10. 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	95
P0101	QA — R	Mass air flow sensor circuit range/performance problem	100
P0105	P — S	Pressure sensor circuit malfunction	101
P0106	P — R	Pressure sensor circuit range/performance problem	107
P0115	TW	Engine coolant temperature sensor circuit malfunction	111
P0120	THV	Throttle position sensor circuit malfunction	115
P0121	TH — R	Throttle position sensor circuit range/performance problem	121
P0125	TW — CL	Insufficient coolant temperature for closed loop fuel control	122
P0130	FO2 — V	Front oxygen sensor circuit malfunction	123
P0133	FO2 — R	Front oxygen sensor circuit slow response	127
P0135	FO2H	Front oxygen sensor heater circuit malfunction	129
P0136	RO2 — V	Rear oxygen sensor circuit malfunction	134
P0139	RO2 — R	Rear oxygen sensor circuit slow response	138
P0141	RO2H	Rear oxygen sensor heater circuit malfunction	140
P0170	FUEL	Fuel trim malfunction	145
P0201	INJ1	Fuel injector circuit malfunction - #1	150
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	155
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	161
P0335	CRANK	Crankshaft position sensor circuit malfunction	165
P0340	CAM	Camshaft position sensor circuit malfunction	168
P0400	EGR	Exhaust gas recirculation flow malfunction	171
P0403	EGRSOL	Exhaust gas recirculation circuit malfunction	176
P0420	CAT	Catalyst system efficiency below threshold	181
P0441	CPC — F	Evaporative emission control system incorrect purge flow	183
P0443	CPC	Evaporative emission control system purge control valve circuit malfunction	185
P0500	VSP	Vehicle speed sensor malfunction	189
P0505	ISC	Idle control system malfunction	191
P0506	ISC — L	Idle control system RPM lower than expected	196
P0507	ISC — H	Idle control system RPM higher than expected	198
P0600	—	Serial communication link malfunction	200
P0601	RAM	Internal control module memory check sum error	202
P0703	BRK	Brake switch input malfunction	204

DTC No.	Abbreviation (Subaru select monitor)	Item	Page
P0705	RNG	Transmission range sensor circuit malfunction	207
P0710	ATF	Transmission fluid temperature sensor circuit malfunction	212
P0720	ATVSP	Output speed sensor (vehicle speed sensor 1) circuit malfunction	214
P0725	ATNE	Engine speed input circuit malfunction	216
P0731	GR — 1	Gear 1 incorrect ratio	218
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	222
P0743	LU	Torque converter clutch system electrical	226
P0748	PL	Pressure control solenoid electrical	228
P0753	SFT1	Shift solenoid A electrical	230
P0758	SFT2	Shift solenoid B electrical	232
P0760	OVR — F	Shift solenoid C malfunction	234
P0763	OVR	Shift solenoid C electrical	238
P1100	ST — SW	Starter switch circuit malfunction	240
P1101	N — SW	Neutral position switch circuit malfunction	242
P1102	BR	Pressure sources switching solenoid valve circuit malfunction	246
P1103	TRQ	Engine torque control signal circuit malfunction	250
P1500	FAN — 1	Radiator fan relay 1 circuit malfunction	252
P1502	FAN — F	Radiator fan function problem	258
P1700	ATTH	Throttle position sensor circuit malfunction for automatic transmission	260
P1701	CRS	Cruise control set signal circuit malfunction for automatic transmission	262
P1702	ATDIAG	Automatic transmission diagnosis input signal circuit malfunction	265

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

DTC DETECTING CONDITION:

- Immediately at fault recognition

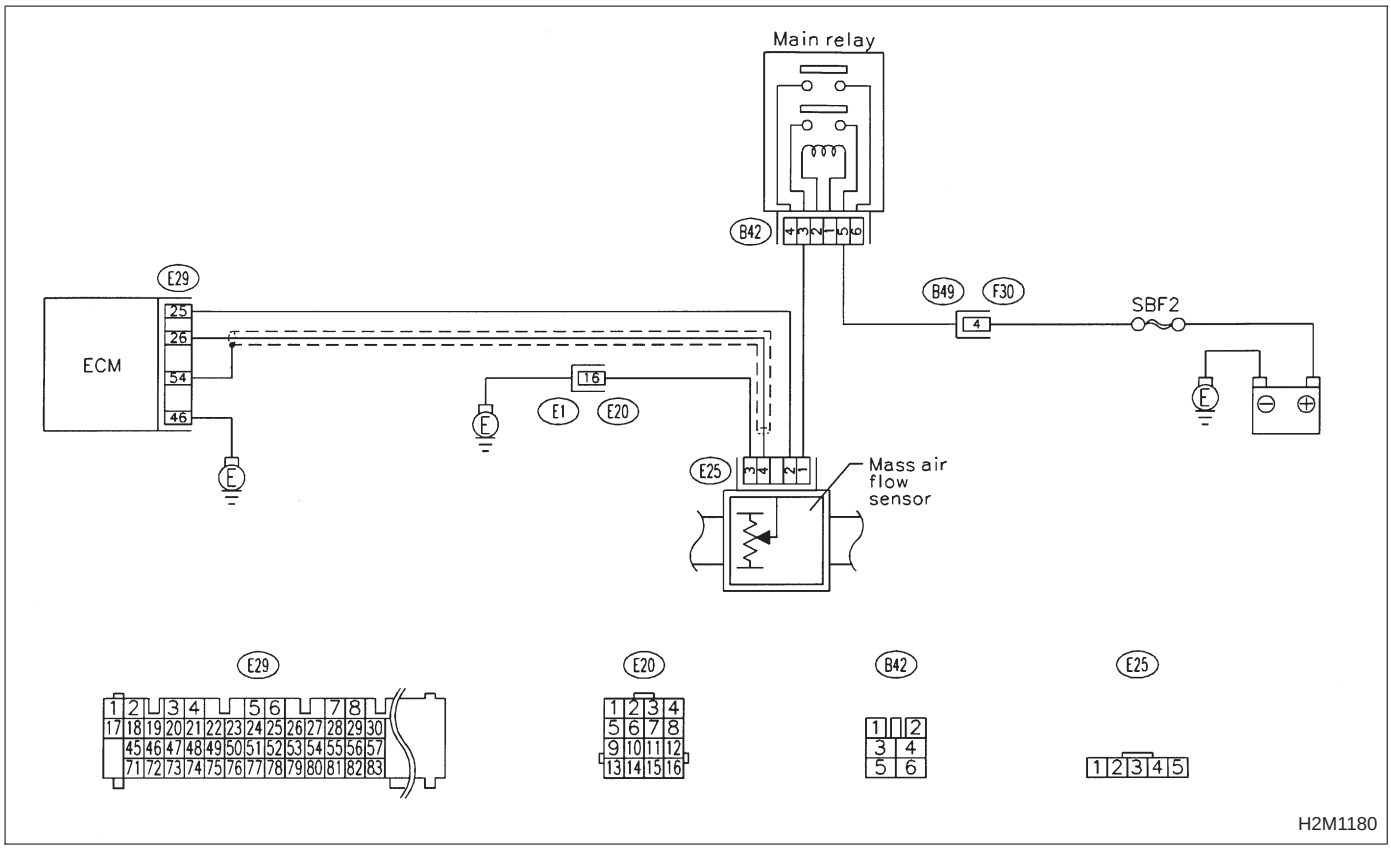
TROUBLE SYMPTOM:

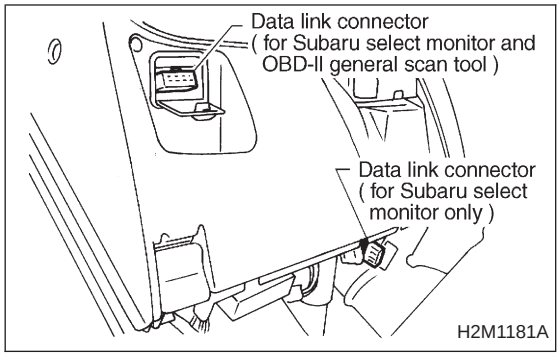
- Erroneous idling
- Engine stalls.
- Poor driving performance

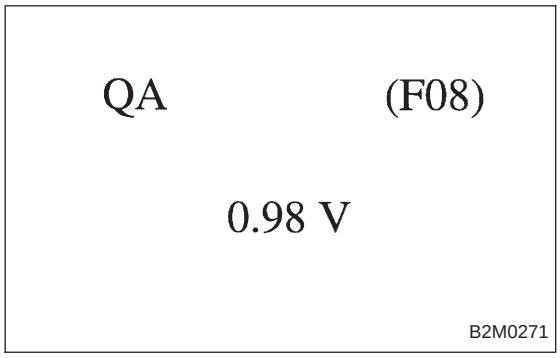
1.	Connect Subaru Select Monitor or the OBD-II general scan tool, and read data.
2.	Check input signal for ECM. (Using voltage meter and Subaru Select Monitor.)
3.	Check power supply to mass air flow sensor.
4.	Check harness connector between ECM and mass air flow sensor.
5.	Check harness.

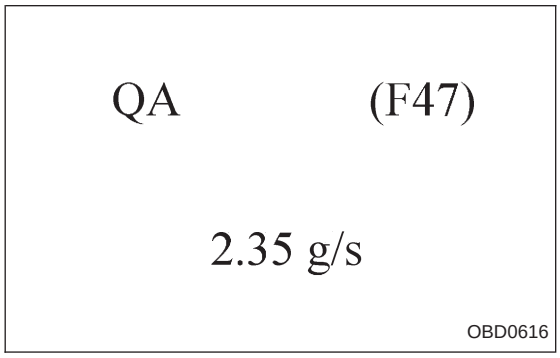
CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY and INSPECTION MODES.
<Ref. to 2-7b [T3D0] and [T3E0].>

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 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 .

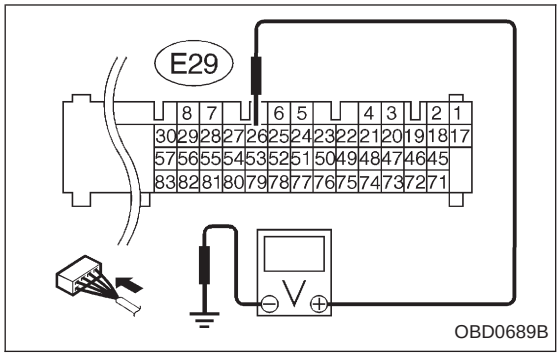
CHECK ***: Is the value less than 0.3 V (1.3 g/sec)?***

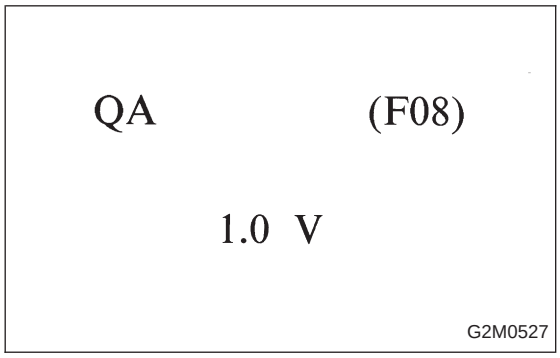
YES : Go to step 2.

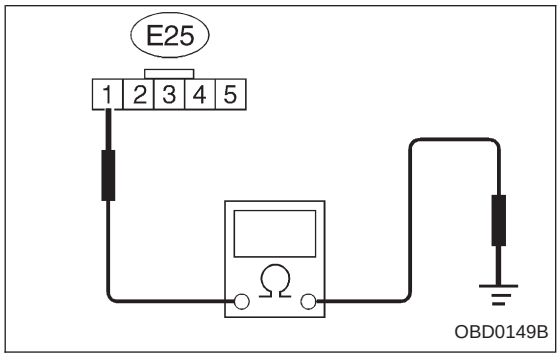
NO : Go to step 5.

● 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 (E29) 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.

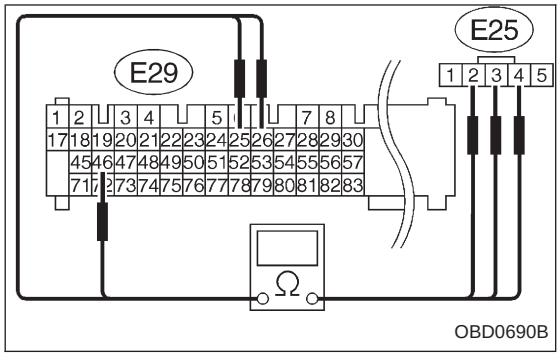
3	CHECK POWER SUPPLY TO MASS AIR FLOW SENSOR.

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 (E25) 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.



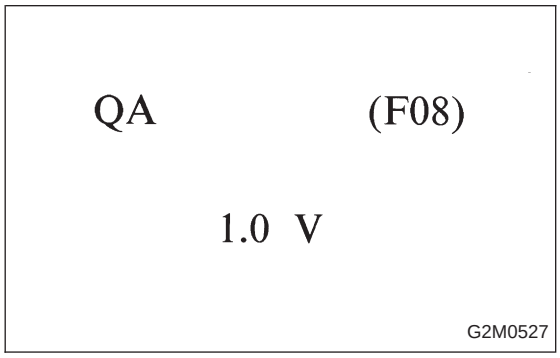
4	CHECK HARNESS CONNECTOR BETWEEN ECM AND MASS AIR FLOW SENSOR.

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 ***(E29) No. 26 — (E25) No. 4/1 Ω, or less***
- ② ***(E29) No. 46 — (E25) No. 3/1 Ω, or less***
- ③ ***(E29) No. 25 — (E25) No. 2/1 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.

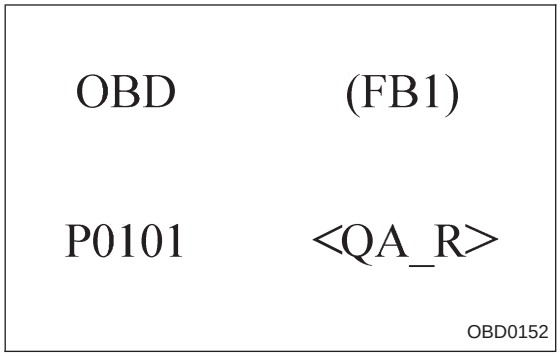
NO : Go to next CHECK .

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.



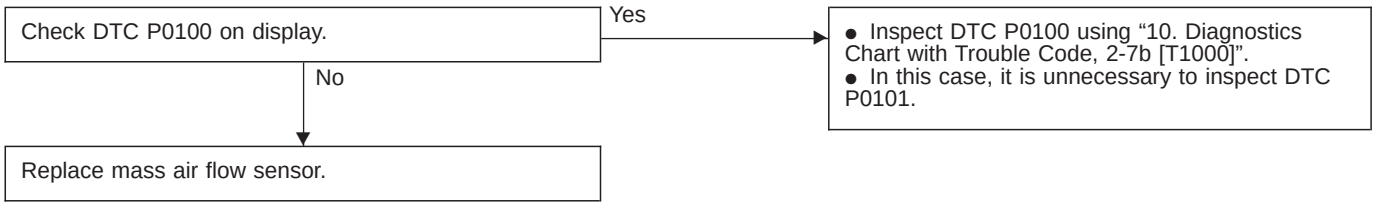
C: DTC P0101 — MASS AIR FLOW SENSOR CIRCUIT RANGE/PERFORMANCE PROBLEM (QA – R) —

DTC DETECTING CONDITION:

- Two consecutive trips with fault

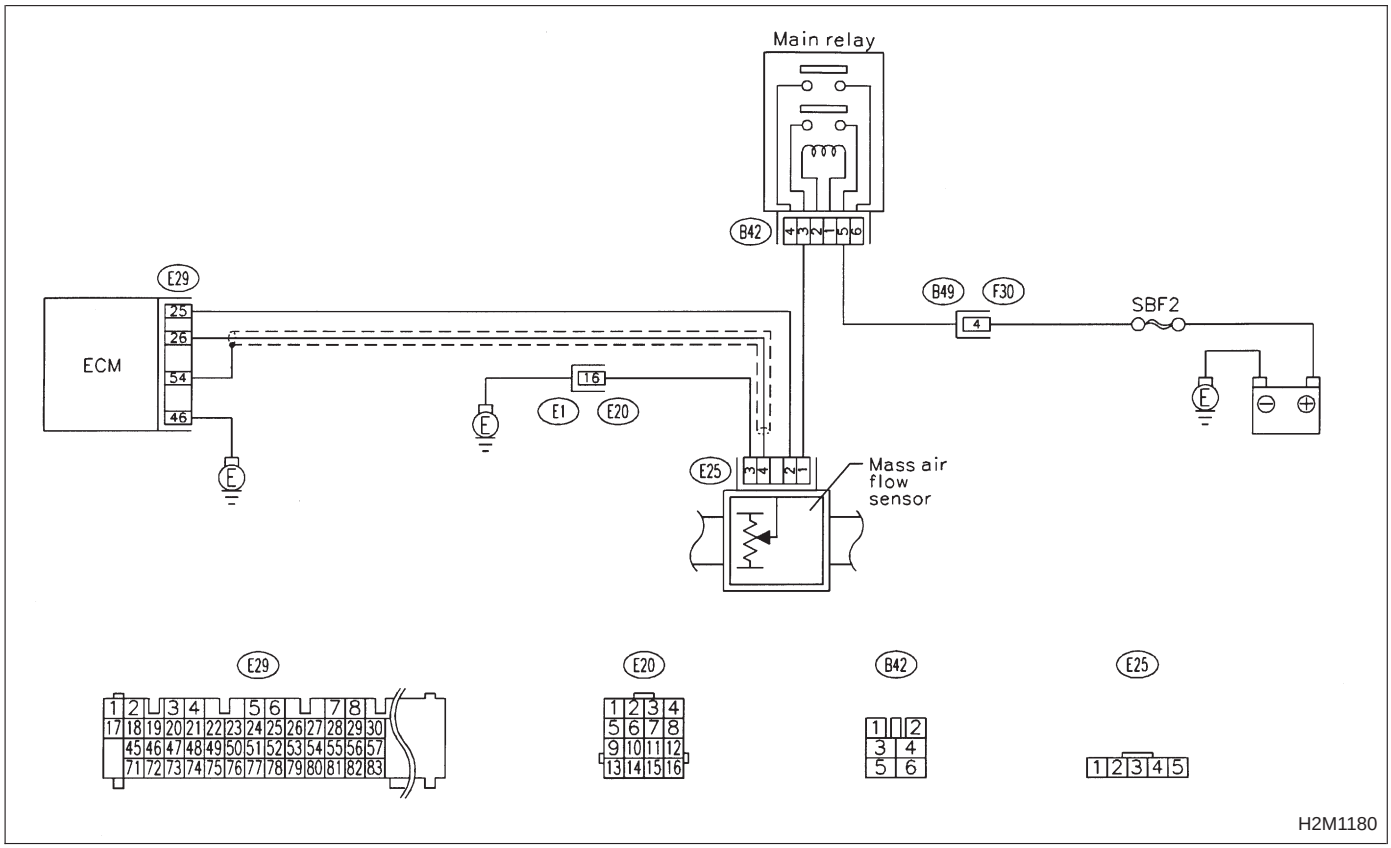
TROUBLE SYMPTOM:

- Erroneous idling
- Engine stalls.
- Poor driving performance



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

WIRING DIAGRAM:



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

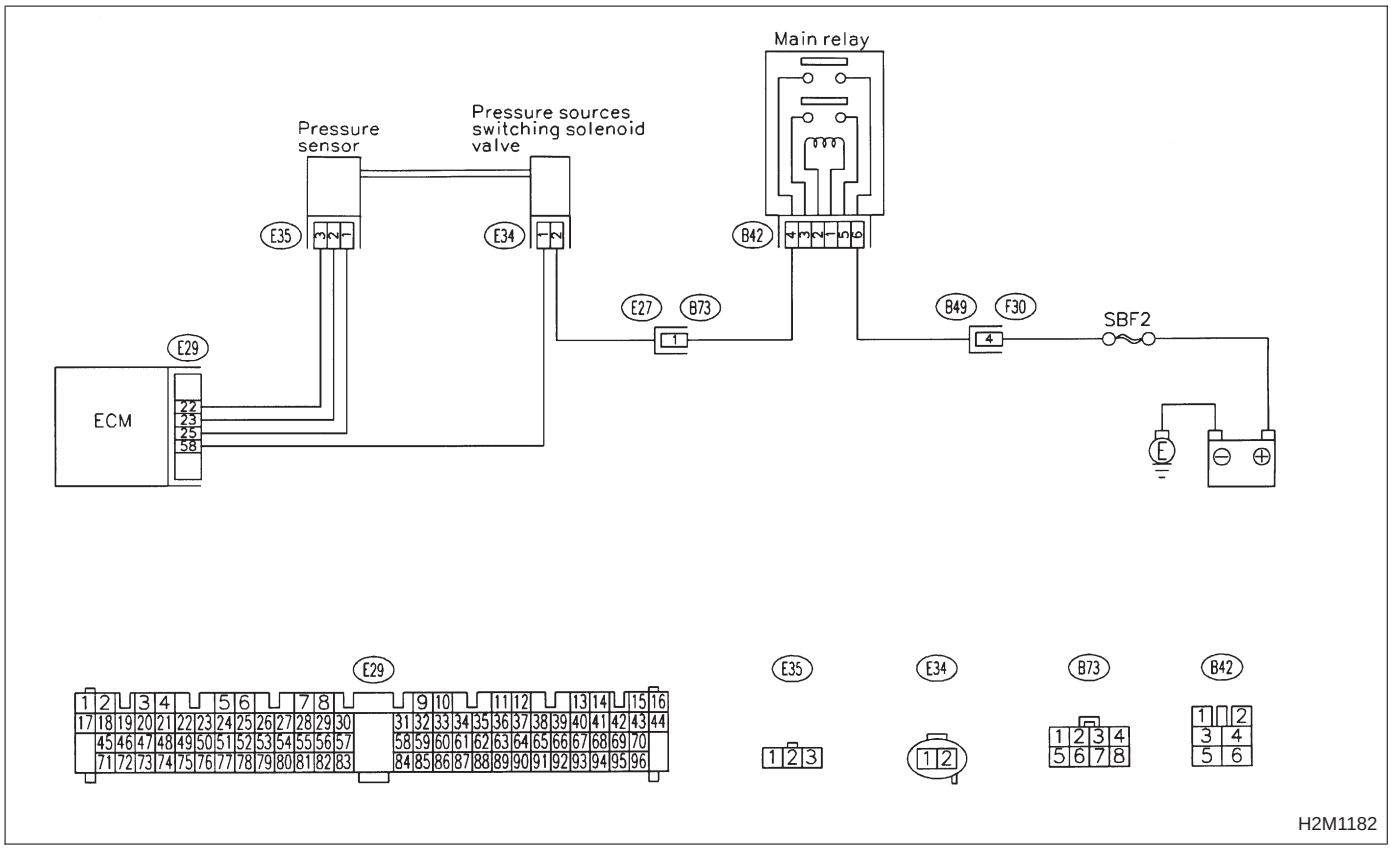
DTC DETECTING CONDITION:

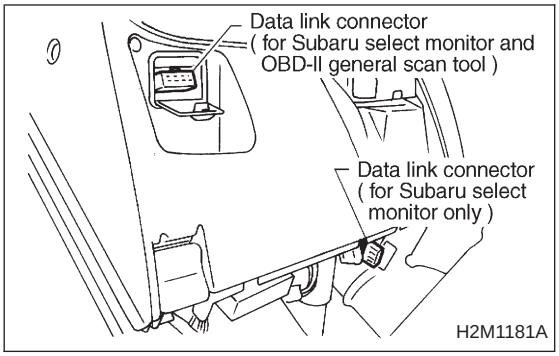
- Immediately at fault recognition

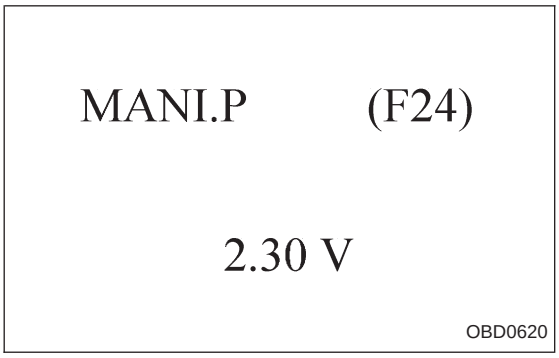
1.	**Connect Subaru Select Monitor or the OBD-II general scan tool, and read data.**
2.	**Check input signal for ECM. (Using voltage meter and Subaru Select Monitor.)**
3.	**Check harness connector between ECM and pressure sensor.**
4.	**Check harness connector between ECM and pressure sensor.**

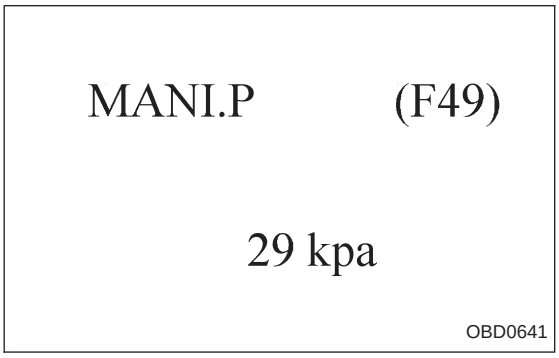
CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY and INSPECTION MODES.
<Ref. to 2-7b [T3D0] and [T3E0].>

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 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 2.

NO : Go to next CHECK .

CHECK ***: More than 4.9 V or 140 kPa***

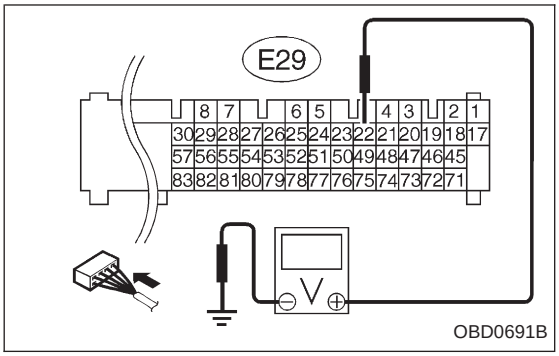
YES : Go to step 4.

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.



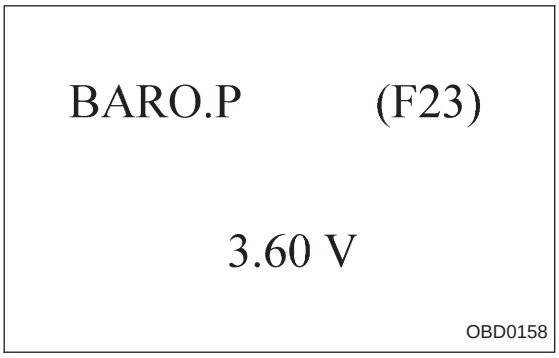
2	CHECK INPUT SIGNAL FOR ECM. (USING VOLTAGE METER AND SUBARU SELECT MONITOR.)

1) Measure voltage between ECM and body.

CHECK ***: Connector & terminal (E29) 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?***

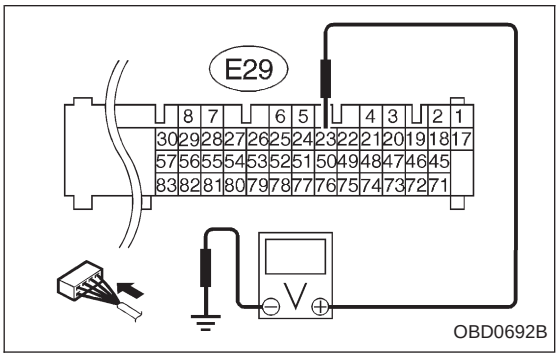
● Subaru Select Monitor
Designate mode using function key.

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.

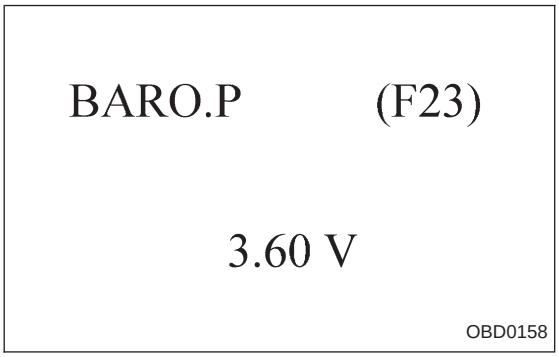


2) Measure voltage between ECM and body.

CHECK ***: Connector & terminal (E29) No. 23 — Body/0.2 V, or less***

YES : Go to step 3.

NO : Go to next CHECK .



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

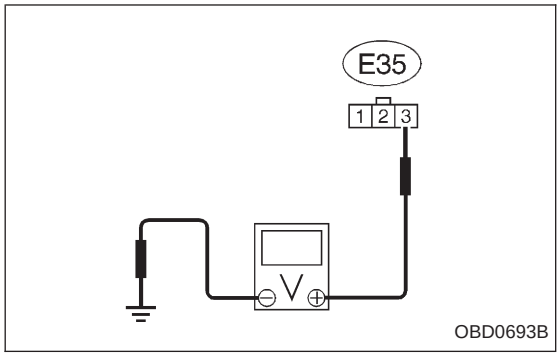
● Subaru Select Monitor
Designate mode using function key.

Function mode: F23

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

YES : Repair poor contact in ECM connector.

NO : Go to step 3.



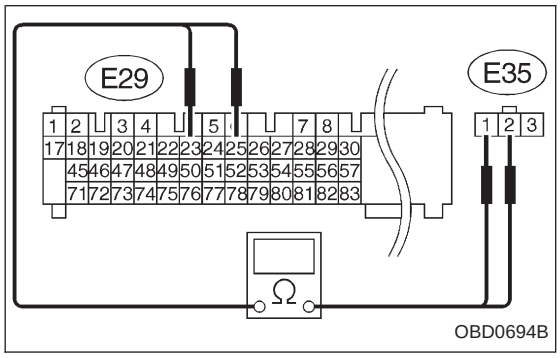
3	CHECK HARNESS CONNECTOR BETWEEN ECM AND PRESSURE SENSOR.

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***
(E35) No. 3 — Body/4.5 V, or more

YES : Go to the next step.

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

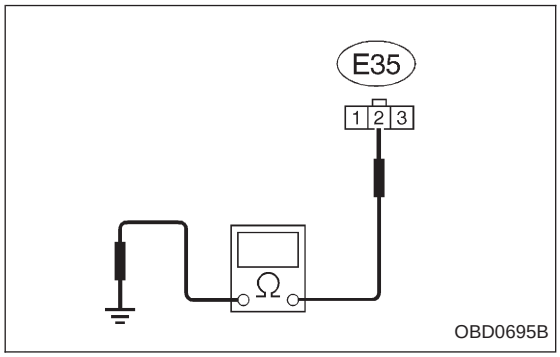


5) Turn ignition switch to OFF.
6) Disconnect connector from ECM.
7) Measure resistance of harness connector between ECM and pressure sensor.

CHECK : ***Connector & terminal***
(E29) No. 23 — (E35) No. 2/1 Ω, or less
(E29) No. 25 — (E35) No. 1/1 Ω, or less

YES : Go to the next step.

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



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

CHECK : ***Connector & terminal***
(E35) No. 2 — Body/500 kΩ, or more

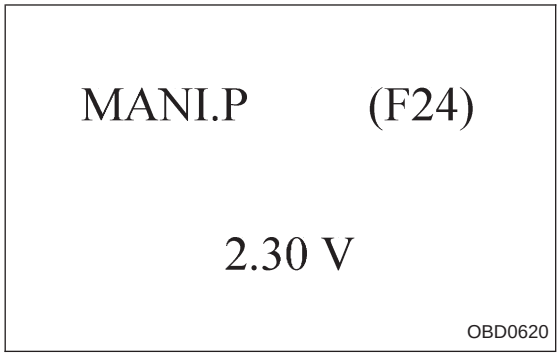
YES : Go to the next CHECK .

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

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.



4	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) —

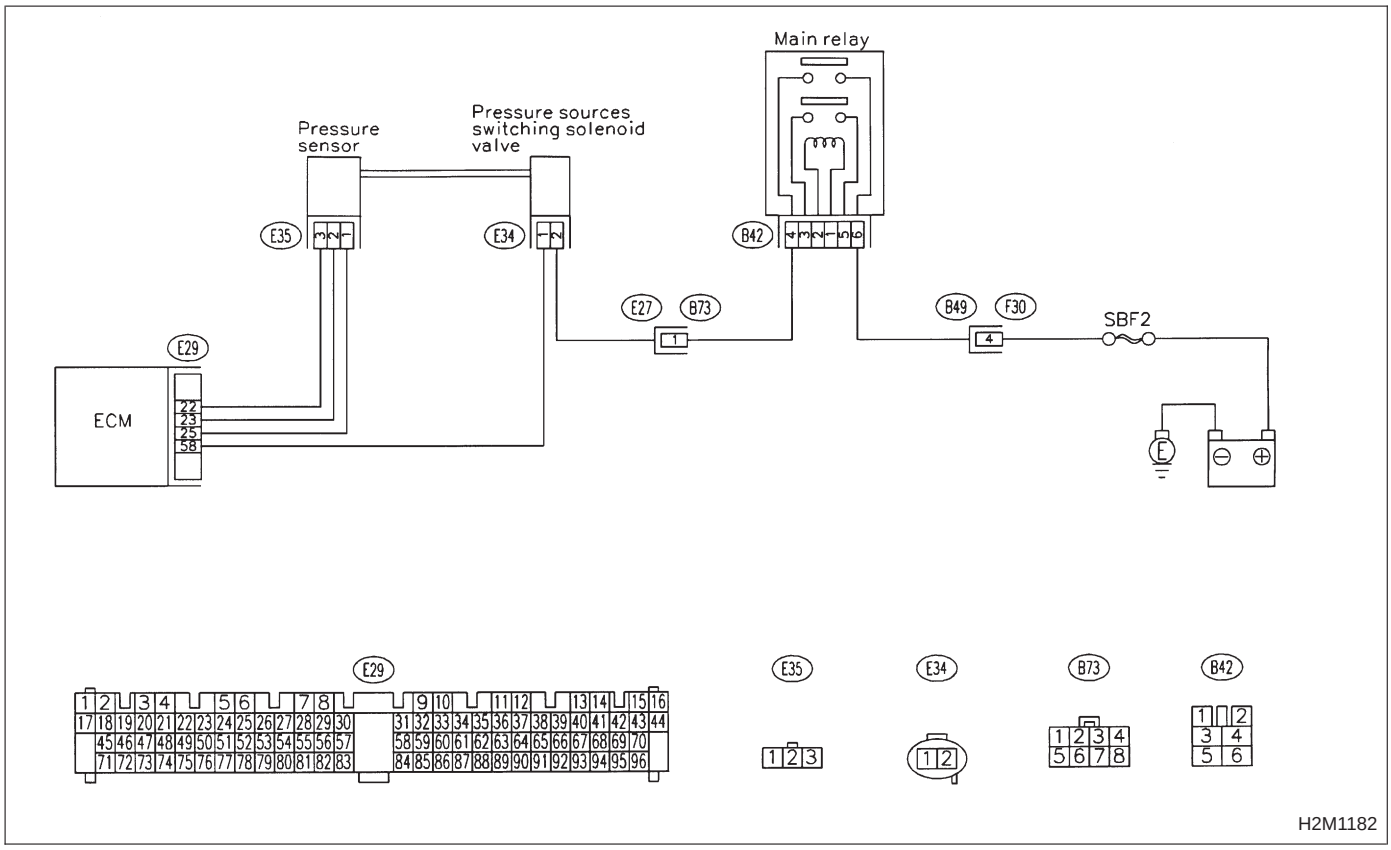
DTC DETECTING CONDITION:

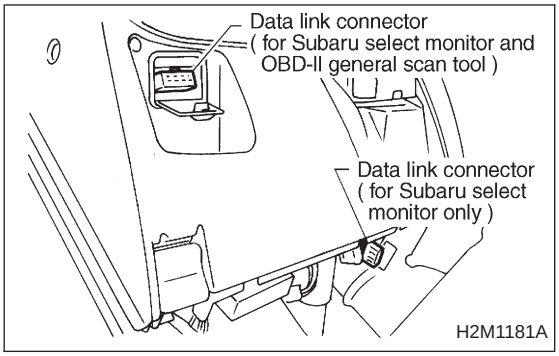
- Two consecutive trips with fault

1.	Check DTC P0105 or P1102 on display.	Yes →	● Inspect DTC P0105 or P1102 using “10. Diagnostics Chart with Trouble Code, 2-7b [T1000]”. ● In this case, it is unnecessary to inspect DTC P0106.
	No ↓		
2.	**Check data for control.**		
3.	**Check vacuum hose.**		
4.	**Check pressure sources of switching solenoid valve.**		

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

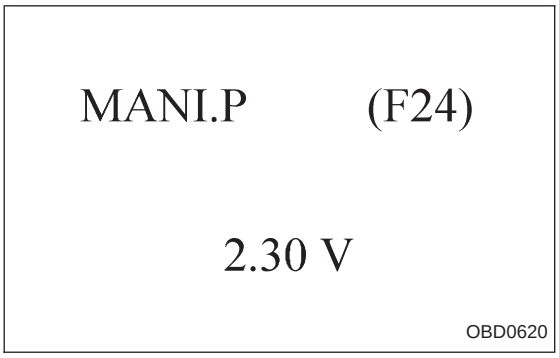
WIRING DIAGRAM:





2	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.

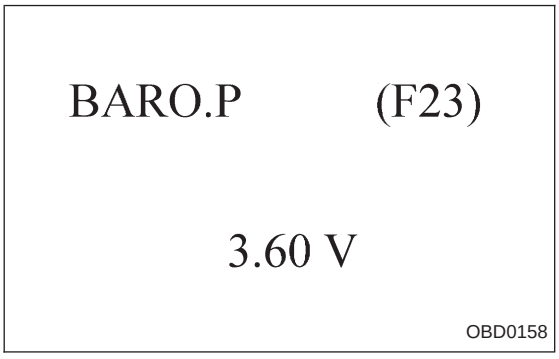
Function mode: F24 and F23

- 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 3.

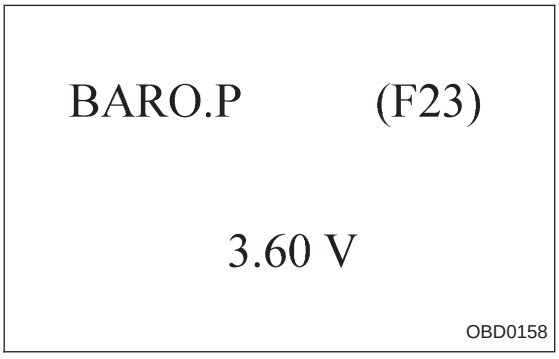
NO : Go to next CHECK .



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

YES : Go to step 4.

NO : Go to next CHECK .



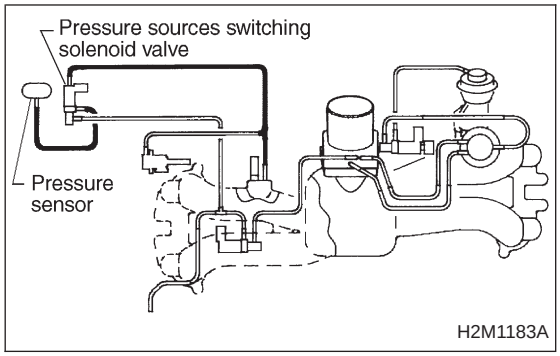
CHECK ***: Is the voltage more than 4.7 V with function mode F23?***

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.

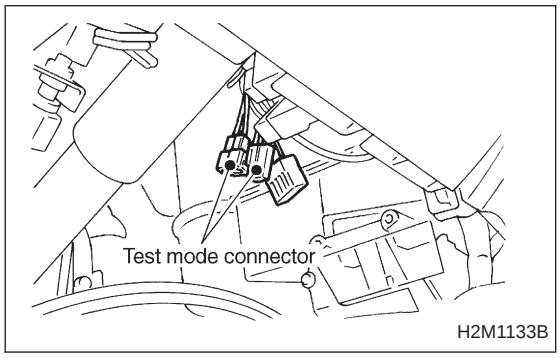


3	CHECK VACUUM HOSE.

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 4.



4	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.

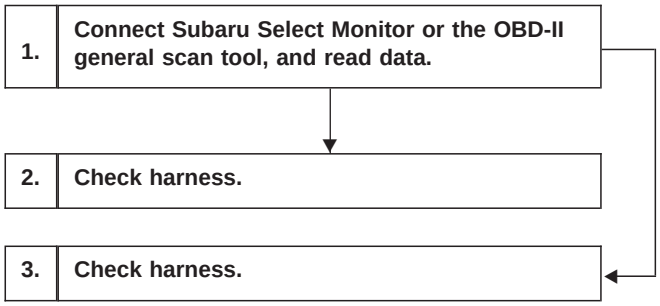
F: DTC P0115 — ENGINE COOLANT TEMPERATURE SENSOR CIRCUIT MALFUNCTION (TW) —

DTC DETECTING CONDITION:

- Immediately at fault recognition

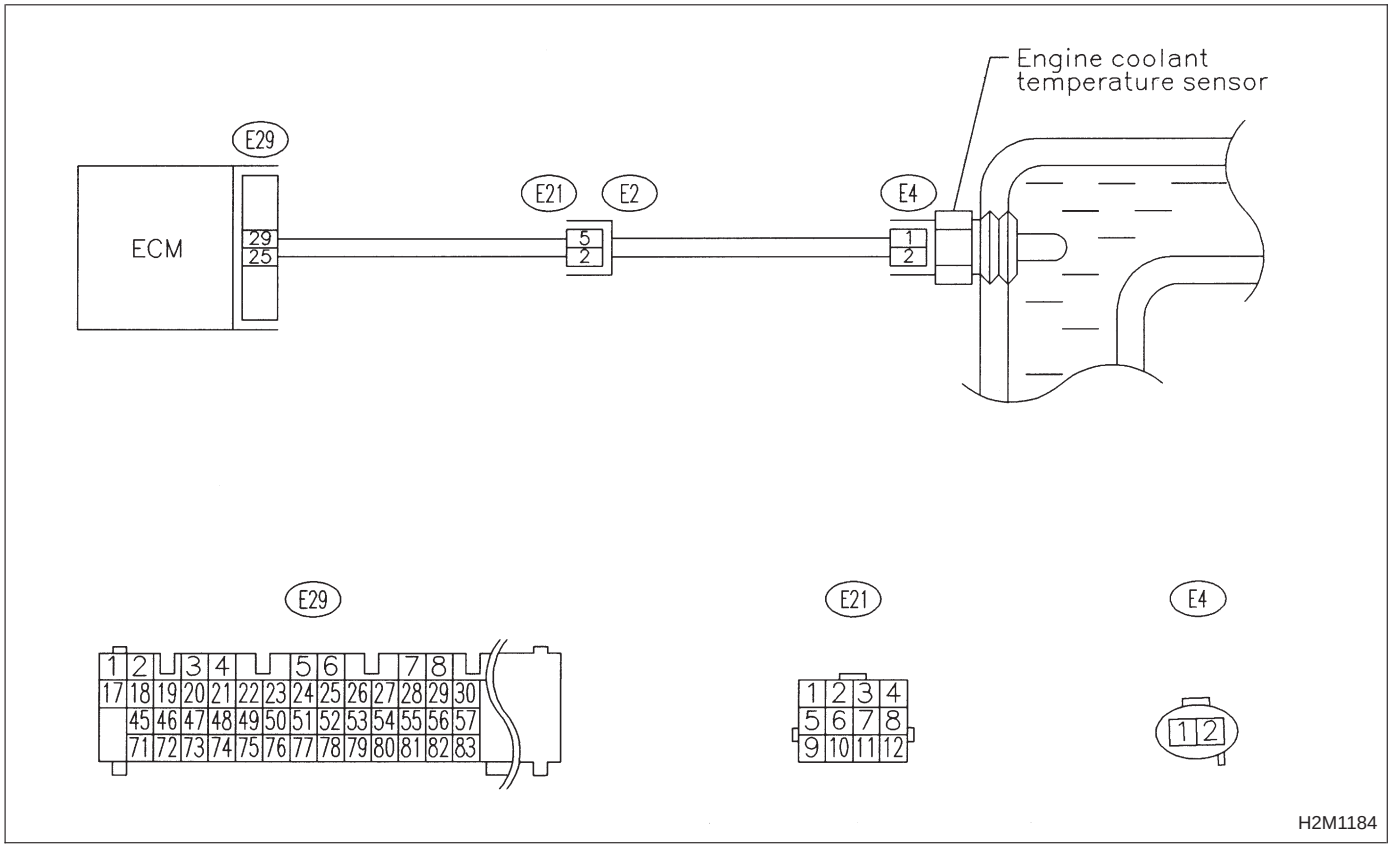
TROUBLE SYMPTOM:

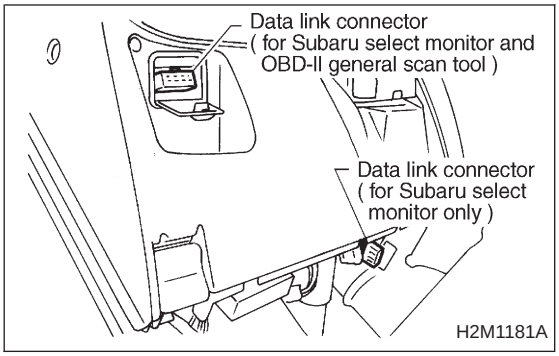
- Hard to start
- Erroneous idling
- Poor driving performance

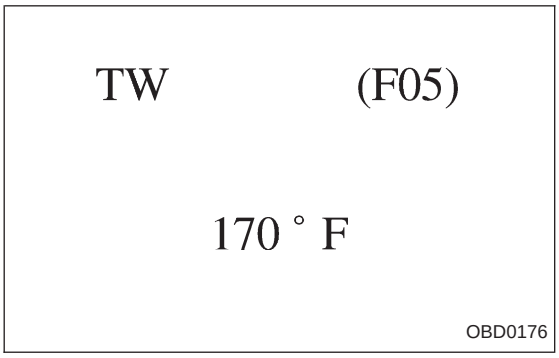


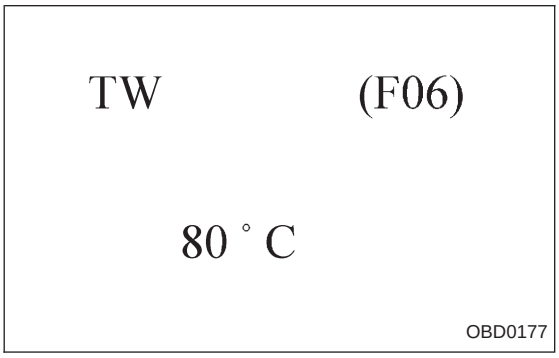
CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY and INSPECTION MODES.
<Ref. to 2-7b [T3D0] and [T3E0].>

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: F05 or F06

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

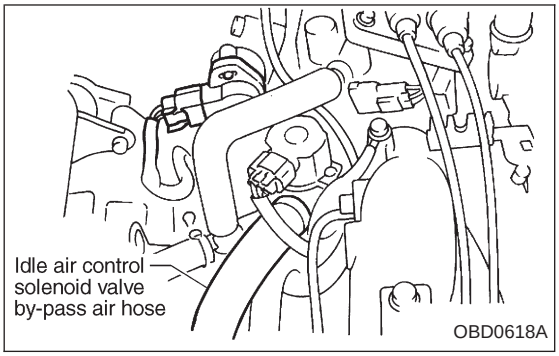
CHECK ***: ● Is the value greater than 300°F with function mode F05?***
● Is the value greater than 150°C with function mode F06?

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?

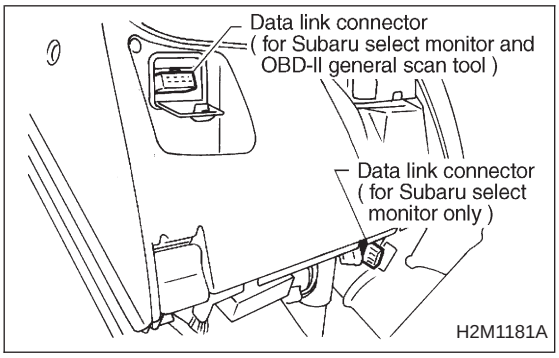
YES : Go to step 3.
NO : Repair poor contact in connectors or harness.
- Engine coolant temperature sensor connector
- ECM connector
- Coupling connector (B21)

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

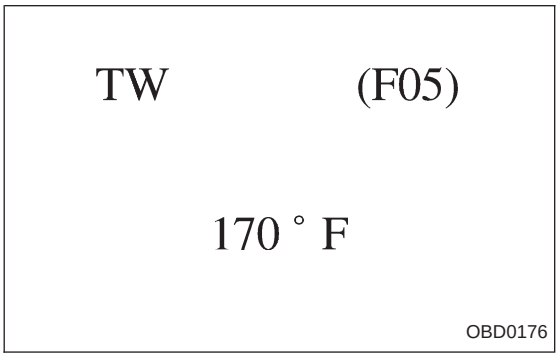


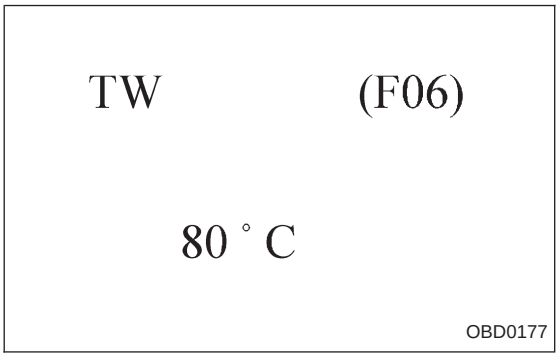
2	CHECK HARNESS.

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".

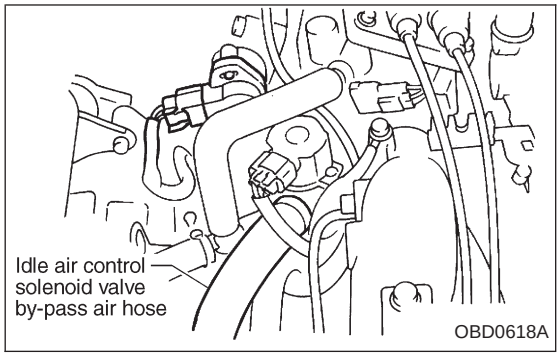
CHECK ***: ● Is the value less than −40°F with function mode F05?***
● Is the value less than −40°C with function mode F06?

YES : Replace engine coolant temperature sensor.

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

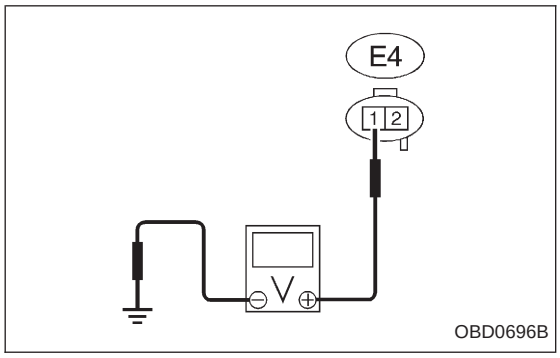
- OBD-II general scan tool

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.



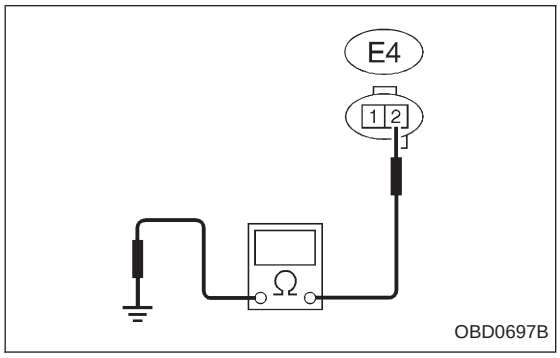
5) Measure voltage between engine coolant temperature sensor and body.

CHECK ***: Connector & terminal (E4) No. 1 — Body/4 V, or more***

YES : Go to the next step.

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

6) Turn ignition switch to OFF.



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

CHECK ***: Connector & terminal (E4) No. 2 — Body/5 Ω, or less***

YES : Replace engine coolant temperature sensor.

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

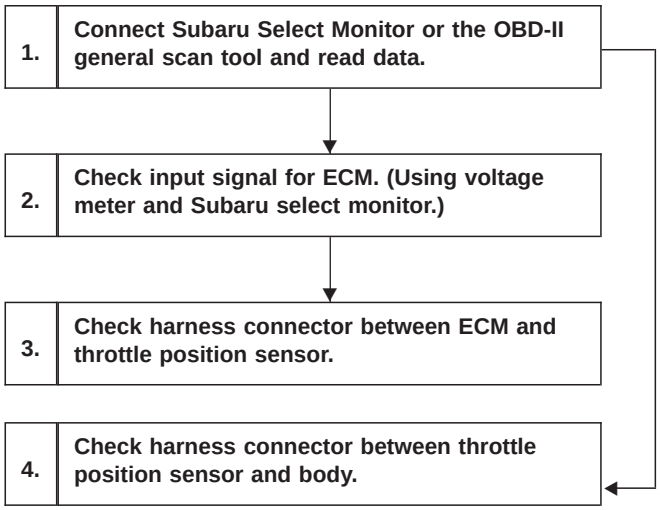
G: DTC P0120 — THROTTLE POSITION SENSOR CIRCUIT MALFUNCTION (THV) —

DTC DETECTING CONDITION:

- Immediately at fault recognition

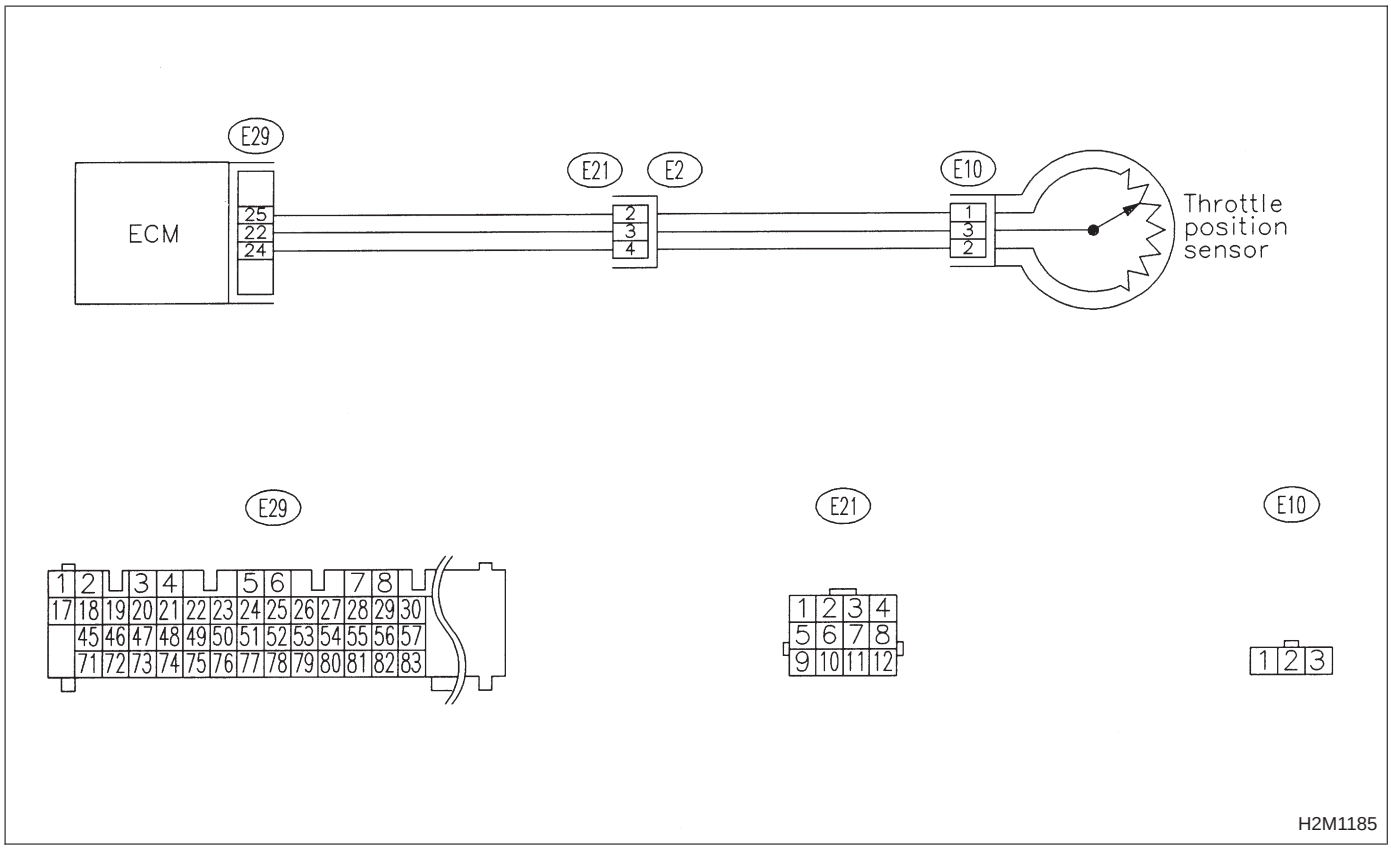
TROUBLE SYMPTOM:

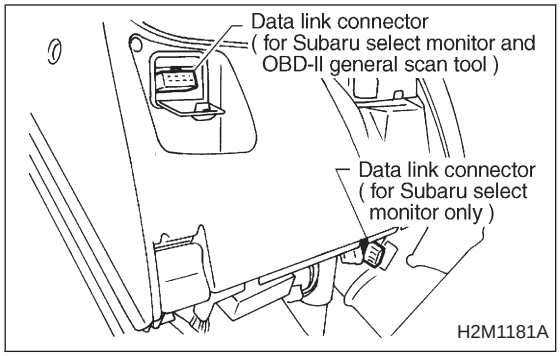
- Erroneous idling
- Engine stalls.
- Poor driving performance

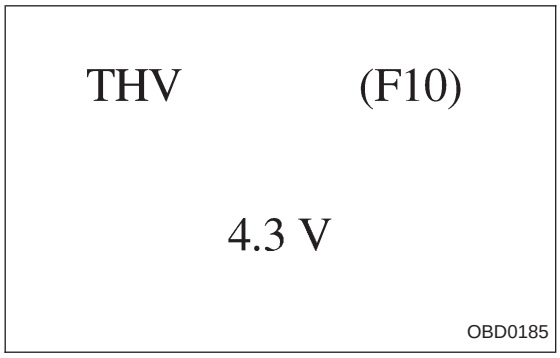


CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY and INSPECTION MODES.
<Ref. to 2-7b [T3D0] and [T3E0].>

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 .

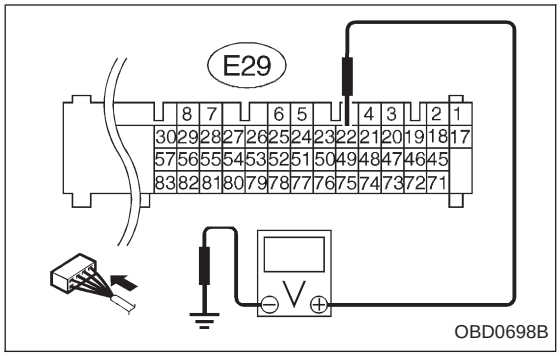
CHECK ***: Is the voltage more than 4.9 V?***

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 (E21)

- 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 (E29) No. 22 — Body/4.5 V, or more***

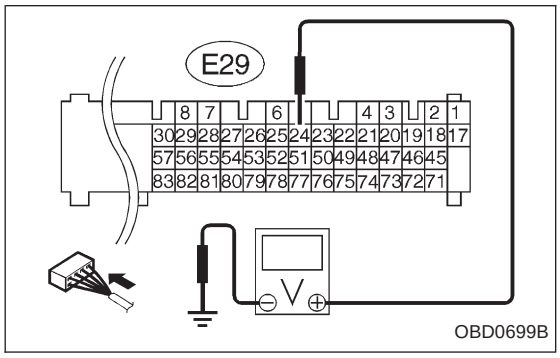
YES : Go to next step.

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 (E29) No. 24 — Body/0.1 V, or less***

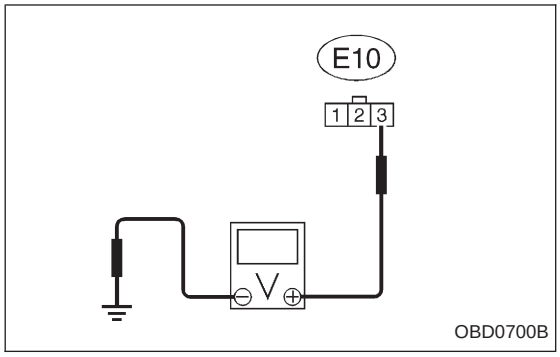
YES : Go to step 3.

NO : Go to next CHECK .

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.

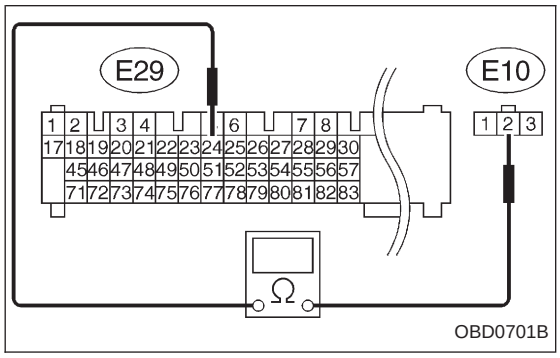
1) Turn ignition switch to OFF.
2) Disconnect connectors from throttle position sensor.
3) Turn ignition switch to ON.
4) Measure voltage between throttle position sensor connector and body.

CHECK ***: Connector & terminal***
(E10) No. 3 — Body/4.5 V, or more

YES : Go to the next step.

NO : Repair harness and connector.

NOTE:
In this case, the possible causes are:
① Open circuit of the harness between connector (E10) terminal No. 3 and connector (E29) 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 (E21)



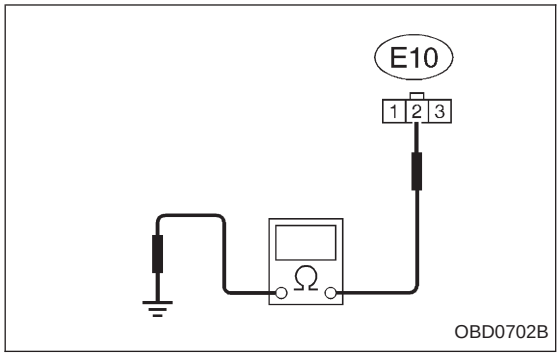
5) Turn ignition switch to OFF.
6) Measure resistance of harness between ECM connector and throttle position sensor connector.

CHECK ***: Connector & terminal***
(E29) No. 24 — (E10) No. 2/1 Ω, or less

YES : Go to next step.

NO : Repair harness and connector.

NOTE:
In this case, the following are the possible causes.
① Open circuit between connector (E29) terminal No. 24 and connector (E10) terminal No. 2.
② Poor contact in ECM connector.
③ Poor contact in throttle position sensor connector
④ Poor contact in coupling connector (E21)



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

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

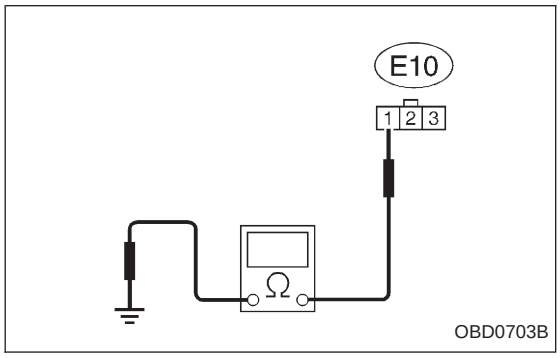
YES : Repair short circuit of harness between throttle position sensor and ECM connector.

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.



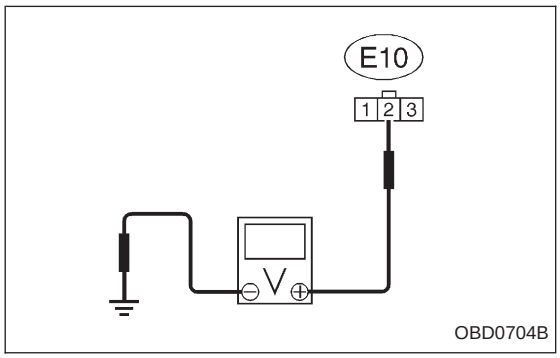
4	CHECK HARNESS CONNECTOR BETWEEN THROTTLE POSITION SENSOR AND BODY.

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 (E10) No. 1 — Body/5 Ω, or less***

YES : Go to the next step.

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



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

CHECK ***: Connector & terminal (E10) 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.

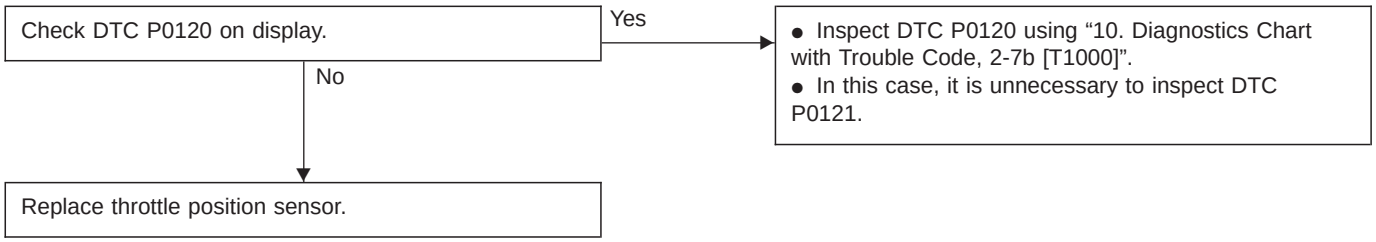
H: DTC P0121 — THROTTLE POSITION SENSOR CIRCUIT RANGE/PERFORMANCE PROBLEM (TH – R) —

DTC DETECTING CONDITION:

- Two consecutive trips with fault

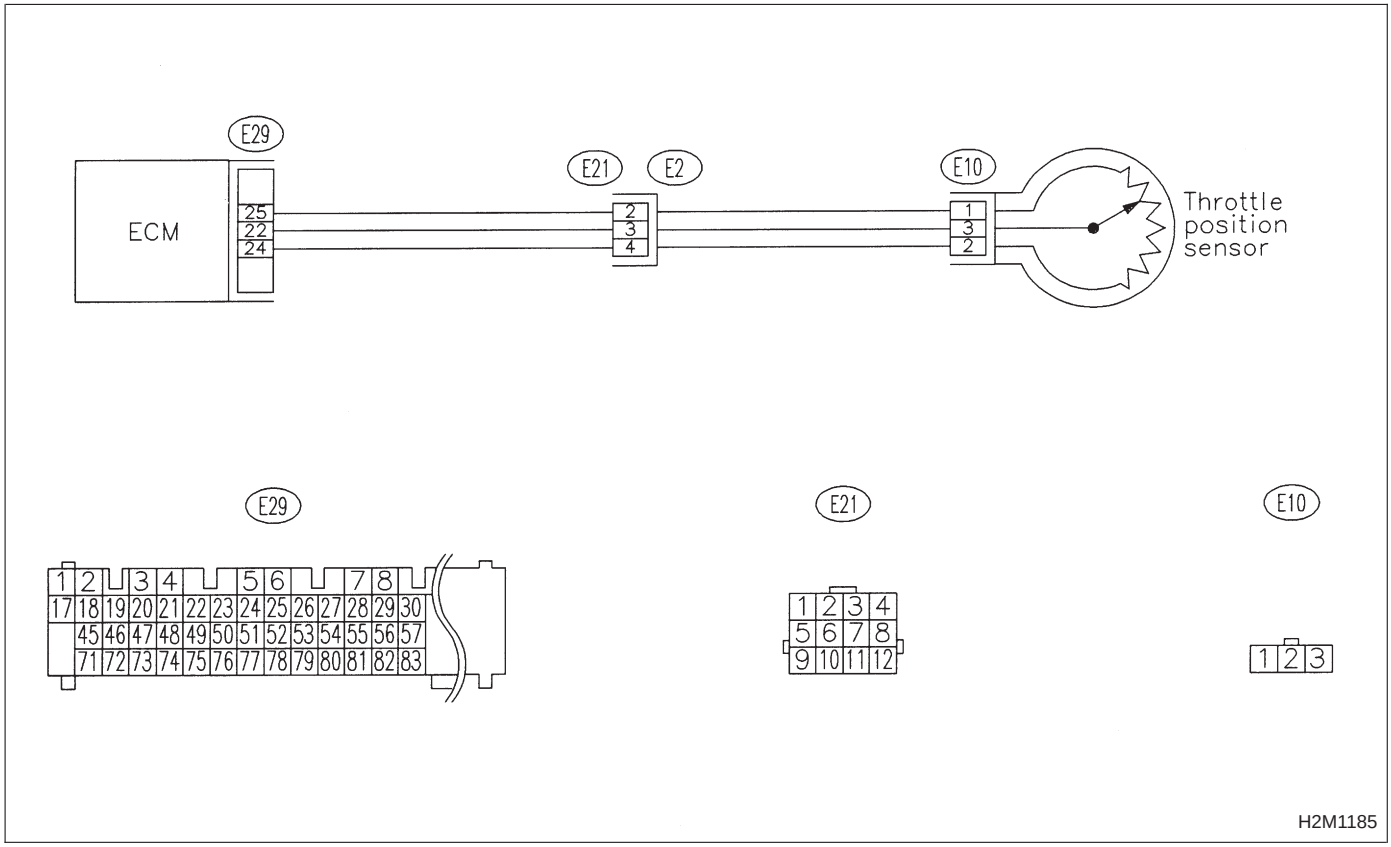
TROUBLE SYMPTOM:

- Erroneous idling
- Engine stalls.
- Poor driving performance



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

WIRING DIAGRAM:



OBD (FB1)

P0125 <TW_CL>

OBD0191

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

DTC DETECTING CONDITION:

- Two consecutive trips with fault

TROUBLE SYMPTOM:

- Engine would not return to idling.

Check DTC P0115 on display.

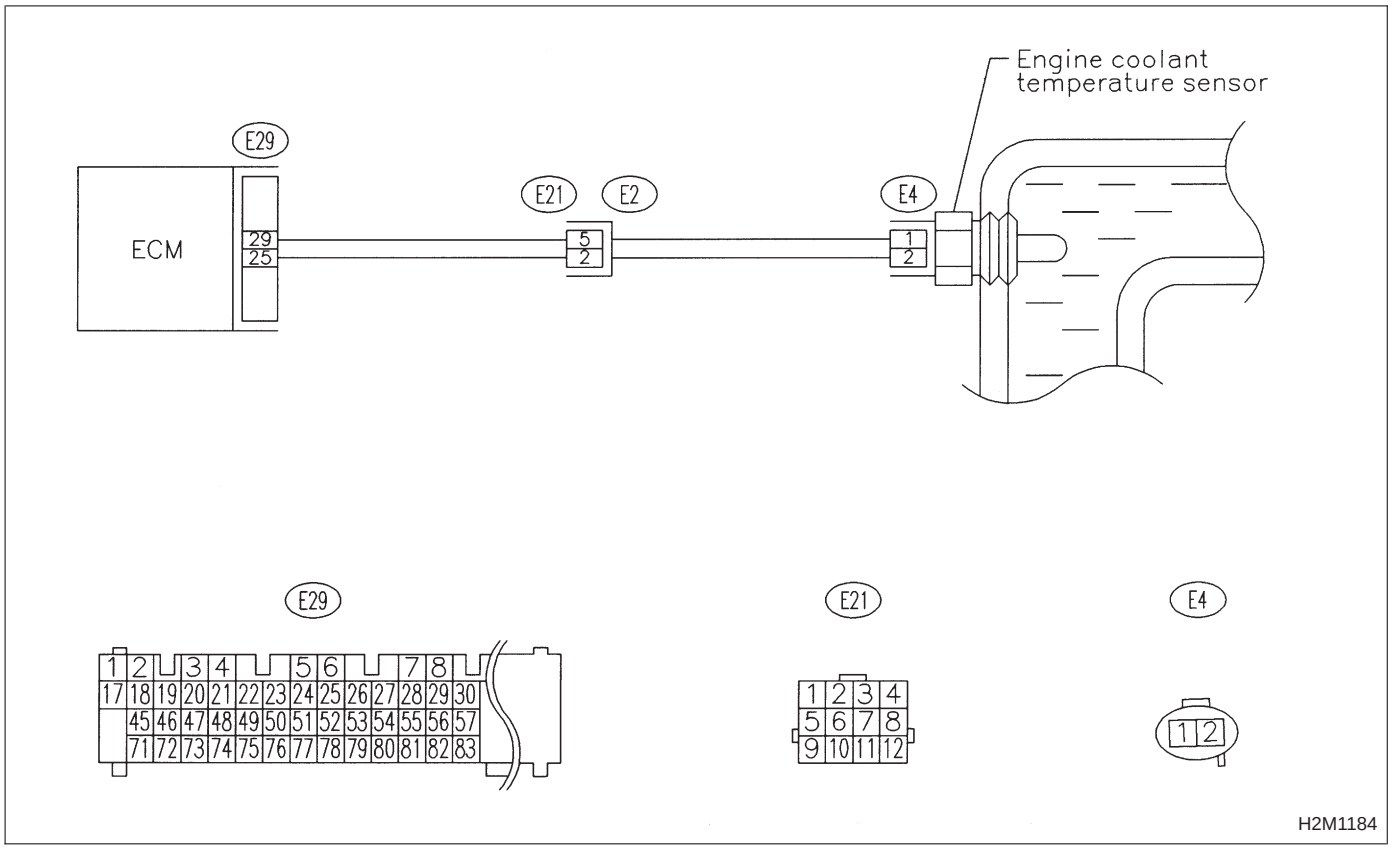
Yes → • Inspect DTC P0115 using "10. Diagnostics Chart with Trouble Code, 2-7b [T1000]".
• In this case, it is unnecessary to inspect DTC P0125.

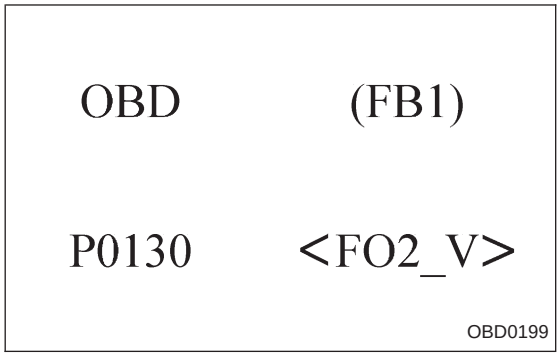
No ↓

Replace engine coolant temperature sensor.

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

WIRING DIAGRAM:





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

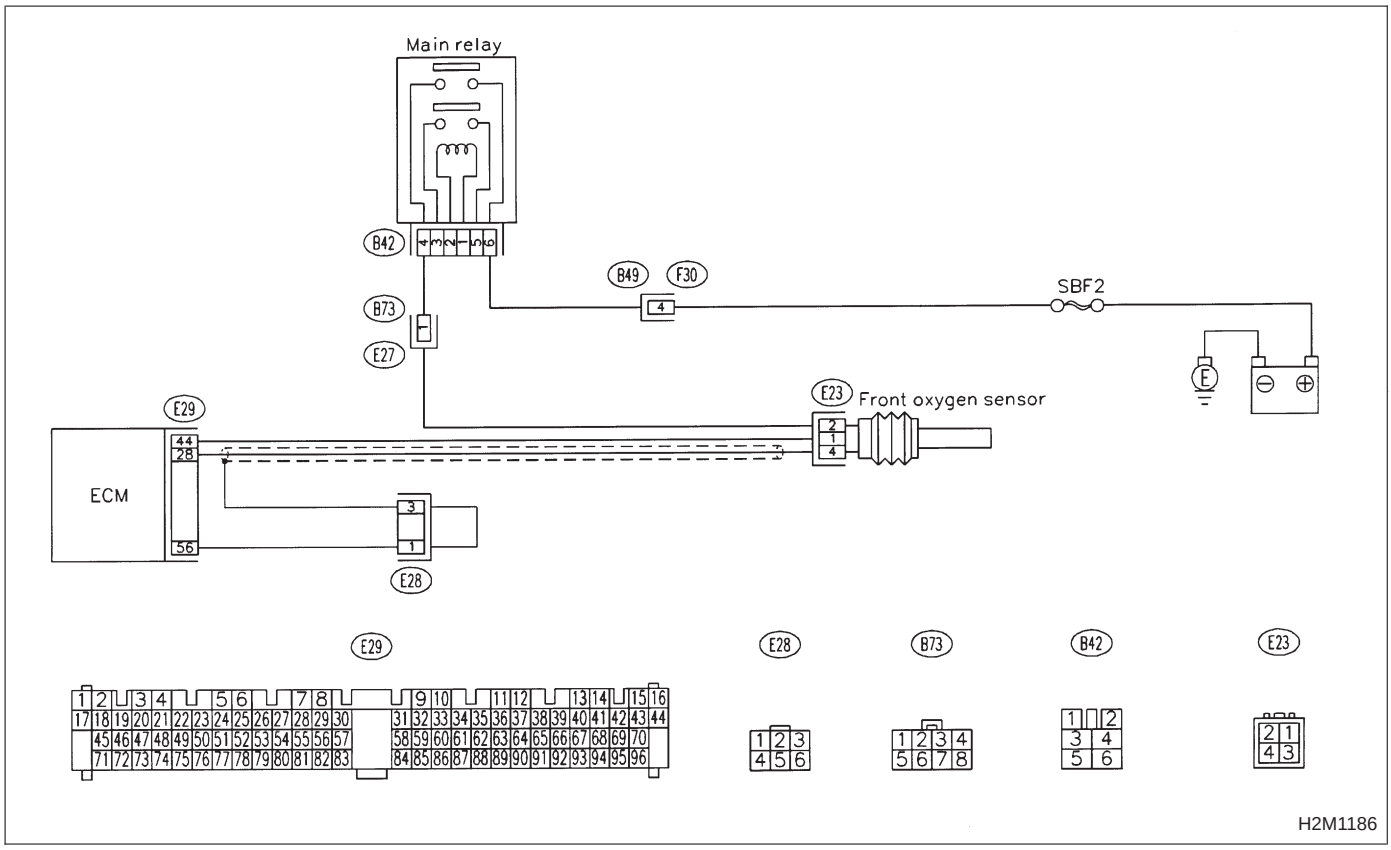
DTC DETECTING CONDITION:

- 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 2-7b [T3D0] and [T3E0].>

WIRING DIAGRAM:



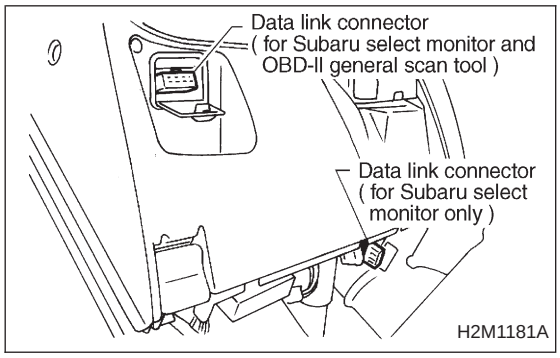
1	CHECK FOR OTHER CAUSES AFFECTING EXHAUST GAS.

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

YES : Check fuel system.

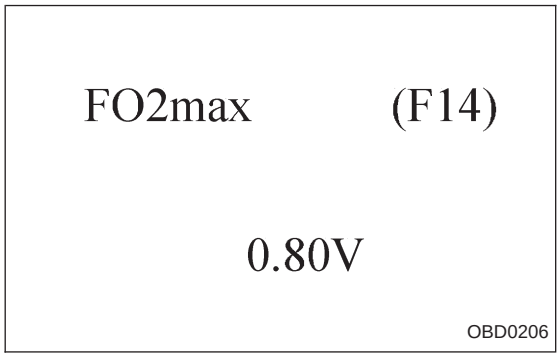
NOTE:
Check for use of improper fuel.
Check if engine oil or coolant level is extremely low.

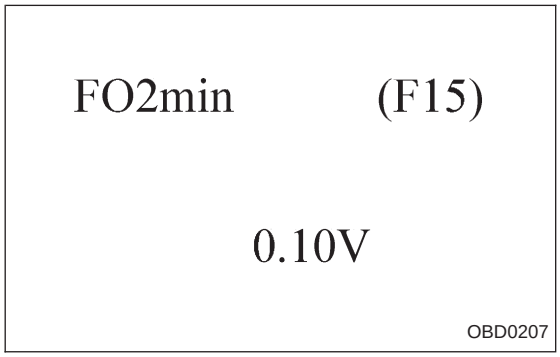
NO : Go to step 2.



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.

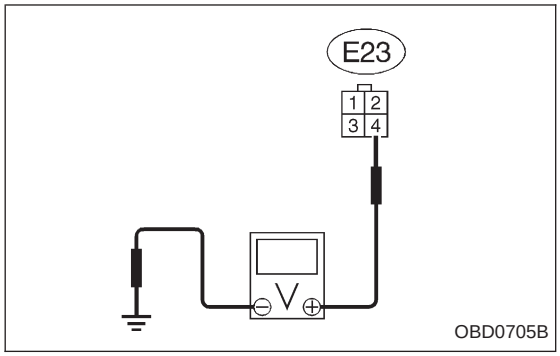
CHECK ***: Is the difference of voltage between F14 and F15 0.1 V, or less?***

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 (E23) No. 4 — Body/0.2 V, or more***

YES : Go to next CHECK .

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.

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) —

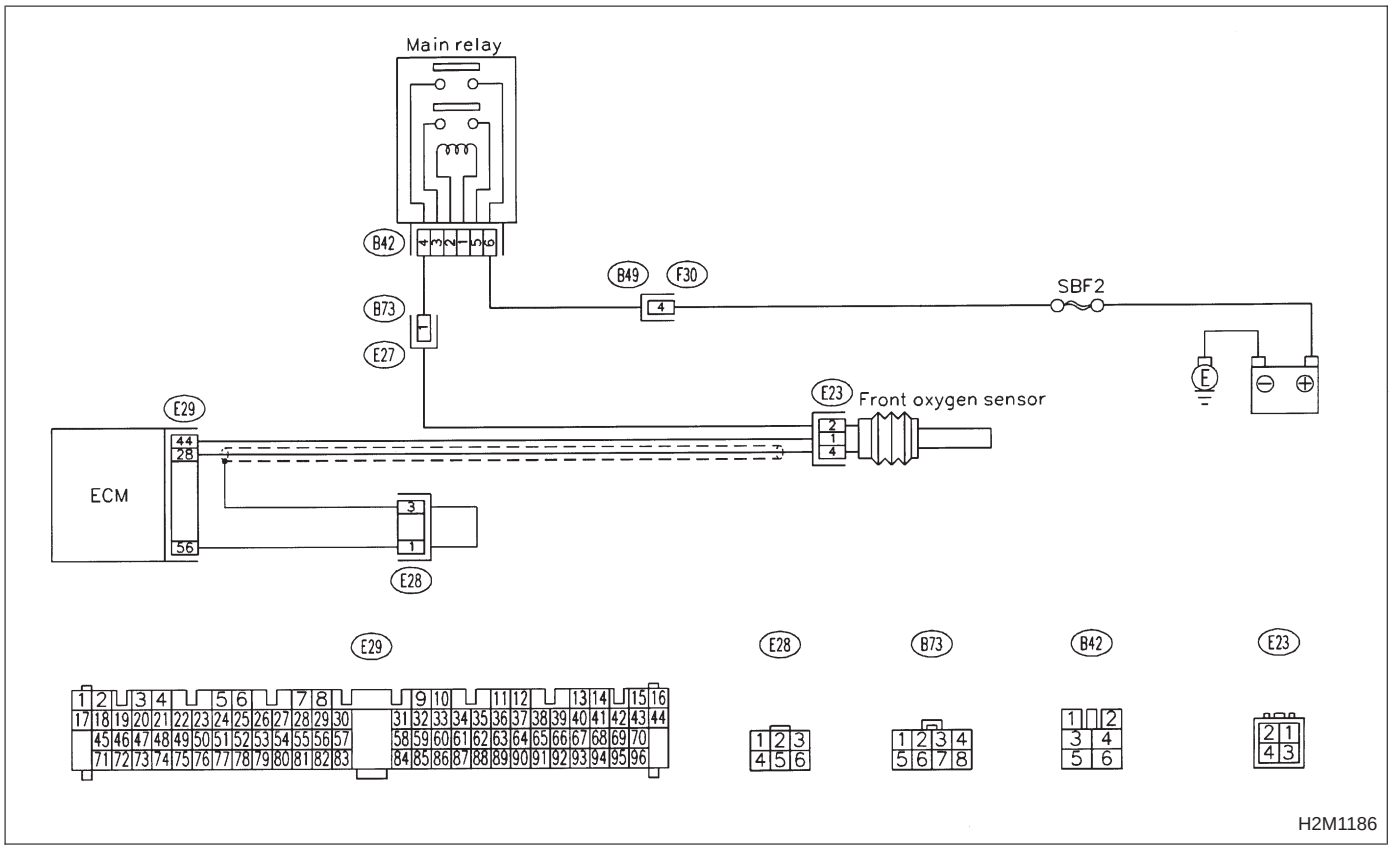
DTC DETECTING CONDITION:

- Two consecutive trips with fault

1.	Check DTC P0130 on display.	Yes	● Inspect DTC P0130 using “10. Diagnostics Chart with Trouble Code, 2-7b [T1000]”. ● 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 2-7b [T3D0] and [T3E0].>

WIRING DIAGRAM:



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) —

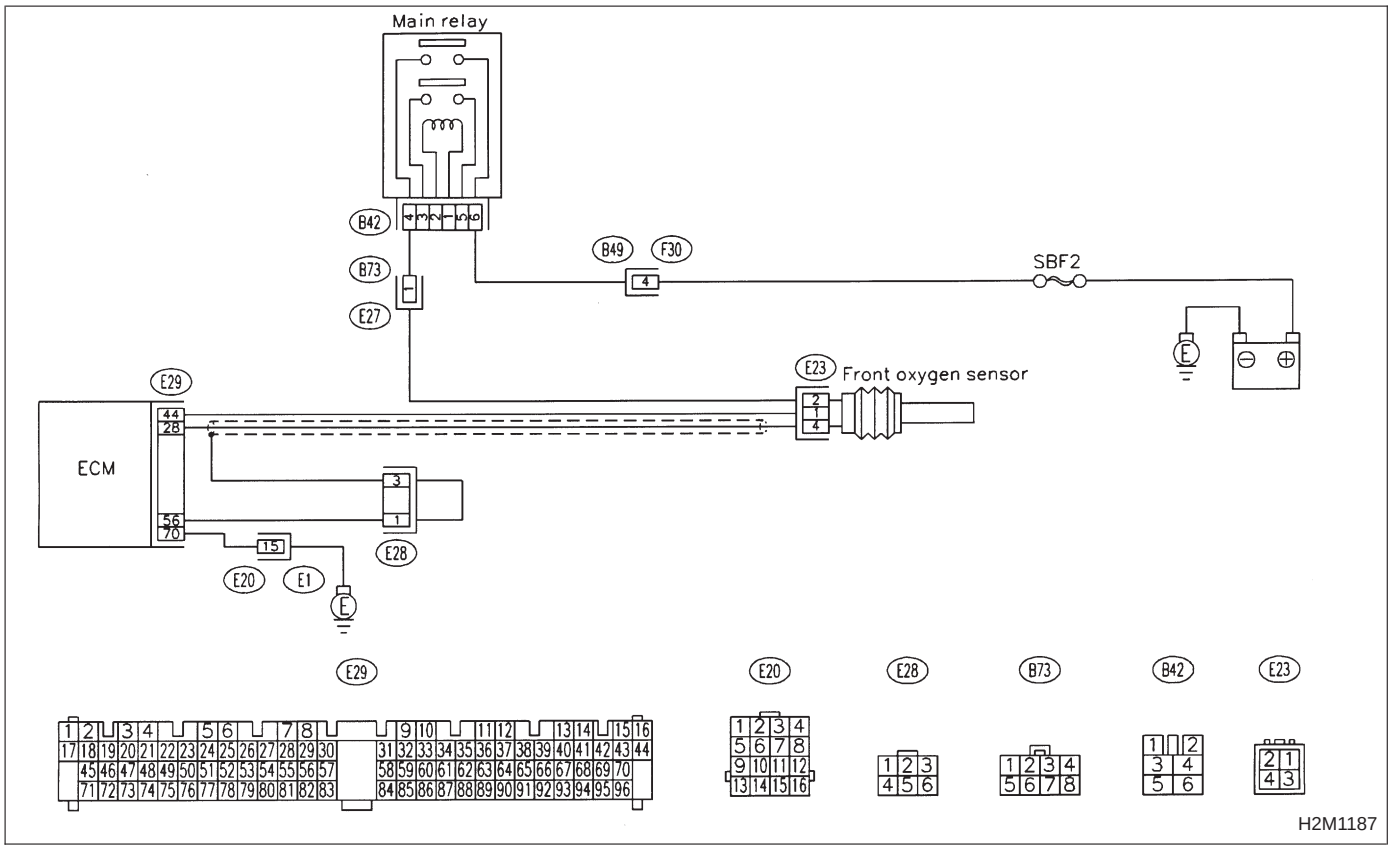
DTC DETECTING CONDITION:

- Two consecutive trips with fault

1.	**Check DTC P0141 on display.**
2.	**Connect Subaru Select Monitor or the OBD-II general scan tool, and read data.**
3.	**Check output signal from ECM. (Using voltage meter.)**
4.	**Check power supply to front oxygen sensor.**
5.	**Check front oxygen sensor.**

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

WIRING DIAGRAM:

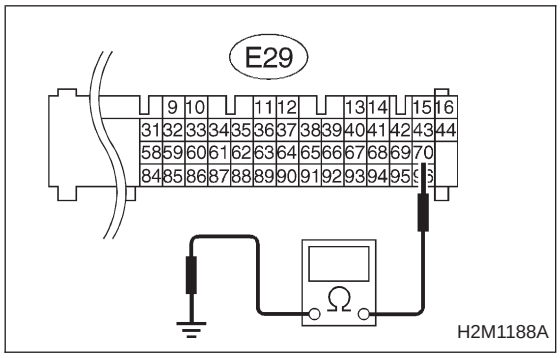


1	CHECK DTC P0141 ON DISPLAY.

CHECK : ***Does the Subaru select monitor or OBD-II general scan tool indicate DTC P0135 and P0141 at the same time?***

YES : Go to next step.

NO : Go to step 2.



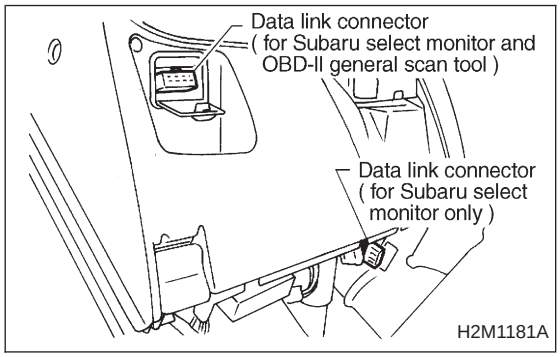
1) Turn ignition switch to OFF.
2) Disconnect connector from ECM.
3) Measure resistance of harness between ECM connector and body.

CHECK : ***Connector & terminal (E29) No. 70 — Body/5 Ω, or less***

YES : Repair poor contact in ECM connector.

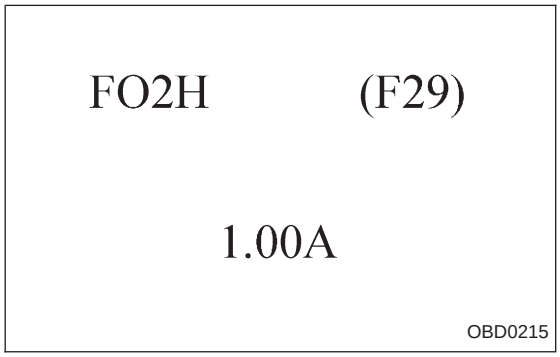
NO : Repair harness and connector.

NOTE:
In this case, repair the following items.
- Open circuit of harness between ECM and coupling connector (E20).
- Open circuit of harness between coupling connector (E20) and engine grounding terminal.
- Poor contact in front oxygen sensor connector.
- Poor contact in coupling connector (E20).



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 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.

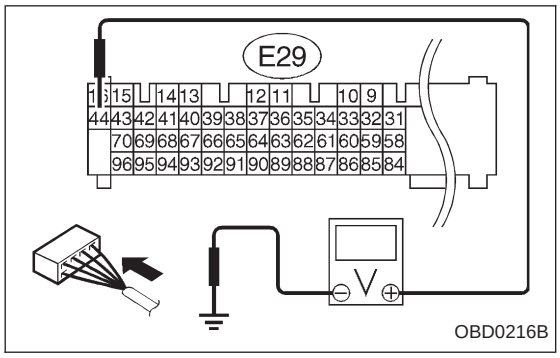
CHECK ***: Is the reading of F29 0.2 A, or more?***

YES : Repair connector.

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

NO : Go to step 3.

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



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

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

CHECK ***: Connector & terminal (E29) No. 44 — Body/1.0 V, or less***

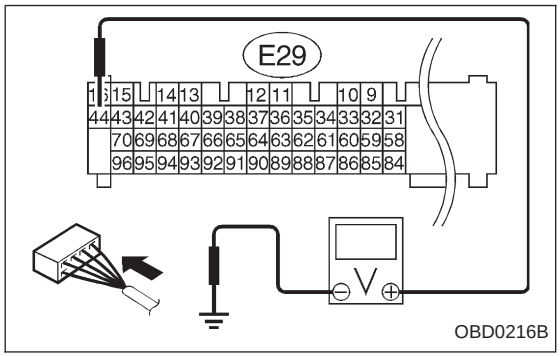
YES : Go to step 4.

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.

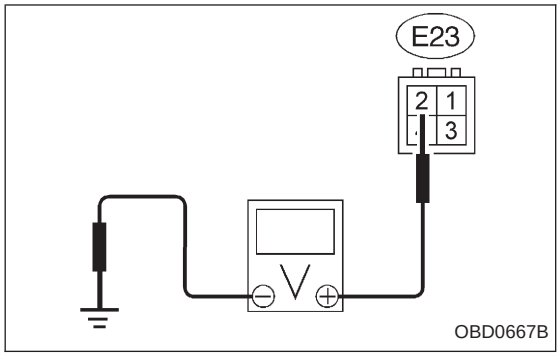


3) Disconnect connector from front oxygen sensor.
4) Measure voltage between ECM and body.

CHECK ***: Connector & terminal (E29) 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.



4	CHECK POWER SUPPLY TO FRONT OXYGEN SENSOR.

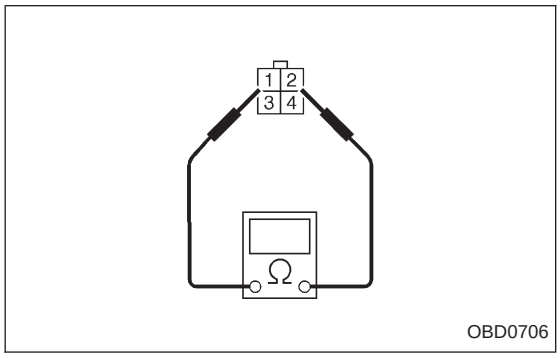
1) Turn ignition switch to OFF.
2) Disconnect connector from front oxygen sensor.
3) Turn ignition switch to ON.
4) Measure voltage between front oxygen sensor connector and body.

CHECK ***: Connector & terminal***
(E23) No. 2 — Body/10 V, or more

YES : Go to step 5.

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.



5	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.

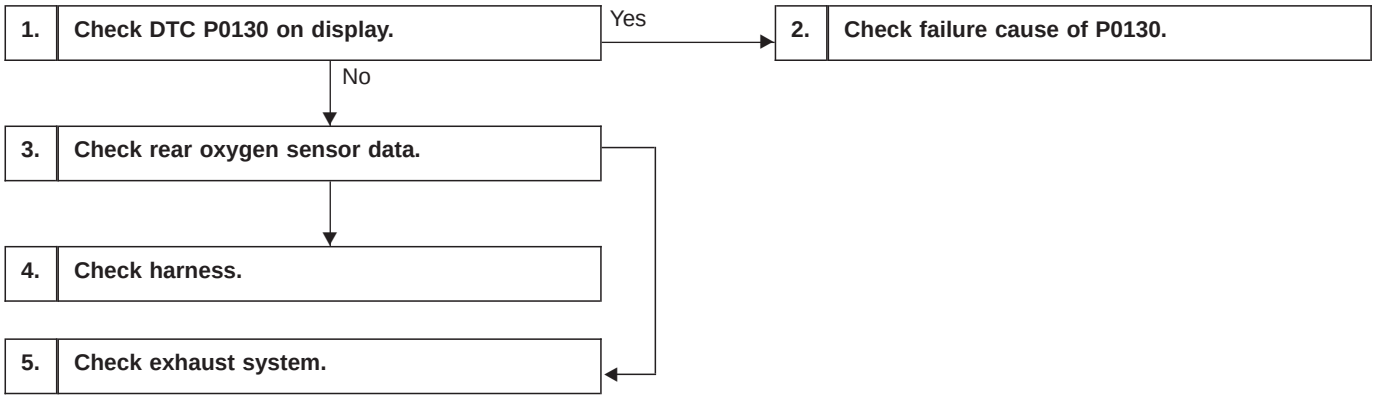
NOTE:
In this case, repair the following:
- Open circuit of harness between the front oxygen sensor connector and the ECM connector
- Poor contact in front oxygen sensor connector
- Poor contact in ECM connector

NO : Replace front oxygen sensor.

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

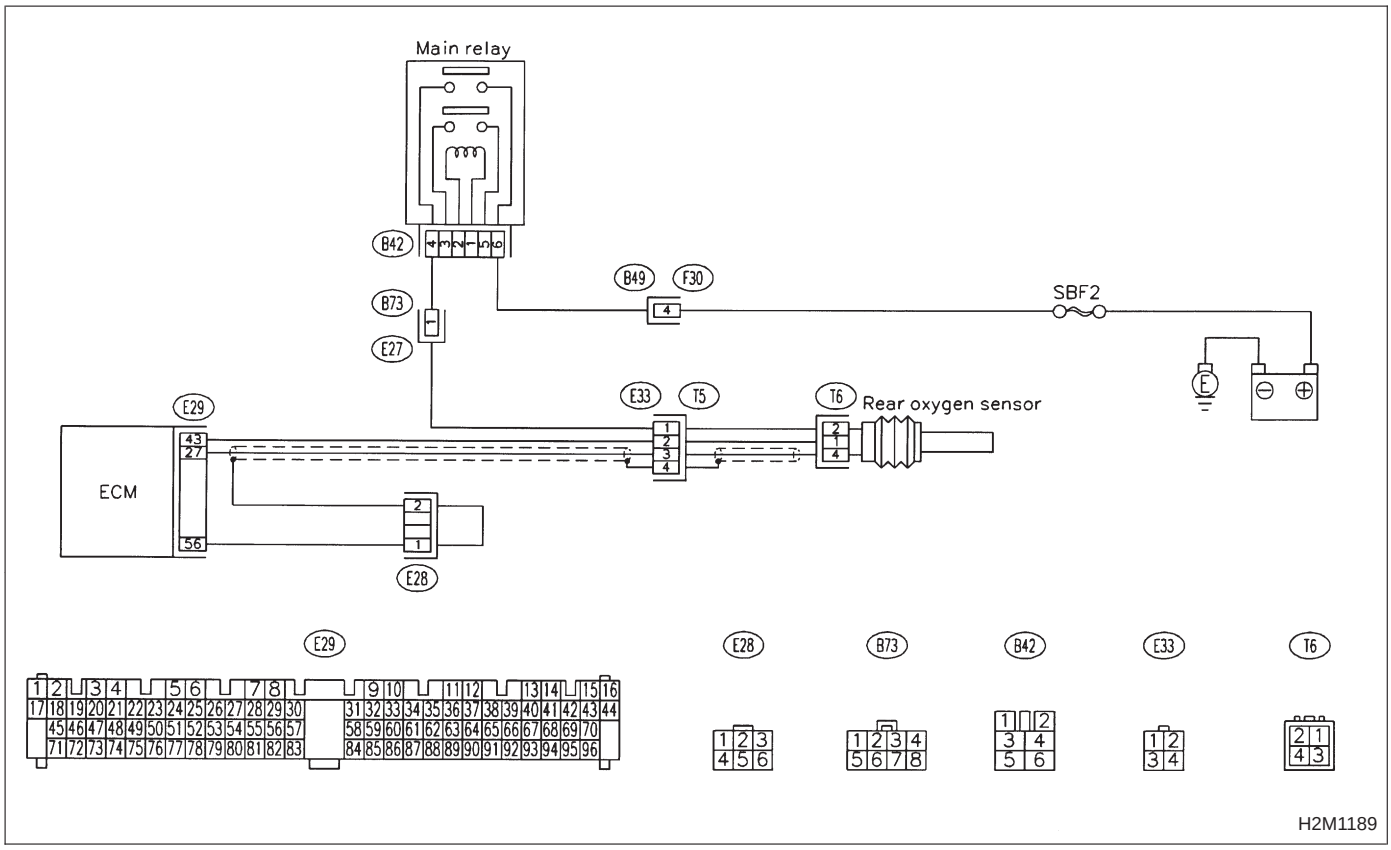
DTC DETECTING CONDITION:

- Two consecutive trips with fault



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

WIRING DIAGRAM:



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.

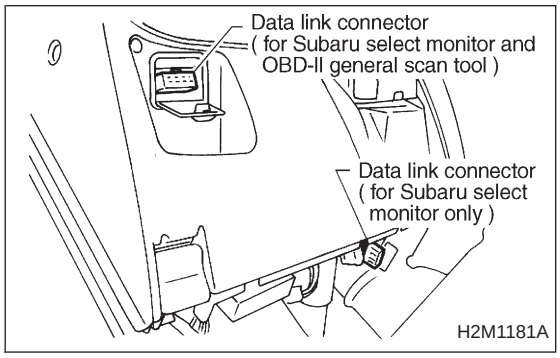
2	CHECK FAILURE CAUSE OF P0130.

Perform the step 1 of DTC P0130.

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

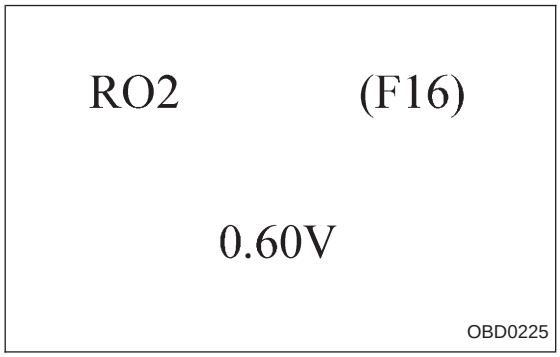
YES : Check fuel system. In this case, inspection of P0136 is not necessary.

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.

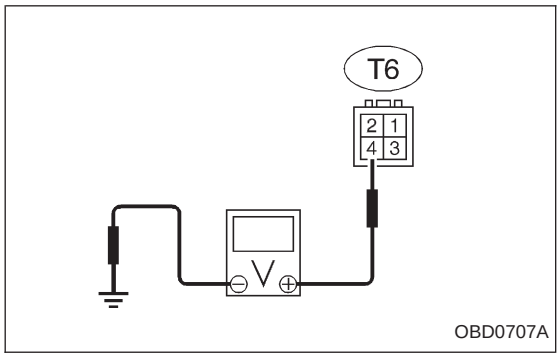
NO : Replace rear oxygen sensor.

- 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***

YES : Replace rear oxygen sensor.

NO : Repair harness and connector.

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

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.***

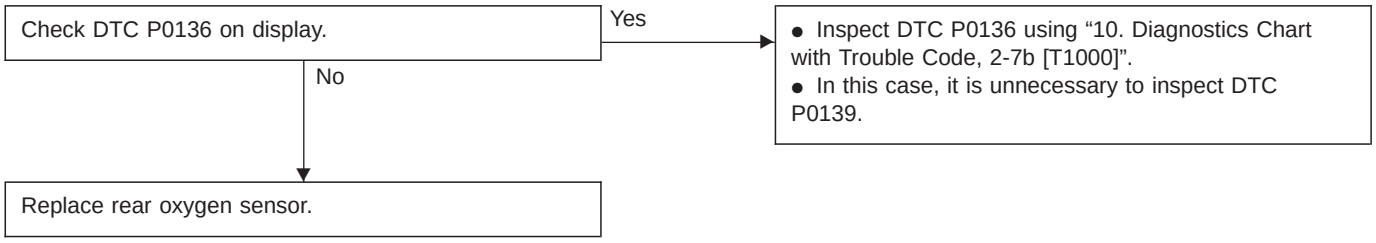
YES : Repair or replace faulty parts.

NO : Replace rear oxygen sensor.

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

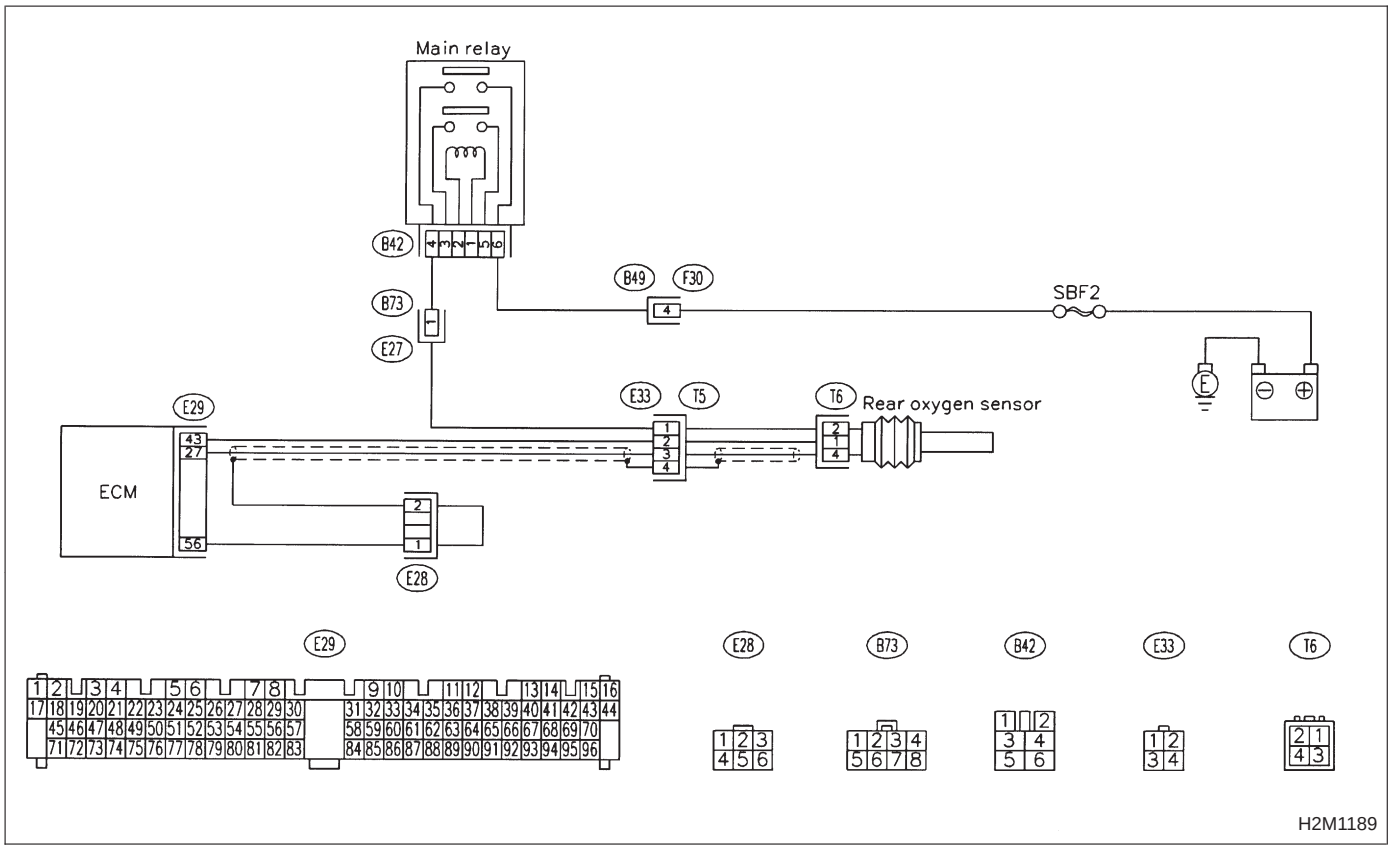
DTC DETECTING CONDITION:

- Two consecutive trips with fault



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

WIRING DIAGRAM:



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

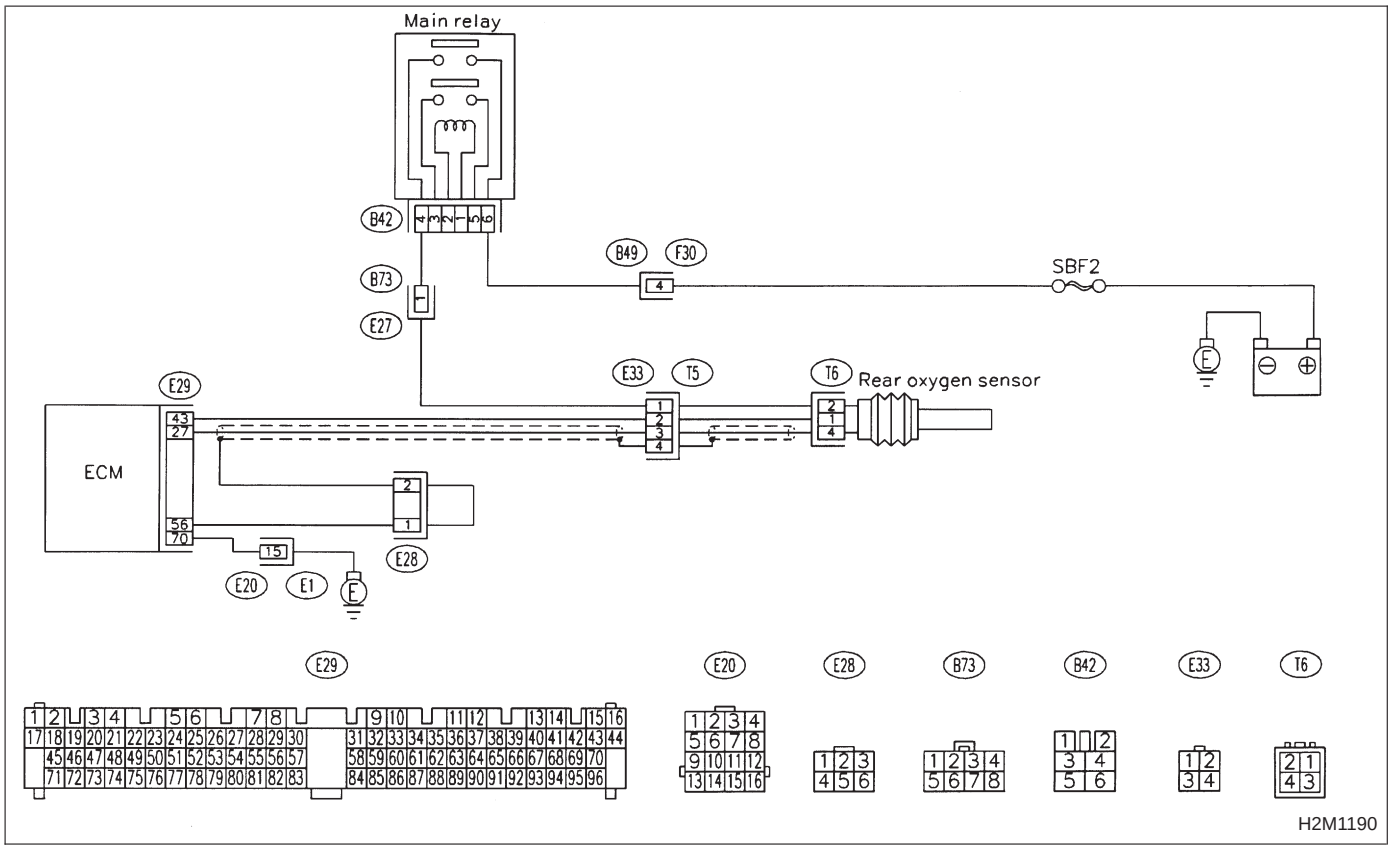
DTC DETECTING CONDITION:

- Two consecutive trips with fault

1.	**Check DTC P0135 on display.**
2.	**Connect Subaru Select Monitor or the OBD-II general scan tool, and read data.**
3.	**Check output signal from ECM. (Using voltage meter.)**
4.	**Check power supply to rear oxygen sensor.**
5.	**Check rear oxygen sensor.**

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

WIRING DIAGRAM:

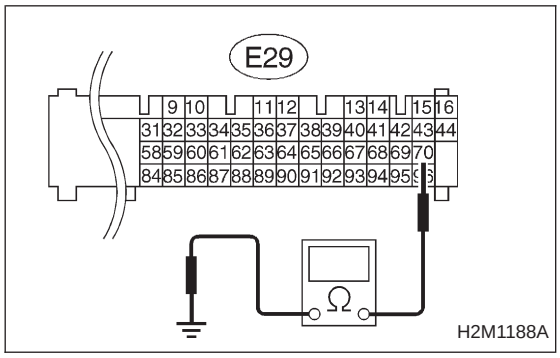


1	CHECK DTC P0135 ON DISPLAY.

CHECK : ***Does the Subaru select monitor or OBD-II general scan tool indicate DTC P0141 and P0135 at the same time?***

YES : Go to next step.

NO : Go to step 2.



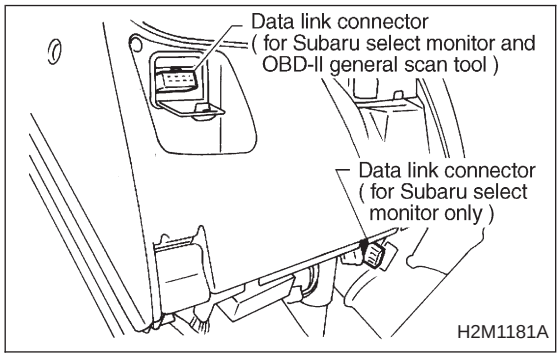
1) Turn ignition switch to OFF.
2) Disconnect connector from ECM.
3) Measure resistance of harness between ECM connector and body.

CHECK : ***Connector & terminal (E29) No. 70 — Body/5 Ω, or less***

YES : Repair poor contact in ECM connector.

NO : Repair harness and connector.

NOTE:
In this case, repair the following items.
- Open circuit of harness between ECM and coupling connector (E20).
- Open circuit of harness between coupling connector (E20) and engine grounding terminal.
- Poor contact in rear oxygen sensor connector.
- Poor contact in rear oxygen sensor connecting harness connector (E33).
- Poor contact in coupling connector (E20).



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 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.

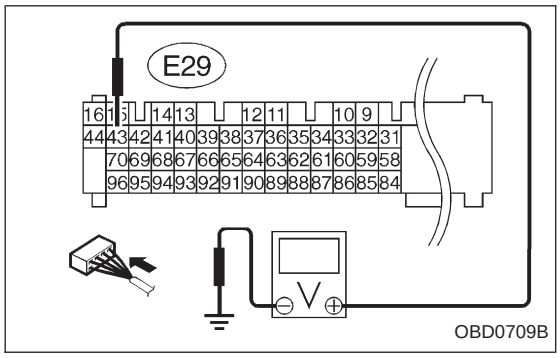
CHECK ***: Is the reading of F30 0.2 A, or more?***

YES : Repair connector.

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

NO : Go to step 3.

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



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

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

CHECK ***: Connector & terminal (E29) No. 43 — Body/1.0 V, or less***

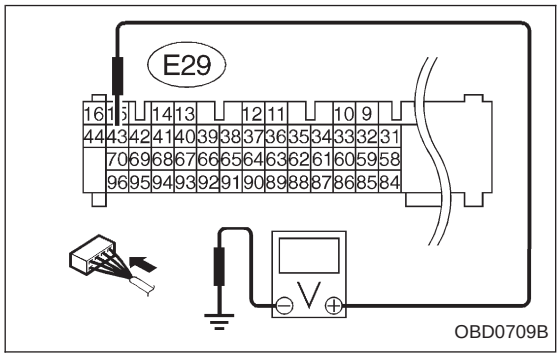
YES : Go to step 4.

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.

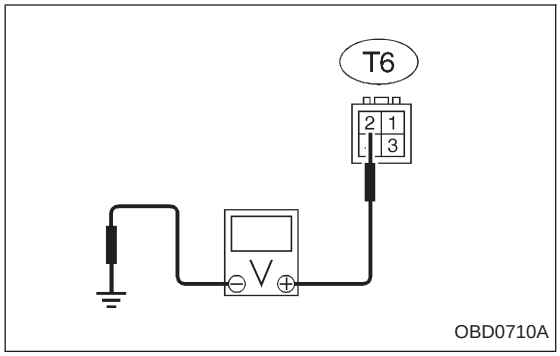


3) Disconnect connector from rear oxygen sensor.
4) Measure voltage between ECM and body.

CHECK ***: Connector & terminal (E29) 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.



4	CHECK POWER SUPPLY TO REAR OXYGEN SENSOR.

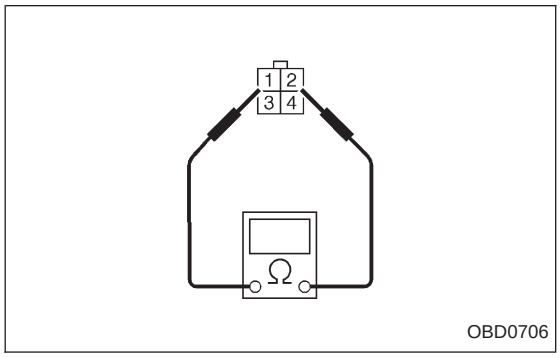
1) Turn ignition switch to OFF.
2) Disconnect connector from rear oxygen sensor.
3) Turn ignition switch to ON.
4) Measure voltage between rear oxygen sensor connector and body.

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

YES : Go to step 5.

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.



5	CHECK REAR OXYGEN SENSOR.

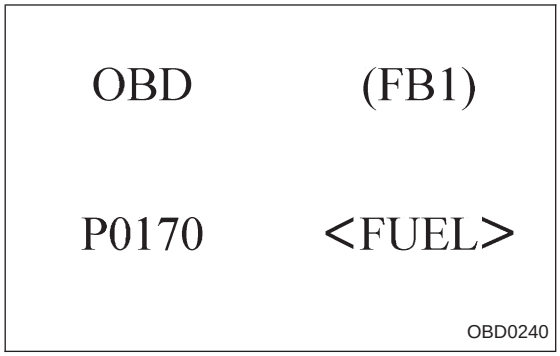
1) Turn ignition switch to OFF.
2) Measure resistance between rear oxygen sensor connector terminals.

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

YES : Repair harness and connector.

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

1.	**Check exhaust system.**
2.	**Check air intake system.**
3.	**Check fuel pressure.**
4.	**Check engine coolant temperature sensor. <Ref. to F: DTC P0115 2-7b [T10F0].>**
5.	**Check mass air flow sensor.**

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

1	CHECK EXHAUST SYSTEM.

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

YES : Repair exhaust system.

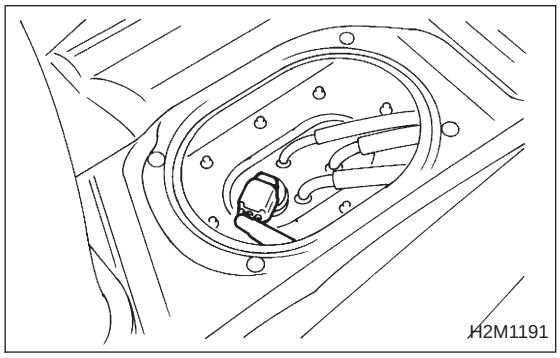
NO : Go to step 2.

2	CHECK AIR INTAKE SYSTEM.

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

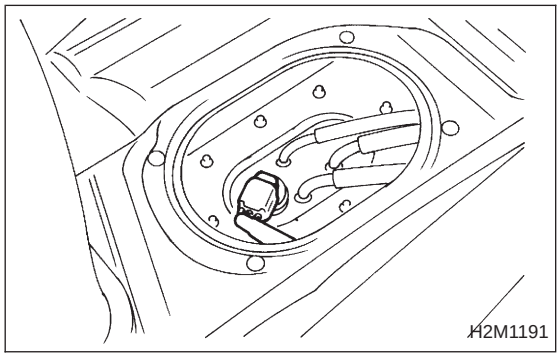
YES : Repair air intake system.

NO : Go to step 3.

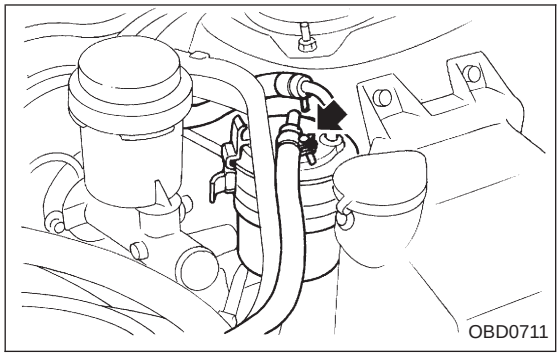


3	CHECK FUEL PRESSURE.

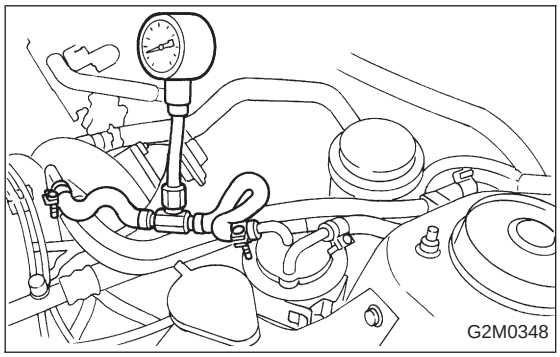
1) Release fuel pressure.
   (1) Remove fuel pump access hole lid located on the right rear of trunk compartment floor (Sedan) or luggage compartment floor (Wagon).
   (2) Disconnect connector from fuel tank.
   (3) Start the engine, and run it until it stalls.
   (4) After stopping the engine, crank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

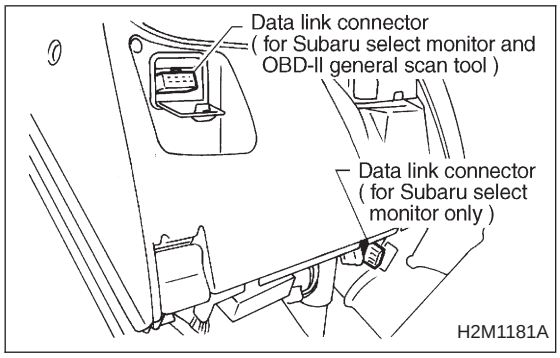
WARNING:
Before removing fuel pressure gauge, release fuel pressure.

NOTE:

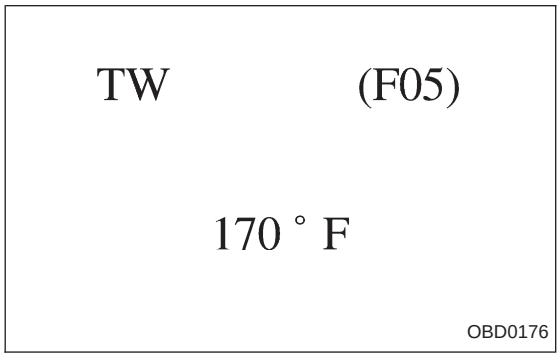
● If fuel pressure does not increase, squeeze fuel return hose 2 to 3 times, then measure fuel pressure again.
● If out of specification as measured at step 6), check or replace pressure regulator and pressure regulator vacuum hose.

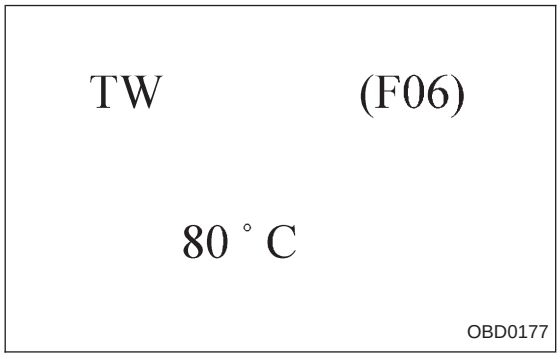
4	**CHECK ENGINE COOLANT TEMPERATURE SENSOR.** **< REF. TO F: DTC P0115, 2-7b [T10F0].>**

1) Turn ignition switch to OFF.



2) Connect the Subaru Select Monitor or the OBD-II general scan tool to data link connector.
3) Start the engine and warm-up completely.





4) Read data 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".

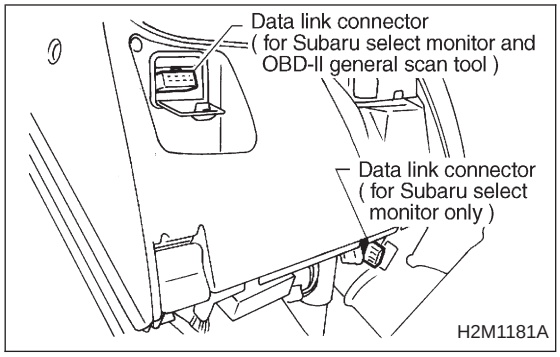
CHECK ***: Is temperature indicated on Subaru Select Monitor (F05) greater than 140°F?***
Is temperature indicated on Subaru Select Monitor (F06) greater than 60°C?

YES : Go to step 5.

NO : Replace engine coolant temperature sensor.

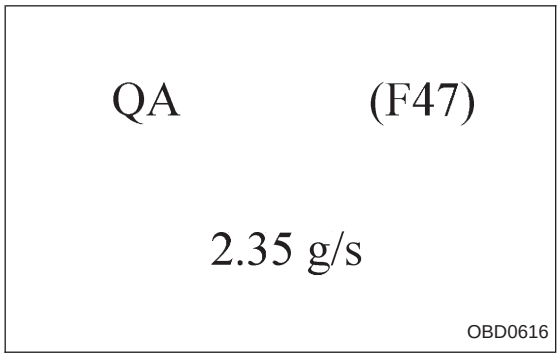
- OBD-II general scan tool

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) Place the selector lever in “N” or “P” position.
5) Turn A/C switch to OFF.
6) Turn all accessory switches to OFF.
7) 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?***

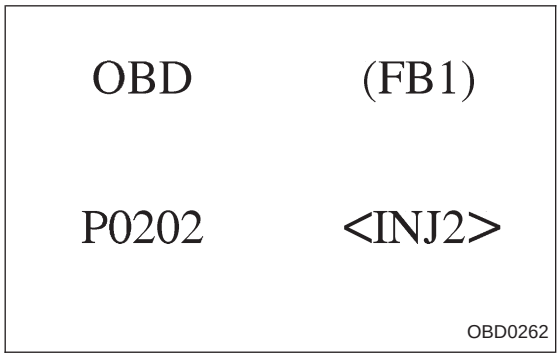
Engine speed	Specified value
Idling	1.9 — 3.6 (g/sec)
2,500 rpm	7.0 — 14.8 (g/sec)

YES : Contact with SOA service.
Note: Inspection by DTM is required.
Probable cause: Deterioration of plural parts

NO : Replace mass air flow sensor.

● 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) —

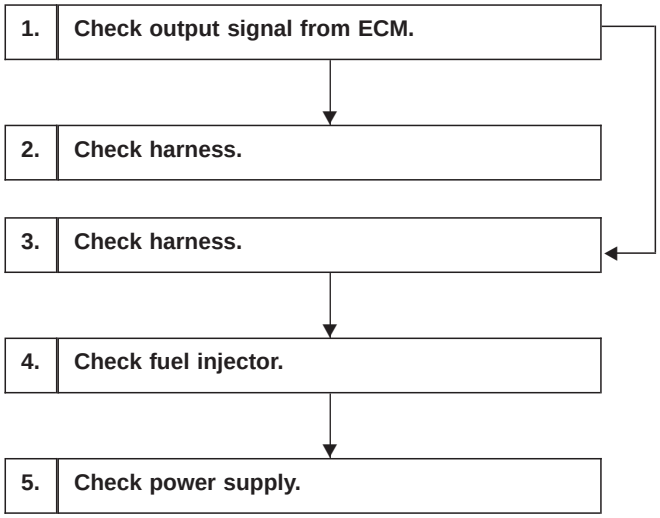
T: DTC P0204
— FUEL INJECTOR CIRCUIT MALFUNCTION - #4 (INJ4) —

DTC DETECTING CONDITION:

- Immediately at fault recognition

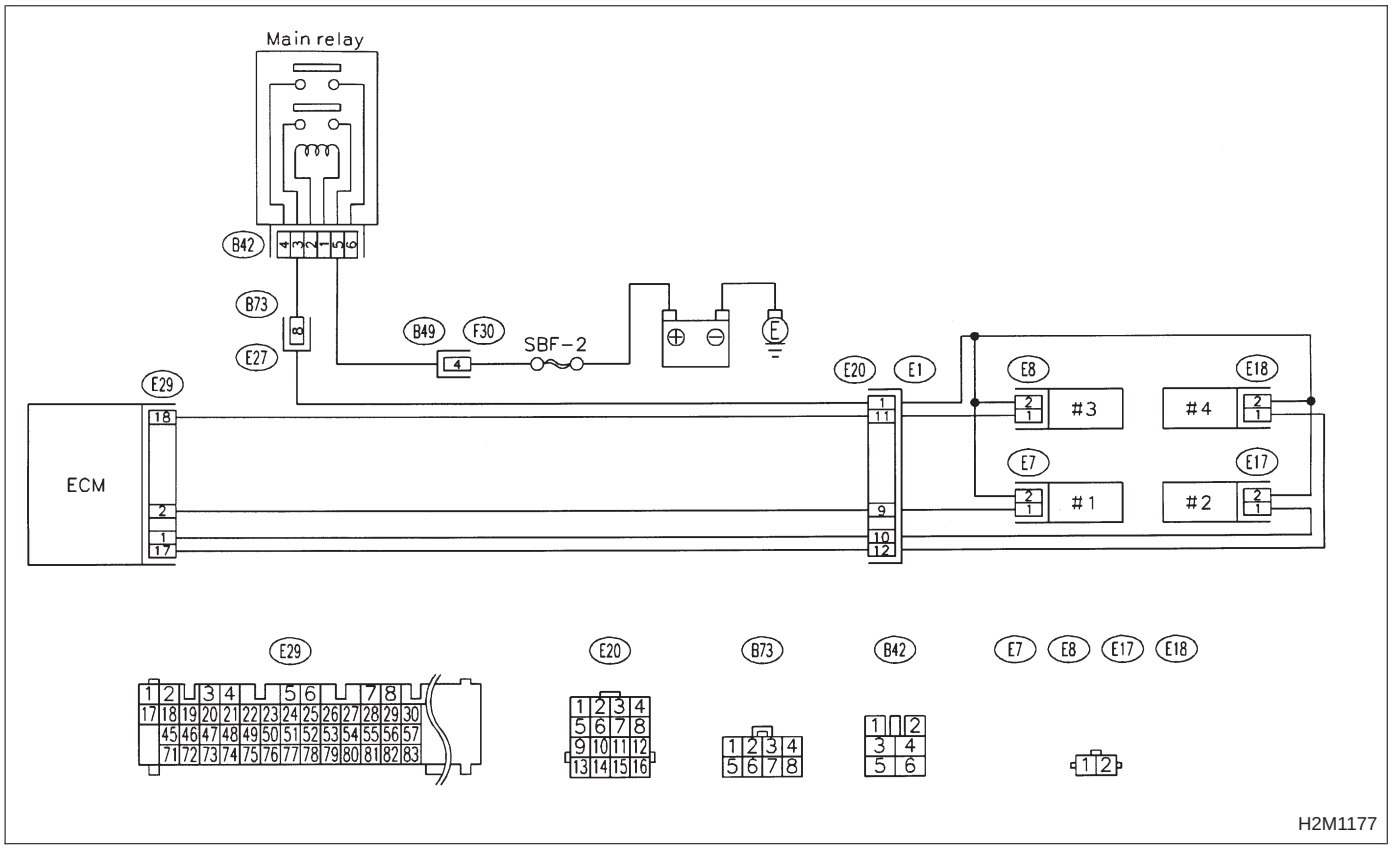
TROUBLE SYMPTOM:

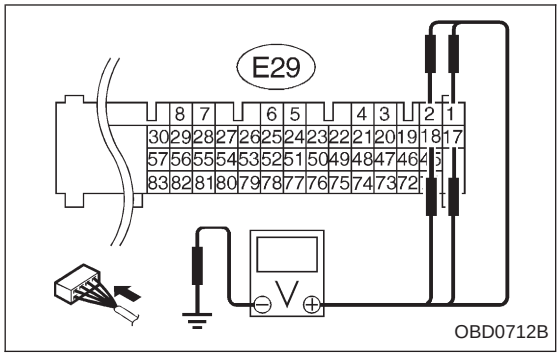
- Failure of engine to start
- Engine stalls.
- Erroneous idling
- Rough driving



CAUTION:
- **Check or repair only faulty cylinders.**
- **After repair or replacement of faulty parts, conduct CLEAR MEMORY and INSPECTION MODES. <Ref. to 2-7b [T3D0] and [T3E0].>**

WIRING DIAGRAM:



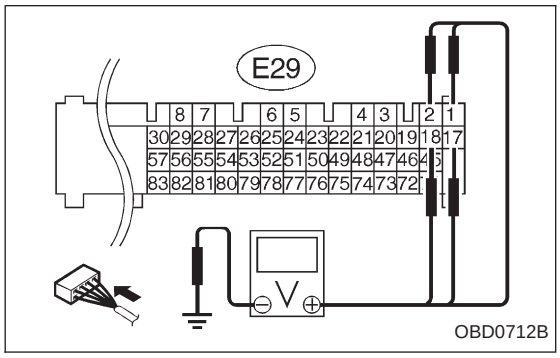


1	CHECK OUTPUT SIGNAL FROM ECM.

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

CHECK ***: Connector & terminal***
#1 (E29) No. 2 — Body/10 V, or more
#2 (E29) No. 1 — Body/10 V, or more
#3 (E29) No. 18 — Body/10 V, or more
#4 (E29) No. 17 — Body/10 V, or more

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

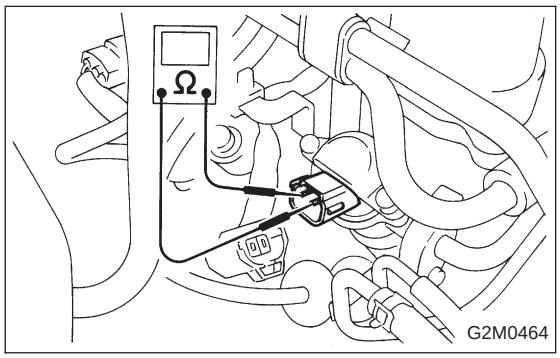


2	CHECK HARNESS.

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 (E29) No. 2 — Body/10 V, or more
#2 (E29) No. 1 — Body/10 V, or more
#3 (E29) No. 18 — Body/10 V, or more
#4 (E29) 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.

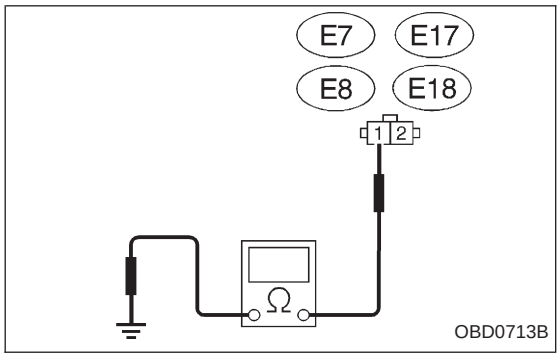


5) Turn ignition switch to OFF.
6) Measure resistance between fuel injector terminals on faulty cylinder.

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

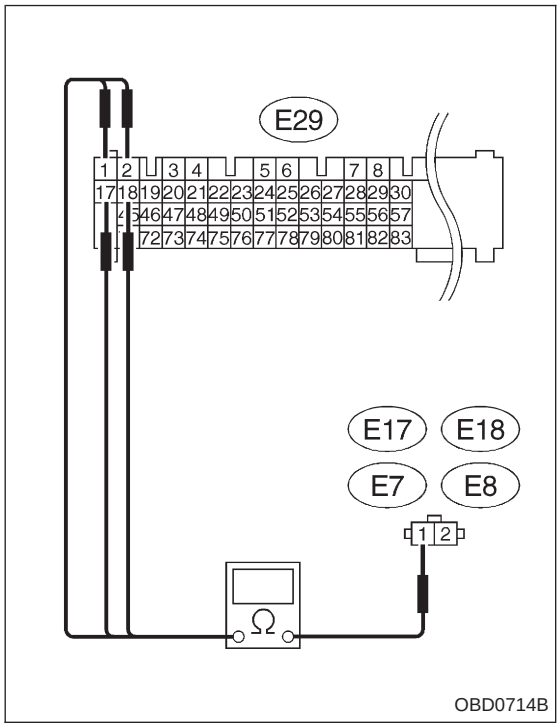


3	CHECK HARNESS.

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

CHECK ***: Connector & terminal***
#1 (E7) No. 1 — Body/10 Ω, or less
#2 (E17) No. 1 — Body/10 Ω, or less
#3 (E8) No. 1 — Body/10 Ω, or less
#4 (E18) No. 1 — Body/10 Ω, or less

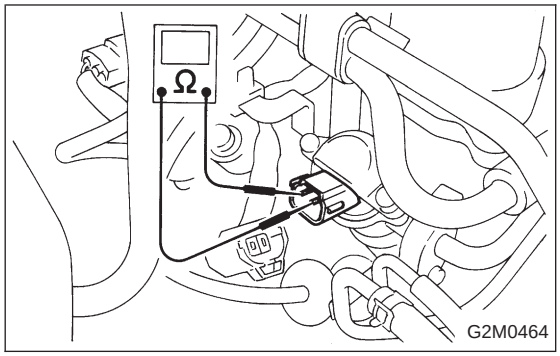
YES : Repair short circuit of harness between fuel injector and body.
NO : Go to the next step.



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

CHECK ***: Connector & terminal***
#1 (E29) No. 2 — (E7) No. 1/1 Ω, or less
#2 (E29) No. 1 — (E17) No. 1/1 Ω, or less
#3 (E29) No. 18 — (E8) No. 1/1 Ω, or less
#4 (E29) No. 17 — (E18) No. 1/1 Ω, or less

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



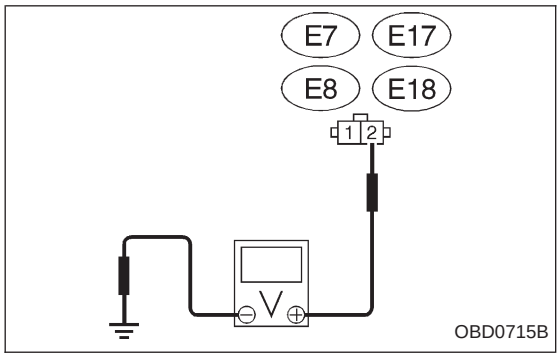
4	CHECK FUEL INJECTOR.

Measure resistance between fuel injector terminals on faulty cylinder.

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

YES : Go to step 5.

NO : Replace faulty fuel injector.



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 (E7) No. 2 — Body/10 V, or more
#2 (E17) No. 2 — Body/10 V, or more
#3 (E8) No. 2 — Body/10 V, or more
#4 (E18) No. 2 — Body/10 V, or more

YES : Check for poor contact of all connectors in WIRING DIAGRAM on page 151.

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

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.)

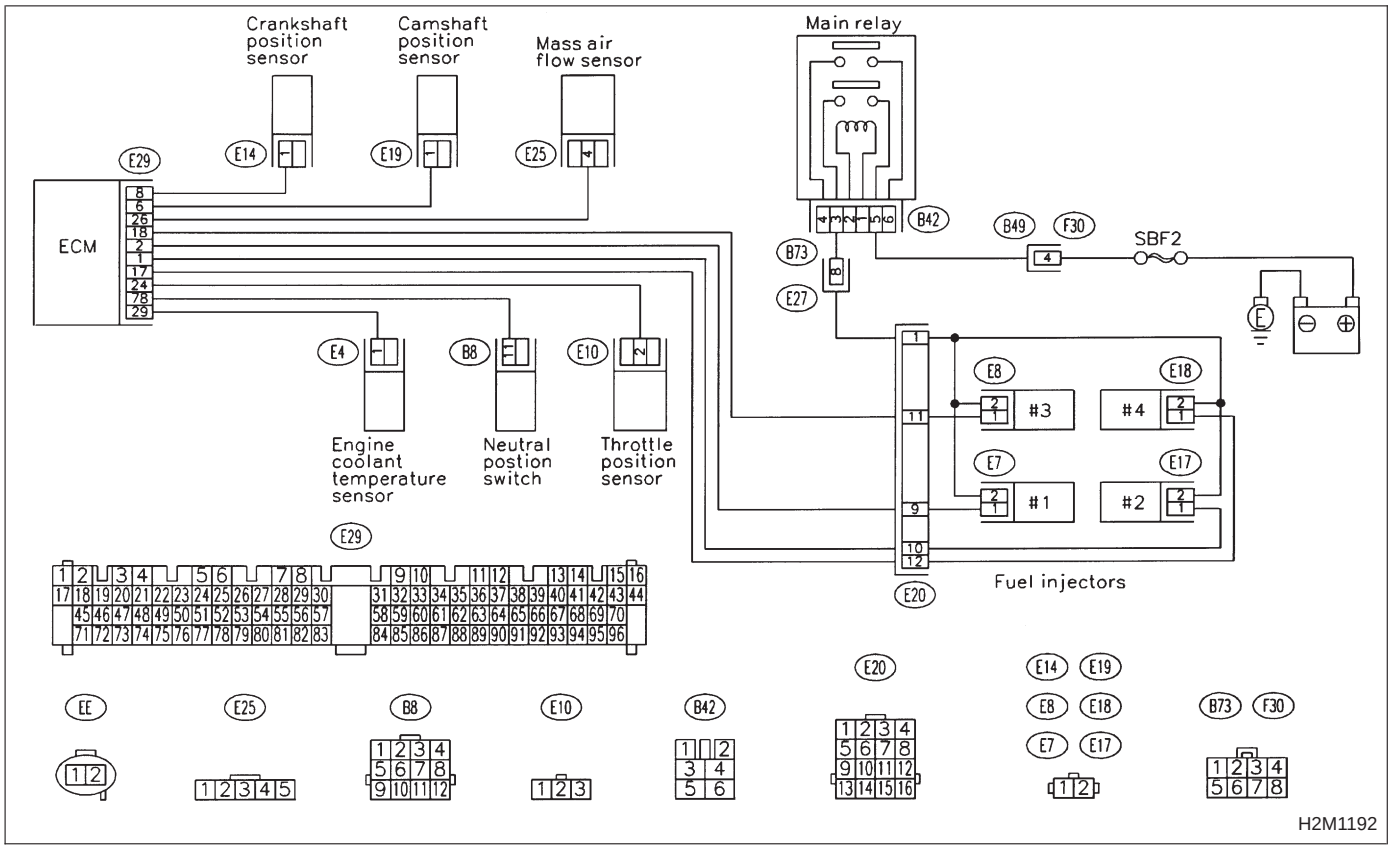
TROUBLE SYMPTOM:

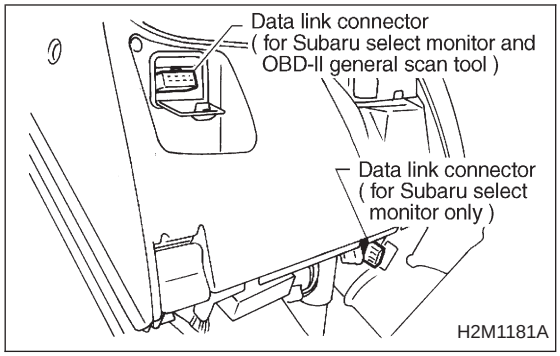
- Engine stalls.
- Erroneous idling
- Rough driving

1.	Check DTC P0100, P0101, P0115, P0125, P0201, P0202, P0203, P0204 and P0400 on display.	Yes	• Inspect DTC P0100, P0101, P0115, P0125, P0201, P0202, P0203, P0204 and P0400 using “10. Diagnostics Chart with Trouble Code, 2-7b [T1000]”. • 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 2-7b [T3D0] and [T3E0].>

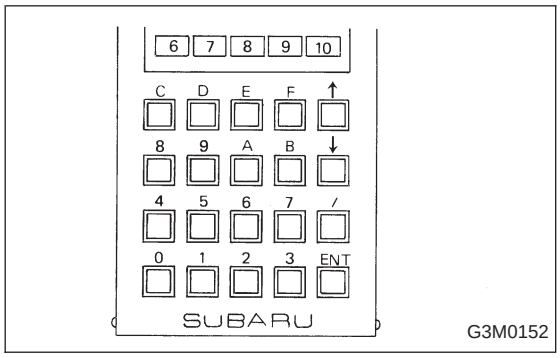
WIRING DIAGRAM:



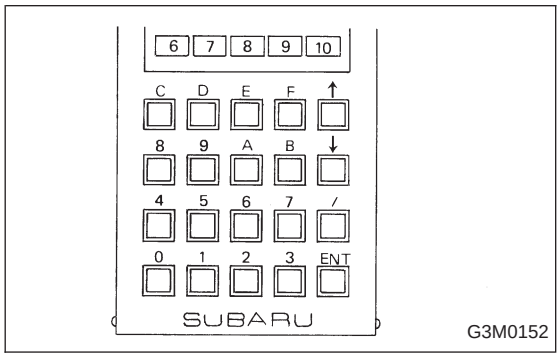


2	CONNECT SUBARU SELECT MONITOR AND READ DATA.

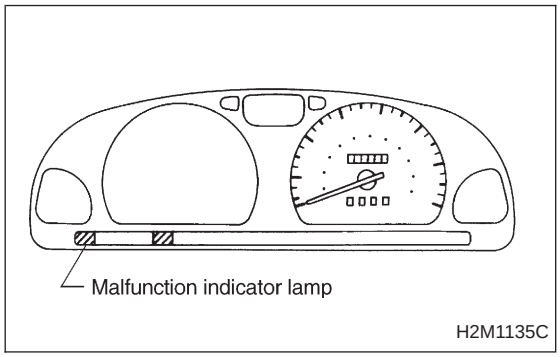
1) Turn ignition switch to OFF.
2) Connect Subaru Select Monitor to the data link connector.
3) Turn ignition switch to ON, and turn Subaru Select Monitor switch to ON.



4) Read data on Subaru Select Monitor.
Designate mode use function key.
Function mode: F38
NOTE:
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.

CHECK ***: Is the MIL coming on or blinking?***
YES : Go to step 3.
NO : Go to next CHECK .

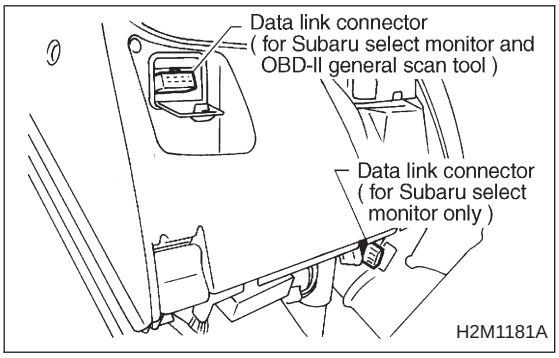
CHECK ***: The vehicle has been empty of fuel.***
YES : ● The engine has no abnormality.
● Finish diagnostics operation.
NO : Go to next CHECK .
CHECK ***: Check if the cause of misfire was made when the engine is running.***
Ex. Remove spark plug cord, etc.
YES : ● The engine has no abnormality.
● Finish 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?

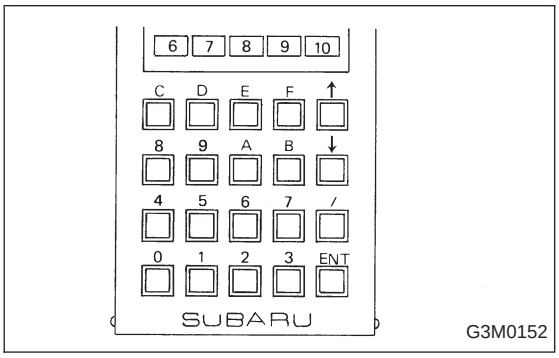
YES : Repair air intake system.

NO : Go to step 4.



4	CHECK MISFIRE SYMPTOM.

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



3) Turn ignition switch to ON, and turn Subaru Select Monitor or OBD-II general scan tool switch to ON.
4) Read diagnostic trouble code (DTC).
● Subaru Select Monitor
Designate mode use function key.
Function mode: FB1

● OBD-II general scan tool

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

NOTE:
Perform diagnosis according to the items listed below.

DTC	Next CHECK
Only one cylinder	Go to step ①.
P0301 and P0302	Go to step ②.
P0303 and P0304	Go to step ③.
P0301 and P0303	Go to step ④.
P0302 and P0304	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***
- ***Ignition coil***

NOTE:
If no abnormal is discovered, check for “8. 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***
- ***Ignition coil***

NOTE:
If no abnormal is discovered, check for “8. 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**

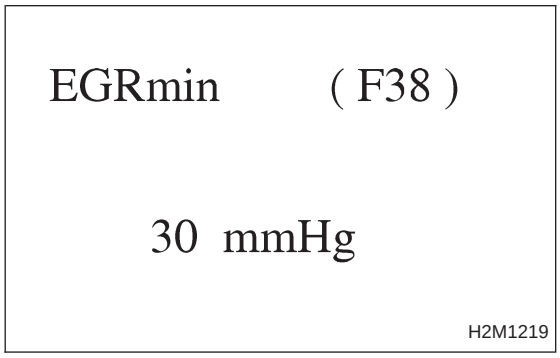
CHECK ***: Check the following items for #2 and #4 cylinders.***
- ***Spark plugs***
- ***Fuel injectors***
- ***Skipping timing belt teeth***

⑥ **THE CYLINDER AT RANDOM**

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

YES : Go to next CHECK .

NO : Go to DTC P0170, 2-7b [T10P3], [T10P4] and [T10P5].



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

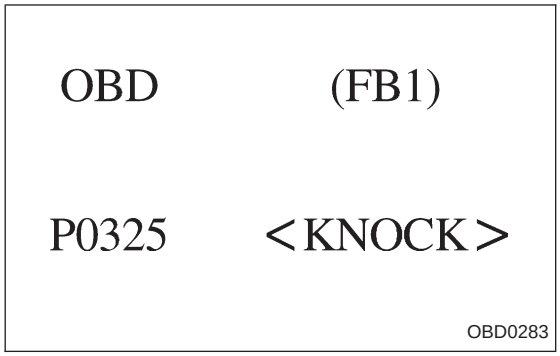
NOTE:
Use the value read in step 2 for function mode F38.

YES : Clean EGR valve.

CAUTION:
Do not use solvent when cleaning EGR valve assembly, as it can damage diaphragm.

NOTE:
- Remove and blow away the exhaust deposits. Make sure the valve operates smoothly and the valve seat area is completely cleaned.
- Replace EGR valve as required.

NO : Go to DTC P0170, 2-7b [T10P3], [T10P4] and [T10P5].



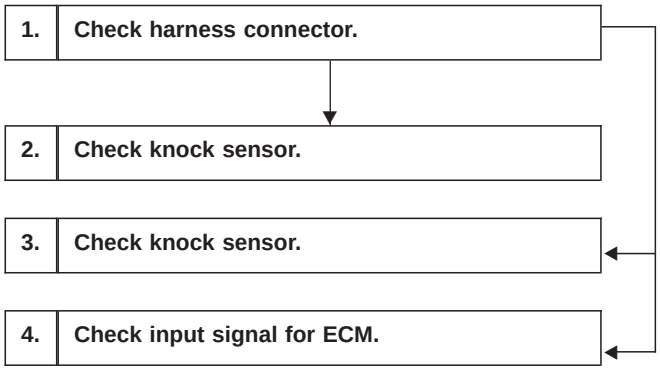
Y: DTC P0325 — KNOCK SENSOR CIRCUIT MALFUNCTION (KNOCK) —

DTC DETECTING CONDITION:

- Immediately at fault recognition

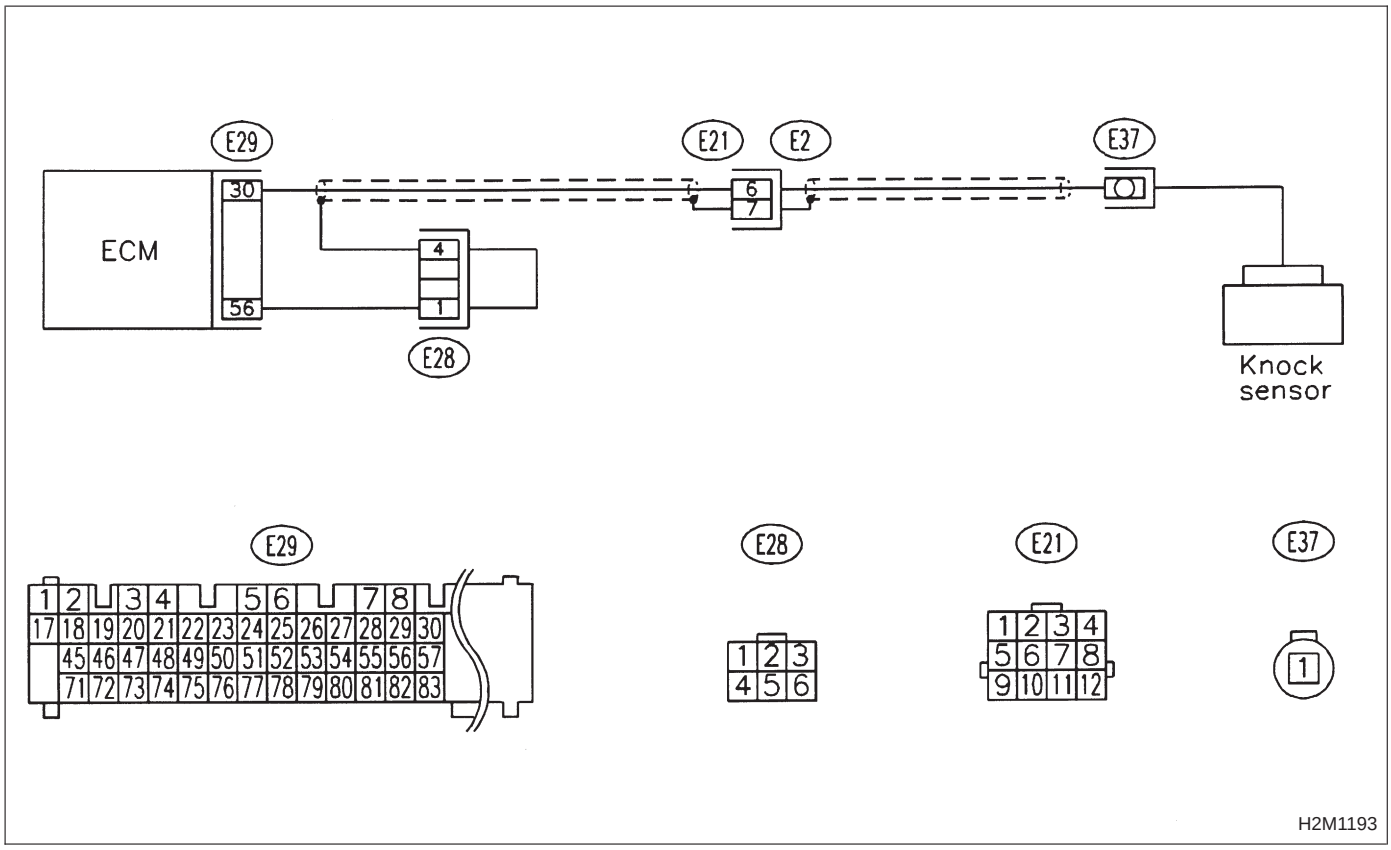
TROUBLE SYMPTOM:

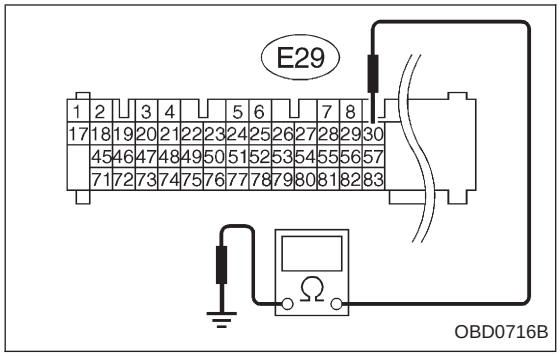
- Poor driving performance
- Knocking occurs.

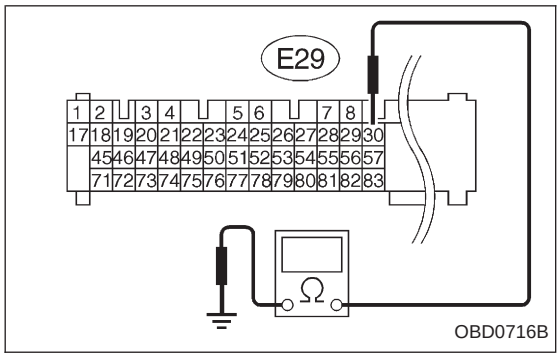


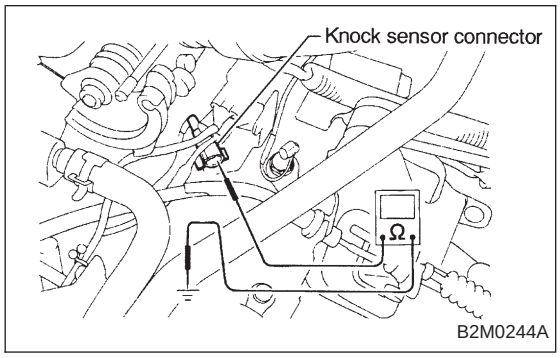
CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY and INSPECTION MODES.
<Ref. to 2-7b [T3D0] and [T3E0].>

WIRING DIAGRAM:









1	CHECK HARNESS CONNECTOR.

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

CHECK : ***Connector & terminal (E29) No. 30 — Body/700 kΩ, or more***

YES : Go to step 2.

NO : Go to next CHECK .

CHECK : ***Connector & terminal (E29) 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 (E37) No. 1 — Body/700 kΩ, or more***

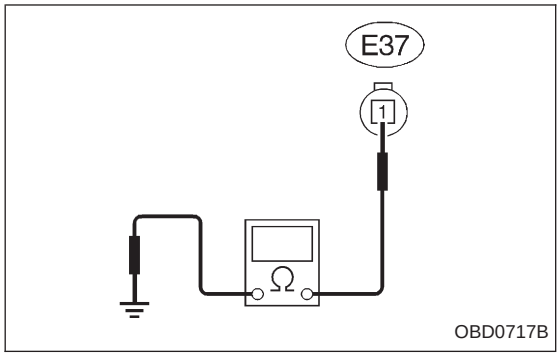
YES : Go to next CHECK .

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 (E21)

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

YES : Replace knock sensor.

NO : Tighten knock sensor installation bolt securely.



3	CHECK KNOCK SENSOR.

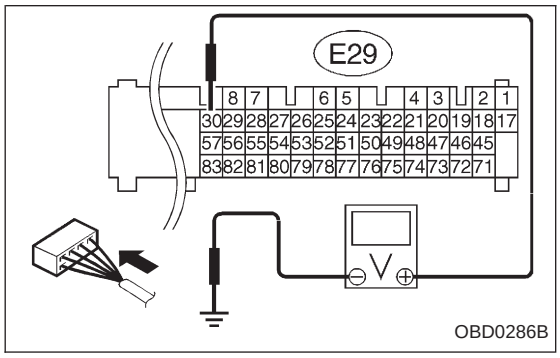
1) Disconnect connector from knock sensor.
2) Measure resistance of harness between knock sensor connector and body.

CHECK ***: Connector & terminal (E37) 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.



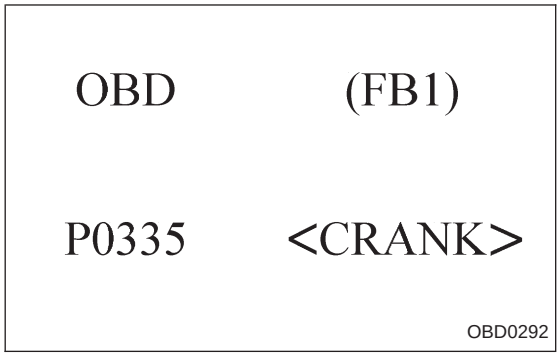
4	CHECK INPUT SIGNAL FOR ECM.

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

CHECK ***: Connector & terminal (E29) No. 30 — Body/2 V, or more***

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 (E21)

NO : Repair poor contact in ECM connector.



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

DTC DETECTING CONDITION:

- Immediately at fault recognition

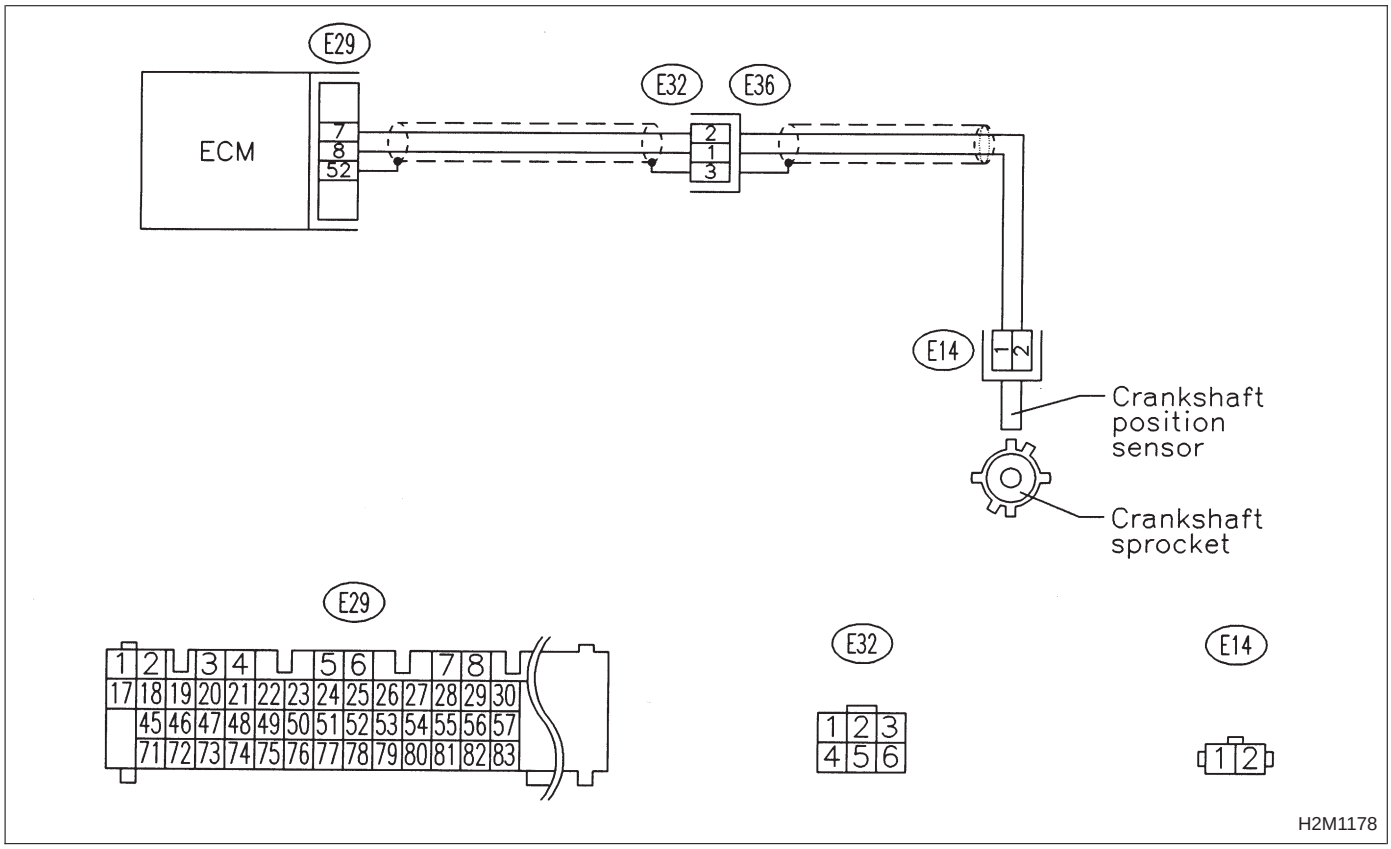
TROUBLE SYMPTOM:

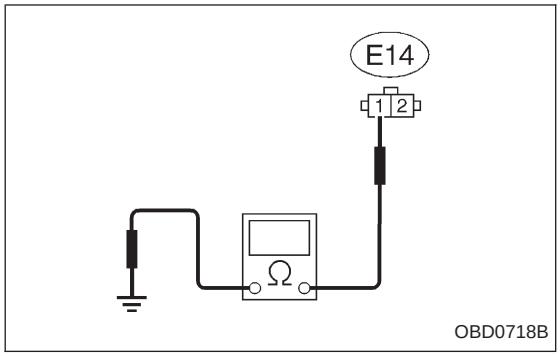
- Engine stalls.
- Failure of engine to start

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

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

WIRING DIAGRAM:





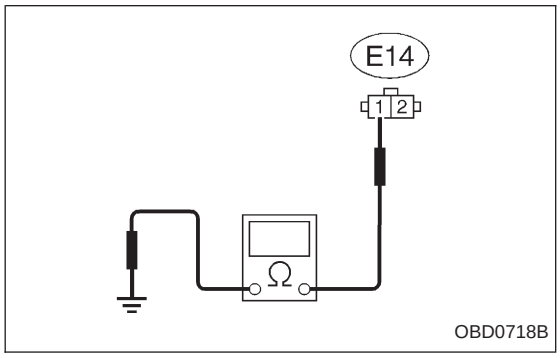
1	CHECK HARNESS.

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 (E14) 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 (E32)

NO : Go to next CHECK .

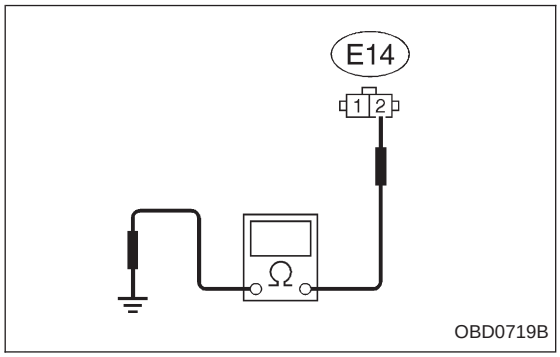


CHECK ***: Connector & terminal (E14) No. 1 — Body/10 Ω, or less***

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 (E14) No. 2 — Body/5 Ω, or less***

YES : Go to step 2.

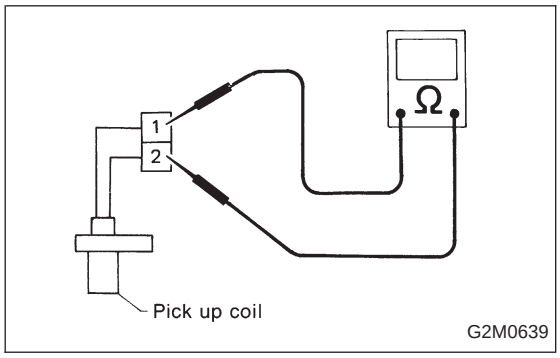
NO : Check and repair the following items.
- Open circuit of harness between crankshaft position sensor connector and ECM connector
- Poor contact in ECM connector
- Poor contact in the coupling connector (E32)

2	CHECK CRANKSHAFT POSITION SENSOR.

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

YES : Go to the next step.

NO : Tighten securely.



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) —

DTC DETECTING CONDITION:

- Immediately at fault recognition

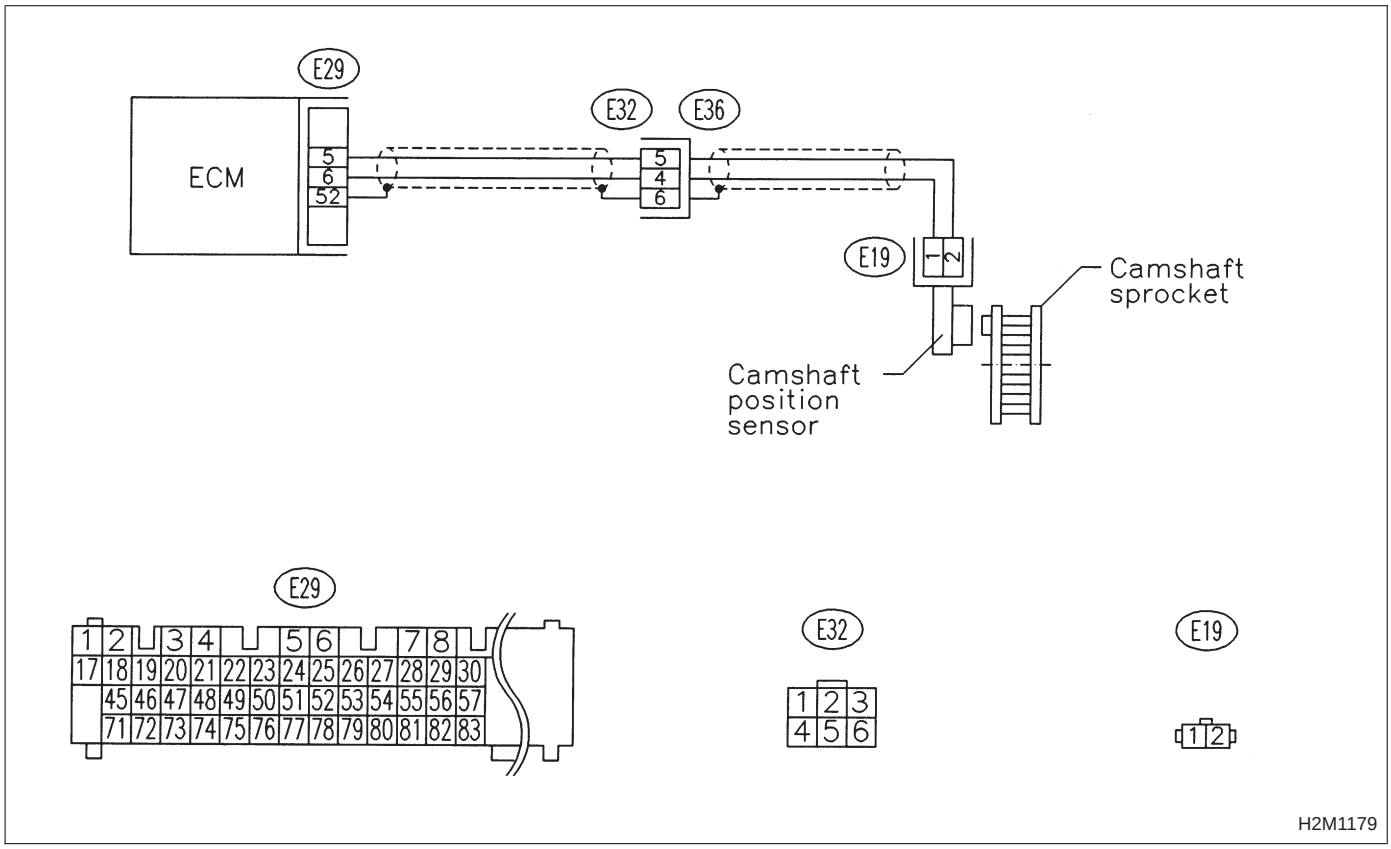
TROUBLE SYMPTOM:

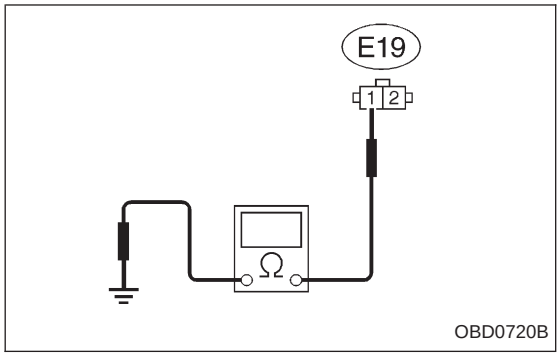
- Engine stalls.
- Failure of engine to start

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

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

WIRING DIAGRAM:





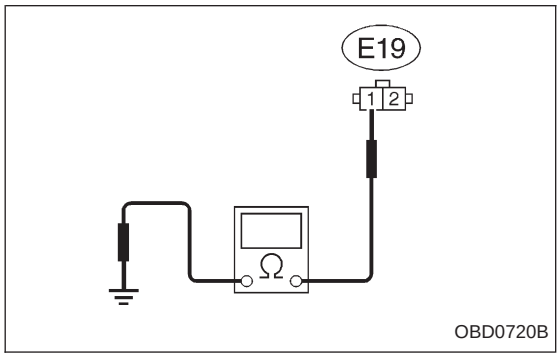
1	CHECK HARNESS.

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 (E19) 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 (E32)

NO : Go to next CHECK .

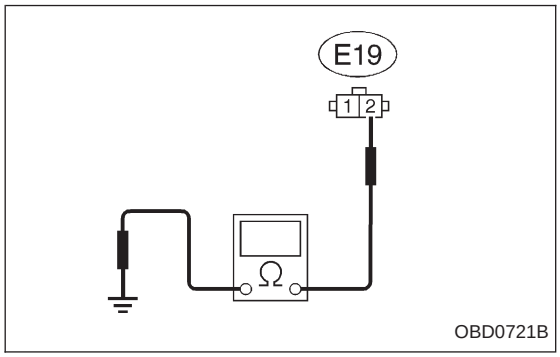


CHECK ***: Connector & terminal (E19) No. 1 — Body/10 Ω, or less***

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 (E19) No. 2 — Body/5 Ω, or less***

YES : Go to step 2.

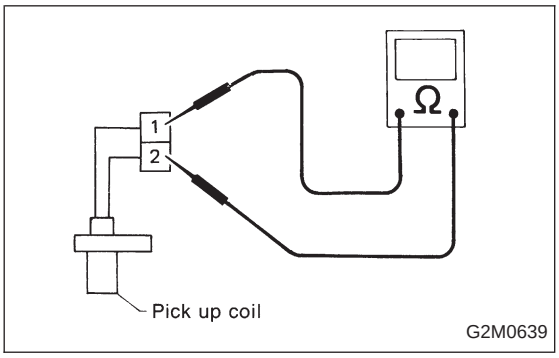
NO : Check and repair the following items.
- Open circuit of harness between camshaft position sensor connector and ECM connector
- Poor contact in ECM connector
- Poor contact in the coupling connector (E32)

2	CHECK CAMSHAFT POSITION SENSOR.

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

YES : Go to the next step.

NO : Tighten securely.



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.

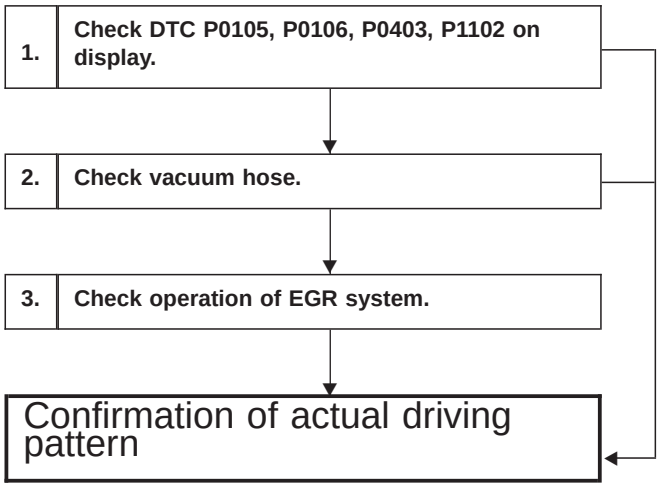
AB: DTC P0400 — EXHAUST GAS RECIRCULATION FLOW MALFUNCTION (EGR) —

DTC DETECTING CONDITION:

- Two consecutive trips with fault

TROUBLE SYMPTOM:

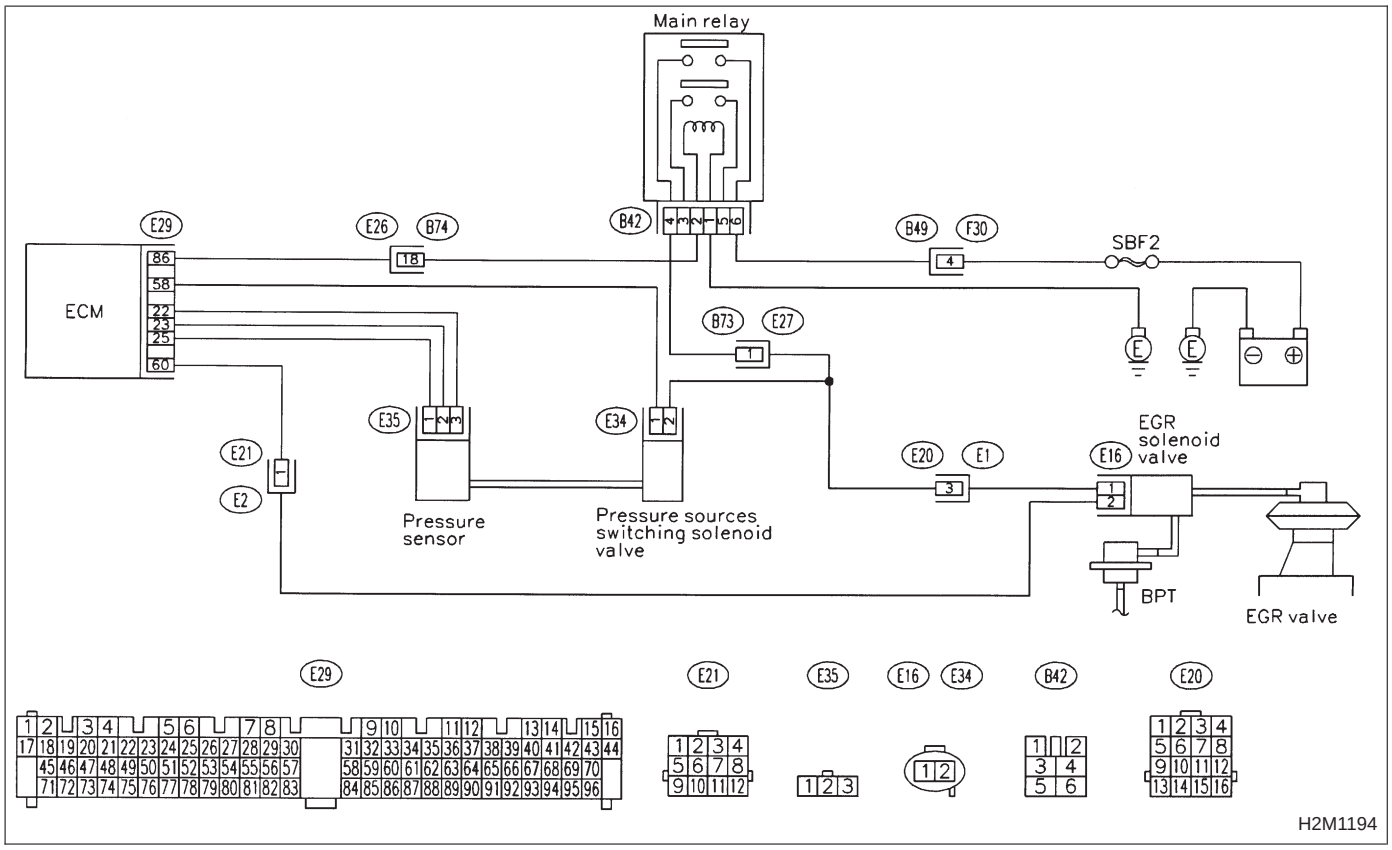
- Poor driving performance on low engine speed



CAUTION:

Before confirmation of actual driving pattern, conduct CLEAR MEMORY and INSPECTION MODES.
<Ref. to 2-7b [T3D0] and [T3E0].>

WIRING DIAGRAM:



1	**CHECK DTC P0105, P0106, P0403, P1102 ON DISPLAY.**

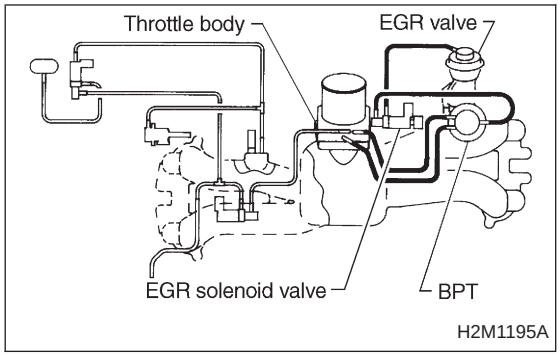
CHECK ***: Check that Subaru Select Monitor or OBD-II general scan tool shows P0105, P0106, P0403 and P1102.***

YES : ● Inspect the relevant DTC using “10. Diagnostics Chart with Trouble Code, 2-7b [T1000]”.
● Manually check that EGR valve diaphragm is not stuck.
● In this case, inspection of DTC 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 2.



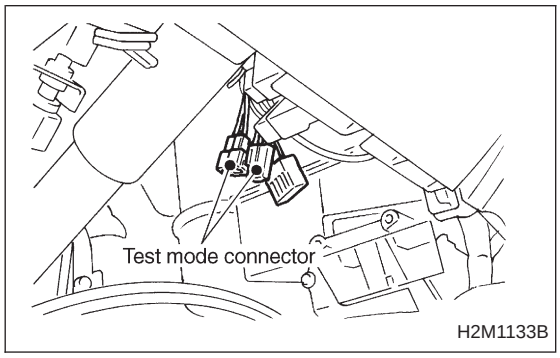
2	CHECK VACUUM HOSE.

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

And after the checking and repairing, go to **CONFIRMATION OF ACTUAL DRIVING PATTERN**.

NO : Go to step 3.



3	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?***

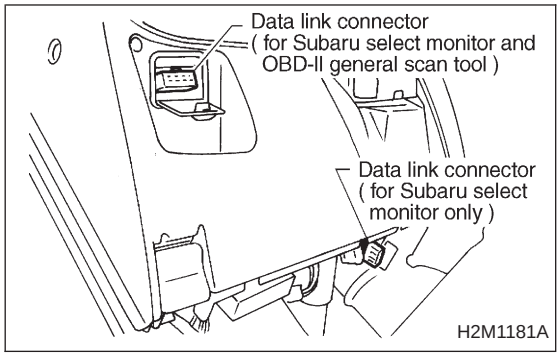
YES : Repair or replace intake manifold or cylinder head. And go to **CONFIRMATION OF ACTUAL DRIVING PATTERN.**

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

CAUTION:
Do not use solvent when cleaning EGR valve assembly, as it can damage diaphragm.

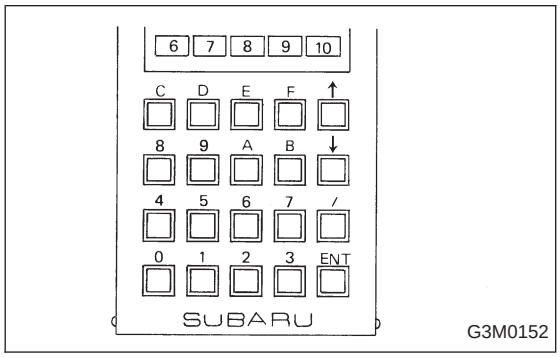
NOTE:

- Remove and blow away the exhaust deposits. Make sure the valve operates smoothly and the valve seat area is completely cleaned.
- Replace EGR valve as required.

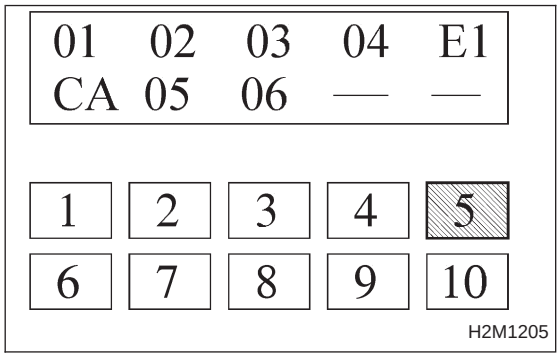


CONFIRMATION OF ACTUAL DRIVING PATTERN.

1) Conduct CLEAR MEMORY and INSPECTION MODES. <Ref. to 2-7b [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.

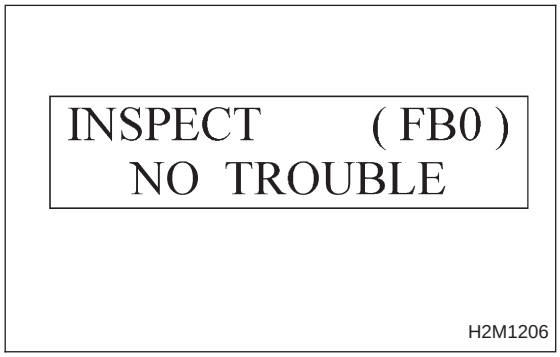


5) Designate mode using function key.
Function mode: FA4



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

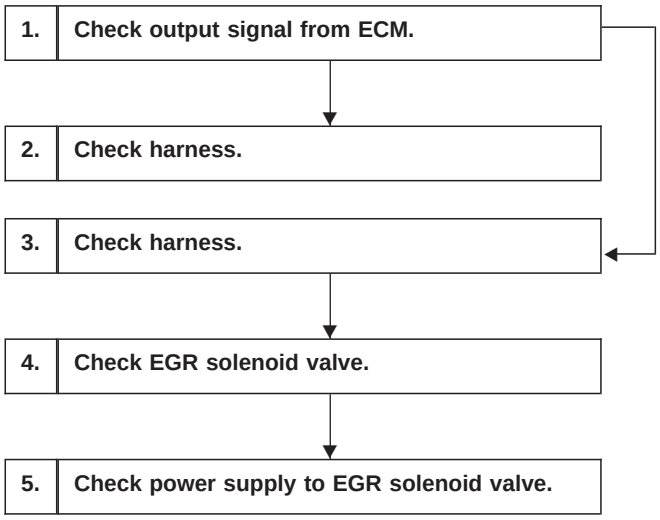
AC: DTC P0403 — EXHAUST GAS RECIRCULATION CIRCUIT MALFUNCTION (EGRSOL) —

DTC DETECTING CONDITION:

- Two consecutive trips with fault

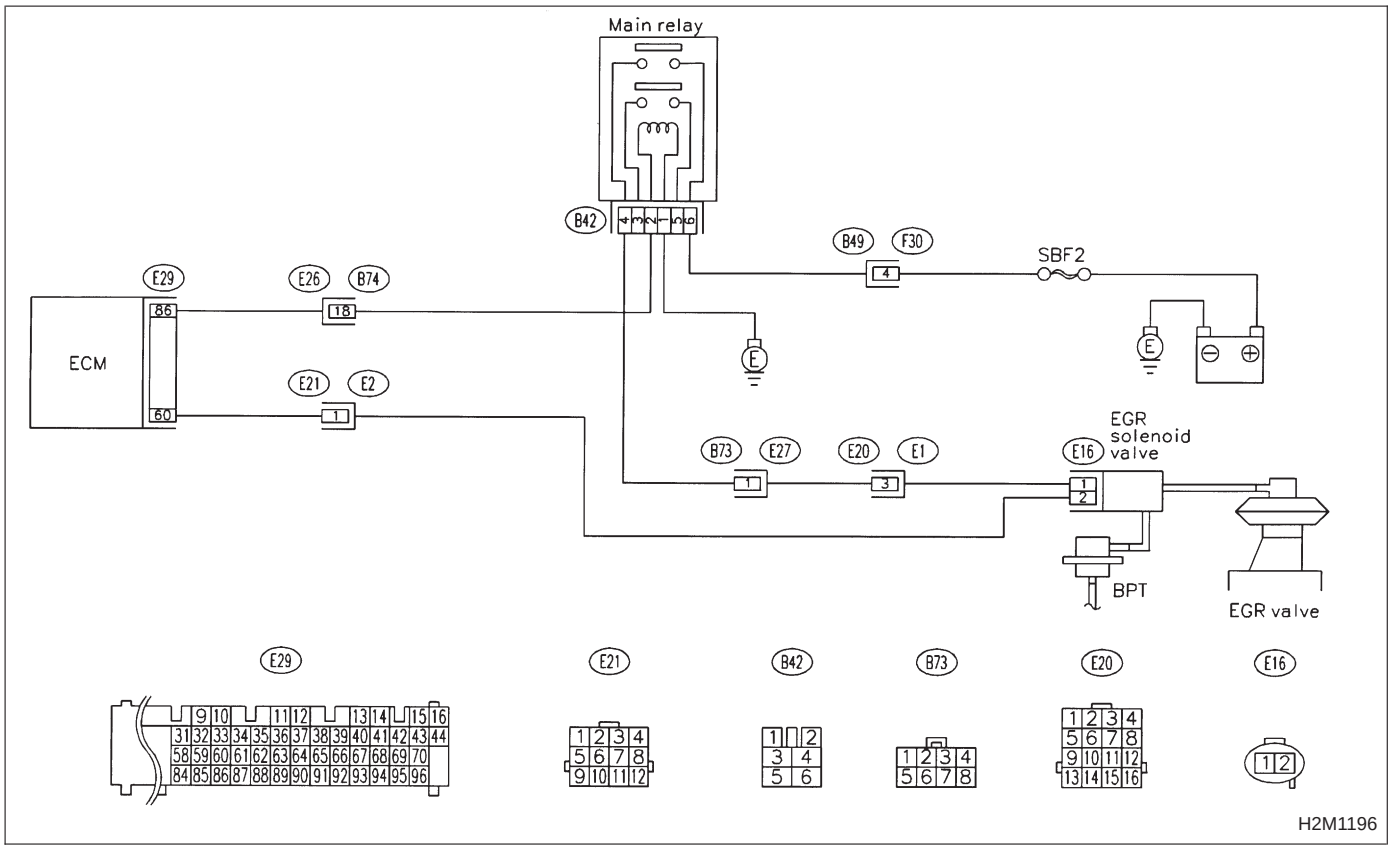
TROUBLE SYMPTOM:

- Poor driving performance on low engine speed

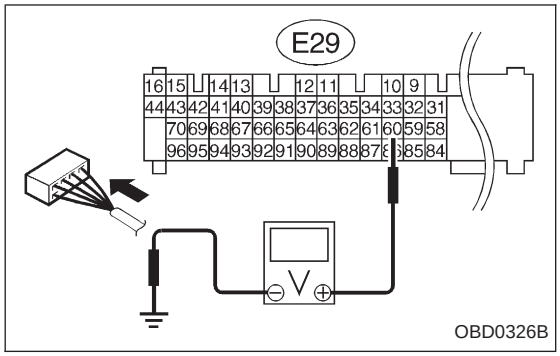


CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY and INSPECTION MODES.
<Ref. to 2-7b [T3D0] and [T3E0].>

WIRING DIAGRAM:



H2M1196



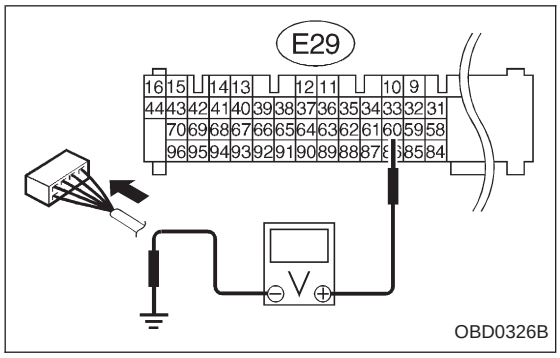
1	CHECK OUTPUT SIGNAL FROM ECM.

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

CHECK ***: Connector & terminal (E29) No. 60 — Body / 10 V, or more***

YES : Go to step 2.

NO : Go to step 3.



2	CHECK HARNESS.

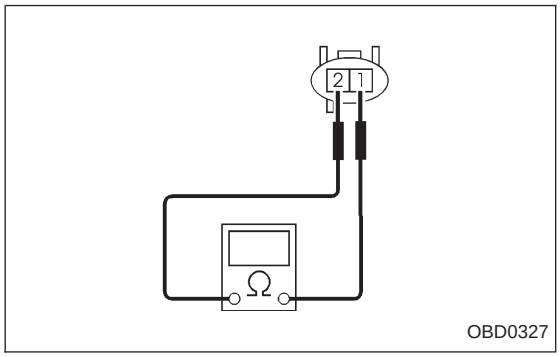
1) Turn ignition switch to OFF.
2) Disconnect connector from EGR solenoid valve.
3) Turn ignition switch to ON.
4) Measure voltage between ECM and body.

CHECK ***: Connector & terminal (E29) 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***

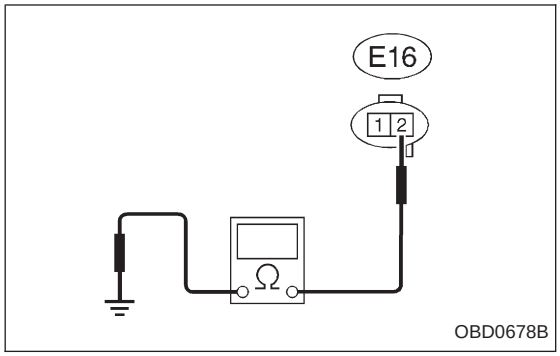
YES : Replace EGR solenoid valve and ECM.

NO : Go to next CHECK .

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

YES : Repair poor contact in ECM connector.

NO : Replace ECM.



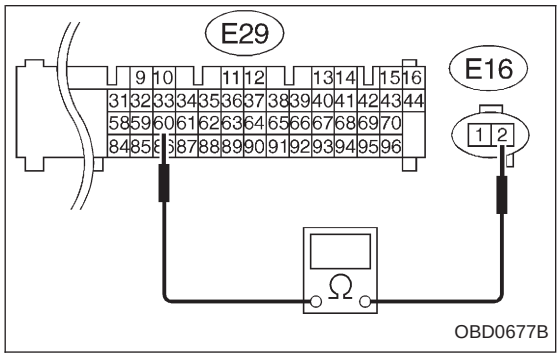
3	CHECK HARNESS.

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***
(E16) 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.

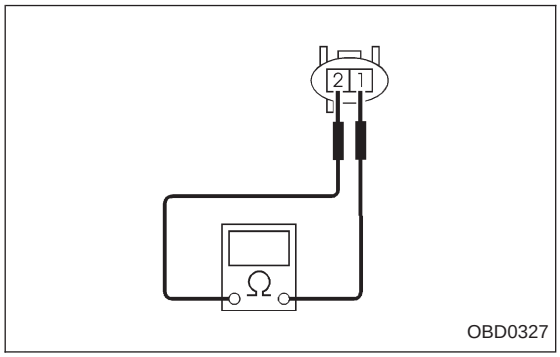


4) Measure resistance of harness connector between ECM and EGR solenoid valve.

CHECK : ***Connector & terminal***
(E29) No. 60 — (E16) No. 2 / 1 Ω, or less

YES : Go to step 4.

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



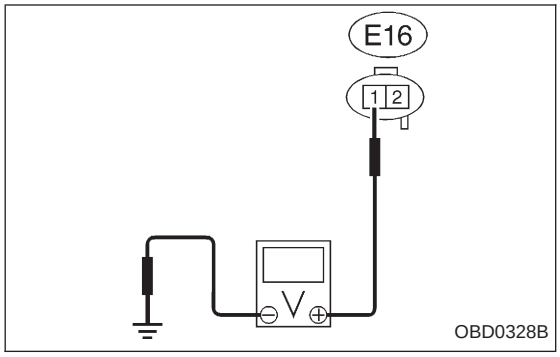
4	CHECK EGR SOLENOID VALVE.

Measure resistance between connector terminals of EGR solenoid valve.

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

YES : Go to step 5.

NO : Replace EGR solenoid valve.



5	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 (E16) 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) —

DTC DETECTING CONDITION:

- Immediately at fault recognition

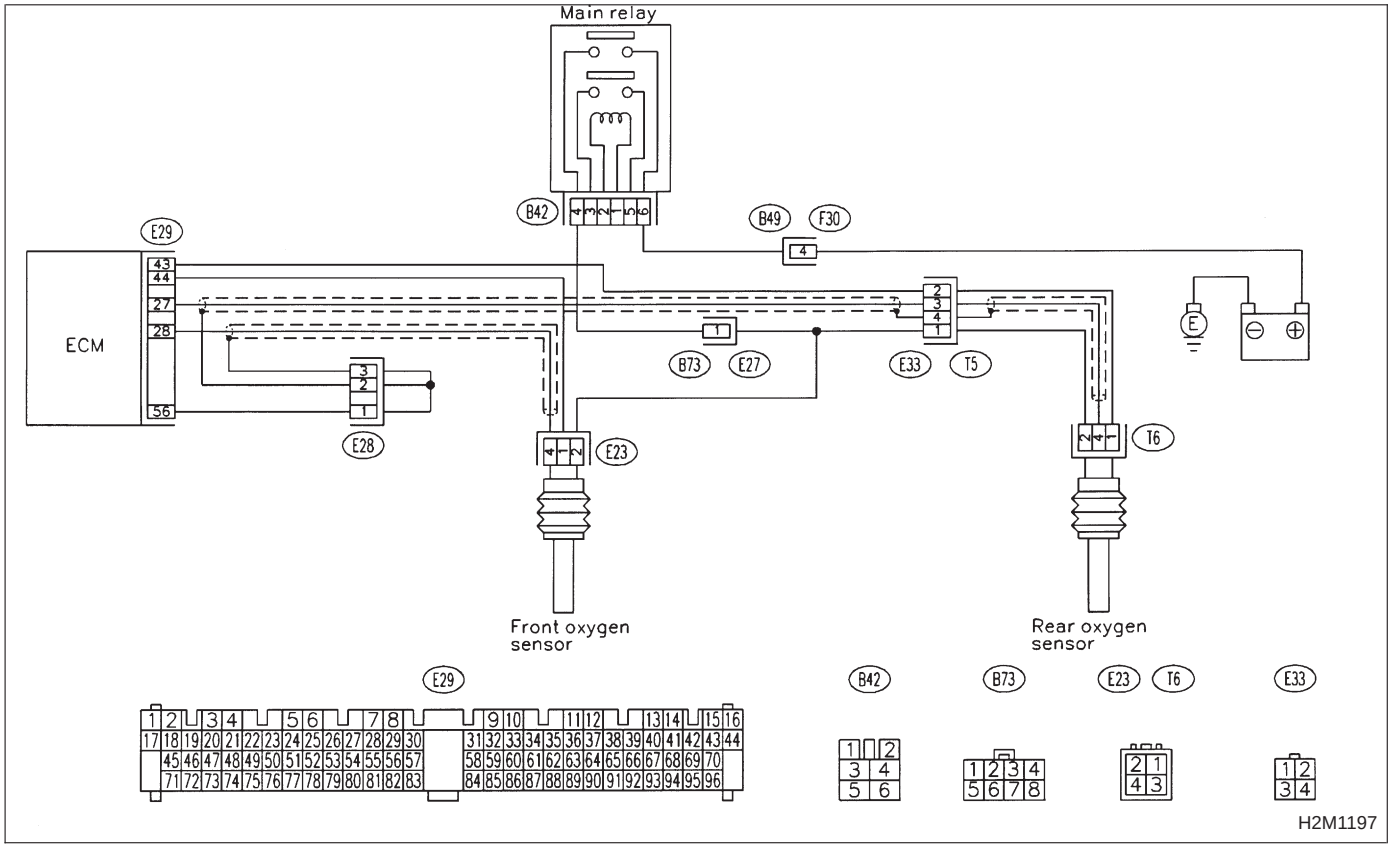
TROUBLE SYMPTOM:

- 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 2-7b [T3D0] and [T3E0].>

WIRING DIAGRAM:



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 “10. Diagnostics Chart with Trouble Code, 2-7b [T1000]”. Inspection of P0420 is not necessary after above.

NO : Go to step 2.

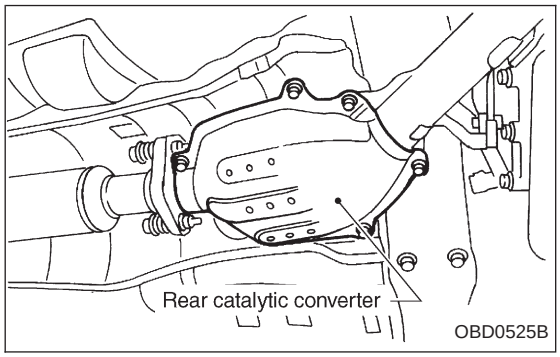
2	CHECK EXHAUST SYSTEM.

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.



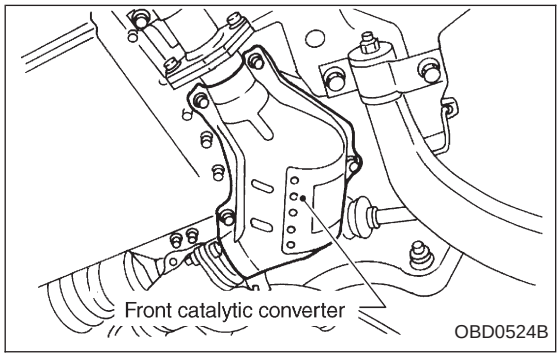
3	CHECK REAR CATALYTIC CONVERTER.

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.

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

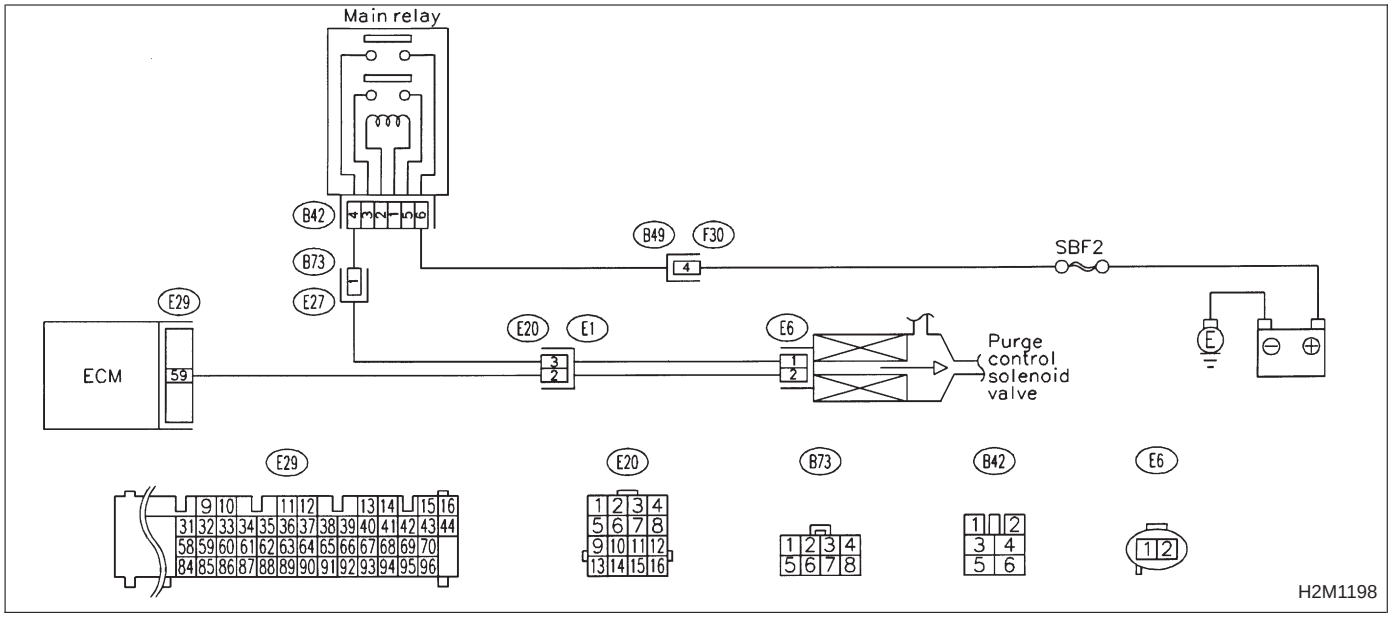
DTC DETECTING CONDITION:

- Two consecutive trips with fault

1.	**Check any other DTC P0105, P0106, P0443 and P1102 on display.**	● Inspect P0105, P0106, P0443 and P1102 using "10. Diagnostics Chart with Trouble Code, 2-7b [T1000]". ● It is unnecessary to inspect DTC P0441.
2.	**Check purge control solenoid valve operation.**	

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

WIRING DIAGRAM:

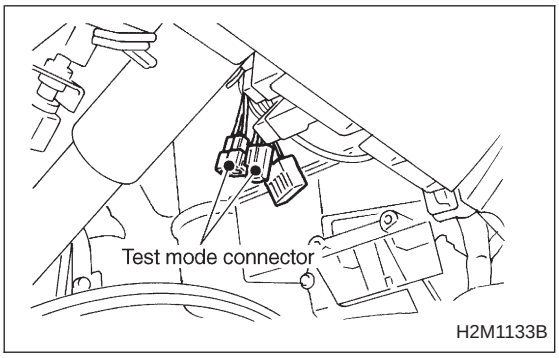


1	CHECK ANY OTHER DTC P0105, P0106, P0443 AND P1102 ON DISPLAY.

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 “10. Diagnostics Chart with Trouble Code, 2-7b [T1000]”.

NO : Go to step 2.



2	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.***

YES : Go to next step.

NO : Replace purge control solenoid valve.

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.

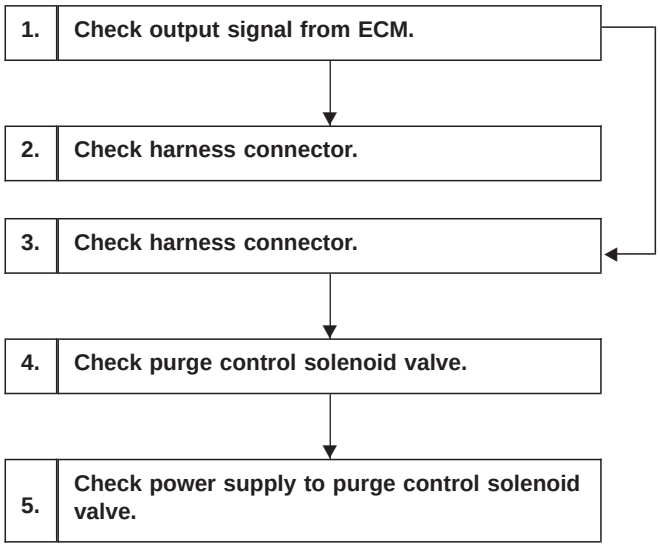
AF: DTC P0443 — EVAPORATIVE EMISSION CONTROL SYSTEM PURGE CONTROL VALVE CIRCUIT MALFUNCTION (CPC) —

DTC DETECTING CONDITION:

- Two consecutive trips with fault

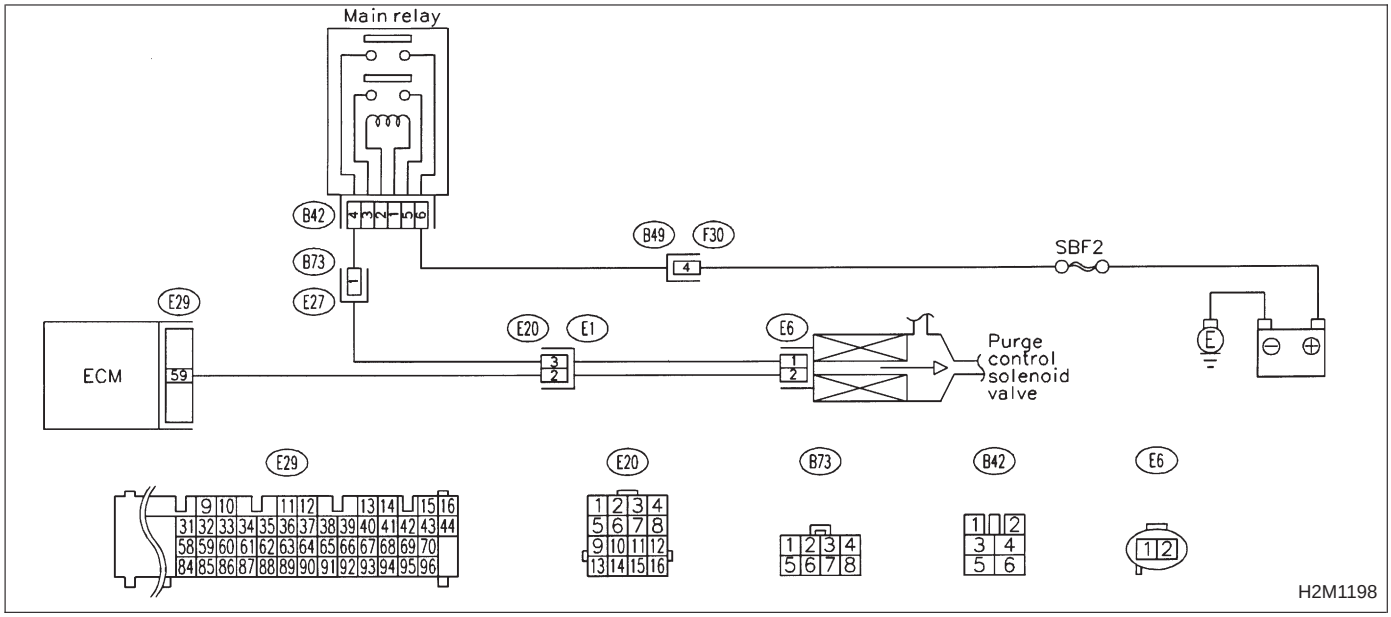
TROUBLE SYMPTOM:

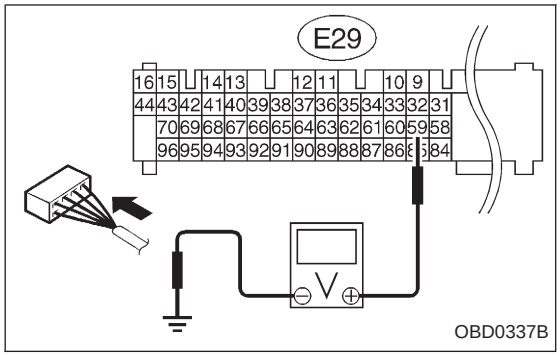
- Erroneous idling



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

WIRING DIAGRAM:





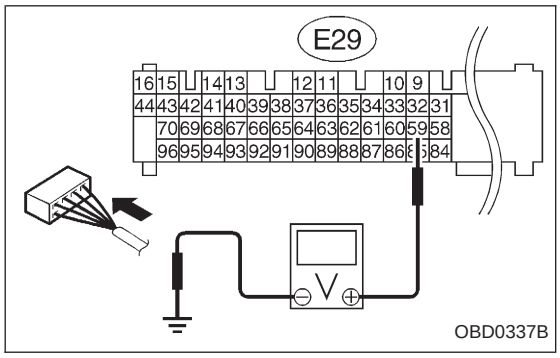
1	CHECK OUTPUT SIGNAL FROM ECM.

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

CHECK ***: Connector & terminal***
(E29) No. 59 — Body / 10 V, or more

YES : Go to step 2.

NO : Go to step 3.



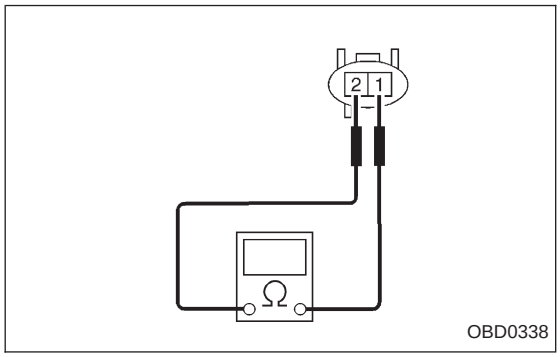
2	CHECK HARNESS CONNECTOR.

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

CHECK ***: Connector & terminal***
(E29) 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

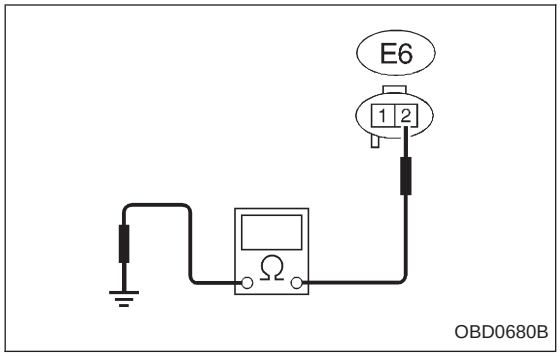
YES : Replace purge control solenoid valve and ECM.

NO : Go to next CHECK .

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

YES : Repair poor contact in ECM connector.

NO : Replace ECM.



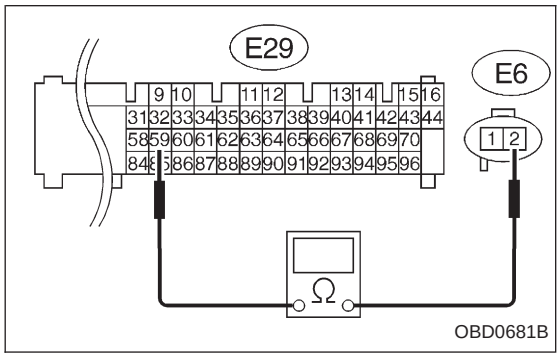
3	CHECK HARNESS CONNECTOR.

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***
(E6) 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 next step.

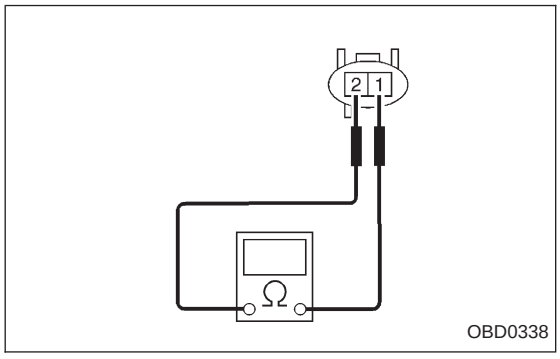


4) Measure resistance between ECM and purge control solenoid valve of harness connector.

CHECK : ***Connector & terminal***
(E29) No. 59 — (E6) No. 2 / 1 Ω, or less

YES : Go to step 4.

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



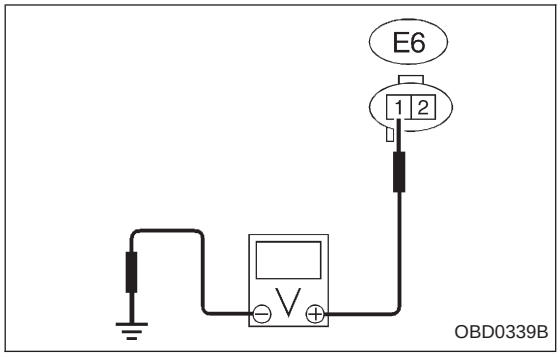
4	CHECK PURGE CONTROL SOLENOID VALVE.

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.



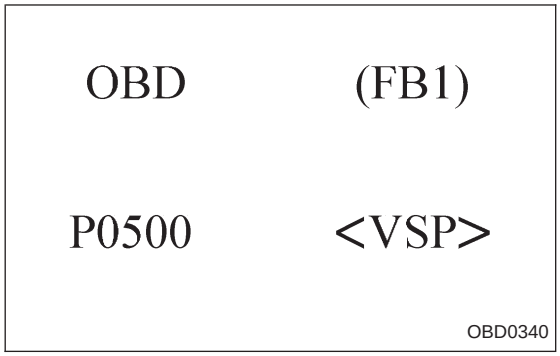
5	CHECK POWER SUPPLY TO PURGE CONTROL SOLENOID VALVE.

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

CHECK ***: Connector & terminal (E6) 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) —

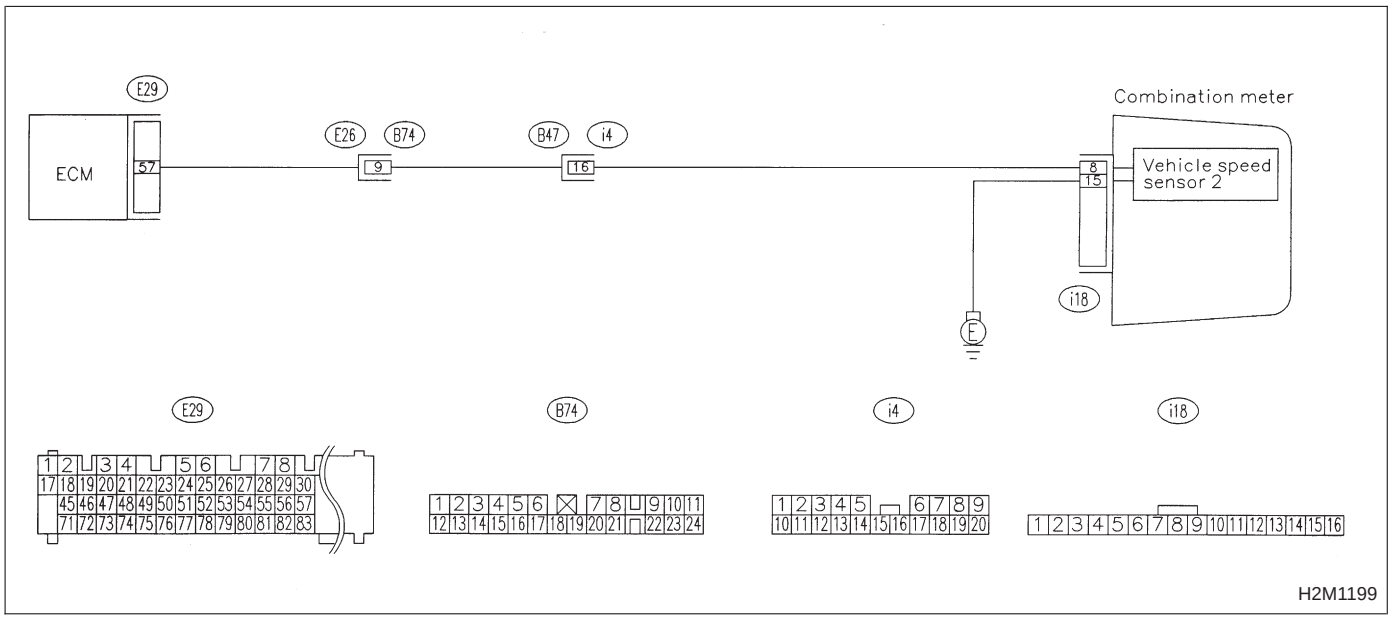
DTC DETECTING CONDITION:

- Immediately at fault recognition

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

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

WIRING DIAGRAM:

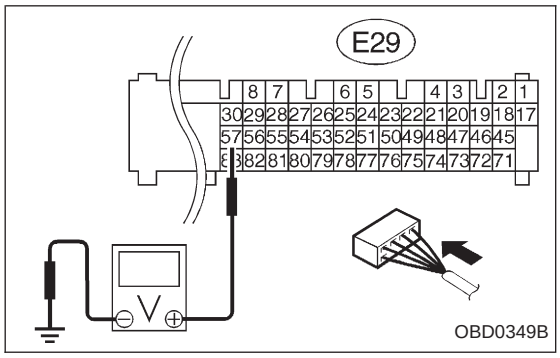


1	CHECK SPEEDOMETER OPERATION IN COMBINATION METER.

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

YES : Go to step 2.

NO : Check speedometer and vehicle speed sensor <Ref. to 6-2 [K2A0].>.



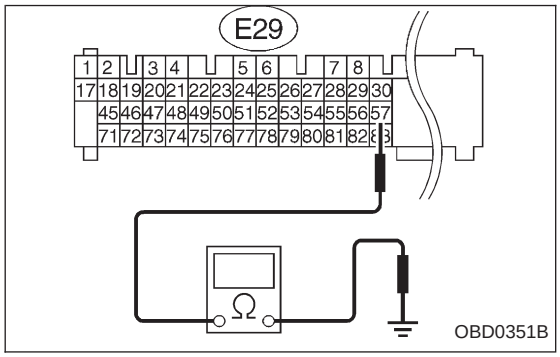
2	CHECK HARNESS CONNECTOR.

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 (E29) 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 connectors (B74) and (i4)

NO : Go to step 3.



3	CHECK HARNESS CONNECTOR.

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

CHECK ***: Connector & terminal (E29) 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.

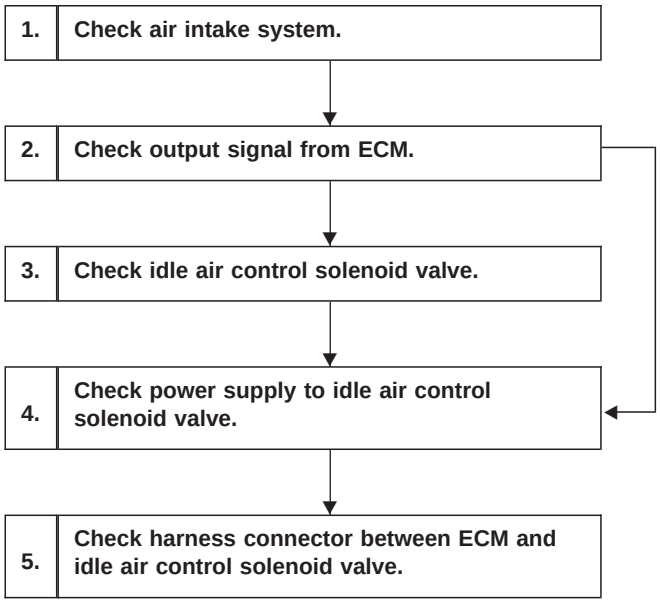
AH: DTC P0505 — IDLE CONTROL SYSTEM MALFUNCTION (ISC) —

DTC DETECTING CONDITION:

- Immediately at fault recognition

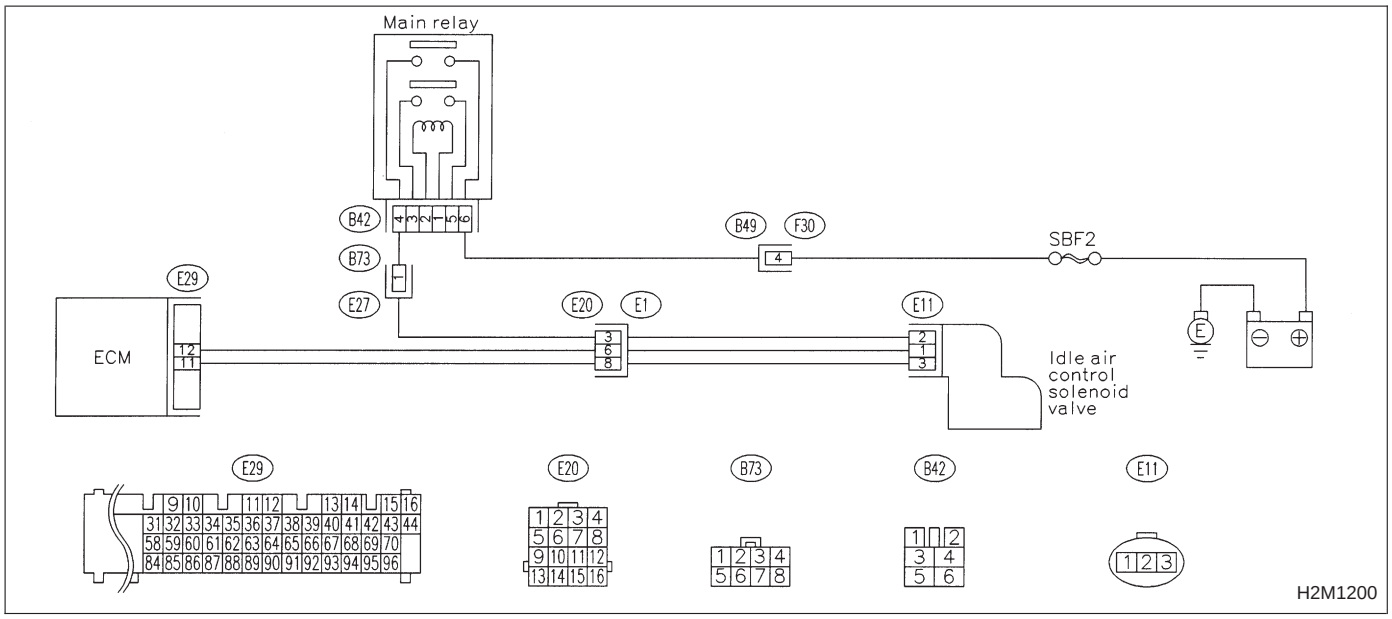
TROUBLE SYMPTOM:

- Erroneous idling
- Engine stalls.
- Engine breathing



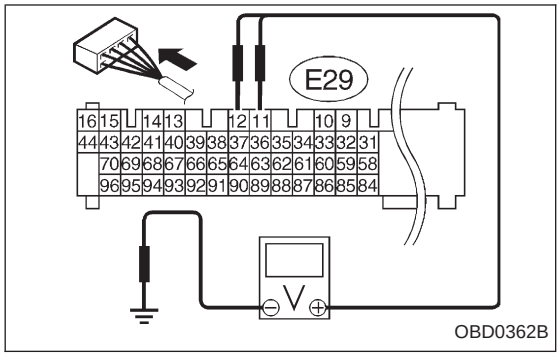
CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY and INSPECTION MODES.
<Ref. to 2-7b [T3D0] and [T3E0].>

WIRING DIAGRAM:



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.



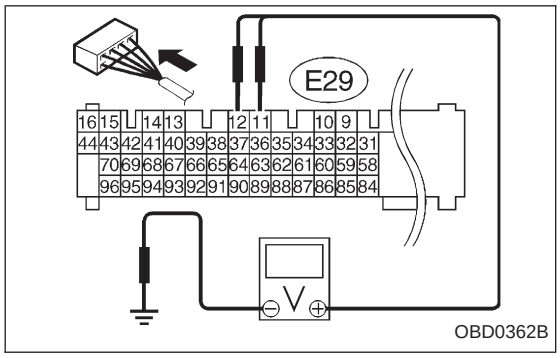
2	CHECK OUTPUT SIGNAL FROM ECM.

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

CHECK : ***Connector & terminal***
(E29) No. 11 — Body / 3 V, or more
(E29) No. 12 — Body / 3 V, or more

YES : Go to the next step.

NO : Go to step 4.



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***
(E29) No. 11 — Body / 10 V, or more
(E29) No. 12 — Body / 10 V, or more

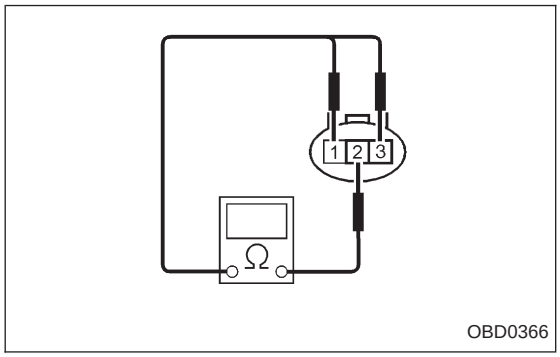
YES : Repair short circuit of harness and replace ECM.

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.



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

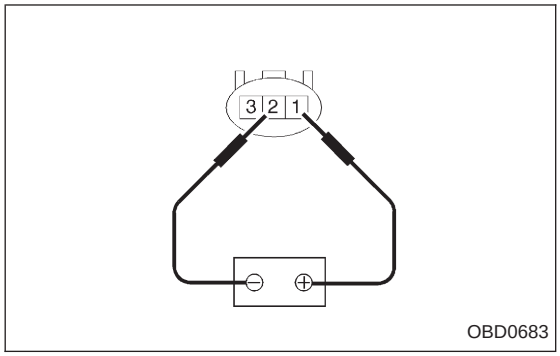
YES : Replace idle air control solenoid valve.

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.

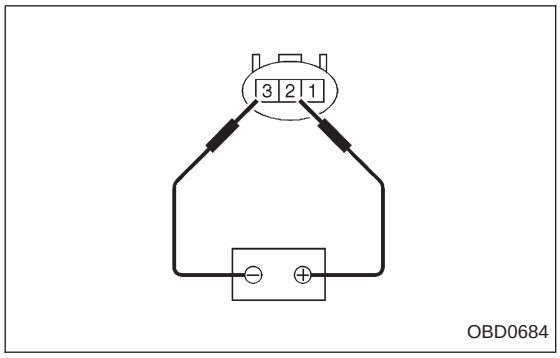


3) Remove idle air control solenoid valve. <Ref. to 2-7b [W12A0].>
4) Check operation of idle air control solenoid valve.

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 .

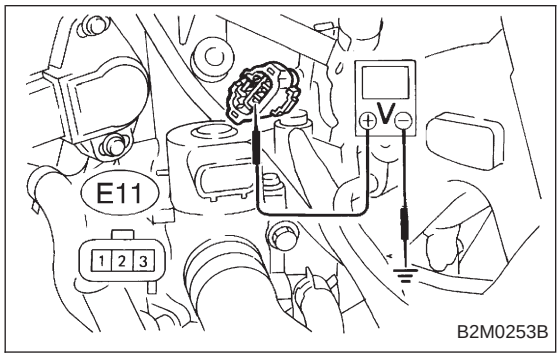
NO : Clean idle air control solenoid valve. <Ref. to 2-7b [W12B0].>



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 2-7b [W12B0].>



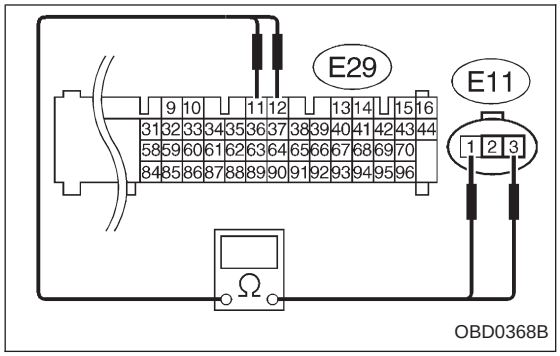
4	CHECK POWER SUPPLY TO IDLE AIR CONTROL SOLENOID VALVE.

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 (E11) 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.



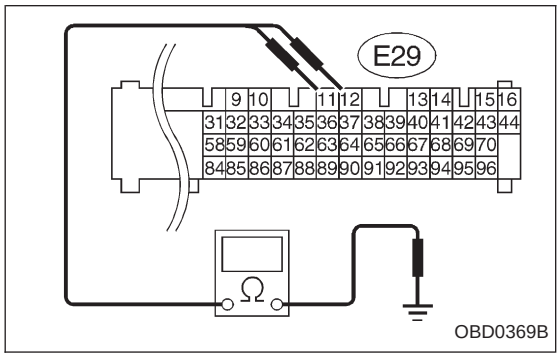
5	CHECK HARNESS CONNECTOR BETWEEN ECM AND IDLE AIR CONTROL SOLENOID VALVE.

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***
(E29) No. 11 — (E11) No. 3 / 1 Ω, or less
(E29) No. 12 — (E11) No. 1 / 1 Ω, or less

YES : Go to the next step.

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



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

CHECK ***: Connector & terminal***
(E29) No. 11 — Body / 1 MΩ, or more
(E29) 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) —

DTC DETECTING CONDITION:

- Two consecutive trips with fault

TROUBLE SYMPTOM:

- Engine is difficult to start.
- Engine does not start.
- Erroneous idling
- Engine stalls.

1.	Check DTC P0505 on display.	Yes	• Inspect DTC P0505 using “10. Diagnostics Chart with Trouble Code, 2-7b [T1000]”. • In this case, it is unnecessary to inspect DTC P0506.
		No	
2.	**Check air intake system.**		

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY and INSPECTION MODES.
<Ref. to 2-7b [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) —

DTC DETECTING CONDITION:

- Two consecutive trips with fault

TROUBLE SYMPTOM:

- Engine keeps running at higher revolution than specified idling revolution.

1.	Check DTC P0505 on display.	Yes →	• Inspect DTC P0505 using “10. Diagnostics Chart with Trouble Code, 2-7b [T1000]”. • In this case, it is unnecessary to inspect DTC P0507.
	No ↓		
2.	**Check air intake system.**		

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY and INSPECTION MODES.
<Ref. to 2-7b [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 —

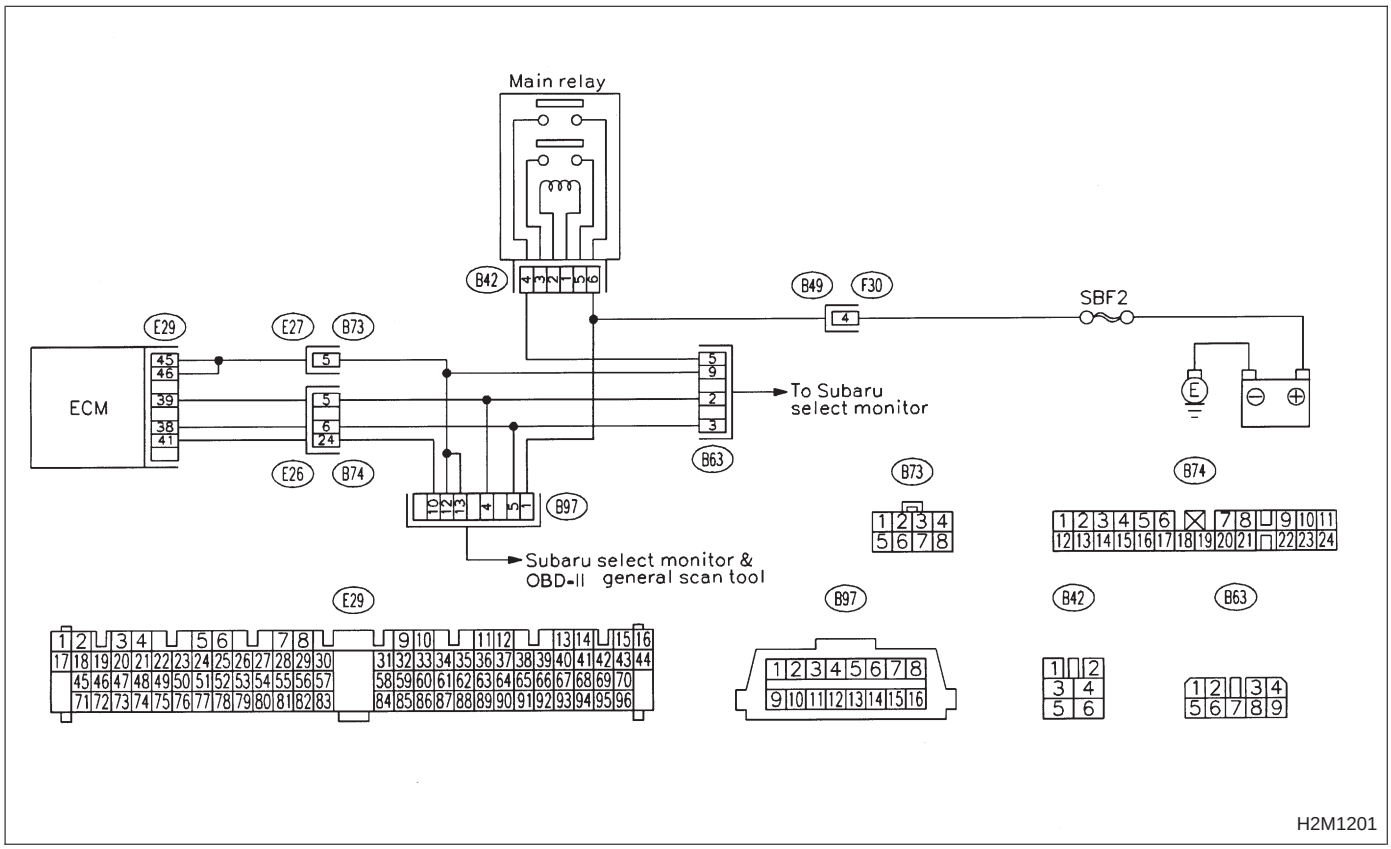
DTC DETECTING CONDITION:

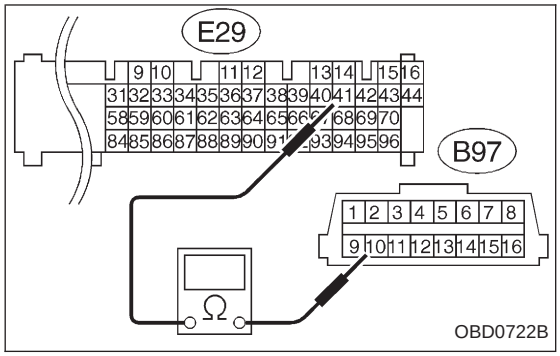
- Two consecutive trips with fault

1.	**Check harness connector.**

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

WIRING DIAGRAM:





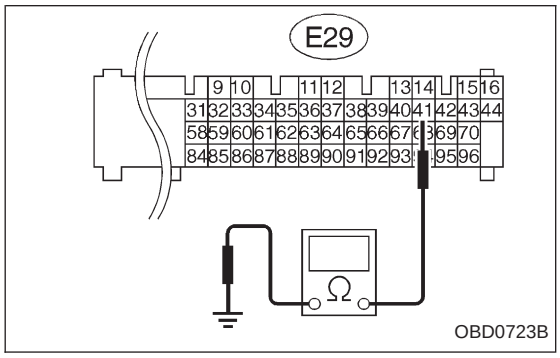
1	CHECK HARNESS CONNECTOR.

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***
(E29) No. 41 — (B97) No. 10 / 1 Ω, or less

YES : Go to the next step.

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



4) Measure resistance between ECM harness connector and body.

CHECK ***: Connector & terminal***
(E29) 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) —

DTC DETECTING CONDITION:

- Two consecutive trips with fault

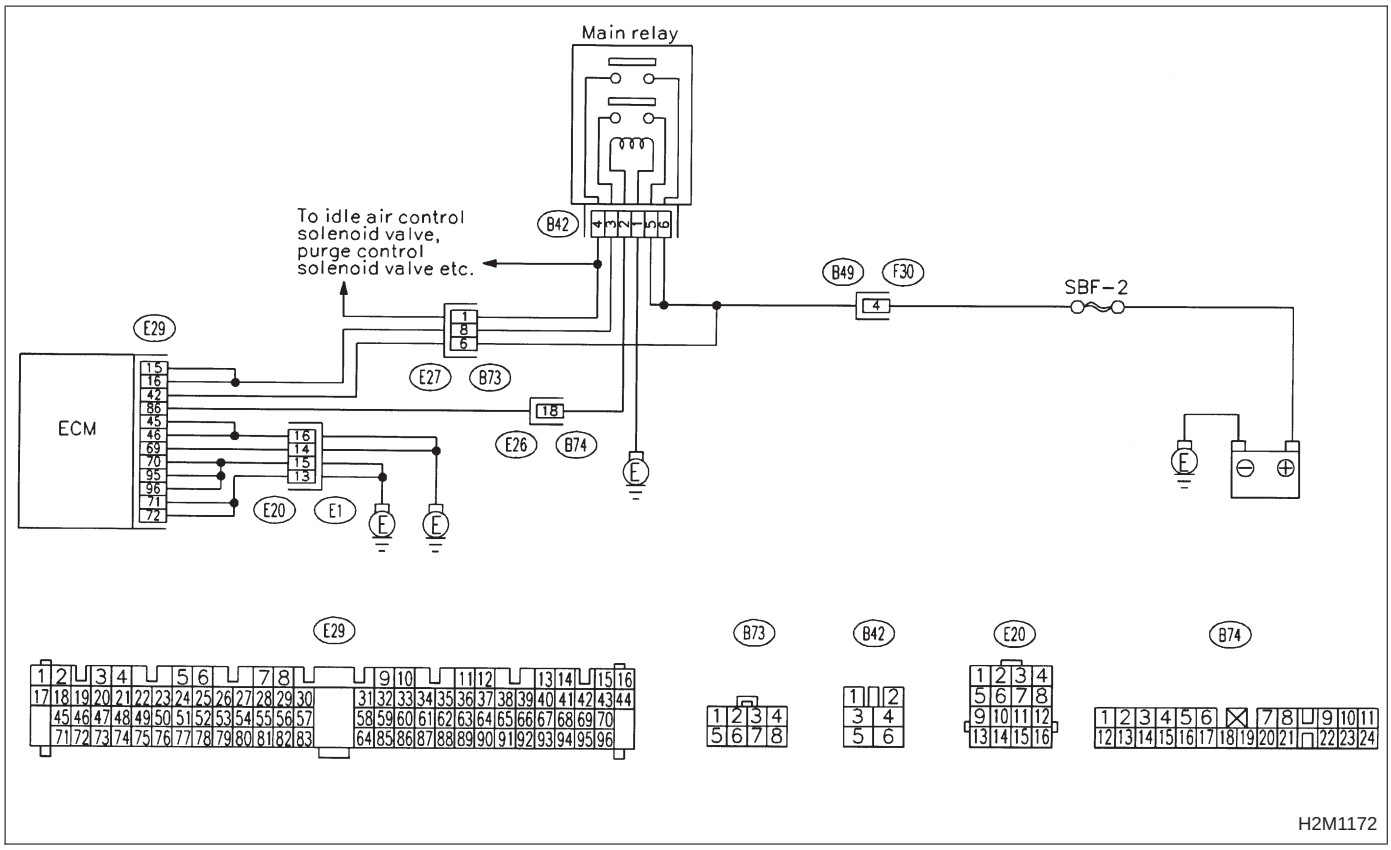
TROUBLE SYMPTOM:

- 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 2-7b [T3D0] and [T3E0].>

WIRING DIAGRAM:



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) —

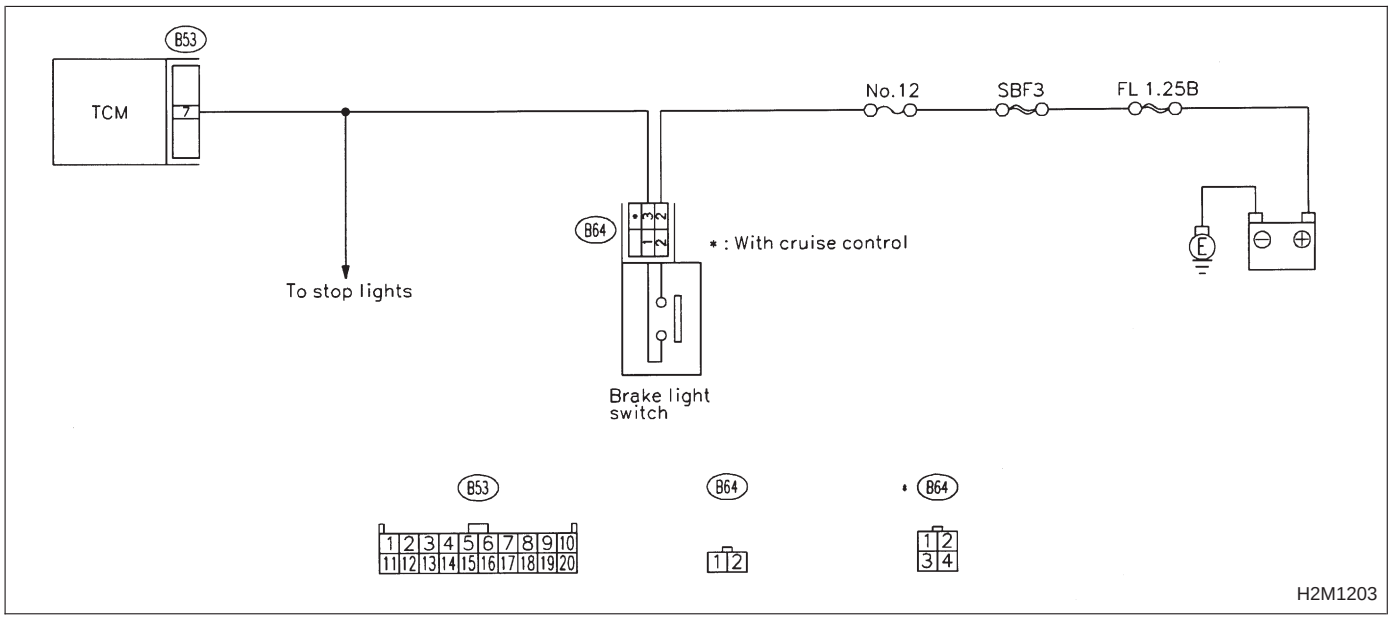
DTC DETECTING CONDITION:

- 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 2-7b [T3D0] and [T3E0].>

WIRING DIAGRAM:

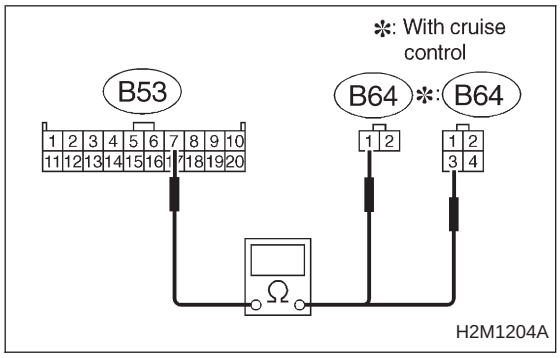


1	CHECK OPERATION OF BRAKE LIGHT.

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.

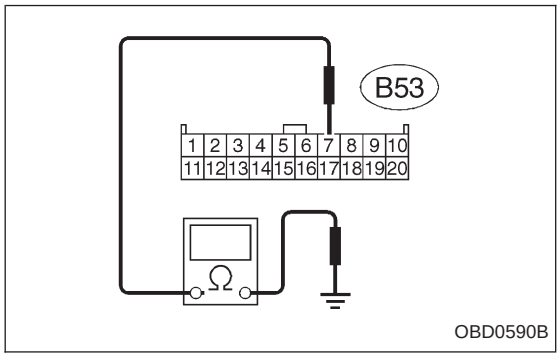
1) Disconnect connectors from TCM and brake light switch.
2) Measure resistance of harness connector between TCM and brake light switch.

CHECK : ***Connector & terminal***
(B53) No. 7 — (B64) No. 1 / 1 Ω, or less
(B53) No. 7 — (B64) No. 3 / 1 Ω, or less
(With cruise 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.

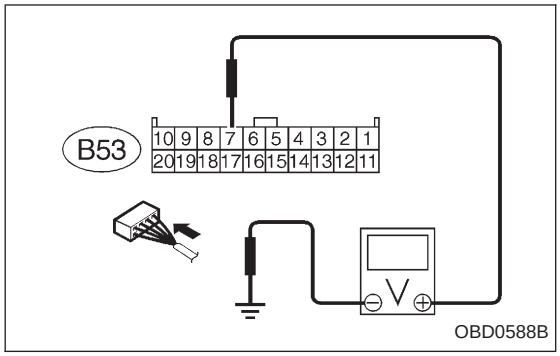


3) Measure resistance of harness connector between TCM and body.

CHECK : ***Connector & terminal***
(B53) 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***
(B53) No. 7 — Body / 1 V, or less [When release the brake pedal.]
(B53) 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.

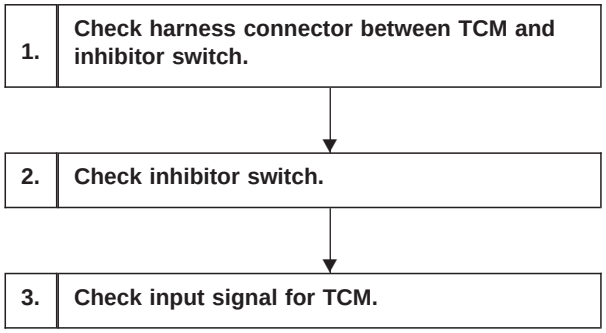
AN: DTC P0705 — TRANSMISSION RANGE SENSOR CIRCUIT MALFUNCTION (RNG) —

DTC DETECTING CONDITION:

- Two consecutive trips with fault

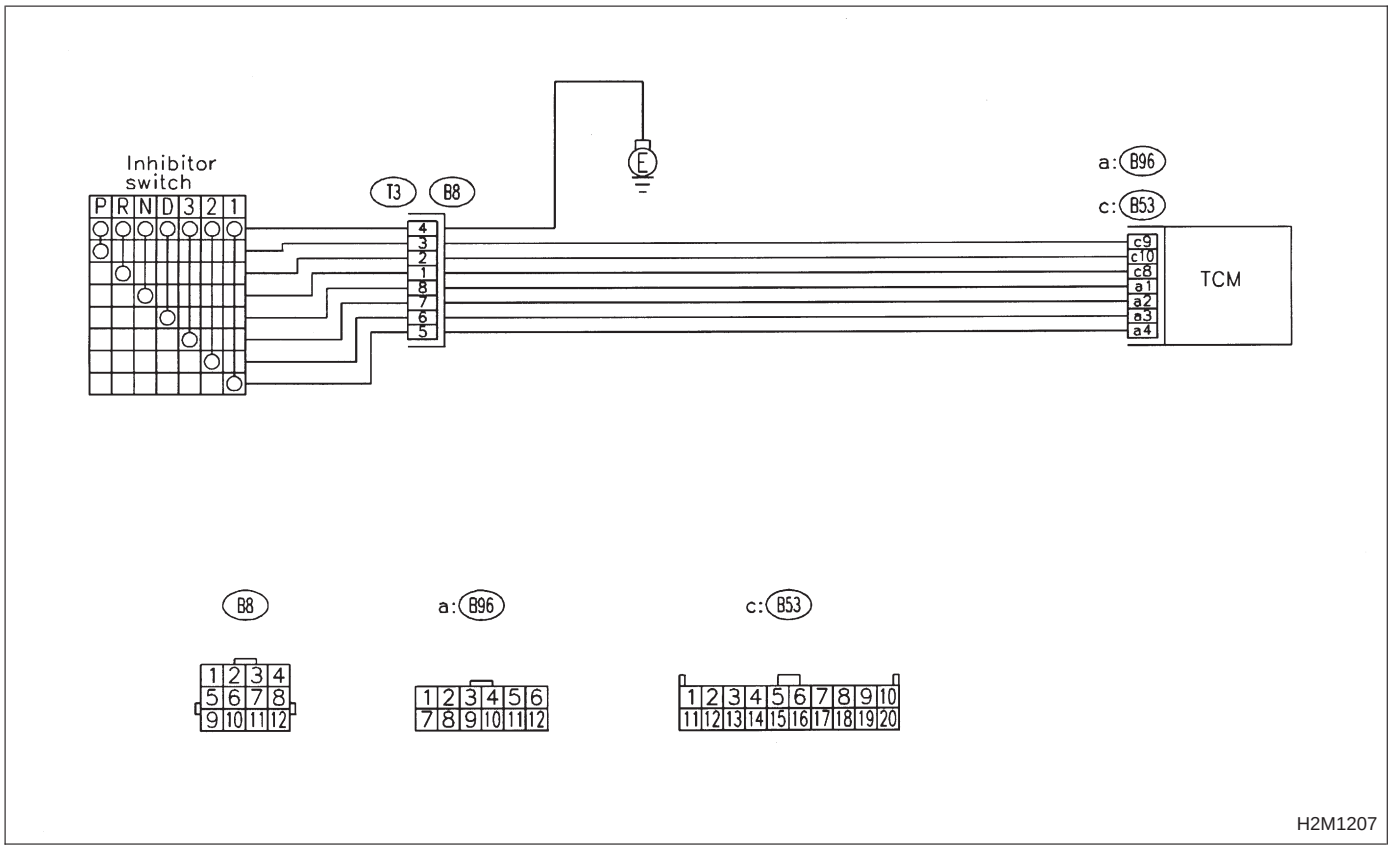
TROUBLE SYMPTOM:

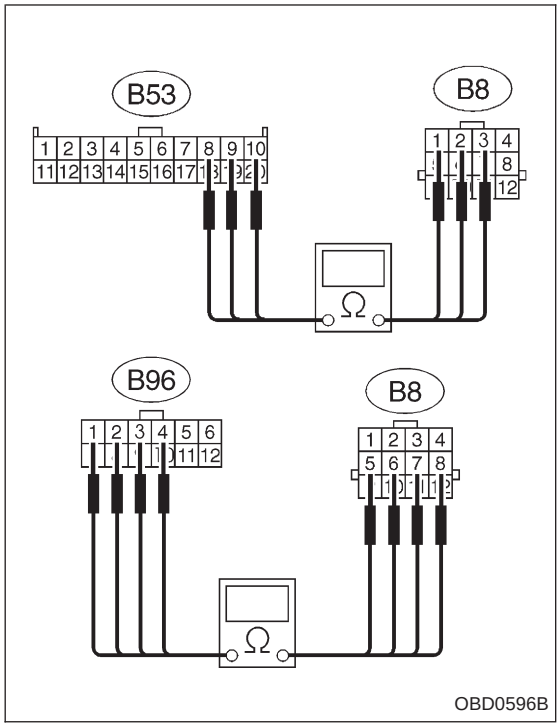
- Starter does not rotate when selector lever is in “P” or “N” range.
- Starter rotates when selector lever is in “R”, “D”, “3”, “2” or “1” range.
- Engine brake is not effected when selector lever is in “3” range.
- Shift characteristics are erroneous.



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

WIRING DIAGRAM:





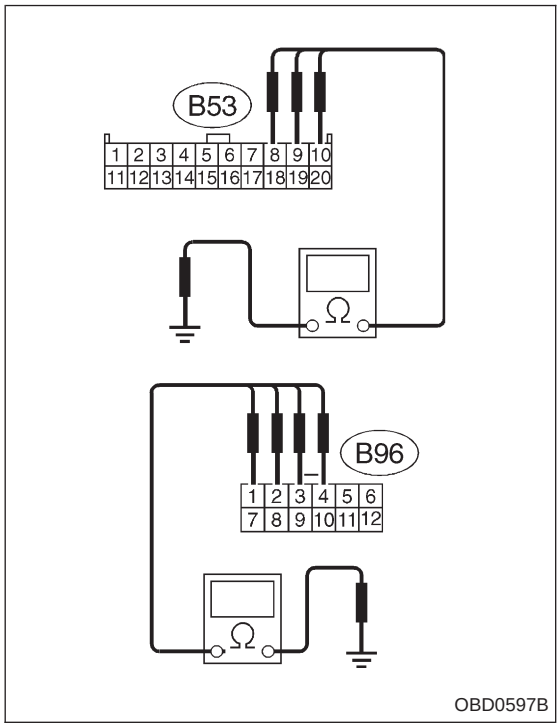
1	CHECK HARNESS CONNECTOR BETWEEN TCM AND INHIBITOR SWITCH.

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***
(B53) No. 9 — (B8) No. 3 / 1 Ω, or less
(B53) No. 10 — (B8) No. 2 / 1 Ω, or less
(B53) No. 8 — (B8) No. 1 / 1 Ω, or less
(B96) No. 1 — (B8) No. 8 / 1 Ω, or less
(B96) No. 2 — (B8) No. 7 / 1 Ω, or less
(B96) No. 3 — (B8) No. 6 / 1 Ω, or less
(B96) No. 4 — (B8) No. 5 / 1 Ω, or less

YES : Go to next step.

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

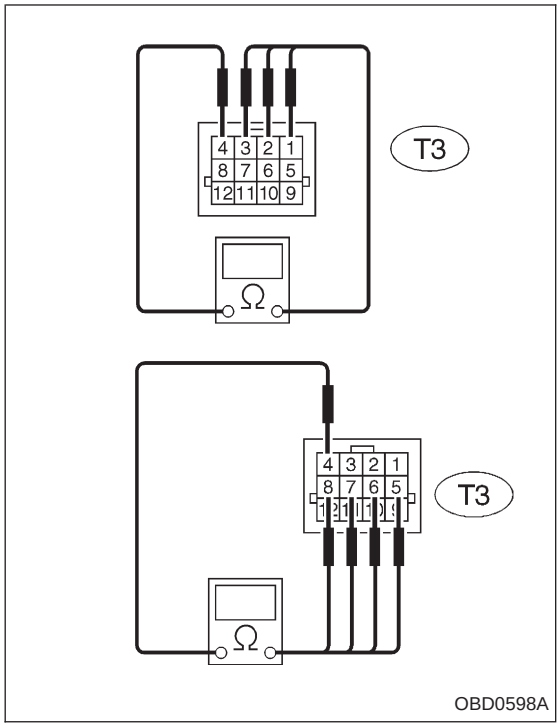


4) Measure resistance of harness connector between TCM and body.

CHECK : ***Connector & terminal***
(B53) No. 9 — Body / 1 MΩ, or more
(B53) No. 10 — Body / 1 MΩ, or more
(B53) No. 8 — Body / 1 MΩ, or more
(B96) No. 1 — Body / 1 MΩ, or more
(B96) No. 2 — Body / 1 MΩ, or more
(B96) No. 3 — Body / 1 MΩ, or more
(B96) No. 4 — Body / 1 MΩ, or more

YES : Go to step 2.

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

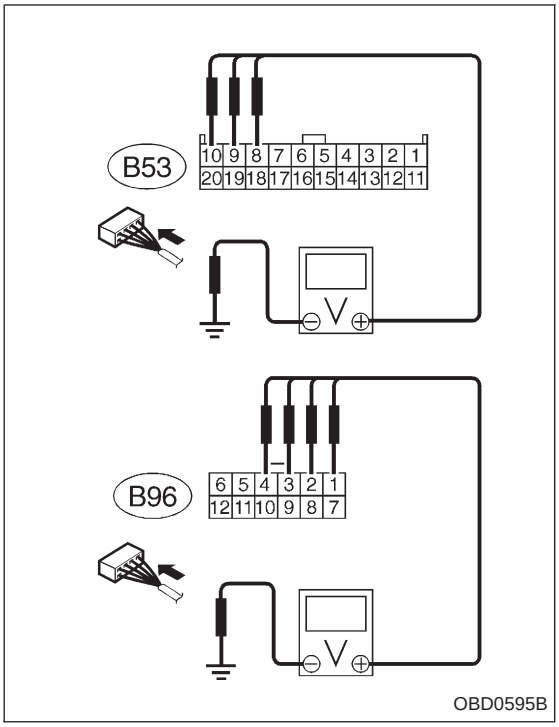


2	CHECK INHIBITOR SWITCH.

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

CHECK ***: Connector & terminal***
(B53) No. 9 — Body / 1 V, or less (“P” and “N” positions)
(B53) No. 9 — Body / 8 V, or more (Other positions)
(B53) No. 10 — Body / 1 V, or less (“R” position)
(B53) No. 10 — Body / 6 V, or more (Other positions)
(B53) No. 8 — Body / 1 V, or less (“N” and “P” positions)
(B53) No. 8 — Body / 8 V, or more (Other positions)
(B96) No. 1 — Body / 1 V, or less (“D” position)
(B96) No. 1 — Body / 6 V, or more (Other positions)
(B96) No. 2 — Body / 1 V, or less (“3” position)
(B96) No. 2 — Body / 6 V, or more (Other positions)
(B96) No. 3 — Body / 1 V, or less (“2” position)
(B96) No. 3 — Body / 6 V, or more (Other positions)
(B96) No. 4 — Body / 1 V, or less (“1” position)
(B96) 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) —

DTC DETECTING CONDITION:

- Two consecutive trips with fault

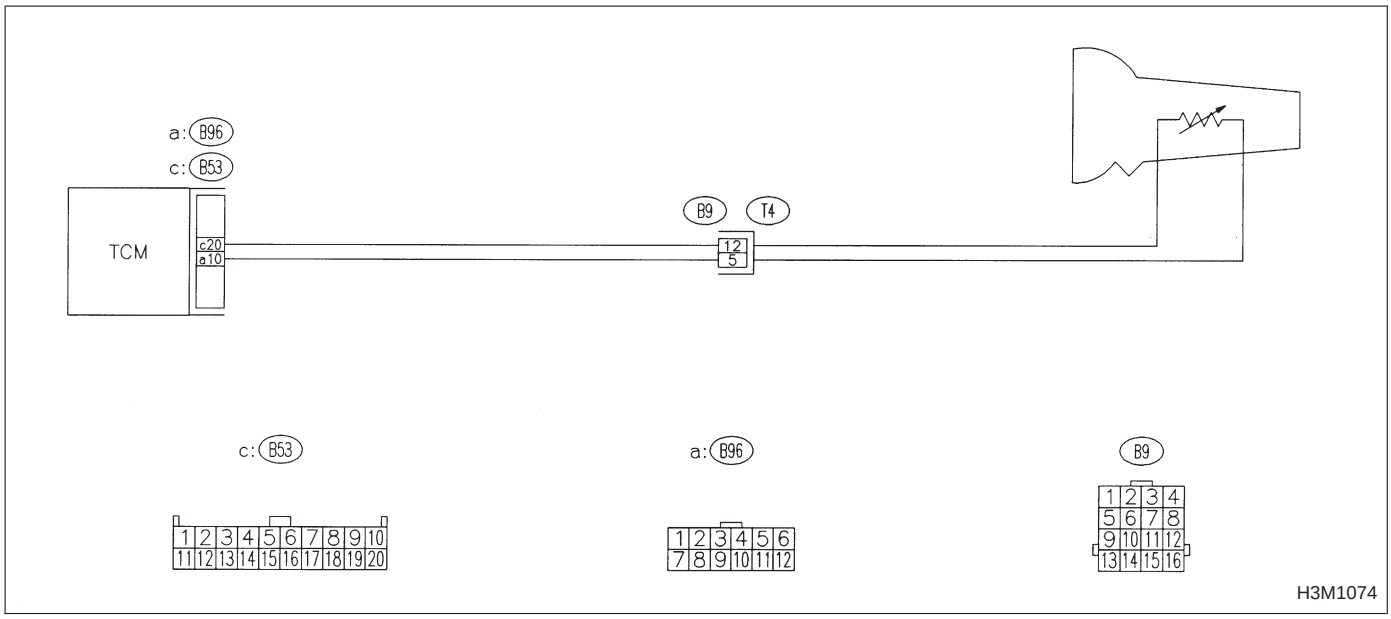
TROUBLE SYMPTOM:

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

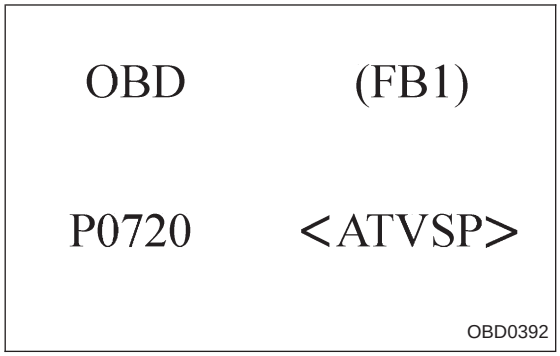
1.	Check harness connector between TCM and ATF temperature sensor.
2.	Check ATF temperature sensor.
3.	Check input signal for TCM.

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

WIRING DIAGRAM:



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



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

DTC DETECTING CONDITION:

- Two consecutive trips with fault

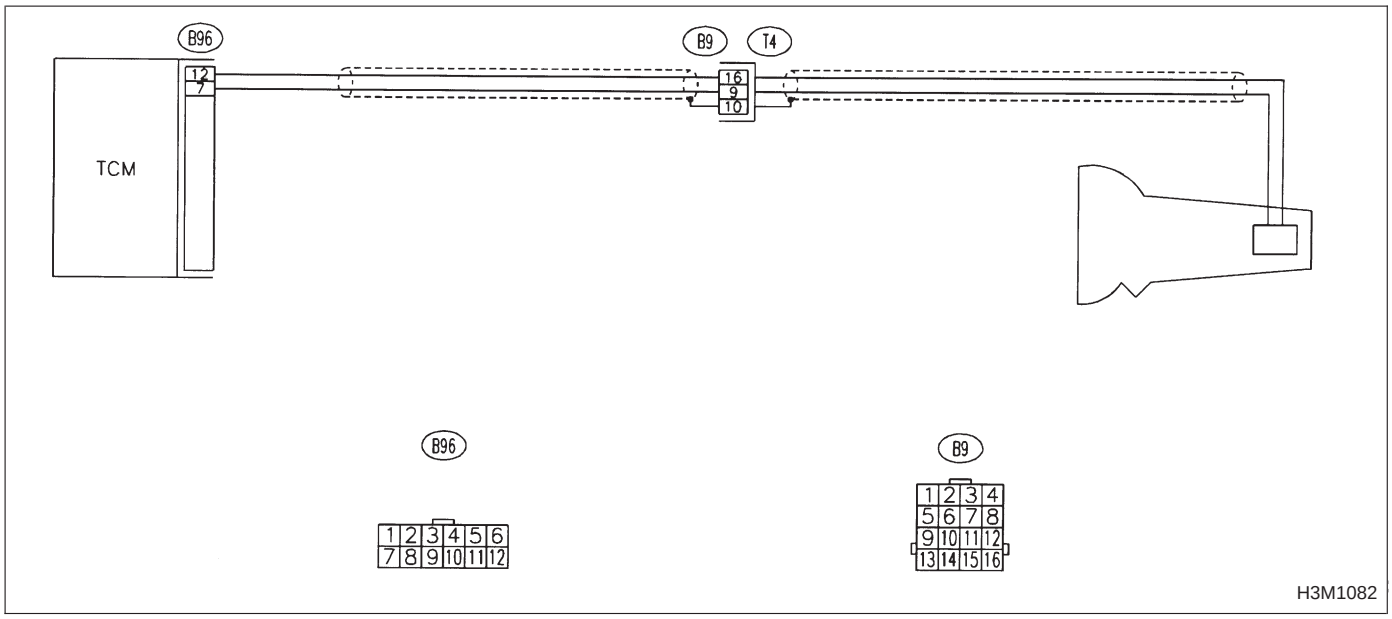
TROUBLE SYMPTOM:

- No shift or excessive tight corner “braking”

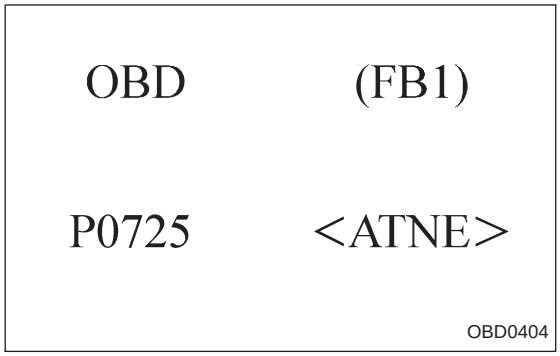
1.	Check harness connector between TCM and vehicle speed sensor 1.
2.	Check vehicle speed sensor 1.
3.	Check input signal for TCM.

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

WIRING DIAGRAM:



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



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

DTC DETECTING CONDITION:

- Two consecutive trips with fault

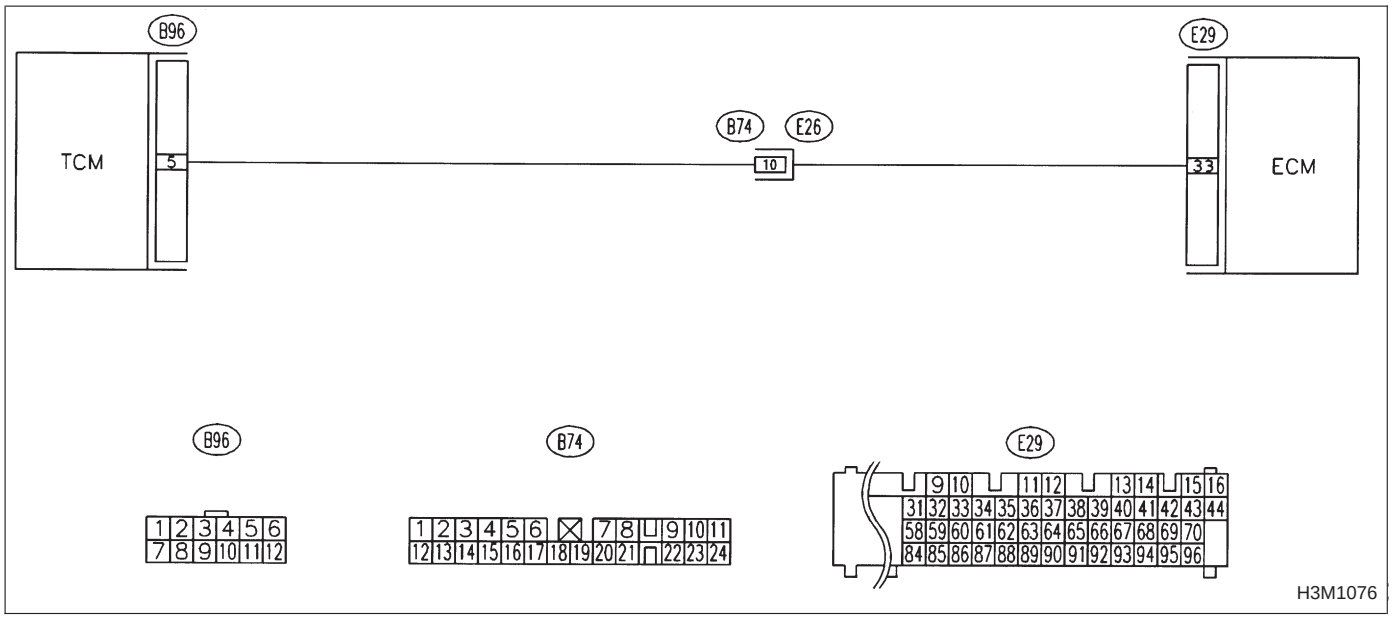
TROUBLE SYMPTOM:

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

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 2-7b [T3D0] and [T3E0].>

WIRING DIAGRAM:



NOTE:
For the diagnostic procedure on engine speed input circuit, refer to 3-2b [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) —

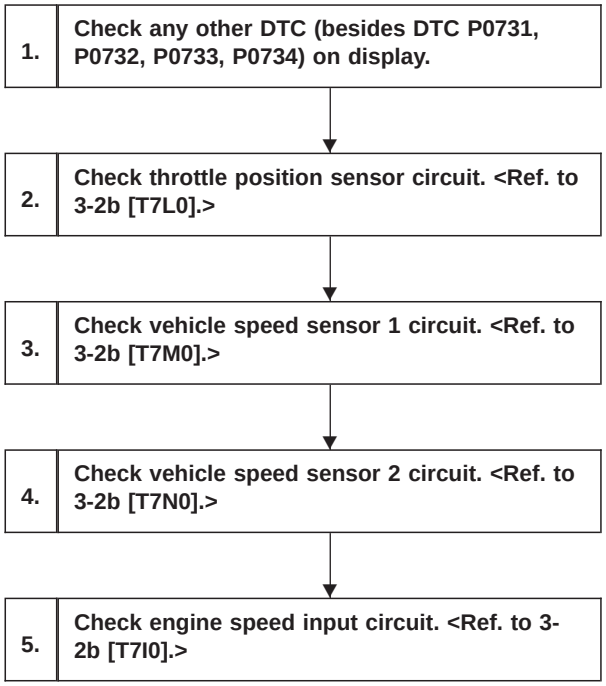
AU: DTC P0734 — GEAR 4 INCORRECT RATIO (GR — 4) —

DTC DETECTING CONDITION:

- Two consecutive trips with fault

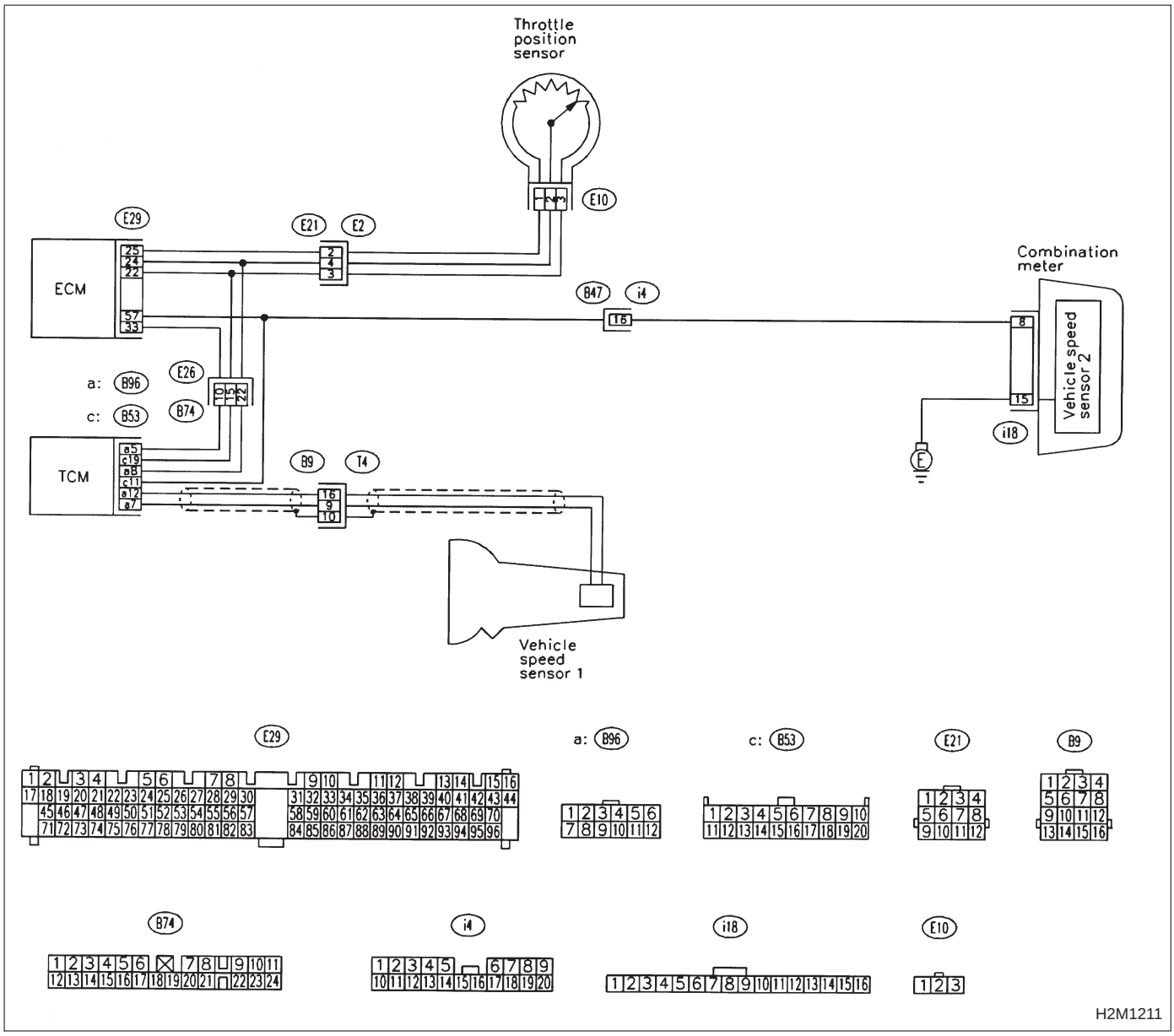
TROUBLE SYMPTOM:

- 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 2-7b [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 “10. Diagnostics Chart with Trouble Code, 2-7b [T1000]”.

NO : Go to step 2.

2	**CHECK THROTTLE POSITION SENSOR CIRCUIT. <REF. TO 3-2b [T7L0].>**

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. <REF. TO 3-2b [T7M0].>**

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. <REF. TO 3-2b [T7N0].>**

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. <REF. TO 3-2b [T7I0].>**

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) —

DTC DETECTING CONDITION:

- Two consecutive trips with fault

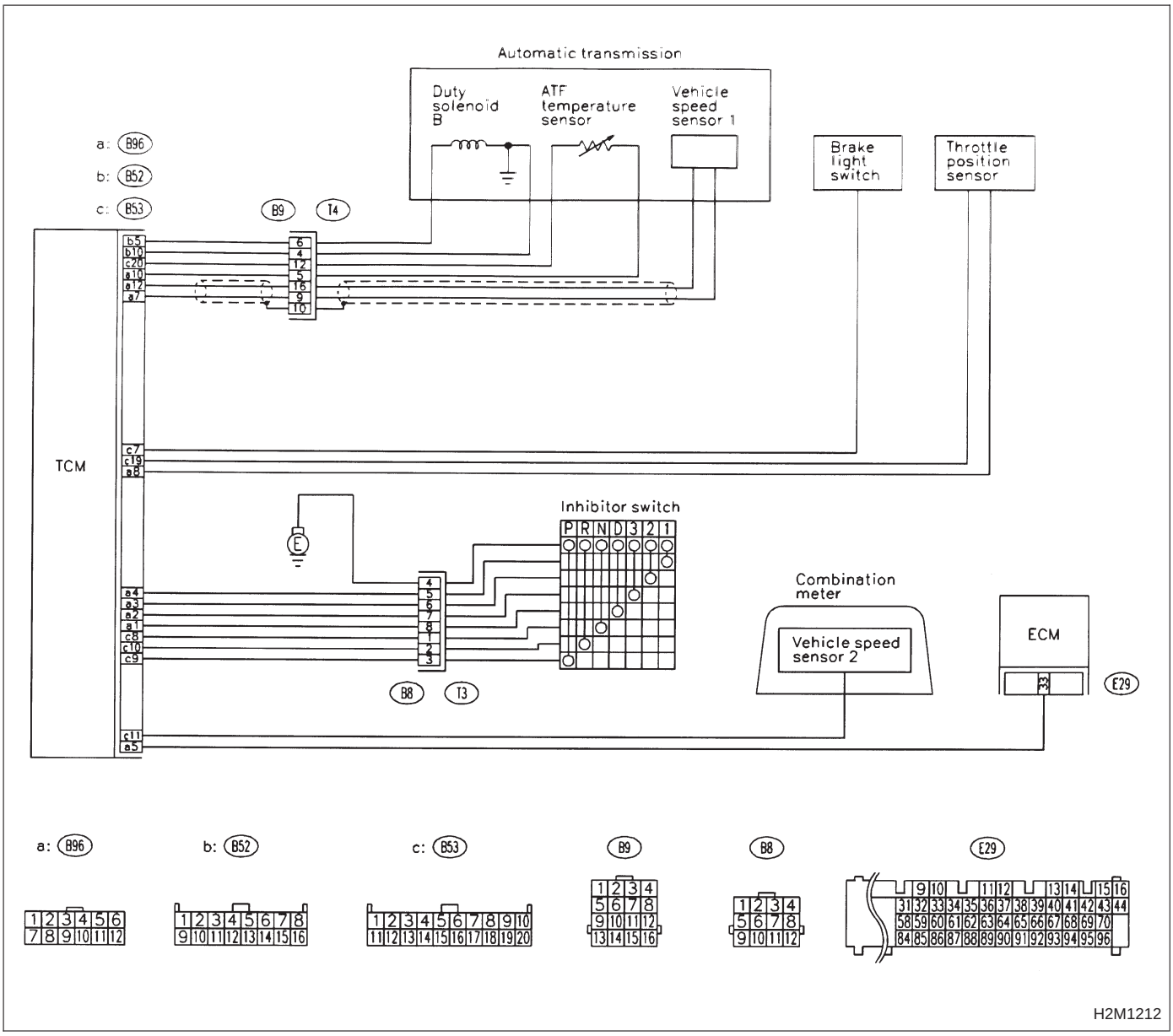
TROUBLE SYMPTOM:

- No lock-up (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 3-2b [T7B0].>**
3.	**Check throttle position sensor circuit. <Ref. to 3-2b [T7L0].>**
4.	**Check vehicle speed sensor 1 circuit. <Ref. to 3-2b [T7M0].>**
5.	**Check vehicle speed sensor 2 circuit. <Ref. to 3-2b [T7N0].>**
6.	**Check engine speed input circuit. <Ref. to 3-2b [T7I0].>**
7.	**Check inhibitor switch circuit. <Ref. to AN: DTC P0705, 2-7b [T10AN0].>**
8.	**Check brake light switch circuit. <Ref. to AM: DTC P0703, 2-7b [T10AM0].>**
9.	**Check ATF temperature sensor circuit. <Ref. to 3-2b [T7G0].>**

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY and INSPECTION MODES.
<Ref. to 2-7b [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 “10. Diagnostics Chart with Trouble Code, 2-7b [T1000]”.

NO : Go to step 2.

2	CHECK DUTY SOLENOID B CIRCUIT. <REF. TO 3-2b [T7B0].>

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. <REF. TO 3-2b [T7L0].>

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. <REF. TO 3-2b [T7M0].>

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. <REF. TO 3-2b [T7N0].>

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. <REF. TO 3-2b [T7I0].>

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. <REF. TO “AN: DTC P0705, 2-7b [T10AN0]”.>

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. <REF. TO “AM: DTC P0703, 2-7b [T10AM0]”.>

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. <REF. TO 3-2b [T7G0].>

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?***

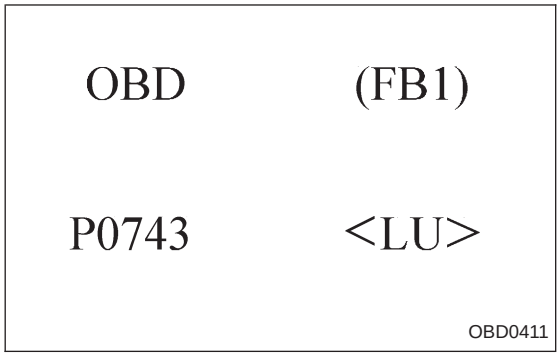
YES : Repair poor contact in TCM connector.

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) —

DTC DETECTING CONDITION:

- Two consecutive trips with fault

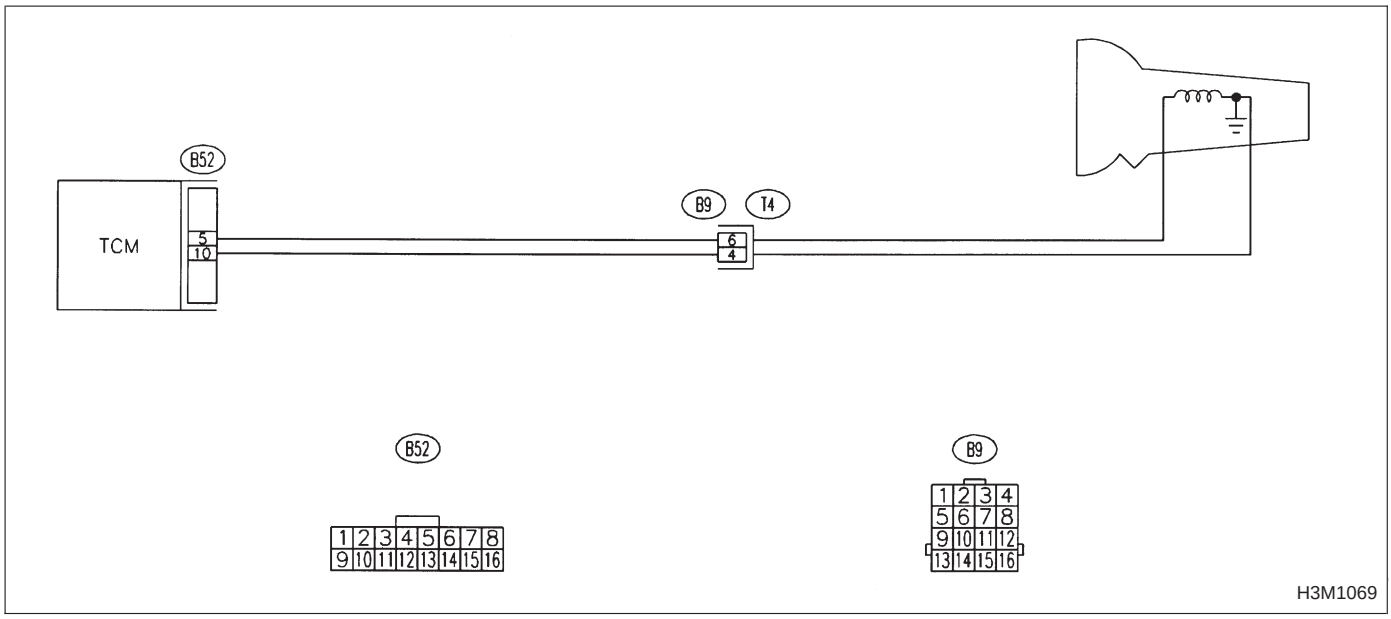
TROUBLE SYMPTOM:

- No lock-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 2-7b [T3D0] and [T3E0].>

WIRING DIAGRAM:



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

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

DTC DETECTING CONDITION:

- Two consecutive trips with fault

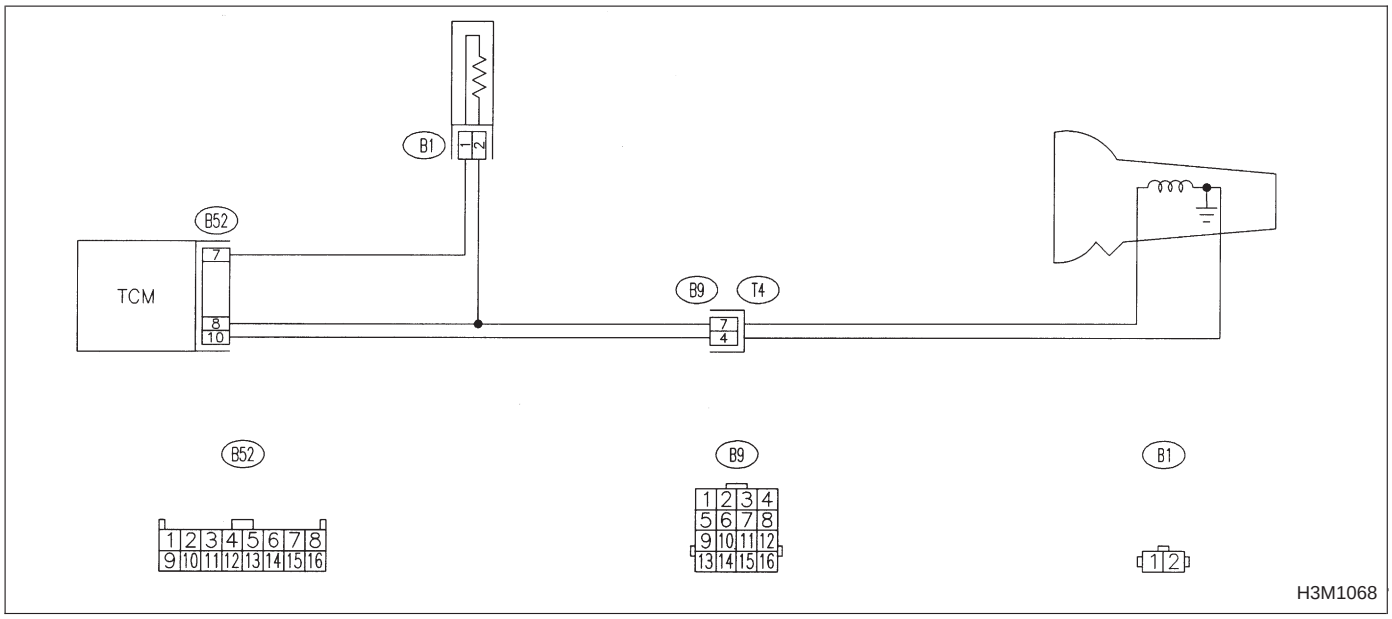
TROUBLE SYMPTOM:

- 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 2-7b [T3D0] and [T3E0].>

WIRING DIAGRAM:



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

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

DTC DETECTING CONDITION:

- Two consecutive trips with fault

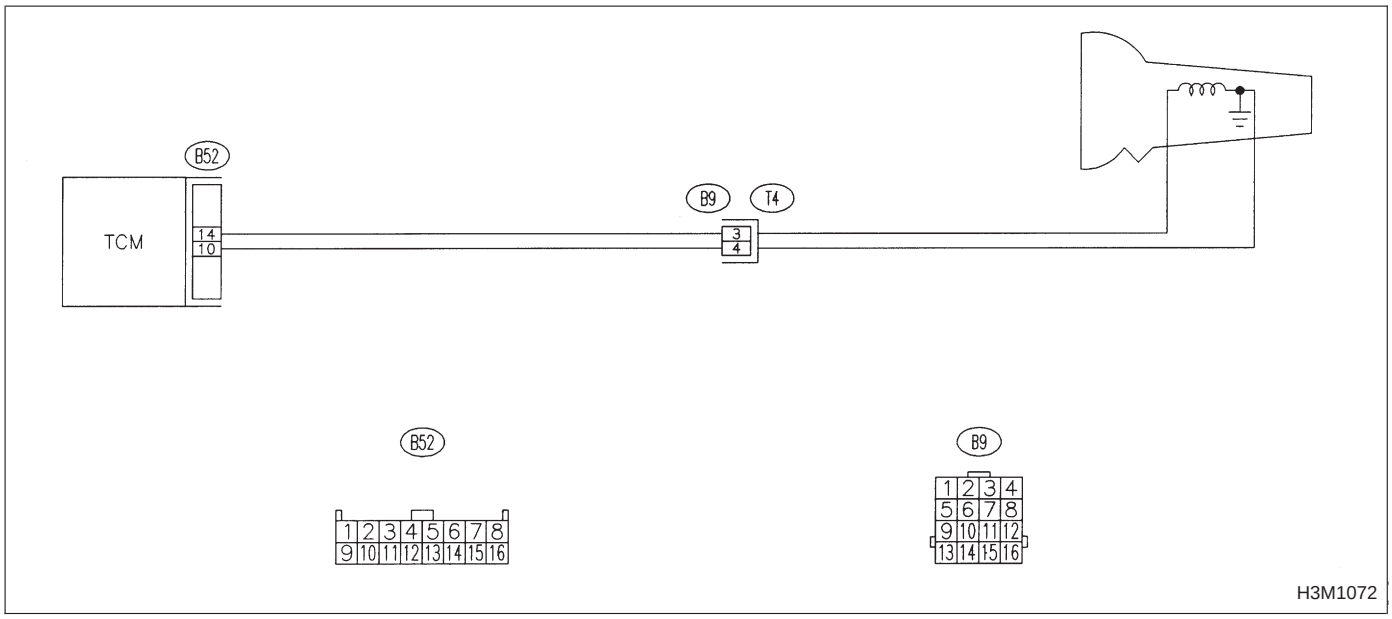
TROUBLE SYMPTOM:

- 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 2-7b [T3D0] and [T3E0].>

WIRING DIAGRAM:



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

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

DTC DETECTING CONDITION:

- Two consecutive trips with fault

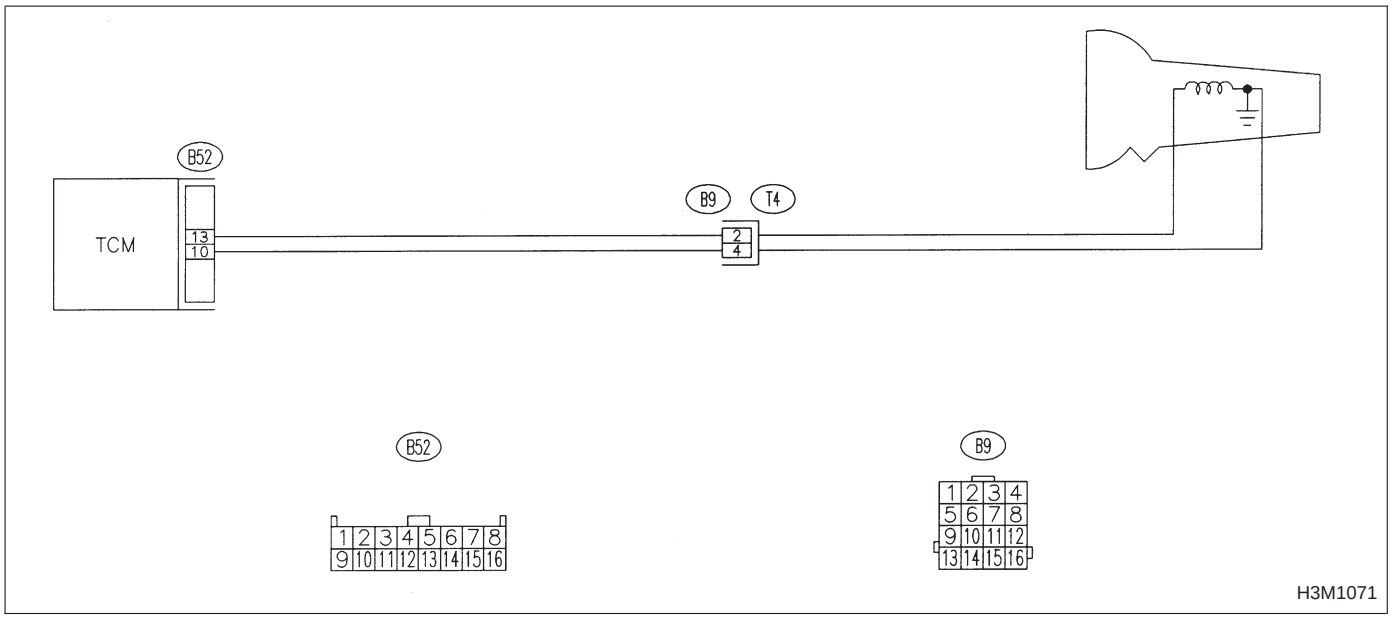
TROUBLE SYMPTOM:

- 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 2-7b [T3D0] and [T3E0].>

WIRING DIAGRAM:



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

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

DTC DETECTING CONDITION:

- Two consecutive trips with fault

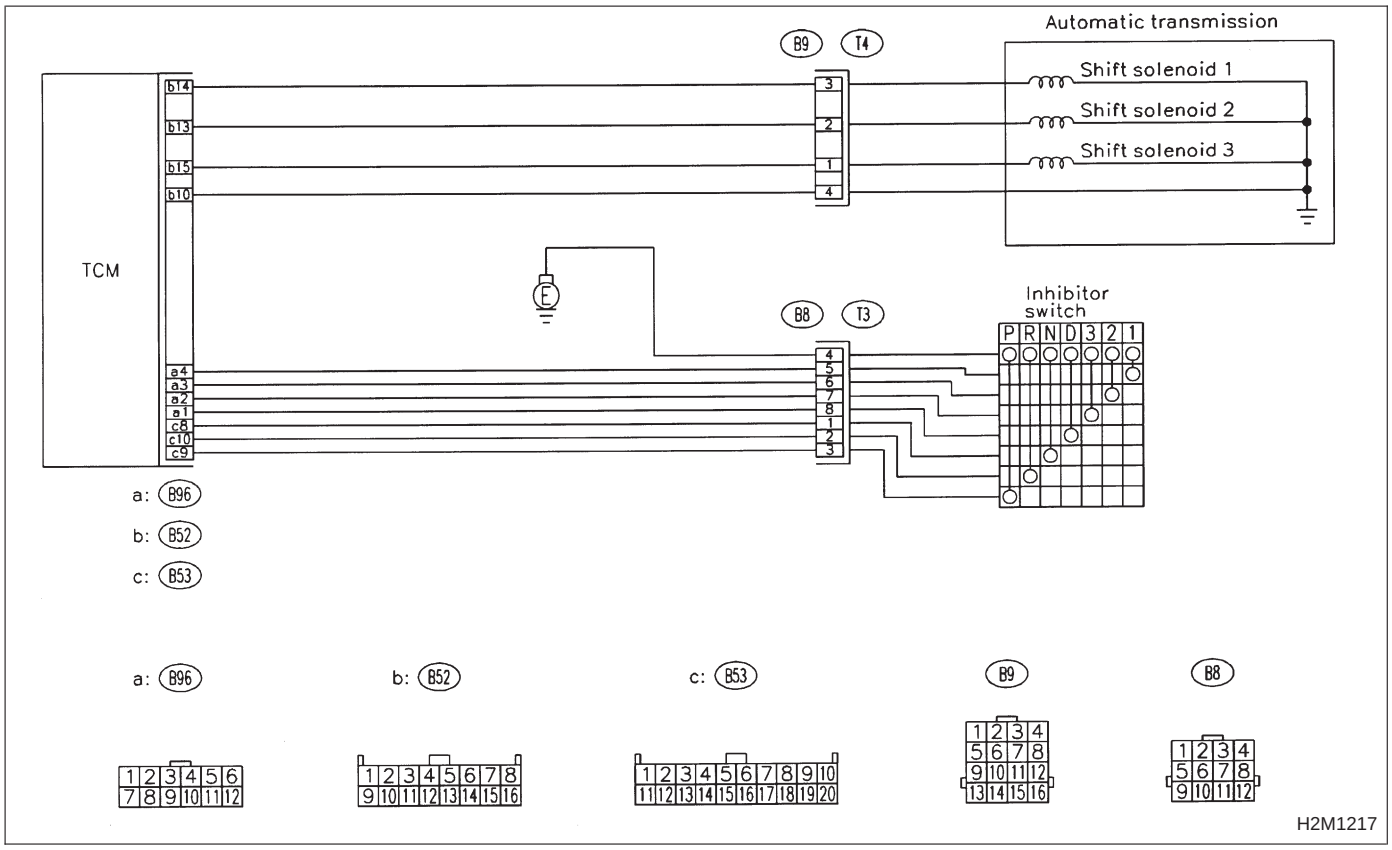
TROUBLE SYMPTOM:

- 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, 2-7b [T10AN0]”.>**
3.	**Check gear position.**
4.	**Check shift solenoid 1 circuit. <Ref. to 3-2b [T7E0].>**
5.	**Check shift solenoid 2 circuit. <Ref. to 3-2b [T7D0].>**
6.	**Check shift solenoid 3 circuit. <Ref. to 3-2b [T7C0].>**

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY and INSPECTION MODES.
<Ref. to 2-7b [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 “10. Diagnostics Chart with Trouble Code, 2-7b [T1000]”.

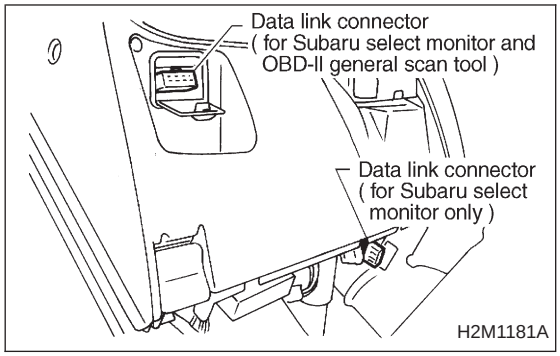
NO : Go to step 2.

2	CHECK INHIBITOR SWITCH CIRCUIT. <REF. TO “AN: DTC P0705, 2-7b [T10AN0]”.>

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

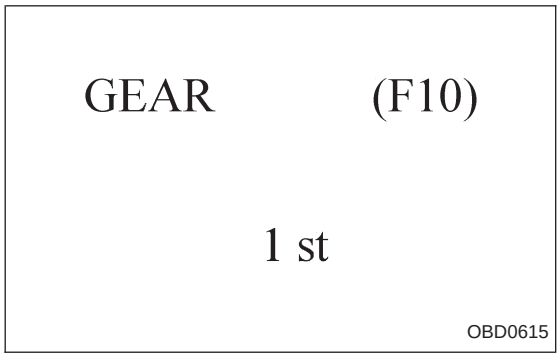
YES : Repair or replace inhibitor switch circuit.

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. <REF. TO 3-2b [T7E0].>

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. <REF. TO 3-2b [T7D0].>**

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. <REF. TO 3-2b [T7C0].>**

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) —

DTC DETECTING CONDITION:

- Two consecutive trips with fault

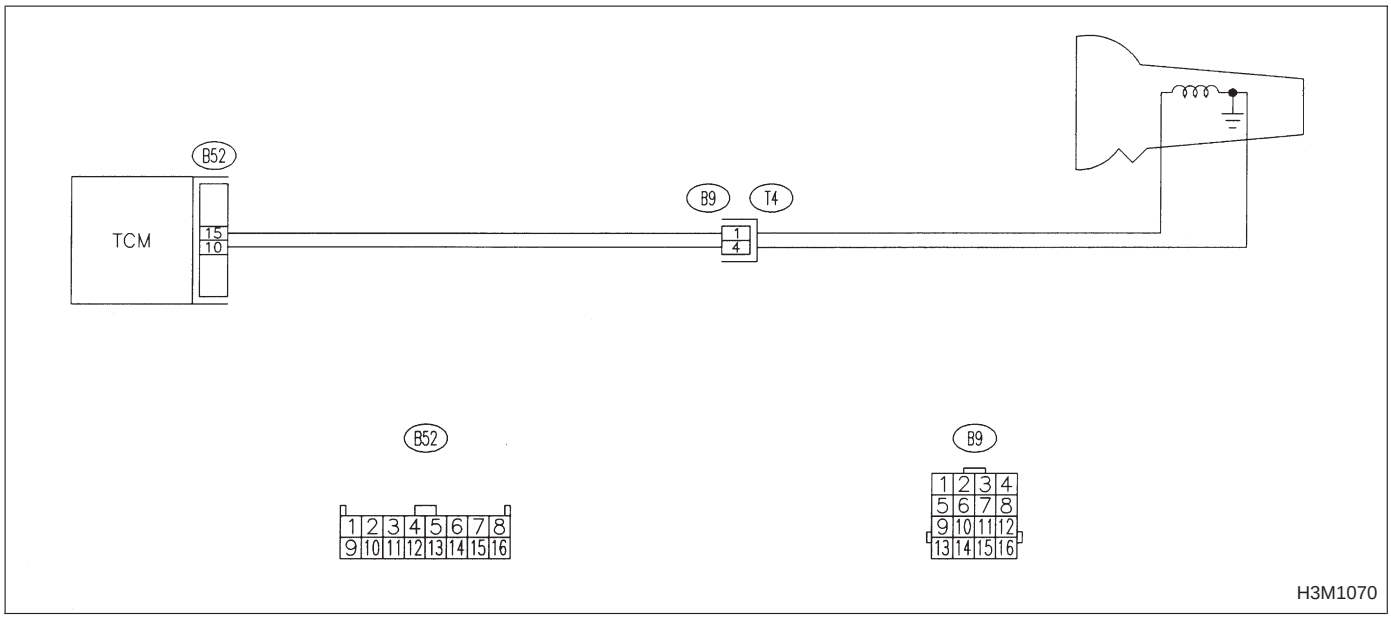
TROUBLE SYMPTOM:

- 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 2-7b [T3D0] and [T3E0].>

WIRING DIAGRAM:



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

OBD	(FB1)
P1100	<ST_SW>

OBD0458

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

DTC DETECTING CONDITION:

- Two consecutive trips with fault

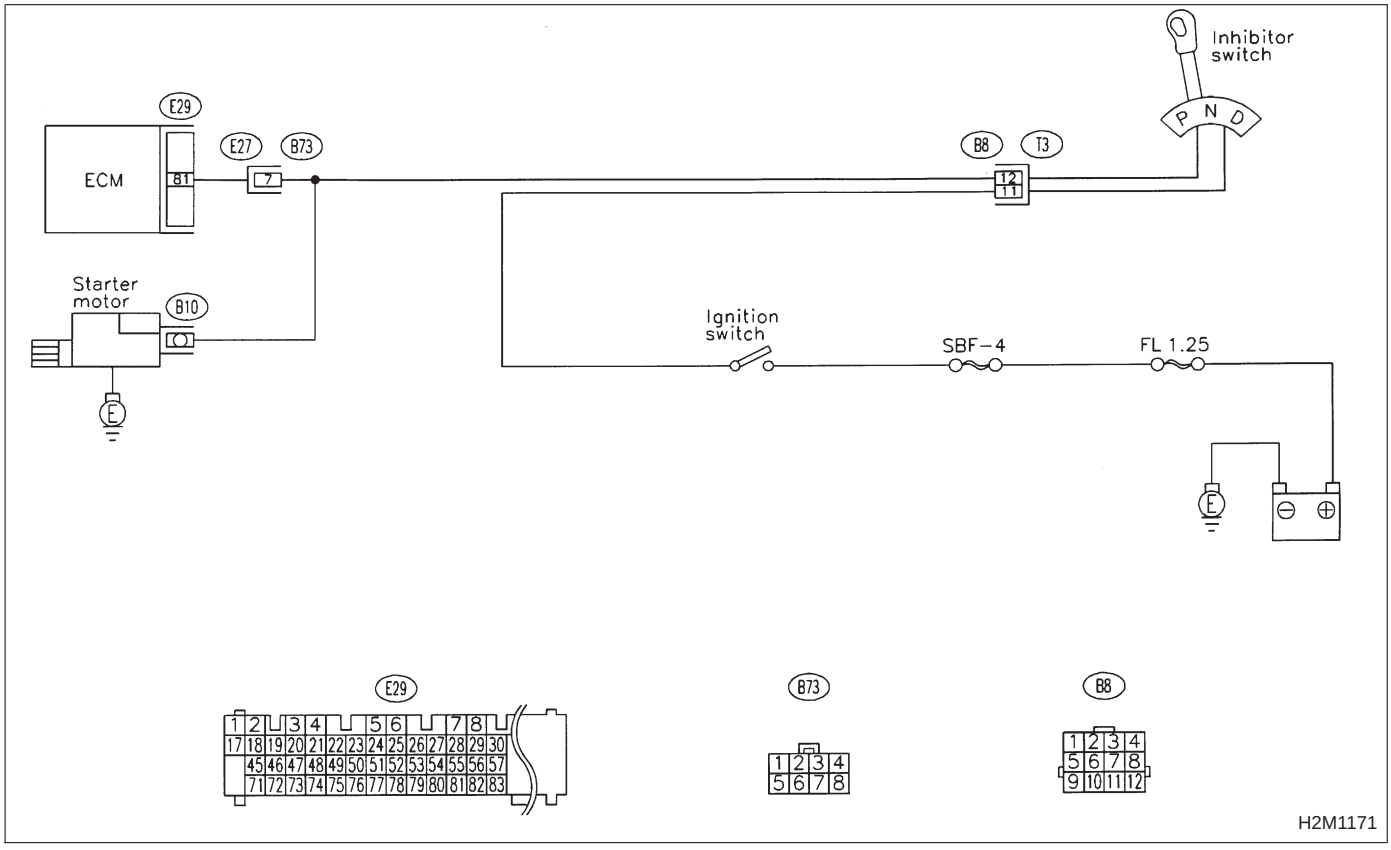
TROUBLE SYMPTOM:

- 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 2-7b [T3D0] and [T3E0].>

WIRING DIAGRAM:



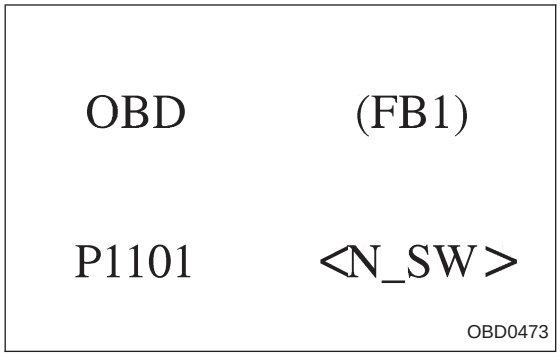
1	CHECK OPERATION OF STARTER MOTOR.

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

NOTE:
Place the selector lever in the "P" or "N" position.

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

NO : Diagnose starter motor circuit <Ref. to 2-7b [T8B0].>



BD: DTC P1101 — NEUTRAL POSITION SWITCH CIRCUIT MALFUNCTION (N — SW) —

DTC DETECTING CONDITION:

- Two consecutive trips with fault

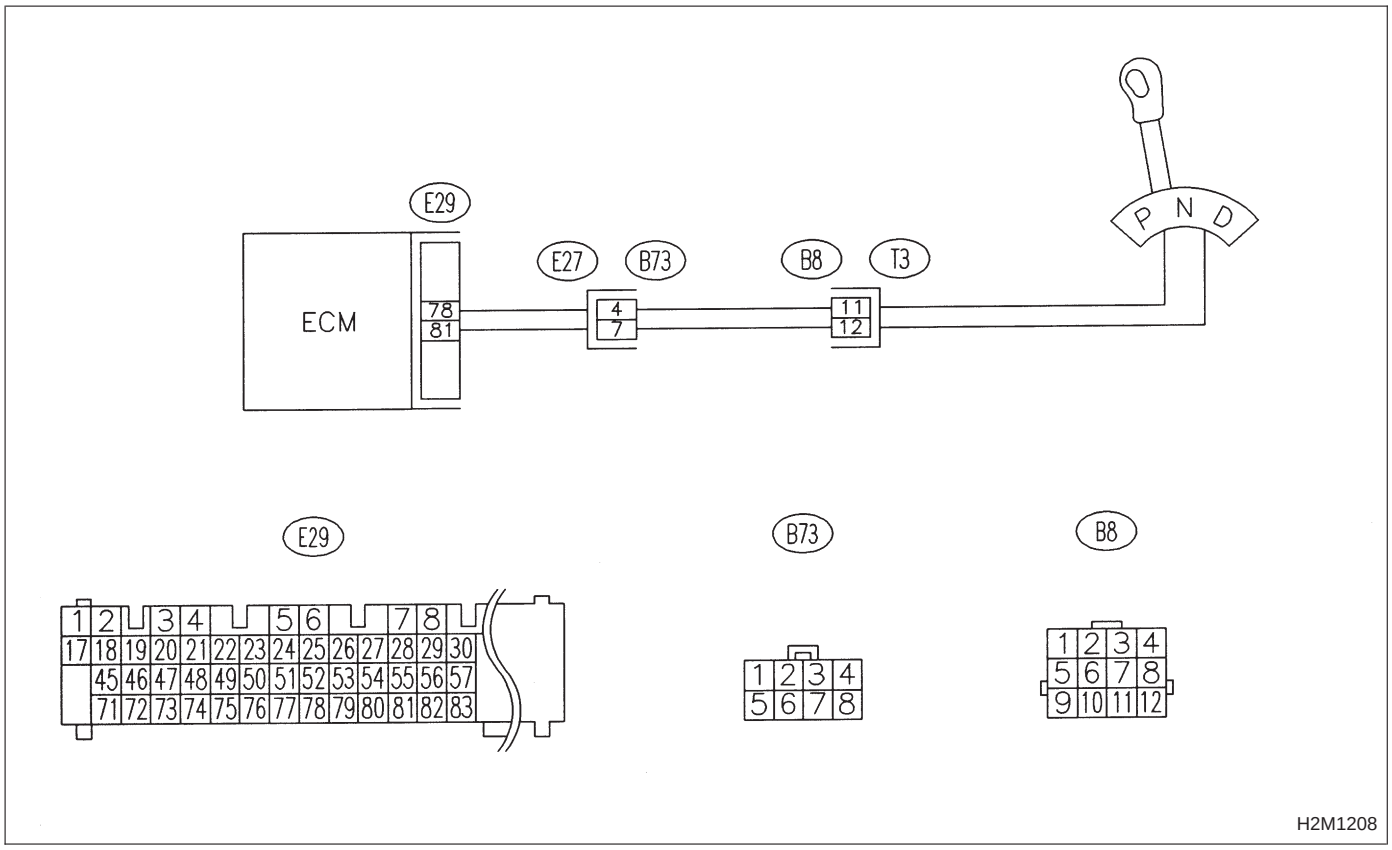
TROUBLE SYMPTOM:

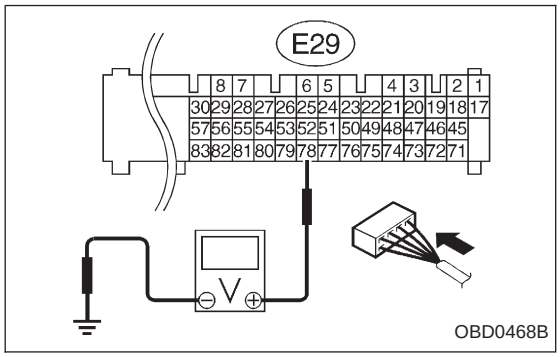
- Erroneous idling

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

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

WIRING DIAGRAM:



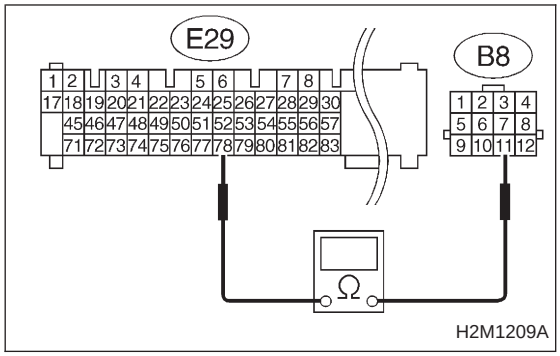


1	CHECK INPUT SIGNAL FOR ECM.

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

CHECK ***: Connector & terminal***
(E29) No. 78 — Body / 0 V ("N" and "P" positions)
(E29) 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.



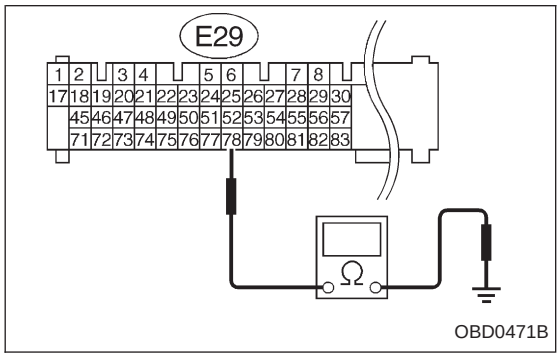
2	CHECK HARNESS CONNECTOR BETWEEN ECM AND INHIBITOR SWITCH.

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***
(E29) No. 78 — (B8) No. 11 / 1 Ω, or less

YES : Go to next step.

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

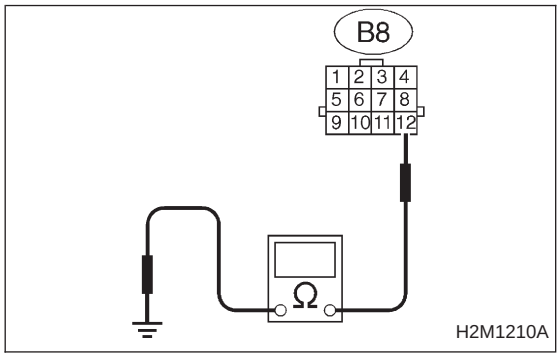


4) Measure resistance of harness connector between ECM and body.

CHECK ***: Connector & terminal***
(E29) No. 78 — Body / 1 MΩ, or more

YES : Go to next step.

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

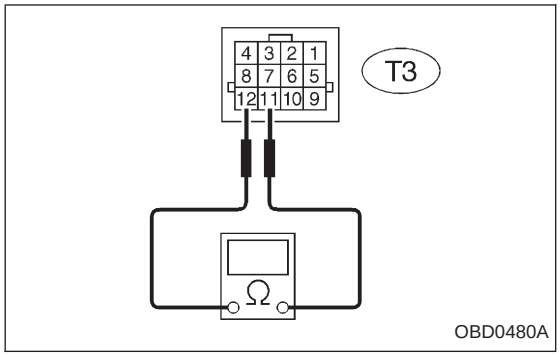


5) Measure resistance of harness connector between inhibitor switch and body.

CHECK ***: Connector & terminal***
(B8) No. 12 — Body / 5 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)

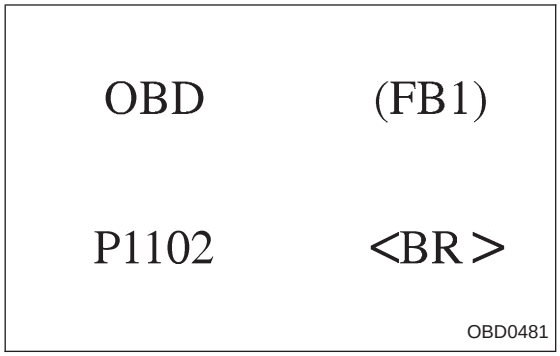
YES : Go to next CHECK .

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.



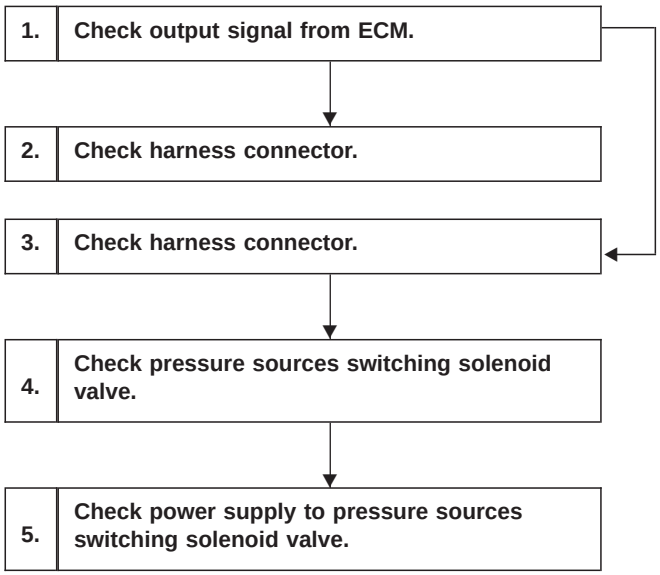
BE: DTC P1102 — PRESSURE SOURCES SWITCHING SOLENOID VALVE CIRCUIT MALFUNCTION (BR) —

DTC DETECTING CONDITION:

- Two consecutive trips with fault

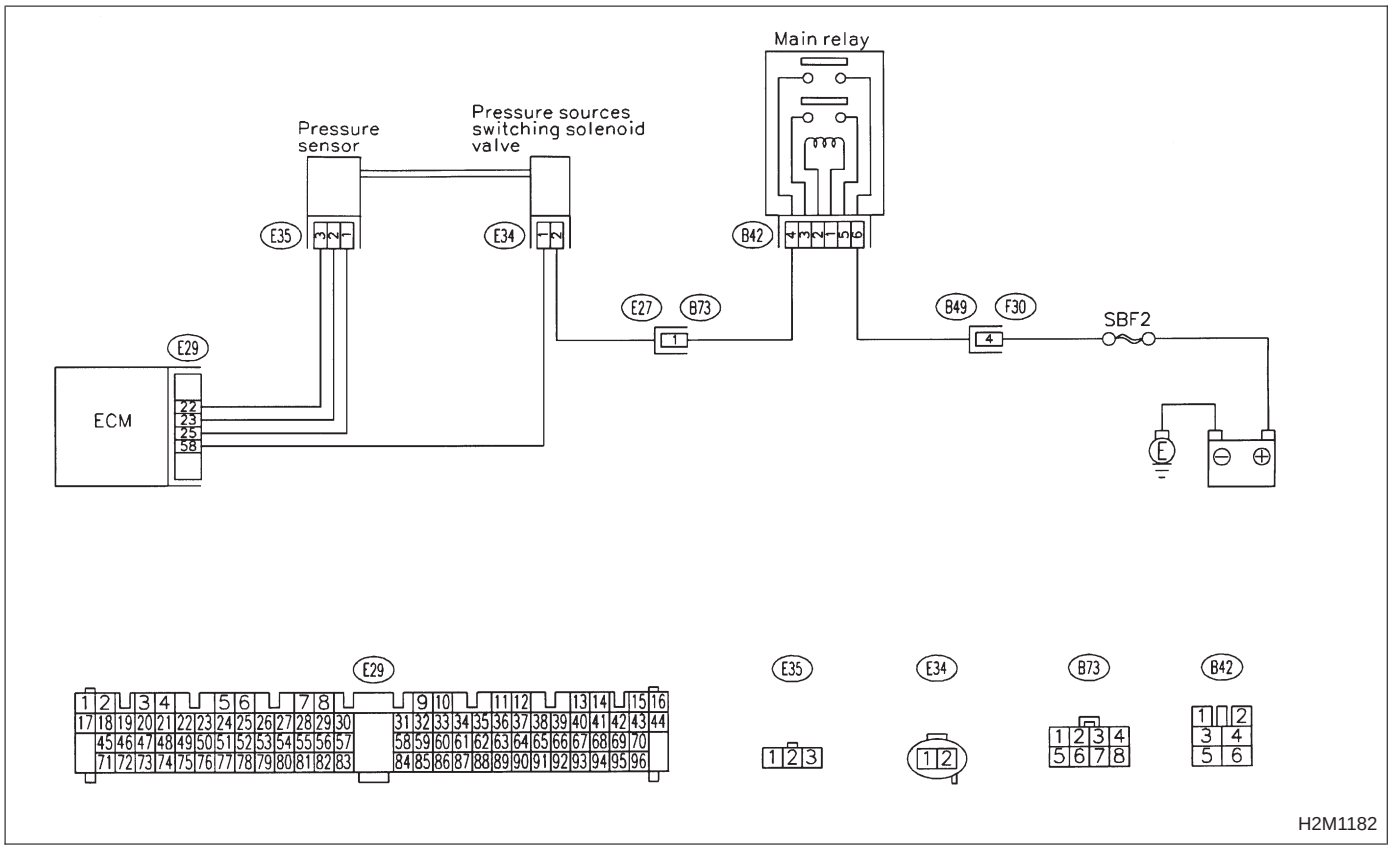
TROUBLE SYMPTOM:

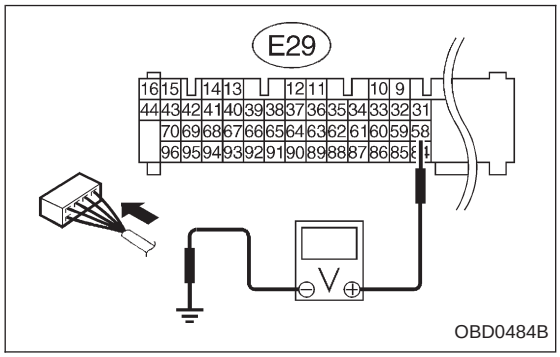
- Erroneous idling
- Failure of engine to start



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

WIRING DIAGRAM:





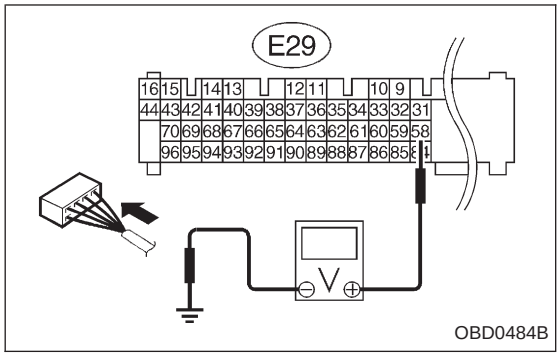
1	CHECK OUTPUT SIGNAL FROM ECM.

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

CHECK ***: Connector & terminal (E29) No. 58 — Body / 10 V, or more***

YES : Go to step 2.

NO : Go to step 3.



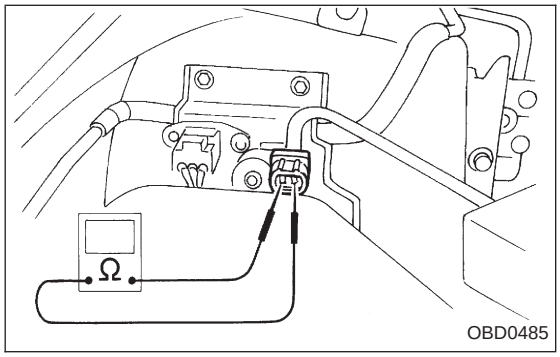
2	CHECK HARNESS CONNECTOR.

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***
(E29) 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

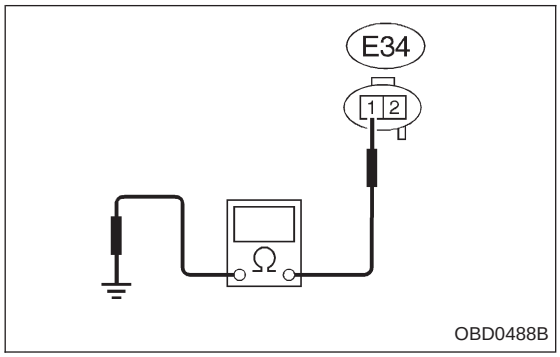
YES : Replace pressure sources switching solenoid valve and ECM.

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.



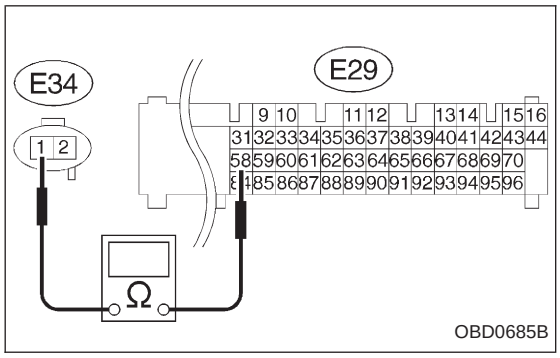
3	CHECK HARNESS CONNECTOR.

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***
(E34) 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.

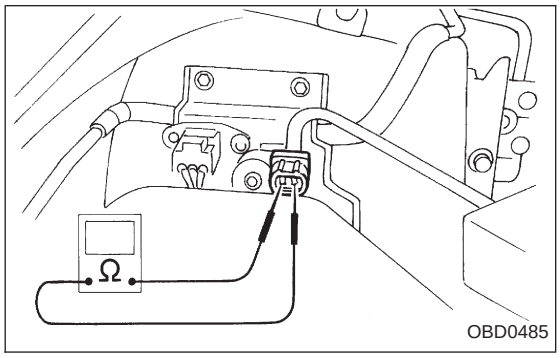


4) Measure resistance of harness connector between ECM and pressure sources switching solenoid valve.

CHECK : ***Connector & terminal***
(E29) No. 58 — (E34) No. 1 / 1 Ω, or less

YES : Go to step 4.

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



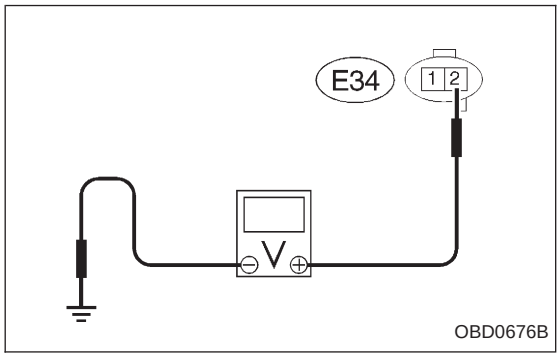
4	CHECK PRESSURE SOURCES SWITCHING SOLENOID VALVE.

Measure resistance between pressure sources switching solenoid valve connector terminals.

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

YES : Go to step 5.

NO : Replace pressure sources switching solenoid valve.



5	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***
(E34) 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.

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

DTC DETECTING CONDITION:

- Two consecutive trips with fault

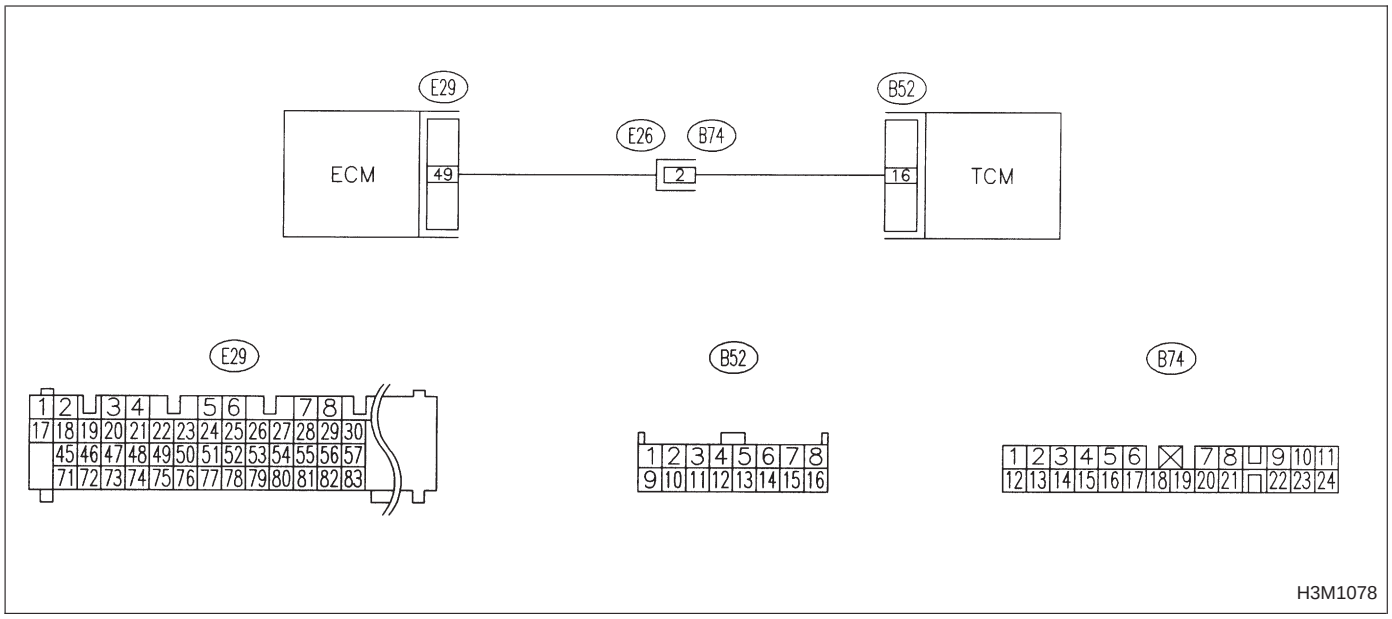
TROUBLE SYMPTOM:

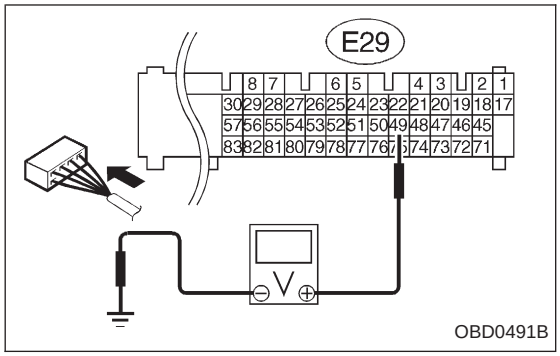
- Excessive shift shock

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 2-7b [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 (E29) No. 49 — Body / 4.5V, or more***

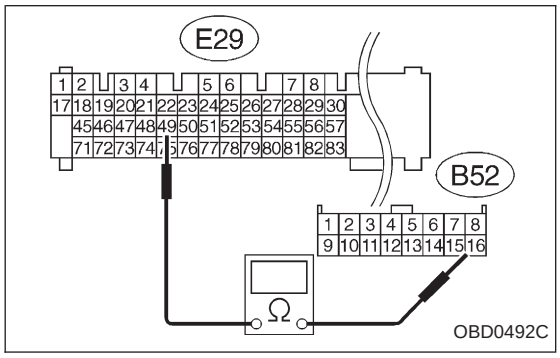
YES : Go to next CHECK .

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.



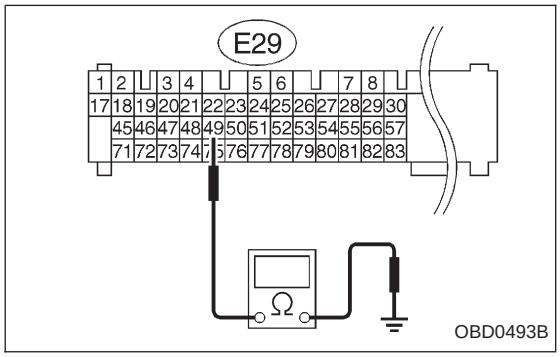
2	CHECK HARNESS CONNECTOR BETWEEN ECM AND TCM.

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 (E29) No. 49 — (B52) No. 16 / 1 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 (E29) No. 49 — Body / 1 MΩ, or more***

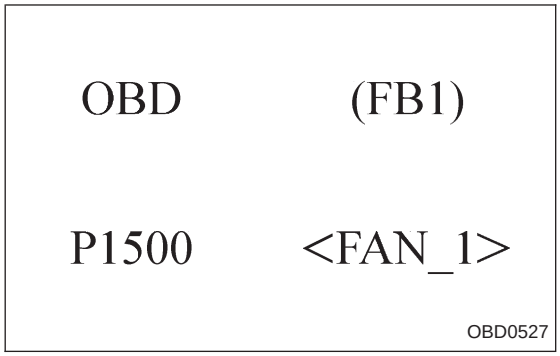
YES : Go to next CHECK .

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.



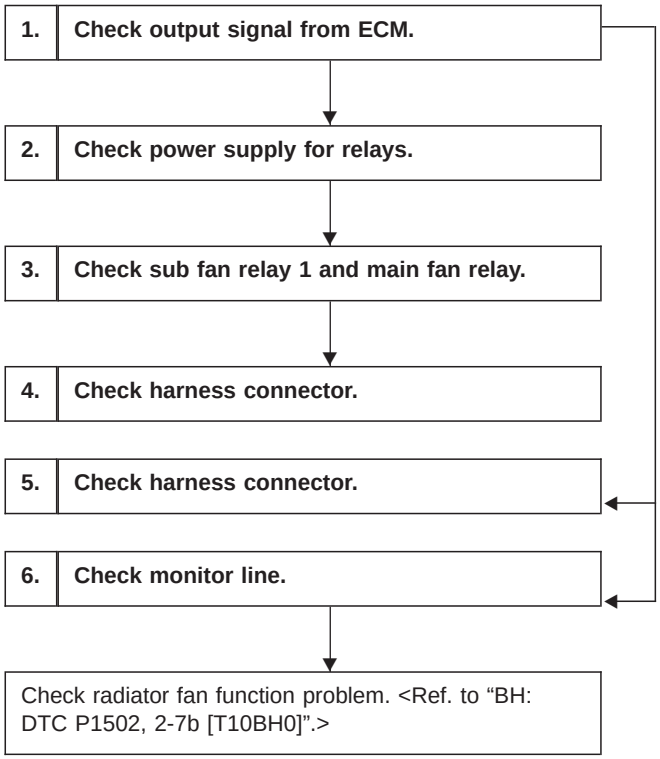
BG: DTC P1500 — RADIATOR FAN RELAY 1 CIRCUIT MALFUNCTION (FAN — 1) —

DTC DETECTING CONDITION:

- Two consecutive trips with fault

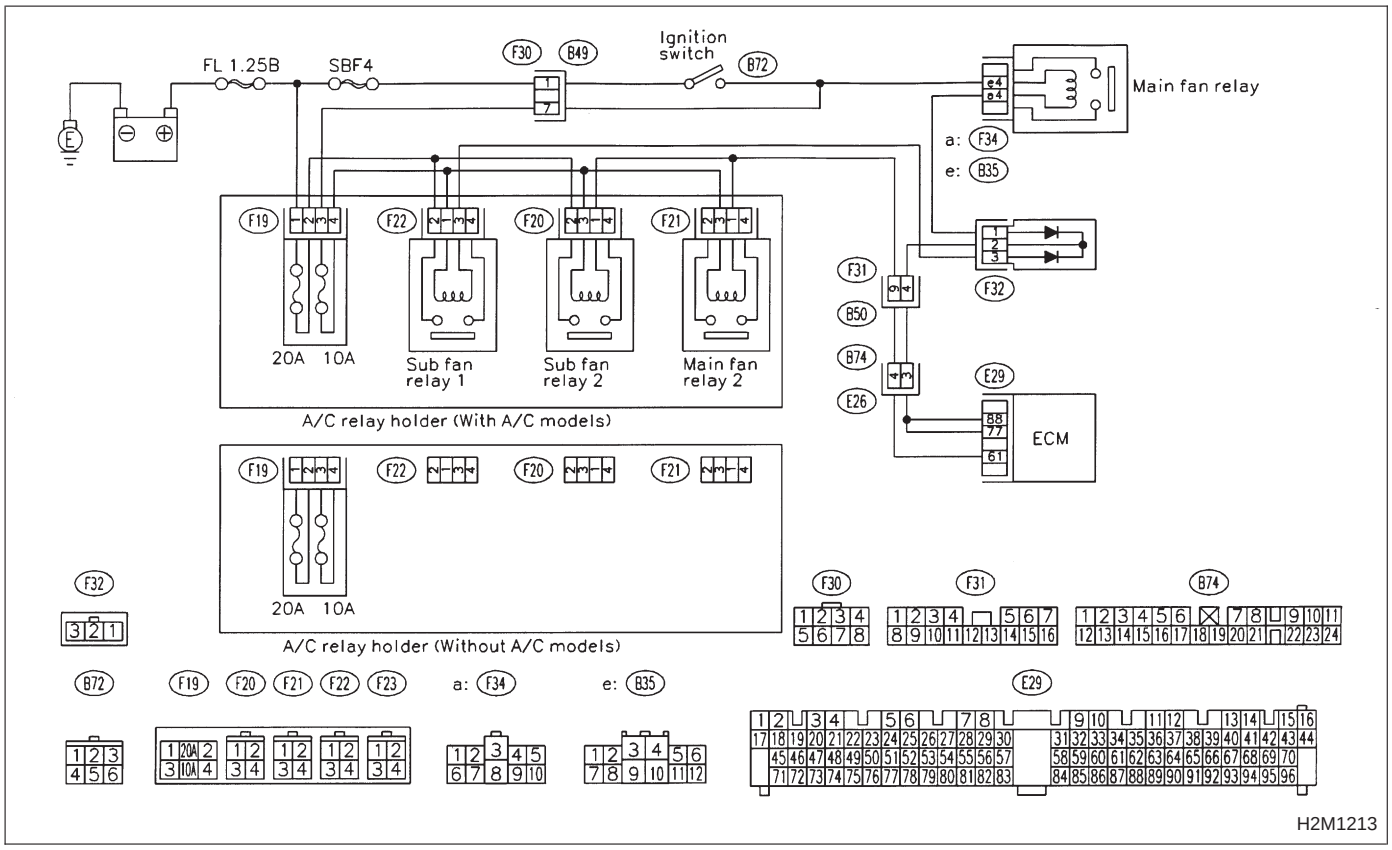
TROUBLE SYMPTOM:

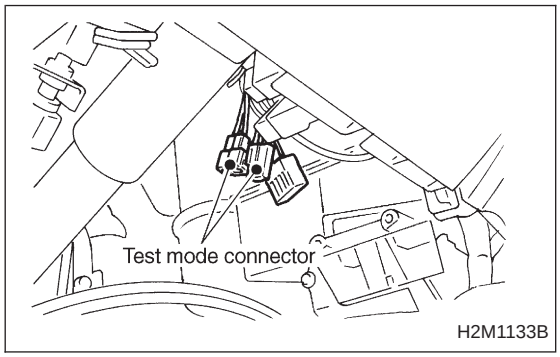
- Radiator fan does not operate properly.
- Overheating

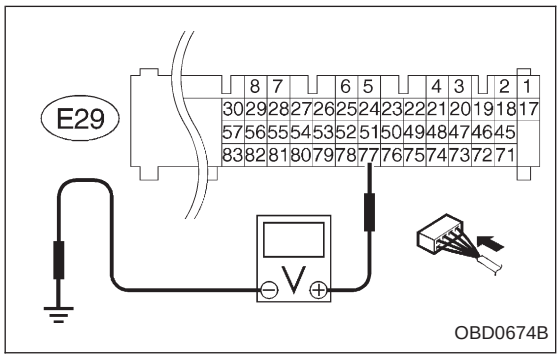


CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY and INSPECTION MODE.
<Ref. to 2-7b [T3D0] and [T3E0].>

WIRING DIAGRAM:







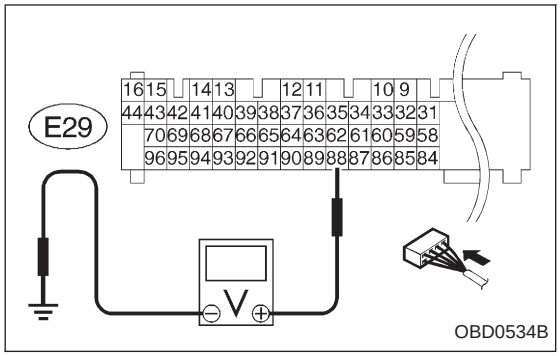
1	CHECK OUTPUT SIGNAL FROM ECM.

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 (E29) 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***
(E29) No. 88 — Body/10 V, or more

YES : Go to step 5.

NO : Go to step 2.

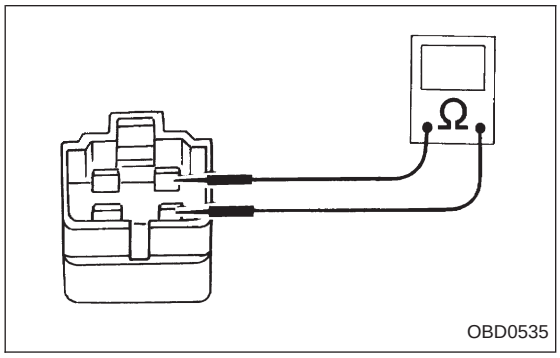
2	**CHECK POWER SUPPLY FOR RELAYS.**

Turn ignition switch to OFF.

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

YES : Replace the fuse.

NO : Go to step 3.



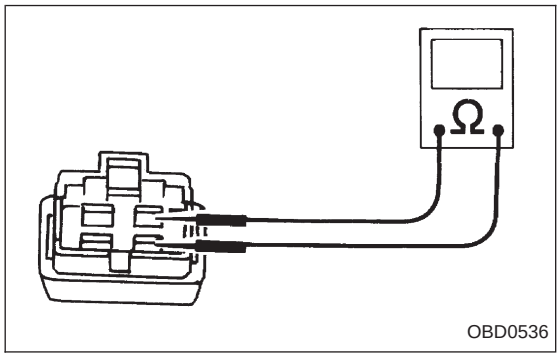
3	**CHECK SUB FAN RELAY 1 AND MAIN FAN RELAY.**

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

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

YES : Go to next step.

NO : Replace sub fan relay 1.

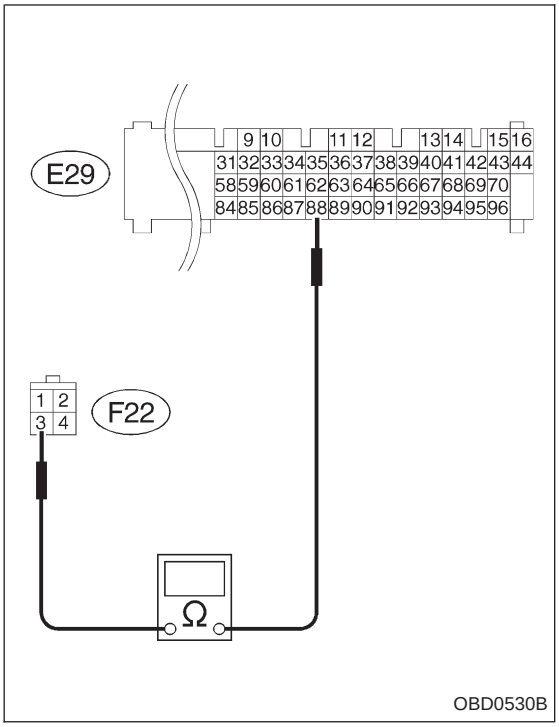


3) Remove main fan relay.
4) Measure resistance between main fan relay terminals.

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

YES : Go to step 4.

NO : Replace main fan relay.



4	CHECK HARNESS CONNECTOR.

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

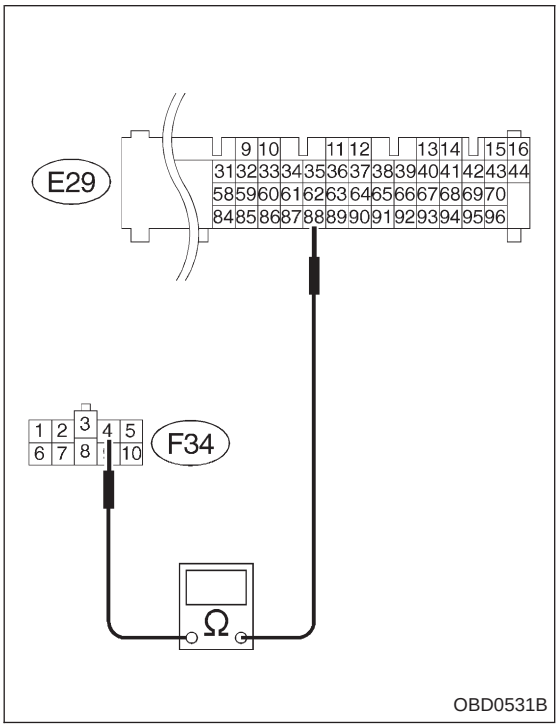
CHECK ***: Connector & terminal (E29) No. 88 — (F22) No. 3 / 1 Ω, or less***

NOTE:
With A/C models only.

YES : Go to next CHECK .
NO : Repair open circuit of harness between ECM connector and sub fan relay 1 connector.

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

YES : Repair ECM or sub fan relay 1 connector.
NO : Go to next CHECK .

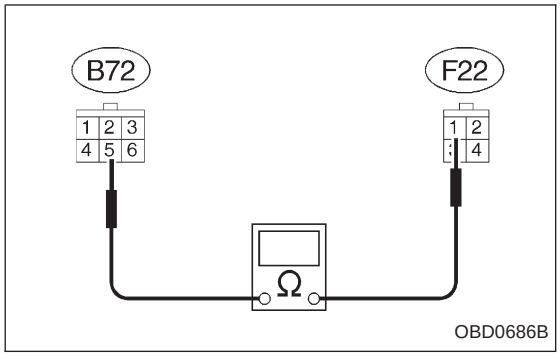


CHECK ***: Connector & terminal (E29) No. 88 — (F34) No. 4 / 1 Ω, or less***

YES : Go to next CHECK .
NO : Repair open circuit of harness between ECM connector and main fan relay connector.

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

YES : Repair ECM or main fan relay connector.
NO : Go to next CHECK .



CHECK ***: Connector & terminal (F22) No. 1 — (B72) No. 5 / 1 Ω, or less***

YES : Go to next CHECK .

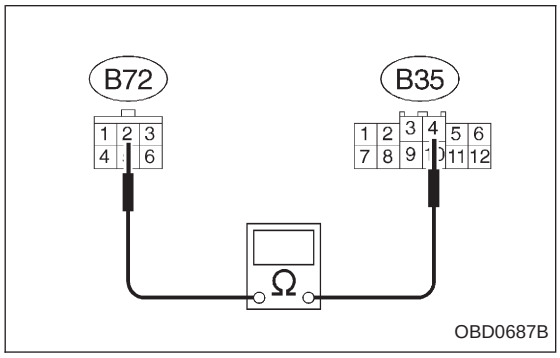
NO : Repair open circuit of harness between sub fan relay 1 connector and ignition switch connector.

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

YES : Repair poor contact in sub fan relay 1 or ignition switch connector.

NO : Go to next CHECK .

NOTE:
With A/C models only.



CHECK ***: Connector & terminal (B35) No. 4 — (B72) No. 2 / 1 Ω, or less***

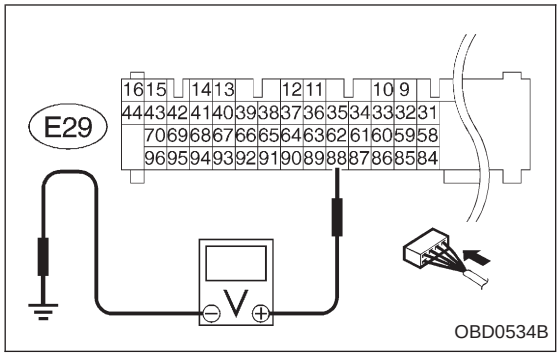
YES : Go to next CHECK .

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

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

YES : Repair poor contact in main fan relay 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 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***
(E29) No. 88 — Body / 10 V, or more

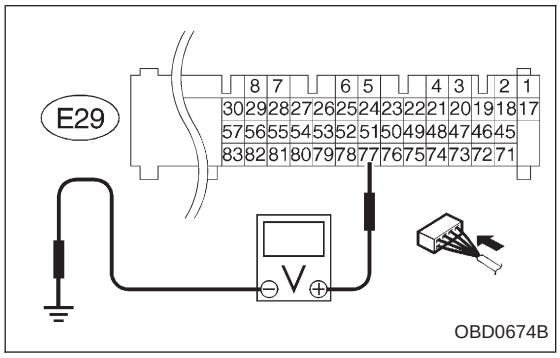
YES : Repair short circuit of harness and replace ECM.

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***
(E29) 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 and main fan relay connector.

OBD (FB1)

P1502 <FAN_F>

OBD0538

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

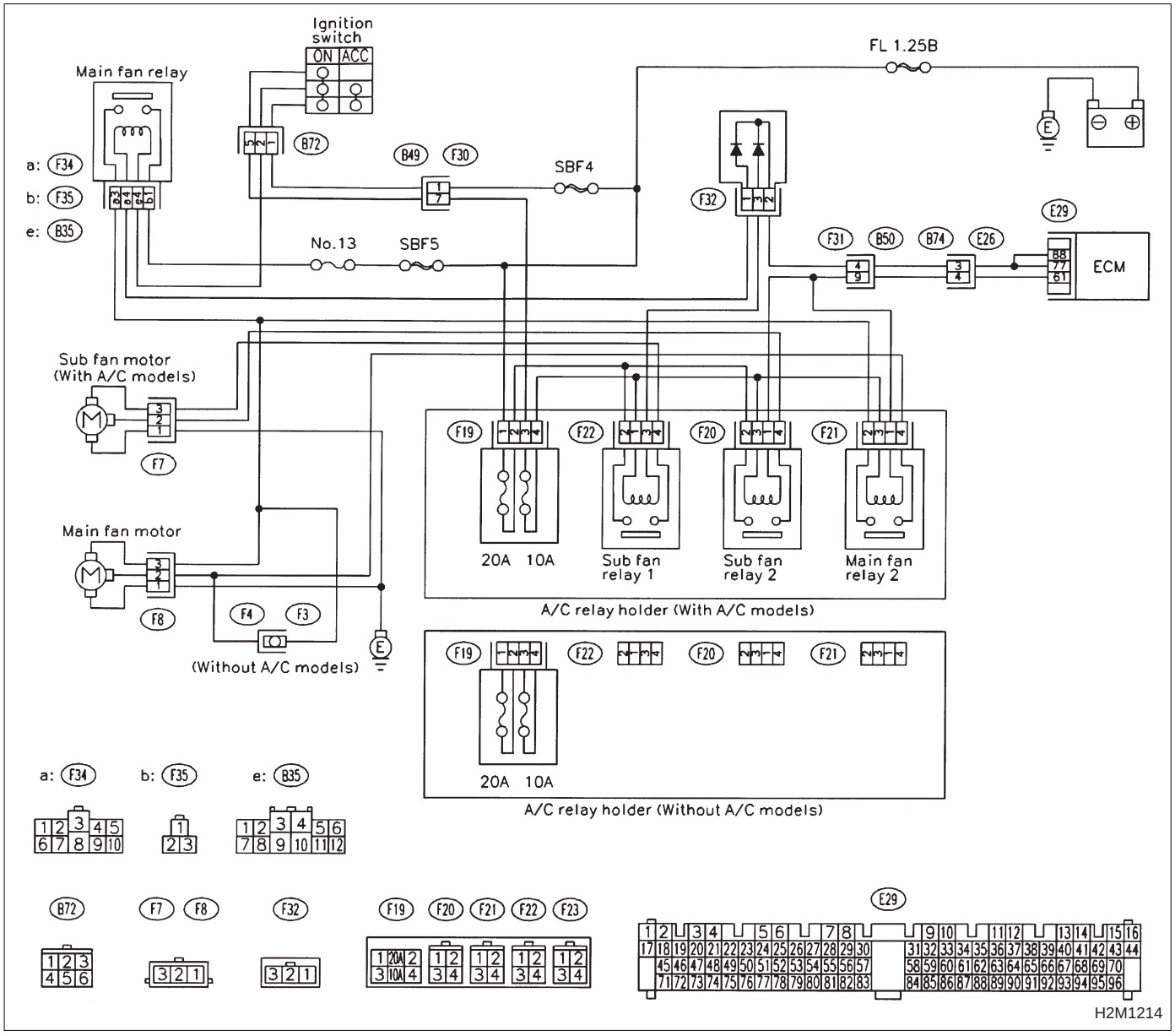
DTC DETECTING CONDITION:

- Two consecutive trips with fault

TROUBLE SYMPTOM:

- Occurrence of noise
- Overheating

WIRING DIAGRAM:



When DTC P1104 is on display, check engine cooling system. <Ref. to 2-5 [T100].>

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY and INSPECTION MODES.
<Ref. to 2-7b [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.

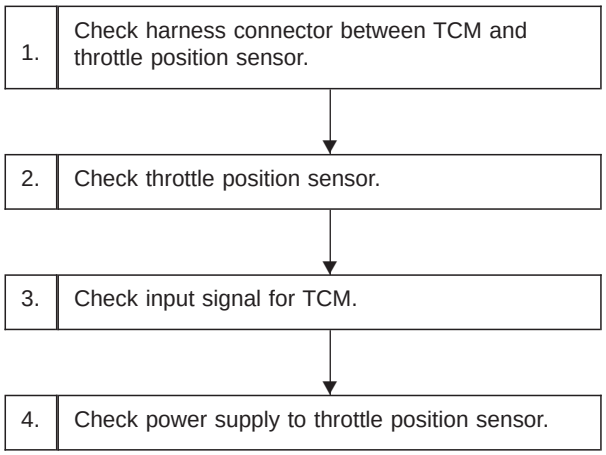
BI: DTC P1700 — THROTTLE POSITION SENSOR CIRCUIT MALFUNCTION FOR AUTOMATIC TRANSMISSION (ATTH) —

DTC DETECTING CONDITION:

- Two consecutive trips with fault

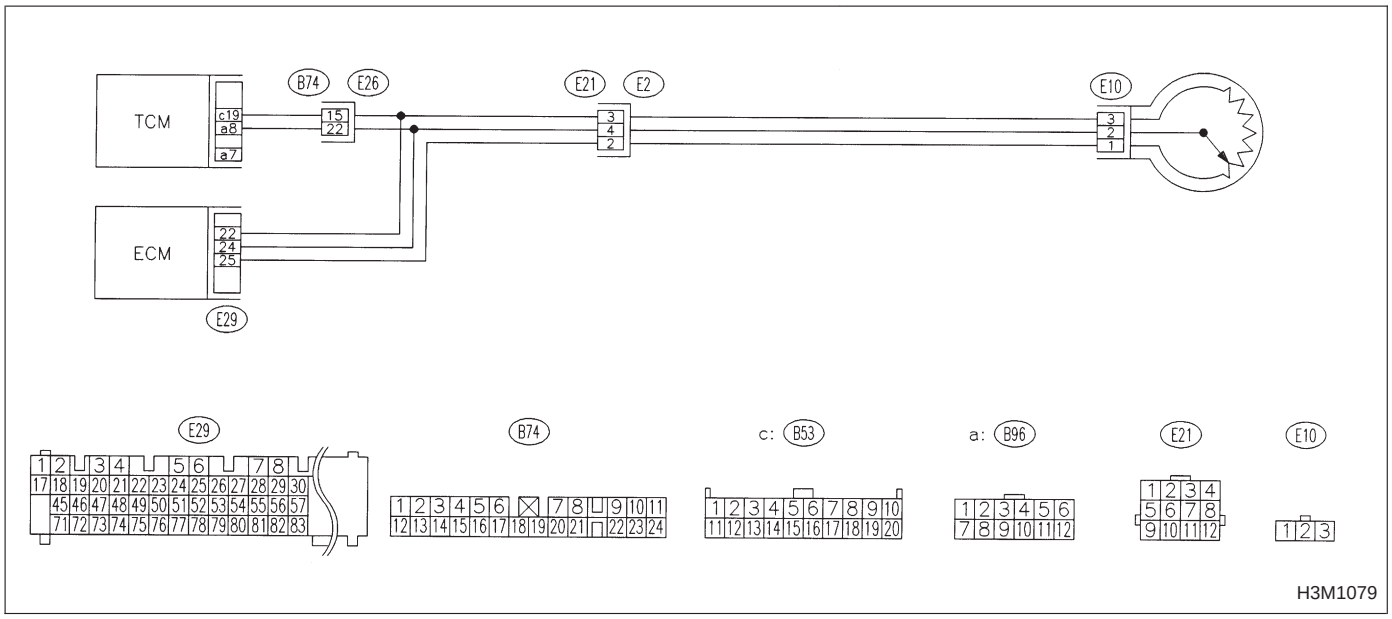
TROUBLE SYMPTOM:

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

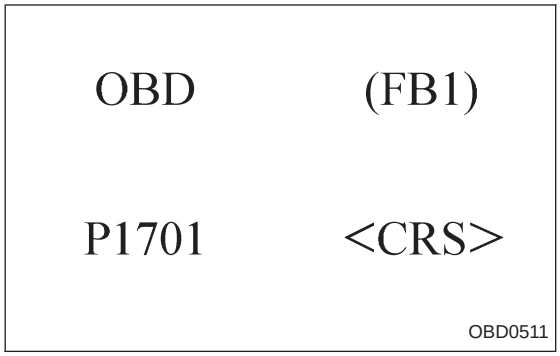


CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY and INSPECTION MODES.
<Ref. to 2-7b [T3D0] and [T3E0].>

WIRING DIAGRAM:



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



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

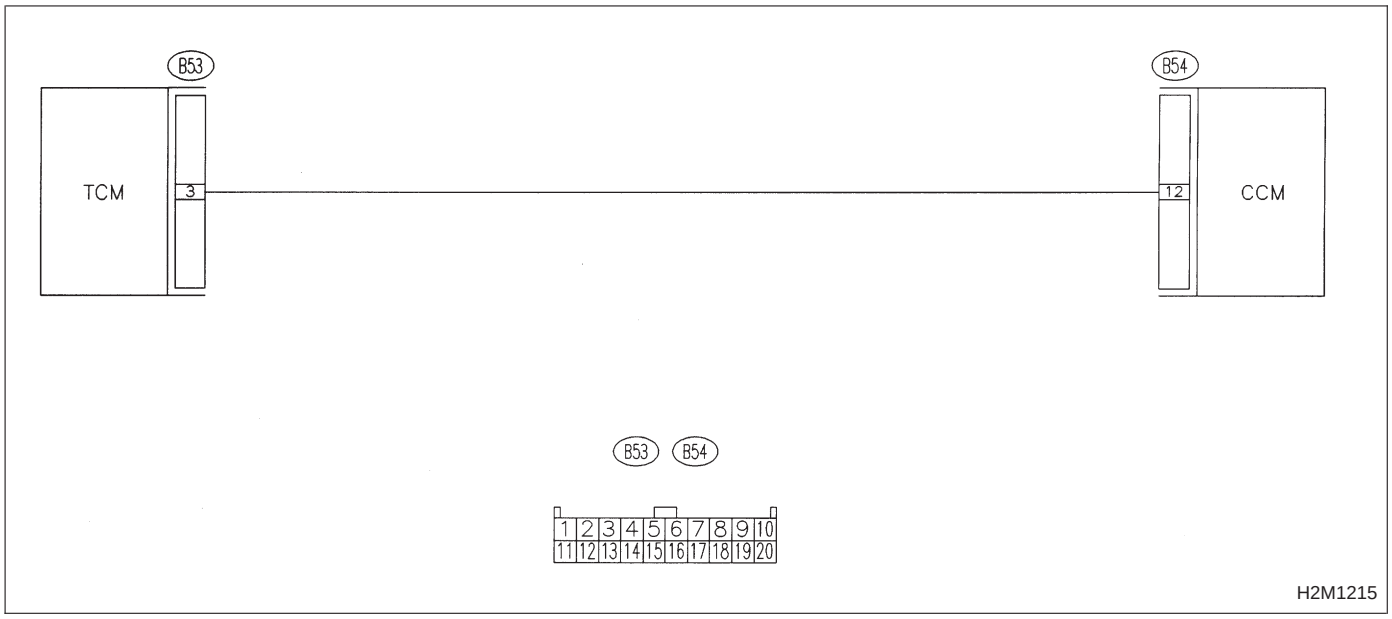
DTC DETECTING CONDITION:

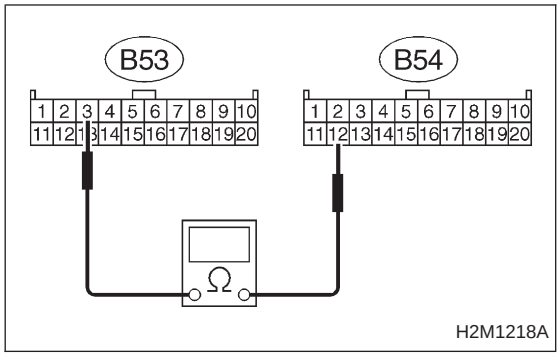
- Two consecutive trips with fault

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

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

WIRING DIAGRAM:





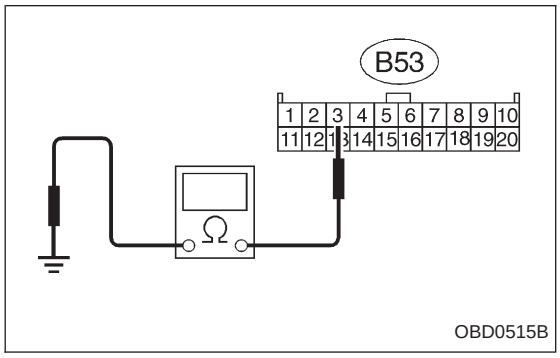
1.	CHECK HARNESS CONNECTOR BETWEEN TCM AND CCM.

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***
(B53) No. 3 — (B54) No. 12 / 1 Ω, or less

YES : Go to next step.

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

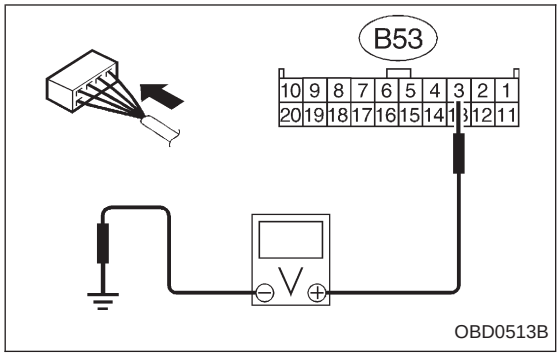


4) Measure resistance of harness connector between TCM and body.

CHECK ***: Connector & terminal***
(B53) No. 3 — Body / 1 MΩ, or more

YES : Go to step 2.

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



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) Move selector lever to “D” and slowly increase vehicle speed to 50 km/h (31 MPH).
6) Cruise control set switch to ON.
7) Measure voltage between TCM and body.

CHECK ***: Connector & terminal (B53) No. 3 — Body / 1 V, or less***

YES : Go to next CHECK .

NO : Check cruise control set circuit. <Ref. to 6-2 [T600].>

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

YES : Repair poor contact in TCM connector.

NO : Replace TCM with a new one.

OBD (FB1)

P1702 <ATDIAG>

OBD0516

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

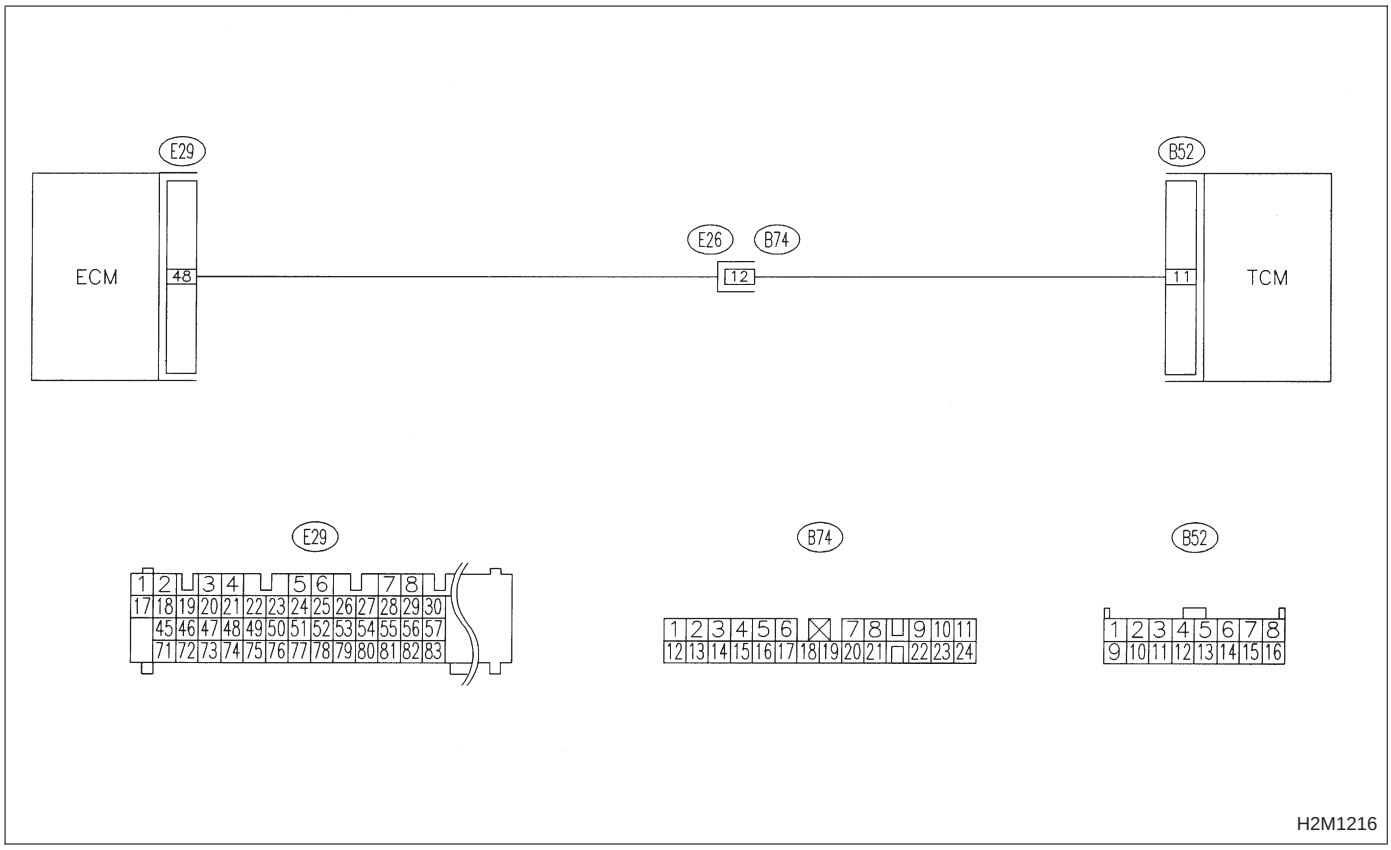
DTC DETECTING CONDITION:

- Two consecutive trips with fault

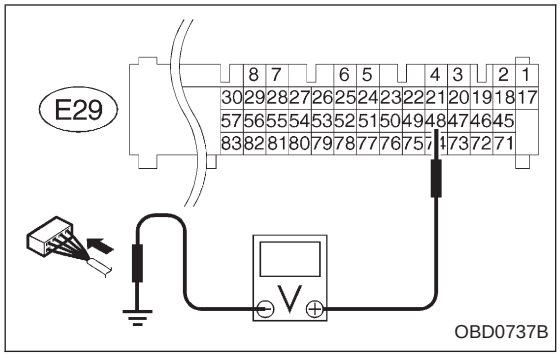
1.	Check harness connector.
2.	Check harness connector.

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

WIRING DIAGRAM:



H2M1216



1 CHECK HARNESS CONNECTOR

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

CHECK : ***Connector & terminal (E29) No. 48 — Body / 4 V, or more***

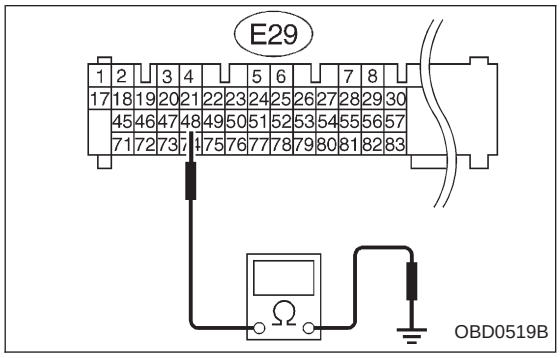
YES : ● Open circuit of harness between ECM connector and TCM connector
● Poor contact in ECM connector
● Poor contact in TCM connector
● Poor contact in coupling connector (B74)
Check the above and repair if necessary.

NO : Go to next CHECK .

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

YES : Go to step 2.

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



2 CHECK HARNESS CONNECTOR.

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

CHECK : ***Connector & terminal (E29) 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.