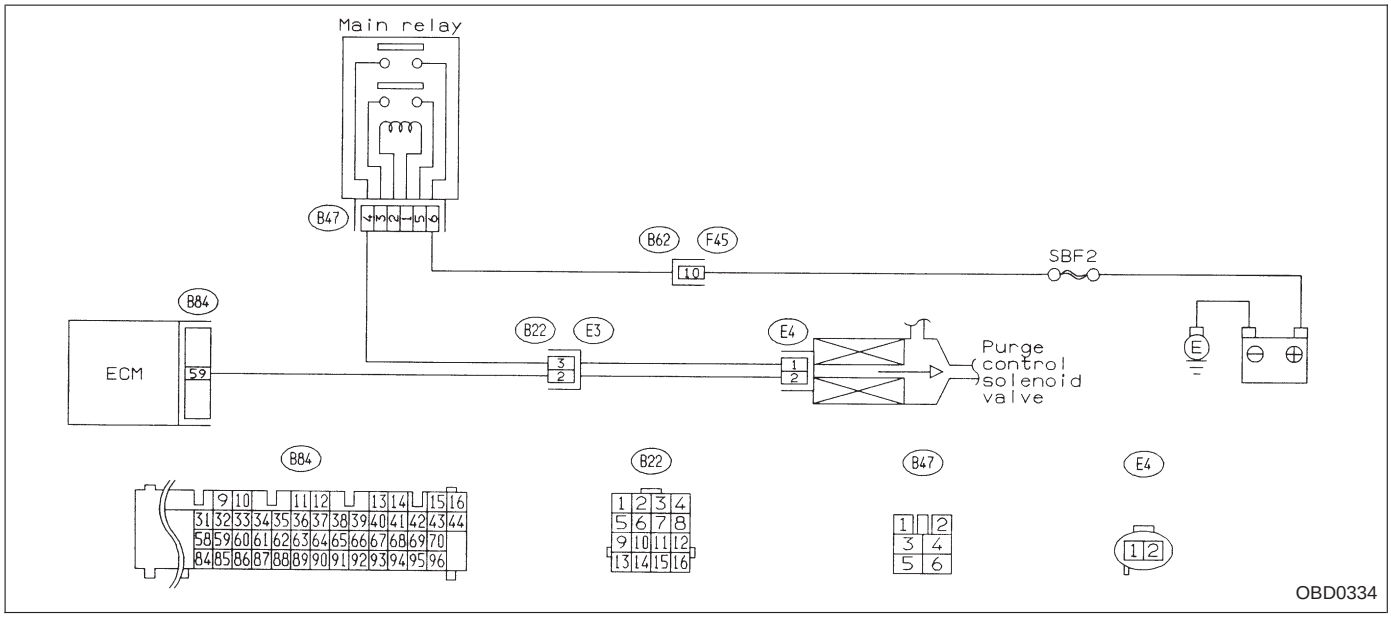
● Two consecutive trips with fault

1.	**Check transmission type.**	MT	Check AT/MT identification circuit. <Ref. to [T11BN0].>
		AT	
2.	**Check any other DTC P0105, P0106, P0443 and P1102 on display.**		● Inspect P0105, P0106, P0443 and P1102 using "11. Diagnostics Chart with Trouble Code [T1100]". ● It is unnecessary to inspect DTC P0441.
3.	**Check purge control solenoid valve operation.**		

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY and INSPECTION MODES. <Ref. to [T3D0] and [T3E0].>

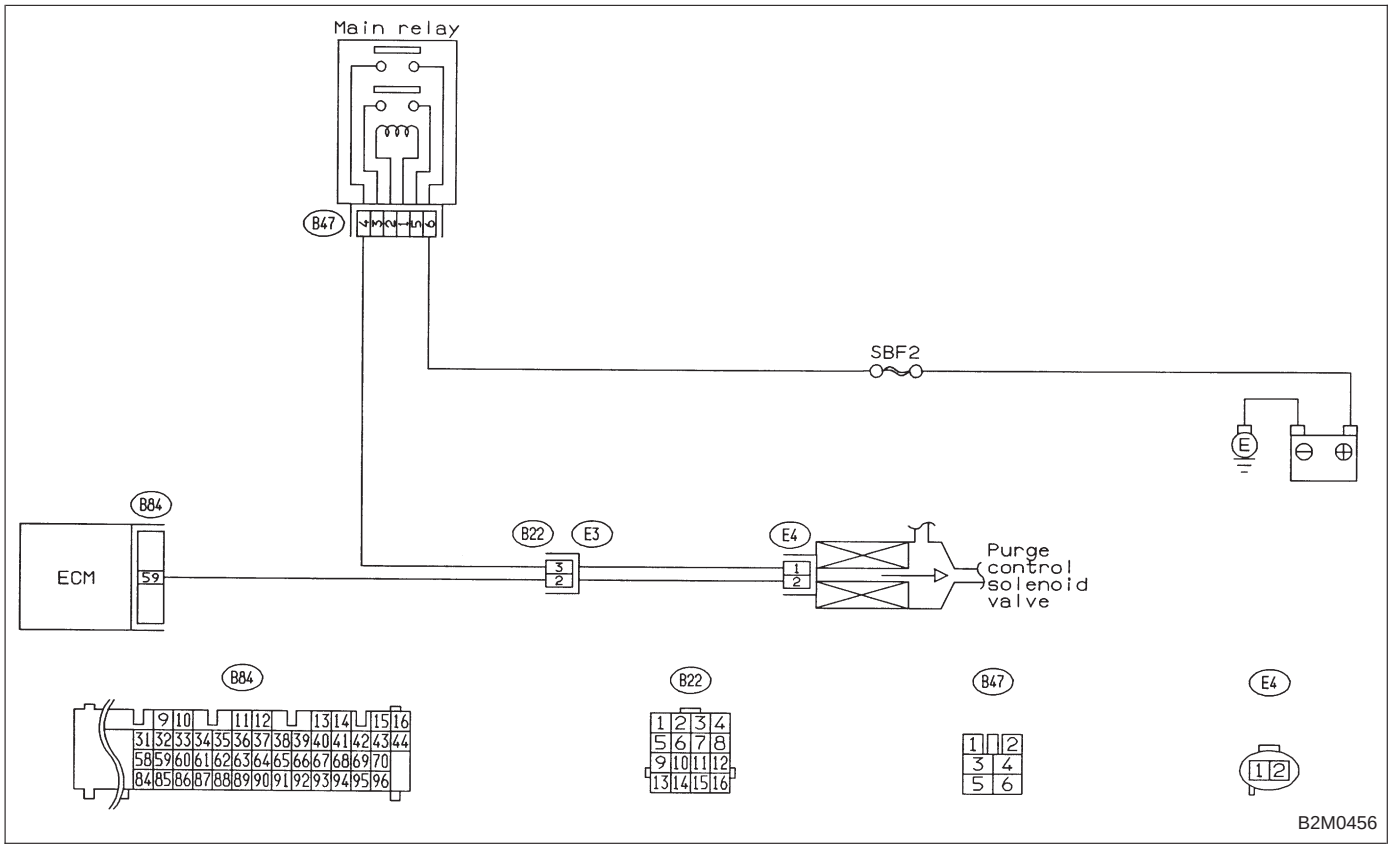
WIRING DIAGRAM:

● **LHD model**



WIRING DIAGRAM:

- **RHD model**



1	**CHECK TRANSMISSION TYPE.**

Refer to flow chart on page 245.

2	**CHECK ANY OTHER DTC P0105, P0106, P0443 AND P1102 ON DISPLAY.**

CHECK : ***Check that Subaru select monitor or the OBD-II general scan tool shows P0105, P0106, P0443 and P1102.***

YES : Inspect the relevant DTC using “11. Diagnostics chart with Trouble Code”.

NO : Go to step 3.

3	**CHECK PURGE CONTROL SOLENOID 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.

CHECK : ***Make sure that the ON/OFF operating sound of purge control solenoid valve occurs at about 0.3 Hz.***

NO : Replace purge control solenoid valve.

YES : Go to next step.

4) Disconnect canister purge hose from canister.

CHECK : ***Blow through the canister purge hose to check if pulsations occur.***

YES : Check and repair loose connections, cracks, and clogging in evaporation line.

NO : Replace purge control solenoid valve.

AF: DTC P0443 — EVAPORATIVE EMISSION CONTROL SYSTEM PURGE CONTROL VALVE CIRCUIT MALFUNCTION (CPC) —

DESCRIPTION:

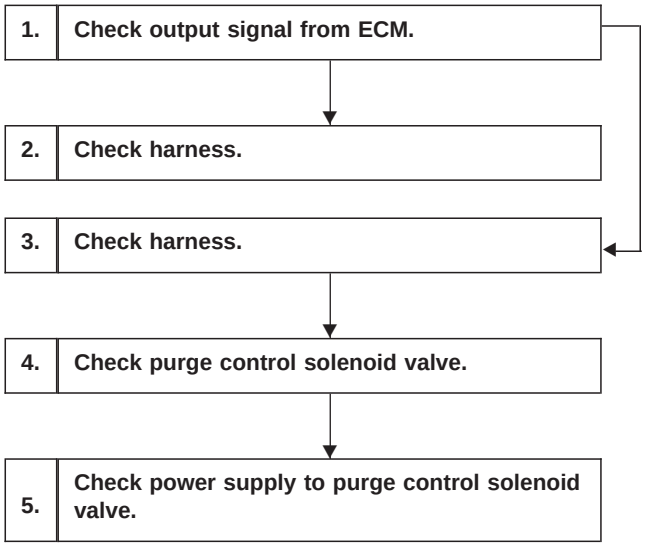
Refer to “AE: DTC P0441 — EVAPORATIVE EMISSION CONTROL SYSTEM INCORRECT PURGE FLOW — [T11AE0]”.

DTC DETECTING CONDITION:

- Two consecutive trips with fault

TROUBLE SYMPTOM:

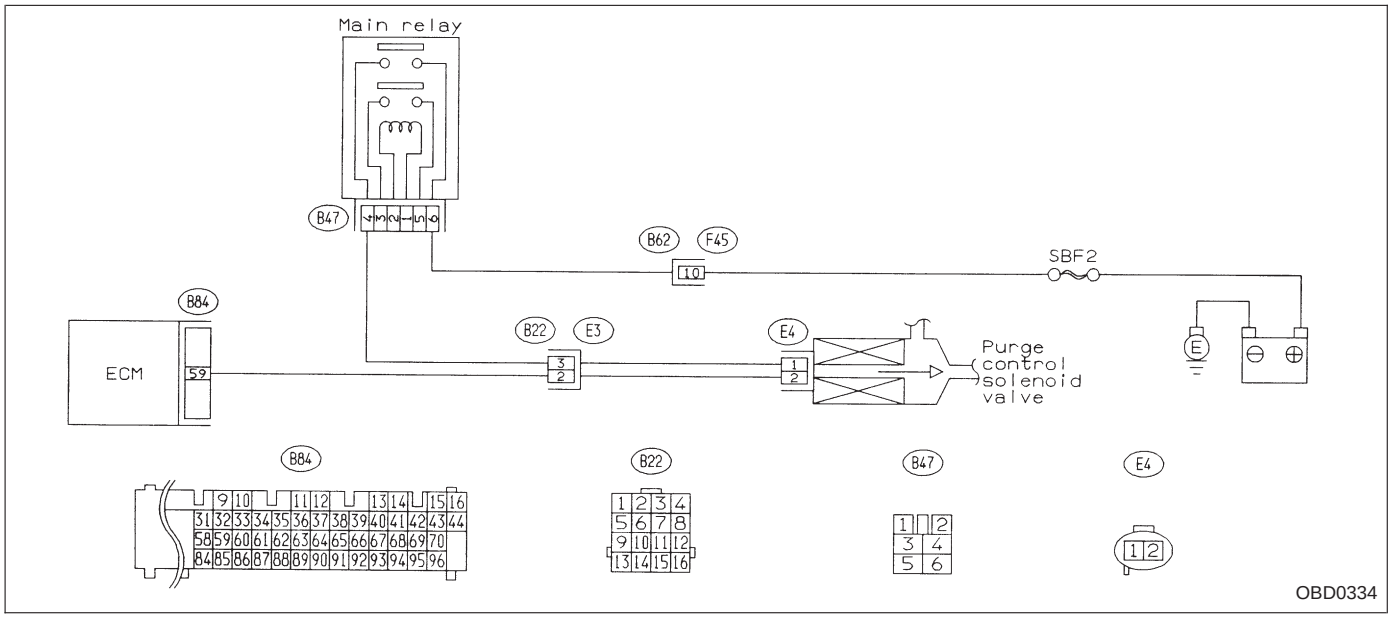
- Erroneous idling



CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY and INSPECTION MODES. <Ref. to [T3D0] and [T3E0].>

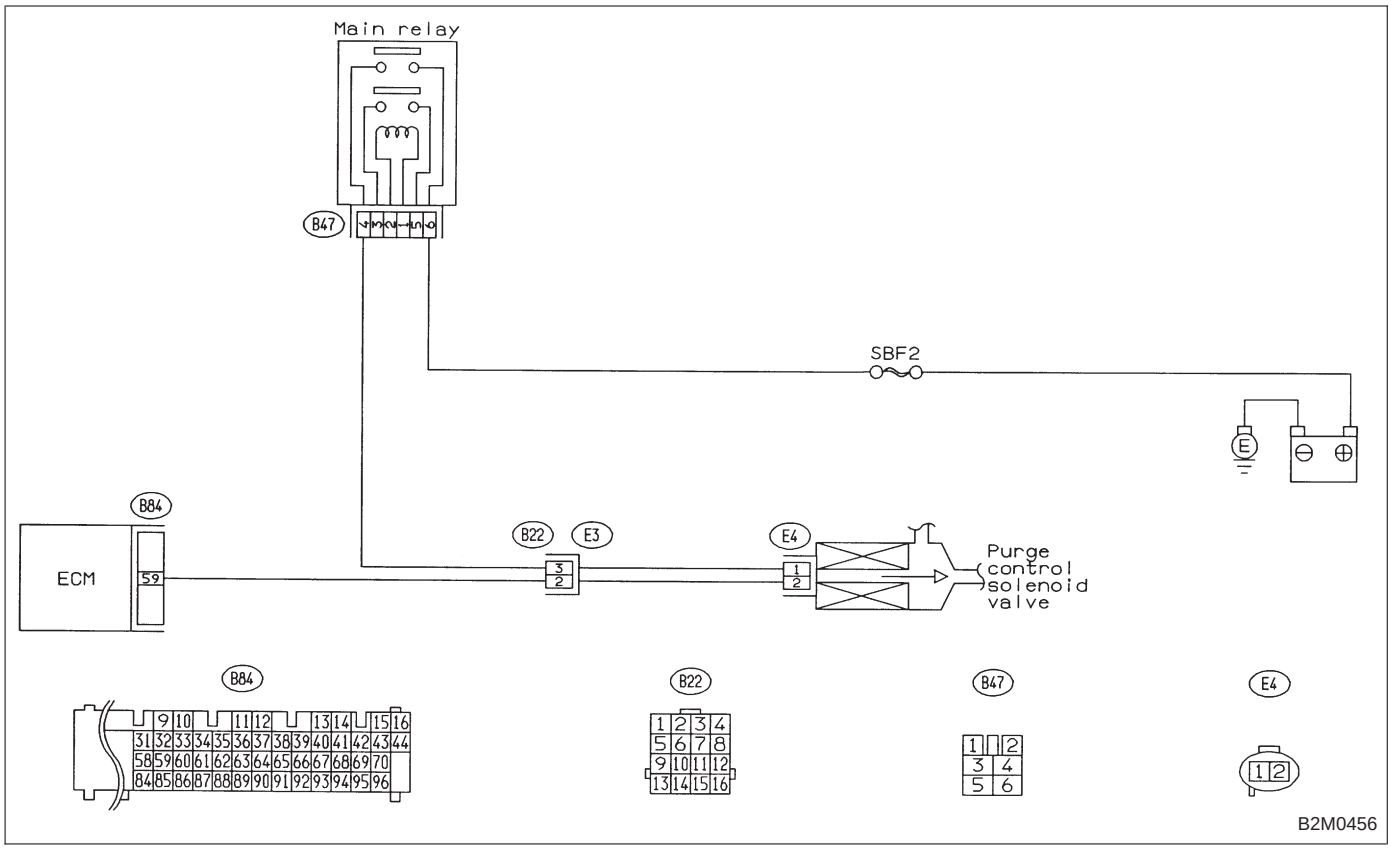
WIRING DIAGRAM:

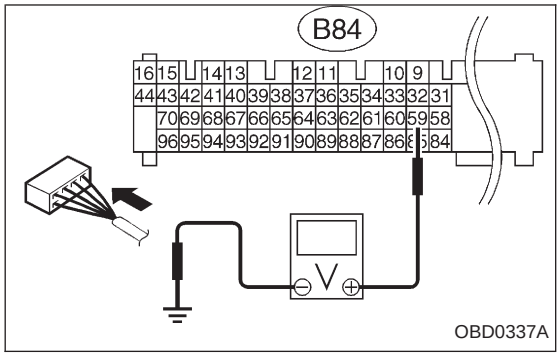
- **LHD model**



WIRING DIAGRAM:

- **RHD model**





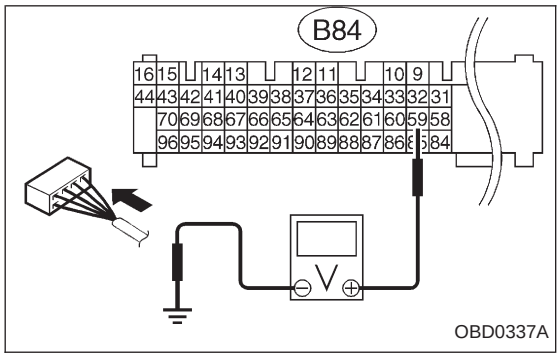
1	CHECK OUTPUT SIGNAL FROM ECM.

1) Turn ignition switch to ON.
2) Measure voltage between ECM connector terminal and body.

CHECK ***: Connector & terminal***
(B84) No. 59 — Body / 10 V, or more

YES : Go to step 2.

NO : Go to step 3.



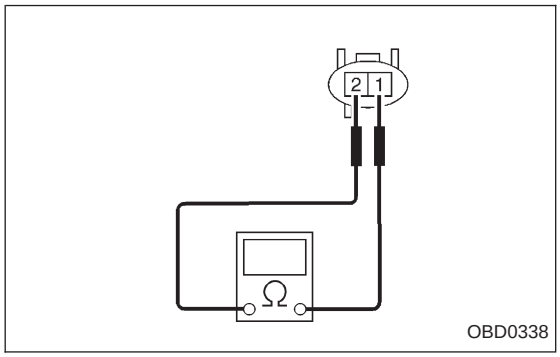
2	CHECK HARNESS.

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 connector and body.

CHECK ***: Connector & terminal***
(B84) No. 59 — Body / 10 V, or more

YES : Repair short circuit of harness between ECM connector and purge control solenoid valve connector.

NO : Go to next step.



5) Turn ignition switch to OFF.
6) Measure resistance between purge control solenoid valve terminals .

CHECK ***: Terminals***
No. 1 — No. 2/1 Ω, or less

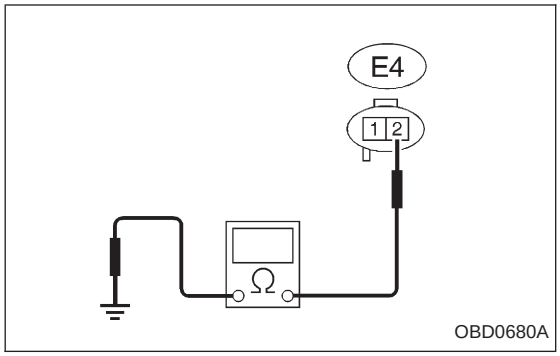
YES : Replace purge control solenoid valve and ECM.

NO : Go to next CHECK .

CHECK ***: Is there poor contact in ECM connector?***

YES : Repair poor contact in ECM connector.

NO : Replace ECM.



3	CHECK HARNESS.

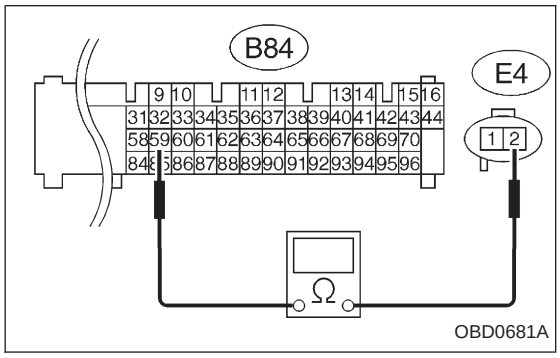
1) Turn ignition switch to OFF.
2) Disconnect connectors from purge control solenoid valve and ECM.
3) Measure resistance between purge control solenoid valve connector and body.

CHECK : ***Connector & terminal***
(E4) No. 2 — Body / 10 Ω, or less

YES : Repair short circuit of harness between ECM connector and purge control solenoid valve connector.

NO : Go to the next step.

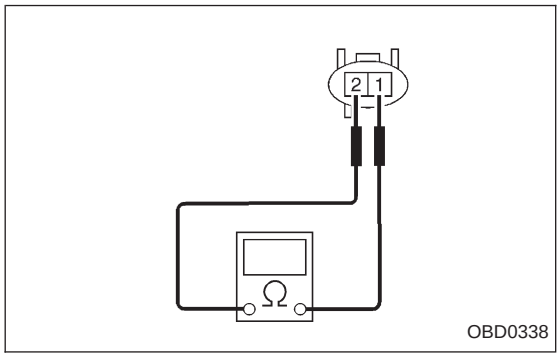
4) Measure resistance between ECM and purge control solenoid valve of harness connector.



CHECK : ***Connector & terminal***
(B84) No. 59 — (E4) No. 2 / 10 Ω, or less

YES : Go to step 4.

NO : Repair open circuit of harness between ECM connector and purge control solenoid valve connector.



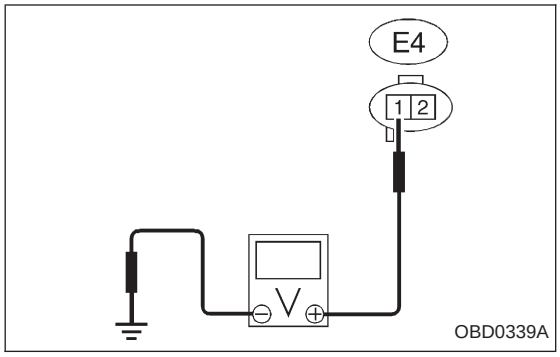
4	CHECK PURGE CONTROL SOLENOID VALVE.

1) Remove purge control solenoid valve.
2) Measure resistance between purge control solenoid valve terminals.

CHECK : ***Terminals***
No. 1 — No. 2 / 10 — 100 Ω

YES : Go to step 5.

NO : Replace purge control solenoid valve.



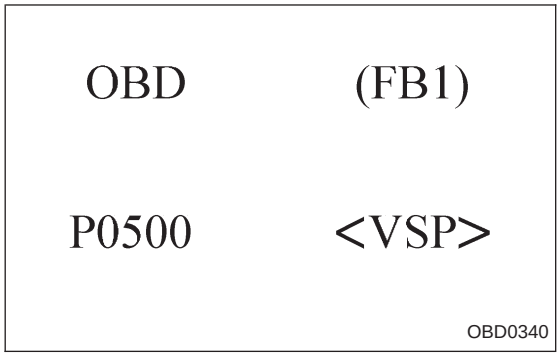
5	CHECK POWER SUPPLY TO PURGE CONTROL SOLENOID VALVE.

1) Turn ignition switch to ON.
2) Measure voltage between purge control solenoid valve connector and body.

CHECK ***: Connector & terminal (E4) No. 1 — Body / 10 V, or more***

YES : Confirm good connection at purge control solenoid valve connector.

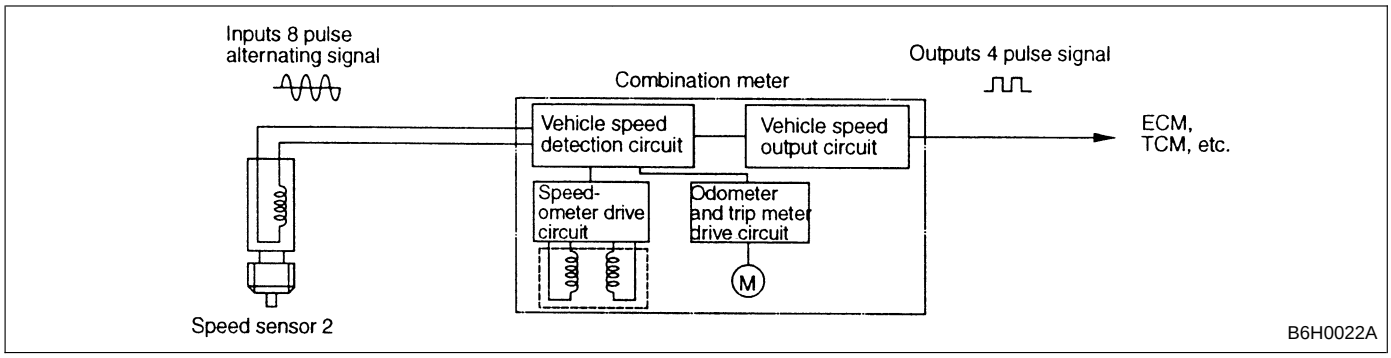
NO : Repair open circuit of harness between main relay connector and purge control solenoid valve connector.

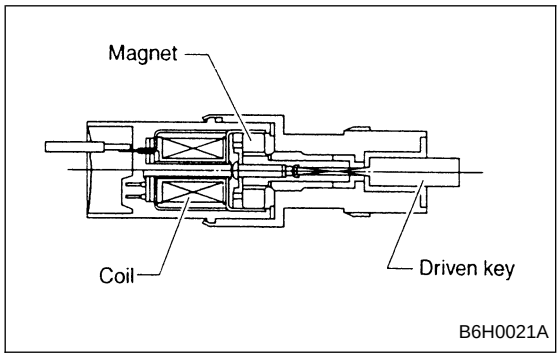


AG: DTC P0500 — VEHICLE SPEED SENSOR MALFUNCTION (VSP) —

DESCRIPTION:

● The speedometer system is an electric type; it uses no speedometer cable and drives the speedometer according to electric pick-up sensor (vehicle speed sensor 2).
The speed sensor 2 is installed on the transmission. The speed sensor 2 sends the vehicle speed signal (8 pulses per one turn of speed sensor driven shaft) to the speed detection circuit in the speedometer where this signal pulse wave is regulated.
The regulated pulse signal (4 pulses per one turn of speed sensor driven shaft) is sent to the speedometer drive circuit and odometer (trip meter) drive circuit.
The output signal from vehicle speed detection circuit is also used in ECM, TCM, etc.





● The speed sensor 2 consists of a magnetic resistance element, magnet ring, driven shaft, spring, etc.
As the driven key rotates, the magnet turns to change the magnetic field of the coil.
The coil generates power corresponding to a change in the magnetic field.
One turn of the driven key in the vehicle speed sensor 2 sends 8 pulses of AC signal to the combination meter.

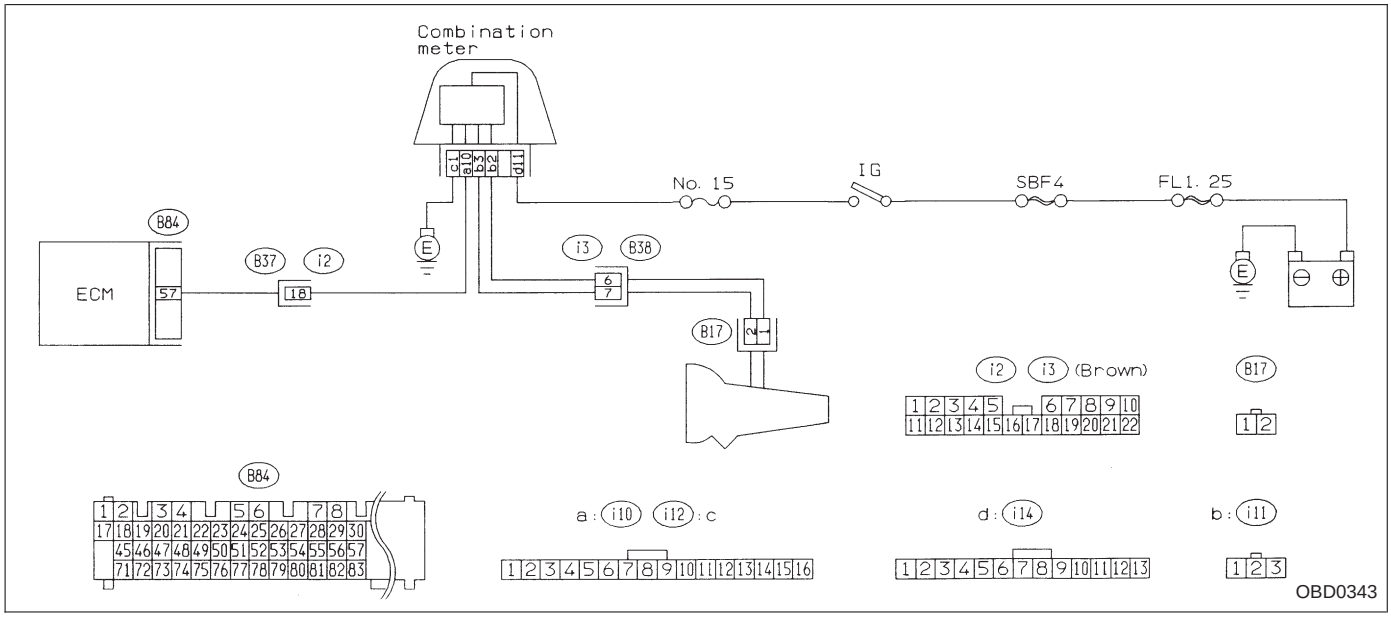
DTC DETECTING CONDITION:

● Immediately at fault recognition

1.	**Check speedometer operation in combination meter.**
2.	**Check harness.**
3.	**Check harness.**

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY and INSPECTION MODES. <Ref. to [T3D0] and [T3E0].>

WIRING DIAGRAM:

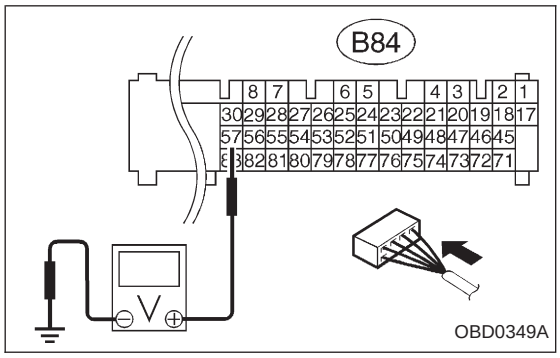


1	CHECK SPEEDOMETER OPERATION IN COMBINATION METER.

CHECK ***: Check normal operation of speedometer.***

NO : Check speedometer and vehicle speed sensor <Ref. to 6-2 [K3A0].>.

YES : Go to step 2.



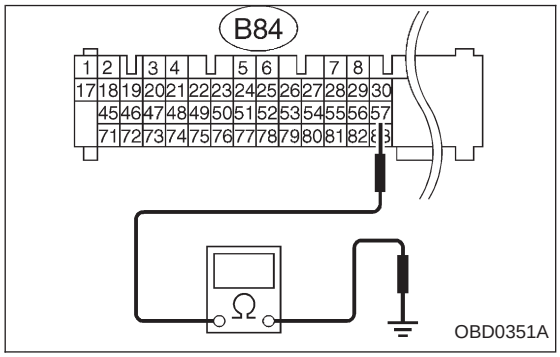
2	CHECK HARNESS.

1) Turn ignition switch to OFF.
2) Disconnect connector from TCM.
3) Turn ignition switch to ON.
4) Measure voltage between ECM and body.

CHECK ***: Connector & terminal***
(B84) No. 57 — Body / 2 V, or more

YES : Check the following and repair if necessary.
- Open circuit of harness between ECM connector 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 3.



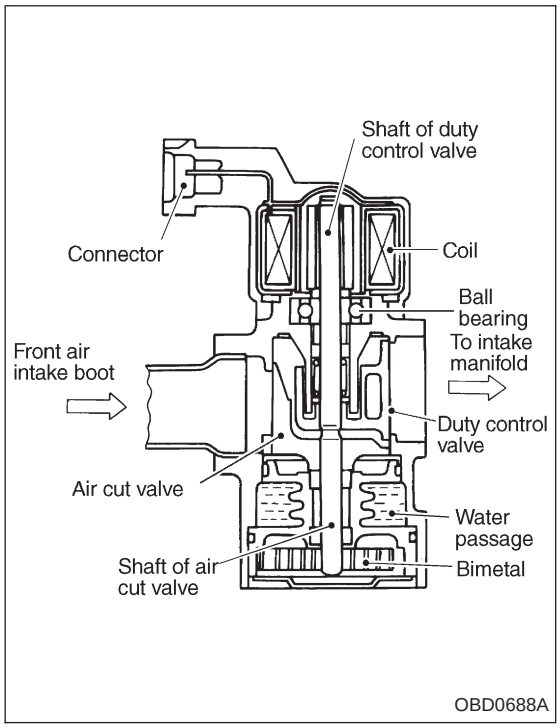
3	CHECK HARNESS.

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

CHECK ***: Connector & terminal***
(B84) No. 57 — Body / 10 Ω, or less

YES : Repair short circuit of harness between ECM connector and combination meter connector.

NO : Repair poor contact in ECM connector.



AH: DTC P0505 — IDLE CONTROL SYSTEM MALFUNCTION (ISC) —

DESCRIPTION:

- Idle air control solenoid valve consists of an air cut valve, duty control valve, intake air passage and a coolant passage.
- Air cut valve contains a bimetallic substance which responds to coolant temperature, and a duty control valve which is operated by a signal sent from ECM.
- When engine coolant temperature is low, air cut valve is fully opened by the action of the bimetallic substance so that the air flow required for low engine coolant temperatures is maintained.
- ECM controls duty control valve to bring the operating engine speed as close to preset idle speed as possible.

DTC DETECTING CONDITION:

- Immediately at fault recognition

TROUBLE SYMPTOM:

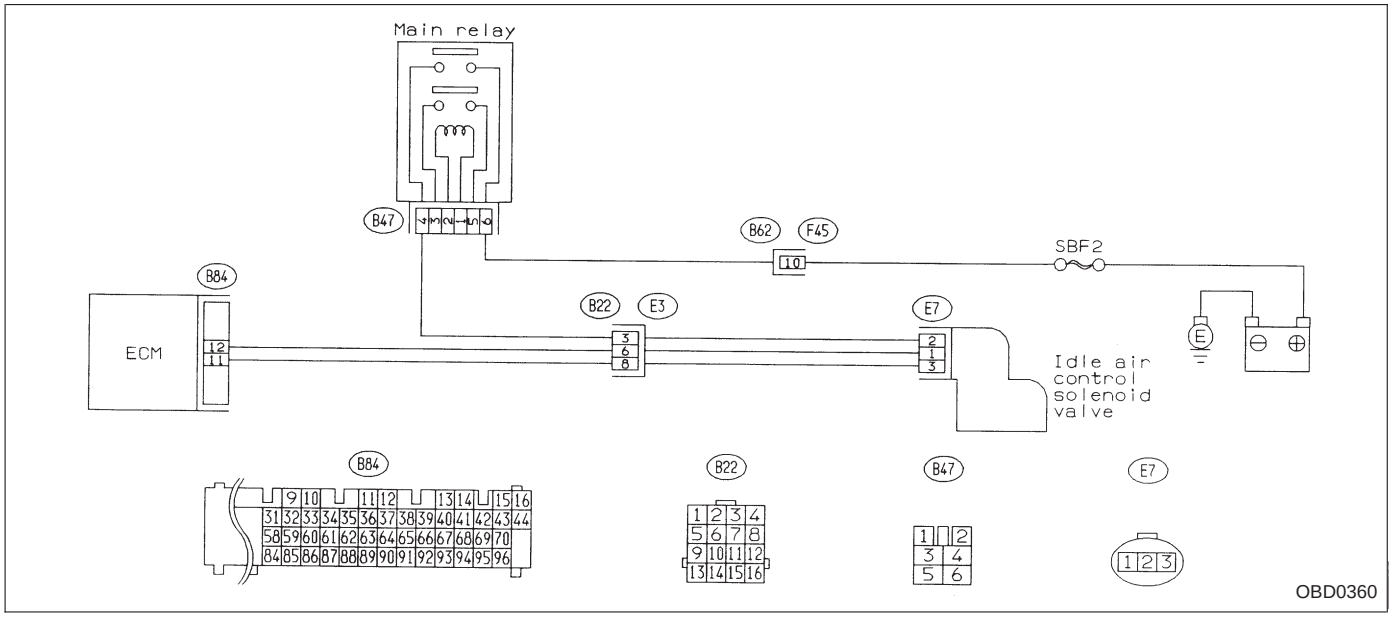
- Erroneous idling
- Engine stalls.
- Engine breathing

1.	Check air intake system.
2.	Check output signal from ECM.
3.	Check idle air control solenoid valve.
4.	Check power supply to idle air control solenoid valve.
5.	Check harness connector between ECM and idle air control solenoid valve.

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY and INSPECTION MODES. <Ref. to [T3D0] and [T3E0].>

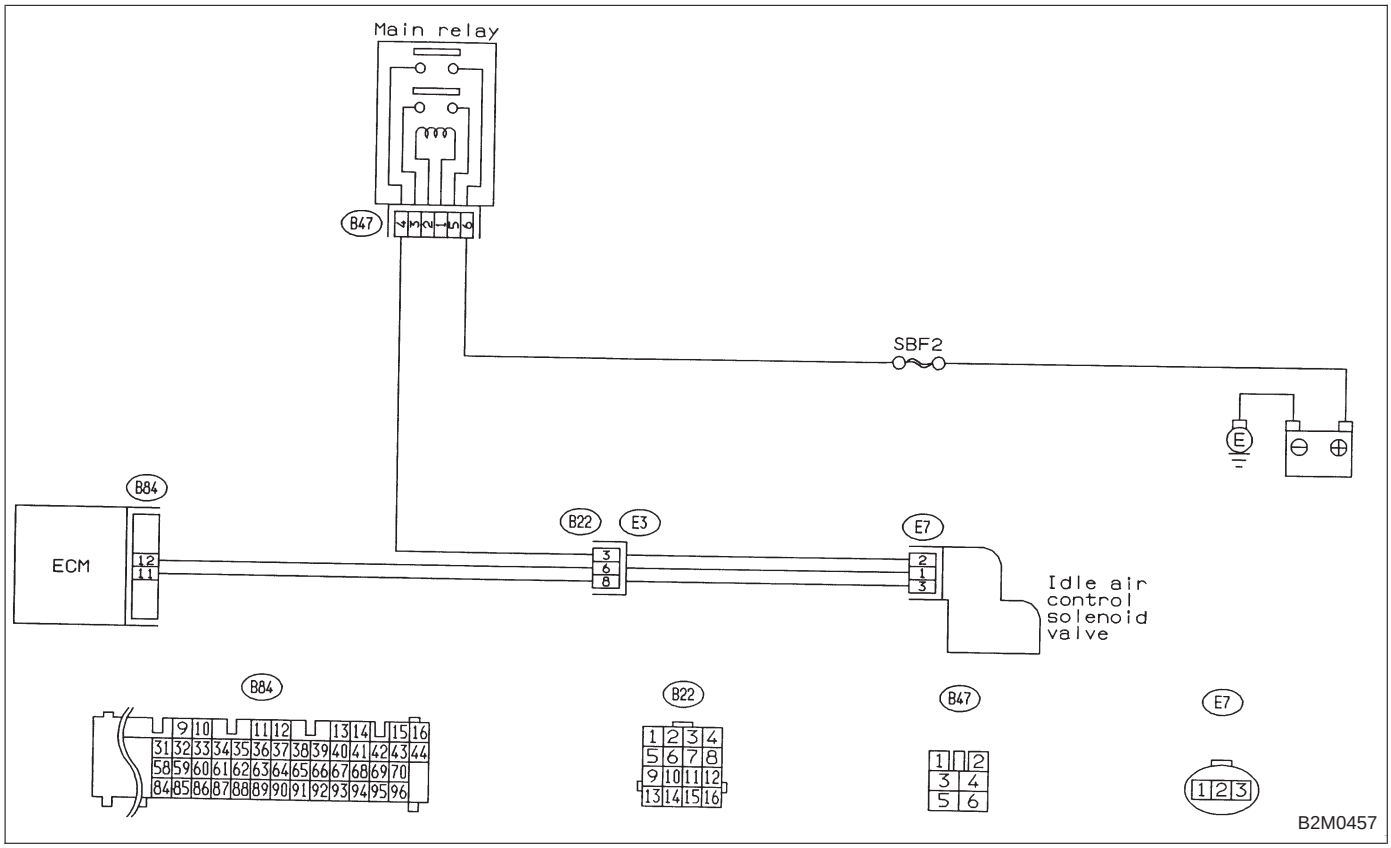
WIRING DIAGRAM:

- **LHD model**



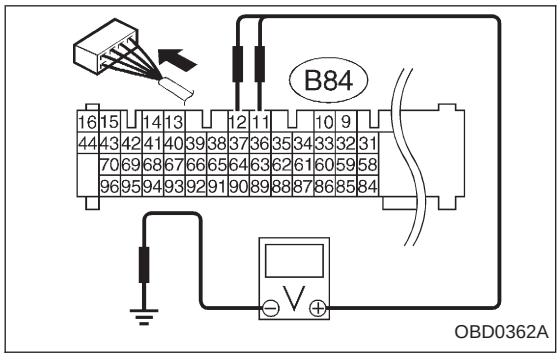
WIRING DIAGRAM:

- **RHD model**



1	CHECK AIR INTAKE SYSTEM.

1) Turn ignition switch to ON.
2) Start engine, and idle it.
3) Check intake manifold, idle air control solenoid valve and throttle body for loose installation and gasket for cracks.
4) Check by-pass hoses for loose connections and cracks.
5) Check vacuum hoses for disconnections.



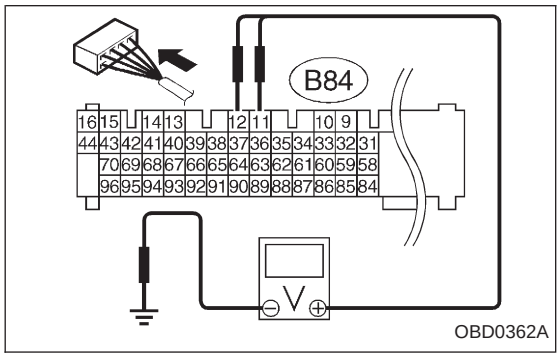
2	CHECK OUTPUT SIGNAL FROM ECM.

1) Turn ignition switch to ON.
2) Measure voltage between ECM and body.

CHECK ***: Connector & terminal***
(B84) No. 11 — Body / 3 V, or more
(B84) No. 12 — Body / 3 V, or more

NO : Go to step 4.

YES : Go to the next step.



3) Turn ignition switch to OFF.
4) Disconnect connector from idle air control solenoid valve.
5) Turn ignition switch to ON.
6) Measure voltage between ECM and body.

CHECK ***: Connector & terminal***
(B84) No. 11 — Body / 10 V, or more
(B84) No. 12 — Body / 10 V, or more

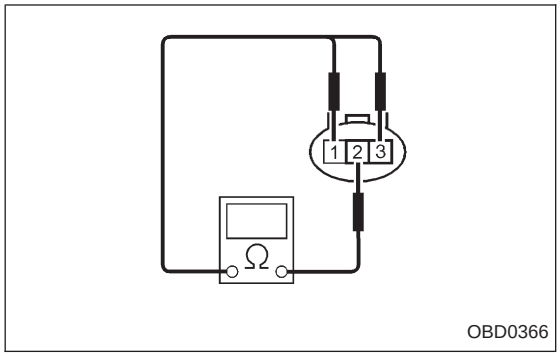
YES : Repair short circuit of harness and replace ECM.

NO : Go to next CHECK .

CHECK ***: Is there poor contact in ECM connector?***

YES : Repair poor contact in ECM connector.

NO : Go to step 3.



OBD0366

3	CHECK IDLE AIR CONTROL SOLENOID VALVE.

1) Turn ignition switch to OFF.
2) Measure resistance between solenoid valve terminals.

CHECK : ***Terminals***
No. 1 — No. 2 / 20 Ω, or more
No. 2 — No. 3 / 20 Ω, or more

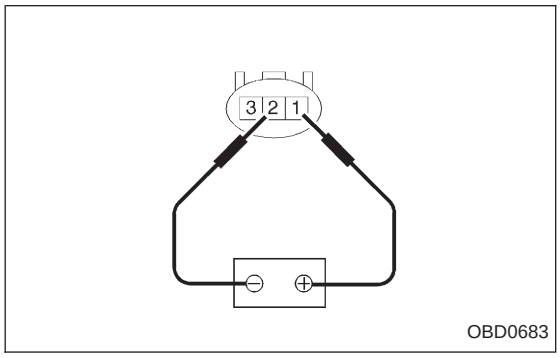
YES : Replace idle air control solenoid valve.

NO : Go to next CHECK .

CHECK : ***Terminals***
No. 1 — No. 2 / 5 Ω, or less
No. 2 — No. 3 / 5 Ω, or less

YES : Replace idle air control solenoid valve and ECM.

NO : Go to next step.



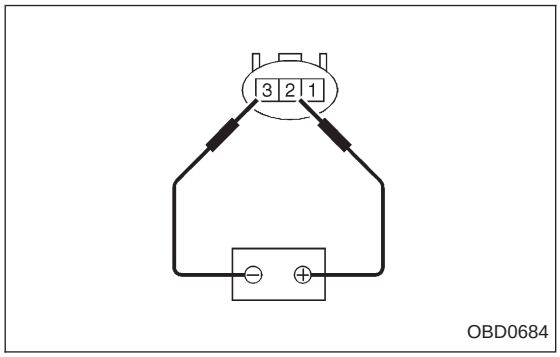
OBD0683

3) Remove idle air control solenoid valve. <Ref. to 2-7 [W12A0].>
4) Check operation of idle air control solenoid valve.

CHECK : ***When connecting the battery to terminals No. 1 and No. 2 of idle air control solenoid valve, check if it is fully opened.***

YES : Go to next CHECK .

NO : Clean idle air control solenoid valve. <Ref. to 2-7 [W12B0].>

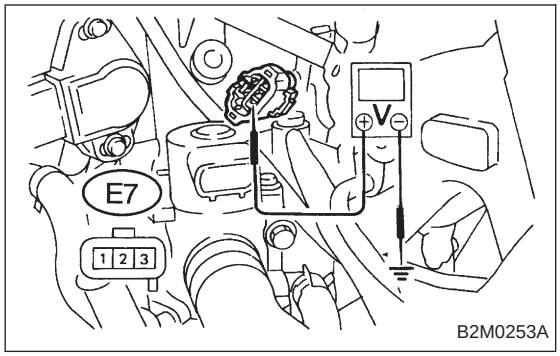


OBD0684

CHECK : ***When connecting the battery to terminals No. 3 and No. 2 of idle air control solenoid valve, check if it is fully closed.***

YES : Go to step 4.

NO : Clean idle air control solenoid valve. <Ref. to 2-7 [W12B0].>



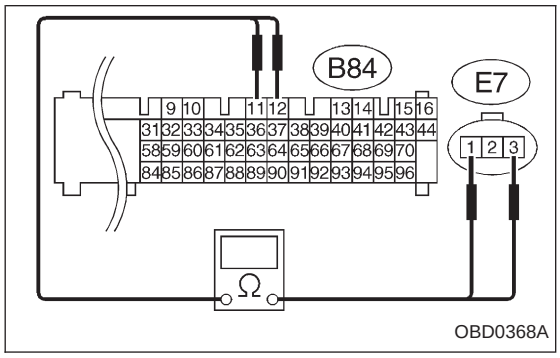
4	CHECK POWER SUPPLY TO IDLE AIR CONTROL SOLENOID VALVE.

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 body.

CHECK : ***Connector & terminal***
(E7) No. 2 — Body / 10 V, or more

YES : Go to step 5.

NO : Repair open circuit of harness between idle air control solenoid valve connector and ECM connector.



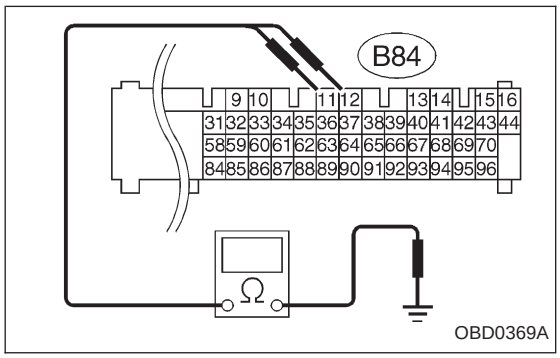
5	CHECK HARNESS CONNECTOR BETWEEN ECM AND IDLE AIR CONTROL SOLENOID VALVE.

1) Turn ignition switch to OFF.
2) Disconnect connector from ECM.
3) Measure resistance of harness connector between ECM and idle air control solenoid valve.

CHECK : ***Connector & terminal***
(B84) No. 11 — (E7) No. 3 / 10 Ω, or less
(B84) No. 12 — (E7) No. 1 / 10 Ω, or less

NO : Repair open circuit of harness between ECM connector and idle air control solenoid valve connector.

YES : Go to the next step.



4) Measure resistance of harness connector between ECM and body to make sure that circuit does not short.

CHECK : ***Connector & terminal***
(B84) No. 11 — Body / 1 MΩ, or more
(B84) No. 12 — Body / 1 MΩ, or more

YES : Confirm good condition in connectors of idle air control solenoid valve circuit.

NO : Repair short circuit of harness between ECM connector and idle air control solenoid valve connector.

AI: DTC P0506 — IDLE CONTROL SYSTEM RPM LOWER THAN EXPECTED (ISC – L) —

DESCRIPTION:

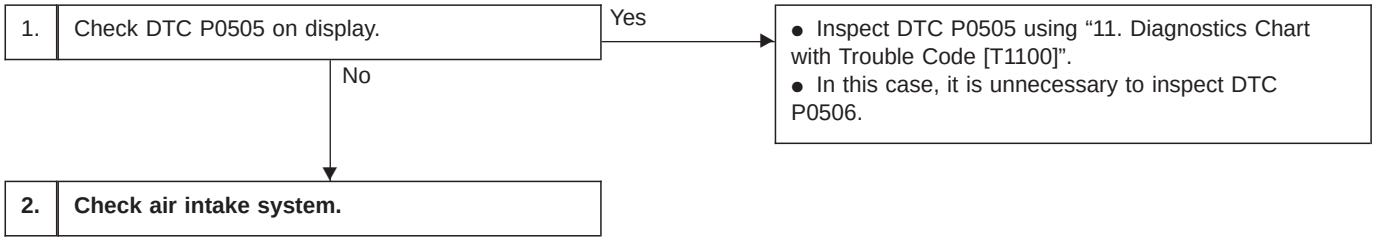
Refer to “AH: DTC P0505 — IDLE CONTROL SYSTEM MALFUNCTION — [T11AH0]”.

DTC DETECTING CONDITION:

- Two consecutive trips 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 and INSPECTION MODES. <Ref. to [T3D0] and [T3E0].>

2	CHECK AIR INTAKE SYSTEM.

1) Turn ignition switch to ON.
2) Start engine, and idle it.

CHECK ***: Is clogging the by-pass line between by-pass hose and intake duct?***

YES : Repair the by-pass line.

NO : Replace idle air control solenoid valve.

AJ: DTC P0507 — IDLE CONTROL SYSTEM RPM HIGHER THAN EXPECTED (ISC – H) —

DESCRIPTION:

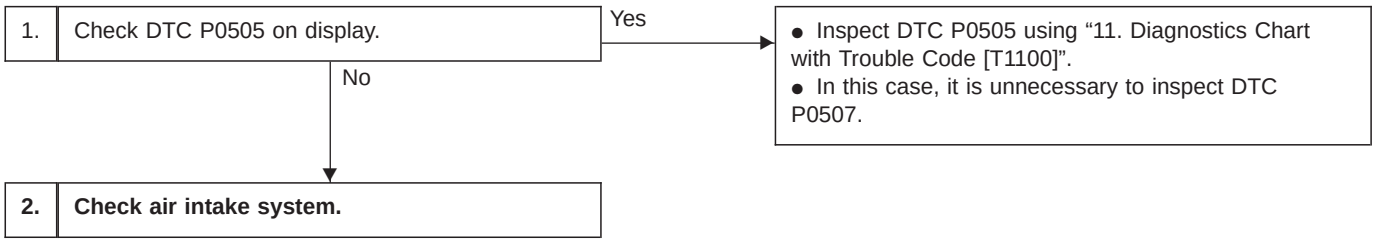
Refer to “AH: DTC P0505 — IDLE CONTROL SYSTEM MALFUNCTION — [T11AH0]”.

DTC DETECTING CONDITION:

- Two consecutive trips 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 and INSPECTION MODES. <Ref. to [T3D0] and [T3E0].>

2	CHECK AIR INTAKE SYSTEM.

1) Turn ignition switch to ON.
2) Start engine, and idle it.

CHECK : ● ***Check intake manifold, idle air control solenoid valve and throttle body for loose installation and gasket for cracks.***
● ***Check by-pass hose for loose connection and cracks.***
● ***Check vacuum hoses for disconnections.***

YES : Repair air suction and leaks.

NO : Replace idle air control solenoid valve.

AK: DTC P0600

— SERIAL COMMUNICATION LINK MALFUNCTION —

DESCRIPTION:

The serial communication link circuit monitors data communication between scan tool and ECM.

DTC DETECTING CONDITION:

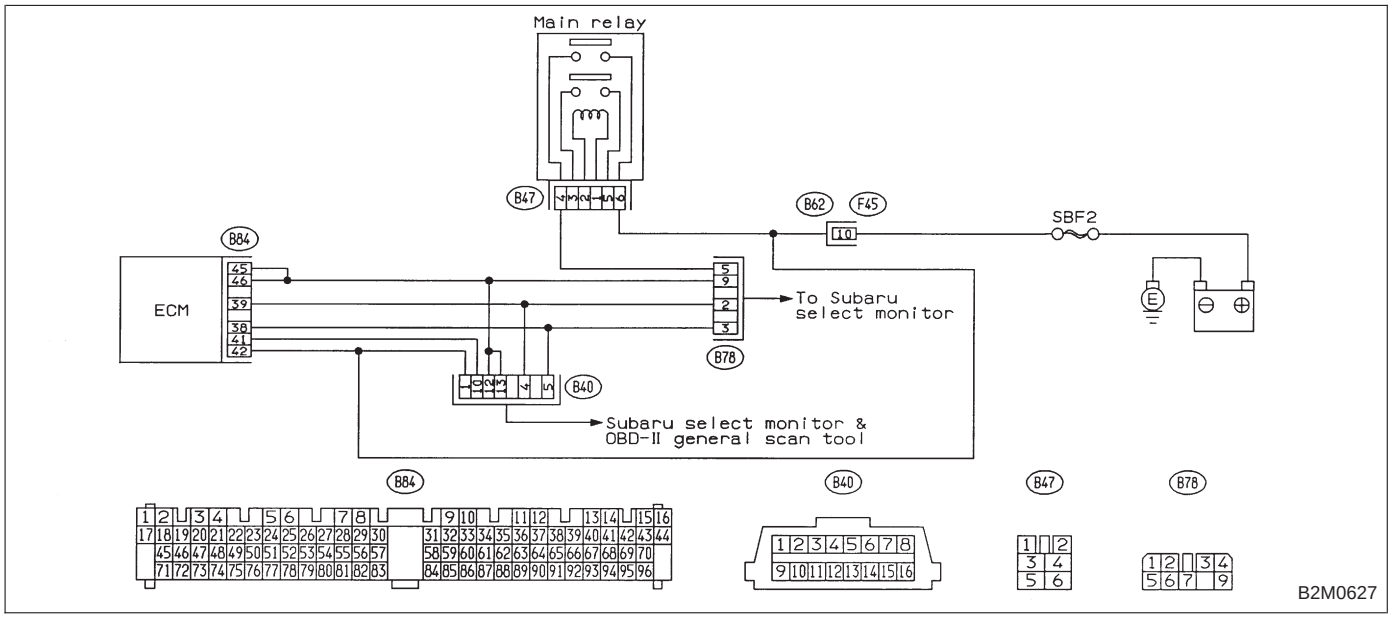
- Two consecutive trips with fault

1.	**Check harness.**

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY and INSPECTION MODES. <Ref. to [T3D0] and [T3E0].>

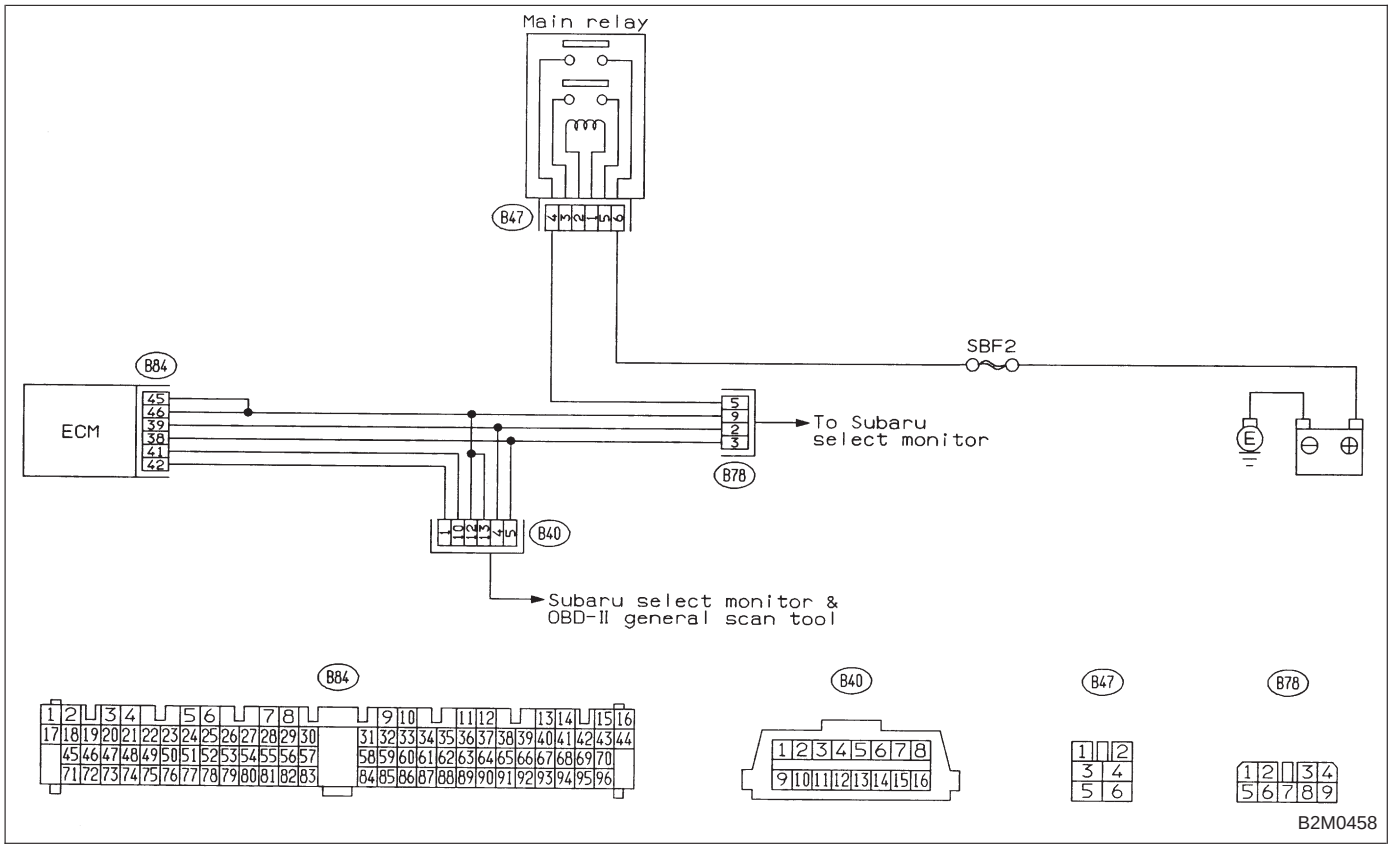
WIRING DIAGRAM:

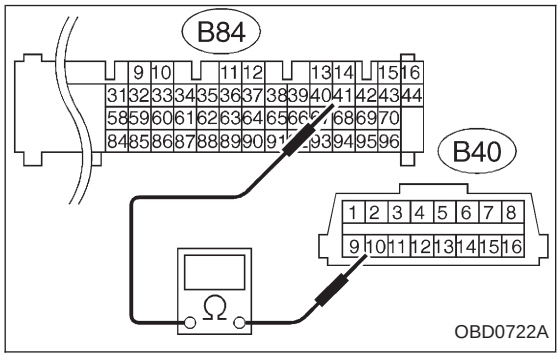
- **LHD model**



WIRING DIAGRAM:

- **RHD model**





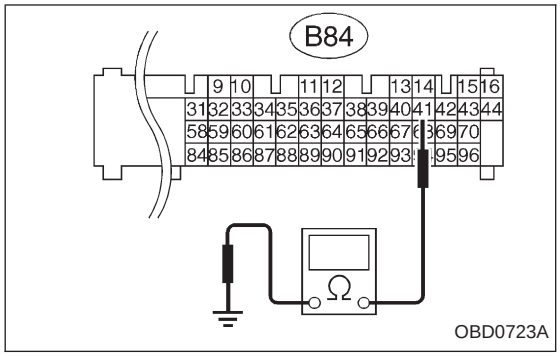
1	CHECK HARNESS.

1) Turn ignition switch to OFF.
2) Disconnect connector from ECM.
3) Measure resistance of harness connector between ECM and data link connector (for OBD-II general scan tool).

CHECK ***: Connector & terminal (B84) No. 41 — (B40) No. 10 / 10 Ω, or less***

NO : Repair open circuit of harness between ECM connector and data link connector.

YES : Go to the next step.



4) Measure resistance between ECM harness connector and body.

CHECK ***: Connector & terminal (B84) No. 41 — Body / 10 Ω, or less***

YES : Repair short circuit of harness between ECM connector and data link connector.

NO : Repair poor contact in ECM connector and data link connector.

AL: DTC P0601 — INTERNAL CONTROL MODULE MEMORY CHECK SUM ERROR (RAM) —

DESCRIPTION:

The RAM monitors the ECM microcomputer operation.

DTC DETECTING CONDITION:

- Two consecutive trips with fault

TROUBLE SYMPTOM:

- Engine does not start.
- Engine stalls.

1.	**Check DTC P0601 on display.**

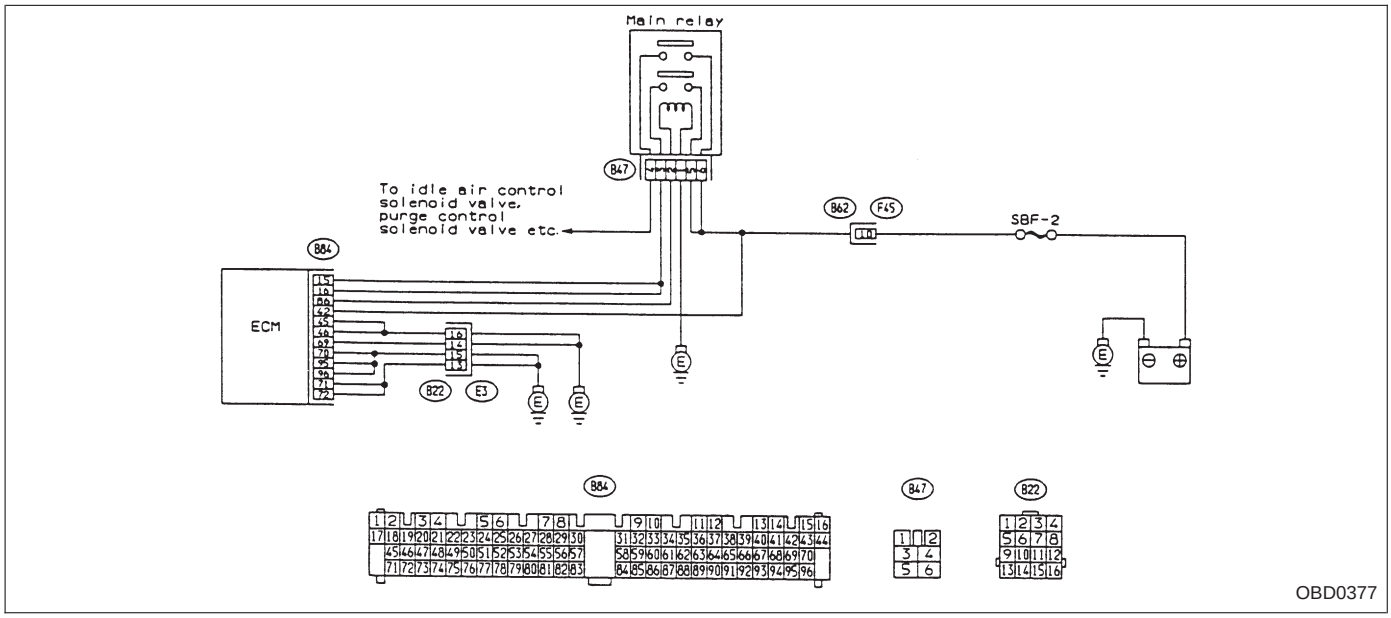
Yes

Replace ECM.

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY and INSPECTION MODES. <Ref. to [T3D0] and [T3E0].>

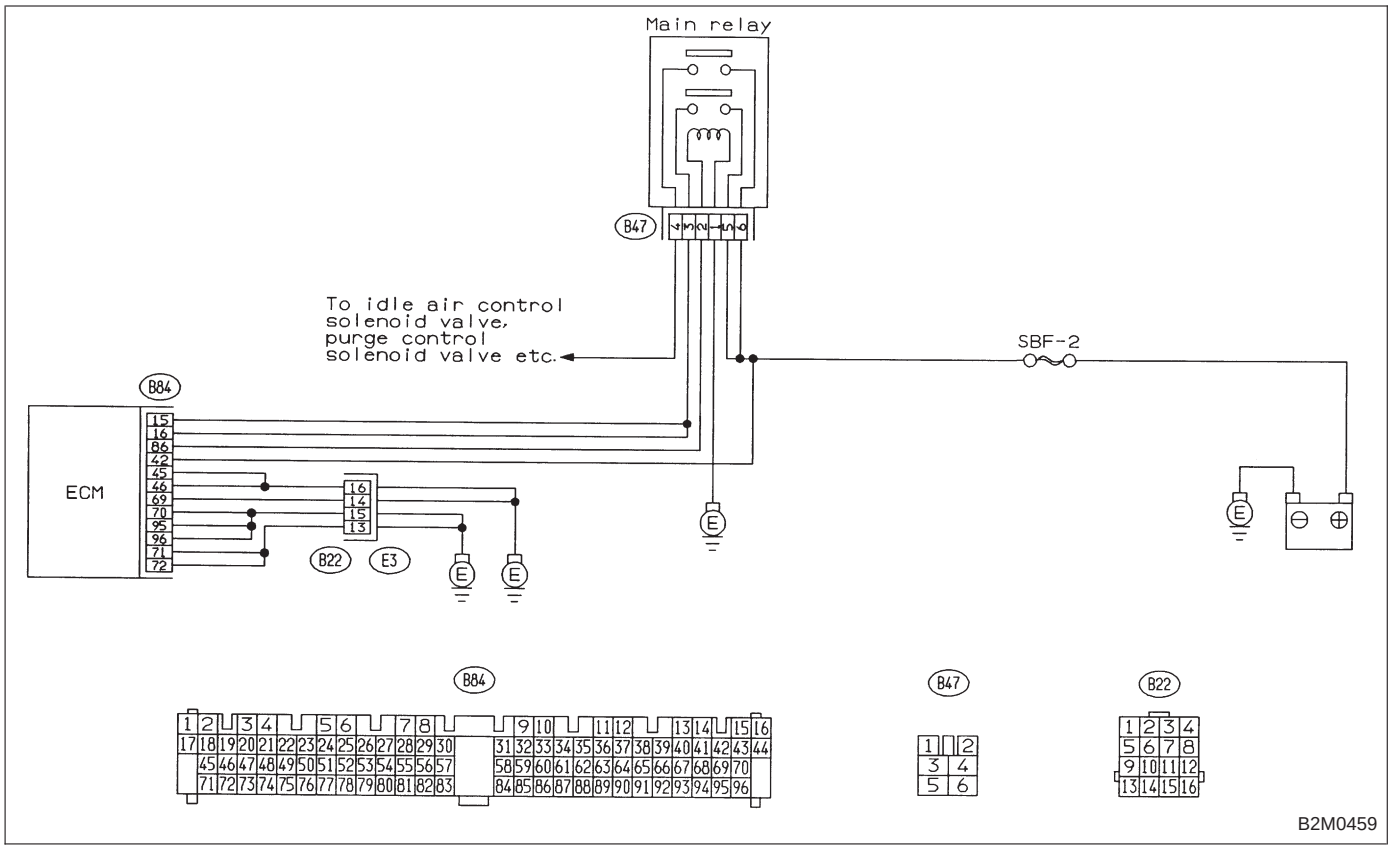
WIRING DIAGRAM:

- **LHD model**



WIRING DIAGRAM:

- **RHD model**



1	CHECK DTC P0601 ON DISPLAY.

CHECK : ***Check that DTC P0601 is indicated on Subaru Select Monitor or OBD-II general scan tool.***

YES : Replace ECM.

AM: DTC P0703 — BRAKE SWITCH INPUT MALFUNCTION (BRK) —

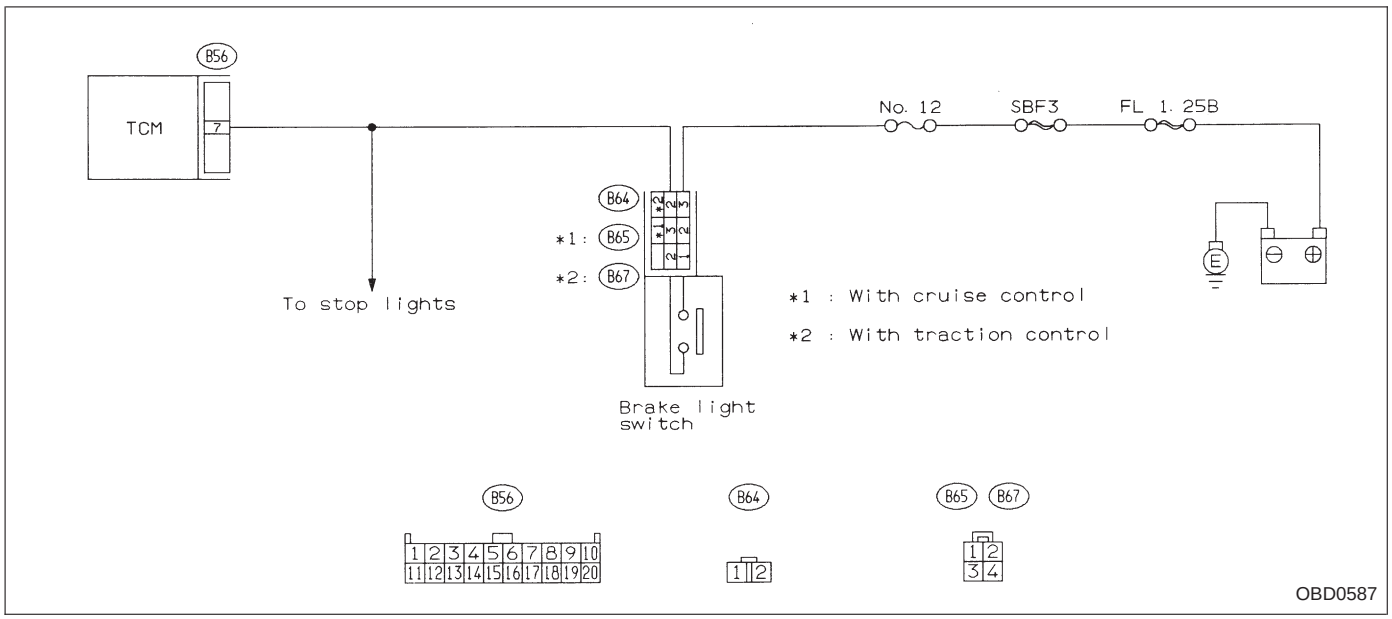
DTC DETECTING CONDITION:

- Two consecutive trips with fault

1.	**Check operation of brake light.**
2.	**Check harness connector between TCM and brake light switch.**
3.	**Check input signal for TCM.**

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY and INSPECTION MODES. <Ref. to [T3D0] and [T3E0].>

WIRING DIAGRAM:

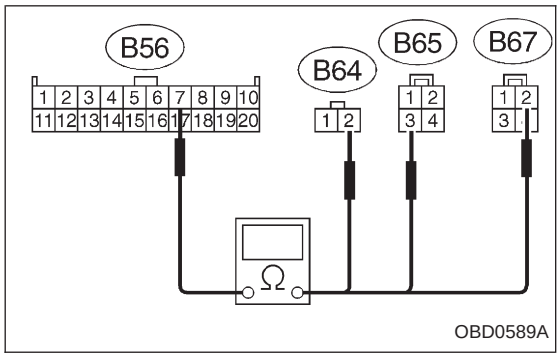


1	CHECK OPERATION OF BRAKE LIGHT.

CHECK ***: Depress brake pedal to ensure that brake light comes on.***

YES : Go to step 2.

NO : Repair or replace brake light circuit.



2	CHECK HARNESS CONNECTOR BETWEEN TCM AND BRAKE LIGHT SWITCH.

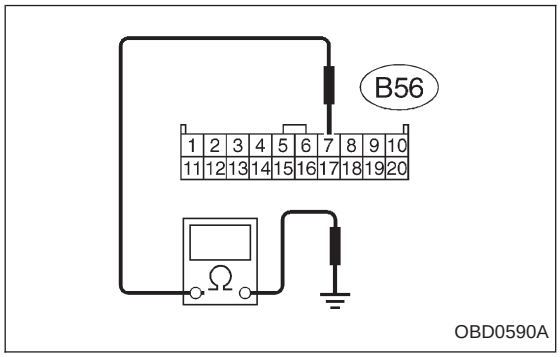
1) Disconnect connectors from TCM and brake light switch.
2) Measure resistance of harness connector between TCM and brake light switch.

CHECK ***: Connector & terminal***
(B56) No. 7 — (B64) No. 2 / 1 Ω, or less
(B56) No. 7 — (B65) No. 3 / 1 Ω, or less (With cruise control)
(B56) No. 7 — (B67) No. 2 / 1 Ω, or less (With traction control)

YES : Go to next step.

NO : Repair or replace harness and connector.

NOTE:
In this case, there is a possibility of open circuit in the harness between the brake light switch connector and TCM connector.

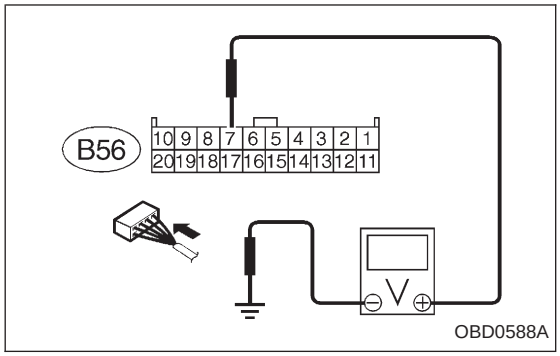


3) Measure resistance of harness connector between TCM and body.

CHECK ***: Connector & terminal***
(B56) No. 7 — Body / 1 MΩ, or more

YES : Go to step 3.

NO : Repair short circuit of harness between TCM connector and body.



3	CHECK INPUT SIGNAL FOR TCM.

1) Connect connectors to TCM and brake light switch.
2) Measure voltage between TCM and body.

CHECK ***: Connector & terminal***
(B56) No. 7 — Body / 1 V, or less [When release the brake pedal.]
(B56) No. 7 — Body / 10 V, or more [When depress the brake pedal.]

YES : Go to next CHECK .

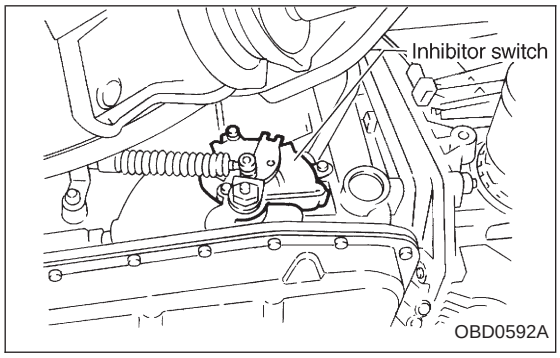
NO : Adjust or replace brake light switch.

CHECK ***: Is there poor contact in TCM connector?***

YES : Repair poor contact in TCM connector.

NO : Replace TCM with a new one.

AN: DTC P0705 — TRANSMISSION RANGE SENSOR CIRCUIT MALFUNCTION (RNG) —



DESCRIPTION:

- The inhibitor switch assures safety when starting the engine. This switch is mounted on the right side of the transmission case, and is operated by the range selector lever.
- When the selector lever is set to “P” or “N”, the electrical circuit is connected in the inhibitor switch and the starter circuit is energized for cracking the engine.
- When the selector lever is set to “R”, “D”, “3”, “2”, or “1” range, the electrical circuit is disconnected in the inhibitor switch. Hence engine cranking is disabled. In the “R” range, the back-up light circuit is completed in the switch, and the back-up lights come on.

DTC DETECTING CONDITION:

- Two consecutive trips with fault

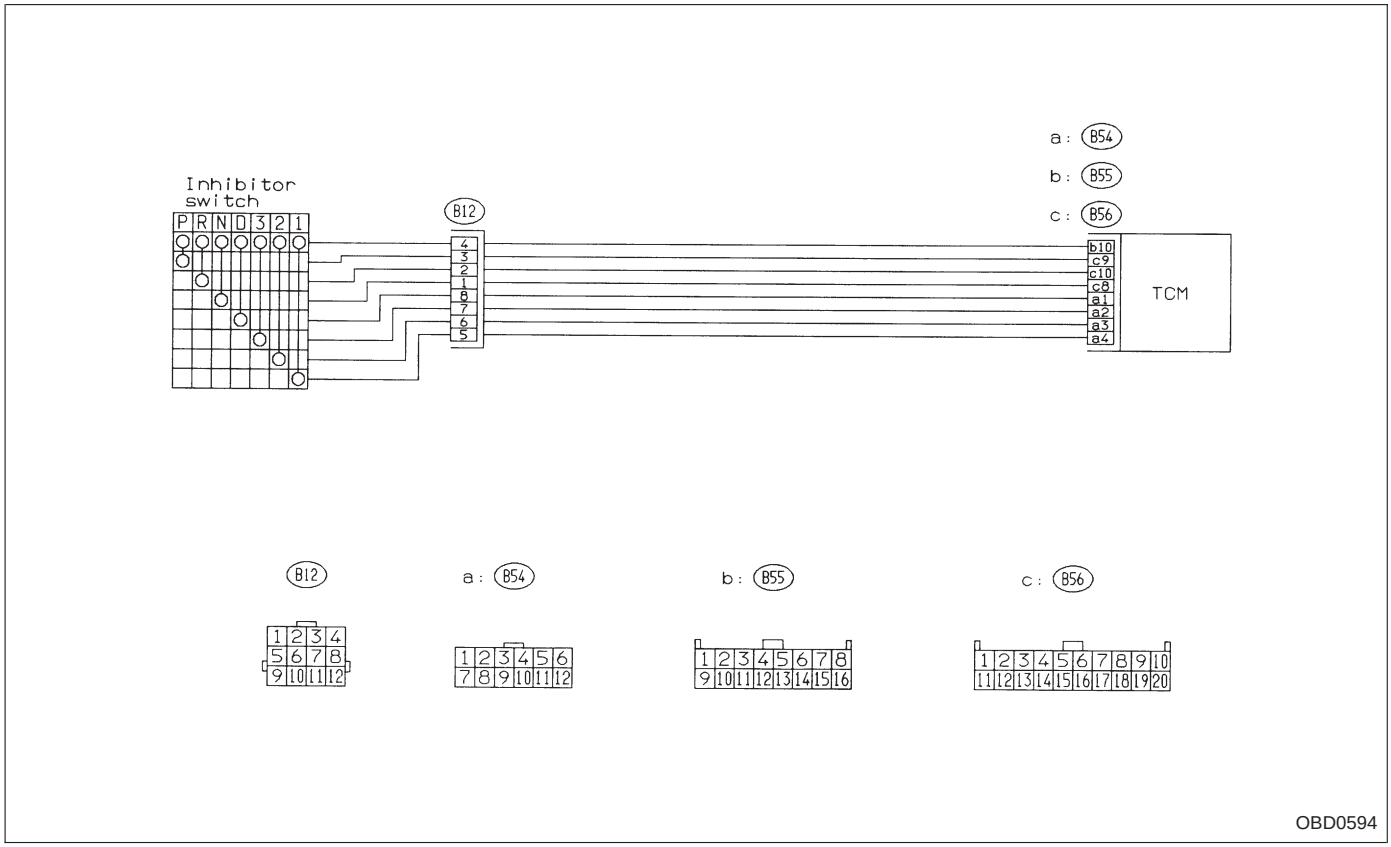
TROUBLE SYMPTOM:

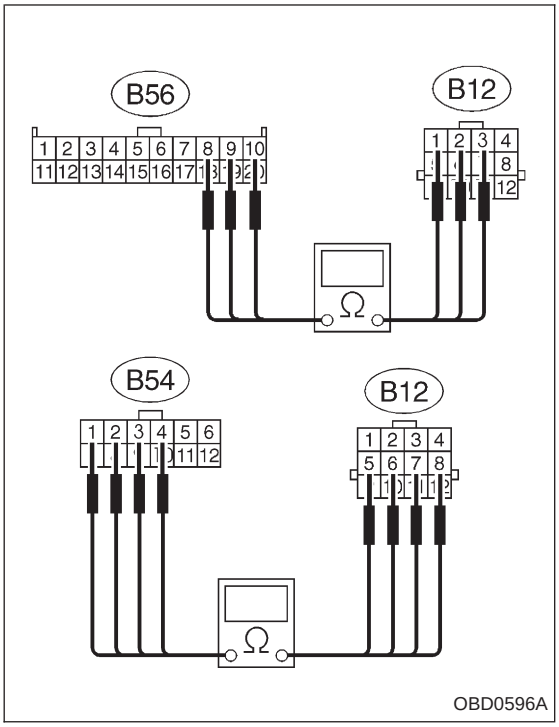
- Starter does not rotate when selector lever is in “P” or “N” range.
- Starter rotates when selector lever is in “R”, “D”, “3”, “2” or “1” range.
- Engine brake is not effected when selector lever is in “3” range.
- Shift characteristics are erroneous.

1.	Check harness connector between TCM and inhibitor switch.
2.	Check inhibitor switch.
3.	Check input signal for TCM.

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY and INSPECTION MODES. <Ref. to [T3D0] and [T3E0].>

WIRING DIAGRAM:





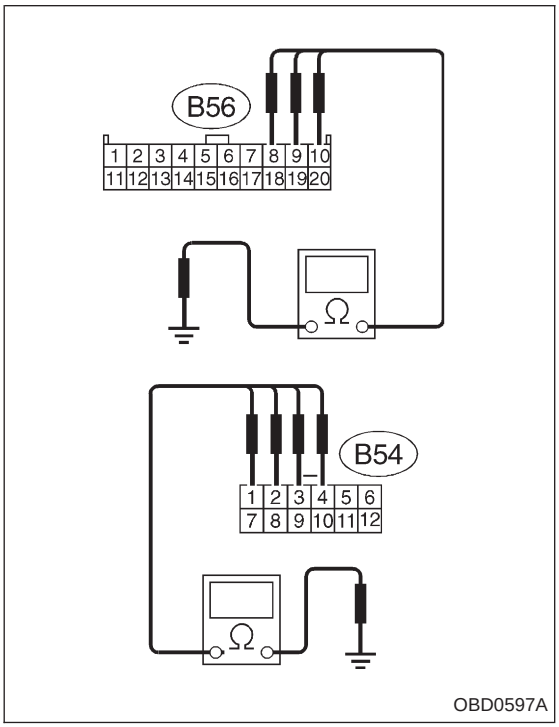
1	CHECK HARNESS CONNECTOR BETWEEN TCM AND INHIBITOR SWITCH.

1) Turn ignition switch to OFF.
2) Disconnect connectors from TCM and transmission.
3) Measure resistance of harness connector between TCM and transmission.

CHECK : ***Connector & terminal***
(B56) No. 9 — (B12) No. 3 / 1 Ω, or less
(B56) No. 10 — (B12) No. 2 / 1 Ω, or less
(B56) No. 8 — (B12) No. 1 / 1 Ω, or less
(B54) No. 1 — (B12) No. 8 / 1 Ω, or less
(B54) No. 2 — (B12) No. 7 / 1 Ω, or less
(B54) No. 3 — (B12) No. 6 / 1 Ω, or less
(B54) No. 4 — (B12) No. 5 / 1 Ω, or less

NO : Repair open circuit of harness between TCM and transmission.

YES : Go to next step.

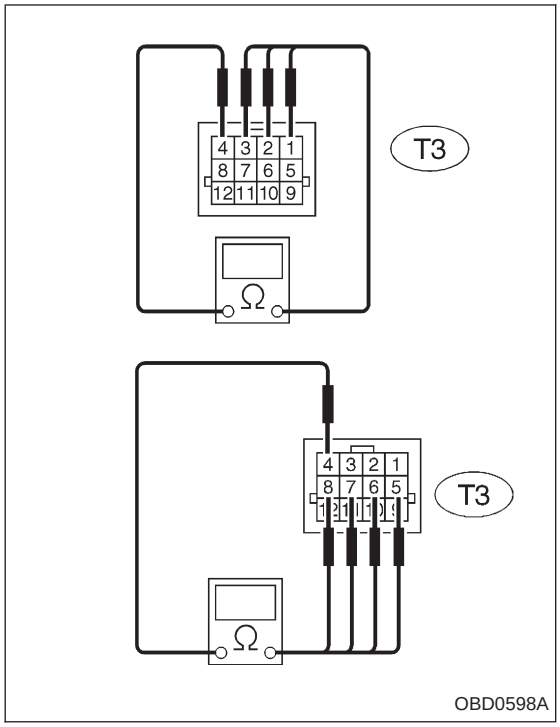


4) Measure resistance of harness connector between TCM and body.

CHECK : ***Connector & terminal***
(B56) No. 9 — Body / 1 MΩ, or more
(B56) No. 10 — Body / 1 MΩ, or more
(B56) No. 8 — Body / 1 MΩ, or more
(B54) No. 1 — Body / 1 MΩ, or more
(B54) No. 2 — Body / 1 MΩ, or more
(B54) No. 3 — Body / 1 MΩ, or more
(B54) No. 4 — Body / 1 MΩ, or more

YES : Go to step 2.

NO : Repair short circuit of harness between TCM and body.

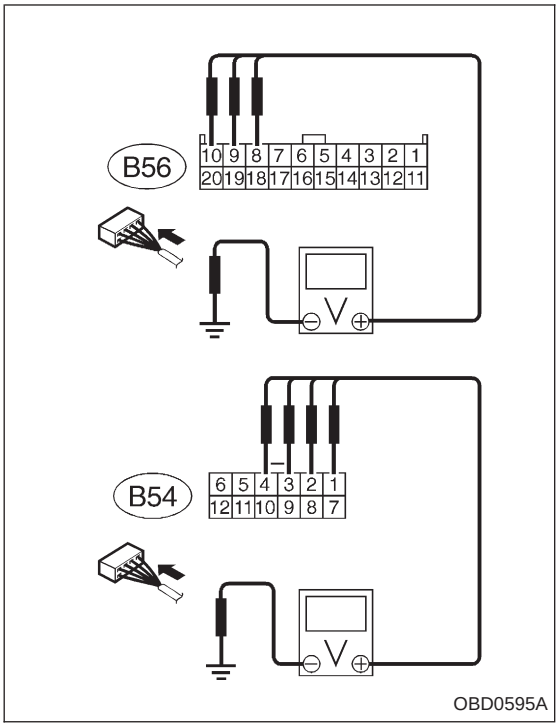


2	CHECK INHIBITOR SWITCH.

Measure resistance between transmission connector receptacle's terminals.

CHECK ***: Connector & terminal***
(T3) No. 3 — No. 4 / 1 Ω, or less ("P" position)
(T3) No. 3 — No. 4 / 1 MΩ, or more (Other positions)
(T3) No. 2 — No. 4 / 1 Ω, or less ("R" position)
(T3) No. 2 — No. 4 / 1 MΩ, or more (Other positions)
(T3) No. 1 — No. 4 / 1 Ω, or less ("N" position)
(T3) No. 1 — No. 4 / 1 MΩ, or more (Other positions)
(T3) No. 8 — No. 4 / 1 Ω, or less ("D" position)
(T3) No. 8 — No. 4 / 1 MΩ, or more (Other positions)
(T3) No. 7 — No. 4 / 1 Ω, or less ("3" position)
(T3) No. 7 — No. 4 / 1 MΩ, or more (Other positions)
(T3) No. 6 — No. 4 / 1 Ω, or less ("2" position)
(T3) No. 6 — No. 4 / 1 MΩ, or more (Other positions)
(T3) No. 5 — No. 4 / 1 Ω, or less ("1" position)
(T3) No. 5 — No. 4 / 1 MΩ, or more (Other positions)

YES : Go to step 3.
NO : Go to next CHECK .
CHECK ***: Is there faulty connection in the selector cable?***
YES : Repair connection of selector cable.
NO : Replace inhibitor switch.



3	CHECK INPUT SIGNAL FOR TCM.

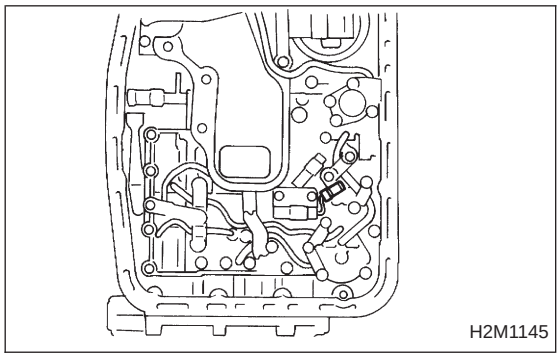
1) Turn ignition switch to OFF.
2) Connect connector to TCM and transmission.
3) Turn ignition switch to ON.
4) Measure voltage between TCM and body.

CHECK ***: Connector & terminal***
(B56) No. 9 — Body / 1 V, or less (“P” and “N” positions)
(B56) No. 9 — Body / 8 V, or more (Other positions)
(B56) No. 10 — Body / 1 V, or less (“R” position)
(B56) No. 10 — Body / 6 V, or more (Other positions)
(B56) No. 8 — Body / 1 V, or less (“N” and “P” positions)
(B56) No. 8 — Body / 8 V, or more (Other positions)
(B54) No. 1 — Body / 1 V, or less (“D” position)
(B54) No. 1 — Body / 6 V, or more (Other positions)
(B54) No. 2 — Body / 1 V, or less (“3” position)
(B54) No. 2 — Body / 6 V, or more (Other positions)
(B54) No. 3 — Body / 1 V, or less (“2” position)
(B54) No. 3 — Body / 6 V, or more (Other positions)
(B54) No. 4 — Body / 1 V, or less (“1” position)
(B54) No. 4 — Body / 6 V, or more (Other positions)

YES : Repair poor contact in TCM connector.
NO : Go to next CHECK .

CHECK ***: Is there poor contact in TCM connector?***
YES : Repair poor contact in TCM connector.
NO : Replace TCM with a new one.

AO: DTC P0710 — TRANSMISSION FLUID TEMPERATURE SENSOR CIRCUIT MALFUNCTION (ATF) —



DESCRIPTION:

This sensor is mounted to the control valve in the transmission. It detects temperature change as an analog electrical signal. The output characteristics of the sensor are shown in the illustration.

DTC DETECTING CONDITION:

- Two consecutive trips with fault

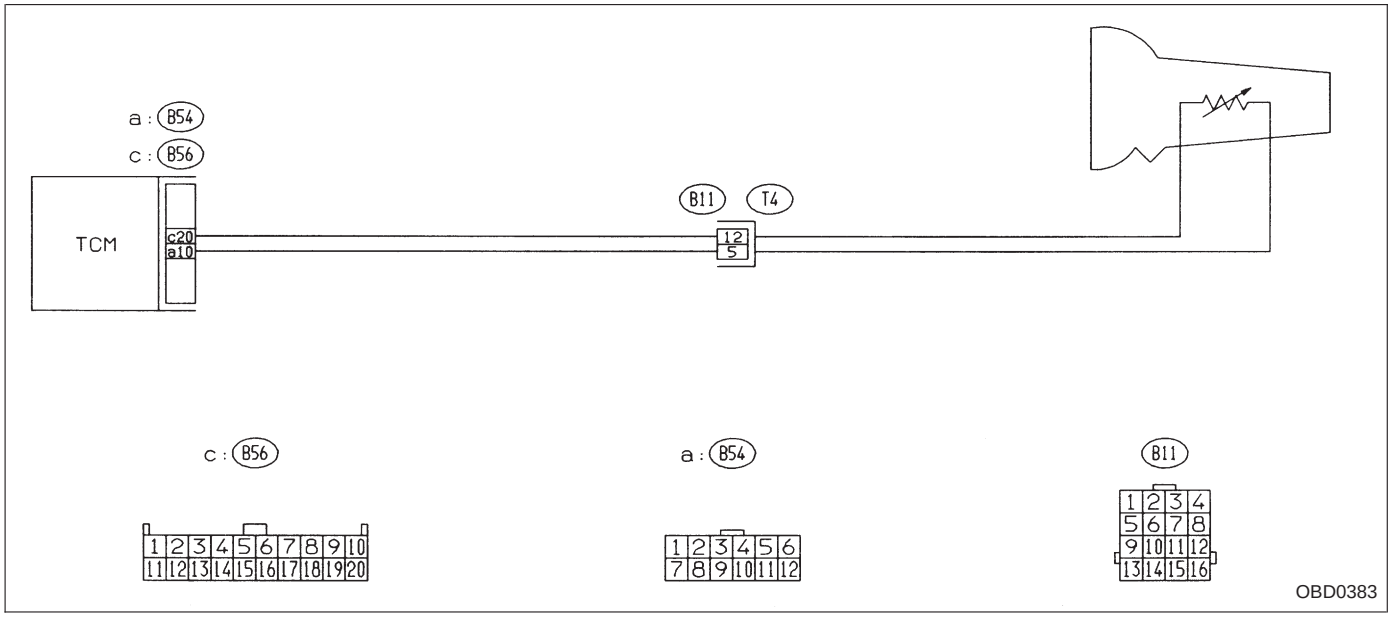
TROUBLE SYMPTOM:

- No shift up to 4th speed (after engine warm-up)
- No lock-up occurs. (after engine warm-up)
- Excessive shift shock

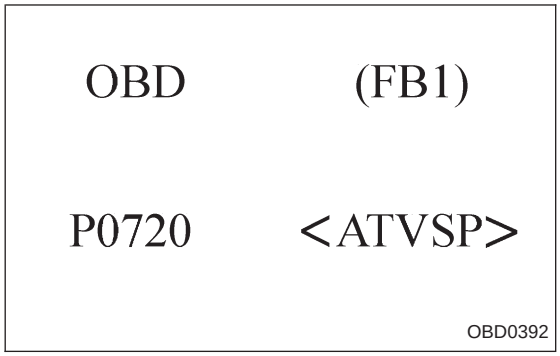
1.	**Check harness connector between TCM and ATF temperature sensor.**
2.	**Check ATF temperature sensor.**
3.	**Check input signal for TCM.**

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY and INSPECTION MODES. <Ref. to [T3D0] and [T3E0].>

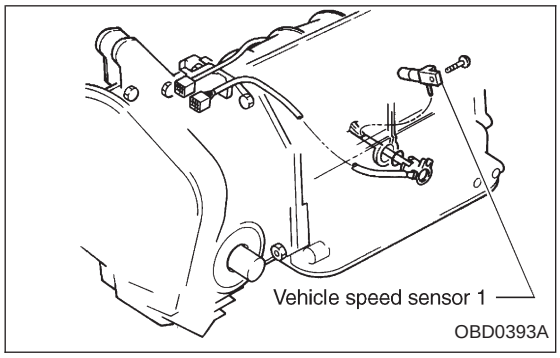
WIRING DIAGRAM:



NOTE:
For the diagnostic procedure on transmission fluid temperature sensor circuit, refer to “3-2 [T7G0]”.

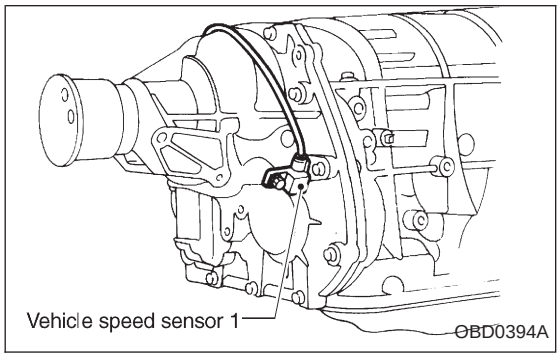


AP: DTC P0720 — OUTPUT SPEED SENSOR (VEHICLE SPEED SENSOR 1) CIRCUIT MALFUNCTION (ATVSP) —



DESCRIPTION:
[FWD model]

- The vehicle speed sensor 1 is mounted to the transmission case (at the rear side of the case). The sensor outputs a pulse signal which is transmission to the TCM where it is converted to vehicle speed.
- Vehicle speed sensor 1 on FWD model detects front-wheel speed.



[AWD]

- The vehicle speed sensor 1 (output shaft rotation sensor) is mounted to the extension case (from the outside of the case). The sensor outputs a pulse signal which is transmitted to the TCM where it is converted to vehicle speed.
- The transfer clutch drum is connected directly to the rear wheel driving propeller shaft. Vehicle speed sensor 1 on the AWD model defects rear-wheel speed.

DTC DETECTING CONDITION:

- Two consecutive trips with fault

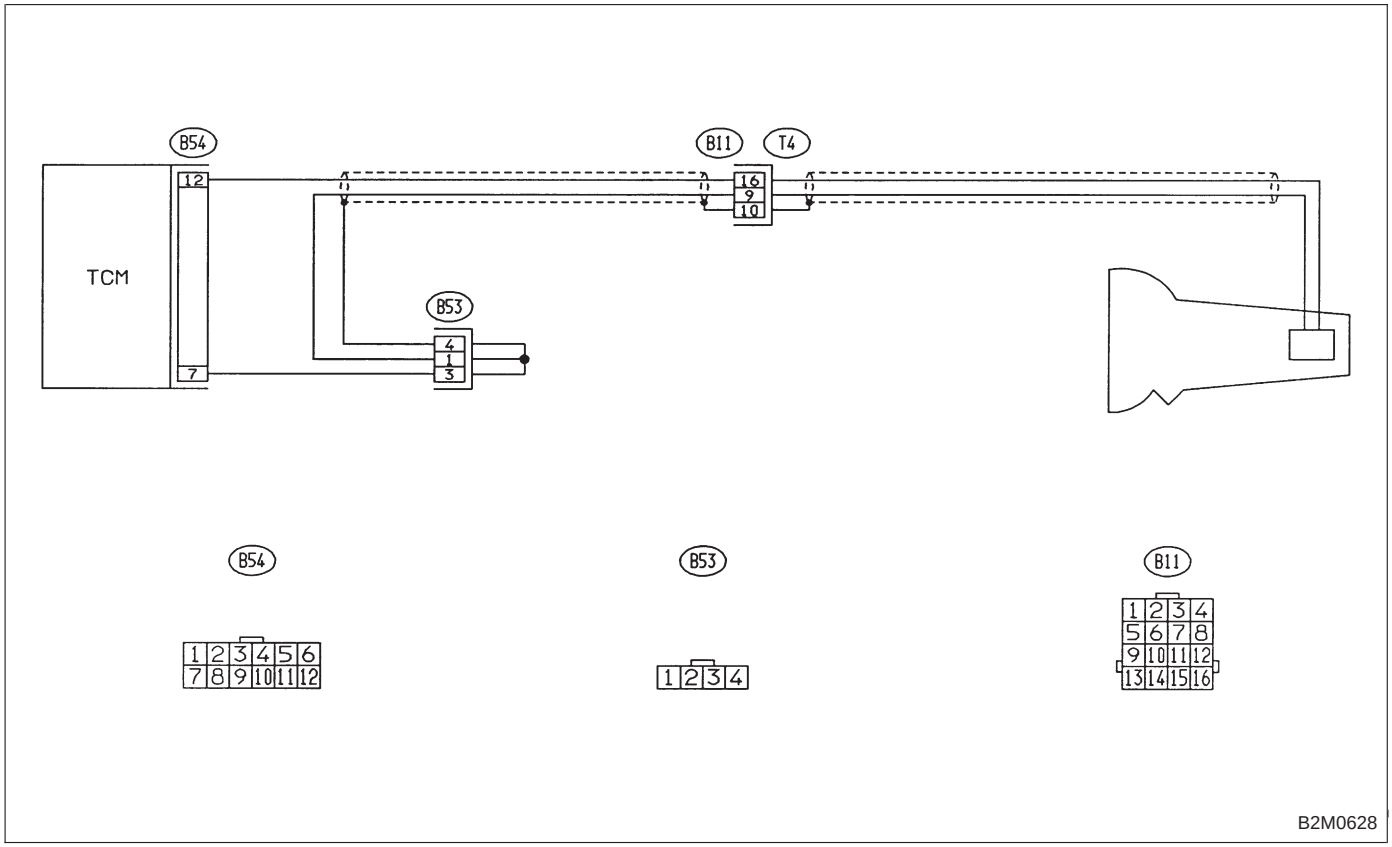
TROUBLE SYMPTOM:

- No shift or excessive tight corner “braking”

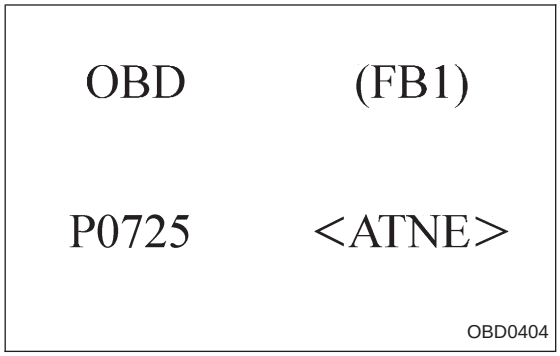
1.	**Check harness connector between TCM and vehicle speed sensor 1.**
2.	**Check vehicle speed sensor 1.**
3.	**Check input signal for TCM.**

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY and INSPECTION MODES. <Ref. to [T3D0] and [T3E0].>

WIRING DIAGRAM:



NOTE:
For the diagnostic procedure on vehicle speed sensor 1 circuit, refer to “3-2 [T7M0]”.



AQ: DTC P0725 — ENGINE SPEED INPUT CIRCUIT MALFUNCTION (ATNE) —

DESCRIPTION:

The engine speed signal is sent to TCM from ECM. This signal is used for lock-up clutch control and line pressure control.

DTC DETECTING CONDITION:

- Two consecutive trips with fault

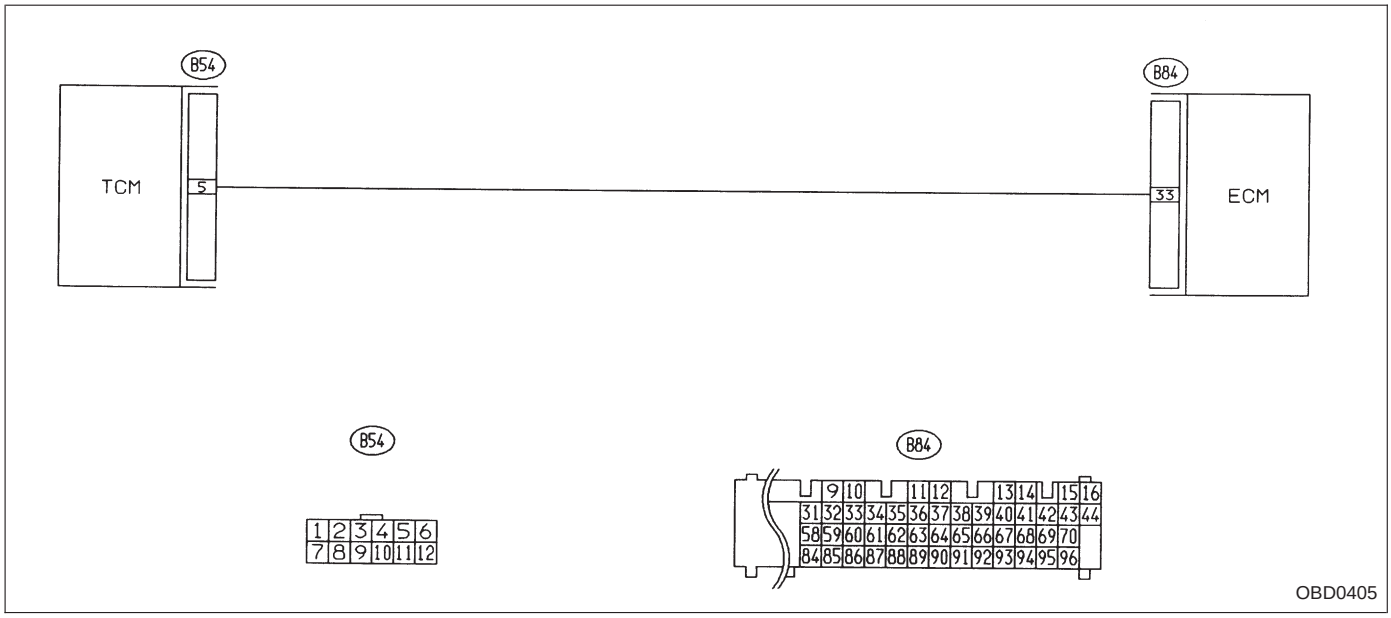
TROUBLE SYMPTOM:

- No lock-up occurs. (after engine warm-up)
- AT diagnostic indicator light (AT OIL TEMP indicator light) remains on when vehicle speed is “0”.

1.	**Check harness connector between TCM and ECM (MFI).**
2.	**Check input signal for TCM.**

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY and INSPECTION MODES. <Ref. to [T3D0] and [T3E0].>

WIRING DIAGRAM:



NOTE:
For the diagnostic procedure on engine speed input circuit, refer to “3-2 [T7I0]”.

AR: DTC P0731
— GEAR 1 INCORRECT RATIO (GR — 1) —

AS: DTC P0732
— GEAR 2 INCORRECT RATIO (GR — 2) —

AT: DTC P0733
— GEAR 3 INCORRECT RATIO (GR — 3) —

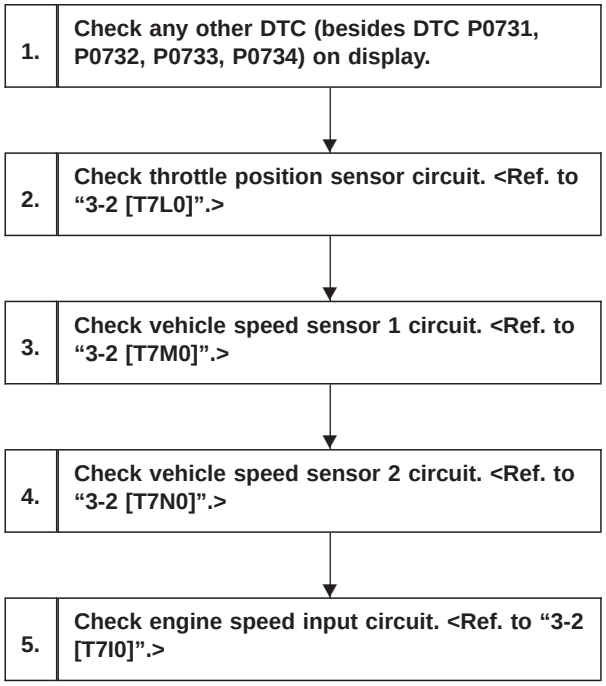
AU: DTC P0734
— GEAR 4 INCORRECT RATIO (GR — 4) —

DTC DETECTING CONDITION:

- Two consecutive trips with fault

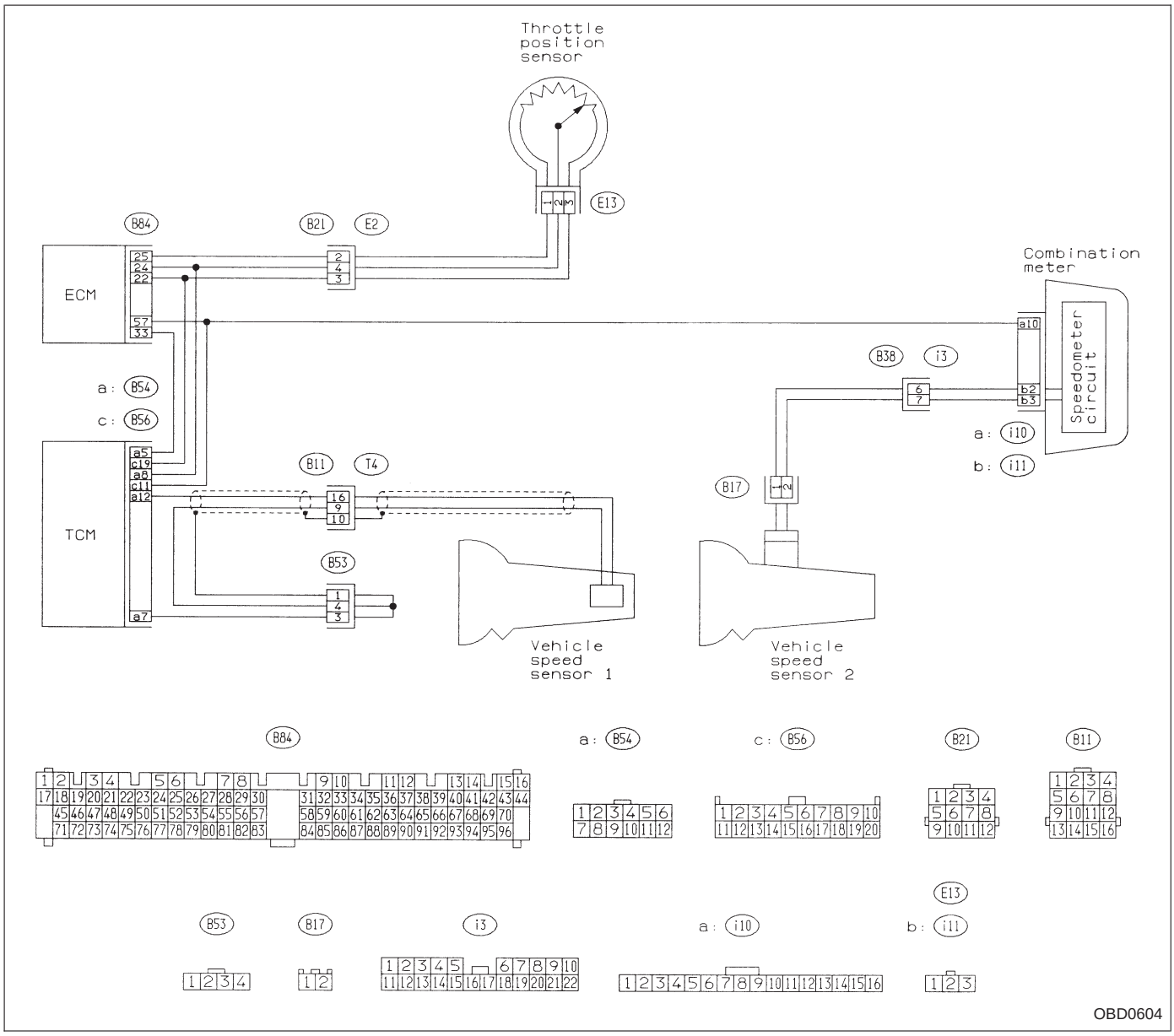
TROUBLE SYMPTOM:

- 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 and INSPECTION MODES. <Ref. to [T3D0] and [T3E0].>

WIRING DIAGRAM:



1	CHECK ANY OTHER DTC (BESIDES DTC P0731, P0732, P0733, P0734) ON DISPLAY.

CHECK ***: Is there any other DTC on display?***

YES : Inspect relevant DTC using “11. Diagnostics Chart with Trouble Code”.

NO : Go to step 2.

2	CHECK THROTTLE POSITION SENSOR CIRCUIT.

CHECK ***: Is there any trouble in throttle position sensor circuit?***

YES : Repair or replace throttle position sensor circuit.

NO : Go to step 3.

3	CHECK VEHICLE SPEED SENSOR 1 CIRCUIT.

CHECK ***: Is there any trouble in vehicle speed sensor 1 circuit?***

YES : Repair or replace vehicle speed sensor 1 circuit.

NO : Go to step 4.

4	CHECK VEHICLE SPEED SENSOR 2 CIRCUIT.

CHECK ***: Is there any trouble in vehicle speed sensor 2 circuit?***

YES : Repair or replace vehicle speed sensor 2 circuit.

NO : Go to step 5.

5	CHECK ENGINE SPEED INPUT CIRCUIT.

CHECK ***: Is there any trouble in engine speed input circuit?***

YES : Repair or replace engine speed input circuit.

NO : Go to next CHECK .

CHECK ***: Is there poor contact in TCM connector?***

YES : Repair poor contact in TCM connector.

NO : Go to next CHECK .

CHECK ***: Is there any mechanical trouble in automatic transmission?***

YES : Repair or replace automatic transmission.

NO : Replace TCM with a new one.

AV: DTC P0740 — TORQUE CONVERTER CLUTCH SYSTEM MALFUNCTION (LU – F) —

DESCRIPTION:

The lock-up engaging and disengaging conditions are set for each gear shift range, gear position and shift pattern and correspond to the throttle position and vehicle speed, and the duty solenoid is electronically controlled by TCM controls the lock-up clutch. The lock-up clutch engagement and disengagement are controlled by the lock-up control valve.

DTC DETECTING CONDITION:

- Two consecutive trips with fault

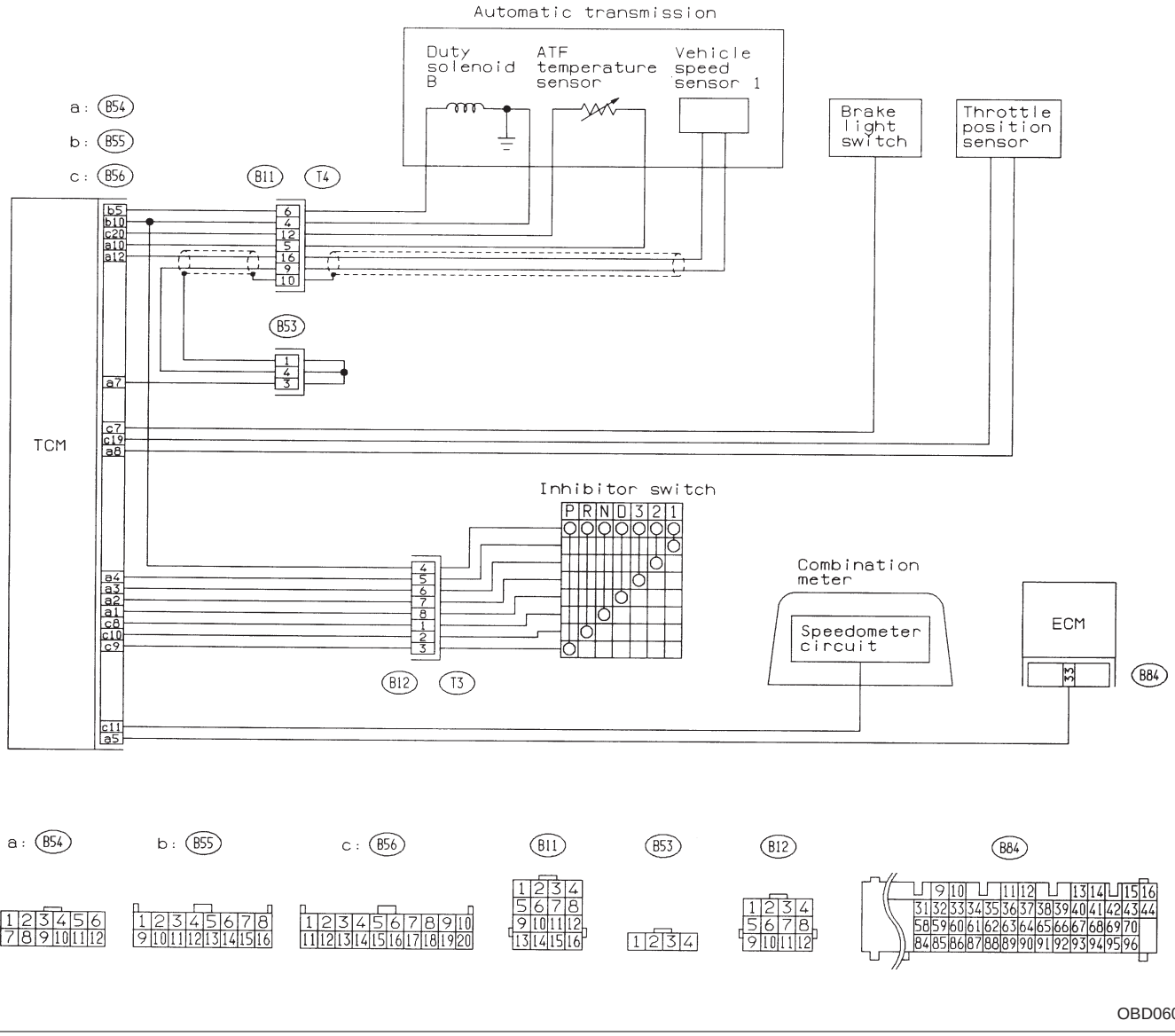
TROUBLE SYMPTOM:

- No lock-up occurs. (after engine warm-up)
- No shift or excessive tight corner “braking”

1.	Check any other DTC (besides DTC P0740) on display.
2.	Check duty solenoid B circuit. <Ref. to “3-2 [T7B0]”.>
3.	Check throttle position sensor circuit. <Ref. to “3-2 [T7L0]”.>
4.	Check vehicle speed sensor 1 circuit. <Ref. to “3-2 [T7M0]”.>
5.	Check vehicle speed sensor 2 circuit. <Ref. to “3-2 [T7N0]”.>
6.	Check engine speed input circuit. <Ref. to “3-2 [T7I0]”.>
7.	Check inhibitor switch circuit. <Ref. to “AN: DTC P0705 [T11AN0]”.>
8.	Check brake light switch circuit. <Ref. to “AM: DTC P0703 [T11AM0]”.>
9.	Check ATF temperature sensor circuit. <Ref. to “3-2 [T7G0]”.>

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY and INSPECTION MODES. <Ref. to [T3D0] and [T3E0].>

WIRING DIAGRAM:



1	CHECK ANY OTHER DTC (BESIDES DTC P0740) ON DISPLAY.

CHECK ***: Is there any other DTC on display?***

YES : Inspect the relevant DTC using “11. Diagnostics Chart with Trouble Code”.

NO : Go to step 2.

2	CHECK DUTY SOLENOID B CIRCUIT.

CHECK ***: Is there any trouble in duty solenoid B circuit?***

YES : Repair or replace duty solenoid B circuit.

NO : Go to step 3.

3	CHECK THROTTLE POSITION SENSOR CIRCUIT.

CHECK ***: Is there any trouble in throttle position sensor circuit?***

YES : Repair or replace throttle position sensor circuit.

NO : Go to step 4.

4	CHECK VEHICLE SPEED SENSOR 1 CIRCUIT.

CHECK ***: Is there any trouble in vehicle speed sensor 1 circuit?***

YES : Repair or replace vehicle speed sensor 1 circuit.

NO : Go to step 5.

5	CHECK VEHICLE SPEED SENSOR 2 CIRCUIT.

CHECK ***: Is there any trouble in vehicle speed sensor 2 circuit?***

YES : Repair or replace vehicle speed sensor 2 circuit.

NO : Go to step 6.

6	CHECK ENGINE SPEED INPUT CIRCUIT.

CHECK ***: Is there any trouble in engine speed input circuit?***

YES : Repair or replace engine speed input circuit.

NO : Go to step 7.

7	CHECK INHIBITOR SWITCH CIRCUIT.

CHECK ***: Is there any trouble in inhibitor switch circuit?***

YES : Repair or replace inhibitor switch circuit.

NO : Go to step 8.

8	CHECK BRAKE LIGHT SWITCH CIRCUIT.

CHECK ***: Is there any trouble in brake light switch circuit?***

YES : Repair or replace brake light switch circuit.

NO : Go to step 9.

9	CHECK ATF TEMPERATURE SENSOR CIRCUIT.

CHECK ***: Is there any trouble in ATF temperature sensor circuit?***

YES : Repair or replace ATF temperature sensor circuit.

NO : Go to next CHECK .

CHECK ***: Is there poor contact in TCM connector?***

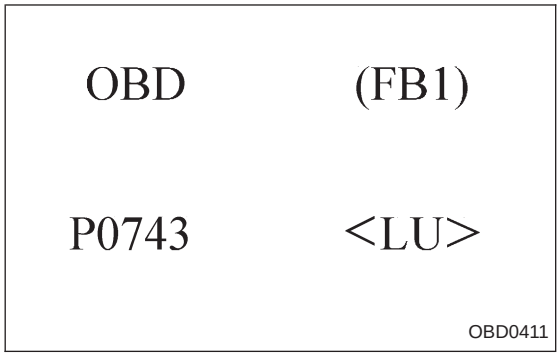
YES : Repair poor contact in TCM connector.

NO : Go to next CHECK .

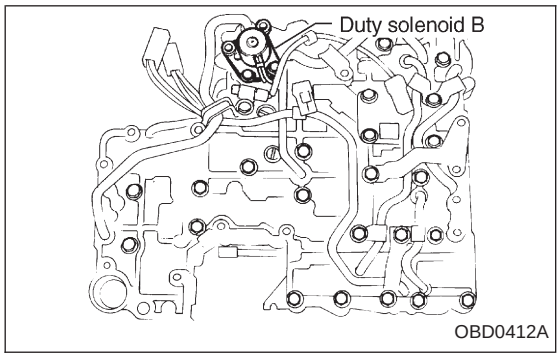
CHECK ***: Is there any mechanical trouble in automatic transmission?***

YES : Repair or replace automatic transmission.

NO : Replace TCM with a new one.



AW: DTC P0743 — TORQUE CONVERTER CLUTCH SYSTEM (DUTY SOLENOID B) ELECTRICAL (LU) —



DESCRIPTION:

- This solenoid is mounted to the control valve, and its duty ratio is controlled by the signal sent from TCM. It then controls the lock-up control valve to provide smooth engagement and disengagement of the lock-up clutch.
- Regulates the hydraulic pressure of the lock-up clutch and operates in three modes (open, smooth and lock-up).

DTC DETECTING CONDITION:

- Two consecutive trips with fault

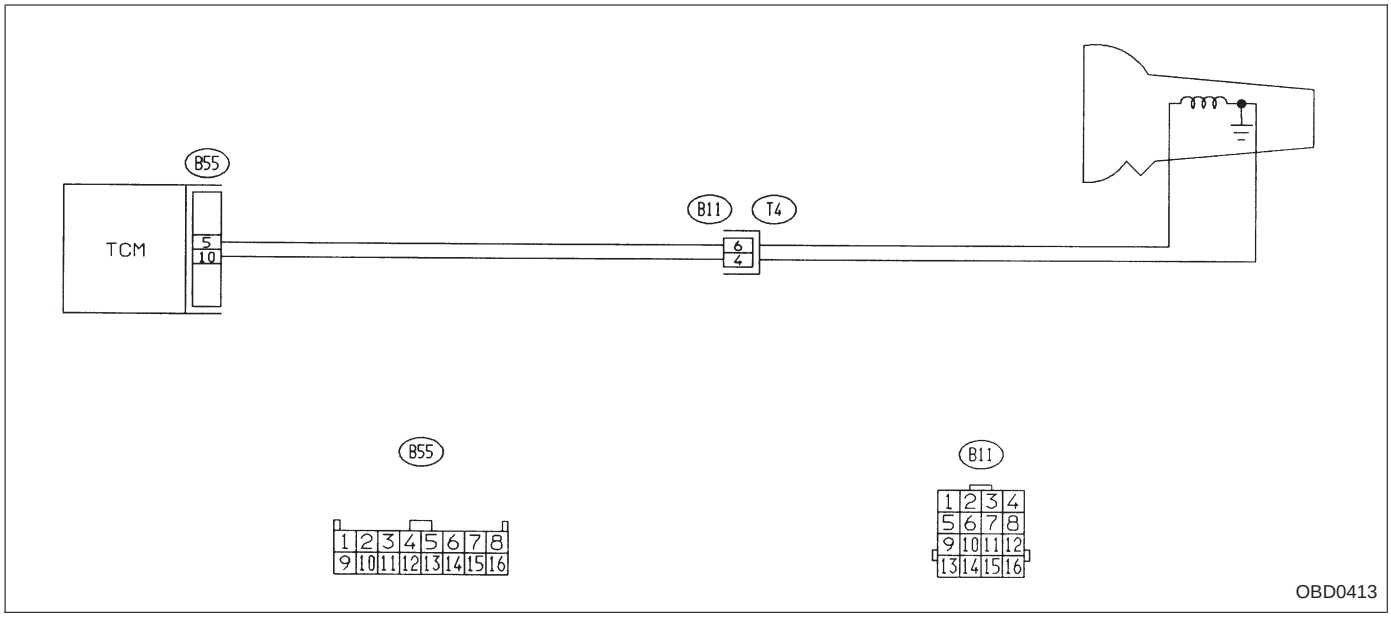
TROUBLE SYMPTOM:

- No “locking-up” (after engine warm-up)

1.	Check harness connector between TCM and duty solenoid B.
2.	Check duty solenoid B's ground line.
3.	Check duty solenoid B.
4.	Check output signal emitted from TCM.

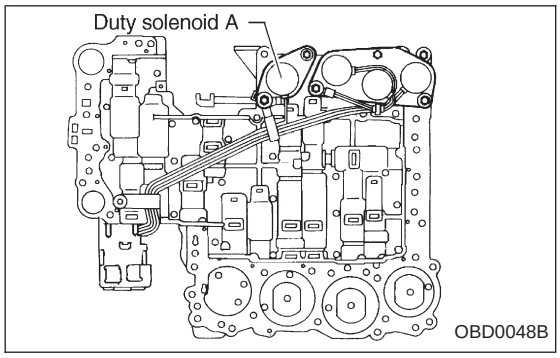
CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY and INSPECTION MODES. <Ref. to [T3D0] and [T3E0].>

WIRING DIAGRAM:



NOTE:
For the diagnostic procedure on duty solenoid B circuit, refer to "3-2 [T7B0]".

AX: DTC P0748 — PRESSURE CONTROL SOLENOID (DUTY SOLENOID A) ELECTRICAL (PL) —



DESCRIPTION:

- This solenoid is mounted to the control valve, and its duty ratio is controlled by the signal sent from TCM. This solenoid then controls the pressure modifier valve and pressure regulator valve to adjust the line pressure to an optimum pressure level suitable for operating conditions.
- Regulates the line pressure according to driving conditions.

DTC DETECTING CONDITION:

- Two consecutive trips with fault

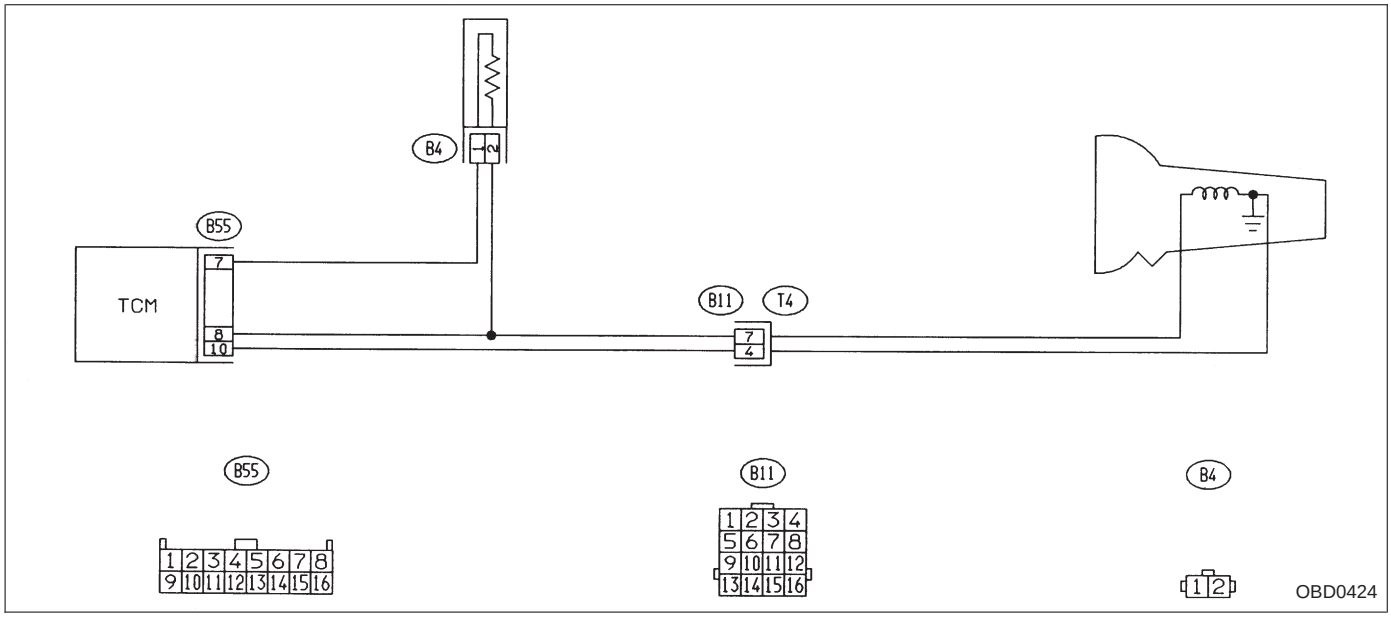
TROUBLE SYMPTOM:

- Excessive shift shock

1.	Check harness connector between TCM and duty solenoid A.
2.	Check harness connector between TCM and dropping resistor.
3.	Check duty solenoid A's ground line.
4.	Check dropping resistor.
5.	Check duty solenoid A.
6.	Check output signal emitted from TCM.

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY and INSPECTION MODES. <Ref. to [T3D0] and [T3E0].>

WIRING DIAGRAM:



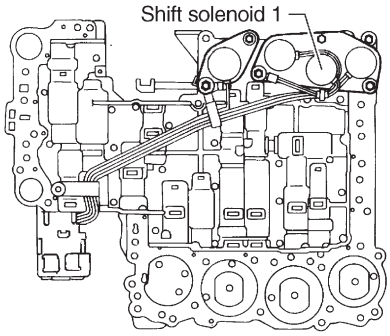
NOTE:
For the diagnostic procedure on duty solenoid A circuit, refer to "3-2 [T7A0]".

OBD (FB1)

P0753 <SFT1>

OBD0434

AY: DTC P0753 — SHIFT SOLENOID A (SHIFT SOLENOID 1) ELECTRICAL (SFT1) —



OBD0048C

DESCRIPTION:

- These solenoids are mounted to the control valve. They are turned ON or OFF according to signals sent from the TCM. The gear positions are changed according to the ON and OFF condition of these solenoids.
- Controls shift stage by turning solenoid ON/OFF. Relationship between solenoid operation and shifting stage is shown in table below. When shifting, timing is controlled for each solenoid to reduce shock.

DTC DETECTING CONDITION:

- Two consecutive trips with fault

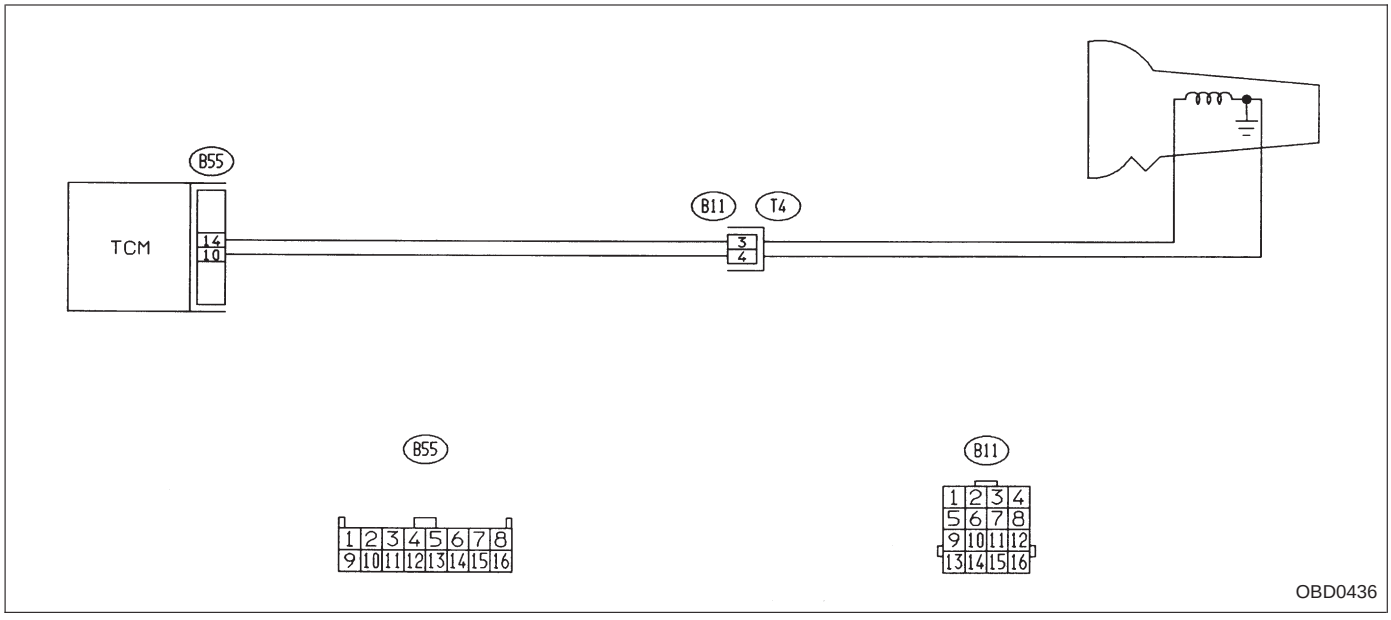
TROUBLE SYMPTOM:

- No shift

1.	Check harness connector between TCM and shift solenoid 1.
2.	Check shift solenoid 1's ground line.
3.	Check shift solenoid 1.
4.	Check output signal emitted from TCM.

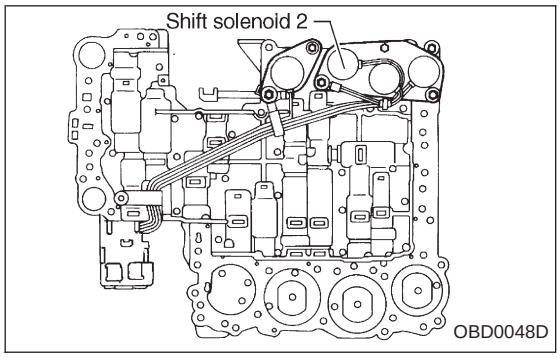
CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY and INSPECTION MODES. <Ref. to [T3D0] and [T3E0].>

WIRING DIAGRAM:



NOTE:
For the diagnostic procedure on shift solenoid 1 circuit, refer to "3-2 [T7E0]".

AZ: DTC P0758 — SHIFT SOLENOID B (SHIFT SOLENOID 2) ELECTRICAL (SFT2) —



DESCRIPTION:

- These solenoids are mounted to the control valve. They are turned ON or OFF according to signals sent from the TCM. The gear positions are changed according to the ON and OFF condition of these solenoids.
- Controls shift stage by turning solenoid ON/OFF. Relationship between solenoid operation and shifting stage is shown in table below. When shifting, timing is controlled for each solenoid to reduce shock.

DTC DETECTING CONDITION:

- Two consecutive trips with fault

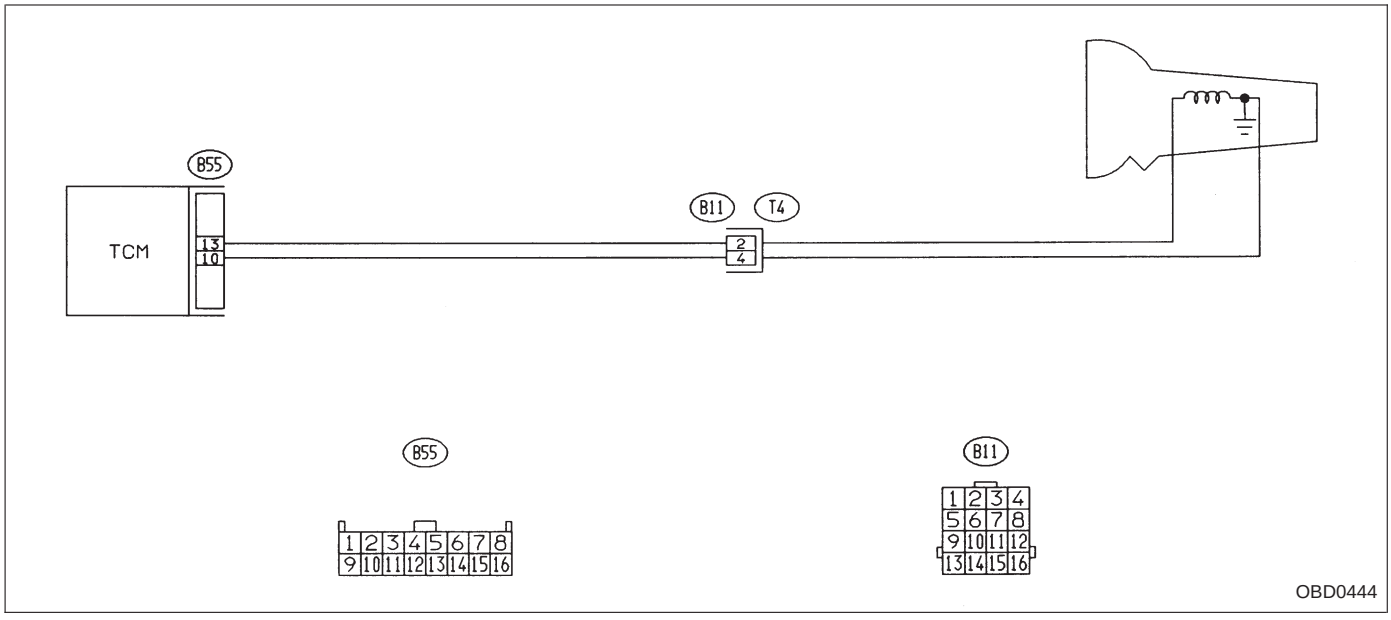
TROUBLE SYMPTOM:

- No shift

1.	Check harness connector between TCM and shift solenoid 2.
2.	Check shift solenoid 2's ground line.
3.	Check shift solenoid 2.
4.	Check output signal emitted from TCM.

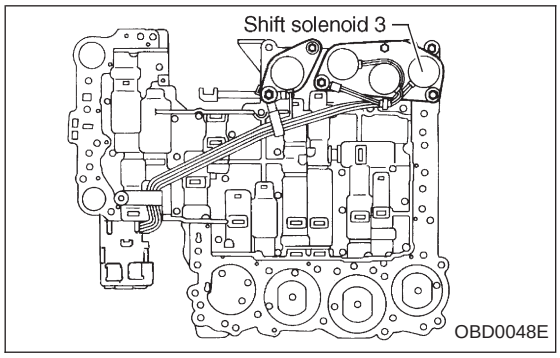
CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY and INSPECTION MODES. <Ref. to [T3D0] and [T3E0].>

WIRING DIAGRAM:



NOTE:
For the diagnostic procedure on shift solenoid 2 circuit, refer to "3-2 [T7D0]".

BA: DTC P0760 — SHIFT SOLENOID C (SHIFT SOLENOID 3) MALFUNCTION (OVR — F) —



DESCRIPTION:

- This solenoid is also mounted to the control valve. It is turned ON or OFF according to the signal sent from the TCM. This operation controls the engagement and disengagement of the overrunning clutch.
- Controls 3-2 shift timing and overrunning clutch operation. Shift timing is controlled by controlling release speed of oil pressure to reduce shock while down shifting. The overrunning clutch is controlled so that it will operate during coasting to apply engine brake.

DTC DETECTING CONDITION:

- Two consecutive trips with fault

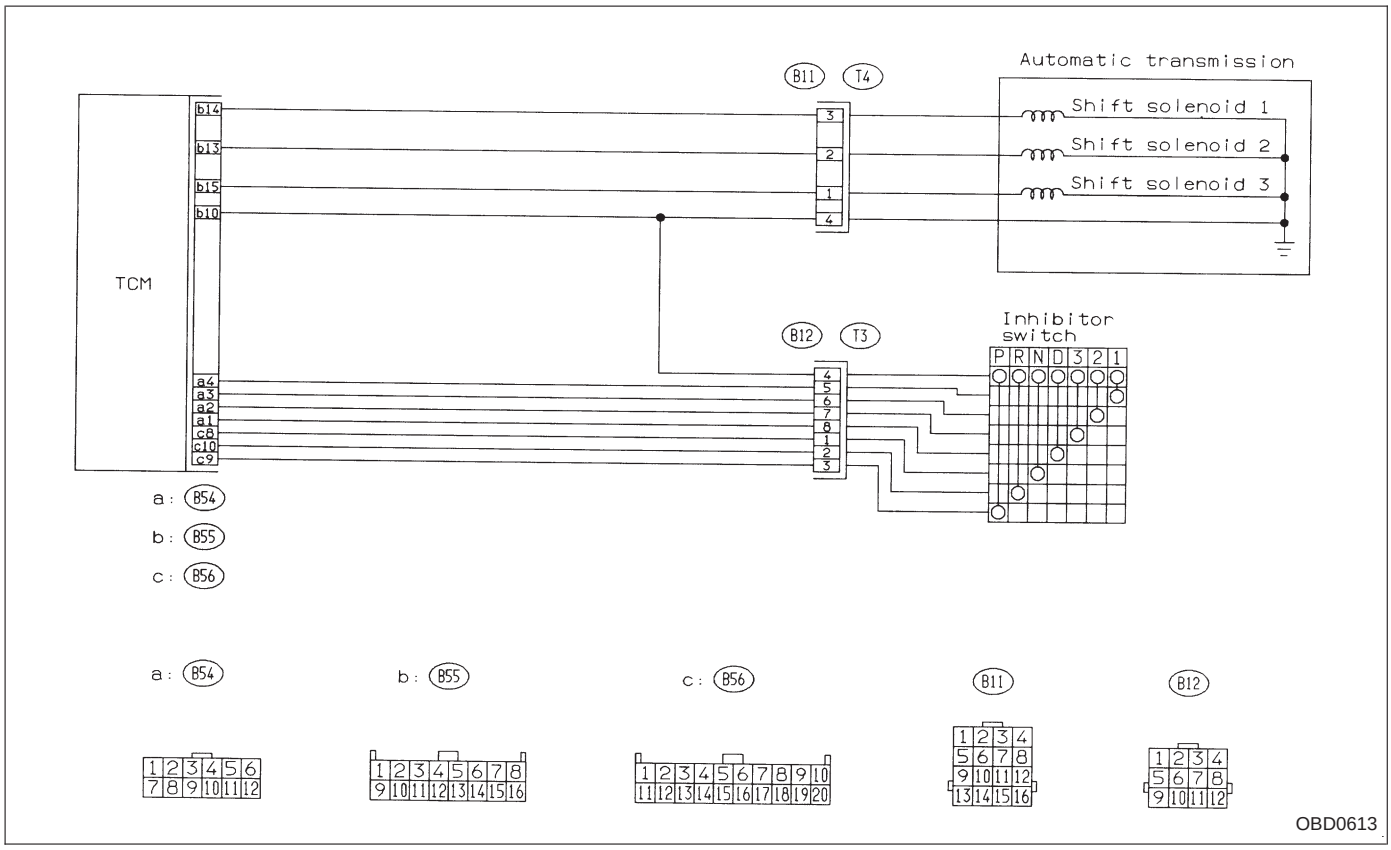
TROUBLE SYMPTOM:

- Ineffective engine brake with selector lever in “3”

1.	Check any other DTC (besides DTC P0760) on display.
2.	Check inhibitor switch circuit. <Ref. to “AN: DTC P0705 [T11AN0]”.>
3.	Check gear position.
4.	Check shift solenoid 1 circuit. <Ref. to “3-2 [T7E0]”.>
5.	Check shift solenoid 2 circuit. <Ref. to “3-2 [T7D0]”.>
6.	Check shift solenoid 3 circuit. <Ref. to “3-2 [T7C0]”.>

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY and INSPECTION MODES. <Ref. to [T3D0] and [T3E0].>

WIRING DIAGRAM:



1	CHECK ANY OTHER DTC (BESIDES DTC P0760) ON DISPLAY.

CHECK ***: Is there any other DTC on display?***

YES : Inspect relevant DTC using “11. Diagnostics Chart with Trouble Code”.

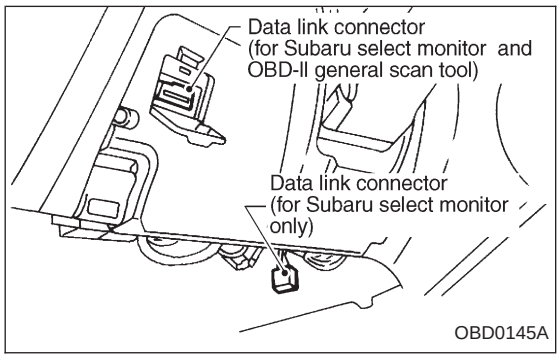
NO : Go to step 2.

2	CHECK INHIBITOR SWITCH CIRCUIT.

CHECK ***: Is there any trouble in inhibitor switch circuit?***

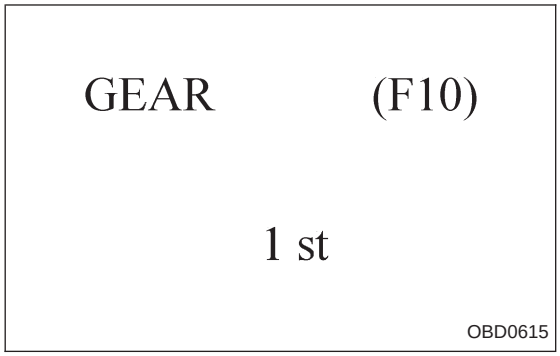
YES : Repair or replace inhibitor switch circuit.

NO : Go to step 3.



3	CHECK GEAR POSITION.

1) Turn ignition switch to OFF.
2) Connect the Subaru select monitor to data link connector.



3) Lift-up or raise the vehicle and support with safety stands.

CAUTION:
On AWD models, raise all wheels off ground.

4) Start and warm-up the engine and transmission.
5) Subaru select monitor switch to ON.
6) Designate mode using function key.

Function mode for AT: F10

7) Move selector lever to “D” and drive the vehicle.
8) Read data on Subaru select monitor.

CHECK ***: Change gear position according to throttle position and vehicle speed.***

YES : Go to next CHECK .

NO : Go to step 4.

CHECK ***: Is there poor contact in TCM connector?***

YES : Repair poor contact in TCM connector.

NO : Go to next CHECK .

CHECK ***: Is there any mechanical trouble in automatic transmission?***

YES : Repair or replace automatic transmission.

NO : Replace TCM with a new one.

4	CHECK SHIFT SOLENOID 1 CIRCUIT.

CHECK ***: Is there any trouble in shift solenoid 1 circuit?***

YES : Repair or replace shift solenoid 1 circuit.

NO : Go to step 5.

5	CHECK SHIFT SOLENOID 2 CIRCUIT.

CHECK ***: Is there any trouble in shift solenoid 2 circuit?***

YES : Repair or replace shift solenoid 2 circuit.

NO : Go to step 6.

6	CHECK SHIFT SOLENOID 3 CIRCUIT.

CHECK ***: Is there any trouble in shift solenoid 3 circuit?***

YES : Repair or replace shift solenoid 3 circuit.

NO : Go to next CHECK .

CHECK ***: Is there poor contact in TCM connector?***

YES : Repair poor contact in TCM connector.

NO : Go to next CHECK .

CHECK ***: Is there any mechanical trouble in automatic transmission?***

YES : Repair or replace automatic transmission.

NO : Replace TCM with a new one.

BB: DTC P0763 — SHIFT SOLENOID C (SHIFT SOLENOID 3) ELECTRICAL (OVR) —

DESCRIPTION:

Refer to “BA: DTC P0760 — SHIFT SOLENOID C MALFUNCTION — [T11BA0]”.

DTC DETECTING CONDITION:

- Two consecutive trips with fault

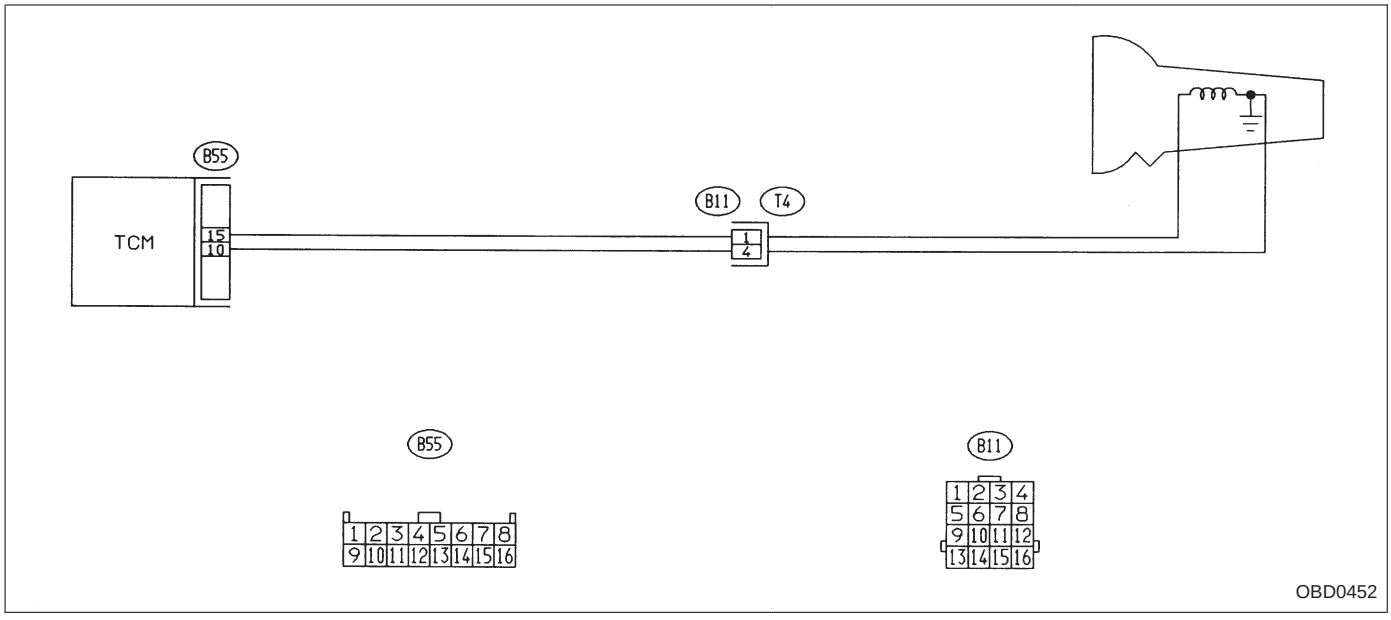
TROUBLE SYMPTOM:

- Ineffective engine brake with selector lever in “3”

1.	**Check harness connector between TCM and shift solenoid 3.**
2.	**Check shift solenoid 3's ground line.**
3.	**Check shift solenoid 3.**
4.	**Check output signal emitted from TCM.**

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY and INSPECTION MODES. <Ref. to [T3D0] and [T3E0].>

WIRING DIAGRAM:



NOTE:
For the diagnostic procedure on shift solenoid 3 circuit, refer to "3-2 [T7C0]".

OBD	(FB1)
P1100	<ST_SW>

OBD0458

BC: DTC P1100 — STARTER SWITCH CIRCUIT MALFUNCTION (ST — SW) —

DTC DETECTING CONDITION:

- Two consecutive trips with fault

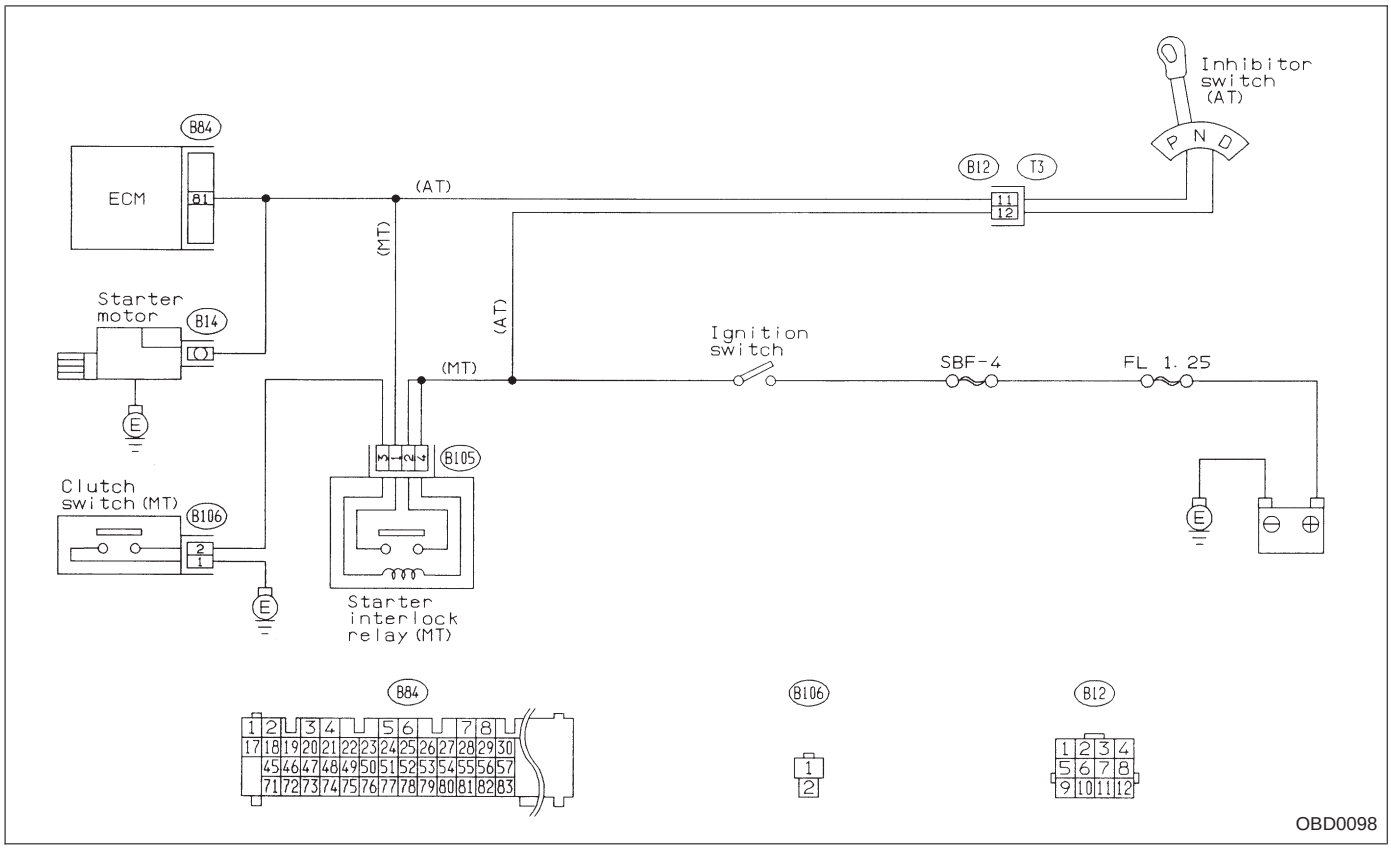
TROUBLE SYMPTOM:

- Failure of engine to start

1.	Check operation of starter motor.

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY and INSPECTION MODES. <Ref. to [T3D0] and [T3E0].>

WIRING DIAGRAM:



OBD0098

1	CHECK OPERATION OF STARTER MOTOR.

CHECK ***: Turn ignition switch to "ST" to ensure that starter motor operates.***

NOTE:
- On AT vehicles, place the inhibitor switch in the "P" or "N" position.
- On MT vehicles, depress the clutch pedal.

NO : Diagnose starter motor circuit <Ref. to [T9B0].>

YES : Repair open circuit or poor contact in ECM connector.

BD: DTC P1101 — NEUTRAL POSITION SWITCH CIRCUIT MALFUNCTION [MT VEHICLES] (N — SW) —

DTC DETECTING CONDITION:

- Two consecutive trips with fault

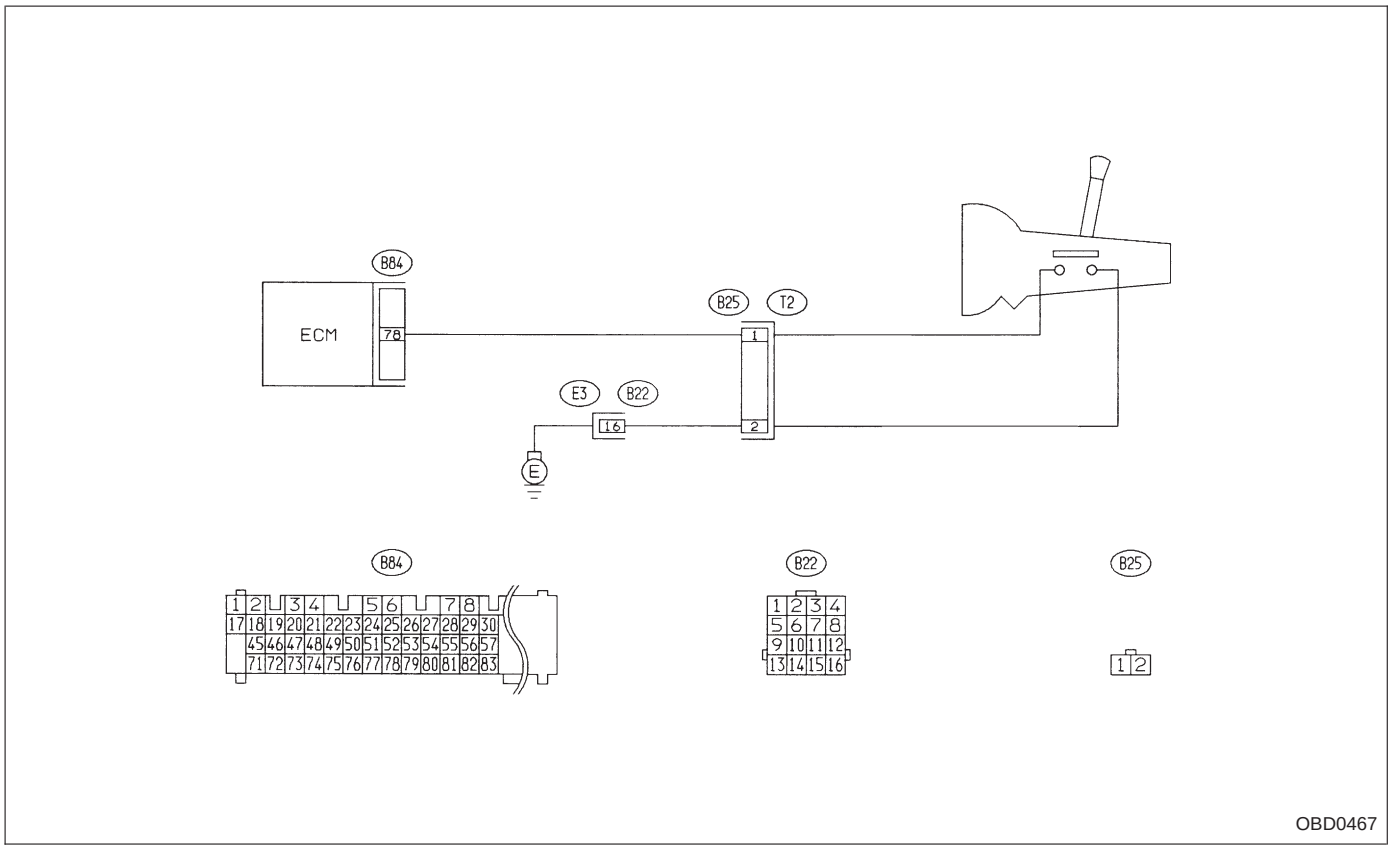
TROUBLE SYMPTOM:

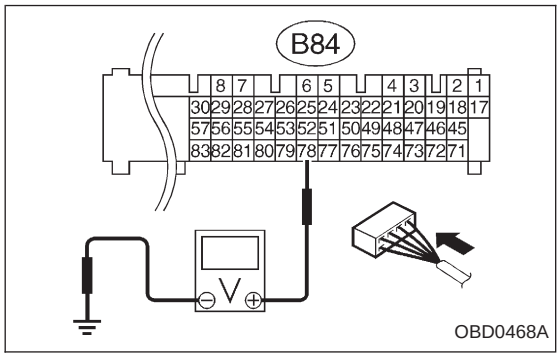
- Erroneous idling

1.	**Check input signal for ECM.**
2.	**Check neutral position switch.**
3.	**Check harness connector between ECM and neutral position switch.**

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY and INSPECTION MODES. <Ref. to [T3D0] and [T3E0].>

WIRING DIAGRAM:





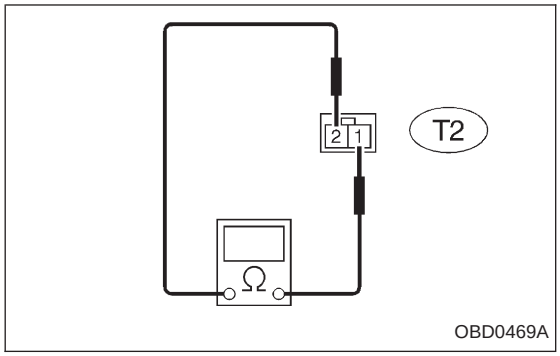
1	CHECK INPUT SIGNAL FOR ECM.

1) Turn ignition switch to ON.
2) Measure voltage between ECM and body.

CHECK ***: Connector & terminal***
(B84) No. 78 — Body / 5.0±0.5 V (Neutral position)
(B84) No. 78 — Body / 0 V (Other positions)

YES : Go to next CHECK .
NO : Go to step 2.

CHECK ***: Is there poor contact in ECM connector?***
YES : Repair poor contact in ECM connector.
NO : Replace ECM with a new one.



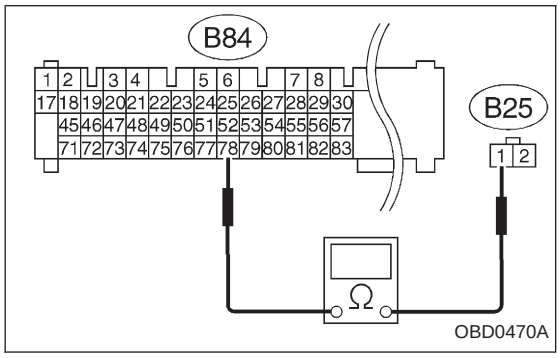
2	CHECK NEUTRAL POSITION SWITCH.

1) Turn ignition switch to OFF.
2) Disconnect connector from transmission harness.
3) Measure resistance between connector terminals of transmission harness.

CHECK : ***Connector & terminal***
(T2) No. 1 — No. 2 / 1 MΩ, or more (Neutral position)
(T2) No. 1 — No. 2 / 10 Ω, or less (Other positions)

YES : Go to step 3.

NO : Repair transmission harness or replace neutral position switch.



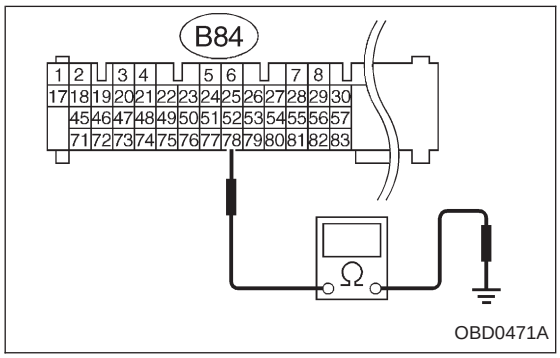
3	CHECK HARNESS CONNECTOR BETWEEN ECM AND NEUTRAL POSITION SWITCH.

1) Disconnect connector from ECM.
2) Measure resistance of harness connector between ECM and neutral position switch.

CHECK : ***Connector & terminal***
(B84) No. 78 — (B25) No. 1 / 10 Ω, or less

NO : Repair open circuit of harness between ECM connector and neutral position switch connector.

YES : Go to next step.

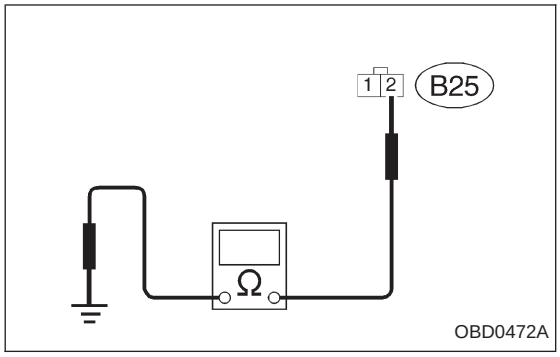


3) Measure resistance of harness connector between ECM and body to make sure that circuit does not short.

CHECK : ***Connector & terminal***
(B84) No. 78 — Body / 1 MΩ, or more

NO : Repair short circuit of harness between ECM connector and neutral position switch connector.

YES : Go to next step.



4) Measure resistance of harness connector between neutral position switch and body.

CHECK ***: Connector & terminal (B25) No. 2 — Body / 10 Ω, or less***

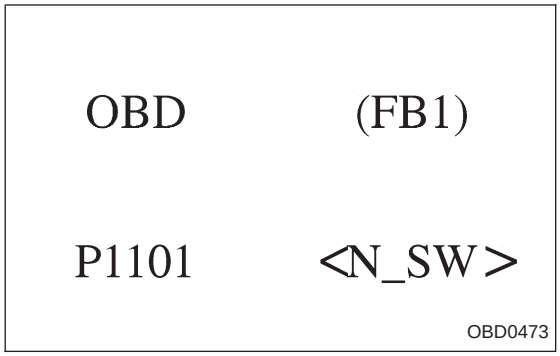
YES : Go to next CHECK .

NO : Repair open circuit of harness between neutral position switch connector and body.

CHECK ***: Is there poor contact in neutral position switch connector?***

YES : Repair poor contact in neutral position switch connector.

NO : Replace ECM with a new one.



BE: DTC P1101 — NEUTRAL POSITION SWITCH CIRCUIT MALFUNCTION [AT VEHICLES] (N — SW) —

DESCRIPTION:

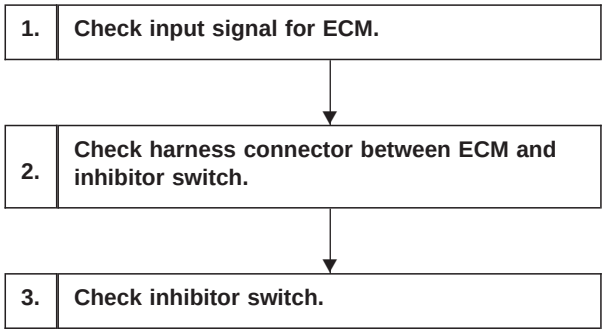
Refer to “AN: DTC P0705 — TRANSMISSION RANGE SENSOR CIRCUIT MALFUNCTION — [T11AN0]”.

DTC DETECTING CONDITION:

- Two consecutive trips with fault

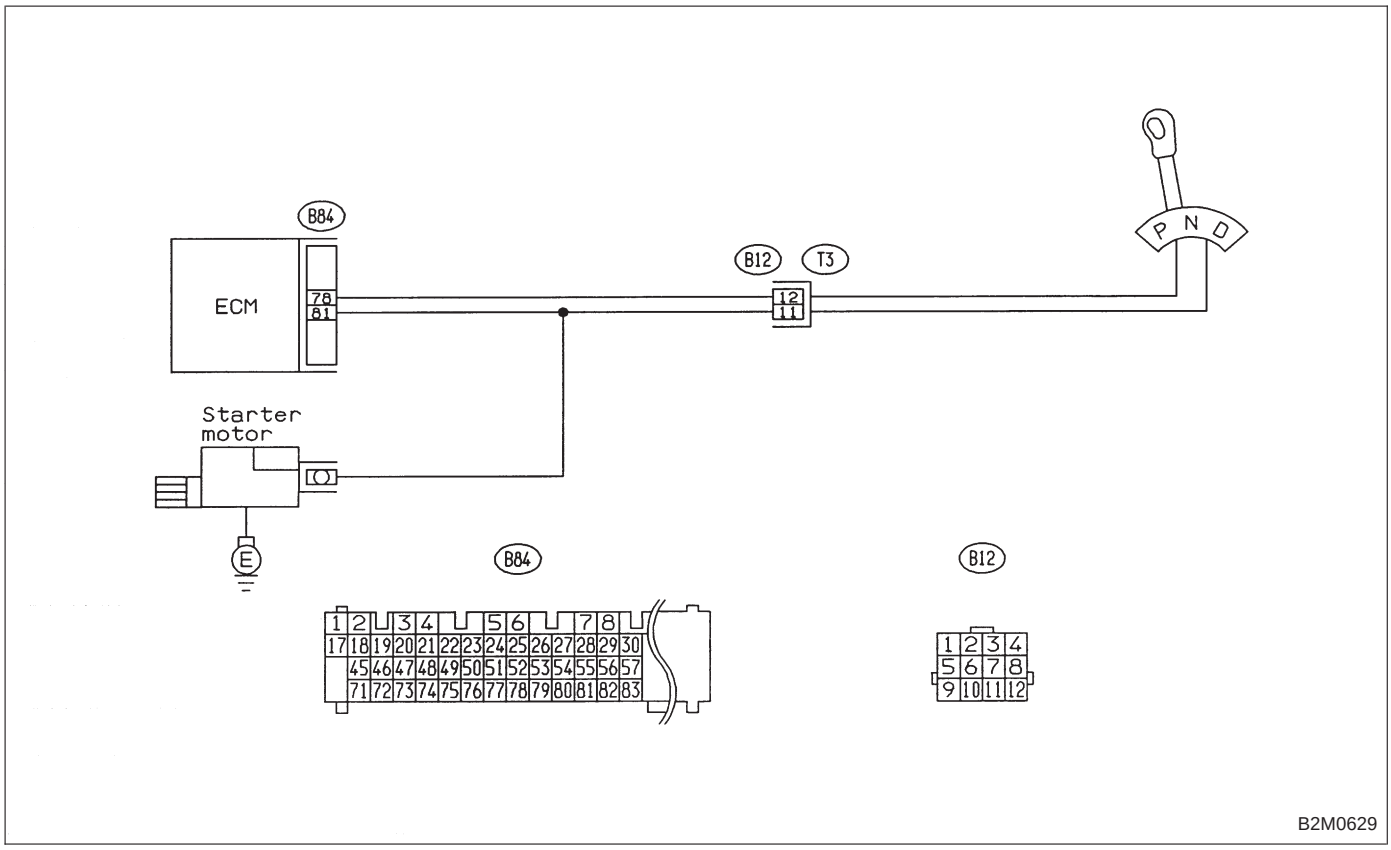
TROUBLE SYMPTOM:

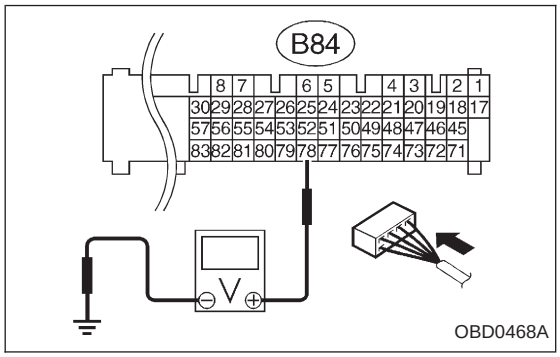
- Erroneous idling



CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY and INSPECTION MODES. <Ref. to [T3D0] and [T3E0].>

WIRING DIAGRAM:



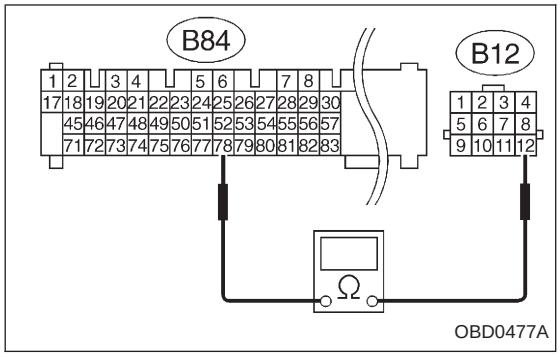


1	CHECK INPUT SIGNAL FOR ECM.

1) Turn ignition switch to ON.
2) Measure voltage between ECM and body.

CHECK ***: Connector & terminal***
(B84) No. 78 — Body / 0 V ("N" and "P" positions)
(B84) No. 78 — Body / 5.0±0.5 V (Other positions)

YES Go to next CHECK .
NO : Go to step 2.
CHECK ***: Is there poor contact in ECM connector?***
YES : Repair poor contact in ECM connector.
NO : Replace ECM with a new one.



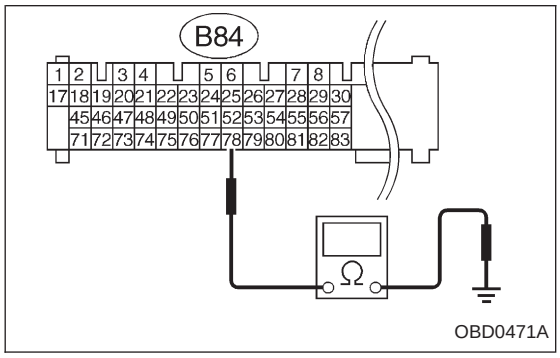
2	CHECK HARNESS CONNECTOR BETWEEN ECM AND INHIBITOR SWITCH.

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

CHECK ***: Connector & terminal (B84) No. 78 — (B12) No. 12 / 10 Ω, or less***

NO : Repair open circuit of harness between ECM connector and transmission connector.

YES : Go to next step.

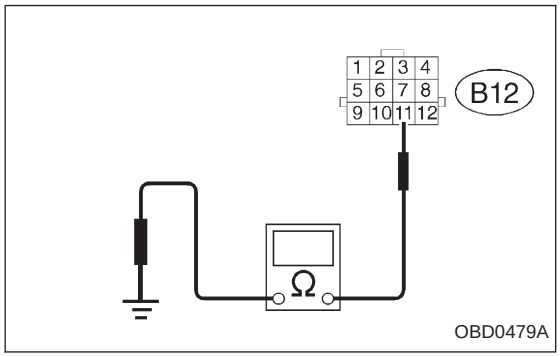


4) Measure resistance of harness connector between ECM and body.

CHECK ***: Connector & terminal (B84) No. 78 — Body / 1 MΩ, or more***

NO : Repair short circuit of harness between ECM connector and transmission connector.

YES : Go to next step.

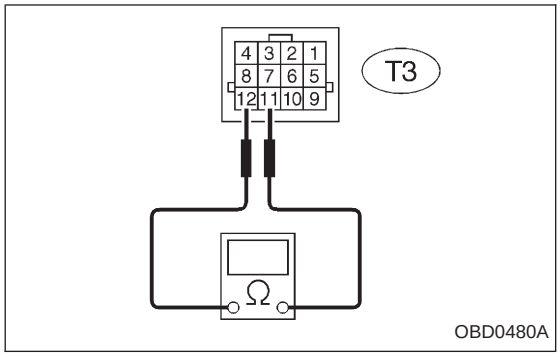


5) Measure resistance of harness connector between inhibitor switch and body.

CHECK ***: Connector & terminal (B12) No. 11 — Body / 10 Ω, or less***

YES : Go to step 3.

NO : Repair open circuit of inhibitor switch ground line.



3	CHECK INHIBITOR SWITCH.

Measure resistance between transmission connector receptacle's terminals.

CHECK : ***Connector & terminal***
(T3) No. 12 — No. 11 / 10 Ω, or less
("N" and "P" positions)
(T3) No. 12 — No. 11 / 1 MΩ, or more
(Other positions)

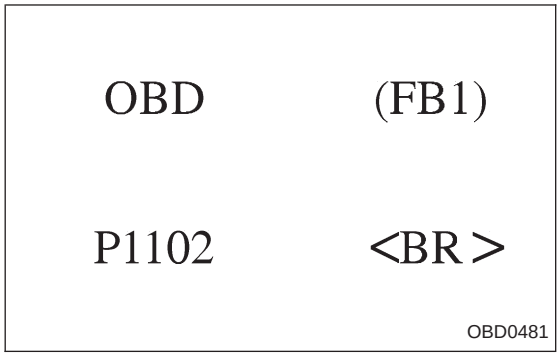
YES : Go to next CHECK .

NO : Replace inhibitor switch.

CHECK : ***Is there any fault in selector cable connection to inhibitor switch?***

YES : Repair selector cable connection. <Ref. to 3-2 [W2B2].>

NO : Replace ECM with a new one.



BF: DTC P1102 — PRESSURE SOURCES SWITCHING SOLENOID VALVE CIRCUIT MALFUNCTION (BR) —

DESCRIPTION:

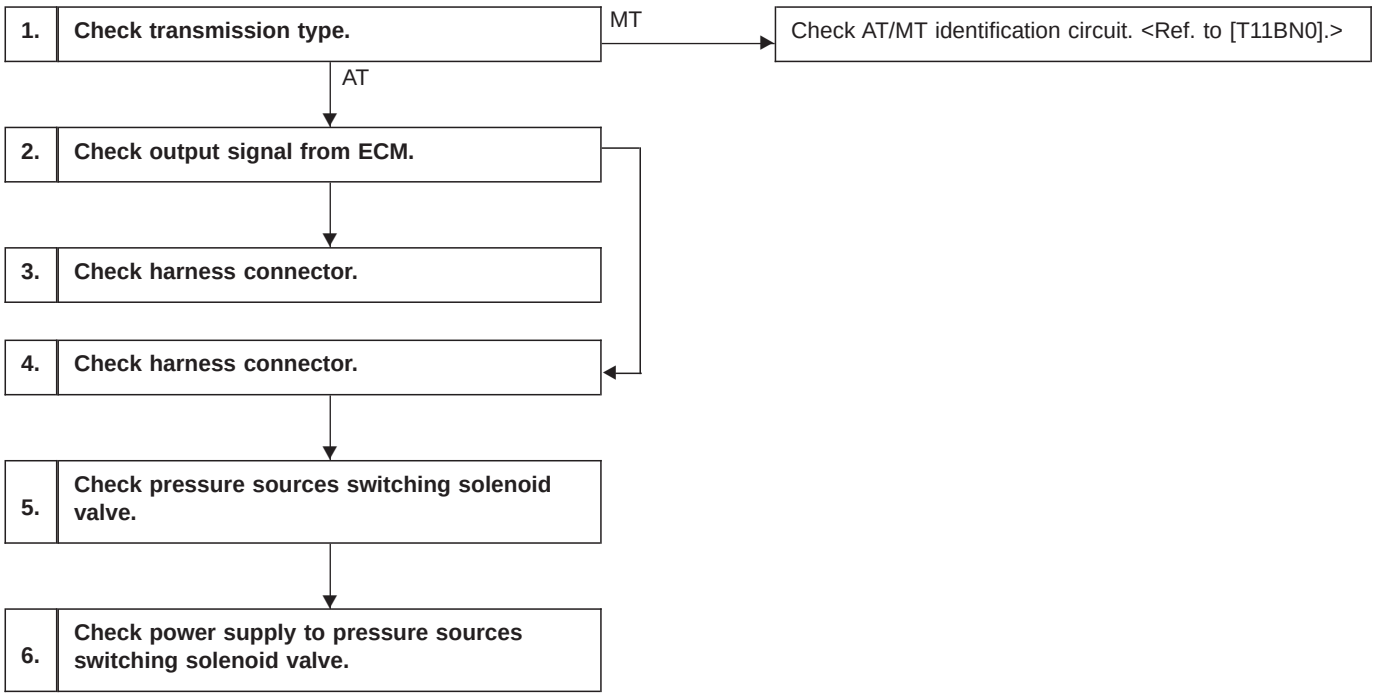
Refer to “D: DTC P0105 — PRESSURE SENSOR CIRCUIT MALFUNCTION — [T11D0]”.

DTC DETECTING CONDITION:

- Two consecutive trips with fault

TROUBLE SYMPTOM:

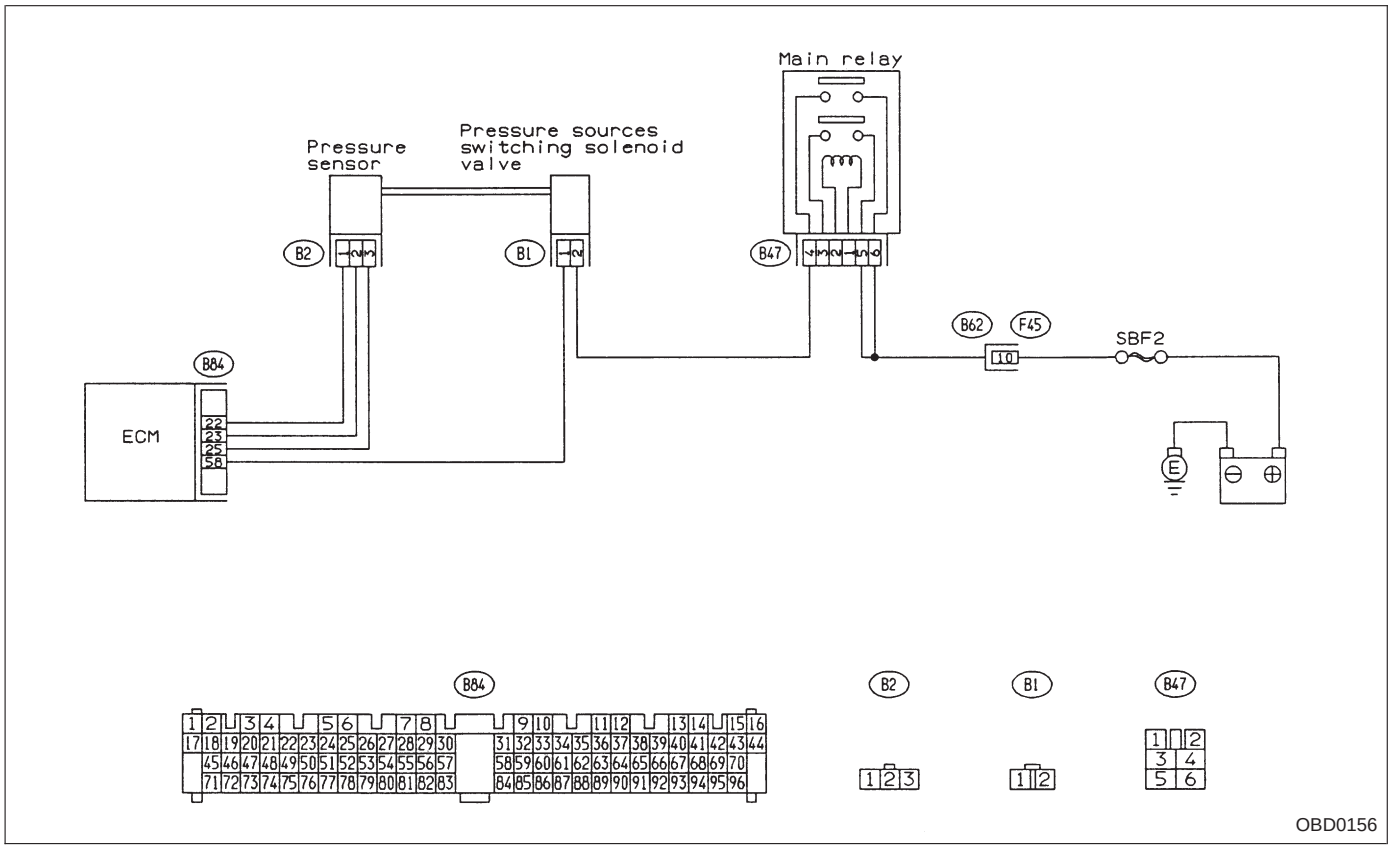
- Erroneous idling
- Failure of engine to start



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

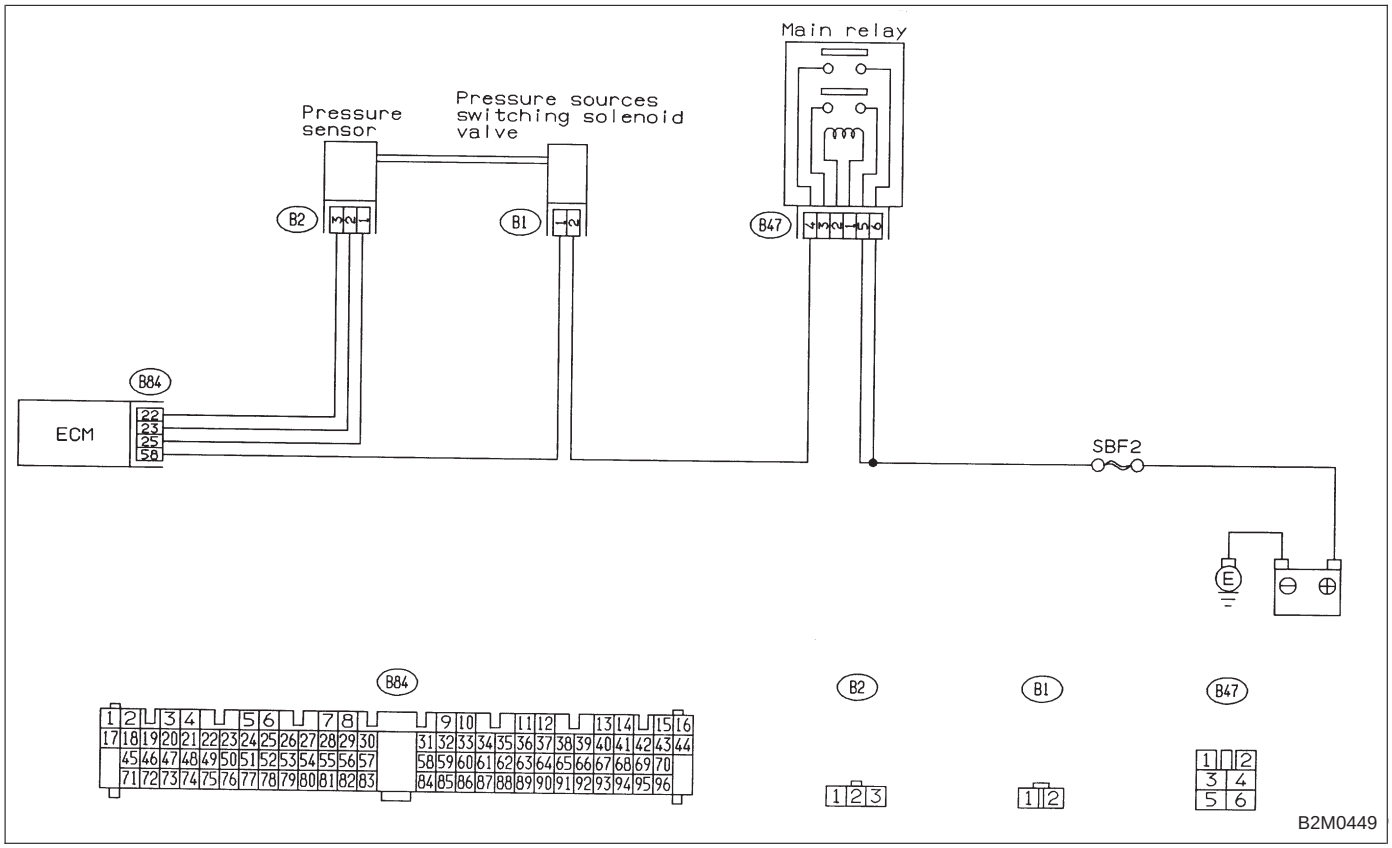
WIRING DIAGRAM:

- **LHD model**



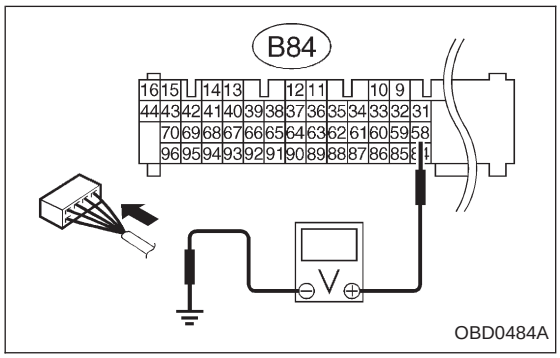
WIRING DIAGRAM:

- **RHD model**



1	CHECK TRANSMISSION TYPE.

Refer to flow chart on page 320.



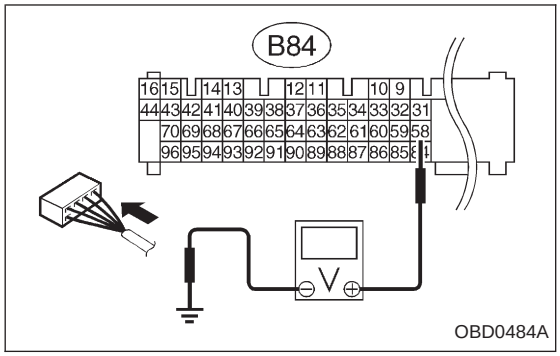
2	CHECK OUTPUT SIGNAL FROM ECM.

1) Turn ignition switch to ON.
2) Measure voltage between ECM and body.

CHECK ***: Connector & terminal (B84) No. 58 — Body / 10 V, or more***

YES : Go to step 3.

NO : Go to step 4.



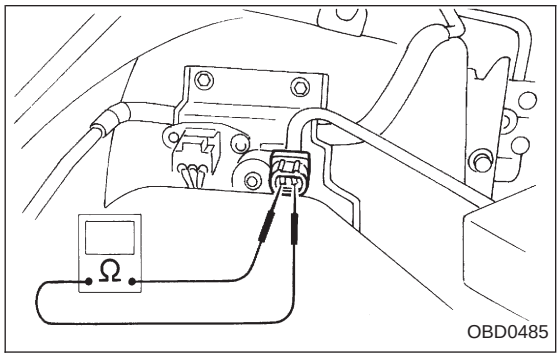
3	CHECK HARNESS CONNECTOR.

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 body.

CHECK ***: Connector & terminal***
(B84) No. 58 — Body / 10 V, or more

YES : Repair short circuit of harness between ECM connector and pressure sources switching solenoid valve connector and replace ECM.

NO : Go to next step.



5) Turn ignition switch to OFF.
6) Measure resistance between pressure sources switching solenoid valve terminals.

CHECK ***: Terminals***
No. 1 — No. 2/1 Ω, or less

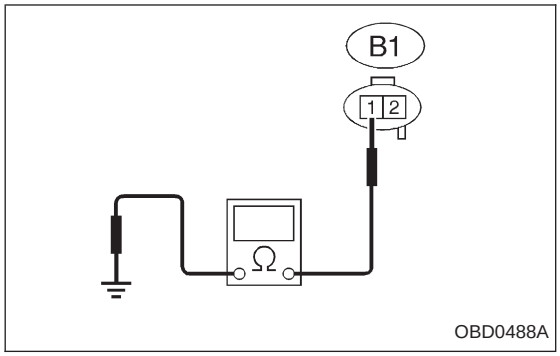
YES : Replace pressure sources switching solenoid valve and ECM.

NO : Go to next CHECK .

CHECK ***: Is there poor contact in ECM connector?***

YES : Repair poor contact in ECM connector.

NO : Replace ECM with a new one.



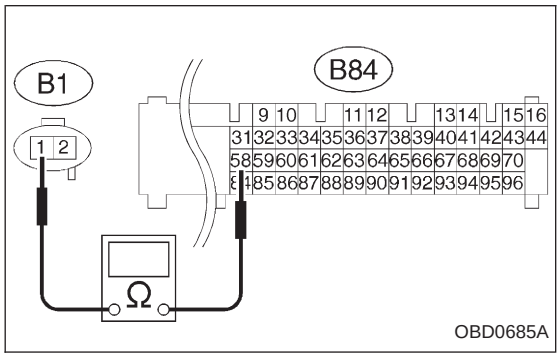
4	CHECK HARNESS CONNECTOR.

1) Turn ignition switch to OFF.
2) Disconnect connector from pressure sources switching solenoid valve and ECM.
3) Measure resistance of harness connector between pressure sources switching solenoid valve and body.

CHECK : ***Connector & terminal***
(B1) No. 1 — Body / 10 Ω, or less

YES : Repair short circuit of harness between ECM connector and pressure sources switching solenoid valve connector.

NO : Go to next step.

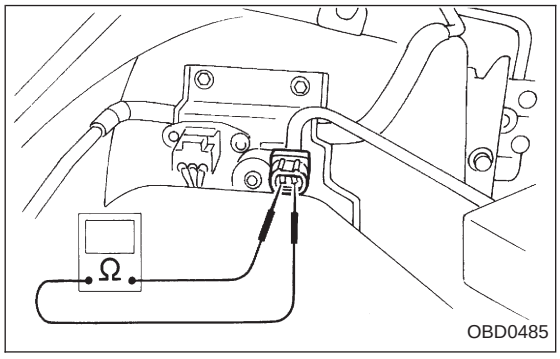


4) Measure resistance of harness connector between ECM and pressure sources switching solenoid valve.

CHECK : ***Connector & terminal***
(B84) No. 58 — (B1) No. 1 / 10 Ω, or less

YES : Go to step 5.

NO : Repair open circuit of harness between ECM connector and pressure sources switching solenoid valve connector.



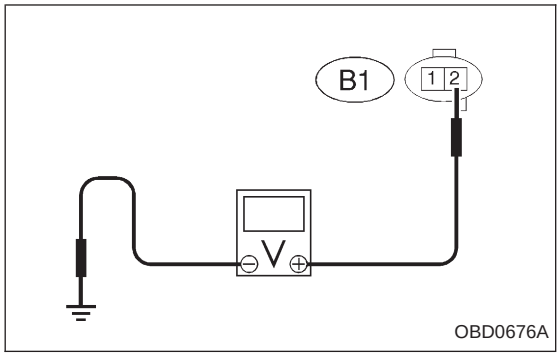
5	CHECK PRESSURE SOURCES SWITCHING SOLENOID VALVE.

Measure resistance between pressure sources switching solenoid valve connector terminals.

CHECK : ***Terminals***
No. 1 — No. 2 / 10 — 100 Ω

YES : Go to step 6.

NO : Replace pressure sources switching solenoid valve.



6	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 body.

CHECK ***: Connector & terminal (B1) No. 2 — Body / 10 V, or more***

YES : Confirm good connection at pressure sources switching solenoid valve connector.

NO : Repair open circuit of harness between main relay connector and pressure sources switching solenoid valve connector.

BG: DTC P1103 — ENGINE TORQUE CONTROL SIGNAL CIRCUIT MALFUNCTION (TRQ) —

DTC DETECTING CONDITION:

- Two consecutive trips with fault

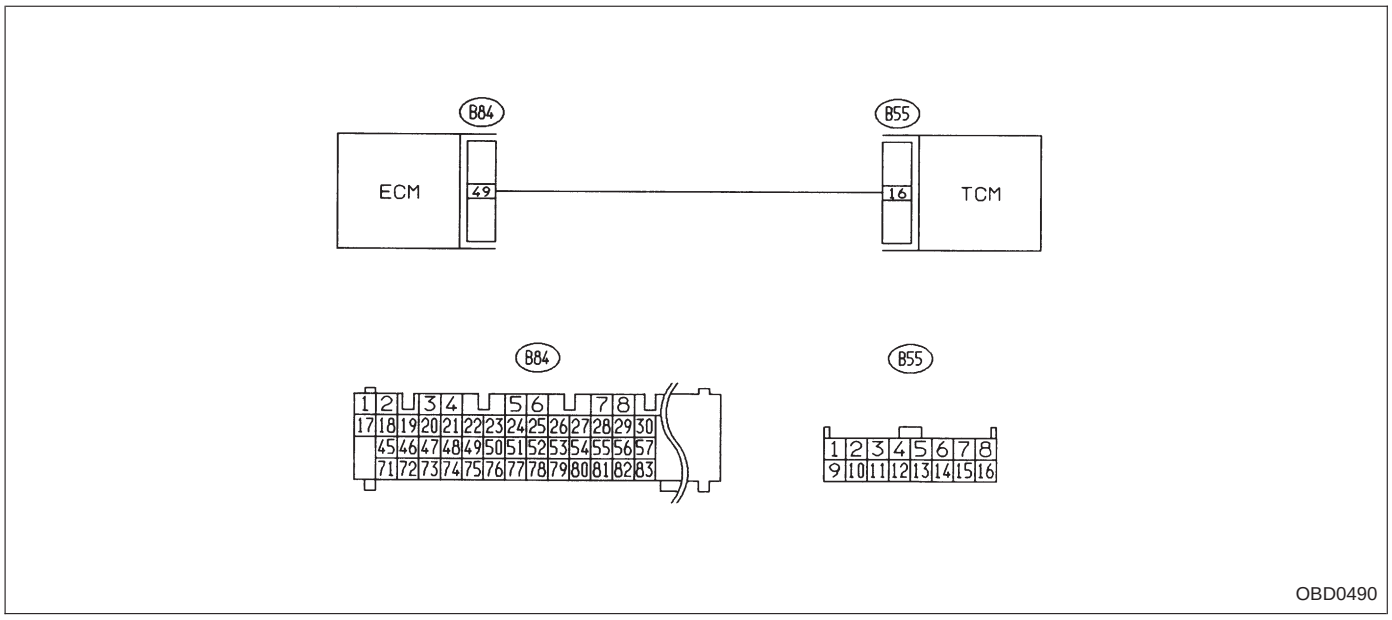
TROUBLE SYMPTOM:

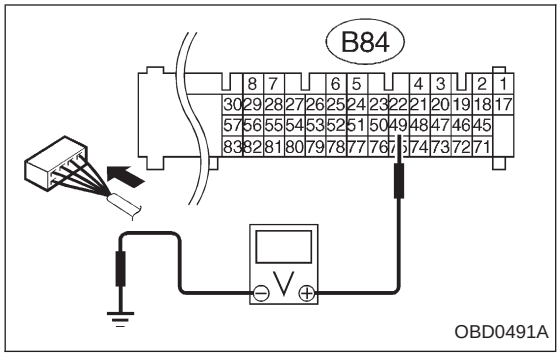
- Excessive shift shock

1.	**Check input signal for ECM.**
2.	**Check harness connector between ECM and TCM.**

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY and INSPECTION MODES. <Ref. to [T3D0] and [T3E0].>

WIRING DIAGRAM:





1	CHECK INPUT SIGNAL FOR ECM.

1) Turn ignition switch to ON.
2) Measure voltage between ECM and body.

CHECK ***: Connector & terminal (B84) No. 49 — Body / 4.5V, or more***

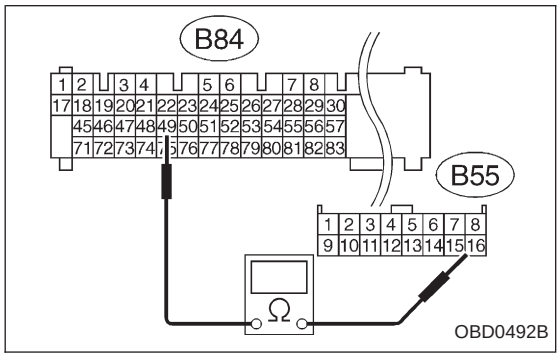
YES : Go to next CHECK .

NO : Go to step 2.

CHECK ***: Is there poor contact in ECM connector?***

YES : Repair poor contact in ECM connector.

NO : Replace ECM with a new one.



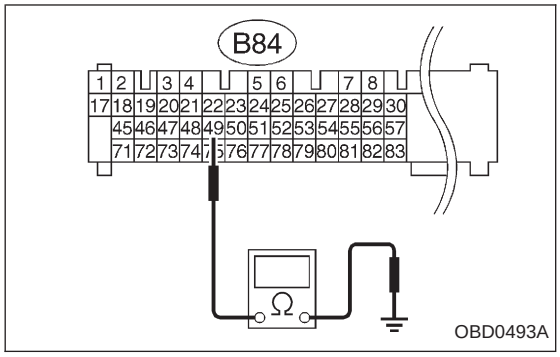
2	CHECK HARNESS CONNECTOR BETWEEN ECM AND TCM.

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

CHECK ***: Connector & terminal (B84) No. 49 — (B55) No. 16 / 10 Ω, or less***

YES : Go to next step.

NO : Repair open circuit of harness between ECM connector and TCM connector.



4) Measure resistance of harness connector between ECM and body.

CHECK ***: Connector & terminal (B84) No. 49 — Body / 1 MΩ, or more***

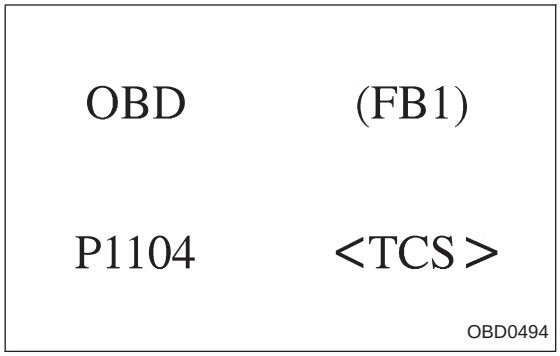
YES : Go to next CHECK .

NO : Repair short circuit of harness between ECM connector and TCM connector.

CHECK ***: Is there poor contact in TCM connector?***

YES : Repair poor contact in TCM connector.

NO : Replace TCM with a new one.



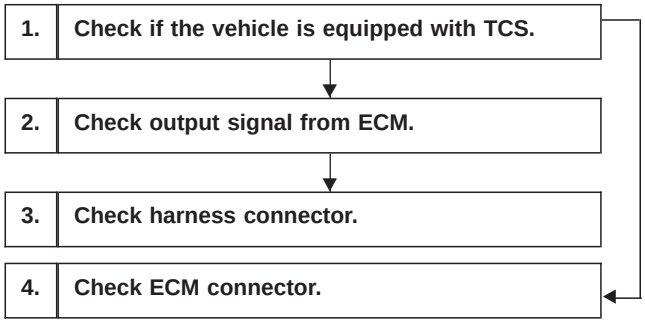
BH: DTC P1104 — TCS SIGNAL CIRCUIT MALFUNCTION (TCS) —

DTC DETECTING CONDITION:

- Two consecutive trips with fault

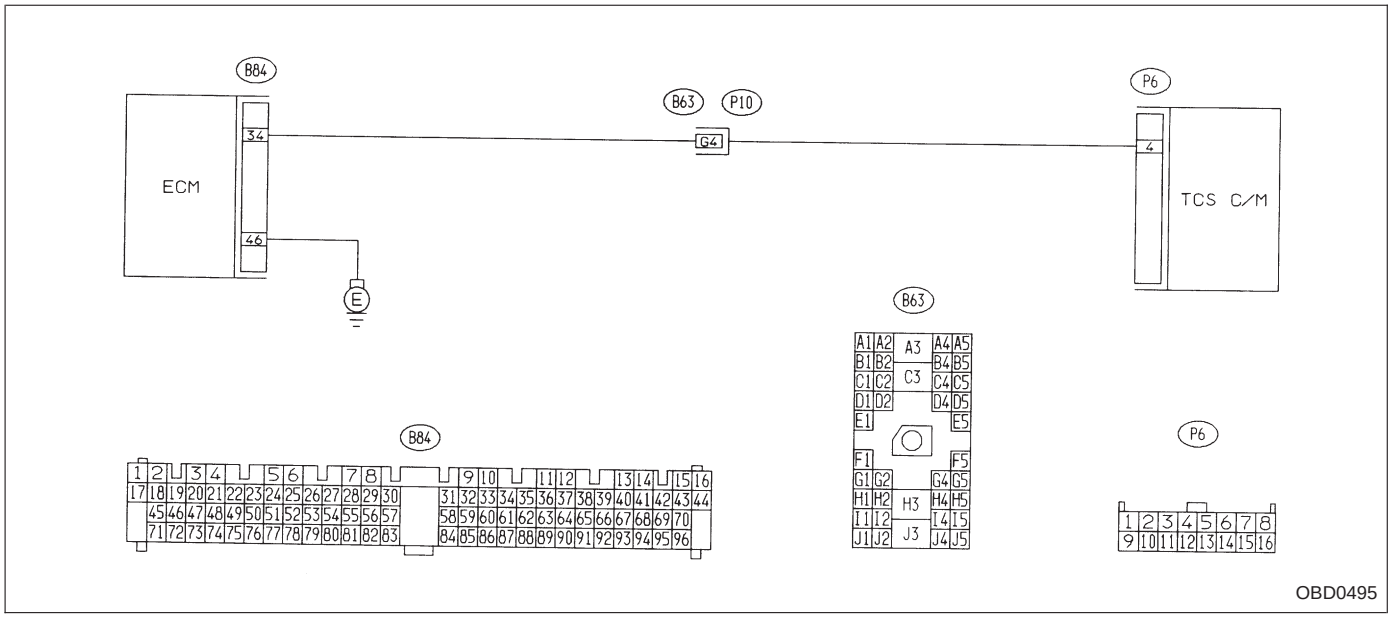
TROUBLE SYMPTOM:

- No operation TCS
- TCS warning light remains illuminated.



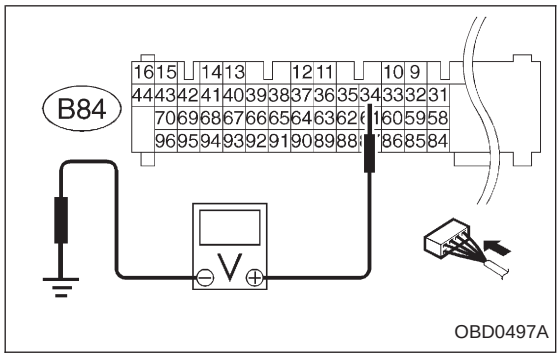
CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY and INSPECTION MODES. <Ref. to [T3D0] and [T3E0].>

WIRING DIAGRAM:



1	CHECK IF THE VEHICLE IS EQUIPPED WITH TCS.

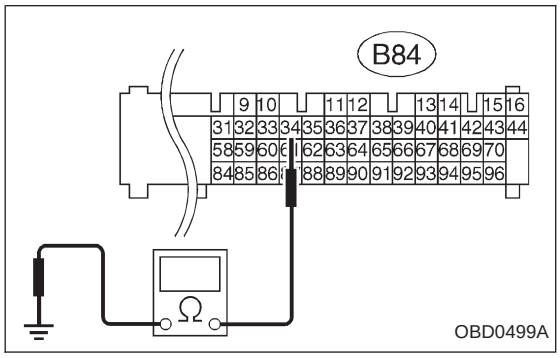
CHECK ***: Is the vehicle equipped with TCS?***
NO : Go to step 4.
YES : Go to step 2.



2	CHECK OUTPUT SIGNAL FROM ECM.

1) Turn ignition switch to ON.
2) Measure voltage between ECM connector and body.

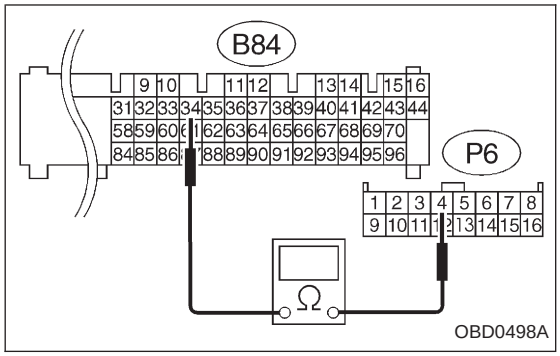
CHECK ***: Connector & terminal (B84) No. 34 — Body / 2 V, or more***
YES : Repair poor contact in ECM connector.
NO : Go to step 3.



3	CHECK HARNESS CONNECTOR.

1) Turn ignition switch to OFF.
2) Remove front passenger side seat.
3) Tear off the floor mat.
4) Disconnect connectors from ECM and TCS C/M.
5) Measure resistance between ECM harness connector and body.

CHECK ***: Connector & terminal (B84) No. 34 — Body / 10 Ω, or less***
YES : Repair short circuit of harness between ECM connector and TCS C/M connector.
NO : Go to next step.



6) Measure resistance of harness connector between ECM and TCS C/M.

CHECK : ***Connector & terminal***
(B84) No. 34 — (P6) No. 4 / 10 Ω, or less

NO : ● Open circuit of harness between ECM connector and TCS C/M connector
● Poor contact in ECM connector
● Poor contact in TCS C/M connector
Check above points and repair if necessary.

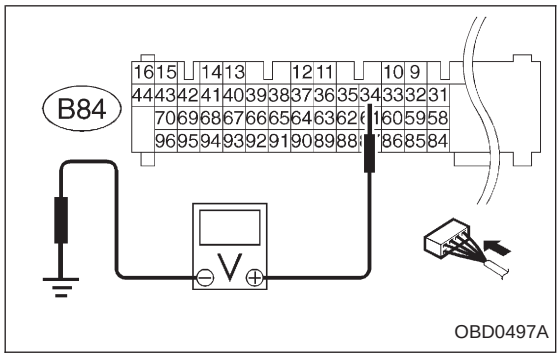
YES : Go to next step.

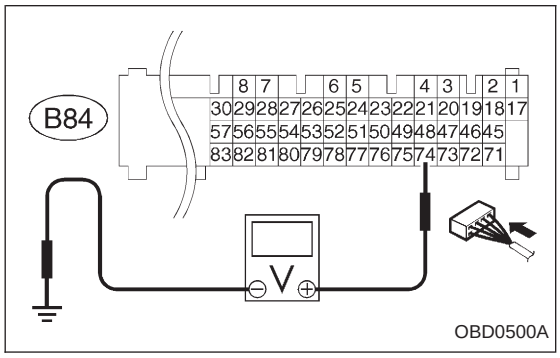
7) Turn ignition switch to ON.
8) Measure voltage between ECM connector and body.

CHECK : ***Connector & terminal***
(B84) No. 34 — Body/2 V, or more

YES : Repair short circuit of harness between ECM and TCS C/M connector.

NO : Repair poor contact in TCS C/M connector.





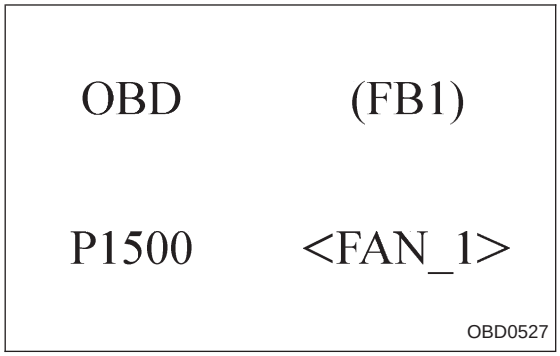
4	CHECK ECM CONNECTOR.

1) Turn ignition switch to ON.
2) Measure voltage between ECM connector and body.

CHECK : ***Connector & terminal***
(B84) No. 74 — Body / 2 V, or more

YES : Repair open circuit of harness between ECM connector and body.

NO : Repair poor contact in ECM connector.



BI: DTC P1500 — RADIATOR FAN RELAY 1 CIRCUIT MALFUNCTION (FAN — 1) —

DESCRIPTION:

● The engine cooling system consists of a down-flow radiator which features high heat-dissipation performance, an electric motor fan, an engine coolant pump, a thermostat, and an engine coolant temperature sensor.
● The ON-OFF control of the radiator fan is governed by the ECM which receives signals sent from the engine coolant temperature sensor. On models which are equipped with an air conditioning system, the ECM receives signals sent from the engine coolant temperature sensor, vehicle speed sensor 2 and A/C switch. These signals simultaneously turn ON or OFF the radiator main fan and radiator sub fan as well as setting them at “HI” or “LO” speed.

[Without A/C models]

Engine coolant temperature signal *1	ECM output signal	Operation of radiator fan
	Radiator fan relay 1	Main
ON	ON	ON
OFF	OFF	OFF

*1 ON: Above 95 °C (203 °F), OFF: Below 89 °C (192 °F)

[With A/C models]

Engine coolant temperature signal *2	A/C compressor	Vehicle speed signal *3	ECM output signal		Operation of radiator fan	
			Radiator fan relay 1	Radiator fan relay 2	Main	Sub
ON	ON	ON	ON	ON	HI	HI
		OFF	ON	ON	HI	HI
	OFF	ON	ON	ON	HI	HI
		OFF	ON	OFF	LO	LO
OFF	ON	ON	ON	ON	HI	HI
		OFF	ON	OFF	LO	LO
	OFF	ON	OFF	OFF	OFF	OFF
		OFF	OFF	OFF	OFF	OFF

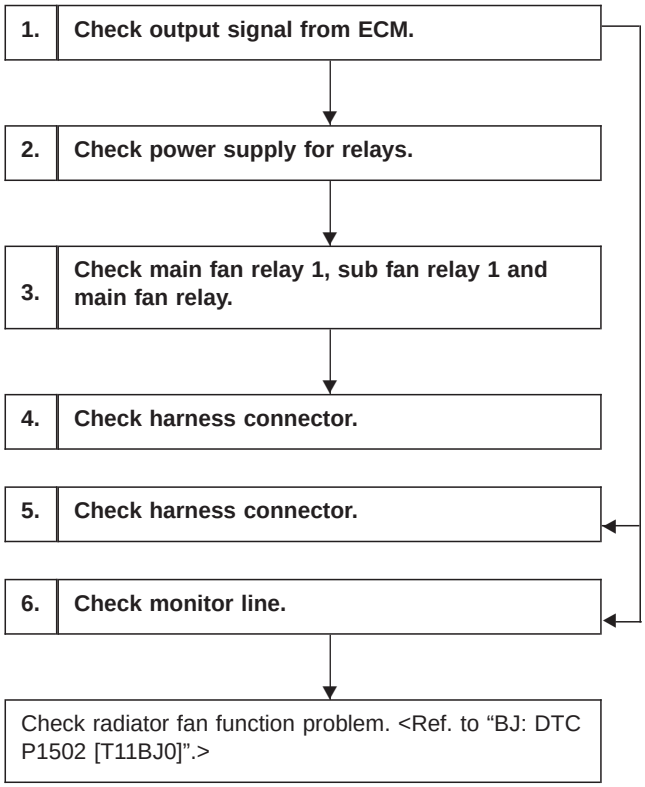
*2 ON: Above 95 °C (203 °F), OFF: Below 89 °C (192 °F)
*3 ON: Above 20 km/h (12 MPH), OFF: Below 10 km/h (6 MPH)

DTC DETECTING CONDITION:

- Two consecutive trips with fault

TROUBLE SYMPTOM:

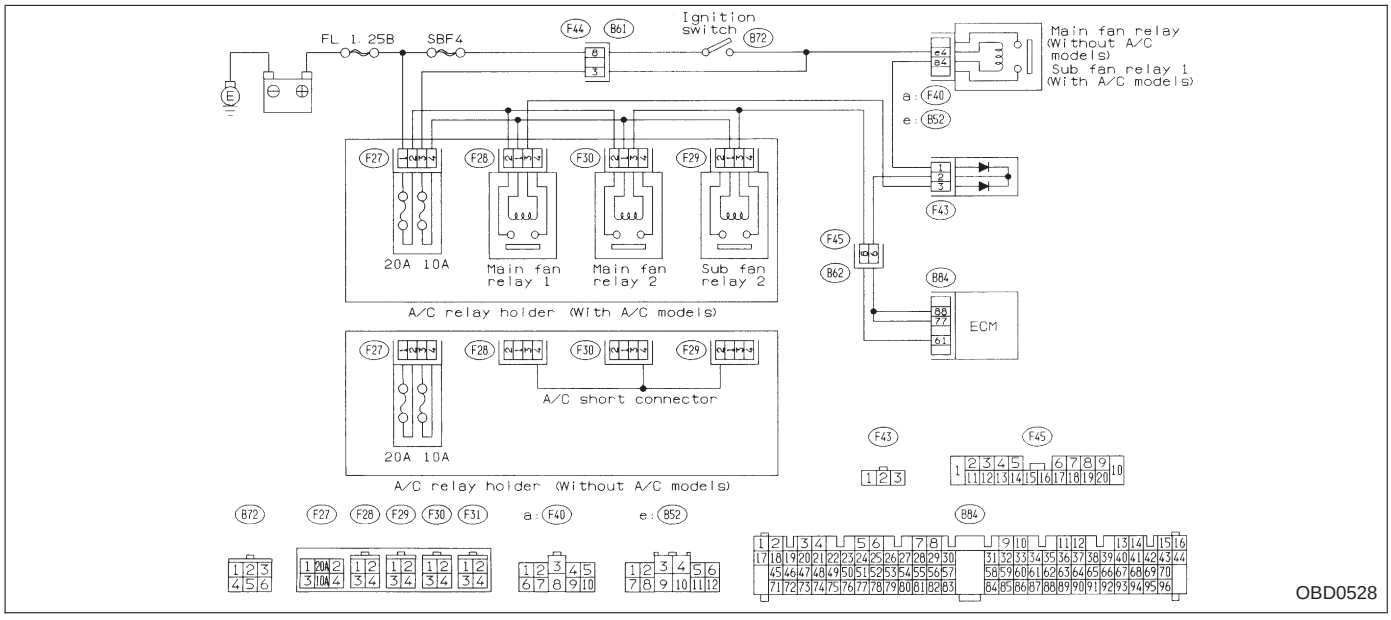
- Radiator fan does not operate properly.
- Overheating



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

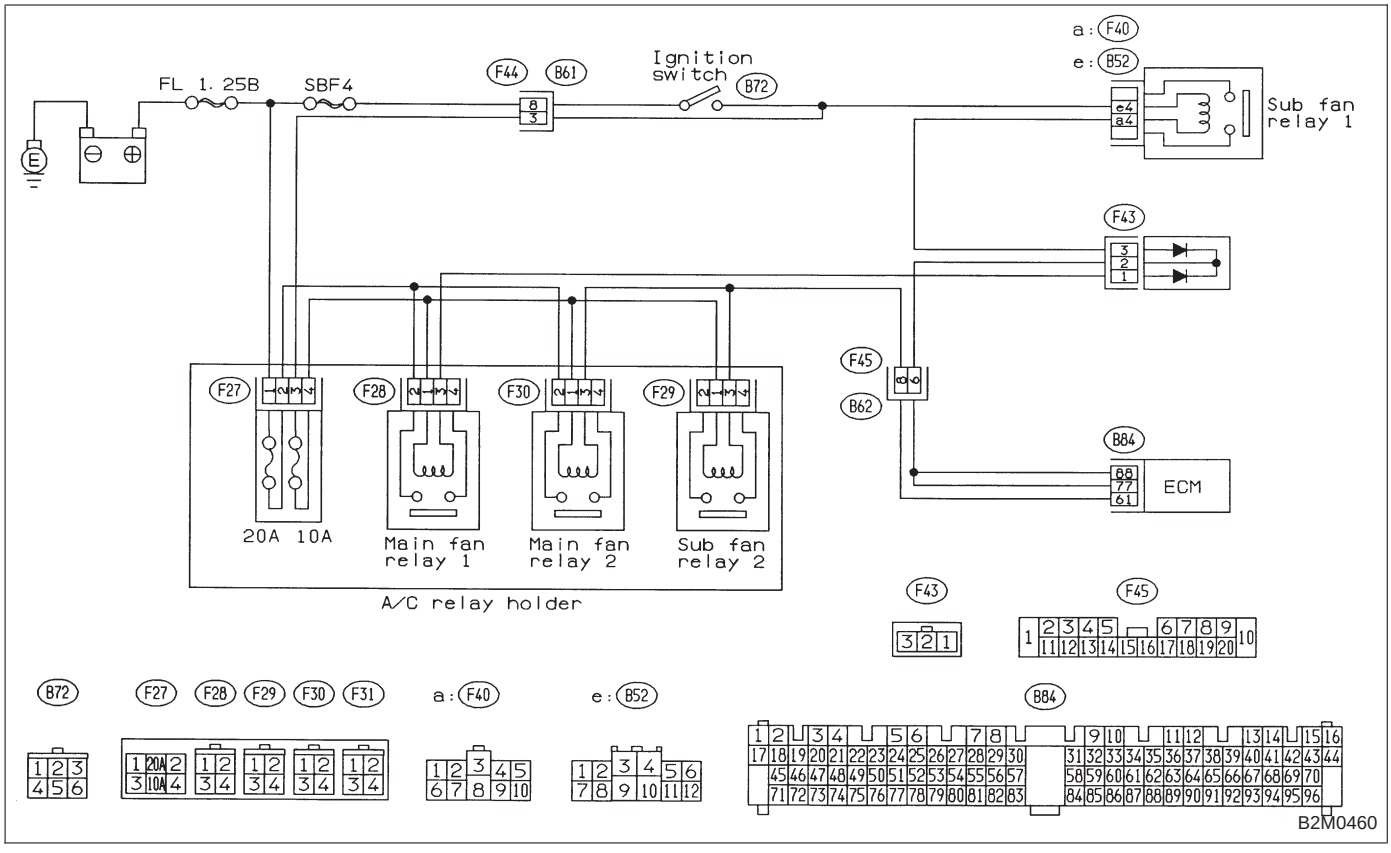
WIRING DIAGRAM:

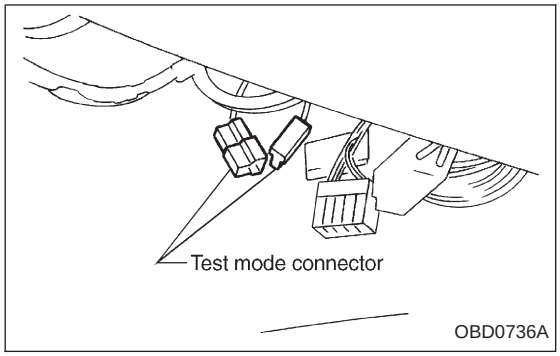
- **LHD model**



WIRING DIAGRAM:

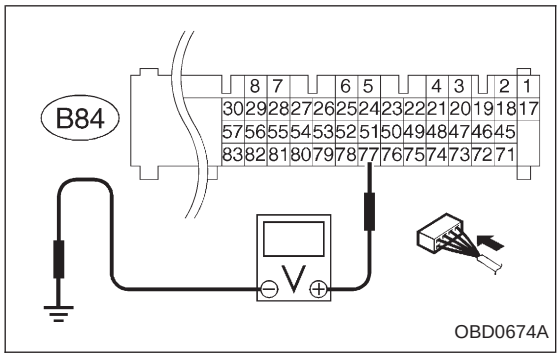
- **RHD model**





1	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.

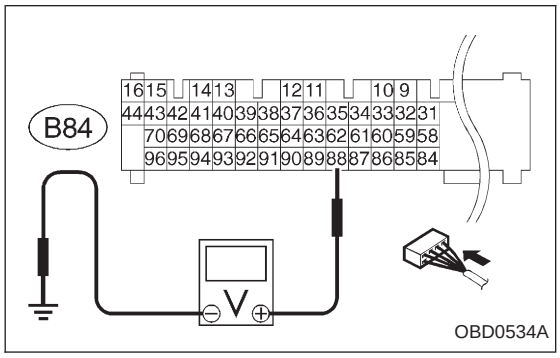


4) Measure voltage between ECM and body.

CHECK ***: Connector & terminal***
(B84) No. 77 — Body/10 V, or more and 1 V or less at every 2 seconds

YES : Go to step 6.

NO : Go to next CHECK .



CHECK ***: Connector & terminal***
(B84) No. 88 — Body/10 V, or more

YES : Go to step 5.

NO : Go to step 2.

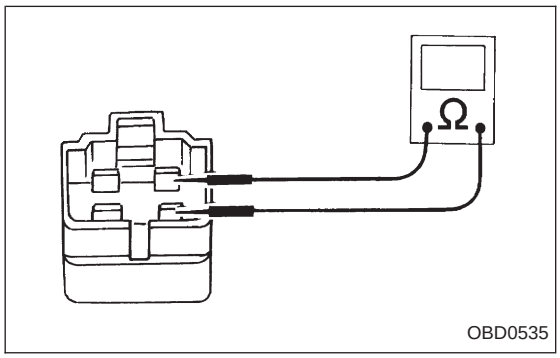
2	CHECK POWER SUPPLY FOR RELAYS.

Turn ignition switch to OFF.

CHECK ***: Is the fuse in power supply circuit broken?***

YES : Replace the fuse.

NO : Go to step 3.



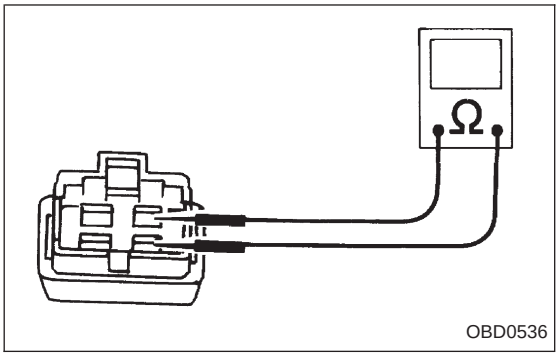
3	CHECK MAIN FAN RELAY 1, SUB FAN RELAY 1 AND MAIN FAN RELAY.

1) Remove main fan relay 1. (With A/C models only)
2) Measure resistance between main fan relay 1 terminals.

CHECK ***: Terminal***
No. 1 — No. 3/97±10 Ω

YES : Go to next step.

NO : Replace main fan relay 1.

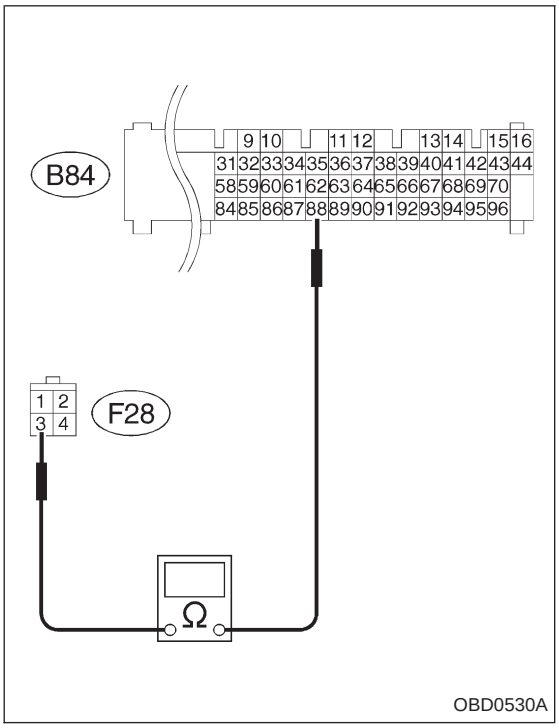


3) Remove sub fan relay 1. (With A/C models only)
Remove main fan relay. (Without A/C models only)
4) Measure resistance between sub fan relay 1 or main fan relay terminals.

CHECK : ***Terminal***
No. 1 — No. 3/100±17 Ω

YES : Go to step 4.

NO : Replace sub fan relay 1 or main fan relay.



4	CHECK HARNESS CONNECTOR.

1) Disconnect connector from ECM.
2) Disconnect connector from sub fan relay 1 or main fan relay.
3) Check if the harness connector is open circuit or has poor contact with the following circuits.

CHECK : ***Connector & terminal***
(B84) No. 88 — (F28) No. 3 / 10 Ω, or less

NOTE:
With A/C models only.

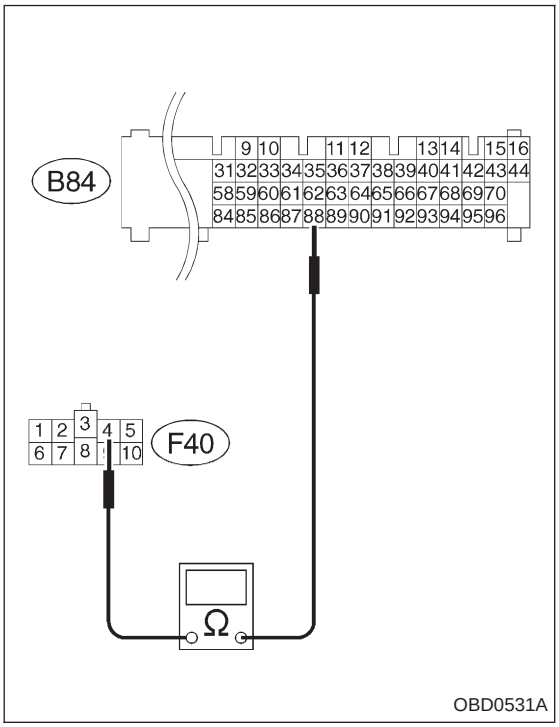
YES : Go to next CHECK .

NO : Repair open circuit of harness between ECM connector and main fan relay 1 connector.

CHECK : ***Is there poor contact in ECM or main fan relay 1 connector?***

YES : Repair ECM or main fan relay 1 connector.

NO : Go to next CHECK .



CHECK : ***Connector & terminal***
(B84) No. 88 — (F40) No. 4 / 10 Ω, or less

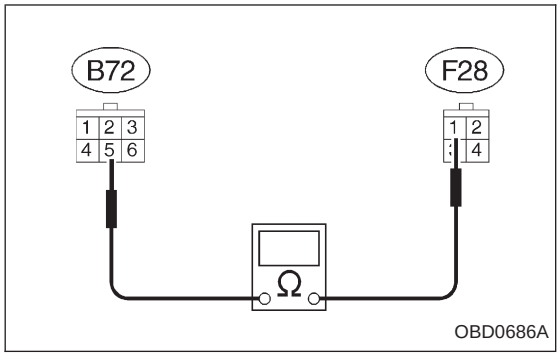
YES : Go to next CHECK .

NO : Repair open circuit of harness between ECM connector and sub fan relay 1 (with A/C models) or main fan relay (without A/C models) connector.

CHECK : ***Is there poor contact in ECM or sub fan relay 1 (with A/C models) or main fan relay (without A/C models) connector?***

YES : Repair ECM or sub fan relay 1 (with A/C models) or main fan relay (without A/C models) connector.

NO : Go to next CHECK .



CHECK ***: Connector & terminal (F28) No. 1 — (B72) No. 5 / 10 Ω, or less***

YES : Go to next CHECK .

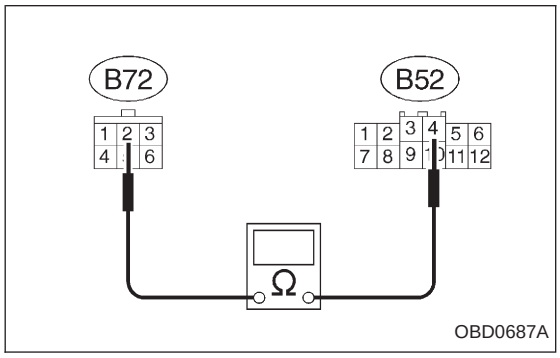
NO : Repair open circuit of harness between main fan relay 1 connector and ignition switch connector.

CHECK ***: Is there poor contact in main fan relay 1 or ignition switch connector?***

YES : Repair main fan relay 1 or ignition switch connector.

NO : Go to next CHECK .

NOTE:
With A/C models only.



CHECK ***: Connector & terminal (B52) No. 4 — (B72) No. 2 / 10 Ω, or less***

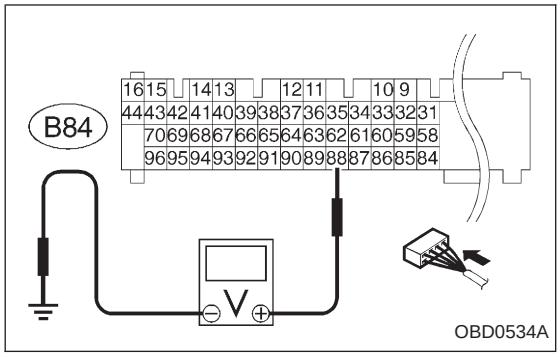
YES : Go to next CHECK .

NO : Repair open circuit of harness between sub fan relay 1 (with A/C models) or main fan relay (without A/C models) connector and ignition switch connector.

CHECK ***: Is there poor contact in sub fan relay 1 (with A/C models) or main fan relay (without A/C models) or ignition switch connector?***

YES : Repair sub fan relay 1 (with A/C models) or main fan relay (without A/C models) or ignition switch connector.

NO : Replace ECM with a new one.



5	CHECK HARNESS CONNECTOR.

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 body.

CHECK ***: Connector & terminal***
(B84) No. 88 — Body / 10 V, or more

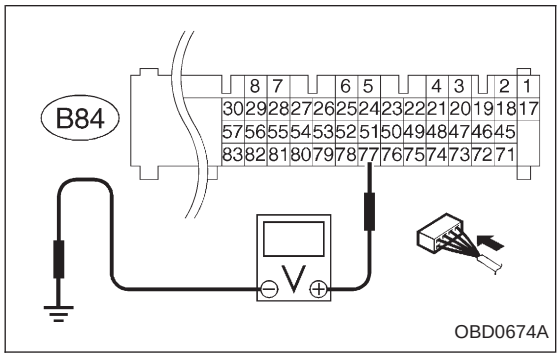
YES : Repair short circuit of harness and replace ECM.

NO : Go to next CHECK .

CHECK ***: Is there poor contact in ECM connector?***

YES : Repair poor contact in ECM connector.

NO : Replace ECM.



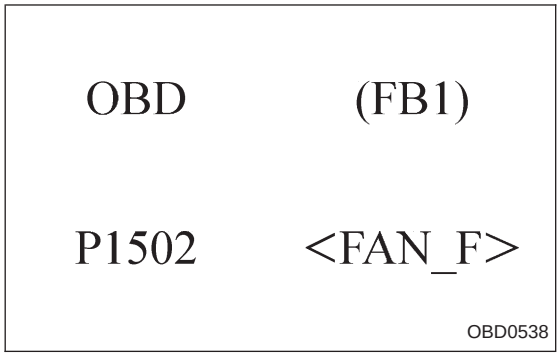
6	CHECK MONITOR LINE.

1) Turn ignition switch to OFF.
2) Connect test mode connector.
3) Turn ignition switch to ON.
4) Measure voltage between ECM and body.

CHECK ***: Connector & terminal***
(B84) No. 77 — Body / 10 V, or more and 1 V, or less at every 2 seconds.

YES : Repair poor contact in ECM connector.

NO : Repair open circuit of harness between ECM connector and sub fan relay 1 (with A/C models) or main fan relay (without A/C models).



BJ: DTC P1502 — RADIATOR FAN FUNCTION PROBLEM (FAN – F) —

DESCRIPTION:

Refer to “BI: DTC P1500 — RADIATOR FAN RELAY 1 CIRCUIT MALFUNCTION — [T11BI0]”.

DTC DETECTING CONDITION:

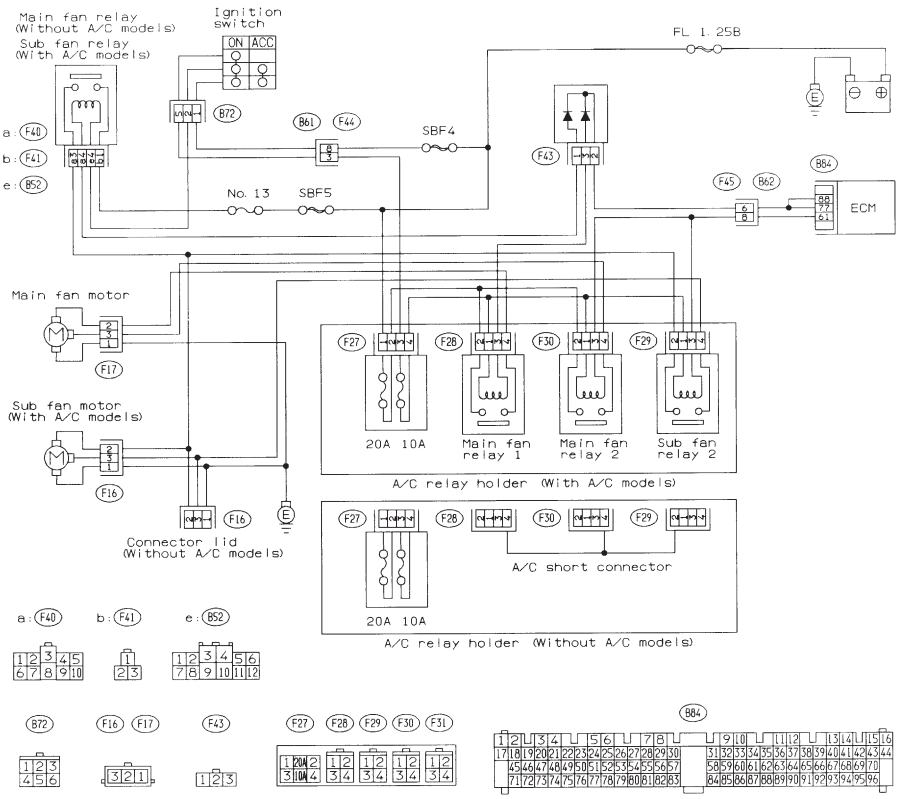
- Two consecutive trips with fault

TROUBLE SYMPTOM:

- Occurrence of noise
- Overheating

WIRING DIAGRAM:

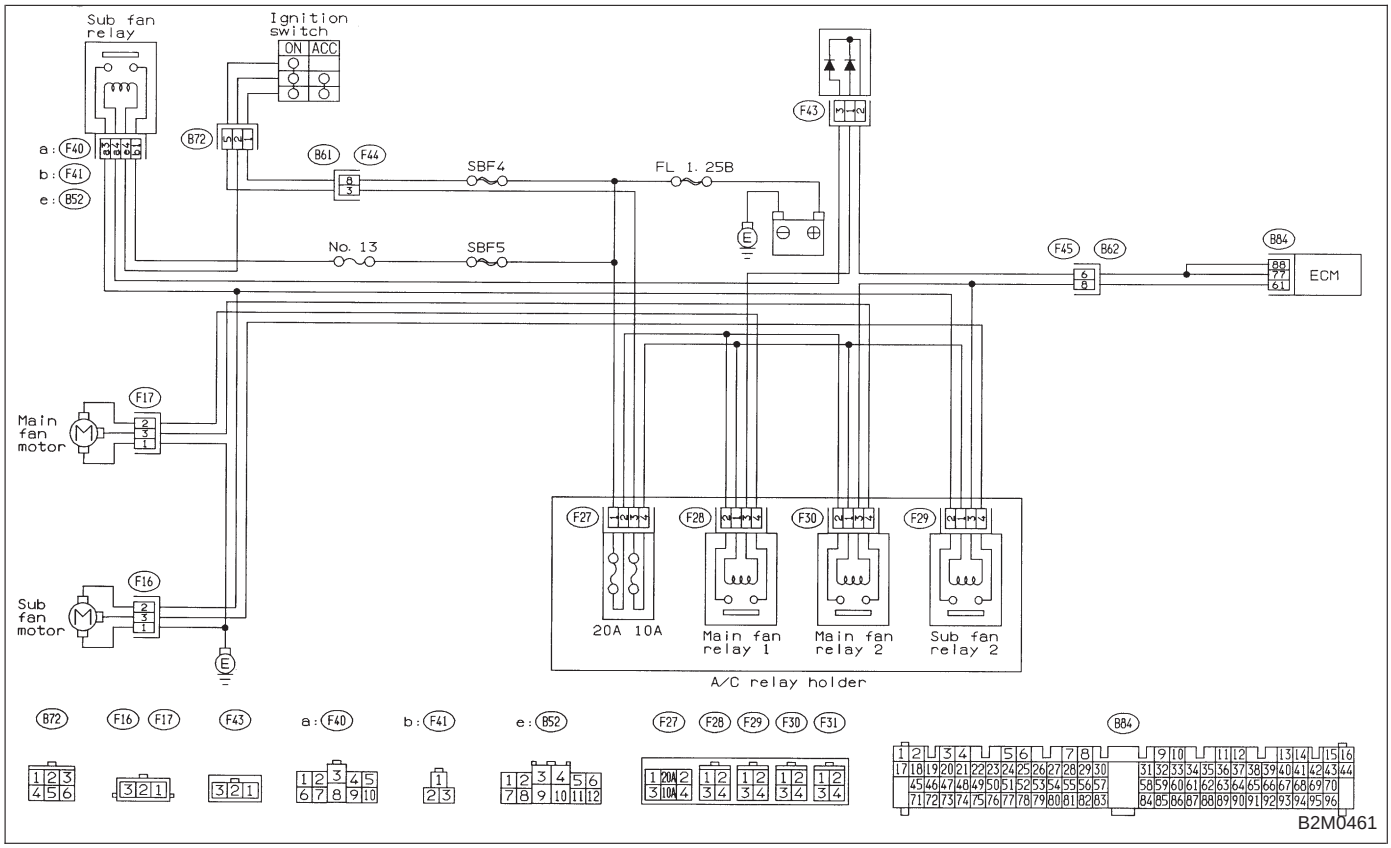
- **LHD model**



OBD0539

WIRING DIAGRAM:

- **RHD model**



When DTC P1104 is on display, check engine cooling system. <Ref. to 2-5 [K100].>

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY and INSPECTION MODES. <Ref. to [T3D0] and [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.

BK: DTC P1700 — THROTTLE POSITION SENSOR CIRCUIT MALFUNCTION FOR AUTOMATIC TRANSMISSION (ATTH) —

DESCRIPTION:

● The throttle position sensor provides electrical signals corresponding to the throttle opening. The throttle opening and accelerator depression speed are detected by this throttle position sensor output.
● Detects throttle opening and determines shift point, line pressure and lockup vehicle speed according to engine load.
<Ref. to “G: DTC P0120 — THROTTLE POSITION SENSOR CIRCUIT MALFUNCTION — [T11G0]”.>

DTC DETECTING CONDITION:

● Two consecutive trips with fault

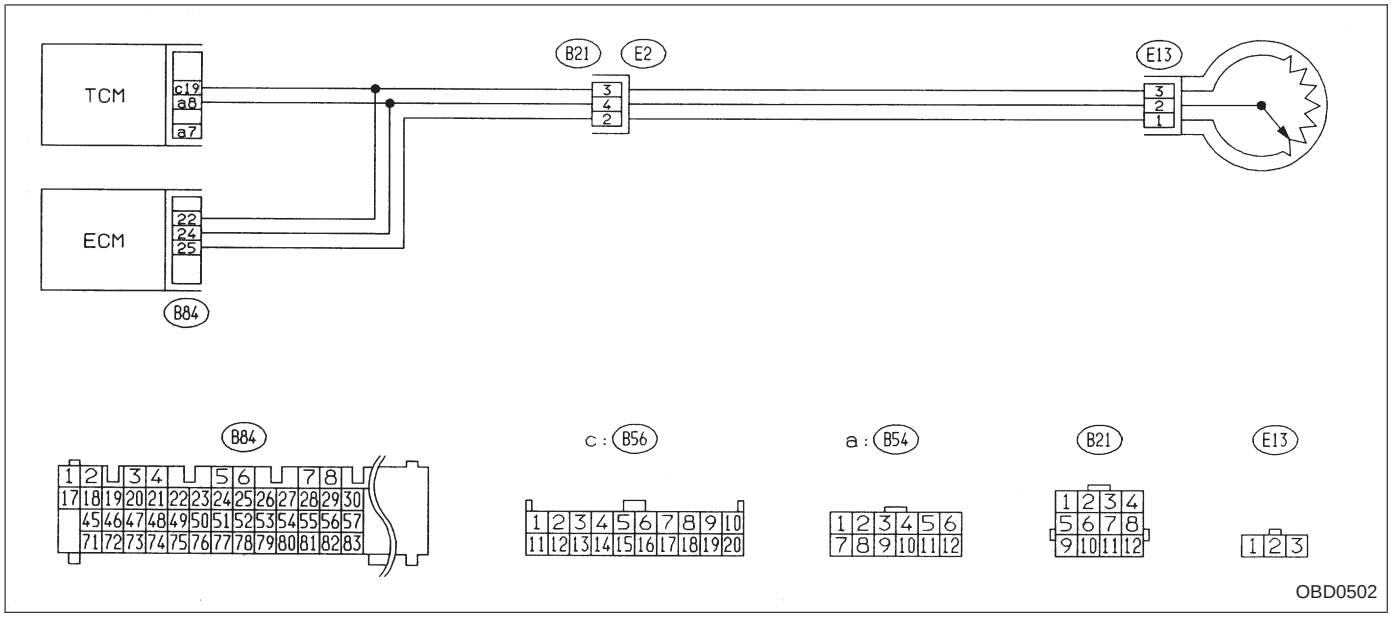
TROUBLE SYMPTOM:

● Shift point too high or too low; engine brake not effected in “3” range; excessive shift shock; excessive tight corner “braking”

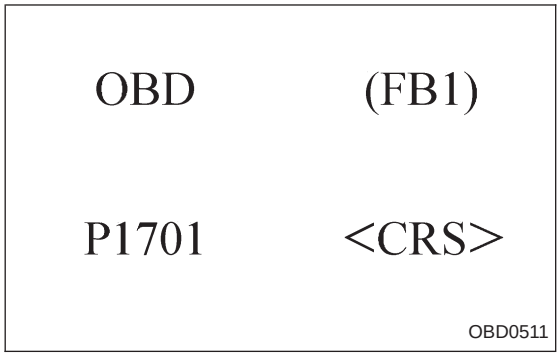
1.	Check harness connector between TCM and throttle position sensor.
2.	Check throttle position sensor.
3.	Check input signal for TCM.
4.	Check power supply to throttle position sensor.

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY and INSPECTION MODES. <Ref. to [T3D0] and [T3E0].>

WIRING DIAGRAM:



NOTE:
For the diagnostic procedure on throttle position sensor circuit, refer to “3-2 [T7L0]”.



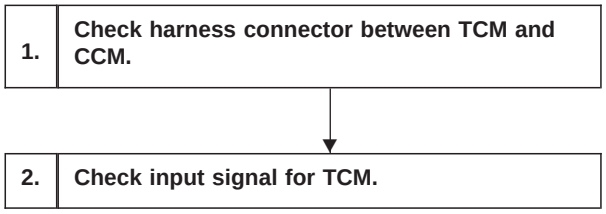
BL: DTC P1701 — CRUISE CONTROL SET SIGNAL CIRCUIT MALFUNCTION FOR AUTOMATIC TRANSMISSION (CRS) —

DESCRIPTION:

Detects operation of cruise control, and expands “4th” operating range.

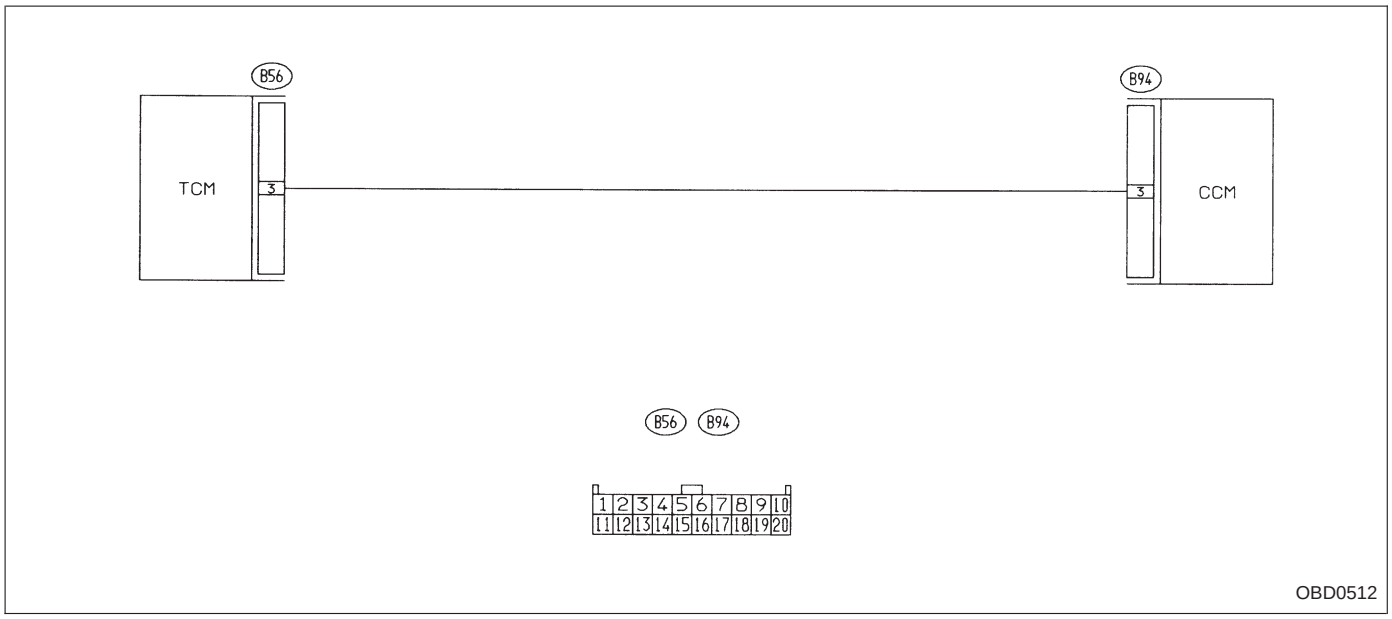
DTC DETECTING CONDITION:

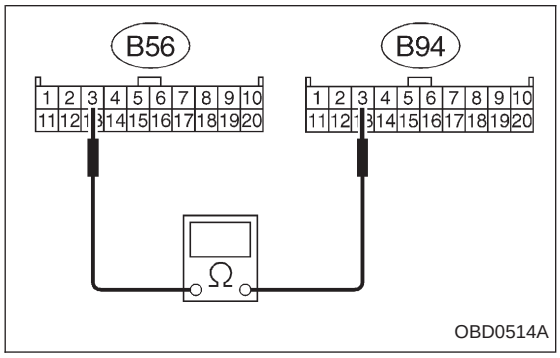
- Two consecutive trips with fault



CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY and INSPECTION MODES. <Ref. to [T3D0] and [T3E0].>

WIRING DIAGRAM:





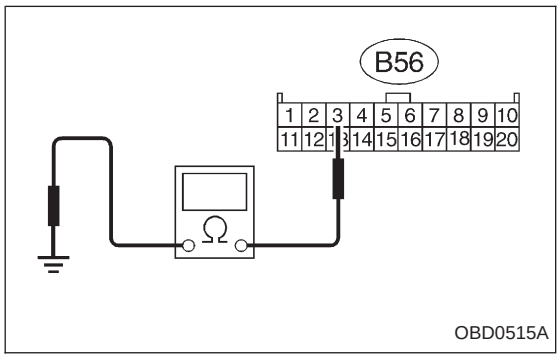
1.	CHECK HARNESS CONNECTOR BETWEEN TCM AND CCM.

1) Turn ignition switch to OFF.
2) Disconnect connectors from TCM and CCM.
3) Measure resistance of harness connector between TCM and CCM.

CHECK ***: Connector & terminal (B56) No. 3 — (B94) No. 3 / 10 Ω, or less***

NO : Repair open circuit of harness between TCM connector and CCM connector.

YES : Go to next step.

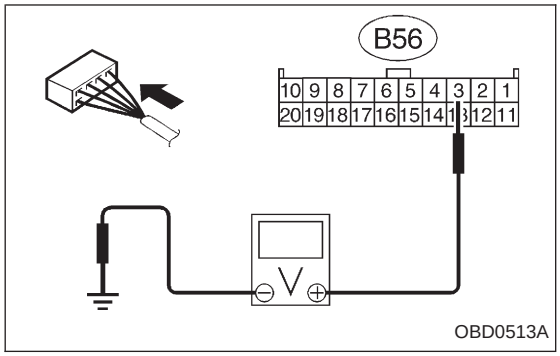


4) Measure resistance of harness connector between TCM and body.

CHECK ***: Connector & terminal (B56) No. 3 — Body / 1 MΩ, or more***

NO : Repair short circuit of harness between TCM connector and CCM connector.

YES : Go to step 2.



2	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 body.

CHECK ***: Connector & terminal (B56) No. 3 — Body / 1 V, or less***

NO : Check cruise control set circuit. <Ref. to 6-2 [T7A0].>

YES : Go to next CHECK .

CHECK ***: Is there poor contact in TCM connector?***

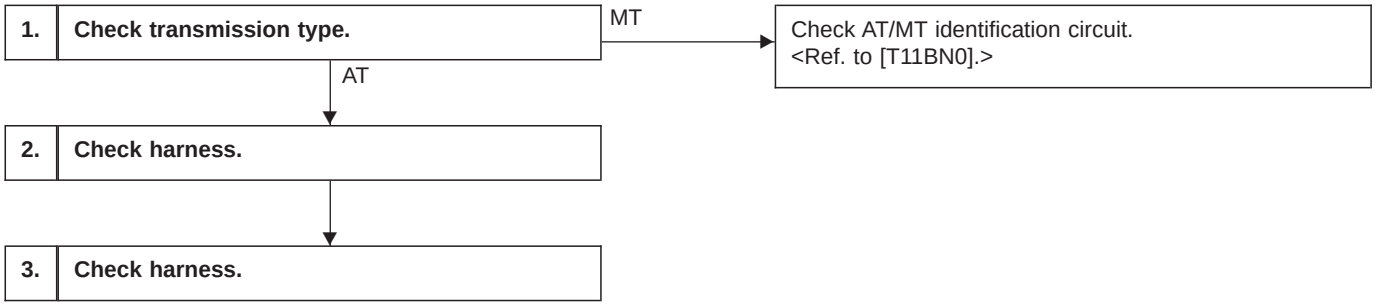
YES : Repair poor contact in TCM connector.

NO : Replace TCM with a new one.

BM: DTC P1702 — AUTOMATIC TRANSMISSION DIAGNOSIS INPUT SIGNAL CIRCUIT MALFUNCTION (ATDIAG) —

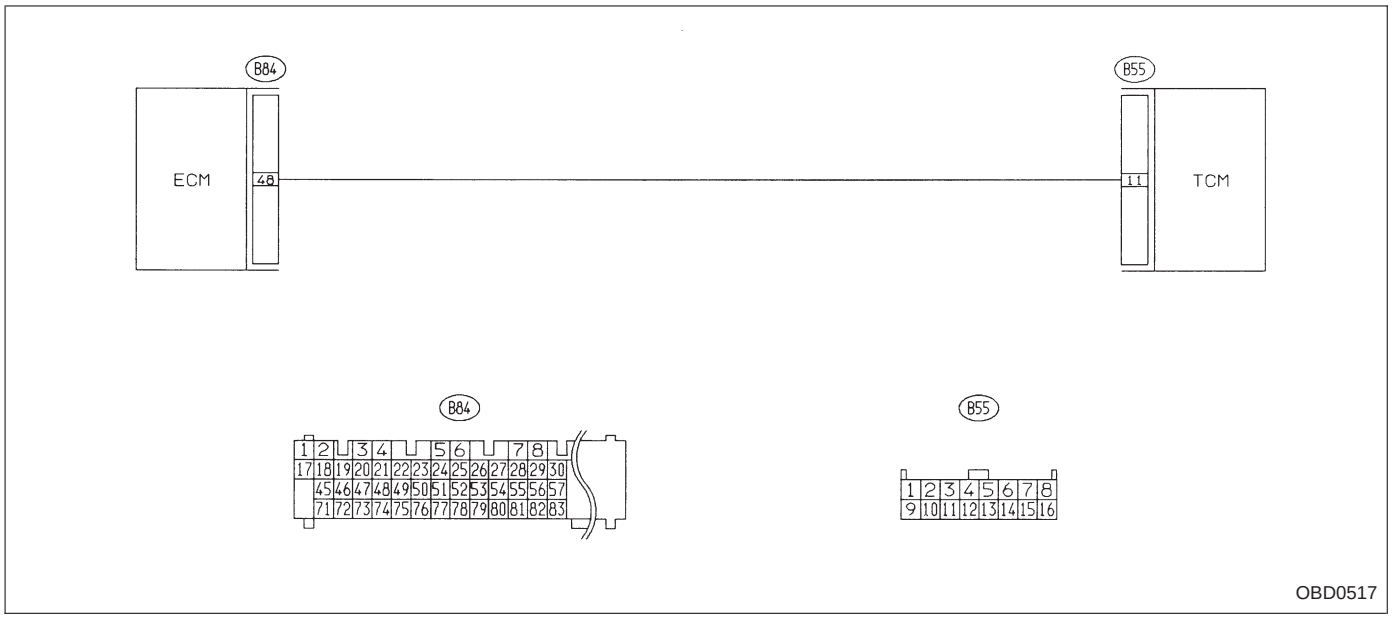
DTC DETECTING CONDITION:

- Two consecutive trips with fault



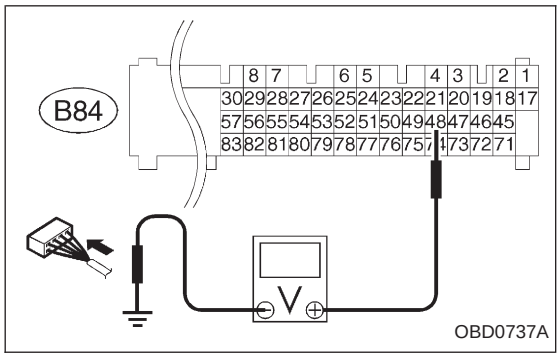
CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY and INSPECTION MODES. <Ref. to [T3D0] and [T3E0].>

WIRING DIAGRAM:



1	CHECK TRANSMISSION TYPE.

Refer to flow chart on page 346.



2	CHECK HARNESS.

1) Turn ignition switch to ON.
2) Measure voltage between ECM connector and body.

CHECK : ***Connector & terminal (B84) No. 48 — Body / 4 V, or more***

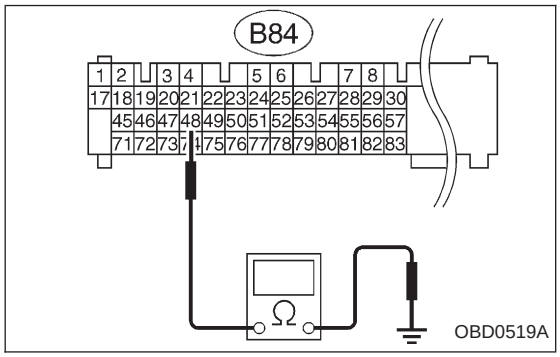
YES : ● Open circuit of harness between ECM connector and TCM connector
● Poor contact in ECM connector
● Poor contact in TCM connector
Check the above and repair if necessary.

NO : Go to next CHECK .

CHECK : ***Connector & terminal (B84) No. 48 — Body / 1 V, or less***

YES : Go to step 3.

NO : Although MIL illuminates, circuit is now normal. Check all connectors for possible poor contact between ECM connector and TCM connector.



3	CHECK HARNESS.

1) Turn ignition switch to OFF.
2) Disconnect connector from ECM.
3) Measure resistance between ECM harness connector and body.

CHECK : ***Connector & terminal (B84) No. 48 — Body / 10 Ω, or less***

YES : Repair short circuit of harness between ECM connector and TCM connector.

NO : Repair poor contact in ECM connector.

BN: — AT/MT IDENTIFICATION CIRCUIT MALFUNCTION [MT VEHICLES] —

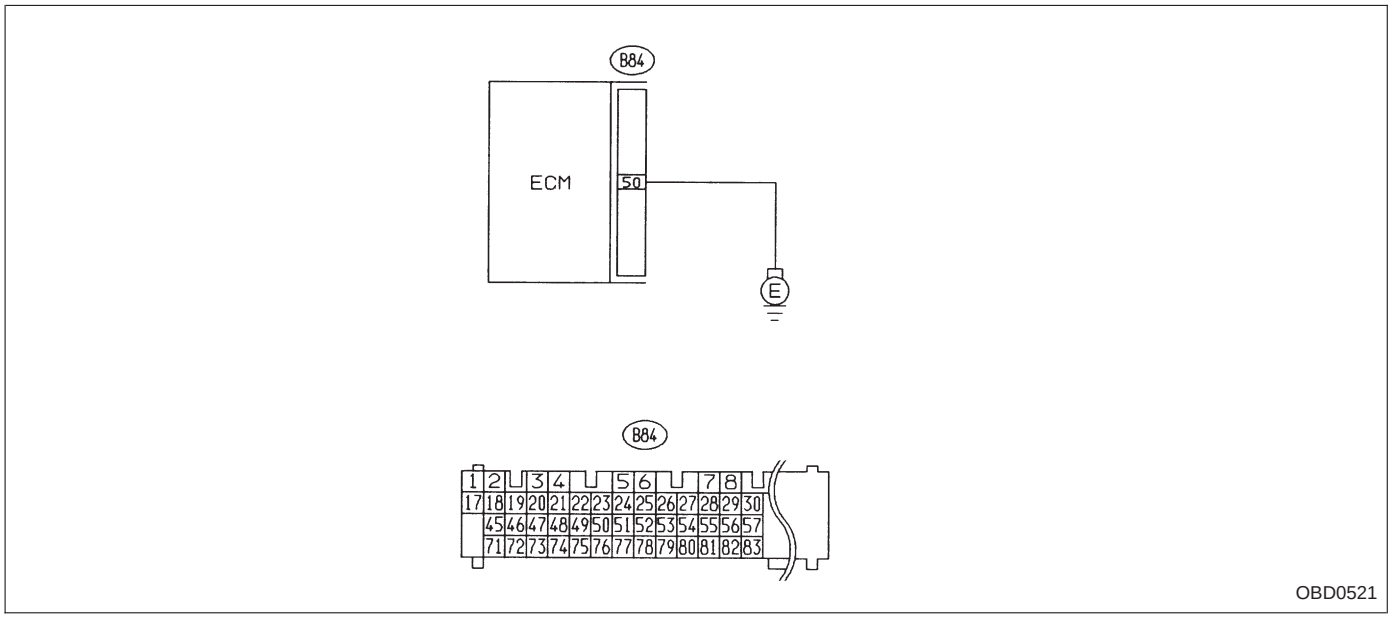
DESCRIPTION:

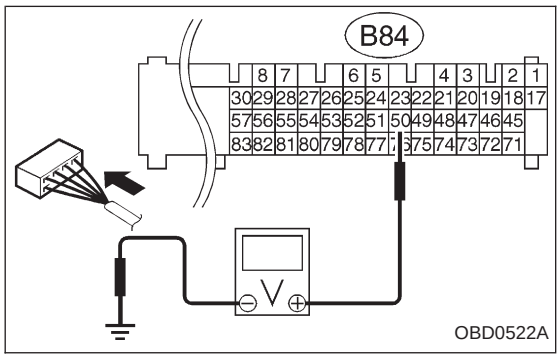
The circuit allows the ECM to identify the vehicle as an AT or MT vehicle.

1.	Check harness connector.

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY and INSPECTION MODES. <Ref. to [T3D0] and [T3E0].>

WIRING DIAGRAM:





1	CHECK HARNESS CONNECTOR.

1) Turn ignition switch to ON.
2) Measure voltage between ECM and body.

CHECK ***: Connector & terminal (B84) No. 50 — Body / 2 V, or more***

YES : Repair open circuit of harness between ECM connector and body.

NO : Confirm good connection at ECM connector.