10. Diagnostic Chart with Trouble Code

A: DIAGNOSTIC TROUBLE CODE (DTC) LIST

DTC No.	Item	Index
P0101	Mass air flow sensor circuit range/performance problem (low input)	<Ref. to 2-7 [T10B0].>
P0102	Mass air flow sensor circuit low input	<Ref. to 2-7 [T10C0].>
P0103	Mass air flow sensor circuit high input	<Ref. to 2-7 [T10D0].>
P0106	Pressure sensor circuit range/performance problem	<Ref. to 2-7 [T10E0].>
P0107	Pressure sensor circuit low input	<Ref. to 2-7 [T10F0].>
P0108	Pressure sensor circuit high input	<Ref. to 2-7 [T10G0].>
P0117	Engine coolant temperature sensor circuit low input	<Ref. to 2-7 [T10H0].>
P0118	Engine coolant temperature sensor circuit high input	<Ref. to 2-7 [T10I0].>
P0121	Throttle position sensor circuit range/performance problem (high input)	<Ref. to 2-7 [T10J0].>
P0122	Throttle position sensor circuit low input	<Ref. to 2-7 [T10K0].>
P0123	Throttle position sensor circuit high input	<Ref. to 2-7 [T10L0].>
P0125	Insufficient coolant temperature for closed loop fuel control	<Ref. to 2-7 [T10M0].>
P0130	Front oxygen sensor circuit malfunction	<Ref. to 2-7 [T10N0].>
P0133	Front oxygen sensor circuit slow response	<Ref. to 2-7 [T10O0].>
P0135	Front oxygen sensor heater circuit malfunction	<Ref. to 2-7 [T10P0].>
P0136	Rear oxygen sensor circuit malfunction	<Ref. to 2-7 [T10Q0].>
P0139	Rear oxygen sensor circuit slow response	<Ref. to 2-7 [T10R0].>
P0141	Rear oxygen sensor heater circuit malfunction	<Ref. to 2-7 [T10S0].>
P0170	Fuel trim malfunction	<Ref. to 2-7 [T10T0].>
P0181	Fuel temperature sensor A circuit range/performance problem	<Ref. to 2-7 [T10U0].>
P0182	Fuel temperature sensor A circuit low input	<Ref. to 2-7 [T10V0].>
P0183	Fuel temperature sensor A circuit high input	<Ref. to 2-7 [T10W0].>
P0261	Fuel injector circuit low input - #1	<Ref. to 2-7 [T10X0].>
P0262	Fuel injector circuit high input - #1	<Ref. to 2-7 [T10AB0].>
P0264	Fuel injector circuit low input - #2	<Ref. to 2-7 [T10Y0].>

DTC No.	Item	Index
P0265	Fuel injector circuit high input - #2	<Ref. to 2-7 [T10AC0].>
P0267	Fuel injector circuit low input - #3	<Ref. to 2-7 [T10Z0].>
P0268	Fuel injector circuit high input - #3	<Ref. to 2-7 [T10AD0].>
P0270	Fuel injector circuit low input - #4	<Ref. to 2-7 [T10AA0].>
P0271	Fuel injector circuit high input - #4	<Ref. to 2-7 [T10AE0].>
P0301	Cylinder 1 misfire detected	<Ref. to 2-7 [T10AF0].>
P0302	Cylinder 2 misfire detected	<Ref. to 2-7 [T10AG0].>
P0303	Cylinder 3 misfire detected	<Ref. to 2-7 [T10AH0].>
P0304	Cylinder 4 misfire detected	<Ref. to 2-7 [T10AI0].>
P0325	Knock sensor circuit malfunction	<Ref. to 2-7 [T10AJ0].>
P0335	Crankshaft position sensor circuit malfunction	<Ref. to 2-7 [T10AK0].>
P0336	Crankshaft position sensor circuit range/performance problem	<Ref. to 2-7 [T10AL0].>
P0340	Camshaft position sensor circuit malfunction	<Ref. to 2-7 [T10AM0].>
P0341	Camshaft position sensor circuit range/performance problem	<Ref. to 2-7 [T10AN0].>
P0400	Exhaust gas recirculation flow malfunction	<Ref. to 2-7 [T10AO0].>
P0403	Exhaust gas recirculation circuit low input	<Ref. to 2-7 [T10AP0].>
P0420	Catalyst system efficiency below threshold	<Ref. to 2-7 [T10AQ0].>
P0440	Evaporative emission control system malfunction	<Ref. to 2-7 [T10AR0].>
P0441	Evaporative emission control system incorrect purge flow	<Ref. to 2-7 [T10AS0].>
P0443	Evaporative emission control system purge control valve circuit low input	<Ref. to 2-7 [T10AT0].>
P0446	Evaporative emission control system vent control low input	<Ref. to 2-7 [T10AU0].>
P0451	Evaporative emission control system pressure sensor range/performance problem	<Ref. to 2-7 [T10AV0].>
P0452	Evaporative emission control system pressure sensor low input	<Ref. to 2-7 [T10AW0].>
P0453	Evaporative emission control system pressure sensor high input	<Ref. to 2-7 [T10AX0].>
P0461	Fuel level sensor circuit range/performance problem	<Ref. to 2-7 [T10AY0].>
P0462	Fuel level sensor circuit low input	<Ref. to 2-7 [T10AZ0].>
P0463	Fuel level sensor circuit high input	<Ref. to 2-7 [T10BA0].>

DTC No.	Item	Index
P0480	Cooling fan relay 1 circuit low input	<Ref. to 2-7 [T10BB0].>
P0483	Cooling fan function problem	<Ref. to 2-7 [T10BC0].>
P0500	Vehicle speed sensor malfunction	<Ref. to 2-7 [T10BD0].>
P0505	Idle control system malfunction	<Ref. to 2-7 [T10BE0].>
P0506	Idle control system RPM lower than expected	<Ref. to 2-7 [T10BF0].>
P0507	Idle control system RPM higher than expected	<Ref. to 2-7 [T10BG0].>
P0600	Serial communication link malfunction	<Ref. to 2-7 [T10BH0].>
P0601	Internal control module memory check sum error	<Ref. to 2-7 [T10BI0].>
P0703	Brake switch input malfunction	<Ref. to 2-7 [T10BJ0].>
P0705	Transmission range sensor circuit malfunction	<Ref. to 2-7 [T10BK0].>
P0710	Transmission fluid temperature sensor circuit malfunction	<Ref. to 2-7 [T10BL0].>
P0720	Output speed sensor (vehicle speed sensor 1) circuit malfunction	<Ref. to 2-7 [T10BM0].>
P0725	Engine speed input circuit malfunction	<Ref. to 2-7 [T10BN0].>
P0731	Gear 1 incorrect ratio	<Ref. to 2-7 [T10BO0].>
P0732	Gear 2 incorrect ratio	<Ref. to 2-7 [T10BP0].>
P0733	Gear 3 incorrect ratio	<Ref. to 2-7 [T10BQ0].>
P0734	Gear 4 incorrect ratio	<Ref. to 2-7 [T10BR0].>
P0740	Torque converter clutch system malfunction	<Ref. to 2-7 [T10BS0].>
P0743	Torque converter clutch system electrical	<Ref. to 2-7 [T10BT0].>
P0748	Pressure control solenoid electrical	<Ref. to 2-7 [T10BU0].>
P0753	Shift solenoid A electrical	<Ref. to 2-7 [T10BV0].>
P0758	Shift solenoid B electrical	<Ref. to 2-7 [T10BW0].>
P0760	Shift solenoid C malfunction	<Ref. to 2-7 [T10BX0].>
P0763	Shift solenoid C electrical	<Ref. to 2-7 [T10BY0].>
P1100	Starter switch circuit low input	<Ref. to 2-7 [T10BZ0].>
P1101	Neutral position switch circuit malfunction [MT vehicles]	<Ref. to 2-7 [T10CA0].>
P1101	Neutral position switch circuit high input [AT vehicles]	<Ref. to 2-7 [T10CB0].>

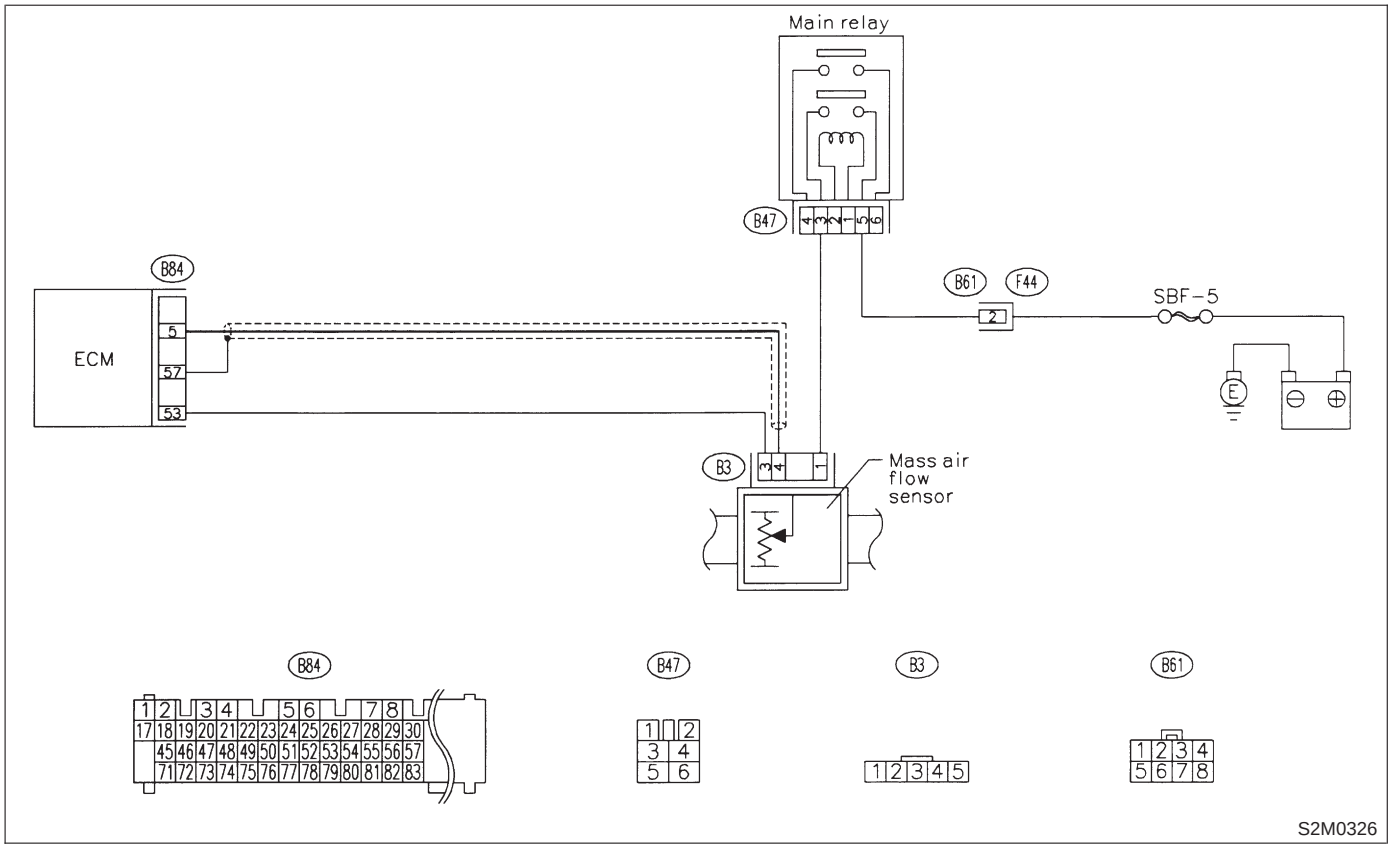
DTC No.	Item	Index
P1102	Pressure sources switching solenoid valve circuit low input	<Ref. to 2-7 [T10CC0].>
P1103	Engine torque control signal circuit malfunction	<Ref. to 2-7 [T10CD0].>
P1120	Starter switch circuit high input	<Ref. to 2-7 [T10CE0].>
P1121	Neutral position switch circuit low input [AT vehicles]	<Ref. to 2-7 [T10CF0].>
P1122	Pressure sources switching solenoid valve circuit high input	<Ref. to 2-7 [T10CG0].>
P1141	Mass air flow sensor circuit range/performance problem (high input)	<Ref. to 2-7 [T10CH0].>
P1142	Throttle position sensor circuit range/performance problem (low input)	<Ref. to 2-7 [T10CI0].>
P1143	Pressure sensor circuit range/performance problem (low input)	<Ref. to 2-7 [T10CJ0].>
P1144	Pressure sensor circuit range/performance problem (high input)	<Ref. to 2-7 [T10CK0].>
P1400	Fuel tank pressure control solenoid valve circuit low input	<Ref. to 2-7 [T10CL0].>
P1420	Fuel tank pressure control solenoid valve circuit high input	<Ref. to 2-7 [T10CM0].>
P1421	Exhaust gas recirculation circuit high input	<Ref. to 2-7 [T10CN0].>
P1422	Evaporative emission control system purge control valve circuit high input	<Ref. to 2-7 [T10CO0].>
P1423	Evaporative emission control system vent control high input	<Ref. to 2-7 [T10CP0].>
P1440	Fuel tank pressure control system function problem (low input)	<Ref. to 2-7 [T10CQ0].>
P1441	Fuel tank pressure control system function problem (high input)	<Ref. to 2-7 [T10CR0].>
P1442	Fuel level sensor circuit range/performance problem 2	<Ref. to 2-7 [T10CS0].>
P1443	Evaporative emission control system vent control function problem	<Ref. to 2-7 [T10DC0].>
P1507	Idle control system malfunction (fail-safe)	<Ref. to 2-7 [T10CT0].>
P1520	Cooling fan relay 1 circuit high input	<Ref. to 2-7 [T10CU0].>
P1540	Vehicle speed sensor malfunction 2	<Ref. to 2-7 [T10CV0].>
P1700	Throttle position sensor circuit malfunction for automatic transmission	<Ref. to 2-7 [T10CW0].>
P1701	Cruise control set signal circuit malfunction for automatic transmission	<Ref. to 2-7 [T10CX0].>
P1702	Automatic transmission diagnosis input signal circuit low input	<Ref. to 2-7 [T10CY0].>
P1722	Automatic transmission diagnosis input signal circuit high input	<Ref. to 2-7 [T10CZ0].>
P1742	Automatic transmission diagnosis input signal circuit malfunction	<Ref. to 2-7 [T10DA0].>

B: DTC P0101 — MASS AIR FLOW SENSOR CIRCUIT RANGE/PERFORMANCE PROBLEM (LOW INPUT) —

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

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

- **WIRING DIAGRAM:**



10B1 : CHECK ANY OTHER DTC ON DISPLAY.

CHECK : ***Does the Subaru select monitor or OBD-II general scan tool indicate DTC P0102 or P0103?***

YES : Inspect DTC P0102 or P0103 using “10. Diagnostics Chart with Trouble Code”. <Ref. to 2-7 [T10A0].>

NOTE:
In this case, it is not necessary to inspect DTC P0101.

NO : Replace mass air flow sensor.

MEMO:

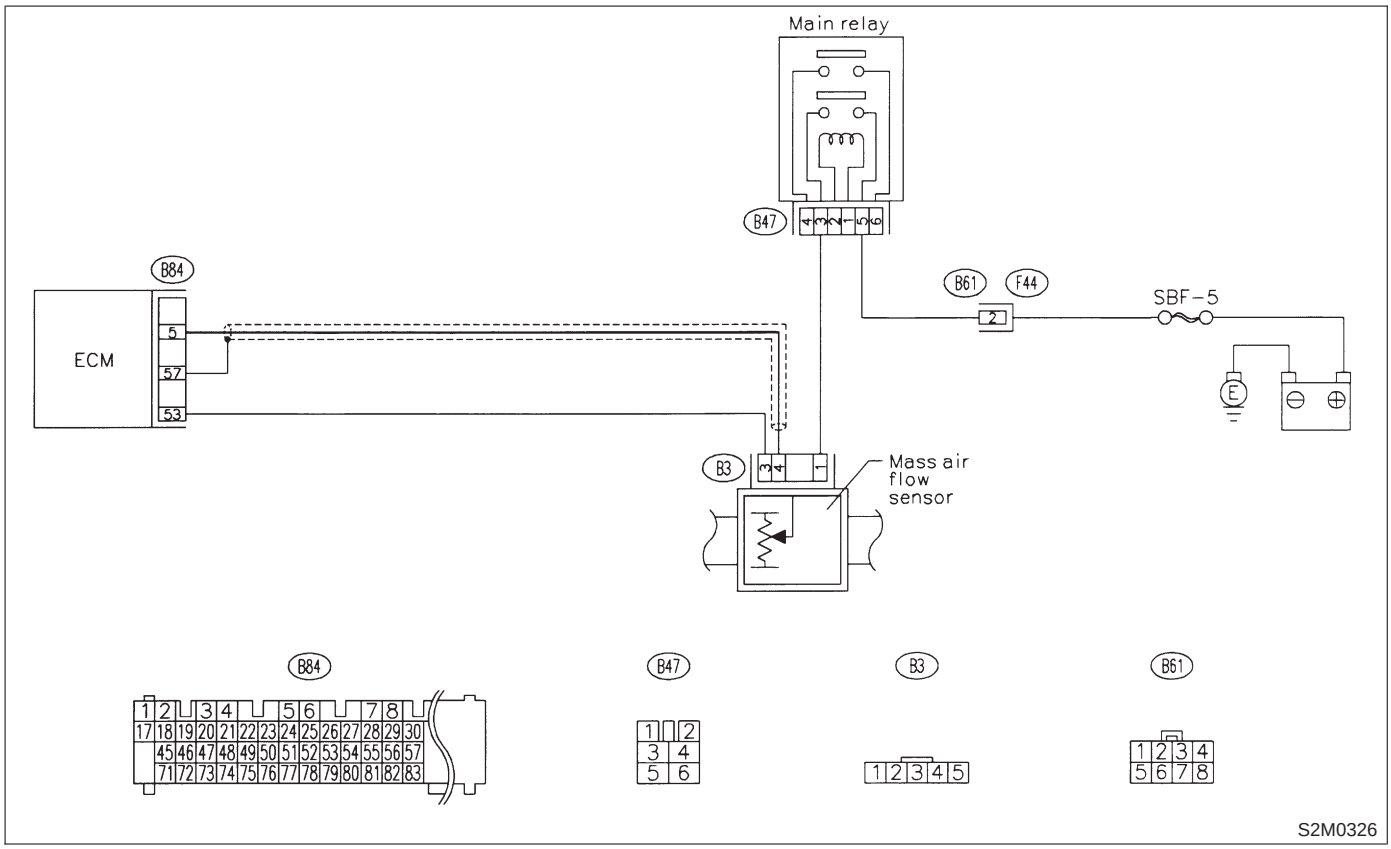
C: DTC P0102 — MASS AIR FLOW SENSOR CIRCUIT LOW INPUT —

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

- **TROUBLE SYMPTOM:**
  - Erroneous idling
  - Engine stalls.
  - Poor driving performance

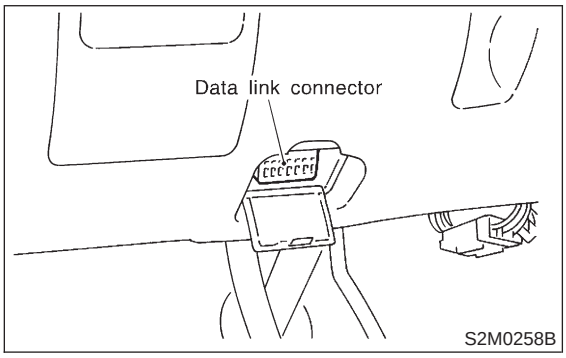
CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY and INSPECTION MODES. <Ref. to 2-7 [T3D0] and [T3E0].>

- **WIRING DIAGRAM:**



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

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



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

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

CHECK : ***Is the value equal to or more than 1.3 g/sec (0.172 lb/min) or 0.3 V and equal to or less than 250 g/sec (33 lb/min) or 5.0 V?***

YES : Even if MIL lights up, the circuit has returned to a normal condition at this time. A temporary poor contact of the connector or harness may be the cause. Repair harness or connector in the mass air flow sensor.

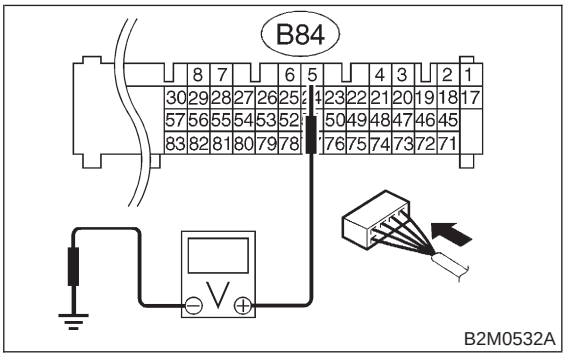
NOTE:
In this case, repair the following:
● Open or ground short circuit in harness between mass air flow sensor and ECM connector
● Poor contact in mass air flow sensor or ECM connector

NO : Go to step **10C2**.

10C2 : CHECK INPUT SIGNAL FOR ECM.

Measure voltage between ECM connector and chassis ground while engine is idling.

Connector & terminal
(B84) No. 5 (+) — Chassis ground (−):



CHECK : ***Is the voltage less than 0.3 V?***
YES : Go to step **10C4**.
NO : Go to step **10C3**.

10C3 : CHECK INPUT SIGNAL FOR ECM (USING SUBARU SELECT MONITOR).

Measure voltage between ECM connector and chassis ground while engine is idling.

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

YES : Repair poor contact in ECM connector.

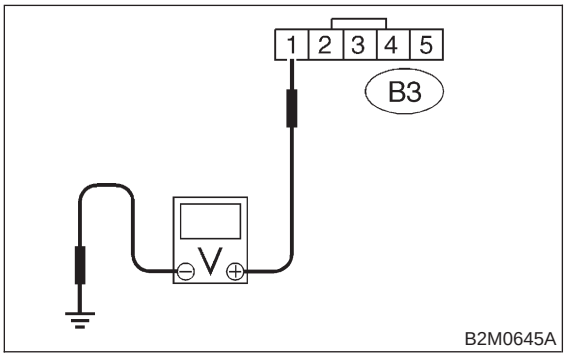
NO : Contact with SOA service.

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

10C4 : CHECK POWER SUPPLY TO MASS AIR FLOW SENSOR.

1) Turn ignition switch to OFF.
2) Disconnect connector from mass air flow sensor.
3) Turn ignition switch to ON.
4) Measure voltage between mass air flow sensor connector and engine ground.

Connector & terminal
(B3) No. 1 (+) — Engine ground (−):

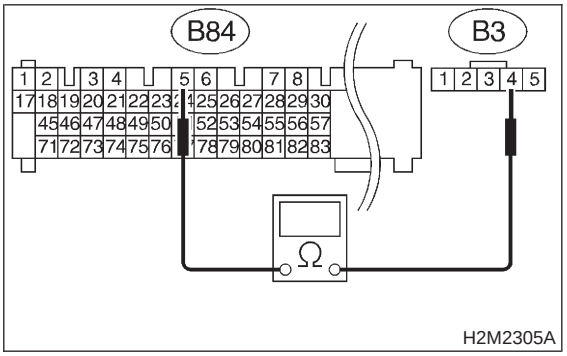


CHECK : ***Is the voltage more than 10 V?***
YES : Go to step **10C5**.
NO : Repair open circuit in harness between main relay and mass air flow sensor connector.

10C5 : CHECK HARNESS BETWEEN ECM AND MASS AIR FLOW SENSOR CONNECTOR.

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

Connector & terminal
(B84) No. 5 — (B3) No. 4:



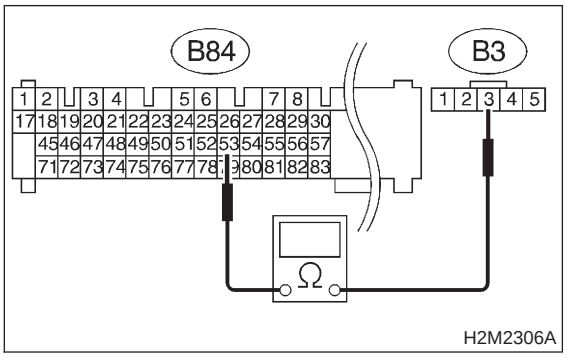
CHECK : ***Is the resistance less than 1 Ω?***
YES : Go to step **10C6**.
NO : Repair harness and connector.

NOTE:
In this case, repair the following:
- Open circuit in harness between ECM and mass air flow sensor connector
- Poor contact in mass air flow sensor connector
- Poor contact in ECM connector

10C6 : CHECK HARNESS BETWEEN ECM AND MASS AIR FLOW SENSOR CONNECTOR.

Measure resistance of harness between ECM and mass air flow sensor connector.

Connector & terminal
(B84) No. 53 — (B3) No. 3:



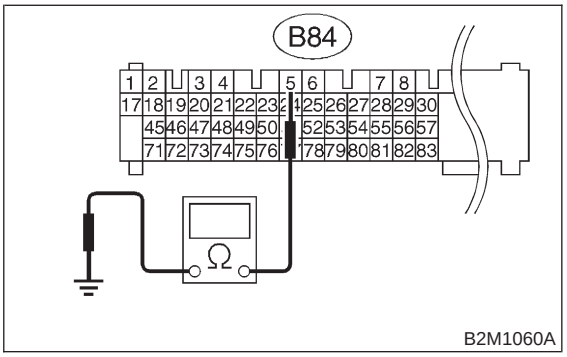
CHECK : ***Is the resistance less than 1 Ω?***
YES : Go to step **10C7**.
NO : Repair harness and connector.

NOTE:
In this case, repair the following:
- Open circuit in harness between ECM and mass air flow sensor connector
- Poor contact in mass air flow sensor connector
- Poor contact in ECM connector

10C7 : CHECK HARNESS BETWEEN ECM AND MASS AIR FLOW SENSOR CONNECTOR.

Measure resistance of harness between ECM connector and chassis ground.

Connector & terminal
(B84) No. 5 — Chassis ground:



CHECK : ***Is the resistance more than 1 MΩ?***
YES : Replace mass air flow sensor.
NO : Repair ground short circuit in harness between ECM and mass air flow sensor connector.

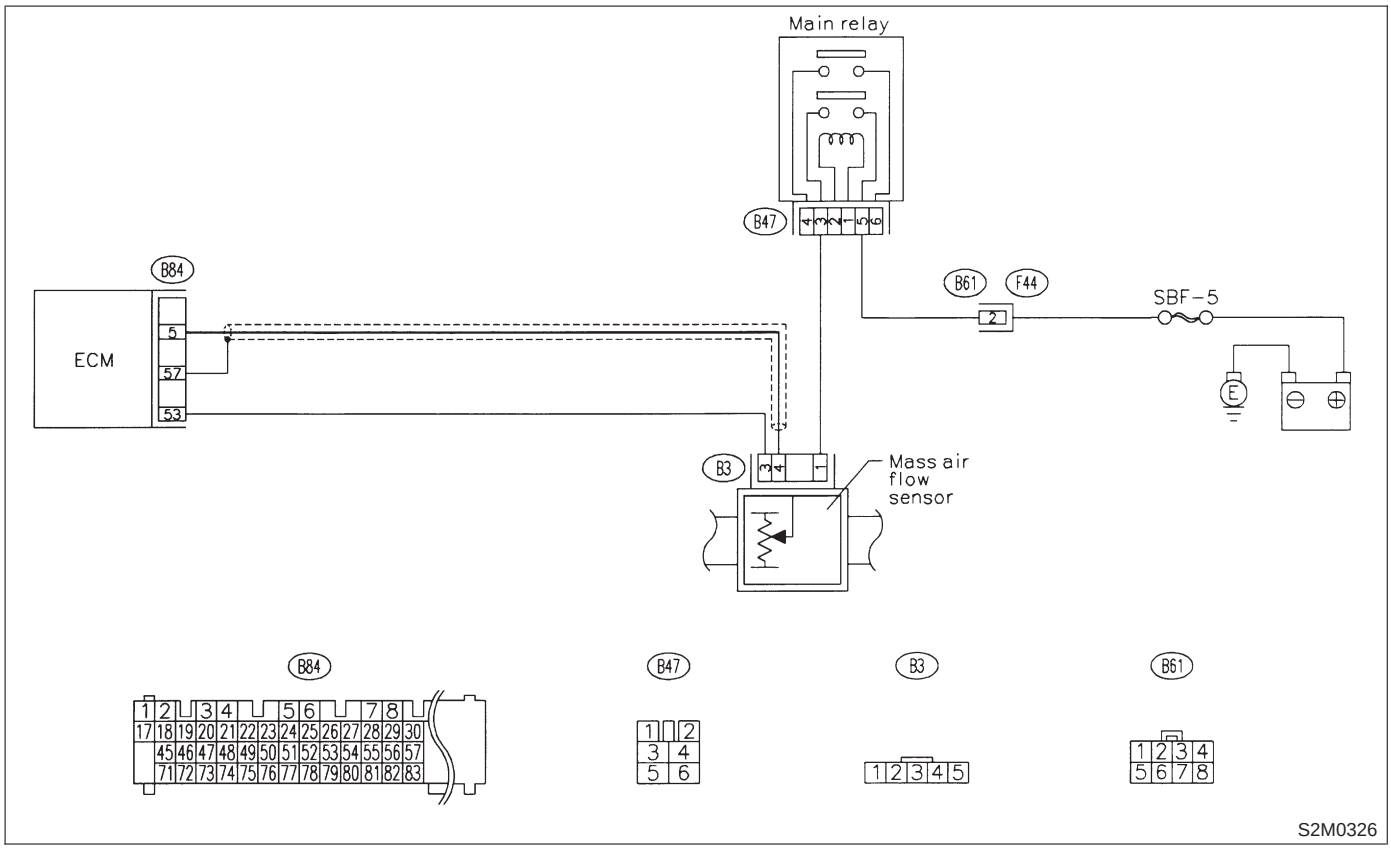
D: DTC P0103 — MASS AIR FLOW SENSOR CIRCUIT HIGH INPUT —

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

- **TROUBLE SYMPTOM:**
  - Erroneous idling
  - Engine stalls.
  - Poor driving performance

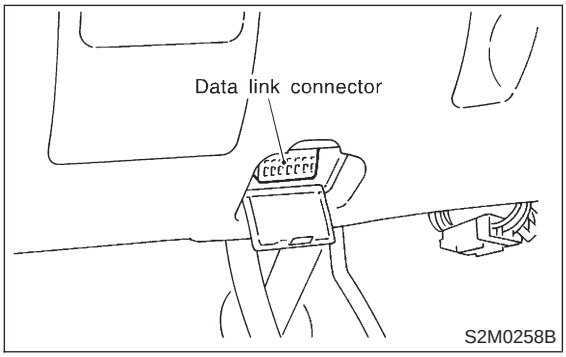
CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY and INSPECTION MODES. <Ref. to 2-7 [T3D0] and [T3E0].>

- **WIRING DIAGRAM:**



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

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



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

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

CHECK : ***Is the value equal to or more than 1.3 g/sec (0.172 lb/min) or 0.3 V and equal to or less than 250 g/sec (33 lb/min) or 5.0 V?***

YES : Even if MIL lights up, the circuit has returned to a normal condition at this time.

NO : Go to step **10D2**.

10D2 : CHECK HARNESS BETWEEN ECM AND MASS AIR FLOW SENSOR CONNECTOR.

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

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

CHECK : ***Is the value more than 250 g/sec (33 lb/min) or 5 V in function mode F06?***

YES : Repair battery short circuit in harness between mass air flow sensor and ECM connector. After repair, replace ECM.

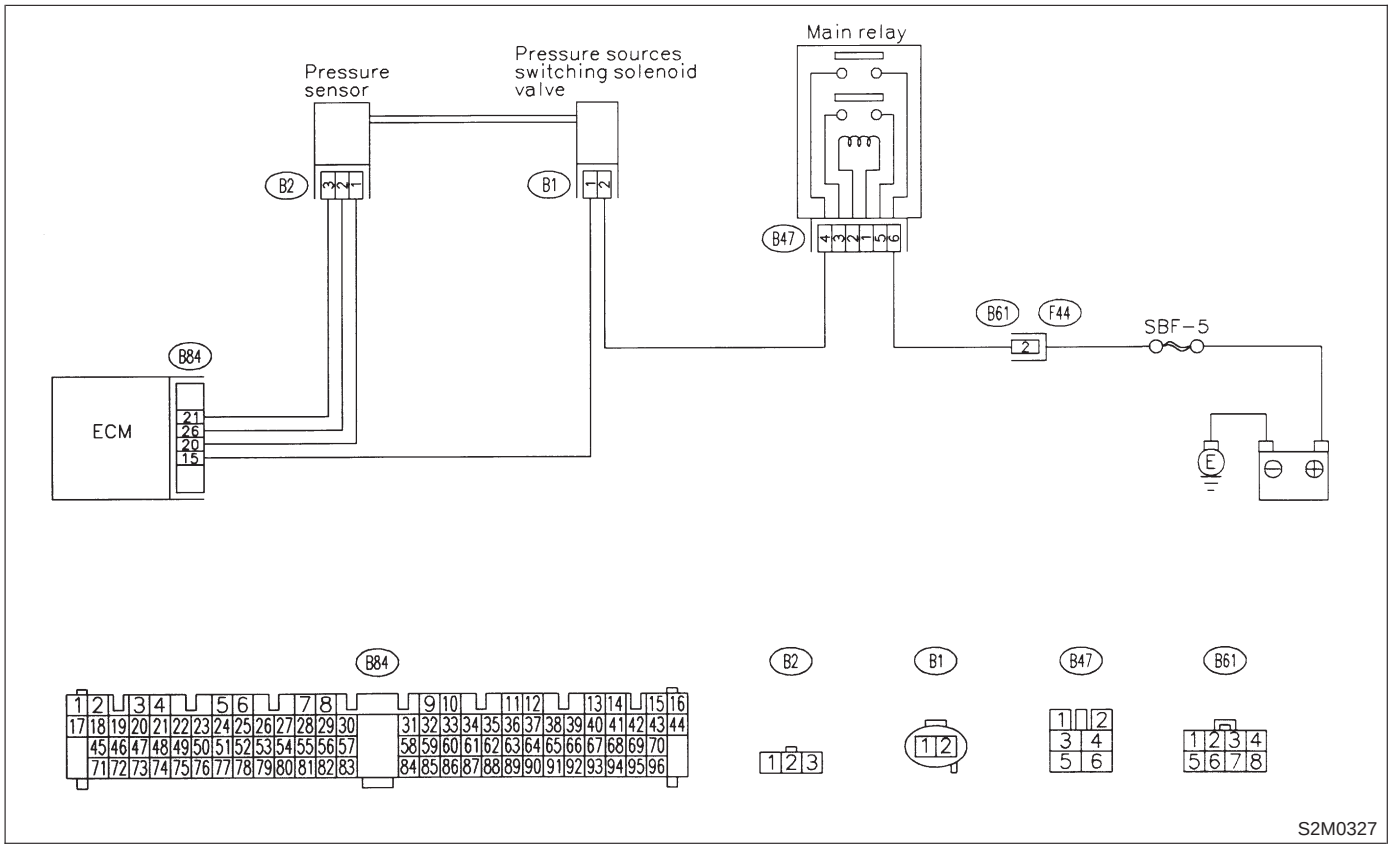
NO : Replace mass air flow sensor.

E: DTC P0106 — PRESSURE SENSOR CIRCUIT RANGE/PERFORMANCE PROBLEM —

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

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

- **WIRING DIAGRAM:**



10E1 :	CHECK ANY OTHER DTC ON DISPLAY.

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

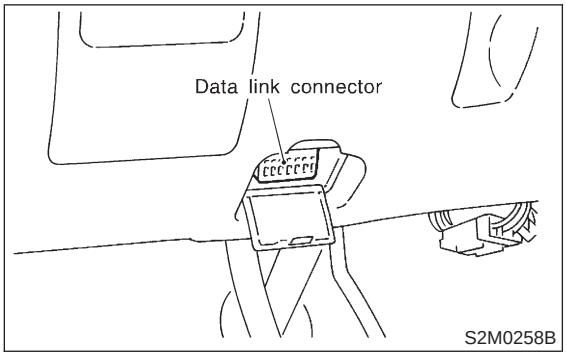
CHECK : ***Does the Subaru select monitor or OBD-II general scan tool indicate DTC P0107, P0108, P1102 OR P1122?***

YES : Inspect DTC P0107, P0108, P1102 OR P1122 using “10. Diagnostics Chart with Trouble Code”. <Ref. to 2-7 [T10A0].>

NO : Go to step **10E2**.

10E2 : CHECK DATA FOR CONTROL.

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



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

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

CHECK : ***Is the value more than 85 kPa (638 mmHg, 25.12 inHg)?***
YES : Go to step **10E5**.
NO : Go to step **10E3**.

10E3 : CHECK DATA FOR CONTROL.

Read data of atmospheric absolute pressure signal using Subaru Select Monitor or OBD-II general scan tool.

CHECK : ***Is the value less than 32 kPa (240 mmHg, 9.45 inHg)?***
YES : Go to step **10E6**.
NO : Go to step **10E4**.

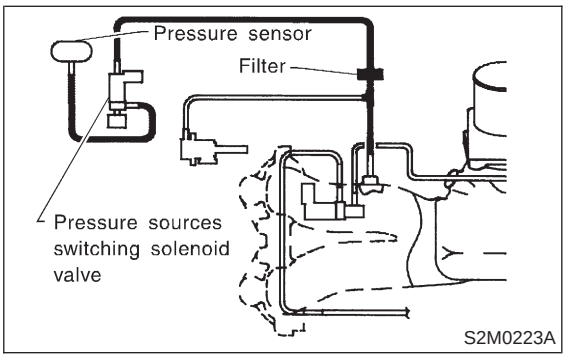
10E4 : CHECK DATA FOR CONTROL.

Read data of atmospheric absolute pressure signal using Subaru Select Monitor or OBD-II general scan tool.

CHECK : ***Is the value more than 133 kPa (998 mmHg, 39.29 inHg)?***
YES : Replace pressure sensor.
NO : Repair poor contact in pressure sensor connector, pressure sources switching solenoid valve connector, and ECM connector.

10E5 : CHECK VACUUM HOSES.

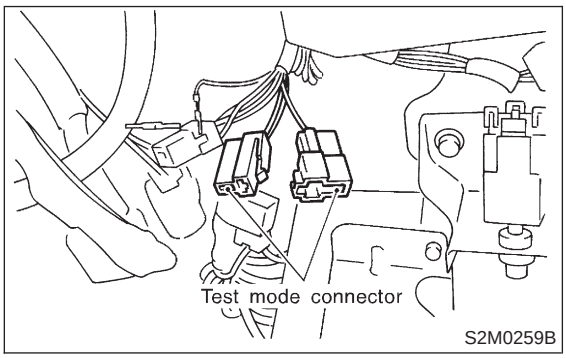
Check the following items.
● Disconnection of the vacuum hose from pressure sources switching solenoid valve to intake manifold
● Holes in the vacuum hose between pressure sources switching solenoid valve to intake manifold
● Clogging of the vacuum hose between pressure sources switching solenoid valve to intake manifold
● Disconnection of the vacuum hose from pressure sensor to pressure sources switching solenoid valve
● Holes in the vacuum hose between pressure sensor and pressure sources switching solenoid valve
● Clogging of the vacuum hose between pressure sensor and pressure sources switching solenoid valve
● Clogging of the filter



CHECK : ***Is there a fault in vacuum hose?***
YES : Repair or replace hoses or filter.
NO : Go to step **10E6**.

10E6 : CHECK PRESSURE SOURCES SWITCHING SOLENOID VALVE.

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



3) Turn ignition switch to ON.

NOTE:
Pressure sources switching solenoid valve operation check can also be executed using Subaru Select Monitor. For the procedure, refer to the “COMPULSORY VALVE OPERATION CHECK MODE”. <Ref. to 2-7 [T3F0].>

CHECK : ***Does pressure sources switching solenoid valve produce operating sound? (ON ⇔ OFF each 1.5 sec.)***

YES : Replace pressure sensor.

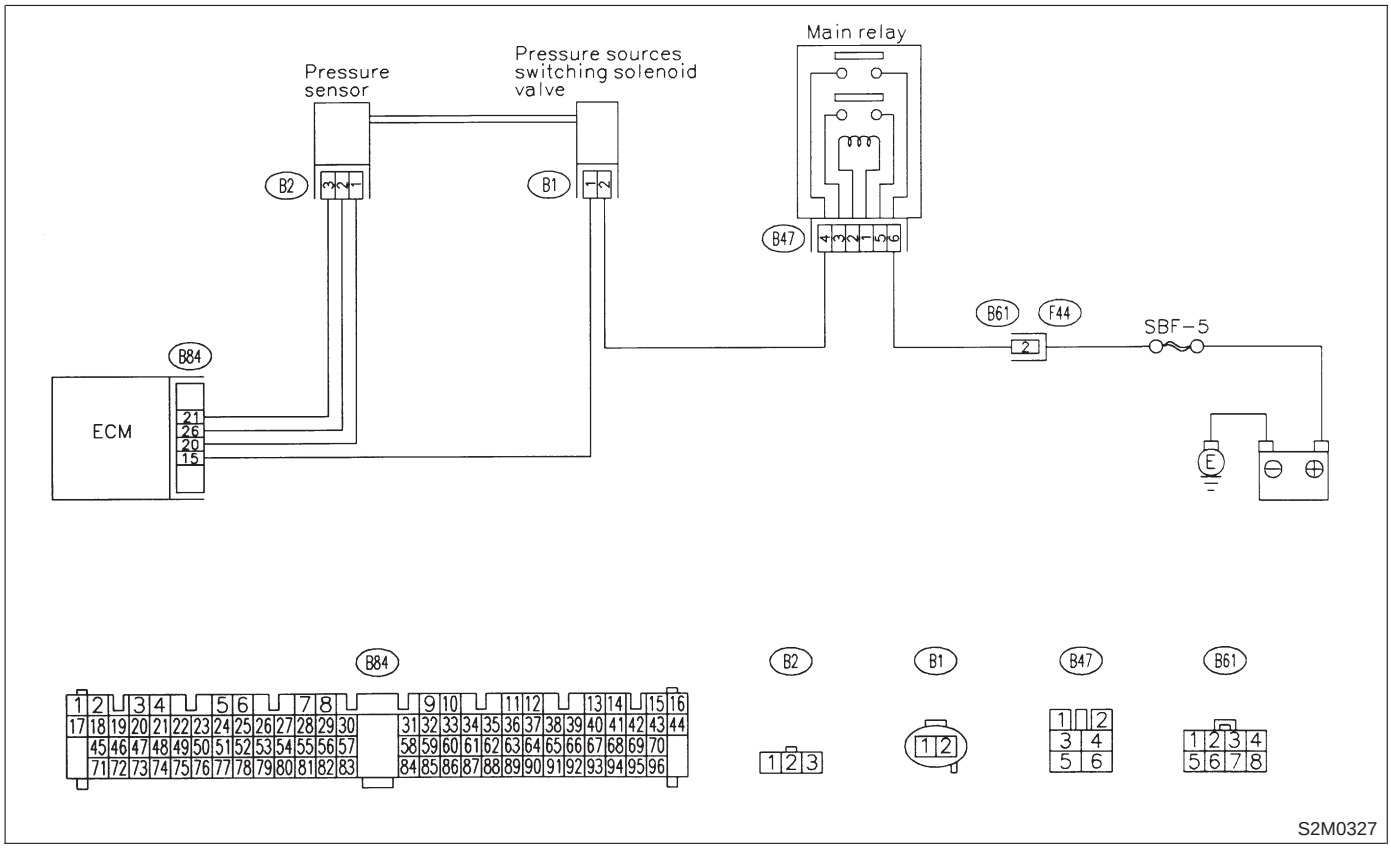
NO : Replace pressure sources switching solenoid valve.

F: DTC P0107 — PRESSURE SENSOR CIRCUIT LOW INPUT —

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

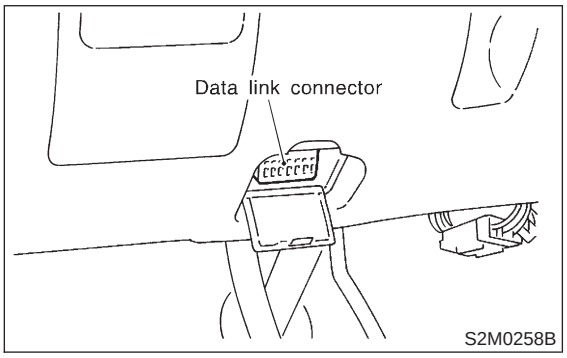
CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY and INSPECTION MODES. <Ref. to 2-7 [T3D0] and [T3E0].>

- **WIRING DIAGRAM:**



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

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



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

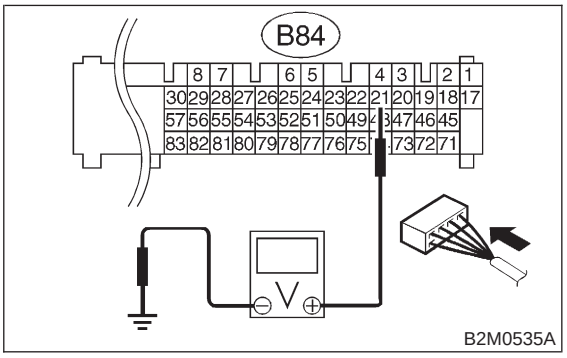
NOTE:
● Subaru Select Monitor
For detailed operation procedure, refer to the "READ CURRENT DATA SHOWN ON DISPLAY FOR ENGINE". <Ref. to 2-7 [T3C4].>
● OBD-II general scan tool
For detailed operation procedures, refer to the OBD-II General Scan Tool Instruction Manual.

CHECK : ***Is the value less than 0 kPa (0 mmHg, 0 inHg)?***
YES : Go to step **10F2**.
NO : Even if MIL lights up, the circuit has returned to a normal condition at this time

10F2 : CHECK INPUT SIGNAL FOR ECM.

Measure voltage between ECM connector and chassis ground.

Connector & terminal
(B84) No. 21 (+) — Chassis ground (−):

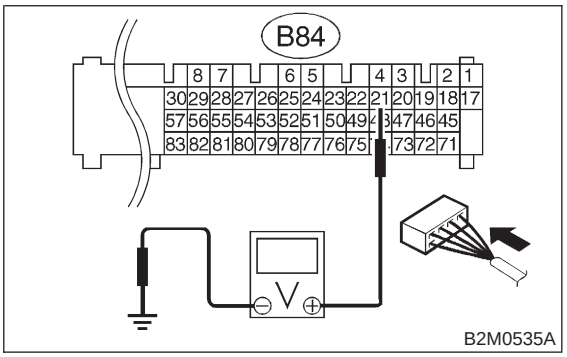


CHECK : ***Is the voltage more than 4.5 V?***
YES : Go to step **10F4**.
NO : Go to step **10F3**.

10F3 : CHECK INPUT SIGNAL FOR ECM.

Measure voltage between ECM connector and chassis ground.

Connector & terminal
(B84) No. 21 (+) — Chassis ground (−):



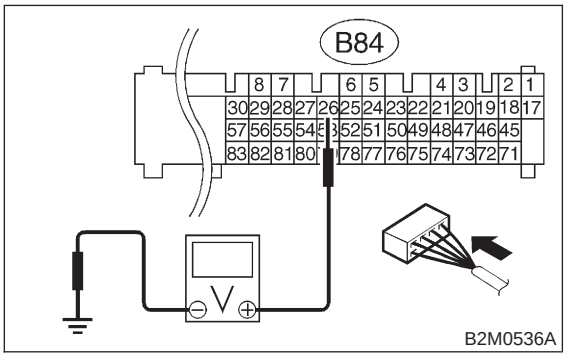
CHECK : ***Does the voltage change more than 4.5 V by shaking harness and connector of ECM while monitoring the value with voltage meter?***
YES : Repair poor contact in ECM connector.
NO : Contact with SOA service.

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

10F4 : CHECK INPUT SIGNAL FOR ECM.

Measure voltage between ECM and chassis ground.

Connector & terminal
(B84) No. 26 (+) — Chassis ground (−):



CHECK : ***Is the voltage less than 0.2 V?***
YES : Go to step **10F6**.
NO : Go to step **10F5**.

10F5 : CHECK INPUT SIGNAL FOR ECM (USING SUBARU SELECT MONITOR).

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

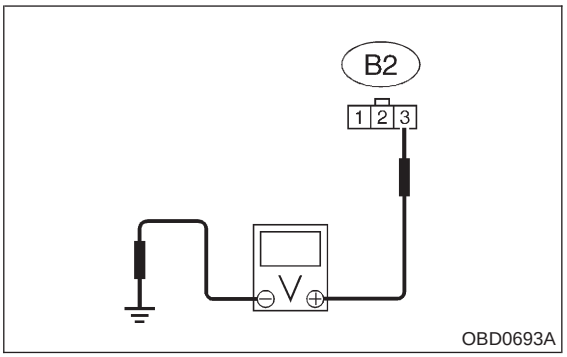
NOTE:
● Subaru Select Monitor
For detailed operation procedure, refer to the "READ CURRENT DATA SHOWN ON DISPLAY FOR ENGINE". <Ref. to 2-7 [T3C4].>

CHECK : ***Does the value change more than 0 kPa (0 mmHg, 0 inHg) by shaking harness and connector of ECM while monitoring the value with Subaru select monitor?***
YES : Repair poor contact in ECM connector.
NO : Go to step **10F6**.

10F6 : CHECK HARNESS BETWEEN ECM AND PRESSURE SENSOR CONNECTOR.

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

Connector & terminal
(B2) No. 3 (+) — Engine ground (−):

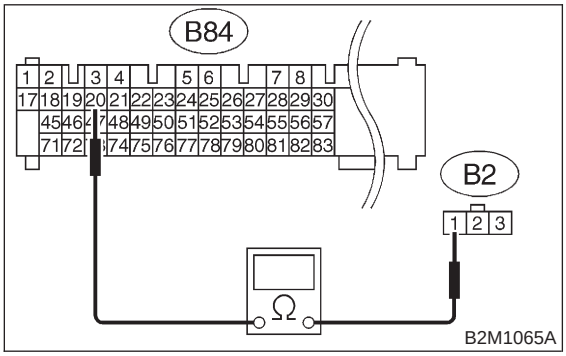


CHECK : ***Is the voltage more than 4.5 V?***
YES : Go to step **10F7**.
NO : Repair open circuit in harness between ECM and pressure sensor connector.

10F7 : CHECK HARNESS BETWEEN ECM AND PRESSURE SENSOR CONNECTOR.

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

Connector & terminal
(B84) No. 20 — (B2) No. 1:

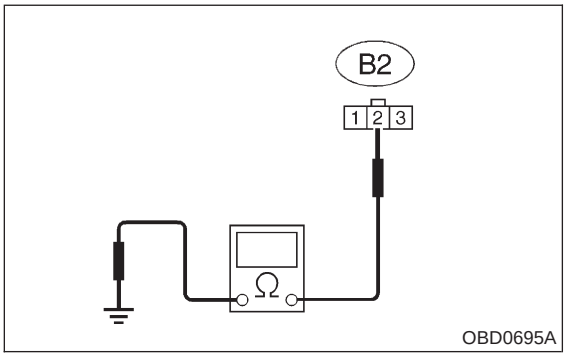


CHECK : ***Is the resistance less than 1 Ω?***
YES : Go to step **10F8**.
NO : Repair open circuit in harness between ECM and pressure sensor connector.

10F8 : CHECK HARNESS BETWEEN ECM AND PRESSURE SENSOR CONNECTOR.

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

Connector & terminal
(B2) No. 2 — Engine ground:



CHECK : ***Is the resistance more than 500 kΩ?***
YES : Go to step **10F9**.
NO : Repair ground short circuit in harness between ECM and pressure sensor connector.

10F9 : CHECK POOR CONTACT.

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

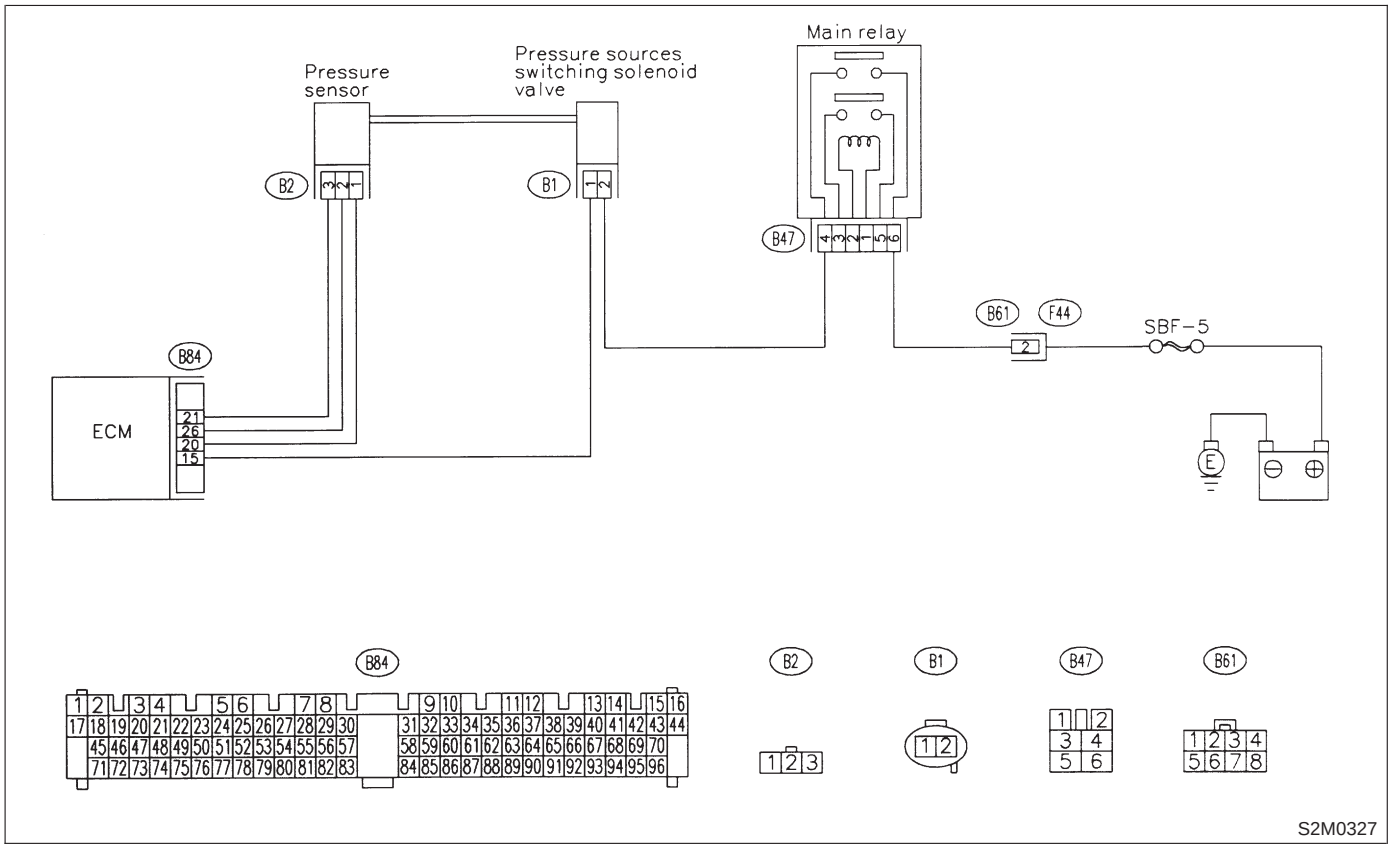
CHECK : ***Is there poor contact in pressure sensor connector?***
YES : Repair poor contact in pressure sensor connector.
NO : Replace pressure sensor.

G: DTC P0108 — PRESSURE SENSOR CIRCUIT HIGH INPUT —

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

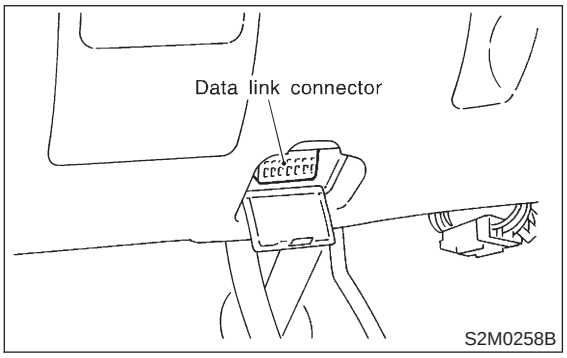
CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY and INSPECTION MODES. <Ref. to 2-7 [T3D0] and [T3E0].>

- **WIRING DIAGRAM:**



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

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



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

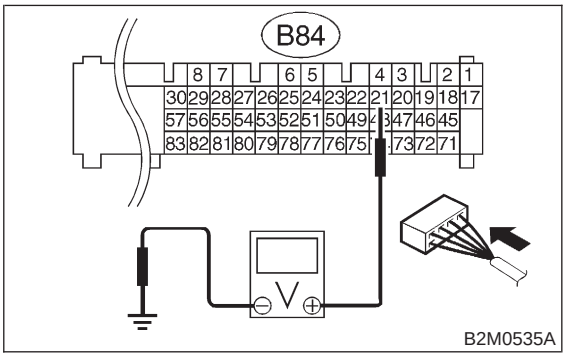
NOTE:
● Subaru Select Monitor
For detailed operation procedure, refer to the "READ CURRENT DATA SHOWN ON DISPLAY FOR ENGINE". <Ref. to 2-7 [T3C4].>
● OBD-II general scan tool
For detailed operation procedures, refer to the OBD-II General Scan Tool Instruction Manual.

CHECK : ***Is the value more than 140 kPa (1,050 mmHg, 41.34 inHg)?***
YES : Go to step **10G10**.
NO : Go to step **10G2**.

10G2 : CHECK INPUT SIGNAL FOR ECM.

Measure voltage between ECM connector and chassis ground.

Connector & terminal
(B84) No. 21 (+) — Chassis ground (−):

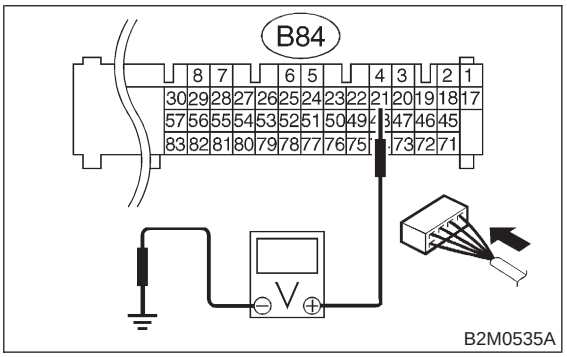


CHECK : ***Is the voltage more than 4.5 V?***
YES : Go to step **10G4**.
NO : Go to step **10G3**.

10G3 : CHECK INPUT SIGNAL FOR ECM.

Measure voltage between ECM connector and chassis ground.

Connector & terminal
(B84) No. 21 (+) — Chassis ground (−):



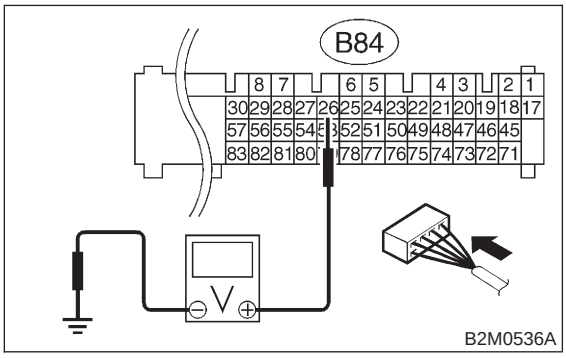
CHECK : ***Does the voltage change more than 4.5 V by shaking harness and connector of ECM while monitoring the value with voltage meter?***
YES : Repair poor contact in ECM connector.
NO : Contact with SOA service.

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

10G4 : CHECK INPUT SIGNAL FOR ECM.

Measure voltage between ECM connector and chassis ground.

Connector & terminal
(B84) No. 26 (+) — Chassis ground (−):



CHECK : ***Is the voltage less than 0.2 V?***
YES : Go to step **10G6**.
NO : Go to step **10G5**.

10G5 : CHECK INPUT SIGNAL FOR ECM (USING SUBARU SELECT MONITOR).

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

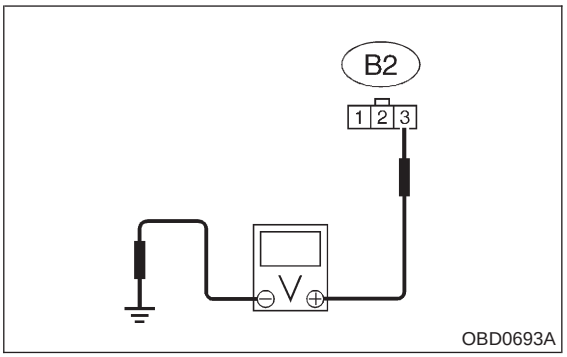
NOTE:
● Subaru Select Monitor
For detailed operation procedure, refer to the "READ CURRENT DATA SHOWN ON DISPLAY FOR ENGINE". <Ref. to 2-7 [T3C4].>

CHECK : ***Does the value change more than 0 kPa (0 mmHg, 0 inHg) by shaking harness and connector of ECM while monitoring the value with Subaru select monitor?***
YES : Repair poor contact in ECM connector.
NO : Go to step **10G6**.

10G6 : CHECK HARNESS BETWEEN ECM AND PRESSURE SENSOR CONNECTOR.

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

Connector & terminal
(B2) No. 3 (+) — Engine ground (−):

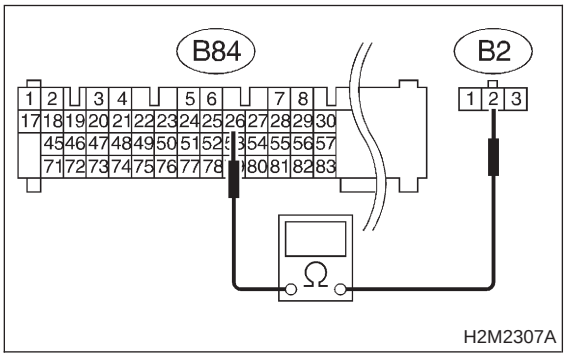


CHECK : ***Is the voltage more than 4.5 V?***
YES : Go to step **10G7**.
NO : Repair open circuit in harness between ECM and pressure sensor connector.

10G7 : CHECK HARNESS BETWEEN ECM AND PRESSURE SENSOR CONNECTOR.

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

Connector & terminal
(B84) No. 26 — (B2) No. 2:

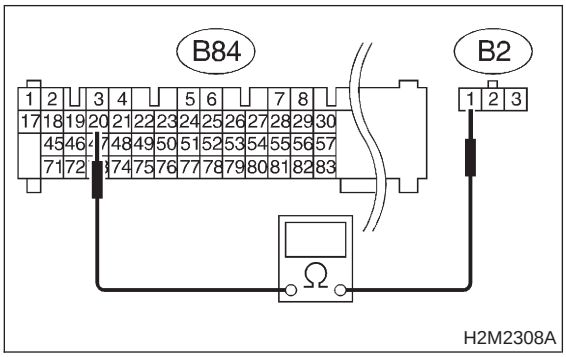


CHECK : ***Is the resistance less than 1 Ω?***
YES : Go to step **10G8**.
NO : Repair open circuit in harness between ECM and pressure sensor connector.

10G8 : CHECK HARNESS BETWEEN ECM AND PRESSURE SENSOR CONNECTOR.

Measure resistance of harness between ECM and pressure sensor connector.

Connector & terminal
(B84) No. 20 — (B2) No. 1:



CHECK : ***Is the resistance less than 1 Ω?***
YES : Go to step **10G9**.
NO : Repair open circuit in harness between ECM and pressure sensor connector.

10G9 : CHECK POOR CONTACT.

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

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

10G10 : CHECK HARNESS BETWEEN ECM AND PRESSURE SENSOR CONNECTOR.

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

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

CHECK : ***Is the value more than 140 kPa (1,050 mmHg, 41.34 inHg)?***
YES : Repair battery short circuit in harness between ECM and pressure sensor connector.
NO : Replace pressure sensor.

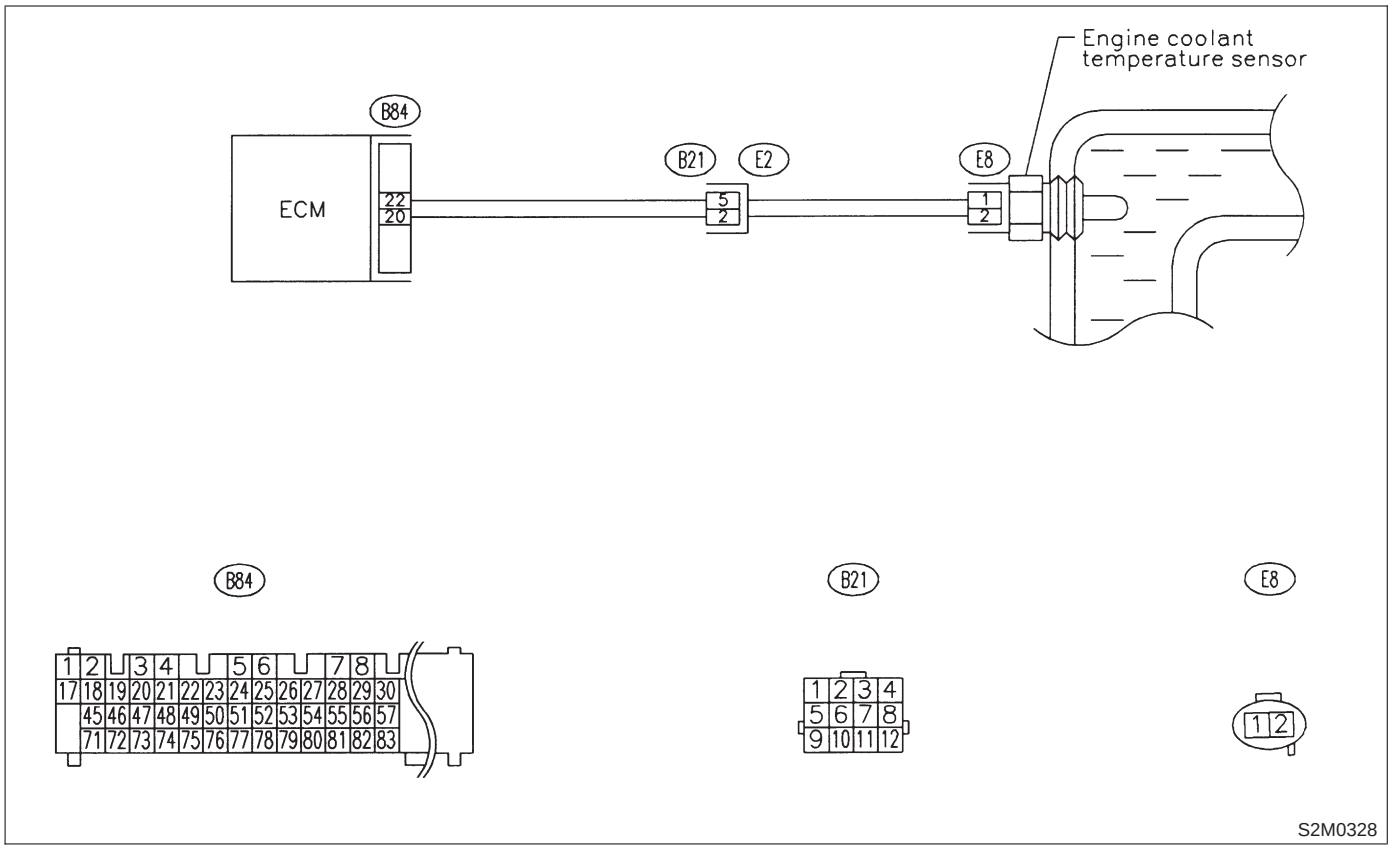
H: DTC P0117 — ENGINE COOLANT TEMPERATURE SENSOR CIRCUIT LOW INPUT —

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

- **TROUBLE SYMPTOM:**
  - Hard to start
  - Erroneous idling
  - Poor driving performance

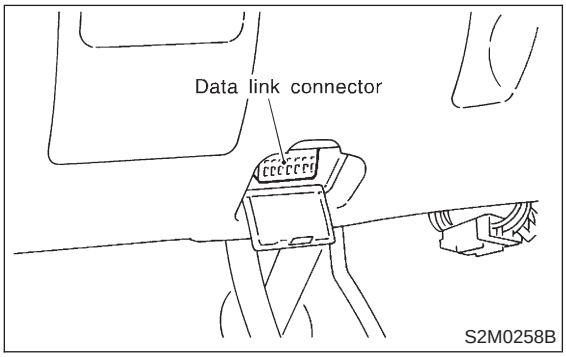
CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY and INSPECTION MODES. <Ref. to 2-7 [T3D0] and [T3E0].>

- **WIRING DIAGRAM:**



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

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



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

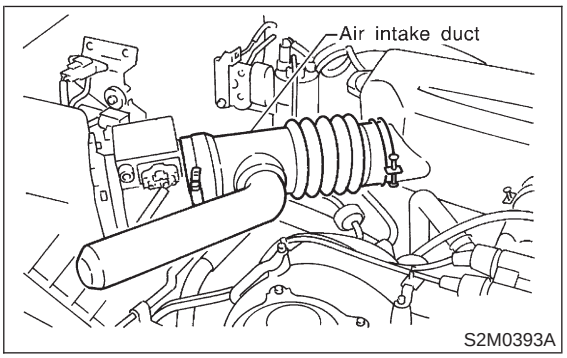
NOTE:
● Subaru Select Monitor
For detailed operation procedure, refer to the "READ CURRENT DATA SHOWN ON DISPLAY FOR ENGINE". <Ref. to 2-7 [T3C4].>
● OBD-II general scan tool
For detailed operation procedures, refer to the OBD-II General Scan Tool Instruction Manual.

CHECK : ***Is the value greater than 150°C (300°F)?***
YES : Go to step **10H2**.
NO : Repair poor contact.

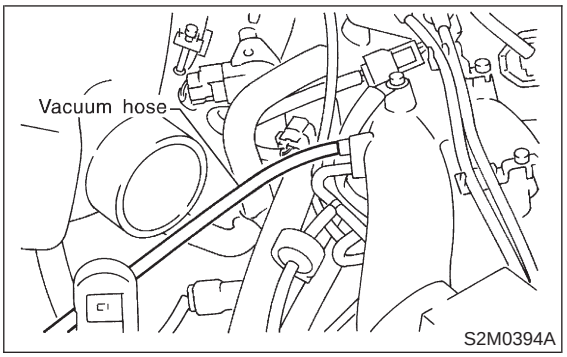
NOTE:
In this case, repair the following:
● Poor contact in engine coolant temperature sensor
● Poor contact in ECM
● Poor contact in coupling connector (B21)

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

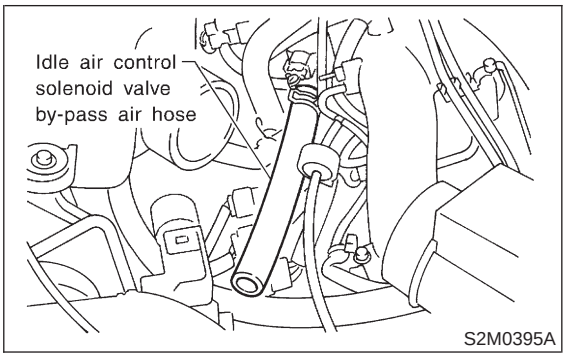
1) Turn ignition switch to OFF.
2) Remove air intake duct.



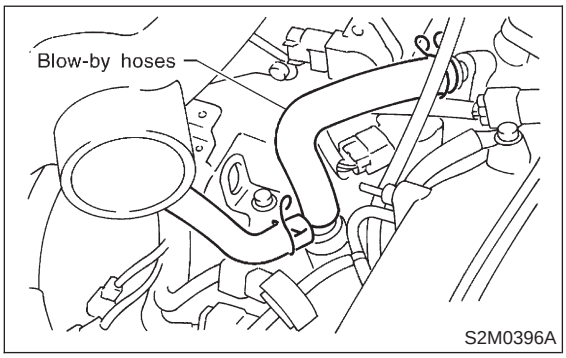
3) Remove vacuum hose from intake manifold.



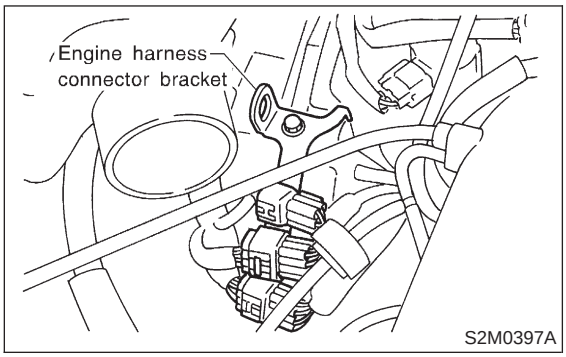
4) Remove idle air control solenoid valve by-pass air hose.



5) Remove blow-by hoses.



6) Remove engine harness connector bracket from cylinder block.



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

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

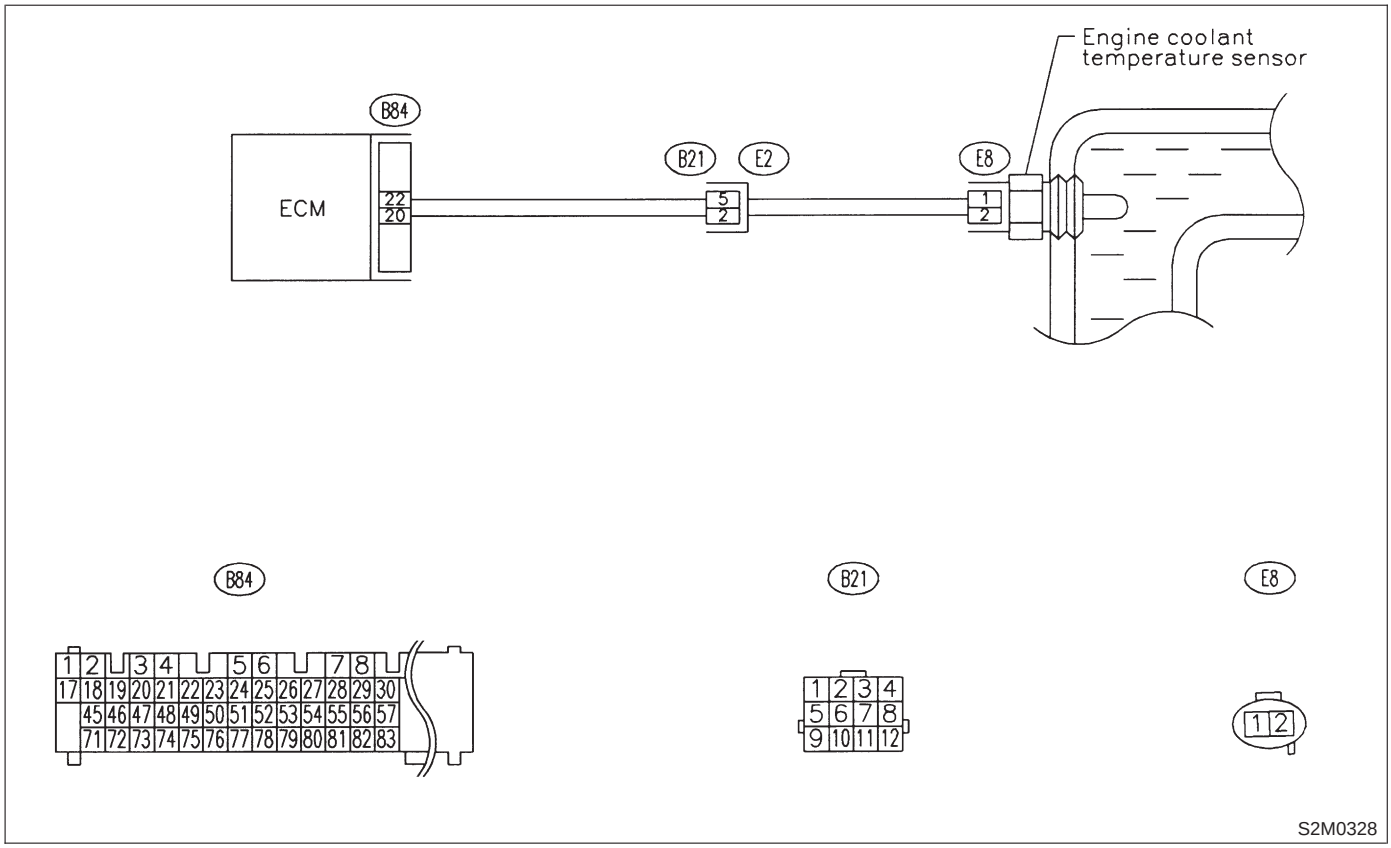
CHECK : ***Is the value less than −40°C (−40°F)?***
YES : Replace engine coolant temperature sensor.
NO : Repair ground short circuit in harness between engine coolant temperature sensor and ECM connector.

I: DTC P0118 — ENGINE COOLANT TEMPERATURE SENSOR CIRCUIT HIGH INPUT —

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

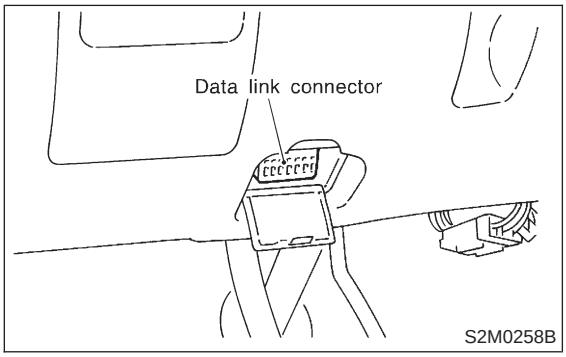
CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY and INSPECTION MODES. <Ref. to 2-7 [T3D0] and [T3E0].>

- **WIRING DIAGRAM:**



10I1 : CONNECT SUBARU SELECT MONITOR OR THE OBD-II GENERAL SCAN TOOL, AND READ DATA.

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



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

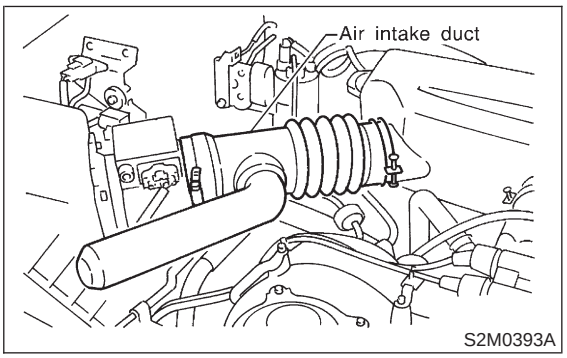
NOTE:
● Subaru Select Monitor
For detailed operation procedure, refer to the "READ CURRENT DATA SHOWN ON DISPLAY FOR ENGINE". <Ref. to 2-7 [T3C4].>
● OBD-II general scan tool
For detailed operation procedures, refer to the OBD-II General Scan Tool Instruction Manual.

CHECK : ***Is the value less than −40°C (−40°F)?***
YES : Go to step **10I2**.
NO : Repair poor contact.

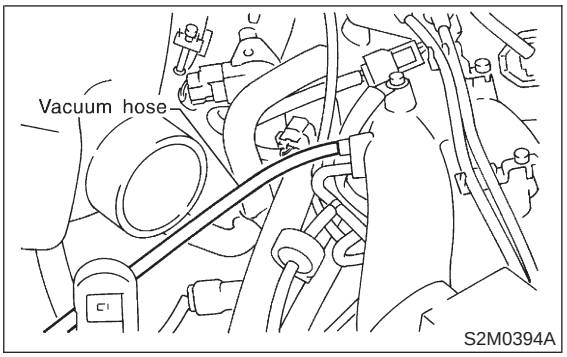
NOTE:
In this case, repair the following:
● Poor contact in engine coolant temperature sensor
● Poor contact in ECM
● Poor contact in coupling connector (B21)

10I2 : CHECK HARNESS BETWEEN ENGINE COOLANT TEMPERATURE SENSOR AND ECM CONNECTOR.

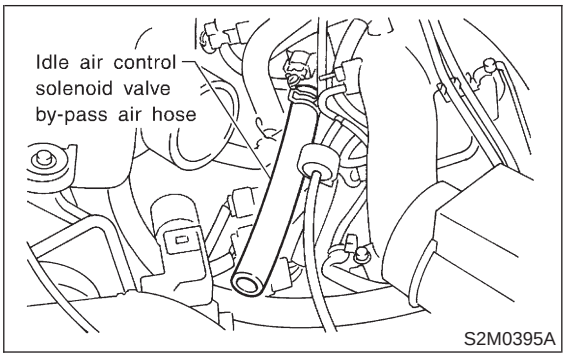
1) Turn ignition switch to OFF.
2) Remove air intake duct.



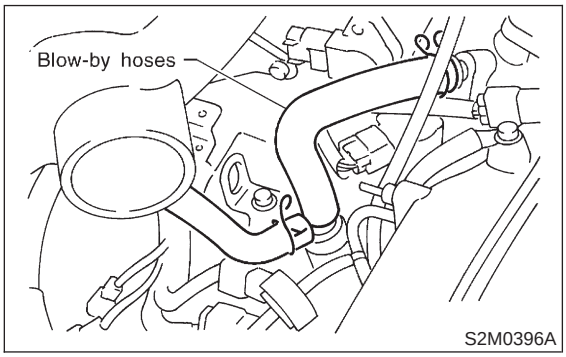
3) Remove vacuum hose from intake manifold.



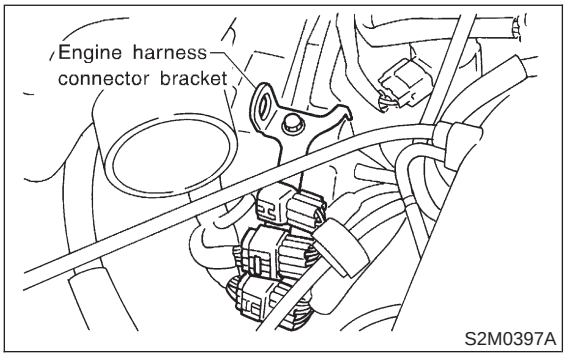
4) Remove idle air control solenoid valve by-pass air hose.



5) Remove blow-by hoses.

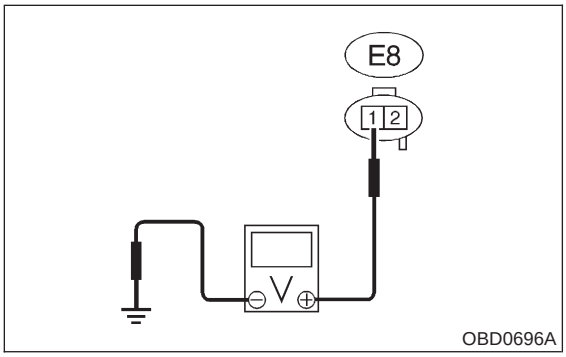


6) Remove engine harness connector bracket from cylinder block.



7) Disconnect connector from engine coolant temperature sensor.
8) Measure voltage between engine coolant temperature sensor connector and engine ground.

Connector & terminal
(E8) No. 1 (+) — Engine ground (−):

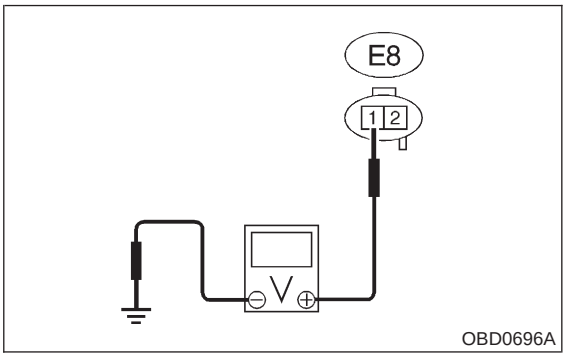


CHECK : ***Is the voltage more than 10 V?***
YES : Repair battery short circuit in harness between ECM and engine coolant temperature sensor connector.
NO : Go to step **10I3**.

10I3 : CHECK HARNESS BETWEEN ENGINE COOLANT TEMPERATURE SENSOR AND ECM CONNECTOR.

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

Connector & terminal
(E8) No. 1 (+) — Engine ground (−):

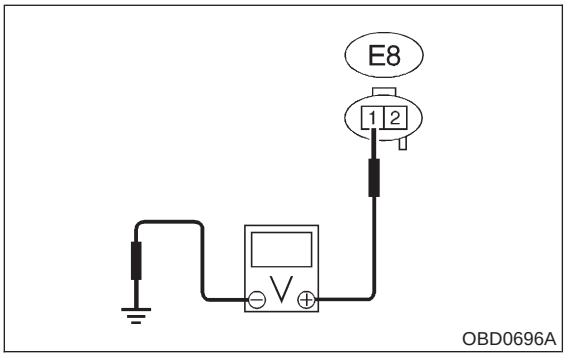


CHECK : ***Is the voltage more than 10 V?***
YES : Repair battery short circuit in harness between ECM and engine coolant temperature sensor connector.
NO : Go to step **10I4**.

10I4 : CHECK HARNESS BETWEEN ENGINE COOLANT TEMPERATURE SENSOR AND ECM CONNECTOR.

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

Connector & terminal
(E8) No. 1 (+) — Engine ground (−):



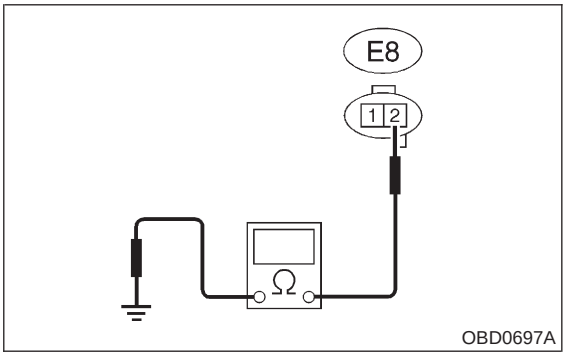
CHECK : ***Is the voltage more than 4 V?***
YES : Go to step **10I5**.
NO : Repair harness and connector.

NOTE:
In this case, repair the following:
- Open circuit in harness between ECM and engine coolant temperature sensor connector
- Poor contact in engine coolant temperature sensor connector
- Poor contact in ECM connector
- Poor contact in coupling connector (B21)

10I5 : CHECK HARNESS BETWEEN ENGINE COOLANT TEMPERATURE SENSOR AND ECM CONNECTOR.

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

Connector & terminal
(E8) No. 2 — Engine ground:



CHECK : ***Is the resistance less than 5 Ω?***
YES : Replace engine coolant temperature sensor.
NO : Repair harness and connector.

NOTE:
In this case, repair the following:
- Open circuit in harness between ECM and engine coolant temperature sensor connector
- Poor contact in engine coolant temperature sensor connector
- Poor contact in ECM connector
- Poor contact in coupling connector (B21)

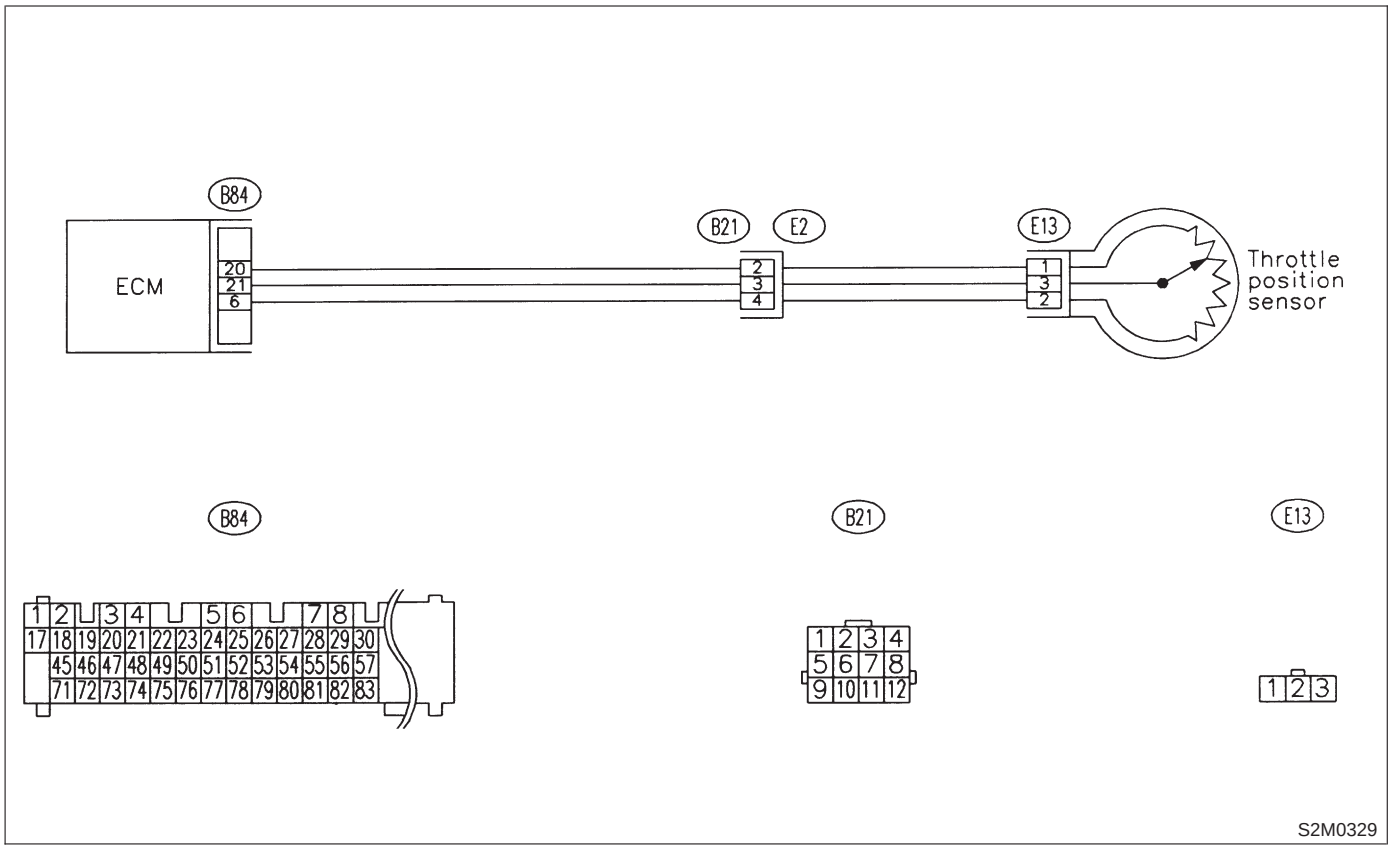
J: DTC P0121 — THROTTLE POSITION SENSOR CIRCUIT RANGE/PERFORMANCE PROBLEM (HIGH INPUT) —

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

- **TROUBLE SYMPTOM:**
  - Erroneous idling
  - Engine stalls.
  - Poor driving performance

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

- **WIRING DIAGRAM:**



10J1 : CHECK ANY OTHER DTC ON DISPLAY.

CHECK : ***Does the Subaru select monitor or OBD-II general scan tool indicate DTC P0122 or P0123?***

YES : Inspect DTC P0122 or P0123 using “10. Diagnostics Chart with Trouble Code”. <Ref. to 2-7 [T10A0].>

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

NO : Replace throttle position sensor.

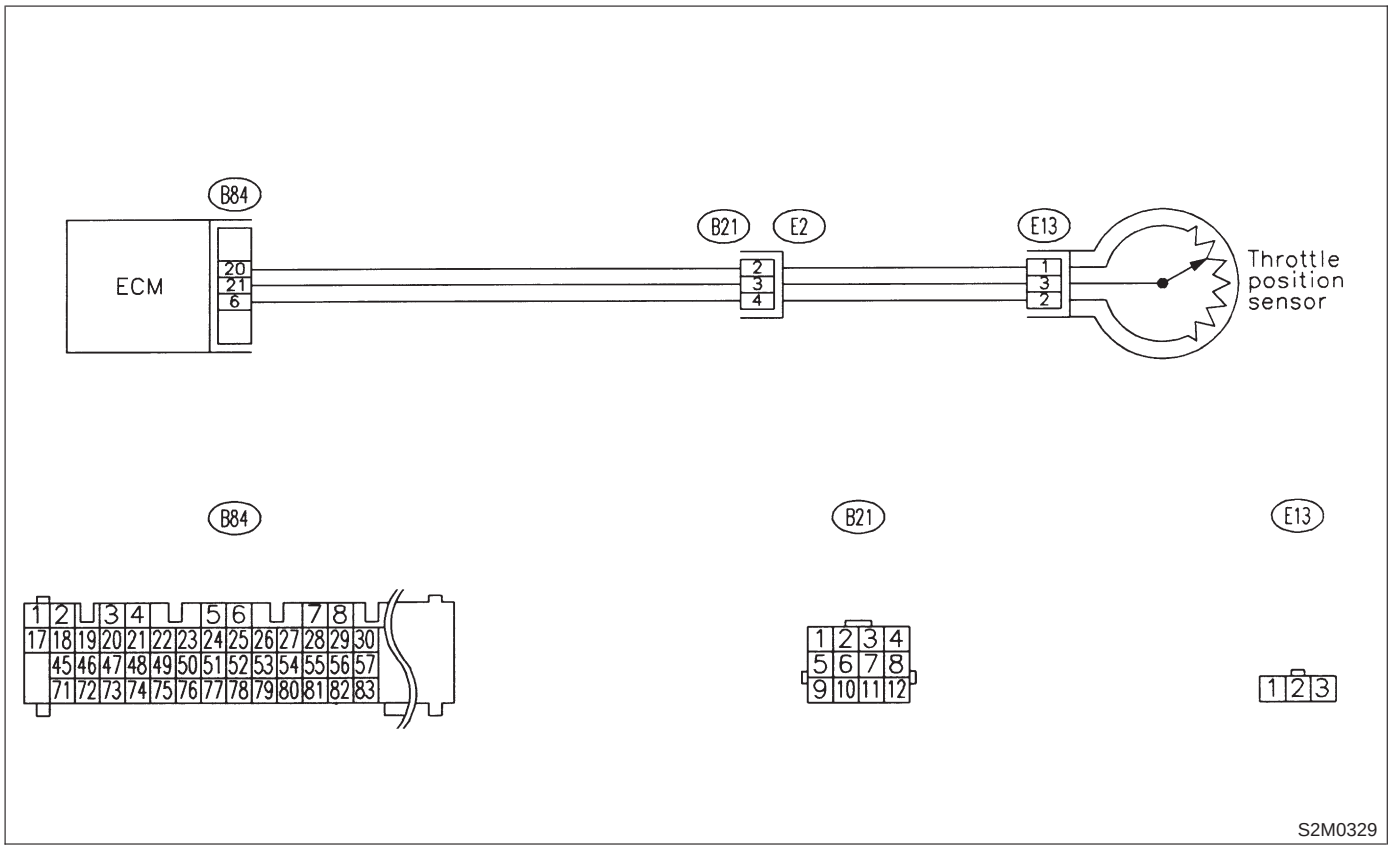
K: DTC P0122 — THROTTLE POSITION SENSOR CIRCUIT LOW INPUT —

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

- **TROUBLE SYMPTOM:**
  - Erroneous idling
  - Engine stalls.
  - Poor driving performance

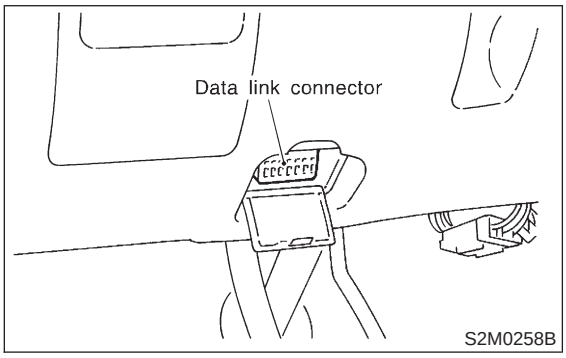
CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY and INSPECTION MODES. <Ref. to 2-7 [T3D0] and [T3E0].>

- **WIRING DIAGRAM:**



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

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



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

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

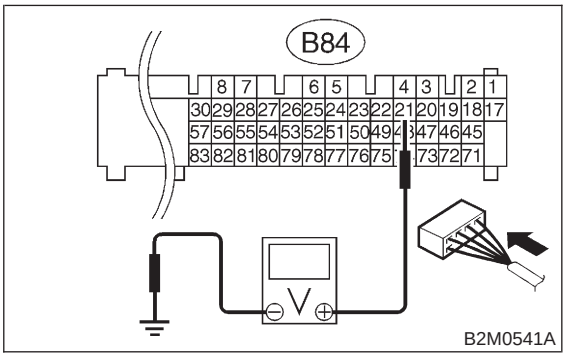
CHECK : ***Is the value less than 0.1 V?***
YES : Go to step **10K2**.
NO : Even if MIL lights up, the circuit has returned to a normal condition at this time. A temporary poor contact of the connector may be the cause.

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

10K2 : CHECK INPUT SIGNAL FOR ECM.

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

Connector & terminal
(B84) No. 21 (+) — Chassis ground (−):

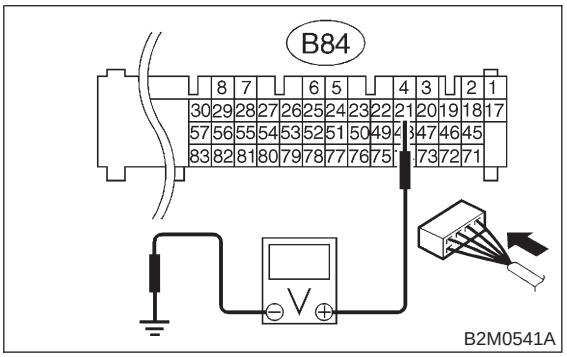


CHECK : ***Is the voltage more than 4.5 V?***
YES : Go to step **10K4**.
NO : Go to step **10K3**.

10K3 : CHECK INPUT SIGNAL FOR ECM.

Measure voltage between ECM connector and chassis ground.

Connector & terminal
(B84) No. 21 (+) — Chassis ground (−):



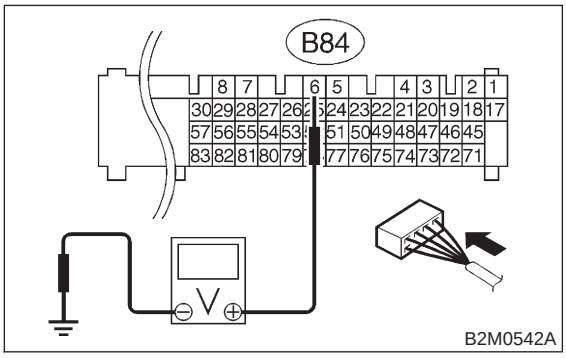
CHECK : ***Does the voltage change more than 4.5 V by shaking harness and connector of ECM while monitoring the value with voltage meter?***
YES : Repair poor contact in ECM connector.
NO : Contact with SOA service.

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

10K4 : CHECK INPUT SIGNAL FOR ECM.

Measure voltage between ECM connector and chassis ground.

Connector & terminal
(B84) No. 6 (+) — Chassis ground (−):



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

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

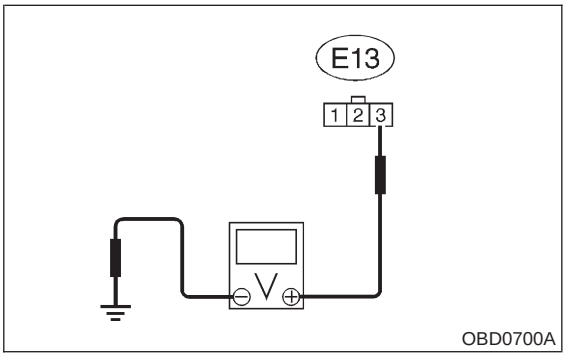
Measure voltage between ECM connector and chassis ground.

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

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

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

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



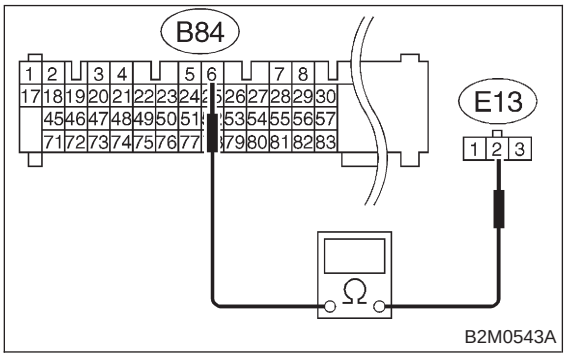
CHECK : ***Is the voltage more than 4.5 V?***
YES : Go to step **10K7**.
NO : Repair harness and connector.

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

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

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

Connector & terminal
(B84) No. 6 — (E13) No. 2:



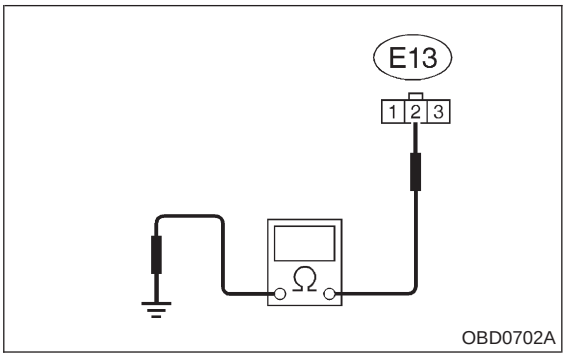
CHECK : ***Is the resistance less than 1 Ω?***
YES : Go to step **10K8**.
NO : Repair harness and connector.

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

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

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

Connector & terminal
(E13) No. 2 — Engine ground:



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

10K9 : CHECK POOR CONTACT.

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

CHECK : ***Is there poor contact in throttle position sensor connector?***
YES : Repair poor contact in throttle position sensor connector.
NO : Replace throttle position sensor.

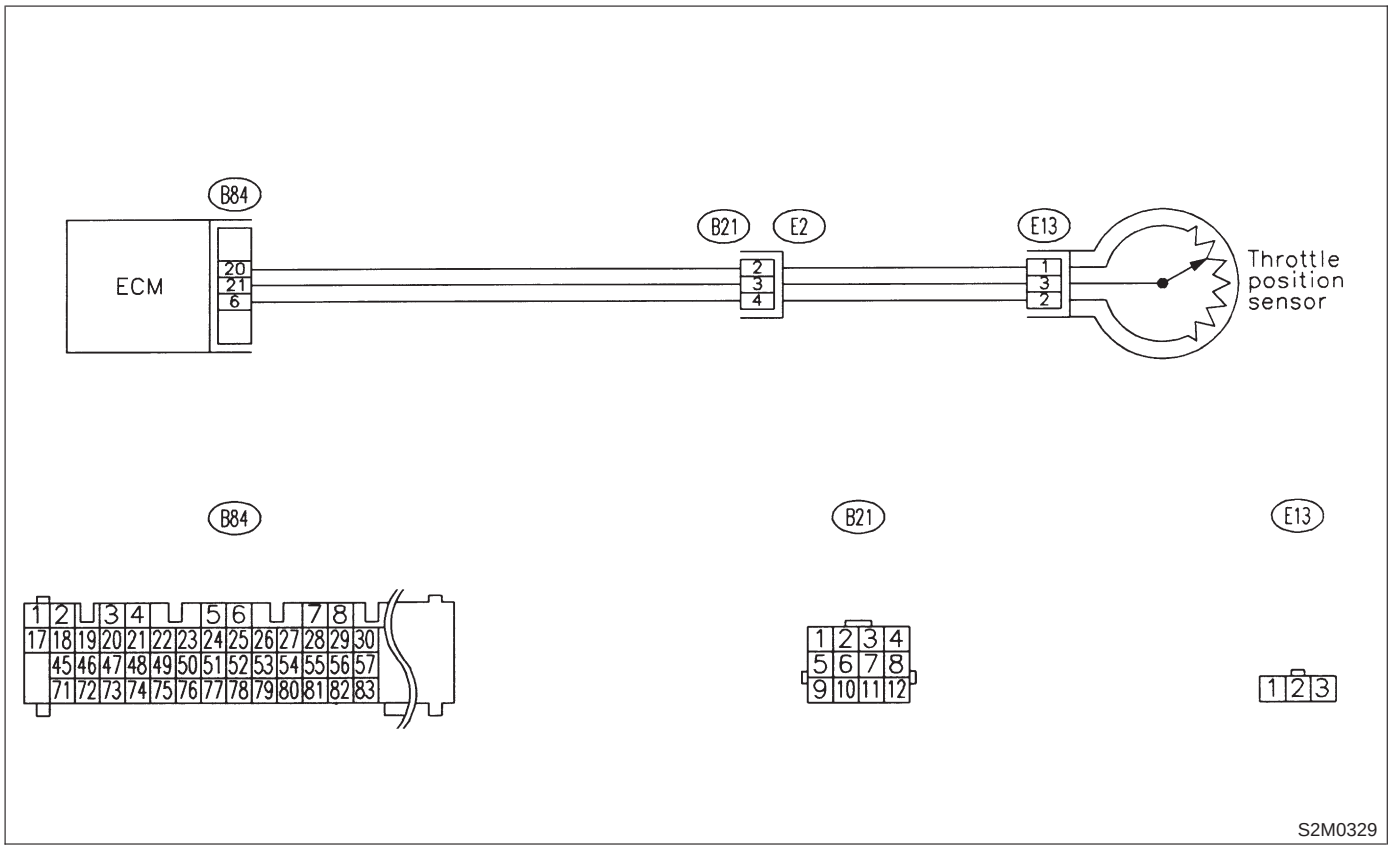
L: DTC P0123 — THROTTLE POSITION SENSOR CIRCUIT HIGH INPUT —

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

- **TROUBLE SYMPTOM:**
  - Erroneous idling
  - Engine stalls.
  - Poor driving performance

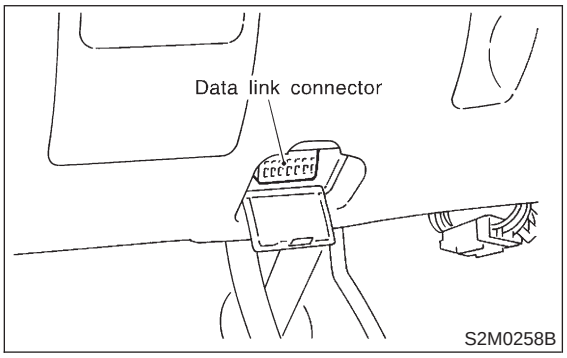
CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY and INSPECTION MODES. <Ref. to 2-7 [T3D0] and [T3E0].>

- **WIRING DIAGRAM:**



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

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



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

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

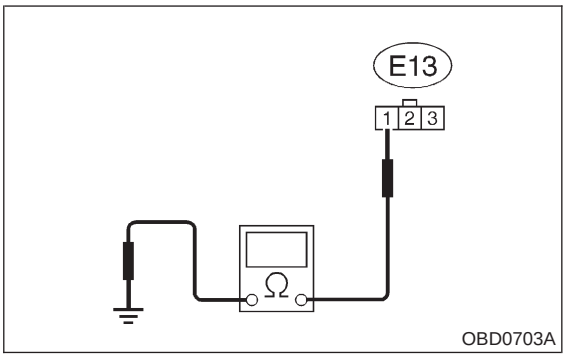
CHECK : ***Is the value more than 4.9 V?***
YES : Go to step **10L2**.
NO : Even if MIL lights up, the circuit has returned to a normal condition at this time. A temporary poor contact of the connector may be the cause.

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

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

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

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



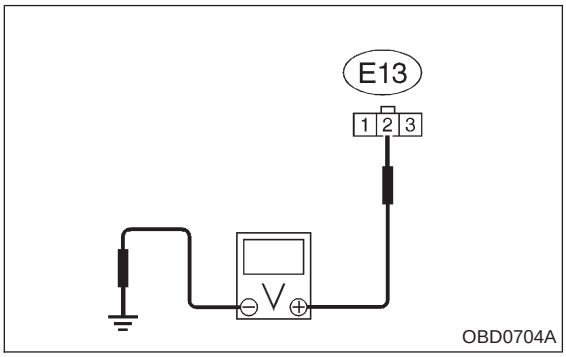
CHECK : ***Is the resistance less than 5 Ω?***
YES : Go to step **10L3**.
NO : Repair harness and connector.

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

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

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

Connector & terminal
(E13) No. 2 (+) — Engine ground (−):



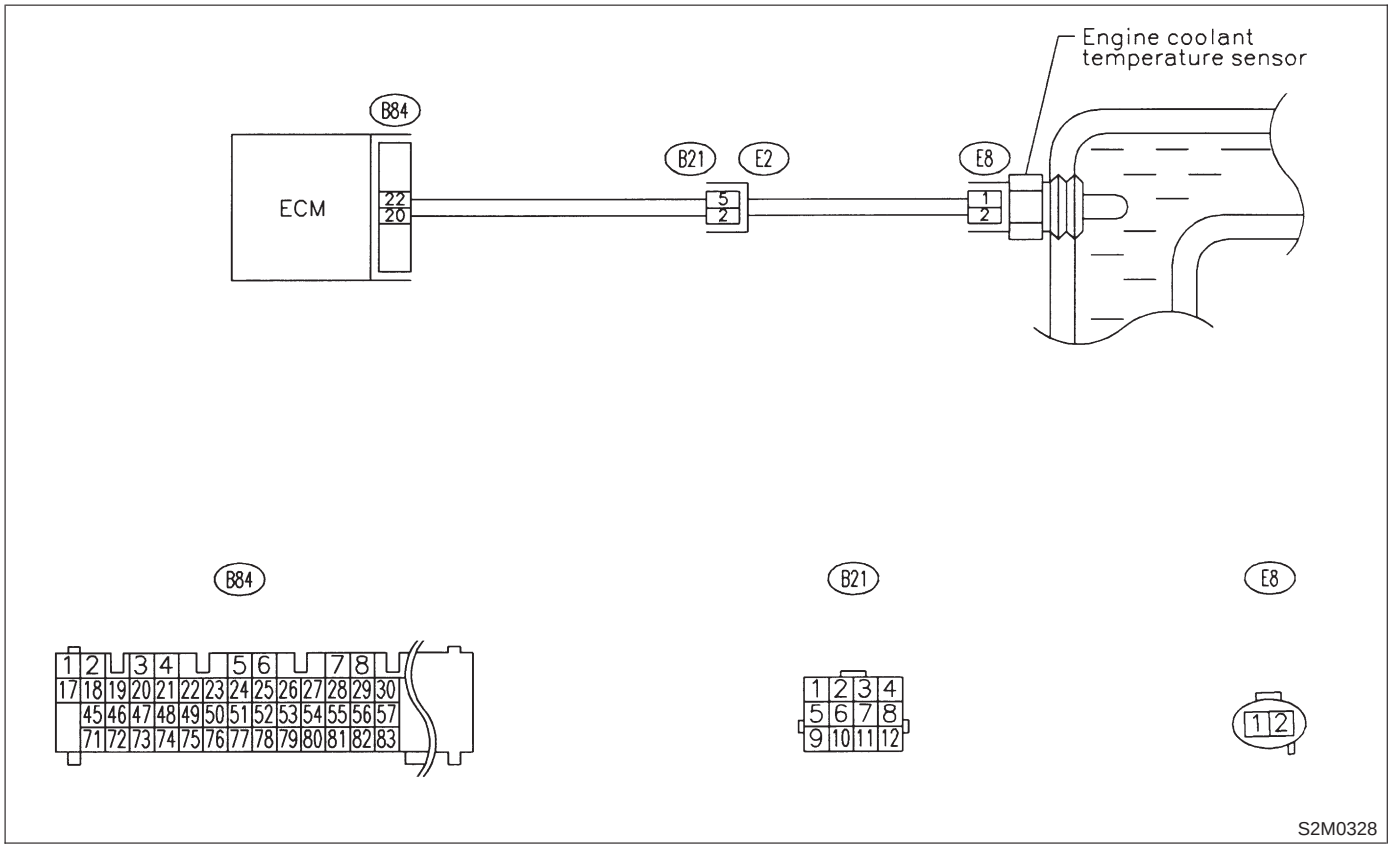
CHECK : ***Is the voltage more than 4.9 V?***
YES : Repair battery short circuit in harness between throttle position sensor and ECM connector. After repair, replace ECM.
NO : Replace throttle position sensor.

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

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

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

- **WIRING DIAGRAM:**



10M1 :	**CHECK ANY OTHER DTC ON DISPLAY.**

CHECK : ***Does the Subaru select monitor or OBD-II general scan tool indicate DTC P0117 or P0118?***

YES : Inspect DTC P0117 or P0118 using “10. Diagnostics Chart with Trouble Code”. <Ref. to 2-7 [T10A0].>

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

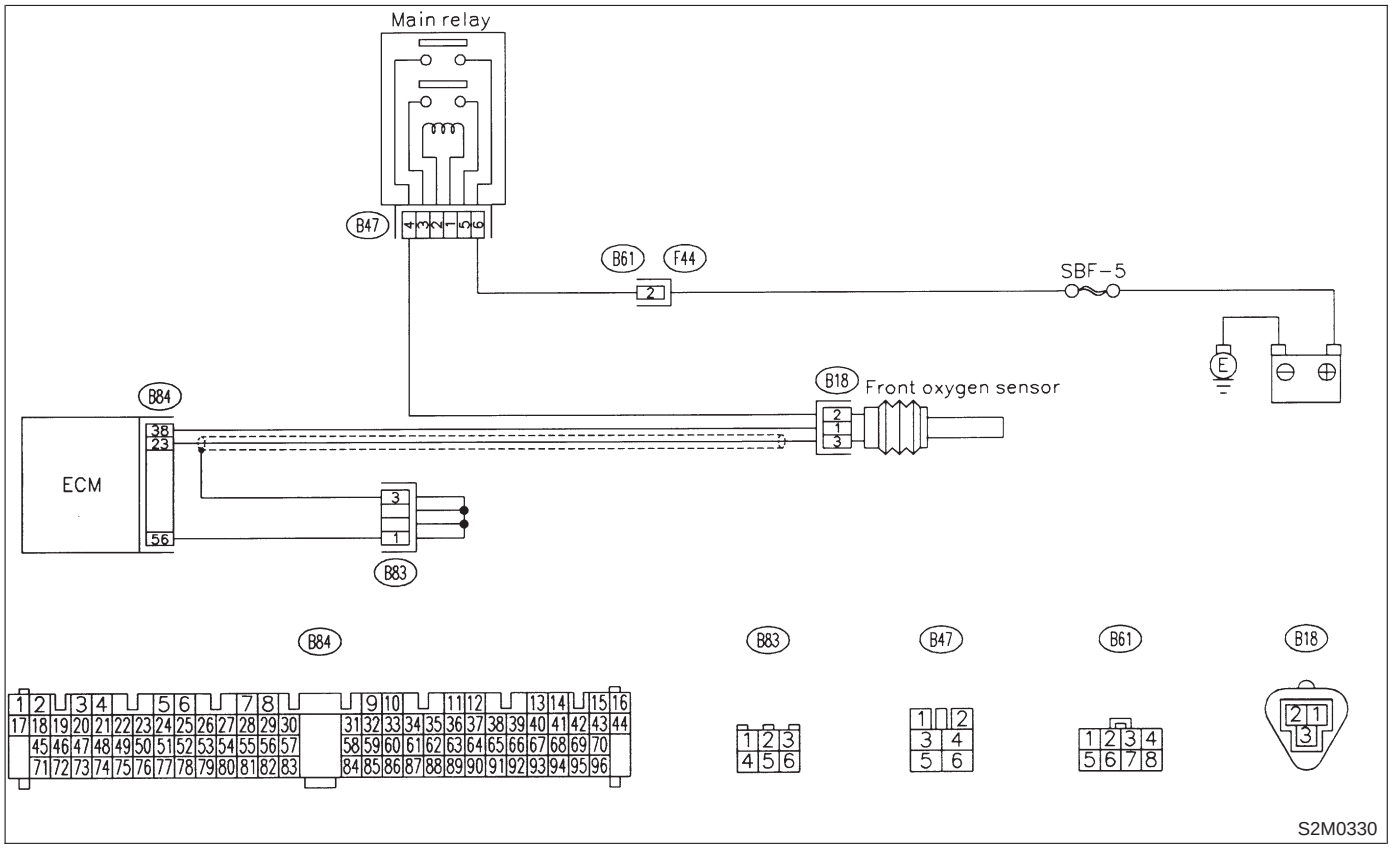
NO : Replace engine coolant temperature sensor.

N: DTC P0130 — FRONT OXYGEN SENSOR CIRCUIT MALFUNCTION —

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

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

- **WIRING DIAGRAM:**



10N1 : CHECK FOR OTHER CAUSES AFFECTING EXHAUST GAS.

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

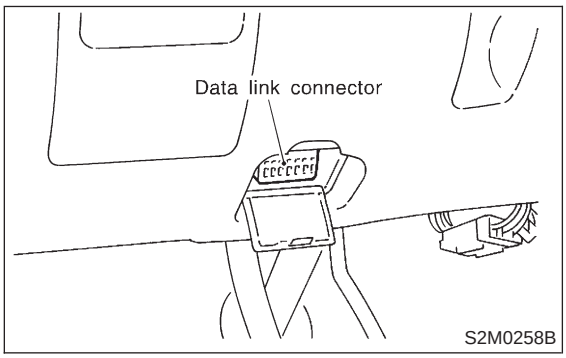
CHECK : ***Is CO % more than 2 % after engine warm-up?***

YES : Check fuel system.

NO : Go to step **10N2**.

10N2 : CHECK FRONT OXYGEN SENSOR DATA.

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



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

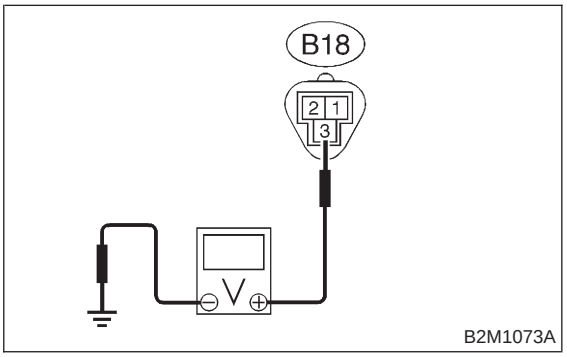
NOTE:
● Subaru Select Monitor
For detailed operation procedure, refer to the "READ CURRENT DATA SHOWN ON DISPLAY FOR ENGINE". <Ref. to 2-7 [T3C4].>
● OBD-II general scan tool
For detailed operation procedures, refer to the OBD-II General Scan Tool Instruction Manual.

CHECK : ***Is the difference of voltage less than 0.1 V between the value of max. output and min. output with function mode F12?***
YES : Go to step **10N3**.
NO : Replace front oxygen sensor.

10N3 : CHECK HARNESS BETWEEN FRONT OXYGEN SENSOR AND ECM CONNECTOR.

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

Connector & terminal
(B18) No. 3 (+) — Engine ground (−):



CHECK : ***Is the voltage more than 0.2 V?***
YES : Go to step **10N4**.
NO : Repair harness and connector.

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

10N4 : CHECK POOR CONTACT.

Check poor contact in front oxygen sensor connector. <Ref. to FOREWORD [T3C1].>

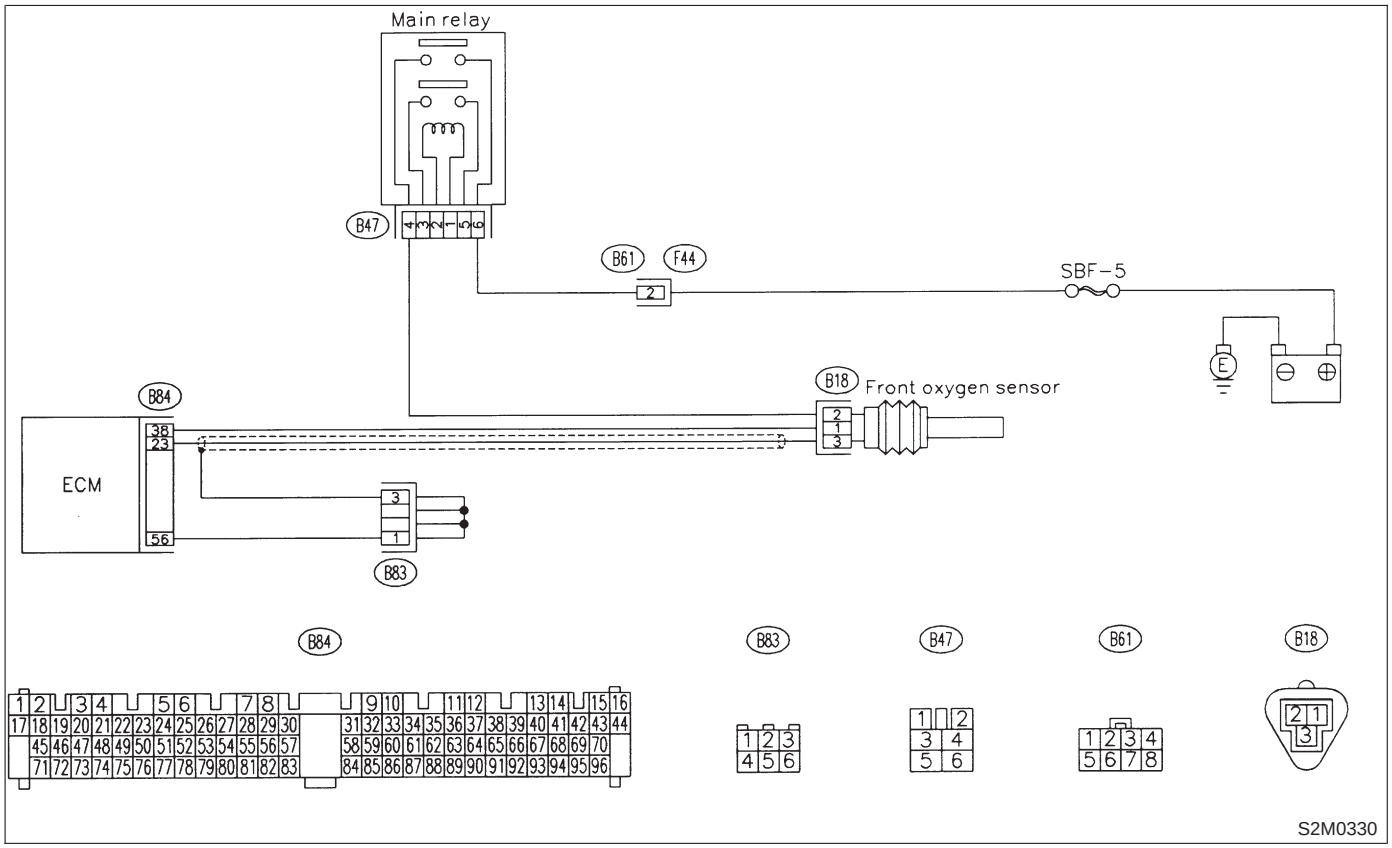
CHECK : ***Is there poor contact in front oxygen sensor connector?***
YES : Repair poor contact in front oxygen sensor connector.
NO : Replace front oxygen sensor.

O: DTC P0133 — FRONT OXYGEN SENSOR CIRCUIT SLOW RESPONSE —

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

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

- **WIRING DIAGRAM:**



10O1 : CHECK ANY OTHER DTC ON DISPLAY.

CHECK : ***Does the Subaru select monitor or OBD-II general scan tool indicate DTC P0130?***

YES : Inspect DTC P0130 using “10. Diagnostics Chart with Trouble Code”. <Ref. to 2-7 [T10A0].>

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

NO : Go to step **10O2**.

10O2 : CHECK EXHAUST SYSTEM.

CHECK : ***Is there a fault in exhaust system?***

YES : Repair exhaust system.

NOTE:
Check the following items.
- Loose installation of front portion of exhaust pipe onto cylinder heads
- Loose connection between front exhaust pipe and front catalytic converter
- Damage of exhaust pipe resulting in a hole

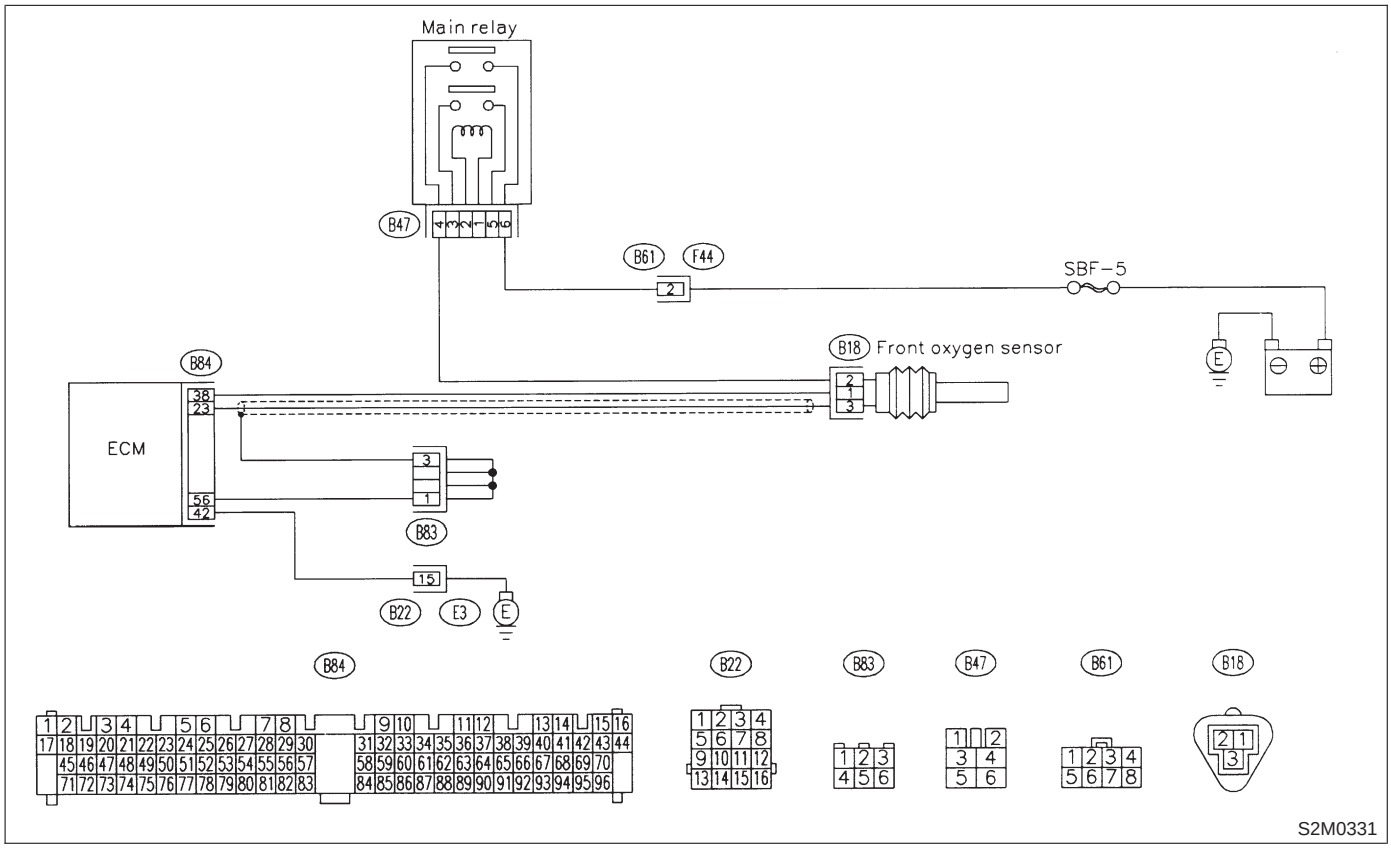
NO : Replace front oxygen sensor.

P: DTC P0135 — FRONT OXYGEN SENSOR HEATER CIRCUIT MALFUNCTION —

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

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

- **WIRING DIAGRAM:**



10P1 : CHECK ANY OTHER DTC ON DISPLAY.

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

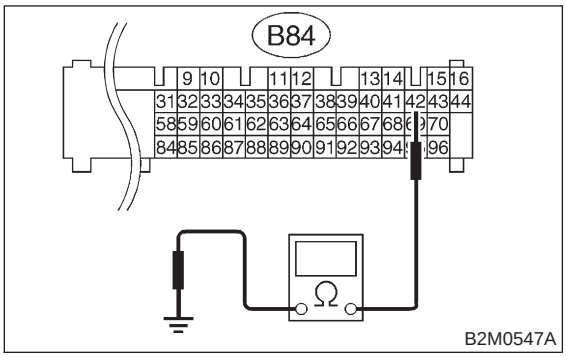
YES : Go to step **10P2**.

NO : Go to step **10P3**.

10P2 : CHECK GROUND CIRCUIT OF ECM.

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

Connector & terminal
(B84) No. 42 — Chassis ground:

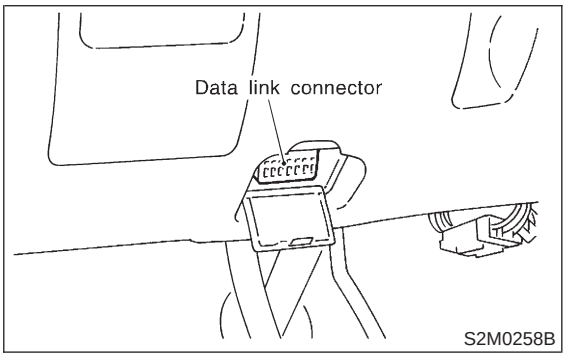


CHECK : ***Is the resistance less than 5 Ω?***
YES : Repair poor contact in ECM connector.
NO : Repair harness and connector.

NOTE:
In this case, repair the following:
- Open circuit in harness between ECM and coupling connector (B22)
- Open circuit in harness between coupling connector (B22) and engine grounding terminal
- Poor contact in front oxygen sensor connector
- Poor contact in coupling connector (B22)

10P3 : CONNECT SUBARU SELECT MONITOR OR THE OBD-II GENERAL SCAN TOOL, AND READ DATA.

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



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

NOTE:
- Subaru Select Monitor

For detailed operation procedure, refer to the “READ CURRENT DATA SHOWN ON DISPLAY FOR ENGINE”. <Ref. to 2-7 [T3C4].>
- OBD-II scan tool

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

CHECK : ***Is the value more than 0.2 A?***
YES : Repair connector.

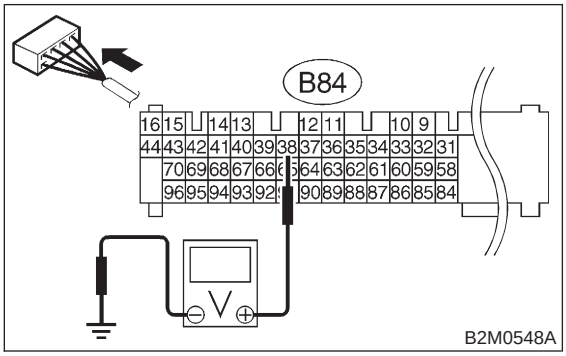
NOTE:
In this case, repair the following:
- Poor contact in front oxygen sensor connector
- Poor contact in ECM connector

NO : Go to step **10P4**.

10P4 : CHECK OUTPUT SIGNAL FROM ECM.

1) Start and idle the engine.
2) Measure voltage between ECM connector and chassis ground.

Connector & terminal
(B84) No. 38 (+) — Chassis ground (−):

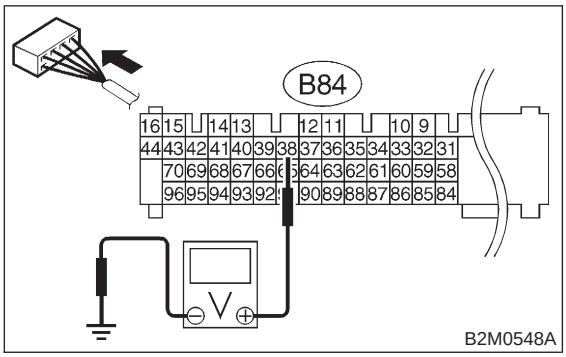


CHECK : ***Is the voltage less than 1.0 V?***
YES : Go to step **10P7**.
NO : Go to step **10P5**.

10P5 : CHECK OUTPUT SIGNAL FROM ECM.

Measure voltage between ECM connector and chassis ground.

Connector & terminal
(B84) No. 38 (+) — Chassis ground (−):

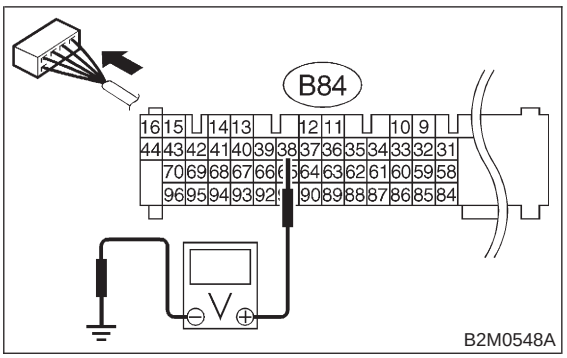


CHECK : ***Does the voltage change less than 1.0 V by shaking harness and connector of ECM while monitoring the value with voltage meter?***
YES : Repair poor contact in ECM connector.
NO : Go to step **10P6**.

10P6 : CHECK OUTPUT SIGNAL FROM ECM.

1) Disconnect connector from front oxygen sensor.
2) Measure voltage between ECM connector and chassis ground.

Connector & terminal
(B84) No. 38 (+) — Chassis ground (−):

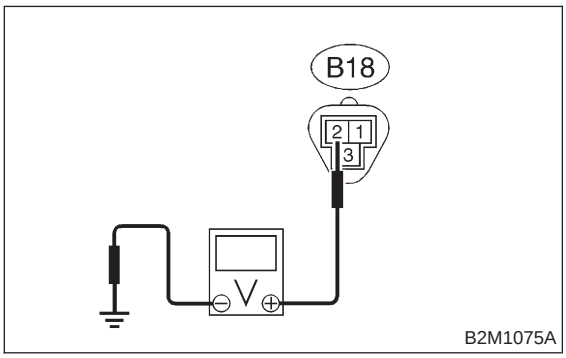


CHECK : ***Is the voltage less than 1.0 V?***
YES : Replace ECM.
NO : Repair battery short circuit in harness between ECM and front oxygen sensor connector. After repair, replace ECM.

10P7 : CHECK POWER SUPPLY TO FRONT OXYGEN SENSOR.

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

Connector & terminal
(B18) No. 2 (+) — Engine ground (−):



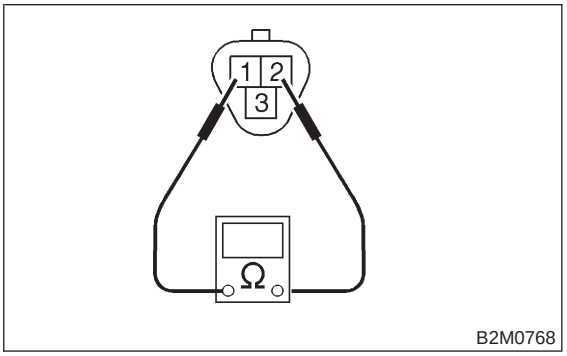
CHECK : ***Is the voltage more than 10 V?***
YES : Go to step **10P8**.
NO : Repair power supply line.

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

10P8 : CHECK FRONT OXYGEN SENSOR.

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

Terminals
No. 1 — No. 2:



CHECK : ***Is the resistance less than 30 Ω?***
YES : Repair harness and connector.

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

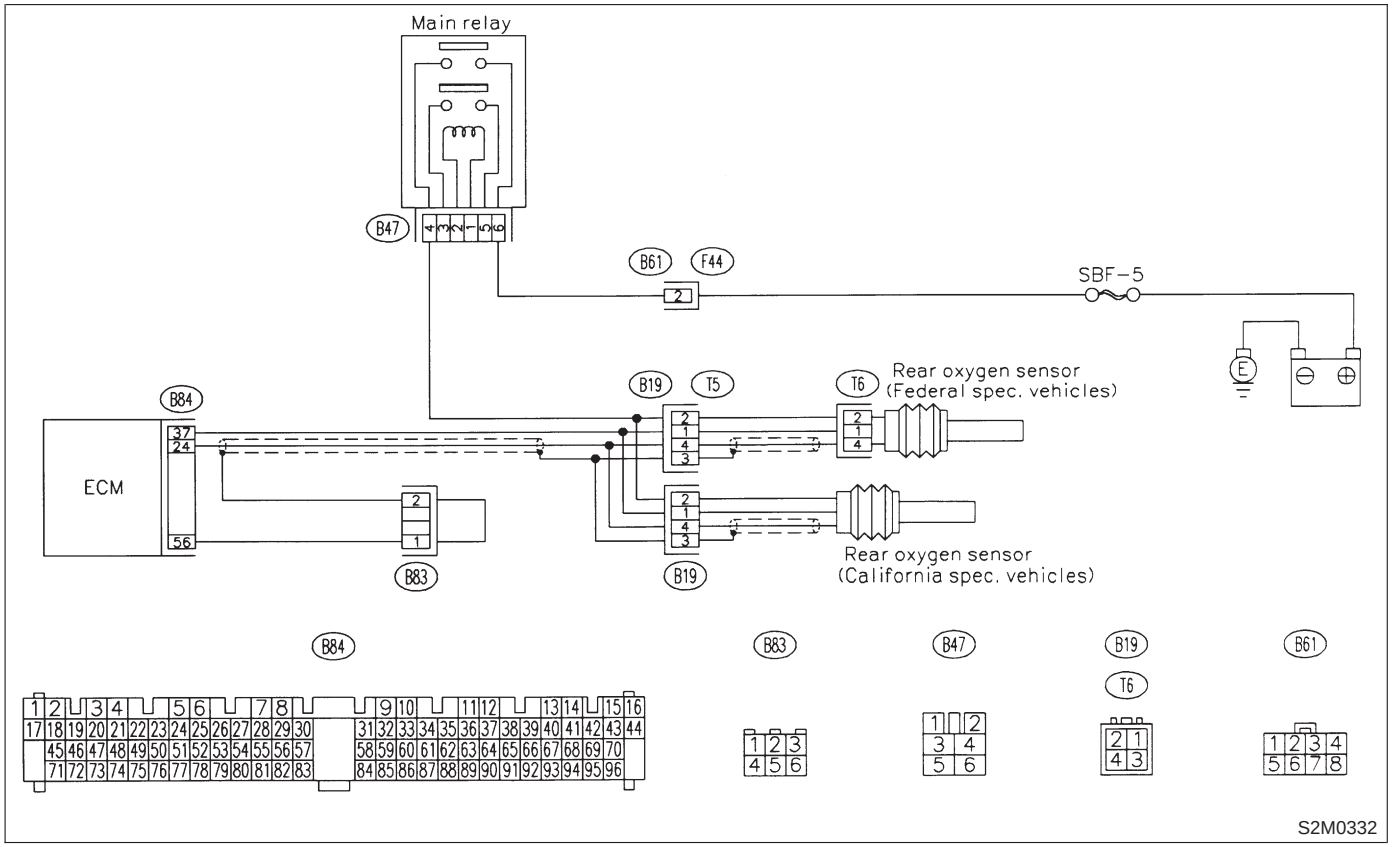
NO : Replace front oxygen sensor.

Q: DTC P0136 — REAR OXYGEN SENSOR CIRCUIT MALFUNCTION —

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

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

- **WIRING DIAGRAM:**



10Q1 : CHECK ANY OTHER DTC ON DISPLAY.

CHECK : ***Does the Subaru select monitor or OBD-II general scan tool indicate DTC P0130?***

YES : Go to step **10Q2**.

NO : Go to step **10Q3**.

10Q2 : CHECK FAILURE CAUSE OF P0130.

Perform the step **10N1** of DTC P0130 <Ref. to 2-7 [T10N1].>.

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

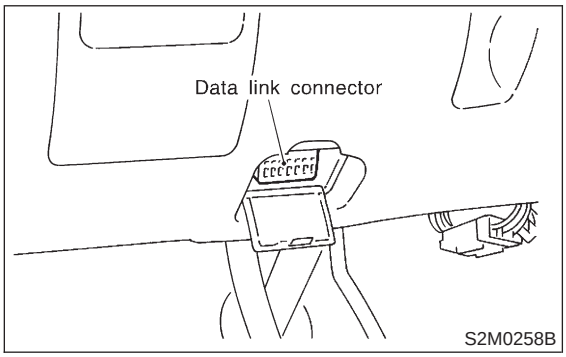
YES : Check fuel system.

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

NO : Go to step **10Q3**.

10Q3 : CHECK REAR OXYGEN SENSOR DATA.

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



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

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

CHECK : ***Does the value fluctuate?***
YES : Go to step **10Q8**.
NO : Go to step **10Q4**.

10Q4 : CHECK REAR OXYGEN SENSOR DATA.

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

CHECK : ***Is the value fixed between 0.2 and 0.4 V?***
YES : Go to step **10Q5**.
NO : Replace rear oxygen sensor.

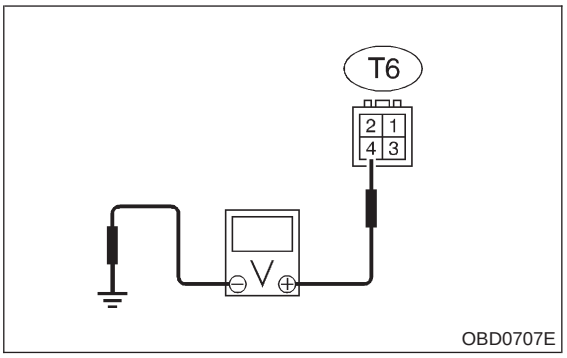
10Q5 : CHECK VEHICLE SPECIFICATION.

CHECK : ***Is the vehicle California specification?***
YES : Go to step **10Q6**.
NO : Go to step **10Q7**.

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

1) Turn ignition switch to OFF.
2) Disconnect connector from rear oxygen sensor.
3) Turn ignition switch to ON.
4) Measure voltage between rear oxygen sensor harness connector and engine ground or chassis ground.

Connector & terminal
(B19) No. 4 (+) — Engine ground (−):



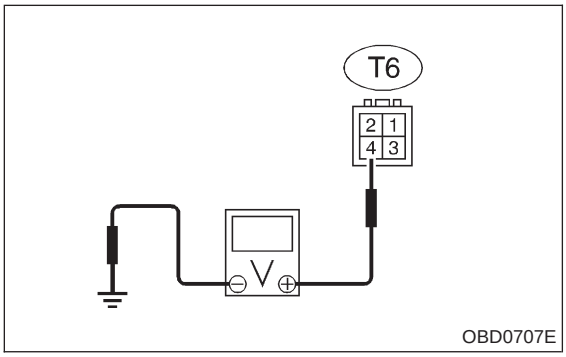
CHECK : ***Is the voltage more than 0.2 V?***
YES : Replace rear oxygen sensor.
NO : Repair harness and connector.

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

10Q7 : CHECK HARNESS BETWEEN REAR OXYGEN SENSOR AND ECM CONNECTOR.

1) Turn ignition switch to OFF.
2) Disconnect connector from rear oxygen sensor.
3) Turn ignition switch to ON.
4) Measure voltage between rear oxygen sensor harness connector and engine ground or chassis ground.

Connector & terminal
(T6) No. 4 (+) — Chassis ground (−):



CHECK : ***Is the voltage more than 0.2 V?***
YES : Replace rear oxygen sensor.
NO : Repair harness and connector.

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

10Q8 : CHECK EXHAUST SYSTEM.

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

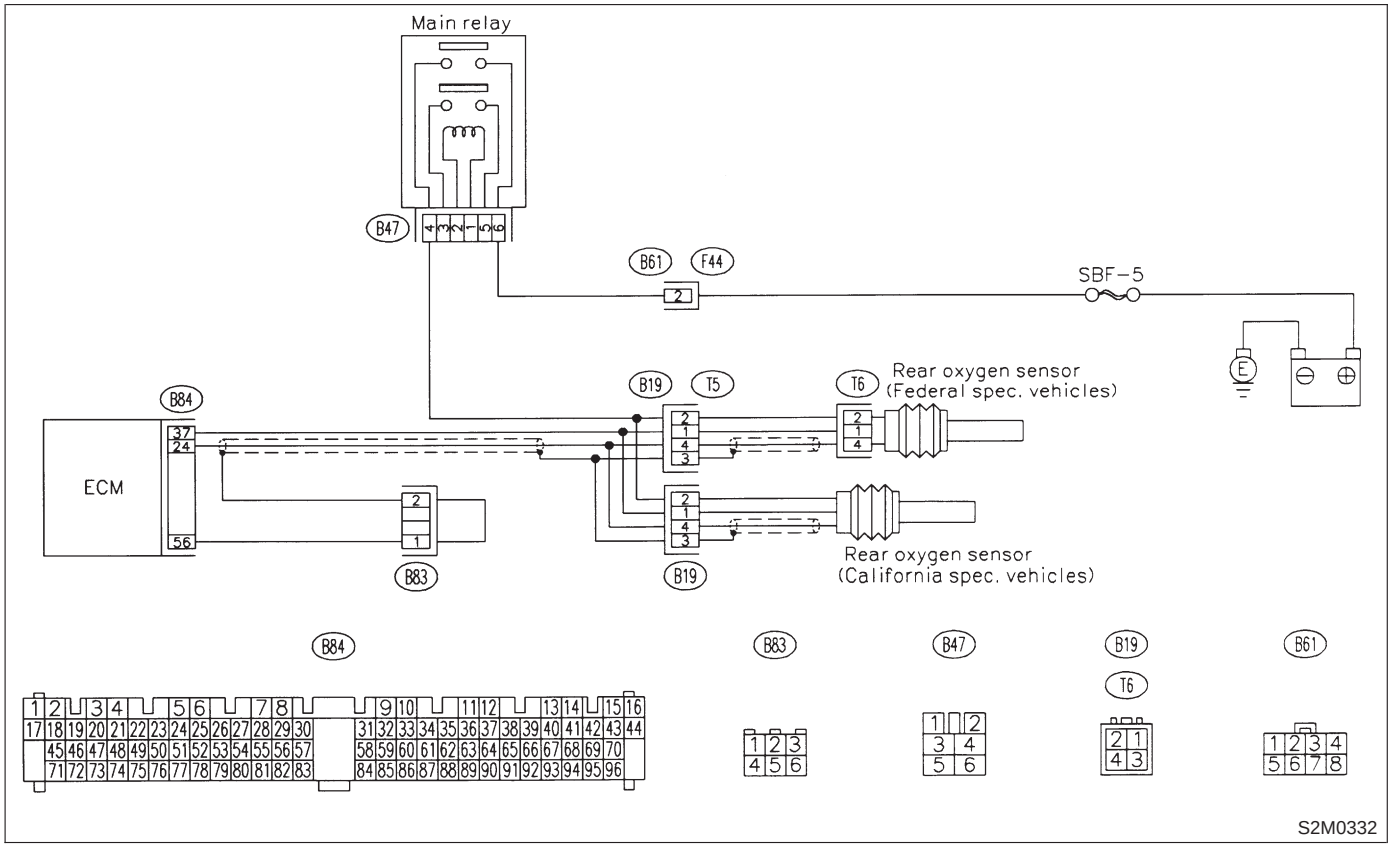
CHECK : ***Is there a fault in exhaust system?***
YES : Repair or replace faulty parts.
NO : Replace rear oxygen sensor.

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

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

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

- **WIRING DIAGRAM:**



10R1 :	**CHECK ANY OTHER DTC ON DISPLAY.**

CHECK : ***Does the Subaru select monitor or OBD-II general scan tool indicate DTC P0136?***

YES : Inspect DTC P0136 using “10. Diagnostics Chart with Trouble Code for LHD Vehicles”. <Ref. to 2-7 [T10A0].>

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

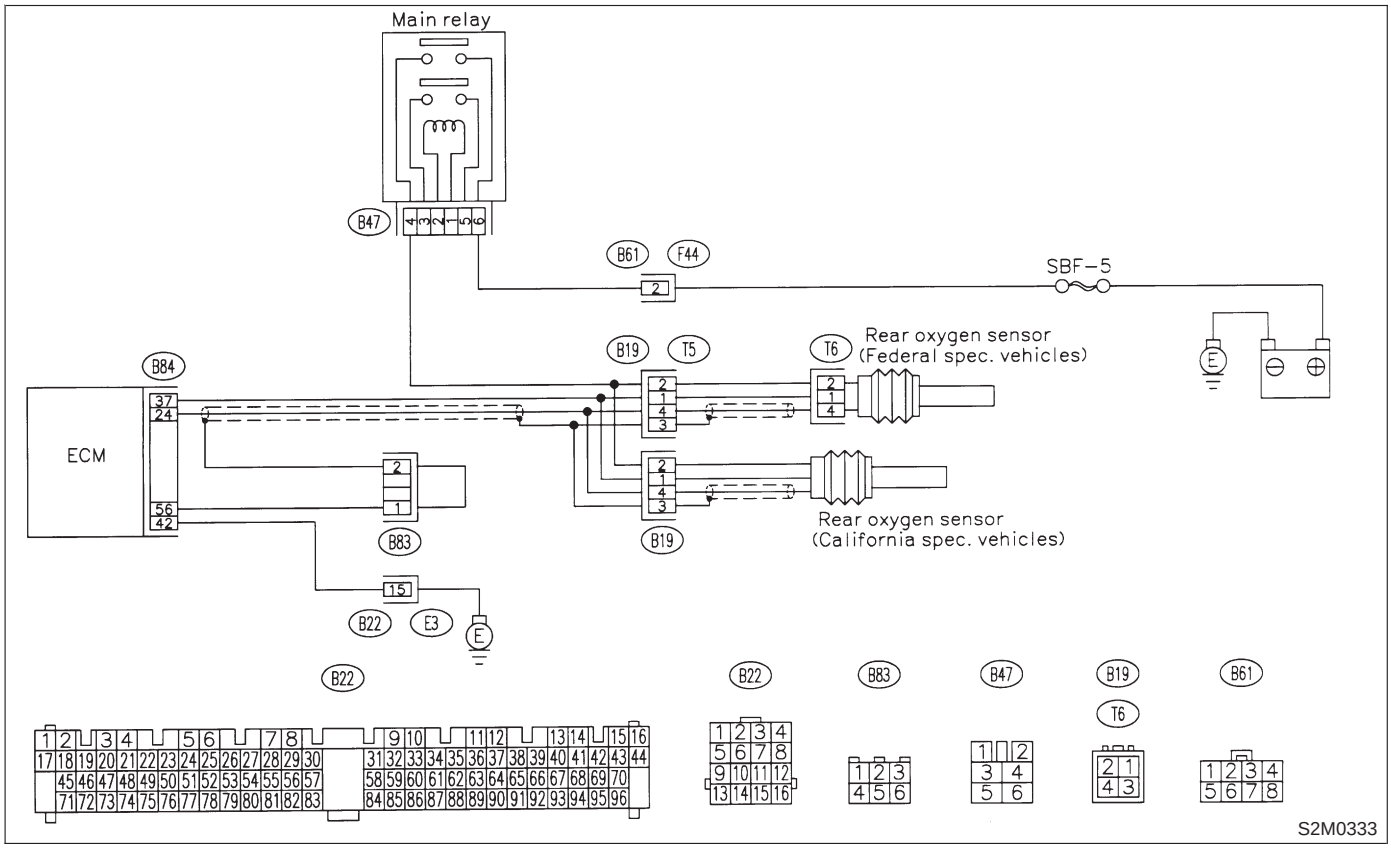
NO : Replace rear oxygen sensor.

S: DTC P0141 — REAR OXYGEN SENSOR HEATER CIRCUIT MALFUNCTION —

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

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

- **WIRING DIAGRAM:**



10S1 : CHECK ANY OTHER DTC ON DISPLAY.

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

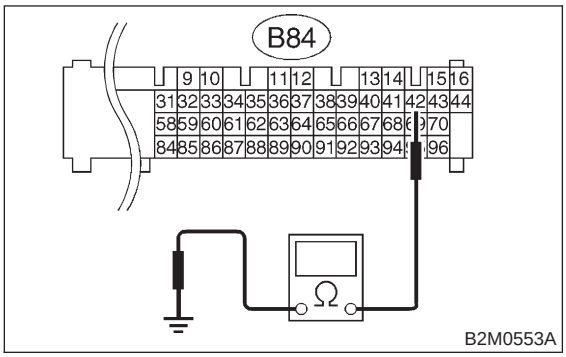
YES : Go to step **10S2**.

NO : Go to step **10S3**.

10S2 : CHECK GROUND CIRCUIT OF ECM.

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

Connector & terminal
(B84) No. 42 — Chassis ground:

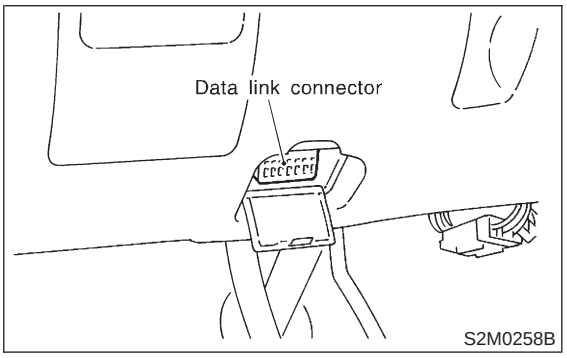


CHECK : ***Is the resistance less than 5 Ω?***
YES : Repair poor contact in ECM connector.
NO : Repair harness and connector.

NOTE:
In this case, repair the following:
- Open circuit in harness between ECM and coupling connector (B22)
- Open circuit in harness between coupling connector (B22) and engine grounding terminal
- Poor contact in rear oxygen sensor connector
- Poor contact in rear oxygen sensor connecting harness connector (B19)
- Poor contact in coupling connector (B22)

10S3 : CONNECT SUBARU SELECT MONITOR OR THE OBD-II GENERAL SCAN TOOL, AND READ DATA.

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



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

NOTE:
- Subaru Select Monitor

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

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

CHECK : ***Is the value more than 0.2 A?***
YES : Repair connector.

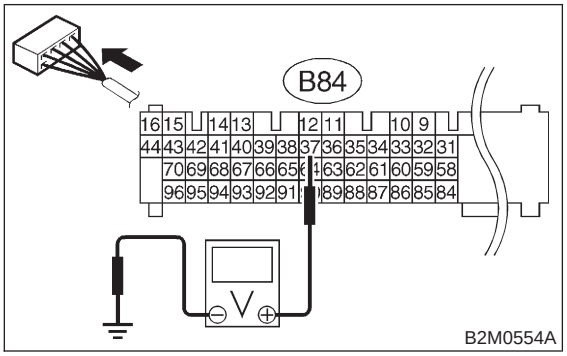
NOTE:
In this case, repair the following:
- Poor contact in rear oxygen sensor connector
- Poor contact in rear oxygen sensor connecting harness connector
- Poor contact in ECM connector

NO : Go to step **10S4**.

10S4 : CHECK OUTPUT SIGNAL FROM ECM.

1) Start and idle the engine.
2) Measure voltage between ECM connector and chassis ground.

Connector & terminal
(B84) No. 37 (+) — Chassis ground (−):

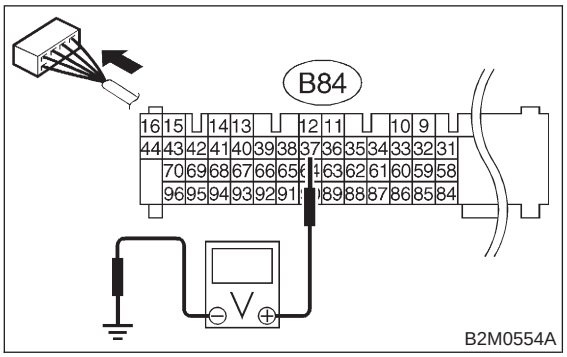


CHECK : ***Is the voltage less than 1.0 V?***
YES : Go to step **10S7**.
NO : Go to step **10S5**.

10S5 : CHECK OUTPUT SIGNAL FROM ECM.

Measure voltage between ECM connector and chassis ground.

Connector & terminal
(B84) No. 37 (+) — Chassis ground (−):

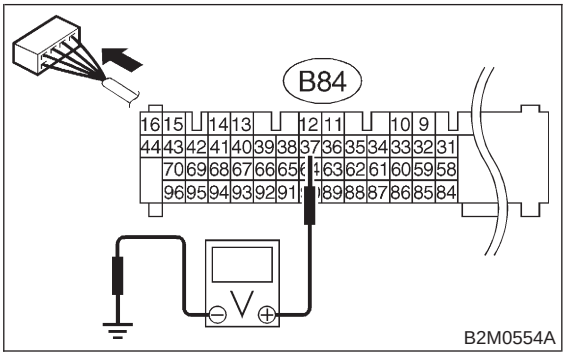


CHECK : ***Does the voltage change less than 1.0 V by shaking harness and connector of ECM while monitoring the value with voltage meter?***
YES : Repair poor contact in ECM connector.
NO : Go to step **10S6**.

10S6 : CHECK OUTPUT SIGNAL FROM ECM.

1) Disconnect connector from rear oxygen sensor.
2) Measure voltage between ECM connector and chassis ground.

Connector & terminal
(B84) No. 37 (+) — Chassis ground (−):



CHECK : ***Is the voltage less than 1.0 V?***
YES : Replace ECM.
NO : Repair battery short circuit in harness between ECM and rear oxygen sensor connector. After repair, replace ECM.

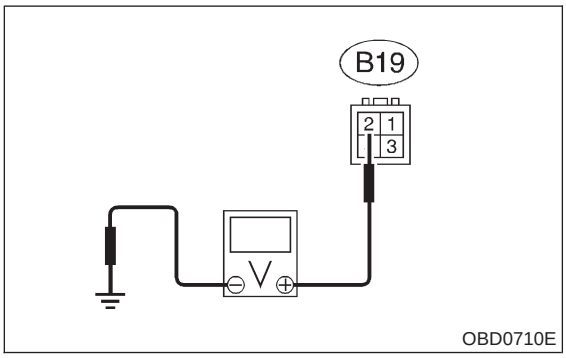
10S7 : CHECK VEHICLE SPECIFICATION.

CHECK : ***Is the vehicle California specification?***
YES : Go to step **10S8**.
NO : Go to step **10S9**.

10S8 : CHECK POWER SUPPLY TO REAR OXYGEN SENSOR.

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

Connector & terminal
(B19) No. 2 (+) — Engine ground (−):



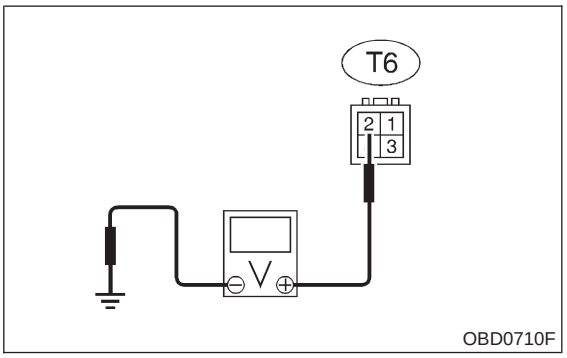
CHECK : ***Is the voltage more than 10 V?***
YES : Go to step **10S10**.
NO : Repair power supply line.

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

10S9 : CHECK POWER SUPPLY TO REAR OXYGEN SENSOR.

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

Connector & terminal
(T6) No. 2 (+) — Chassis ground (−):



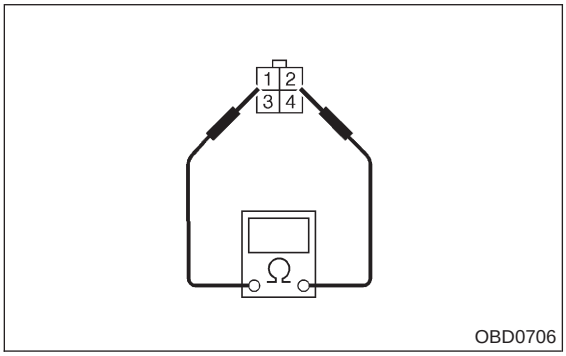
CHECK : ***Is the voltage more than 10 V?***
YES : Go to step **10S10**.
NO : Repair power supply line.

NOTE:
In this case, repair the following:
- Open circuit in harness between main relay and rear oxygen sensor connector
- Poor contact in rear oxygen sensor connector
- Poor contact in rear oxygen sensor connecting harness connector

10S10 : CHECK REAR OXYGEN SENSOR.

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

Terminals
No. 1 — No. 2:



CHECK : ***Is the resistance less than 30 Ω?***
YES : Repair harness and connector.

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

NO : Replace rear oxygen sensor.

T: DTC P0170 — FUEL TRIM MALFUNCTION —

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

- **TROUBLE SYMPTOM:**
  - Erroneous idling
  - Engine stalls.
  - Poor driving performance

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

10T1 : CHECK EXHAUST SYSTEM.

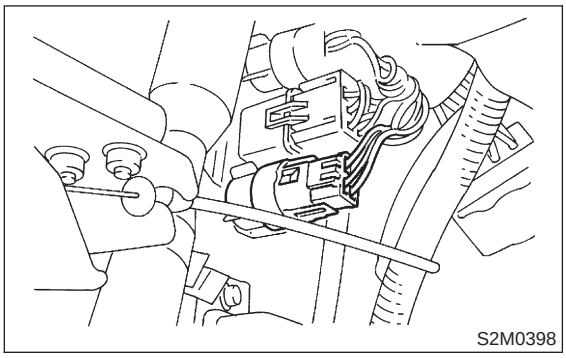
CHECK : ***Are there holes or loose bolts on exhaust system?***
YES : Repair exhaust system.
NO : Go to step **10T2**.

10T2 : 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 **10T3**.

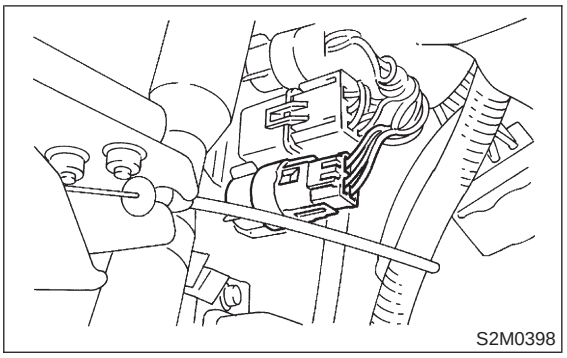
10T3 : CHECK FUEL PRESSURE.

1) Release fuel pressure.
   (1) Turn ignition switch to OFF.
   (2) Disconnect connector from fuel pump relay.

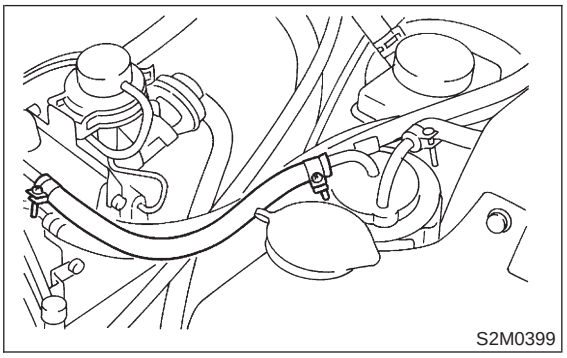

S2M0398

   (3) Start the engine, and run it until it stalls.
   (4) After stopping the engine, crank the engine for 5 to 7 seconds to reduce fuel pressure.
   (5) Turn ignition switch to OFF.
   (6) Remove fuel filler cap.

2) Connect connector to fuel pump relay.


S2M0398

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

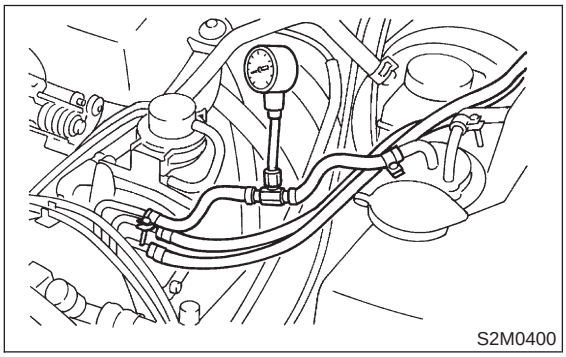

S2M0399

4) Install fuel filler cap.
5) Start the engine and idle while gear position is neutral.

6) Measure fuel pressure while disconnecting pressure regulator vacuum hose from intake manifold.

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

NOTE:
● If fuel pressure does not increase, squeeze fuel return hose 2 to 3 times, then measure fuel pressure again.


S2M0400

CHECK : ***Is fuel pressure between 226 and 275 kPa (2.3 — 2.8 kg/cm^2, 33 — 40 psi)?***
YES : Go to step **10T4**.
NO : Repair the following items.

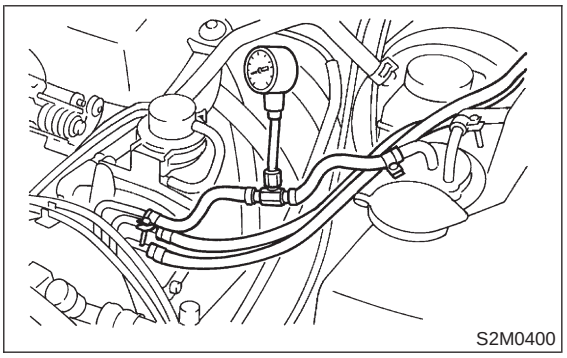
Fuel pressure too high	● Clogged fuel return line or bent hose
Fuel pressure too low	● Improper fuel pump discharge ● Clogged fuel supply line

10T4 : CHECK FUEL PRESSURE.

After connecting pressure regulator vacuum hose, measure fuel pressure.

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

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

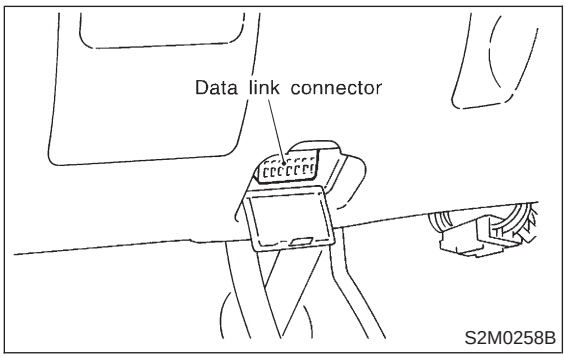

S2M0400

CHECK : ***Is fuel pressure between 157 and 206 kPa (1.6 — 2.1 kg/cm^2, 23 — 30 psi)?***
YES : Go to step **10T5**.
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

10T5 : CHECK ENGINE COOLANT TEMPERATURE SENSOR. < REF. TO 2-7 [T10H0].> OR <REF. TO 2-7 [T10I0].>

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



3) Start the engine and warm-up completely.
4) Read data of engine coolant temperature sensor signal using Subaru Select Monitor or OBD-II general scan tool.

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

CHECK : ***Is temperature greater than 60°C (140°F)?***
YES : Go to step **10T6**.
NO : Replace engine coolant temperature sensor.

10T6 : CHECK MASS AIR FLOW SENSOR.

1) Start the engine and warm-up engine until coolant temperature is greater than 60°C (140°F).
2) Place the selector lever in “N” or “P” position.
3) Turn A/C switch to OFF.
4) Turn all accessory switches to OFF.
5) Read data of mass flow sensor signal using Subaru Select Monitor or OBD-II general scan tool.

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

Specification:

Engine speed	Specified value
Idling	2.2 — 4.2 (g/sec)
2,500 rpm	8.6 — 14.5 (g/sec)

CHECK : ***Is the voltage within the specifications?***
YES : Contact with SOA service.

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

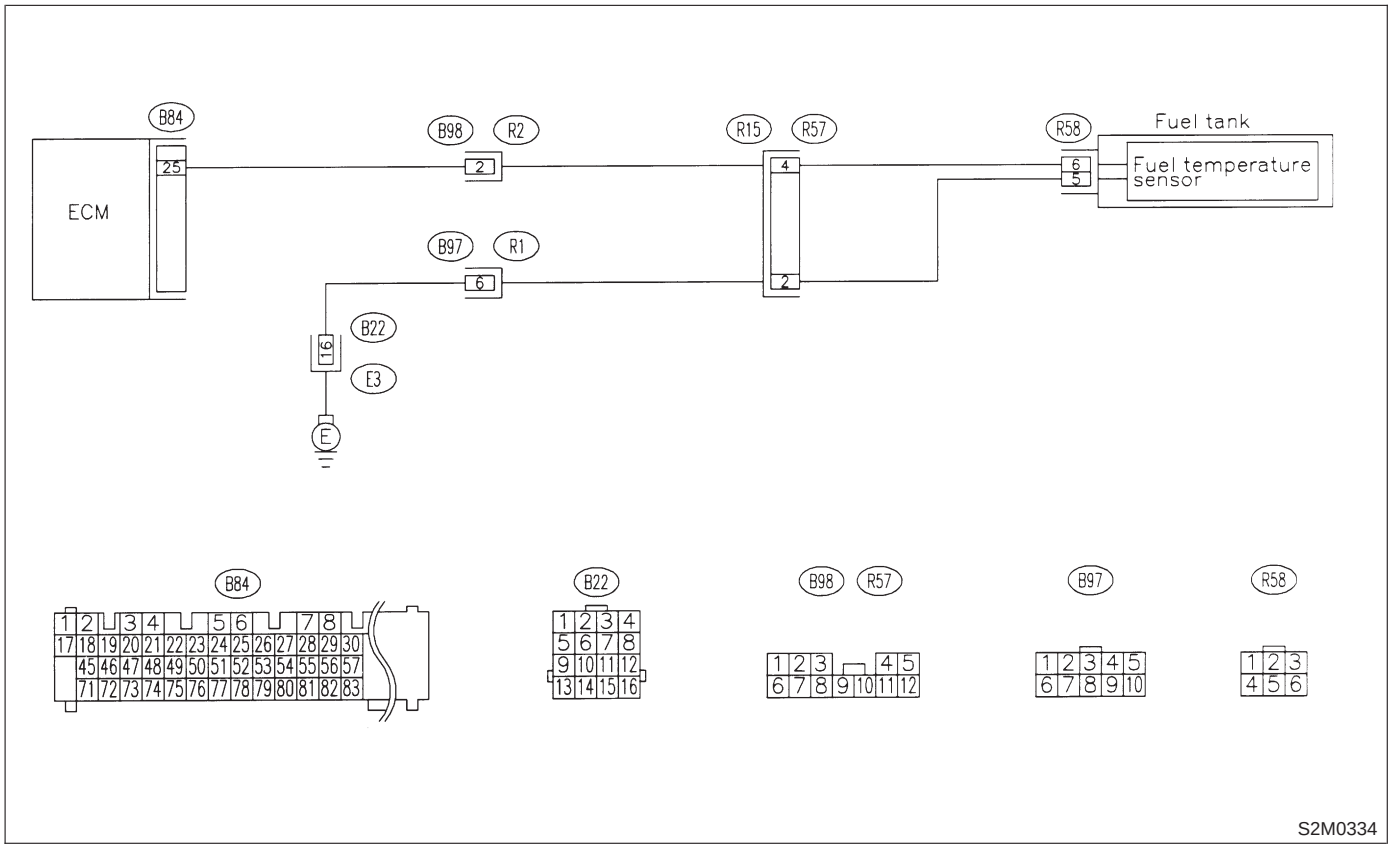
NO : Replace mass air flow sensor.

U: DTC P0181 — FUEL TEMPERATURE SENSOR A CIRCUIT RANGE/PERFORMANCE PROBLEM —

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

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

- **WIRING DIAGRAM:**



10U1 : CHECK ANY OTHER DTC ON DISPLAY.

CHECK : ***Does the Subaru select monitor or OBD-II general scan tool indicate DTC P0182 or P0183?***

YES : Inspect DTC P0182 or P0183 using “10. Diagnostics Chart with Trouble Code”. <Ref. to 2-7 [T10A0].>

NOTE:
In this case, it is not necessary to inspect DTC P0181.

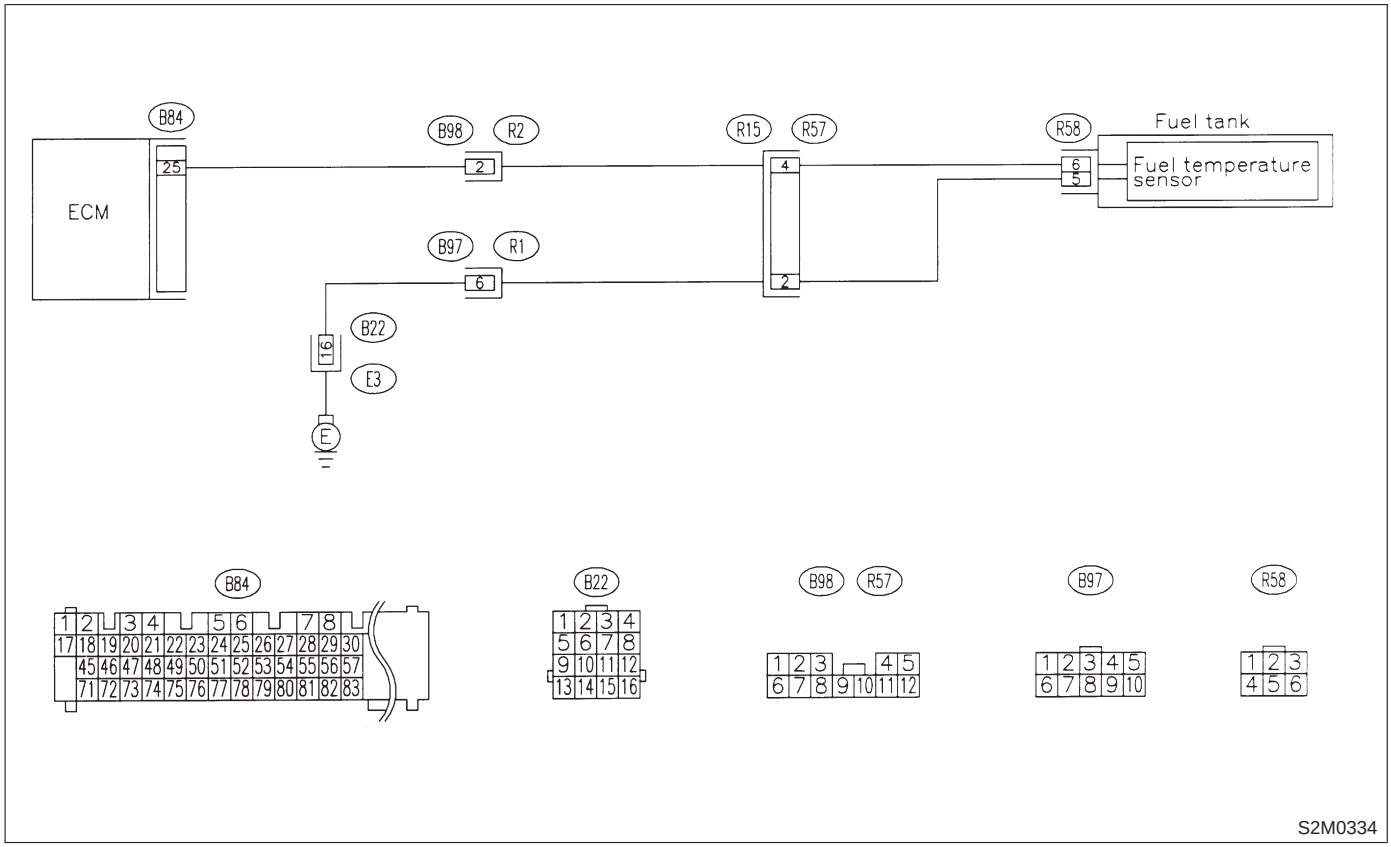
NO : Replace fuel temperature sensor.

V: DTC P0182 — FUEL TEMPERATURE SENSOR A CIRCUIT LOW INPUT —

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

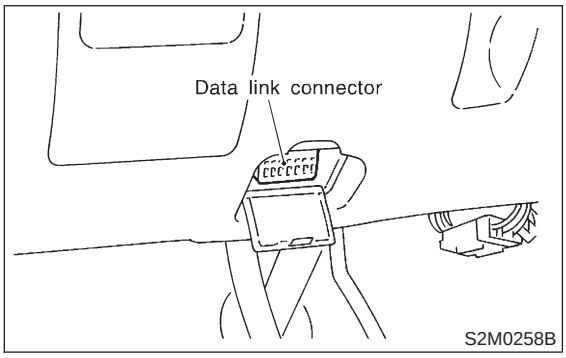
CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY and INSPECTION MODES. <Ref. to 2-7 [T3D0] and [T3E0].>

- **WIRING DIAGRAM:**



10V1 : CONNECT SUBARU SELECT MONITOR OR THE OBD-II GENERAL SCAN TOOL, AND READ DATA.

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



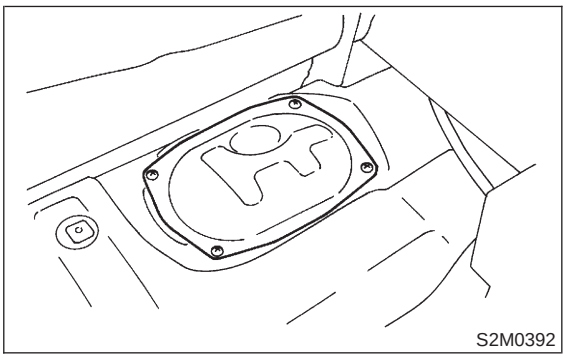
3) Turn ignition switch to ON and Subaru Select Monitor or OBD-II general scan tool switch to ON.
4) Start engine.
5) Read data of fuel temperature sensor signal using Subaru Select Monitor or OBD-II general scan tool.

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

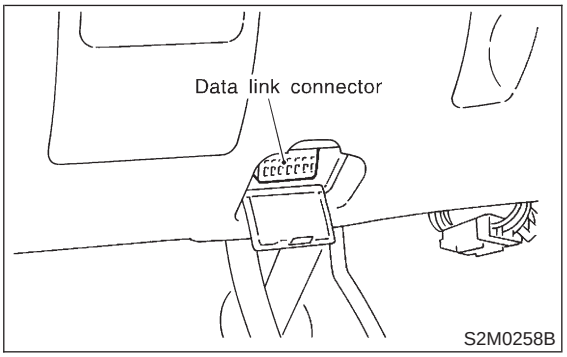
CHECK : ***Is the value greater than 150°C (300°F)?***
YES : Go to step **10V2**.
NO : Even if MIL lights up, the circuit has returned to a normal condition at this time.

10V2 : CHECK HARNESS BETWEEN FUEL TEMPERATURE SENSOR AND ECM CONNECTOR.

1) Turn ignition switch to OFF.
2) Remove access hole lid.



3) Disconnect connector from fuel pump.
4) Connect Subaru Select Monitor or the OBD-II general scan tool to data link connector.



5) Turn ignition switch and Subaru Select Monitor or OBD-II general scan tool switch to ON.
6) Read data of fuel temperature sensor signal using Subaru Select Monitor or the OBD-II general scan tool.

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

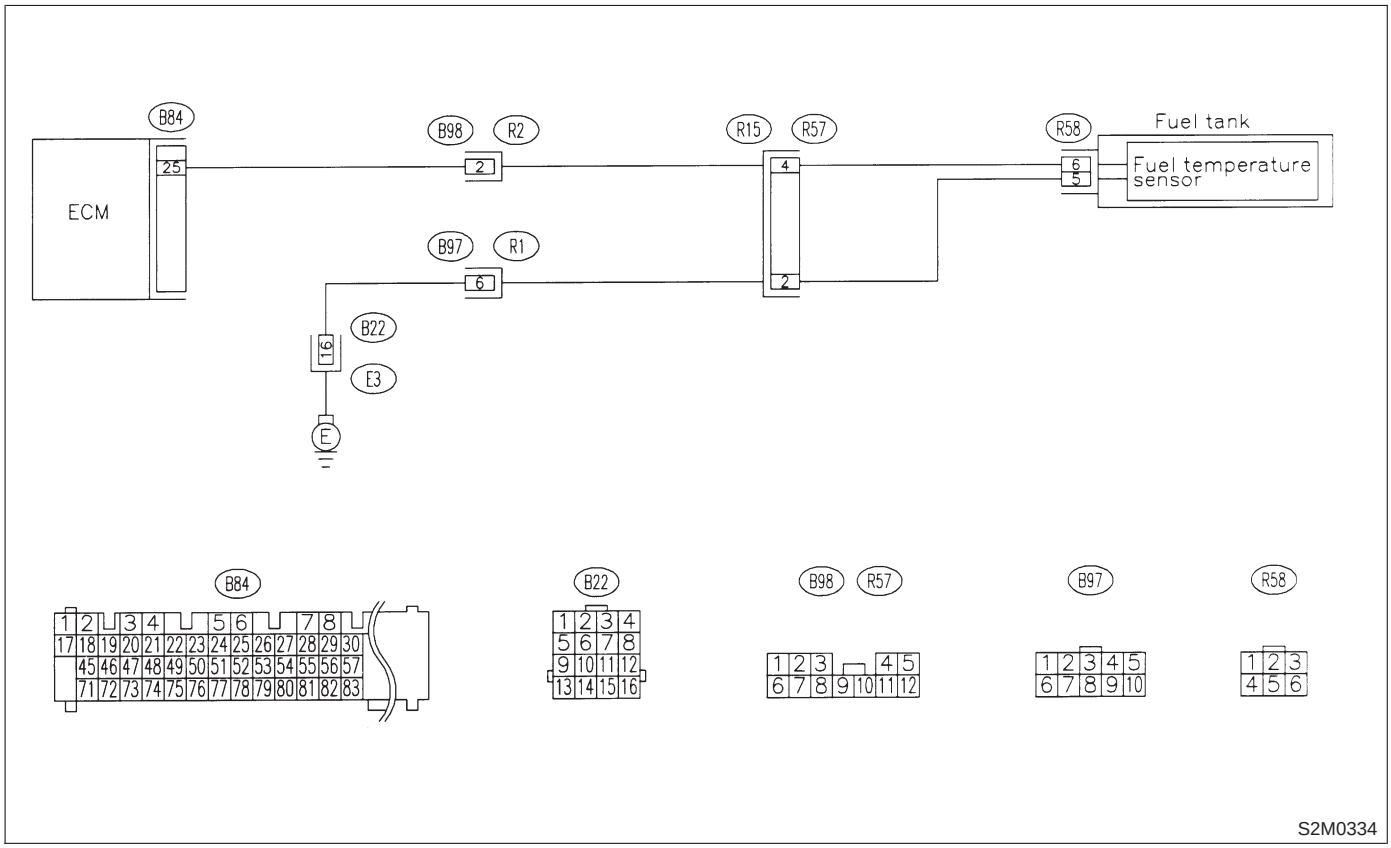
CHECK : ***Is the value less than −40°C (−40°F)?***
YES : Replace fuel temperature sensor.
NO : Repair ground short circuit in harness between fuel pump and ECM connector.

W: DTC P0183 — FUEL TEMPERATURE SENSOR A CIRCUIT HIGH INPUT —

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

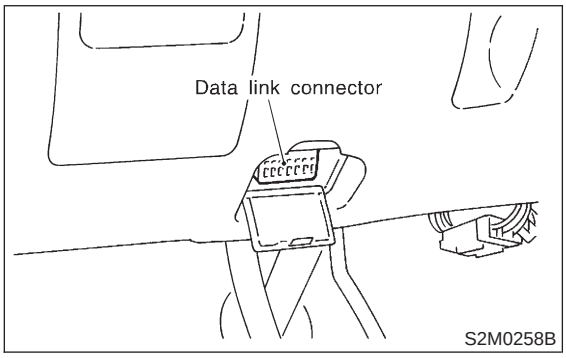
CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY and INSPECTION MODES. <Ref. to 2-7 [T3D0] and [T3E0].>

- **WIRING DIAGRAM:**



10W1 : CONNECT SUBARU SELECT MONITOR OR THE OBD-II GENERAL SCAN TOOL, AND READ DATA.

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



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

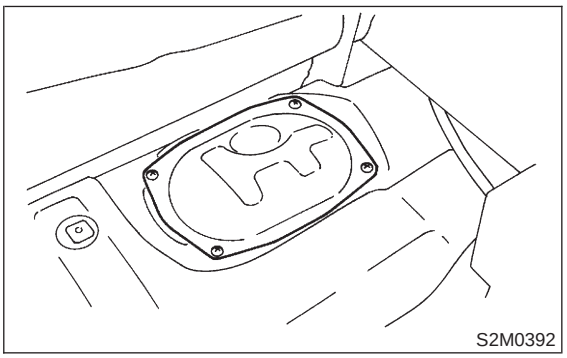
NOTE:
● Subaru Select Monitor
For detailed operation procedure, refer to the "READ CURRENT DATA SHOWN ON DISPLAY FOR ENGINE". <Ref. to 2-7 [T3C4].>
● OBD-II general scan tool
For detailed operation procedures, refer to the OBD-II General Scan Tool Instruction Manual.

CHECK : ***Is the value less than −40°C (−40°F)?***
YES : Go to step **10W2**.
NO : Repair poor contact.

NOTE:
In this case, repair the following:
● Poor contact in fuel pump connector
● Poor contact in ECM connector
● Poor contact in coupling connectors (B22, B97, B98 and R57)

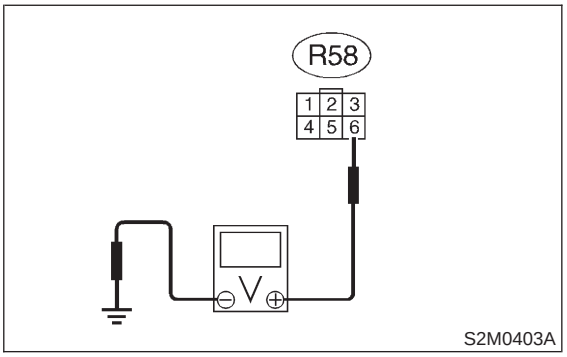
10W2 : CHECK HARNESS BETWEEN FUEL TEMPERATURE SENSOR AND ECM CONNECTOR.

1) Turn ignition switch to OFF.
2) Remove access hole lid.



3) Disconnect connector from fuel pump.
4) Measure voltage between fuel pump connector and chassis ground.

Connector & terminal
(R58) No. 6 (+) — Chassis ground (−):

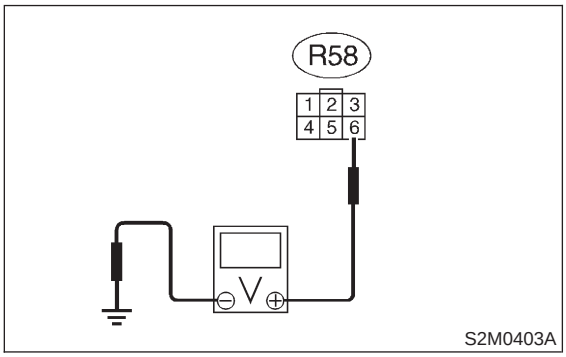


CHECK : ***Is the voltage more than 10 V?***
YES : Repair battery short circuit in harness between ECM and fuel pump connector.
NO : Go to step **10W3**.

10W3 : CHECK HARNESS BETWEEN FUEL TEMPERATURE SENSOR AND ECM CONNECTOR.

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

Connector & terminal
(R58) No. 6 (+) — Chassis ground (−):

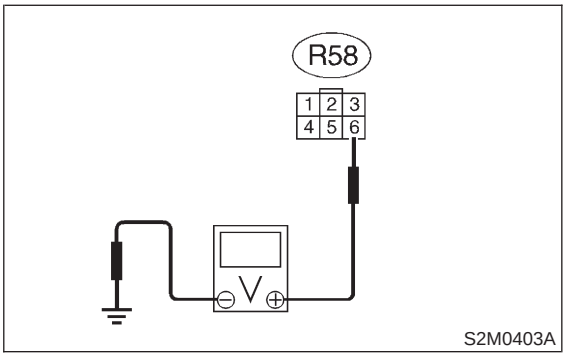


CHECK : ***Is the voltage more than 10 V?***
YES : Repair battery short circuit in harness between ECM and fuel pump connector.
NO : Go to step **10W4**.

10W4 : CHECK HARNESS BETWEEN FUEL TEMPERATURE SENSOR AND ECM CONNECTOR.

Measure voltage between fuel pump connector and chassis ground.

Connector & terminal
(R58) No. 2 (+) — Chassis ground (−):



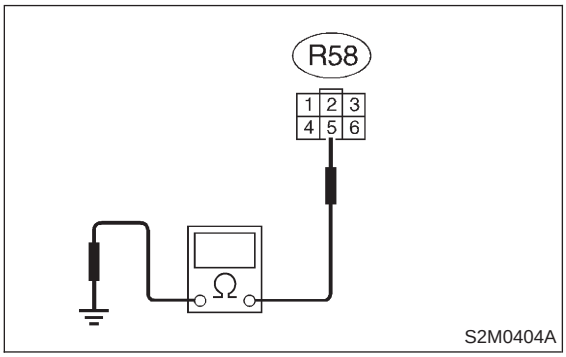
CHECK : ***Is the voltage more than 4 V?***
YES : Go to step **10W5**.
NO : Repair harness and connector.

NOTE:
In this case, repair the following:
- Open circuit in harness between ECM and fuel pump connector
- Poor contact in fuel pump connector
- Poor contact in ECM connector
- Poor contact in coupling connectors (B98 and R57)

10W5 : CHECK HARNESS BETWEEN FUEL TEMPERATURE SENSOR AND ECM CONNECTOR.

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

Connector & terminal
(R58) No. 5 — Chassis ground:



CHECK : ***Is the resistance less than 5 Ω?***
YES : Replace fuel temperature sensor.
NO : Repair harness and connector.

NOTE:
In this case, repair the following:
- Open circuit in harness between ECM and fuel pump connector
- Poor contact in fuel pump connector
- Poor contact in ECM connector
- Poor contact in coupling connectors (B22, B97 and R57)

X: DTC P0261 — FUEL INJECTOR CIRCUIT LOW INPUT - #1 —

NOTE:
For the diagnostic procedure, refer to 2-7 [T10AA1]. <Ref. to 2-7 [T10AA1].>

Y: DTC P0264 — FUEL INJECTOR CIRCUIT LOW INPUT - #2 —

NOTE:
For the diagnostic procedure, refer to 2-7 [T10AA1]. <Ref. to 2-7 [T10AA1].>

Z: DTC P0267 — FUEL INJECTOR CIRCUIT LOW INPUT - #3 —

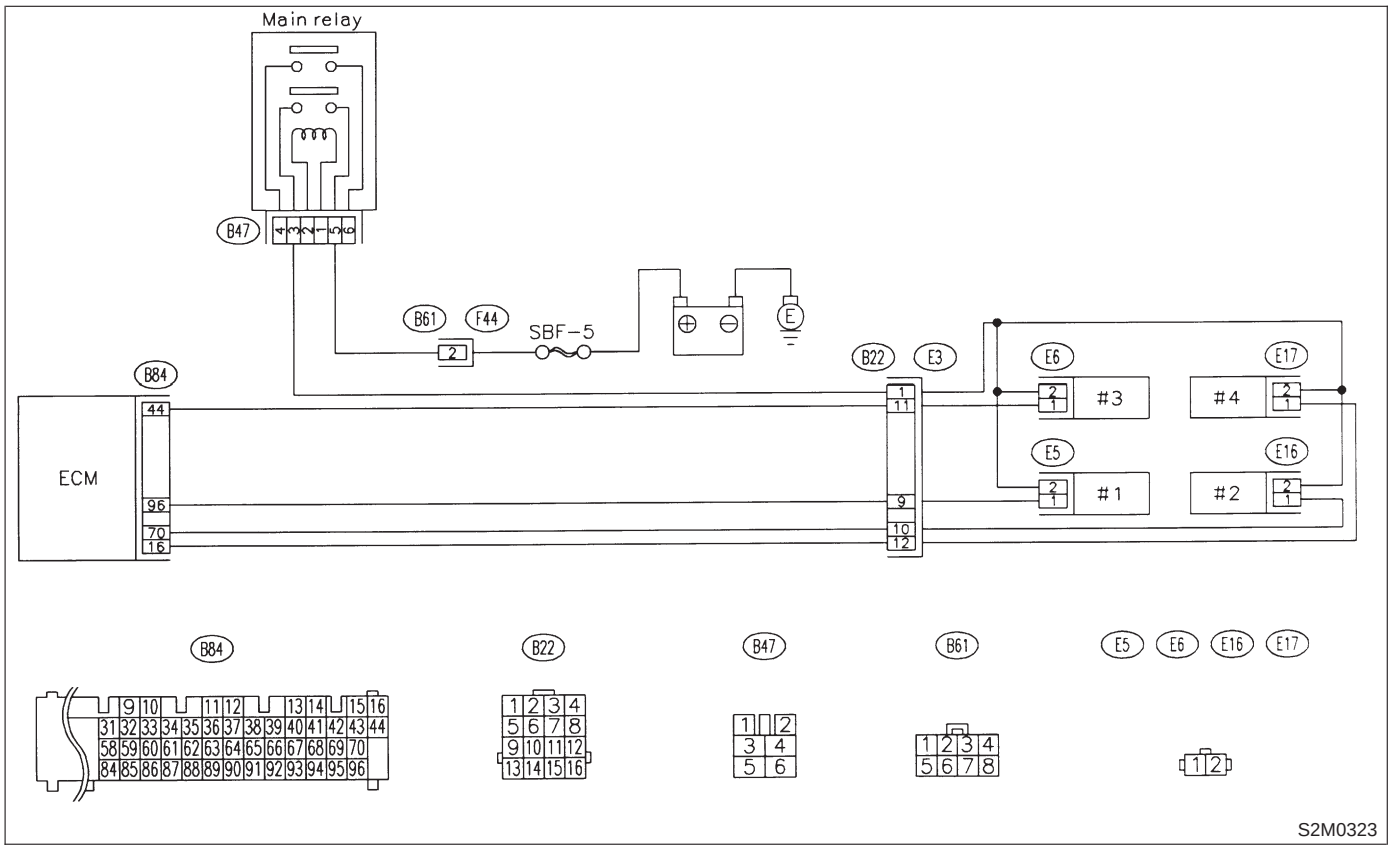
NOTE:
For the diagnostic procedure, refer to 2-7 [T10AA1]. <Ref. to 2-7 [T10AA1].>

AA: DTC P0270 — FUEL INJECTOR CIRCUIT LOW INPUT - #4 —

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

- **WIRING DIAGRAM:**

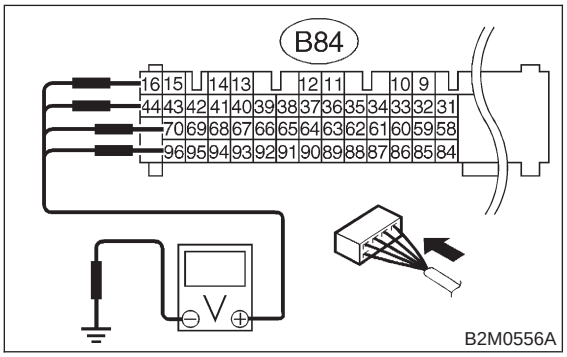


10AA1 : CHECK OUTPUT SIGNAL FROM ECM.

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

Connector & terminal

#1 (B84) No. 96 (+) — Chassis ground (−):
#2 (B84) No. 70 (+) — Chassis ground (−):
#3 (B84) No. 44 (+) — Chassis ground (−):
#4 (B84) No. 16 (+) — Chassis ground (−):



CHECK : ***Is the voltage more than 10 V?***
YES : Go to step **10AA2**.
NO : Go to step **10AA3**.

10AA2 : CHECK POOR CONTACT.

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

CHECK : ***Is there poor contact in ECM connector?***
YES : Repair poor contact in ECM connector.
NO : Contact with SOA service.

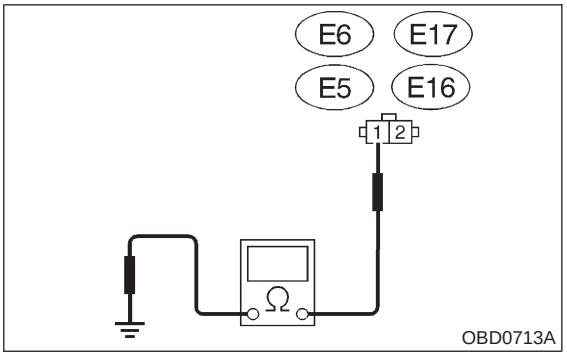
NOTE:
Inspection by DTM is required, because probable cause is deterioration of multiple parts.

10AA3 : CHECK HARNESS BETWEEN FUEL INJECTOR AND ECM CONNECTOR.

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

Connector & terminal

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



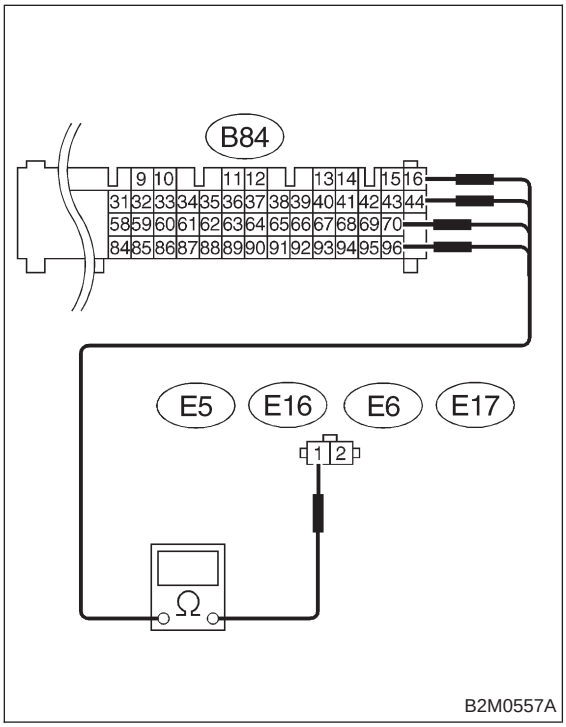
CHECK : ***Is the resistance less than 10 Ω?***
YES : Repair ground short circuit in harness between fuel injector and ECM connector.
NO : Go to step **10AA4**.

10AA4 : CHECK HARNESS BETWEEN FUEL INJECTOR AND ECM CONNECTOR.

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

Connector & terminal

#1 (B84) No. 96 — (E5) No. 1:
#2 (B84) No. 70 — (E16) No. 1:
#3 (B84) No. 44 — (E6) No. 1:
#4 (B84) No. 16 — (E17) No. 1:



CHECK : ***Is the resistance less than 1 Ω?***
YES : Go to step **10AA5**.
NO : Repair harness and connector.

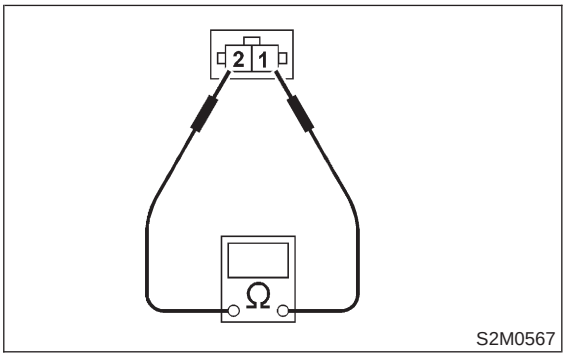
NOTE:
In this case, repair the following:
- Open circuit in harness between ECM and fuel injector connector
- Poor contact in coupling connector (B22)

10AA5 : CHECK FUEL INJECTOR.

Measure resistance between fuel injector terminals on faulty cylinder.

Terminals

No. 1 — No. 2:

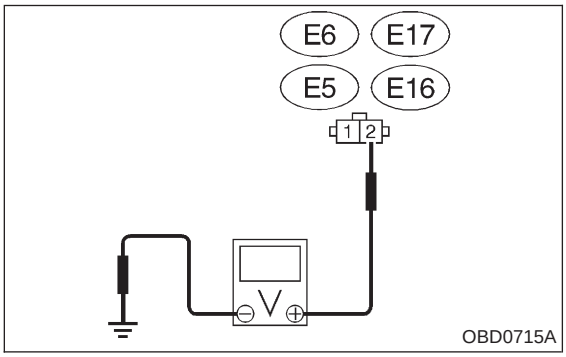


CHECK : ***Is the resistance between 5 and 20 Ω?***
YES : Replace faulty fuel injector.
NO : Go to step **10AA6**.

10AA6 : CHECK POWER SUPPLY LINE.

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

Connector & terminal
#1 (E5) No. 2 (+) — Engine ground (−):
#2 (E16) No. 2 (+) — Engine ground (−):
#3 (E6) No. 2 (+) — Engine ground (−):
#4 (E17) No. 2 (+) — Engine ground (−):



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

NOTE:
In this case, repair the following:
- Open circuit in harness between main relay and fuel injector connector on faulty cylinders
- Poor contact in coupling connector (B22)
- Poor contact in main relay connector
- Poor contact in fuel injector connector on faulty cylinders

AB: DTC P0262 — FUEL INJECTOR CIRCUIT HIGH INPUT - #1 —

NOTE:
For the diagnostic procedure, refer to 2-7 [T10AE1]. <Ref. to 2-7 [T10AE1].>

AC: DTC P0265 — FUEL INJECTOR CIRCUIT HIGH INPUT - #2 —

NOTE:
For the diagnostic procedure, refer to 2-7 [T10AE1]. <Ref. to 2-7 [T10AE1].>

AD: DTC P0268 — FUEL INJECTOR CIRCUIT HIGH INPUT - #3 —

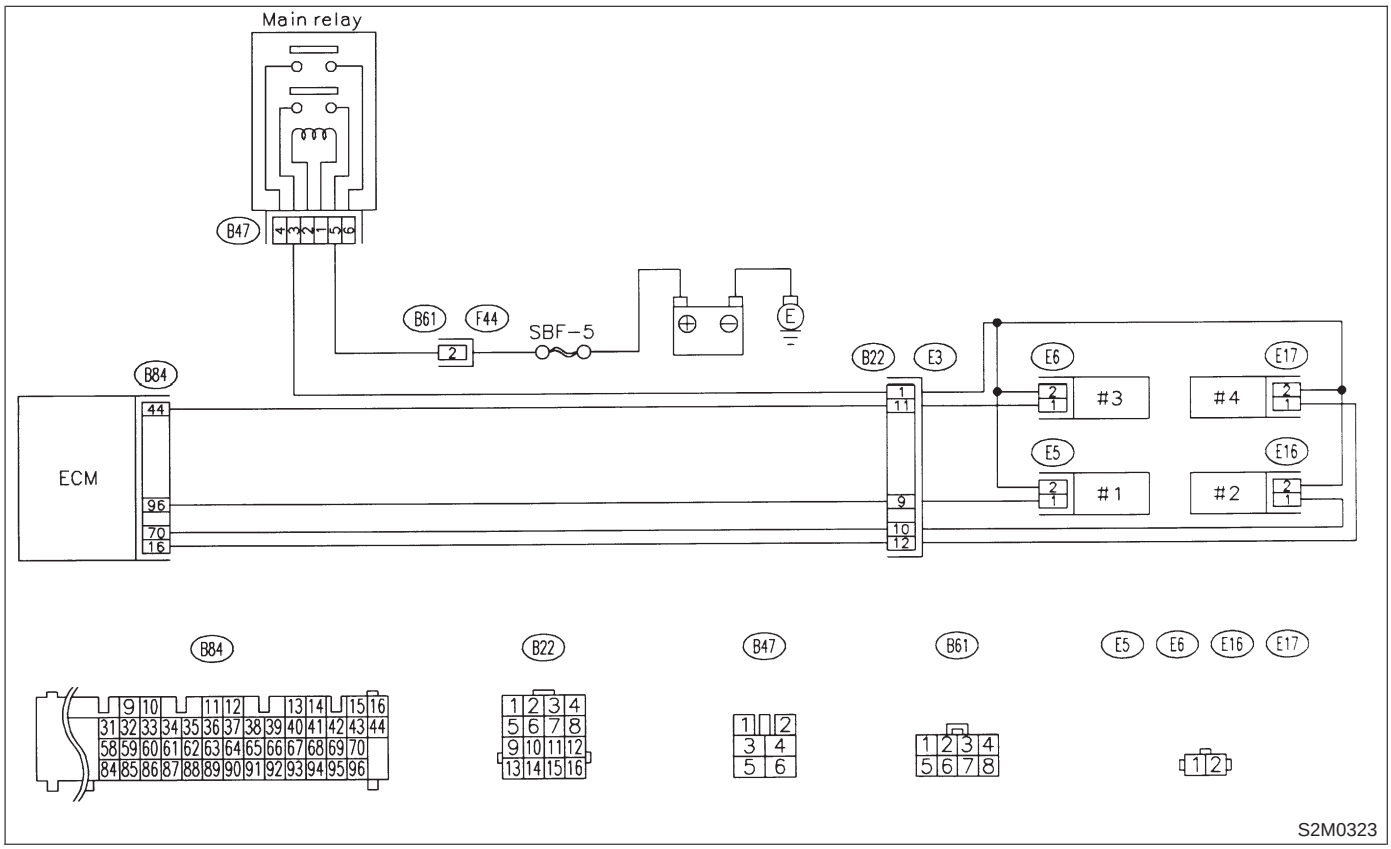
NOTE:
For the diagnostic procedure, refer to 2-7 [T10AE1]. <Ref. to 2-7 [T10AE1].>

AE: DTC P0271 — FUEL INJECTOR CIRCUIT HIGH INPUT - #4 —

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

- **WIRING DIAGRAM:**

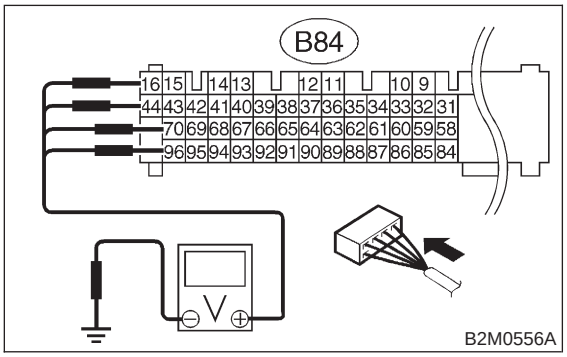


10AE1 : CHECK OUTPUT SIGNAL FROM ECM.

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

Connector & terminal

#1 (B84) No. 96 (+) — Chassis ground (−):
#2 (B84) No. 70 (+) — Chassis ground (−):
#3 (B84) No. 44 (+) — Chassis ground (−):
#4 (B84) No. 16 (+) — Chassis ground (−):



CHECK : ***Is the voltage more than 10 V?***
YES : Go to step **10AE3**.
NO : Go to step **10AE2**.

10AE2 : CHECK POOR CONTACT.

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

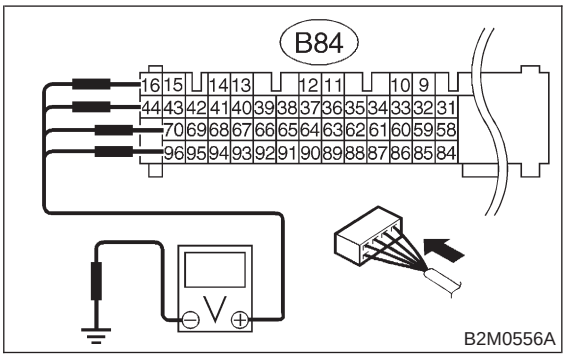
CHECK : ***Is there poor contact in ECM connector?***
YES : Repair poor contact in ECM connector.
NO : Replace ECM.

10AE3 : CHECK HARNESS BETWEEN FUEL INJECTOR AND ECM CONNECTOR.

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

Connector & terminal

#1 (B84) No. 96 (+) — Chassis ground (−):
#2 (B84) No. 70 (+) — Chassis ground (−):
#3 (B84) No. 44 (+) — Chassis ground (−):
#4 (B84) No. 16 (+) — Chassis ground (−):

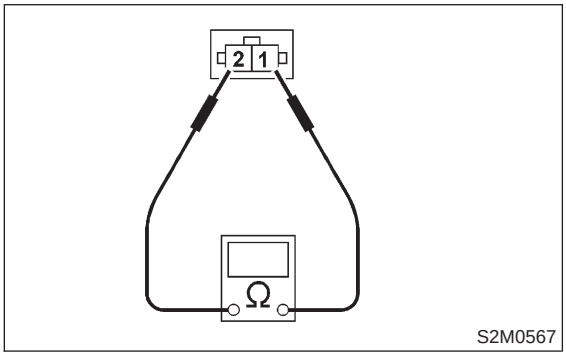


CHECK : ***Is the voltage more than 10 V?***
YES : Repair battery short circuit in harness between ECM and fuel injector. After repair, replace ECM.
NO : Go to step **10AE4**.

10AE4 : CHECK FUEL INJECTOR.

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

Terminals
No. 1 — No. 2:



CHECK : ***Is the resistance less than 1 Ω?***
YES : Replace faulty fuel injector and ECM.
NO : Go to step **10AE5**.

10AE5 : CHECK POOR CONTACT.

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

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

AF: DTC P0301 — CYLINDER 1 MISFIRE DETECTED —

NOTE:
For the diagnostic procedure, refer to 2-7 [T10AI1]. <Ref. to 2-7 [T10AI1].>

AG: DTC P0302 — CYLINDER 2 MISFIRE DETECTED —

NOTE:
For the diagnostic procedure, refer to 2-7 [T10AI1]. <Ref. to 2-7 [T10AI1].>

AH: DTC P0303 — CYLINDER 3 MISFIRE DETECTED —

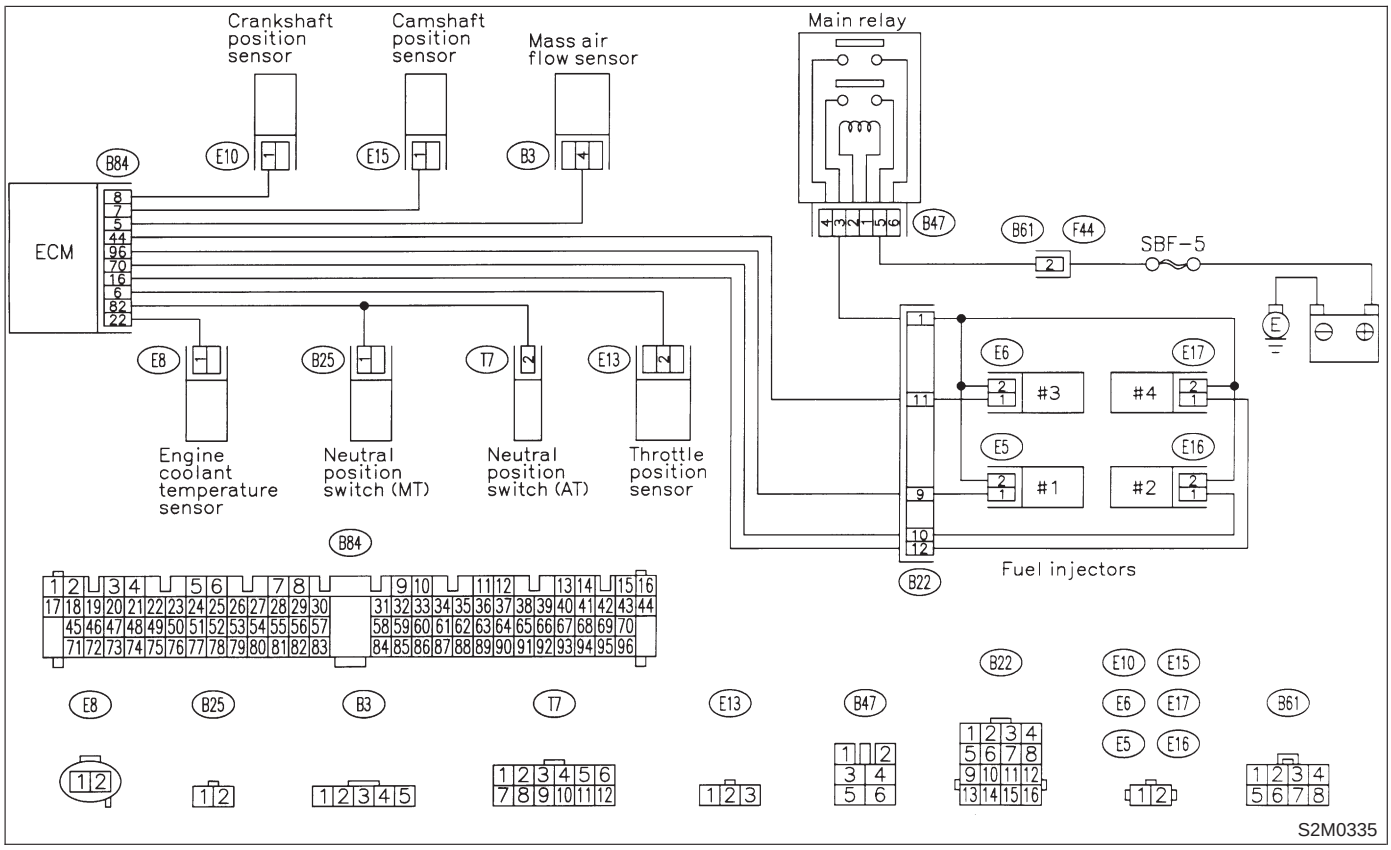
NOTE:
For the diagnostic procedure, refer to 2-7 [T10AI1]. <Ref. to 2-7 [T10AI1].>

AI: DTC P0304 — CYLINDER 4 MISFIRE DETECTED —

- **DTC DETECTING CONDITION:**
  - Two consecutive driving cycles with fault
  - Immediately at fault recognition (A misfire which could damage catalyst occurs.)
- **TROUBLE SYMPTOM:**
  - Engine stalls.
  - Erroneous idling
  - Rough driving

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

- **WIRING DIAGRAM:**



10AI1 : CHECK ANY OTHER DTC ON DISPLAY.

CHECK : ***Does the Subaru select monitor or OBD-II general scan tool indicate DTC P0101, P0102, P0103, P0116, P0117, P0125, P0261, P0262, P0264, P0265, P0267, P0268, P0270 or P0271?***

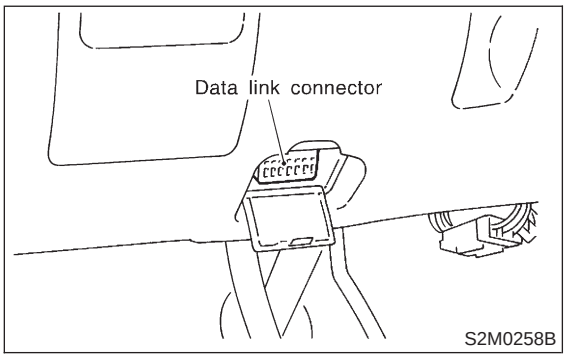
YES : Inspect DTC P0101, P0102, P0103, P0116, P0117, P0125, P0261, P0262, P0264, P0265, P0267, P0268, P0270 or P0271 using “10. Diagnostics Chart with Trouble Code”. <Ref. to 2-7 [T10A0].>

NOTE:
In this case, it is not necessary to inspect DTC P0301, P0302, P0303 and P0304.

NO : Go to step **10AI2**.

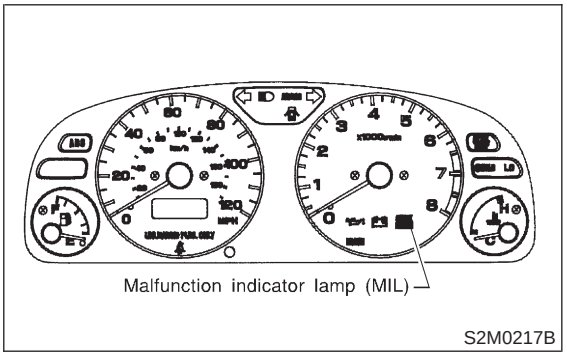
10AI2 : CHECK STATUS OF CHECK ENGINE MALFUNCTION INDICATOR LAMP (MIL).

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



3) Clear memory using Subaru Select Monitor. <Ref. to 2-7 [T3D0].>

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



CHECK : ***Is the MIL coming on or blinking?***

YES : Go to step **10AI5**.

NO : Go to step **10AI3**.

10AI3 : CHECK AMOUNT OF FUEL.

CHECK : ***Has the vehicle been run empty of fuel?***

YES : Finish diagnostics operation, if the engine has no abnormality.

NO : Go to step **10AI4**.

10AI4 : CHECK CAUSE OF MISFIRE DIAGNOSED.

CHECK : ***Was the cause of misfire diagnosed when the engine is running?***

YES : Finish diagnostics operation, if the engine has no abnormality.

NOTE:
Ex. Remove spark plug cord, etc.

NO : Repair poor contact.

NOTE:
In this case, repair the following:
- Poor contact in ignitor connector
- Poor contact in ignition coil connector
- Poor contact in fuel injector connector on faulty cylinders
- Poor contact in ECM connector
- Poor contact in coupling connector (B22)

10AI5 : CHECK AIR INTAKE SYSTEM.

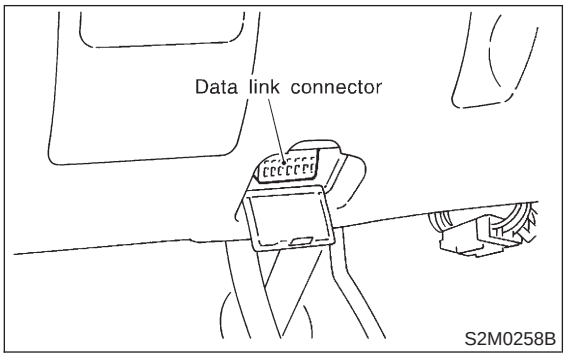
CHECK : ***Is there a fault in air intake system?***
YES : Repair air intake system.

NOTE:
Check the following items:
- Are there air leaks or air suction caused by loose or dislocated nuts and bolts?
- Are there cracks or any disconnection of hoses?

NO : Go to step **10AI6**.

10AI6 : CHECK MISFIRE SYMPTOM.

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



3) Turn ignition switch to ON, and turn Subaru Select Monitor or OBD-II general scan tool switch to ON.
4) Read diagnostic trouble code (DTC).
- Subaru Select Monitor

<Ref. to 2-7 [T3C2].>
- OBD-II general scan tool

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

NOTE:
Perform diagnosis according to the items listed below.

CHECK : ***Does the Subaru select monitor or OBD-II general scan tool indicate only one DTC?***
YES : Go to step **10AI11**.
NO : Go to step **10AI7**.

10AI7 : CHECK DIAGNOSTIC TROUBLE CODE (DTC) ON DISPLAY.

CHECK : ***Does the Subaru select monitor or OBD-II general scan tool indicate DTC P0301 and P0302?***
YES : Go to step **10AI12**.
NO : Go to step **10AI8**.

10AI8 : CHECK DIAGNOSTIC TROUBLE CODE (DTC) ON DISPLAY.

CHECK : ***Does the Subaru select monitor or OBD-II general scan tool indicate DTC P0303 and P0304?***
YES : Go to step **10AI13**.
NO : Go to step **10AI9**.

10AI9 : CHECK DIAGNOSTIC TROUBLE CODE (DTC) ON DISPLAY.

CHECK : ***Does the Subaru select monitor or OBD-II general scan tool indicate DTC P0301 and P0303?***
YES : Go to step **10AI14**.
NO : Go to step **10AI10**.

10AI10 : CHECK DIAGNOSTIC TROUBLE CODE (DTC) ON DISPLAY.

CHECK : ***Does the Subaru select monitor or OBD-II general scan tool indicate DTC P0302 and P0304?***
YES : Go to step **10AI15**.
NO : Go to step **10AI16**.

10AI11 : ONLY ONE CYLINDER

CHECK : ***Is there a fault in that cylinder?***
YES : Repair or replace faulty parts.

NOTE:
Check the following items.
- Spark plug
- Spark plug cord
- Fuel injector
- Compression ratio

NO : Go to step **10AI17**.

10AI12 : GROUP OF #1 AND #2 CYLINDERS

CHECK : ***Are there faults in #1 and #2 cylinders?***

YES : Repair or replace faulty parts.

NOTE:
- Check the following items.
  - Spark plugs
  - Fuel injectors
  - Ignition coil
- If no abnormal is discovered, check for “8. D: IGNITION CONTROL SYSTEM” of #1 and #2 cylinders side. <Ref. to 2-7 [T8D0].>

NO : Go to step **10AI17**.

10AI13 : GROUP OF #3 AND #4 CYLINDERS

CHECK : ***Are there faults in #3 and #4 cylinders?***

YES : Repair or replace faulty parts.

NOTE:
- Check the following items.
  - Spark plugs
  - Fuel injectors
  - Ignition coil
- If no abnormal is discovered, check for “8. D: IGNITION CONTROL SYSTEM” of #3 and #4 cylinders side. <Ref. to 2-7 [T8D0].>

NO : Go to step **10AI17**.

10AI14 : GROUP OF #1 AND #3 CYLINDERS

CHECK : ***Are there faults in #1 and #3 cylinders?***

YES : Repair or replace faulty parts.

NOTE:
Check the following items.
- Spark plugs
- Fuel injectors
- Skipping timing belt teeth

NO : Go to step **10AI17**.

10AI15 : GROUP OF #2 AND #4 CYLINDERS

CHECK : ***Are there faults in #2 and #4 cylinders?***

YES : Repair or replace faulty parts.

NOTE:
Check the following items.
- Spark plugs
- Fuel injectors
- Skipping timing belt teeth

NO : Go to step **10AI17**.

10AI16 : THE CYLINDER AT RANDOM

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

YES : Go to step **10AI17**.

NO : Go to DTC P0170. <Ref. to 2-7 [T10T3], [T10T4] and [T10T5].>

10AI17 : PERFORM COMFIRMATION OF ACTUAL DRIVING PATTERN.

1) Conduct CLEAR MEMORY and INSPECTION MODE. <Ref. to 2-7 [T3D0] and [T3E0].>
2) Start and warm-up the engine until the radiator fan makes one complete rotation. (All accessory switches are OFF.)
3) Turn Subaru select monitor switch to ON.
4) Operate the LED operation mode for engine.
   (1) On the ⌜Main Menu⌟ display screen, select the {2. Each System Check} and press the [YES] key.
   (2) On the ⌜System Selection Menu⌟ display screen, select the {EGI/EMPi} and press the [YES] key.
   (3) Press the [YES] key after displayed the information of engine type.
   (4) On the ⌜EGI/EMPI Diagnosis⌟ display screen, select the {1. Current Data Display & Save} and press the [YES] key.
   (5) On the ⌜Data Display Menu⌟ display screen, select the {2. 6 Data & LED Display} and press the [YES] key.

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

5) Run at the speed of 88±5 km/h (55±3 MPH) until the LED of {EGR System Diagnosis} 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 “5th” gear position (MT) or “D” range (AT) for the diagnosis.

CHECK : ***Has the LED come on?***
YES : Go to step **10AI18**.
NO : Go to step **10AI17**.

10AI18 : CHECK EGR SYSTEM.

1) Put up the vehicle.
2) Read data of maximum and minimum EGR system pressure using Subaru Select Monitor.
   (1) On the ⌜Main Menu⌟ display screen, select the {2. Each System Check} and press the [YES] key.
   (2) On the ⌜System Selection Menu⌟ display screen, select the {EGI/EMPi} and press the [YES] key.
   (3) On the [YES] key after displayed the information of engine type.
   (4) On the ⌜EGI/EMPI Diagnosis⌟ display screen, select the {5. Display of Diagnosis} and press the [YES] key.
   (5) On the ⌜Display of Diagnosis⌟ display screen, select the {EGR System Diagnosis} and press the [YES] key.

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

CHECK : ***Is the minimum EGR system pressure value less than 1 kPa?***
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.

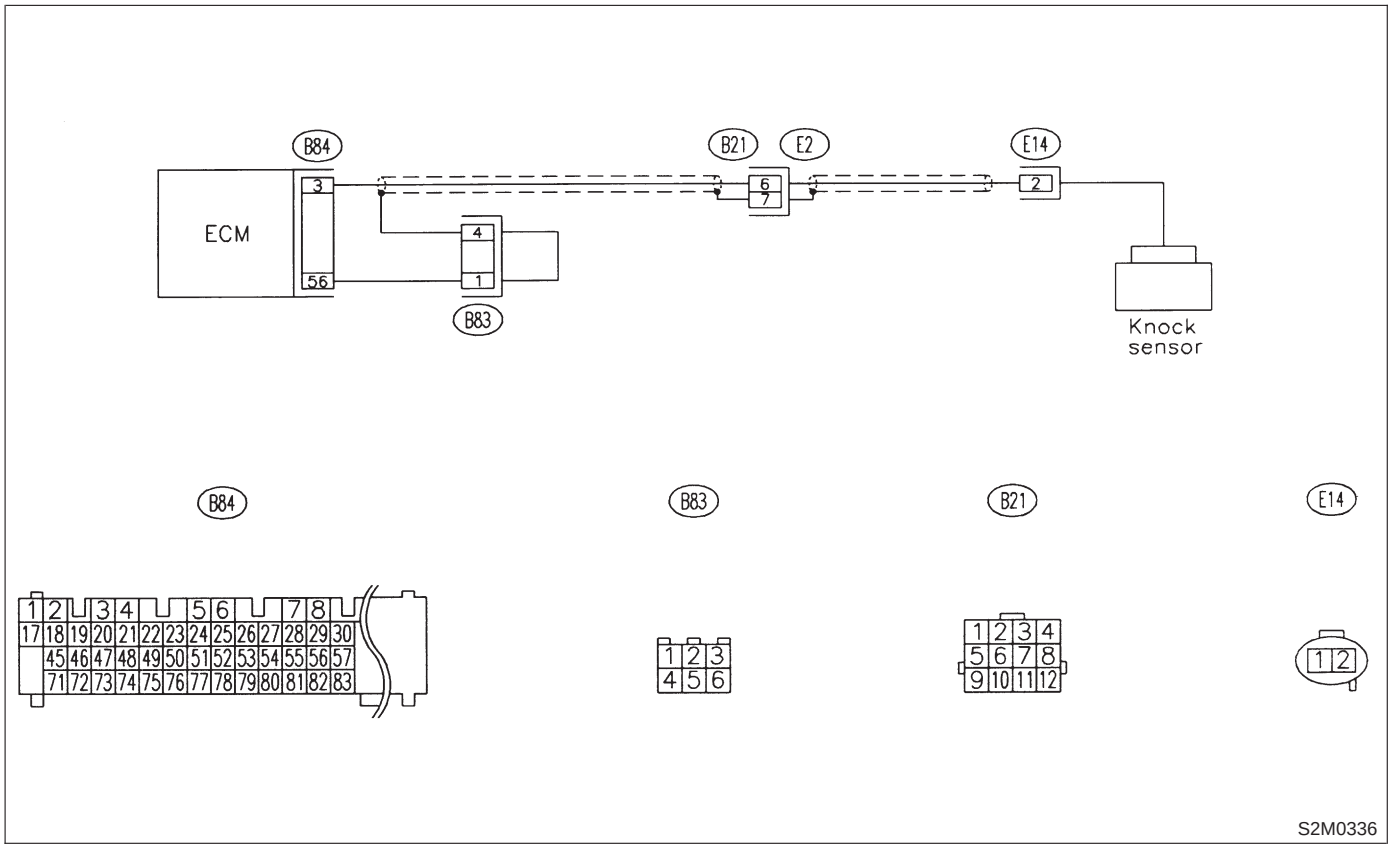
NO : Go to DTC P0170. <Ref. to 2-7 [T10T3], [T10T4] and [T10T5].>

AJ: DTC P0325 — KNOCK SENSOR CIRCUIT MALFUNCTION —

- **DTC DETECTING CONDITION:**
  - Immediately at fault recognition
- **TROUBLE SYMPTOM:**
  - Poor driving performance
  - Knocking occurs.

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

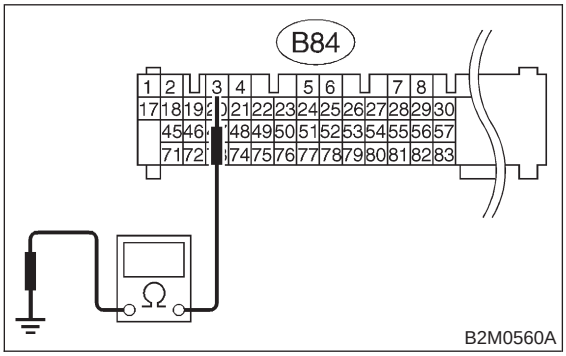
- **WIRING DIAGRAM:**



10AJ1 : CHECK HARNESS BETWEEN KNOCK SENSOR AND ECM CONNECTOR.

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

Connector & terminal
(B84) No. 3 — Chassis ground:

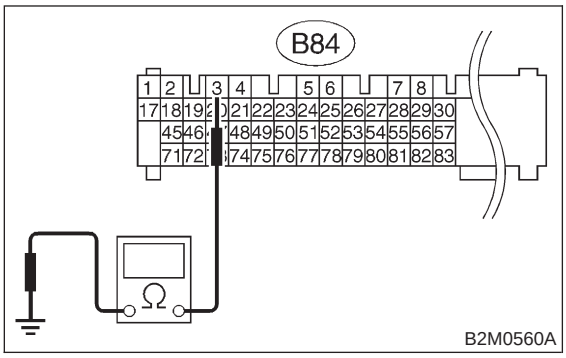


CHECK : ***Is the resistance more than 700 kΩ?***
YES : Go to step **10AJ3**.
NO : Go to step **10AJ2**.

10AJ2 : CHECK HARNESS BETWEEN KNOCK SENSOR AND ECM CONNECTOR.

Measure resistance of harness between ECM connector and chassis ground.

Connector & terminal
(B84) No. 3 — Chassis ground:

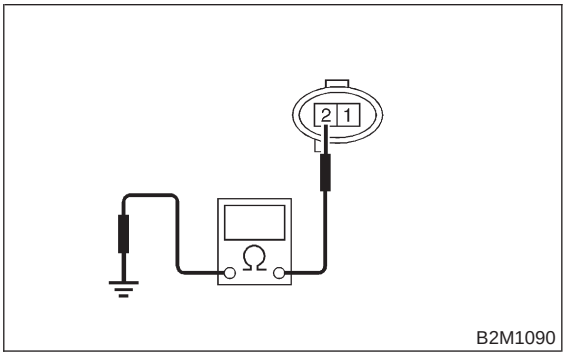


CHECK : ***Is the resistance less than 400 kΩ?***
YES : Go to step **10AJ5**.
NO : Go to step **10AJ6**.

10AJ3 : CHECK KNOCK SENSOR.

1) Disconnect connector from knock sensor.
2) Measure resistance between knock sensor connector terminal and engine ground.

Terminal
No. 2 — Engine ground:



CHECK : ***Is the resistance more than 700 kΩ?***
YES : Go to step **10AJ4**.
NO : Repair harness and connector.

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

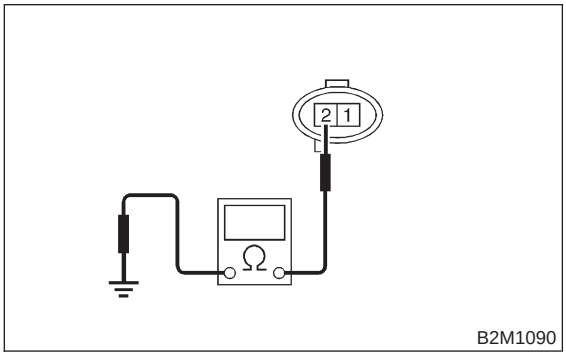
10AJ4 : CHECK CONDITION OF KNOCK SENSOR INSTALLATION.

CHECK : ***Is the knock sensor installation bolt tightened securely?***
YES : Replace knock sensor.
NO : Tighten knock sensor installation bolt securely.

10AJ5 : CHECK KNOCK SENSOR.

1) Disconnect connector from knock sensor.
2) Measure resistance between knock sensor connector terminal and engine ground.

Terminal
No. 2 — Engine ground:



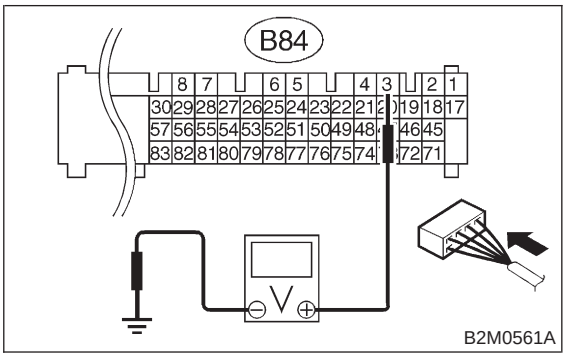
CHECK : ***Is the resistance less than 400 kΩ?***
YES : Replace knock sensor.
NO : Repair ground short circuit in harness between knock sensor connector and ECM connector.

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

10AJ6 : CHECK INPUT SIGNAL FOR ECM.

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

Connector & terminal
(B84) No. 3 (+) — Chassis ground (−):



CHECK : ***Is the voltage more than 2 V?***
YES : Even if MIL lights up, the circuit has returned to a normal condition at this time. (However, the possibility of poor contact still remains.)

NOTE:
In this case, repair the following:
- Poor contact in knock sensor connector
- Poor contact in ECM connector
- Poor contact in coupling connector (B21)

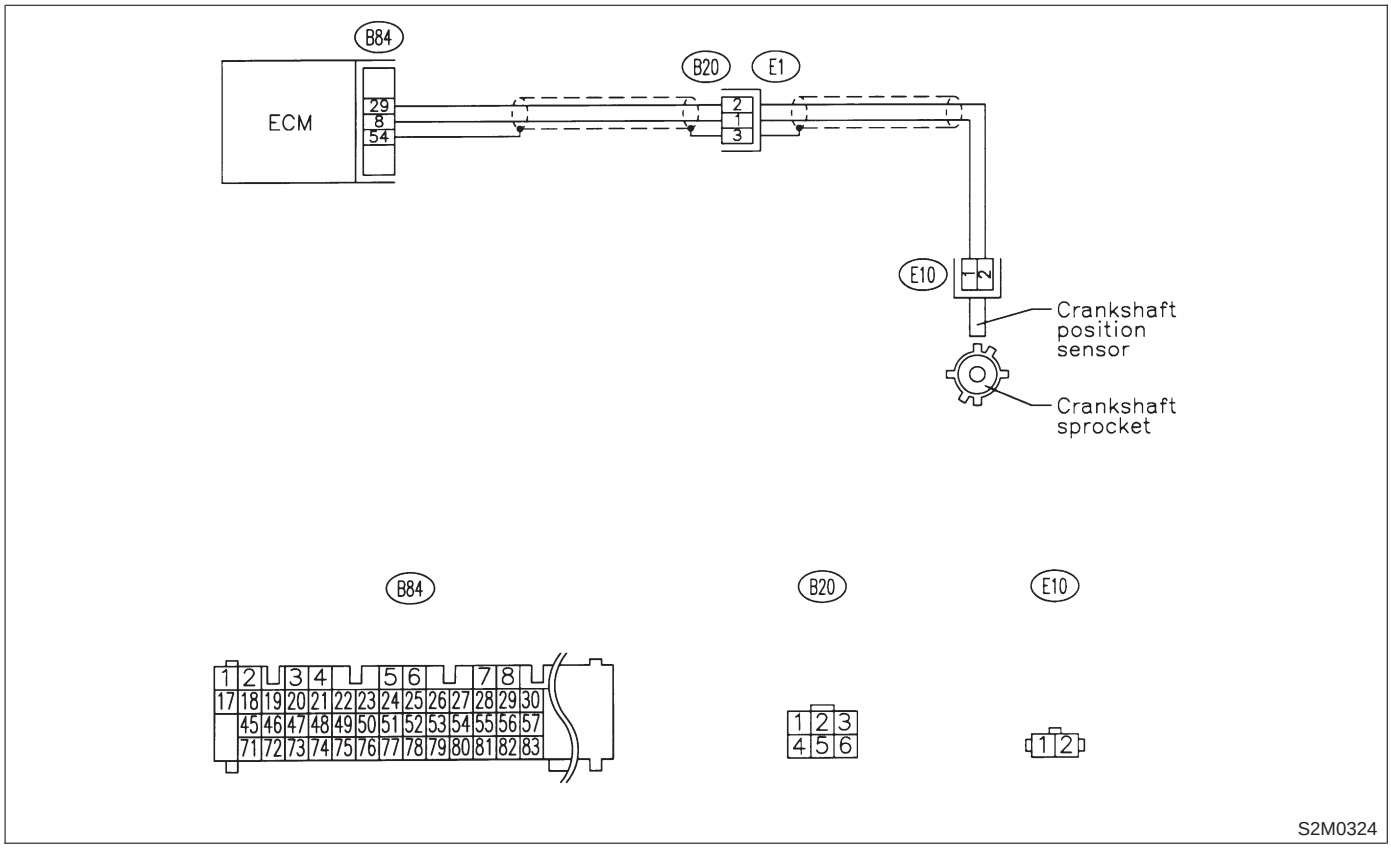
NO : Repair poor contact in ECM connector.

AK: DTC P0335 — CRANKSHAFT POSITION SENSOR CIRCUIT MALFUNCTION —

- **DTC DETECTING CONDITION:**
  - Immediately at fault recognition
- **TROUBLE SYMPTOM:**
  - Engine stalls.
  - Failure of engine to start

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

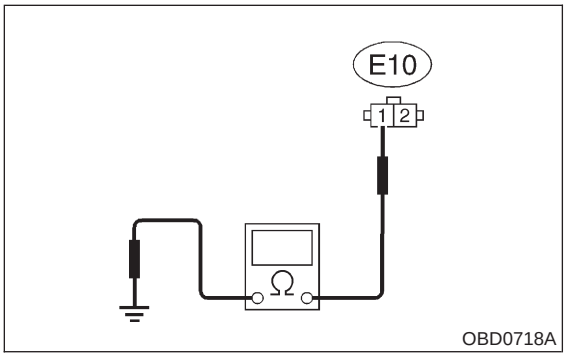
- **WIRING DIAGRAM:**



10AK1 : CHECK HARNESS BETWEEN CRANKSHAFT POSITION SENSOR AND ECM CONNECTOR.

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

Connector & terminal
(E10) No. 1 — Engine ground:



CHECK : ***Is the resistance more than 100 kΩ?***
YES : Repair harness and connector.

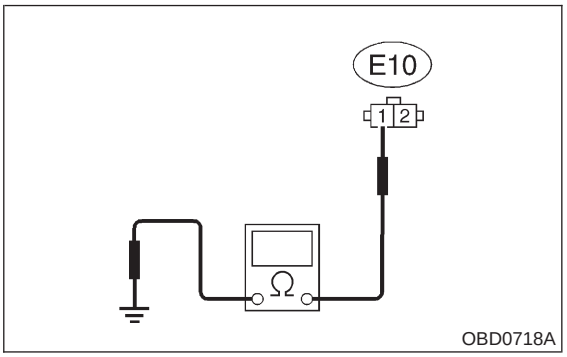
NOTE:
In this case, repair the following:
- Open circuit in harness between crankshaft position sensor and ECM connector
- Poor contact in ECM connector
- Poor contact in coupling connector (B20)

NO : Go to step **10AK2**.

10AK2 : CHECK HARNESS BETWEEN CRANKSHAFT POSITION SENSOR AND ECM CONNECTOR.

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

Connector & terminal
(E10) No. 1 — Engine ground:



CHECK : ***Is the resistance less than 10 Ω?***
YES : Repair ground short circuit in harness between crankshaft position sensor and ECM connector.

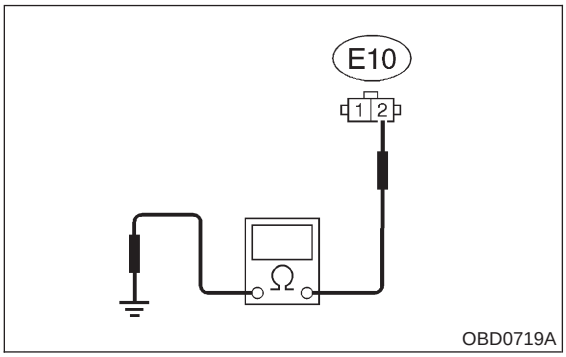
NOTE:
The harness between both connectors are shielded. Repair ground short circuit in harness together with shield.

NO : Go to step **10AK3**.

10AK3 : CHECK HARNESS BETWEEN CRANKSHAFT POSITON SENSOR AND ECM CONNECTOR.

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

Connector & terminal
(E10) No. 2 — Engine ground:



CHECK : ***Is the resistance less than 5 Ω?***
YES : Go to step **10AK4**.
NO : Repair harness and connector.

NOTE:
In this case, repair the following:
- Open circuit in harness between crankshaft position sensor and ECM connector
- Poor contact in ECM connector
- Poor contact in coupling connector (B20)

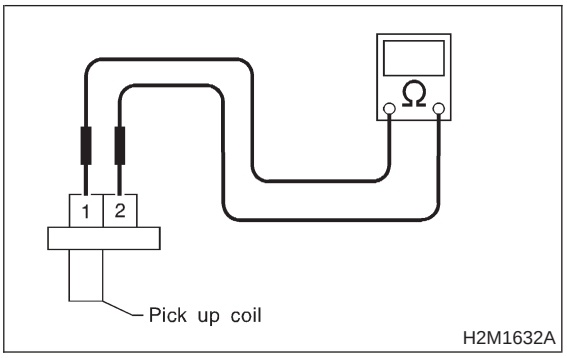
10AK4 : CHECK CONDITION OF CRANKSHAFT POSITION SENSOR INSTALLATION.

CHECK : ***Is the crankshaft position sensor installation bolt tightened securely?***
YES : Go to step **10AK5**.
NO : Tighten crankshaft position sensor installation bolt securely.

10AK5 : CHECK OF CRANKSHAFT POSITION SENSOR.

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

Terminals
No. 1 — No. 2:



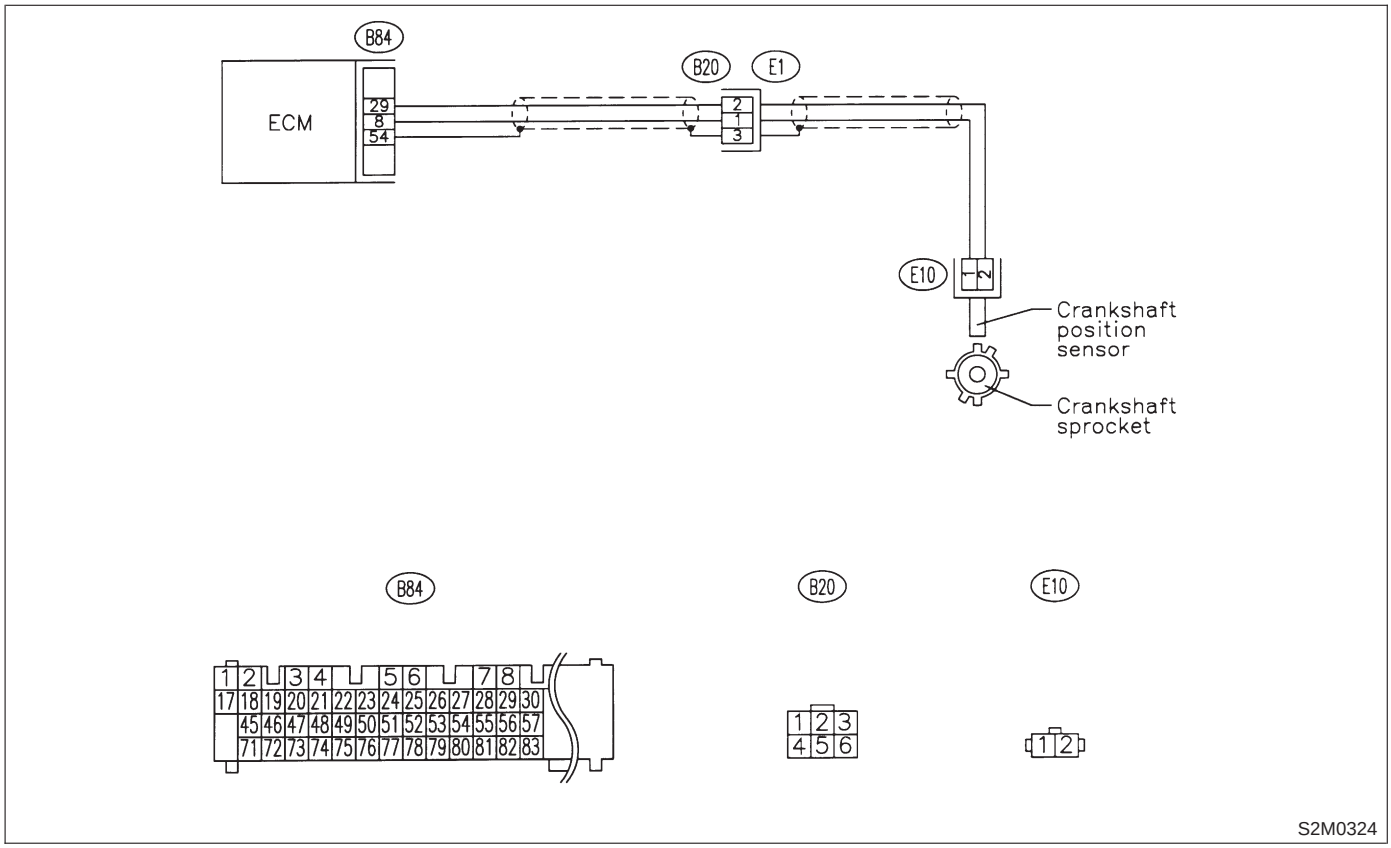
CHECK : ***Is the resistance between 1 and 4 kΩ?***
YES : Repair poor contact in crankshaft position sensor connector.
NO : Replace crankshaft position sensor.

AL: DTC P0336 — CRANKSHAFT POSITION SENSOR CIRCUIT RANGE/PERFORMANCE PROBLEM —

- **DTC DETECTING CONDITION:**
  - Immediately at fault recognition
- **TROUBLE SYMPTOM:**
  - Engine stalls.
  - Failure of engine to start

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

- **WIRING DIAGRAM:**



10AL1 :	CHECK ANY OTHER DTC ON DISPLAY.

CHECK : ***Does the Subaru select monitor or OBD-II general scan tool indicate DTC P0335?***

YES : Inspect DTC P0335 using “10. Diagnostics Chart with Trouble Code”. <Ref. to 2-7 [T10A0].>

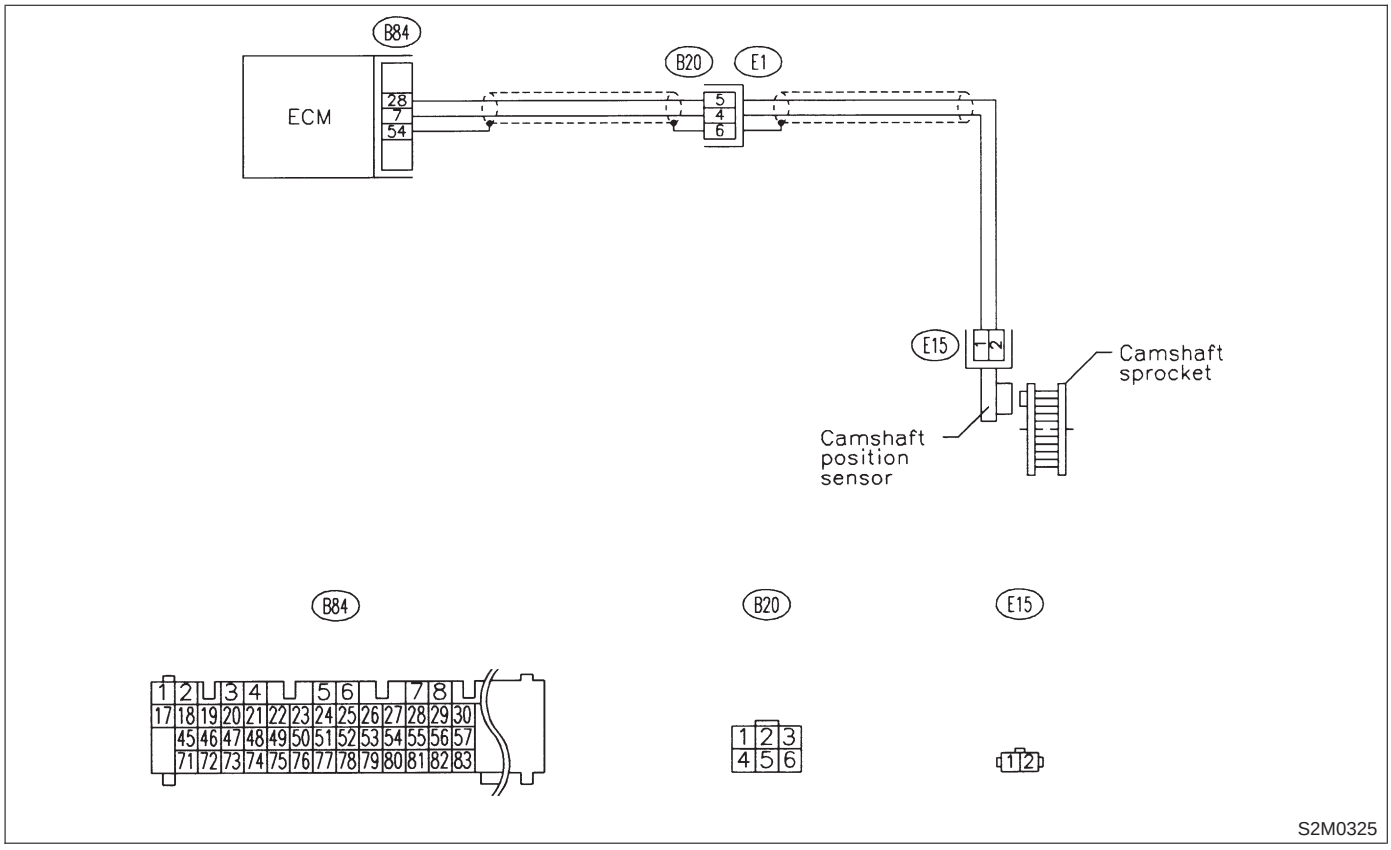
NO : Replace crankshaft position sensor.

AM: DTC P0340 — CAMSHAFT POSITION SENSOR CIRCUIT MALFUNCTION —

- **DTC DETECTING CONDITION:**
  - Immediately at fault recognition
- **TROUBLE SYMPTOM:**
  - Engine stalls.
  - Failure of engine to start

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

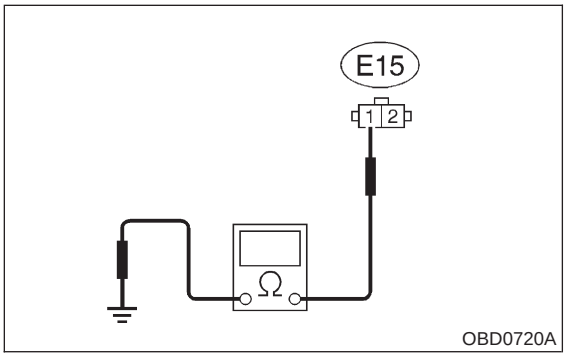
- **WIRING DIAGRAM:**



10AM1 : CHECK HARNESS BETWEEN CAMSHAFT POSITION SENSOR AND ECM CONNECTOR.

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

Connector & terminal
(E15) No. 1 — Engine ground:



CHECK : ***Is the resistance more than 100 kΩ?***
YES : Repair harness and connector.

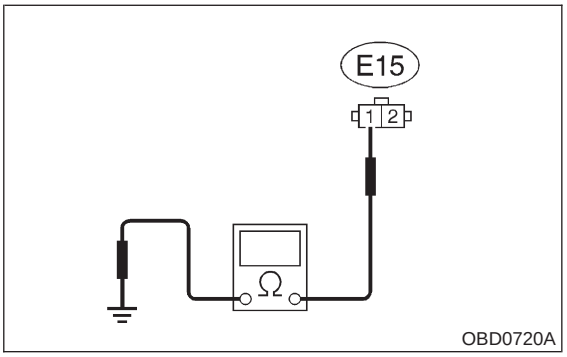
NOTE:
In this case, repair the following:
- Open circuit in harness between camshaft position sensor and ECM connector
- Poor contact in ECM connector
- Poor contact in coupling connector (B20)

NO : Go to step **10AM2**.

10AM2 : CHECK HARNESS BETWEEN CAMSHAFT POSITION SENSOR AND ECM CONNECTOR.

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

Connector & terminal
(E15) No. 1 — Engine ground:



CHECK : ***Is the resistance less than 10 Ω?***
YES : Repair ground short circuit in harness between camshaft position sensor and ECM connector.

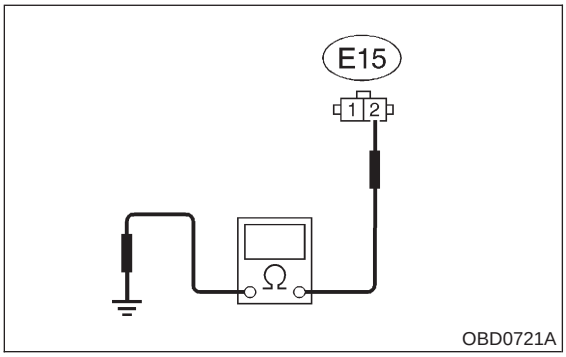
NOTE:
The harness between both connectors are shielded. Repair ground short circuit in harness together with shield.

NO : Go to step **10AM3**.

10AM3 : CHECK HARNESS BETWEEN CAMSHAFT POSITION SENSOR AND ECM CONNECTOR.

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

Connector & terminal
(E15) No. 2 — Engine ground:



CHECK : ***Is the resistance less than 5 Ω?***
YES : Go to step **10AM4**.
NO : Repair harness and connector.

NOTE:
In this case, repair the following:
- Open circuit in harness between camshaft position sensor and ECM connector
- Poor contact in ECM connector
- Poor contact in coupling connector (B20)

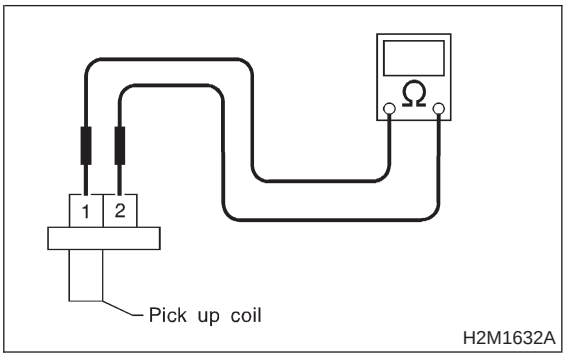
10AM4 : CHECK CONDITION OF CAMSHAFT POSITION SENSOR INSTALLATION.

CHECK : ***Is the camshaft position sensor installation bolt tightened securely?***
YES : Go to step **10AM5**.
NO : Tighten camshaft position sensor installation bolt securely.

10AM5 : CHECK CAMSHAFT POSITION SENSOR.

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

Terminals
No. 1 — No. 2:



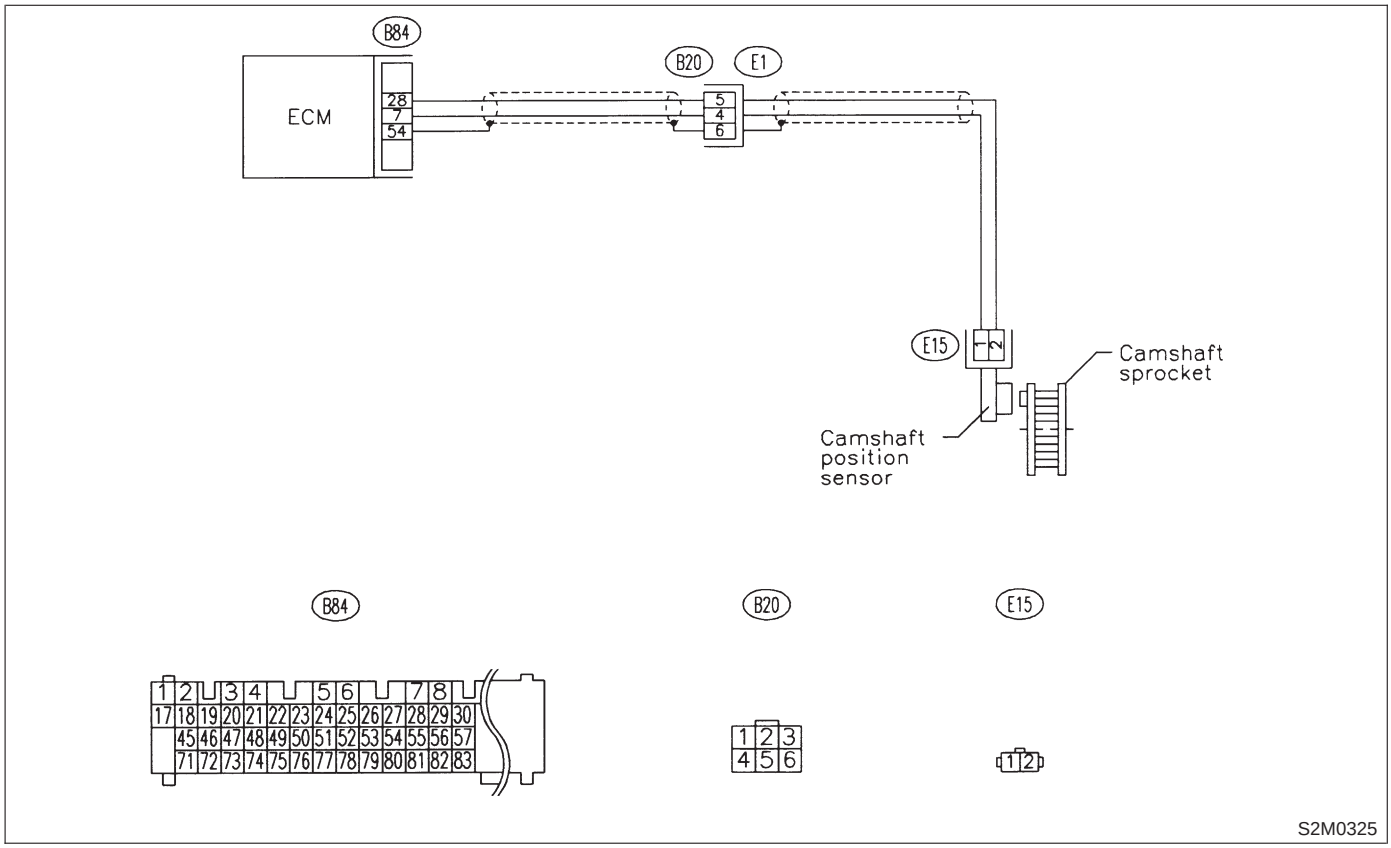
CHECK : ***Is the resistance between 1 and 4 kΩ?***
YES : Repair poor contact in camshaft position sensor connector.
NO : Replace camshaft position sensor.

AN: DTC P0341 — CAMSHAFT POSITION SENSOR CIRCUIT RANGE/PERFORMANCE PROBLEM —

- **DTC DETECTING CONDITION:**
  - Immediately at fault recognition
- **TROUBLE SYMPTOM:**
  - Engine stalls.
  - Failure of engine to start

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

- **WIRING DIAGRAM:**



10AN1 :	CHECK ANY OTHER DTC ON DISPLAY.

CHECK : ***Does the Subaru select monitor or OBD-II general scan tool indicate DTC P0340?***

YES : Inspect DTC P0340 using “10. Diagnostics Chart with Trouble Code”. <Ref. to 2-7 [T10A0].>

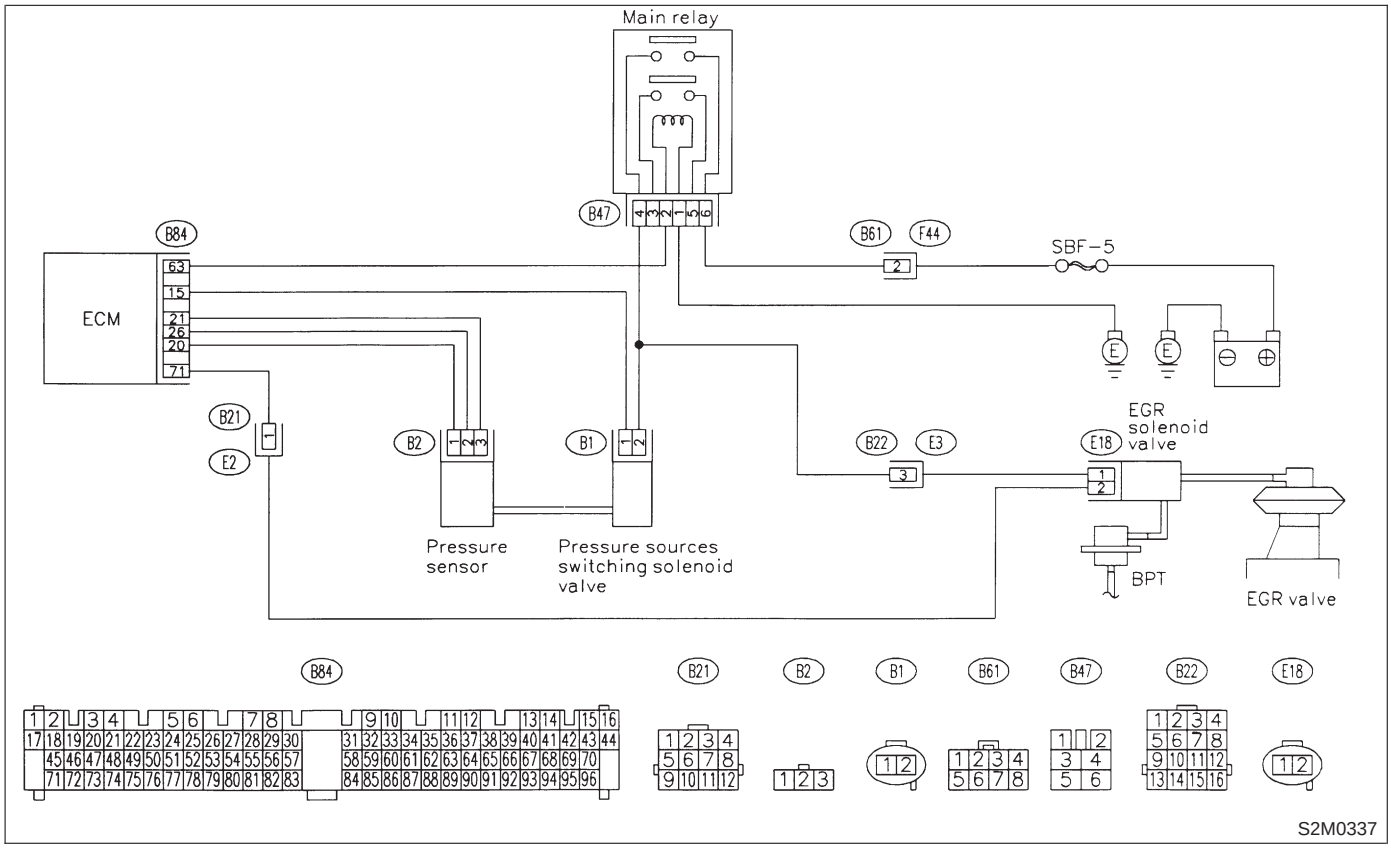
NO : Replace camshaft position sensor.

AO: DTC P0400 — EXHAUST GAS RECIRCULATION FLOW MALFUNCTION —

- **DTC DETECTING CONDITION:**
  - Two consecutive driving cycles 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 2-7 [T3D0] and [T3E0].>

- **WIRING DIAGRAM:**



10AO1 : CHECK ANY OTHER DTC ON DISPLAY.

CHECK : ***Does the Subaru select monitor or OBD-II general scan tool indicate DTC P0106, P0107, P0108, P0403, P1102, P1122 or P1421?***

YES : ● Inspect DTC P0106, P0107, P0108, P0403, P1102, P1122 or P1421 using "10. Diagnostics Chart with Trouble Code". <Ref. to 2-7 [T10A0].>
● Manually check that EGR valve diaphragm is not stuck.

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

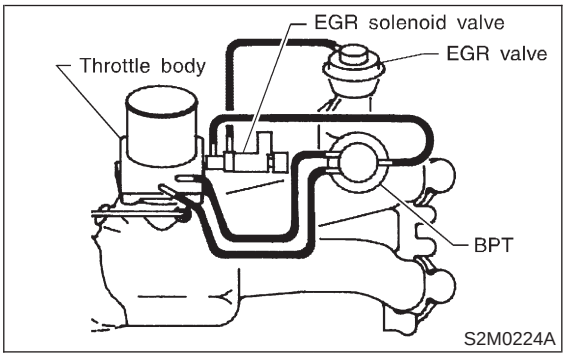
NOTE:
In this case, it is not necessary to inspect DTC P0400. After checking the above item, go to **CONFIRMATION OF ACTUAL DRIVING PATTERN.** <Ref. to 2-7 [T10AO6].>

NO : Go to step **10AO2**.

10AO2 : CHECK VACUUM LINE.

Check the following items.

● Disconnection, leakage and clogging of the two vacuum hoses and pipes between throttle body and BPT
● Disconnection, leakage and clogging of the vacuum hose and pipe between EGR solenoid valve and BPT
● Disconnection, leakage and clogging of the vacuum hose between EGR solenoid valve and EGR valve
● Disconnection, leakage and clogging of BPT pressure transmitting hose



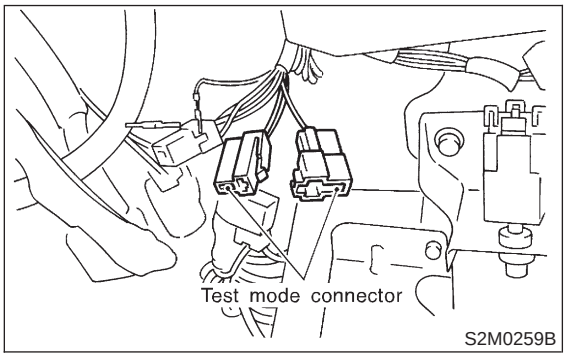
CHECK : ***Is there a fault in vacuum line?***

YES : Repair or replace hoses and pipes. And after the checking and repairing, go to **CONFIRMATION OF ACTUAL DRIVING PATTERN.** <Ref. to 2-7 [T10AO6].>

NO : Go to step **10AO3**.

10AO3 : CHECK OPERATION OF EGR SYSTEM.

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



3) Turn ignition switch to ON.

NOTE:
EGR control solenoid valve operation check can also be executed using Subaru Select Monitor. For the procedure, refer to the "COMPULSORY VALVE OPERATION CHECK MODE". <Ref. to 2-7 [T3F0].>

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

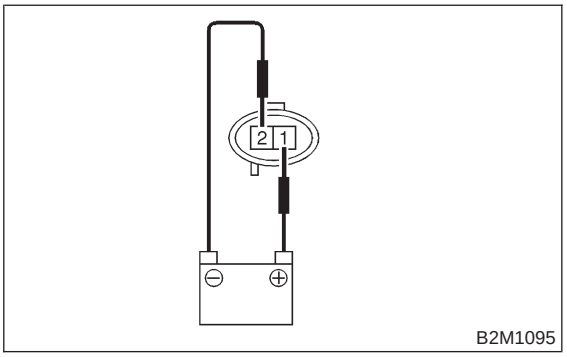
YES : Go to step **10AO4**.

NO : Replace EGR solenoid valve.

10AO4 : CHECK EGR VALVE.

1) Turn ignition switch to OFF.
2) Disconnect connector from EGR solenoid valve.
3) Connect 12 V battery's ground (−) terminal to one terminal of the EGR solenoid valve. Then connect 12 V battery's (0+) 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.



4) Start the engine.

CHECK : ***Does EGR valve operate at a throttle valve opening of 5 to 10 degrees with visually check?***

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.** <Ref. to 2-7 [T10AO6].>

NOTE:
If malfunction is detected again in the confirmation of actual driving pattern, EGR valve is faulty. Go to step **10AO5**.

NO : Go to step **10AO5**.

10AO5 : CHECK MECHANICAL TROUBLE.

Turn ignition switch to OFF.

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.** <Ref. to 2-7 [T10AO6].>

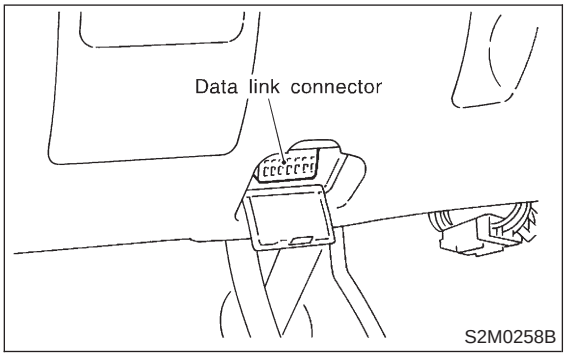
NO : Clean EGR valve. And go to **CONFIRMATION OF ACTUAL DRIVING PATTERN.** <Ref. to 2-7 [T10AO6].>

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.

10AO6 : CONFIRMATION OF ACTUAL DRIVING PATTERN.

1) Connect Subaru select monitor to its data link connector.



2) Conduct CLEAR MEMORY and INSPECTION MODES. <Ref. to 2-7 [T3D0] and [T3E0].>
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) Operate the LED operation mode for engine.
(1) On the ⌜Main Menu⌟ display screen, select the {2. Each System Check} and press the [YES] key.
(2) On the ⌜System Selection Menu⌟ display screen, select the {EGI/EMPi} and press the [YES] key.
(3) Press the [YES] key after displayed the information of engine type.
(4) On the ⌜EGI/EMPI Diagnosis⌟ display screen, select the {1. Current Data Display & Save} and press the [YES] key.
(5) On the ⌜Data Display Menu⌟ display screen, select the {2. 6 Data & LED Display} and press the [YES] key.

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

6) Run at the speed of 88±5 km/h (55±3 MPH) until the LED of {EGR System Diagnosis} 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 “5th” gear position (MT) or “D” range (AT) for the diagnosis.

7) Read DTC using Subaru select monitor.
(1) On the ⌜Main Menu⌟ display screen, select the {2. Check of Each System} and press the [YES] key.
(2) On the ⌜System Selection Menu⌟ display screen, select the {EGI/EMPi} and press the [YES] key.
(3) Press the [YES] key after displayed the information of engine type.
(4) On the ⌜EGI/EMPI Diagnosis⌟ display screen, select the {7. OBD System} and press the [YES] key.
(5) On the ⌜OBD Menu⌟ display screen, select the {6. Temporary code inspect} and press the [YES] key.

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

8) Confirm the “No Temporary Diagnostic Code” indication on Subaru select monitor.

CHECK : ***Does the Subaru select monitor indicate any other DTC on display?***

YES : Inspect the relevant DTC using “10. Diagnostics Chart with Trouble Code”. <Ref. to 2-7 [T10A0].>

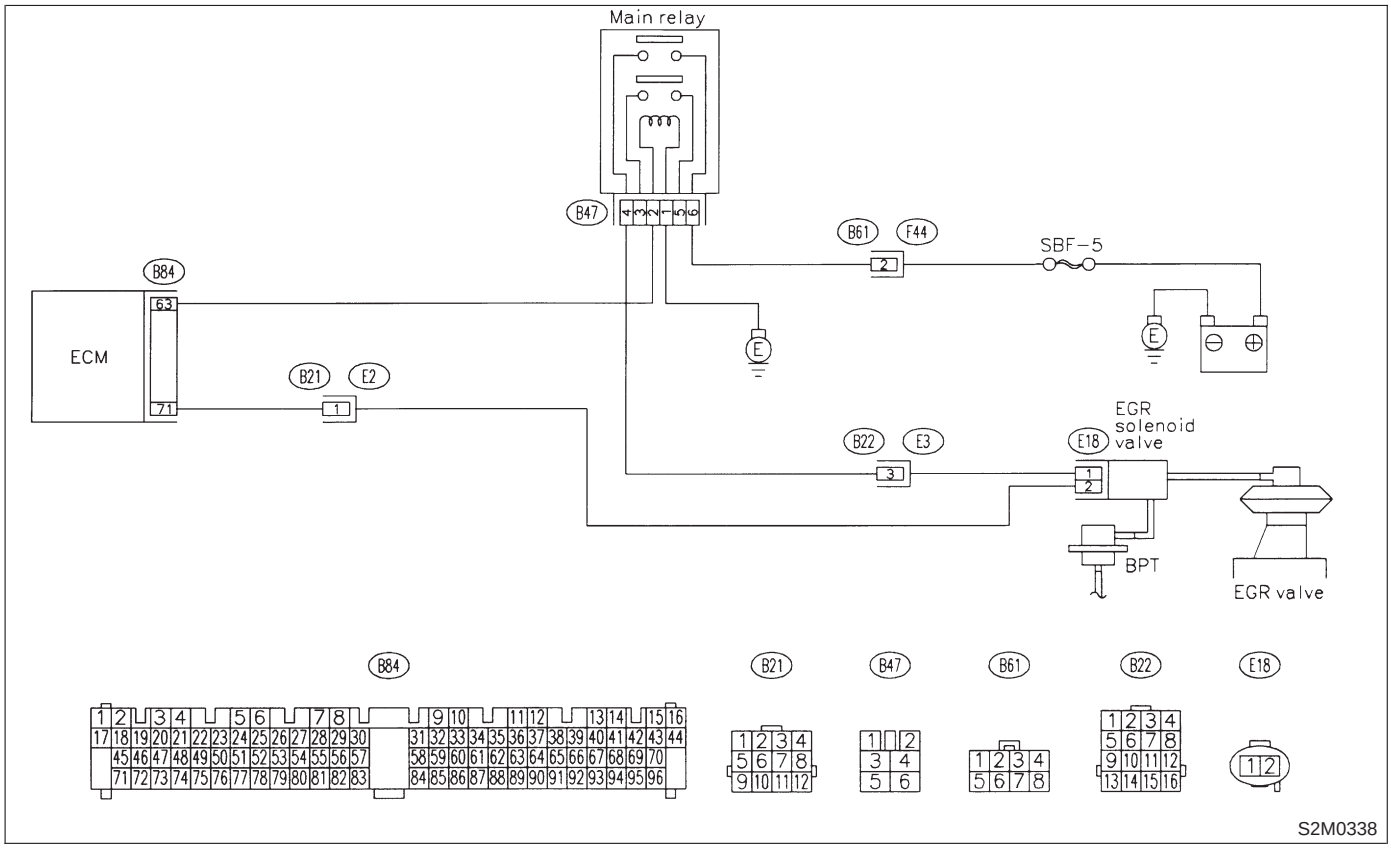
NO : End of diagnosis.

AP: DTC P0403 — EXHAUST GAS RECIRCULATION CIRCUIT LOW INPUT —

- **DTC DETECTING CONDITION:**
  - Two consecutive driving cycles 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 2-7 [T3D0] and [T3E0].>

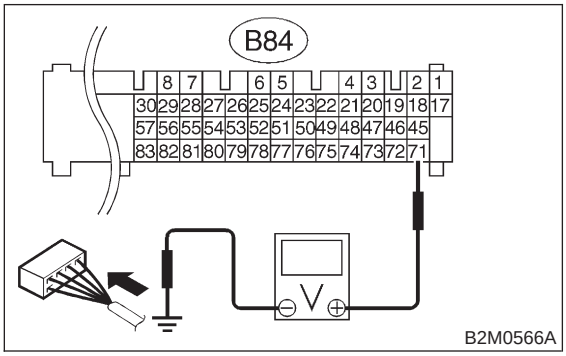
- **WIRING DIAGRAM:**



10AP1 : CHECK OUTPUT SIGNAL FROM ECM.

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

Connector & terminal
(B84) No. 71 (+) — Chassis ground (−):



CHECK : ***Is the voltage more than 10 V?***
YES : Go to step **10AP2**.
NO : Go to step **10AP3**.

10AP2 : CHECK POOR CONTACT.

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

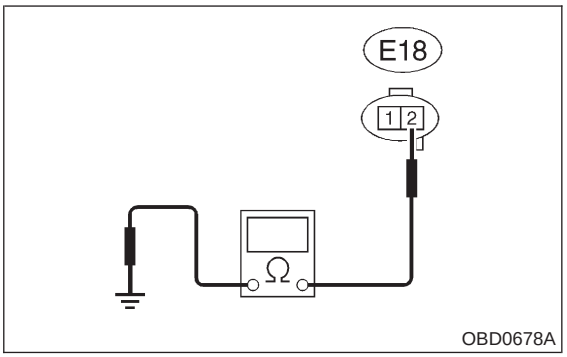
CHECK : ***Is there poor contact in ECM connector?***
YES : Repair poor contact in ECM connector.
NO : Even if MIL lights up, the circuit has returned to a normal condition at this time. (However, the possibility of poor contact still remains.)

NOTE:
In this case, repair the following:
- Poor contact in EGR solenoid valve connector
- Poor contact in ECM connector
- Poor contact in coupling connector (B21)

10AP3 : CHECK HARNESS BETWEEN EGR SOLENOID VALVE AND ECM CONNECTOR.

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

Connector & terminal
(E18) No. 2 — Engine ground:

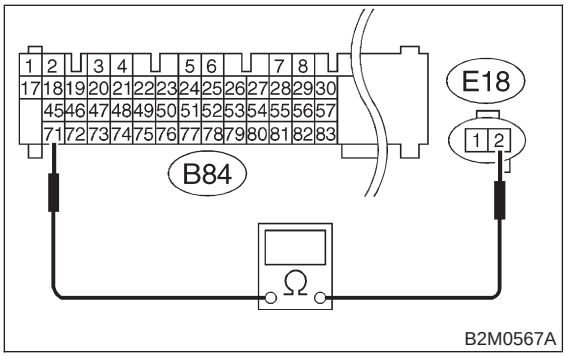


CHECK : ***Is the resistance less than 10 Ω?***
YES : Repair ground short circuit in harness between ECM and EGR solenoid valve connector.
NO : Go to step **10AP4**.

10AP4 : CHECK HARNESS BETWEEN EGR SOLENOID VALVE AND ECM CONNECTOR.

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

Connector & terminal
(B84) No. 71 — (E18) No. 2:



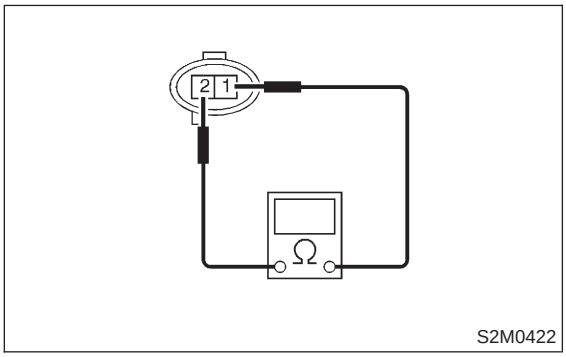
CHECK : ***Is the voltage less than 1 Ω?***
YES : Go to step **10AP5**.
NO : Repair harness and connector.

NOTE:
In this case, repair the following:
- Open circuit in harness between EGR solenoid valve and ECM connector
- Poor contact in coupling connector (B21)
- Poor contact in EGR solenoid valve connector
- Poor contact in ECM connector

10AP5 : CHECK EGR SOLENOID VALVE.

Measure resistance between EGR solenoid valve terminals.

Terminals
No. 1 — No. 2:

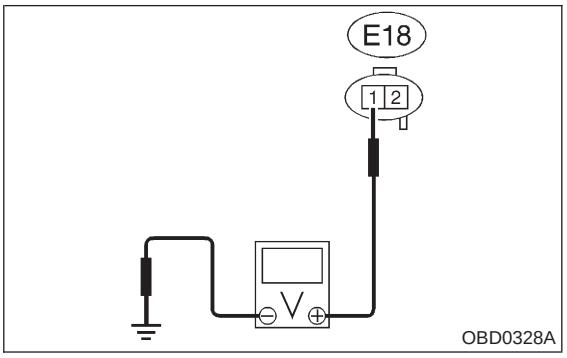


CHECK : ***Is the resistance between 10 and 100 Ω?***
YES : Go to step **10AP6**.
NO : Replace EGR solenoid valve.

10AP6 : CHECK POWER SUPPLY TO EGR SOLENOID VALVE.

1) Turn ignition switch to ON.
2) Measure voltage between EGR solenoid valve and engine ground.

Connector & terminal
(E18) No. 1 (+) — Engine ground (−):



CHECK : ***Is the voltage more than 10 V?***
YES : Go to step **10AP7**.
NO : Repair open circuit in harness between main relay and EGR solenoid valve connector.

10AP7 : CHECK POOR CONTACT.

Check poor contact in EGR solenoid valve connector. <Ref. to FOREWORD [T3C1].>

CHECK : ***Is there poor contact in EGR solenoid valve connector?***
YES : Repair poor contact in EGR solenoid valve connector.
NO : Contact with SOA service.

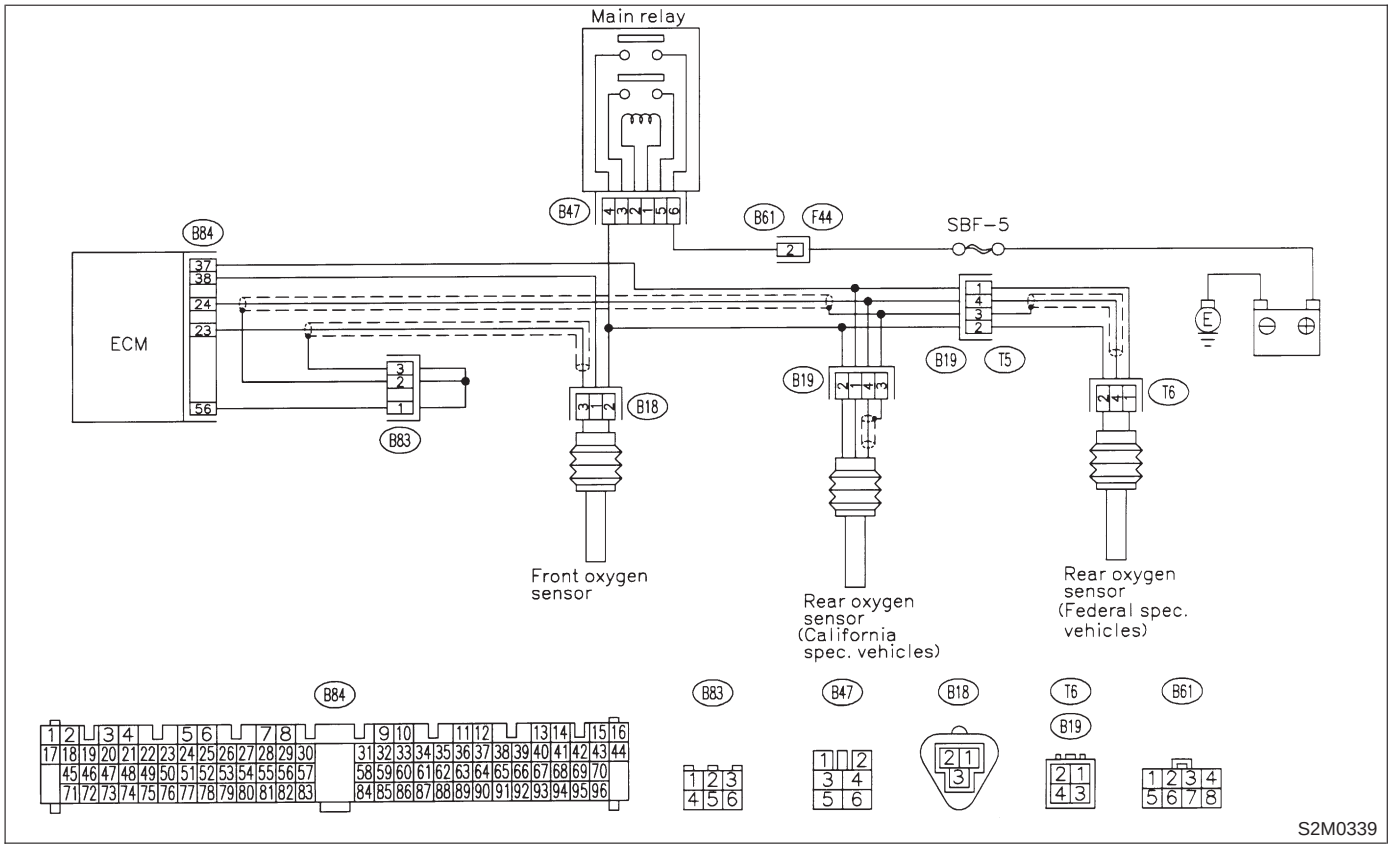
NOTE:
Inspection by DTM is required, because probable cause is deterioration of multiple parts.

AQ: DTC P0420 — CATALYST SYSTEM EFFICIENCY BELOW THRESHOLD —

- **DTC DETECTING CONDITION:**
  - Immediately at fault recognition (Federal spec. vehicles only)
  - Two consecutive driving cycles with fault
- **TROUBLE SYMPTOM:**
  - Engine stalls.
  - Idle mixture is out of specifications.

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

- **WIRING DIAGRAM:**



10AQ1 : CHECK ANY OTHER DTC ON DISPLAY.

CHECK : ***Does the Subaru select monitor or OBD-II general scan tool indicate DTC P0130, P0133, P0135, P0136, P0139 and P0141?***

YES : Inspect the relevant DTC using “10. Diagnostics Chart with Trouble Code”. <Ref. to 2-7 [T10A0].>

NOTE:
In this case, it is not necessary to inspect DTC P0420.

NO : Go to step **10AQ2**.

10AQ2 : CHECK EXHAUST SYSTEM.

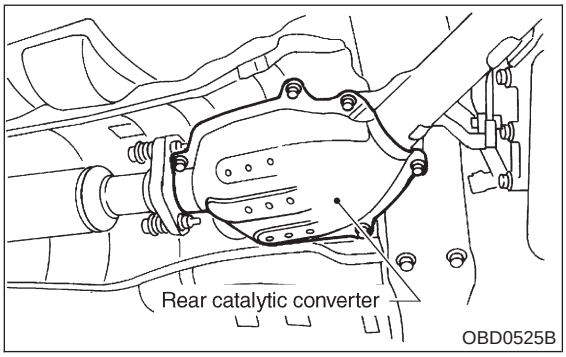
Check for gas leaks or air suction caused by loose or dislocated nuts and bolts, and open hole at exhaust pipes.

NOTE:
Check the following positions.
- Between cylinder head and front exhaust pipe
- Between front exhaust pipe and front catalytic converter
- Between front catalytic converter and rear catalytic converter

CHECK : ***Is there a fault in exhaust system?***
YES : Repair or replace exhaust system.
NO : Go to step **10AQ3**.

10AQ3 : CHECK REAR CATALYTIC CONVERTER.

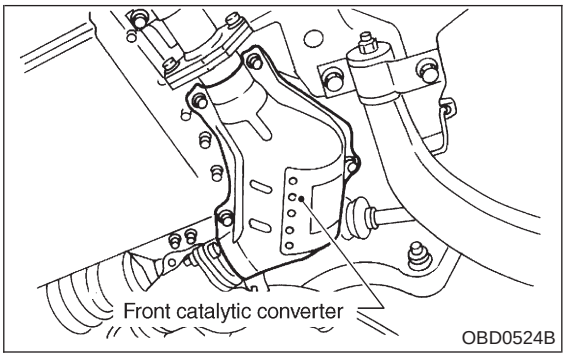
Separate rear catalytic converter from rear exhaust pipe.



CHECK : ***Is there damage at rear face of rear catalyst?***
YES : Replace front and rear catalytic converters.
NO : Go to step **10AQ4**.

10AQ4 : CHECK FRONT CATALYTIC CONVERTER.

Remove front catalytic converter.



CHECK : ***Is there damage at rear face or front face of front catalyst?***
YES : Replace front catalytic converter.
NO : Contact with SOA service.

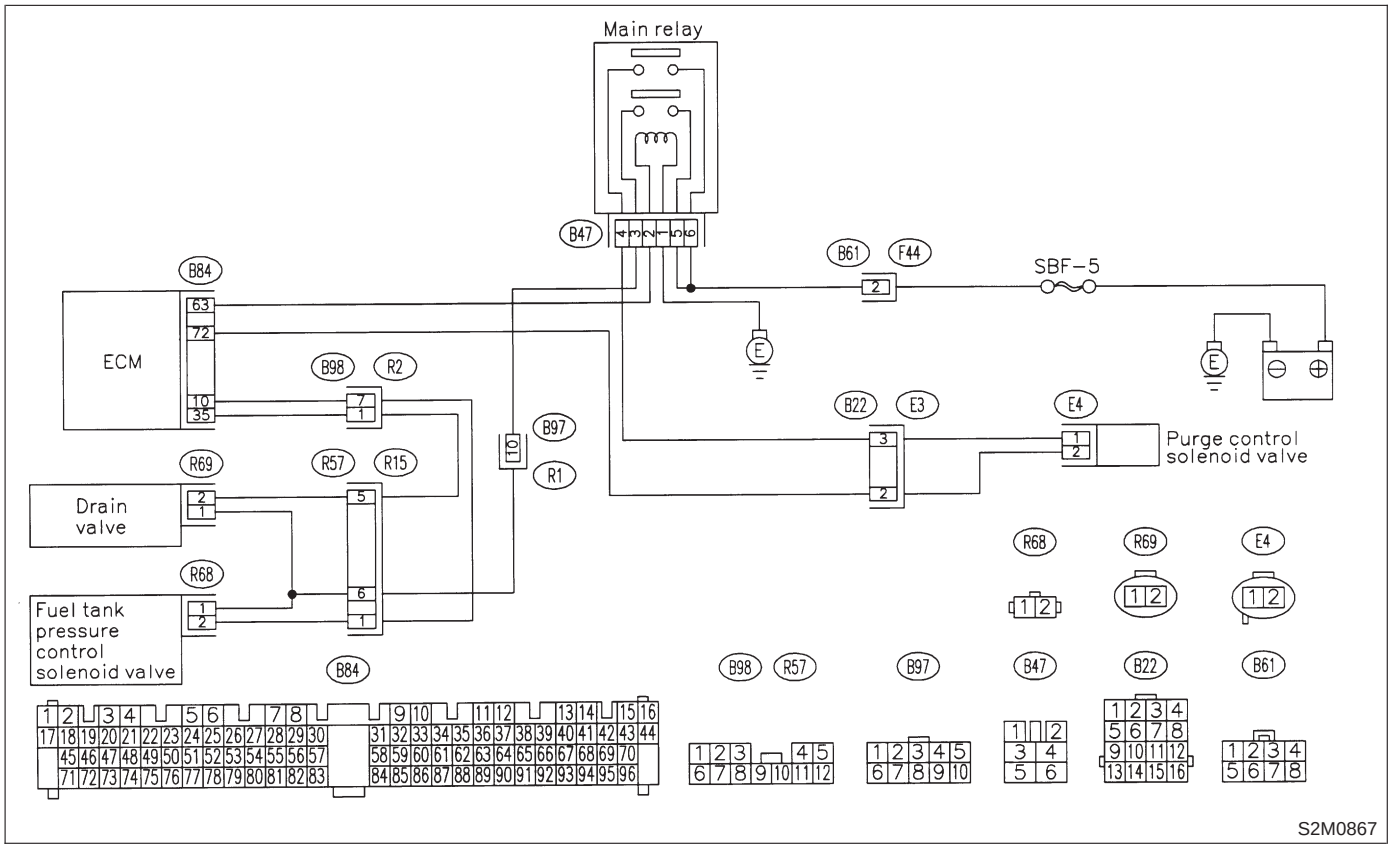
NOTE:
Inspection by DTM is required, because probable cause is deterioration of multiple parts.

AR: DTC P0440 — EVAPORATIVE EMISSION CONTROL SYSTEM MALFUNCTION —

- **DTC DETECTING CONDITION:**
  - Two consecutive driving cycles with fault
- **TROUBLE SYMPTOM:**
  - Gasoline smell

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

- **WIRING DIAGRAM:**



10AR1 : CHECK ANY OTHER DTC ON DISPLAY.

CHECK : ***Is there any other DTC on display?***
YES : Inspect the relevant DTC using “10. Diagnostics Chart with Trouble Code”. <Ref. to 2-7 [T10A0].>
NO : Go to step **10AR2**.

10AR2 : CHECK FUEL FILLER CAP.

1) Turn ignition switch to OFF.
2) Open the fuel flap.

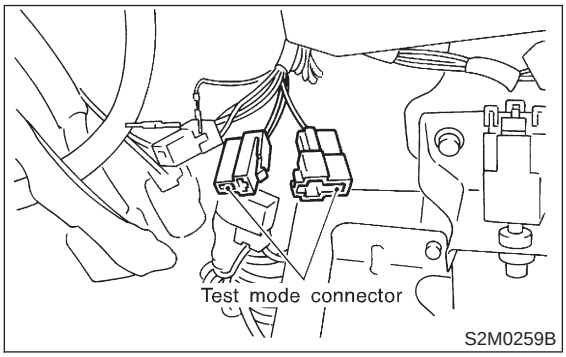
CHECK : ***Is the fuel filler cap tightened securely?***
YES : Tighten fuel filler cap securely.
NO : Go to step **10AR3**.

10AR3 : CHECK FUEL FILLER PIPE PACKING.

CHECK : ***Is there any damage to the seal between fuel filler cap and fuel filler pipe?***
YES : Repair or replace fuel filler cap and fuel filler pipe.
NO : Go to step **10AR4**.

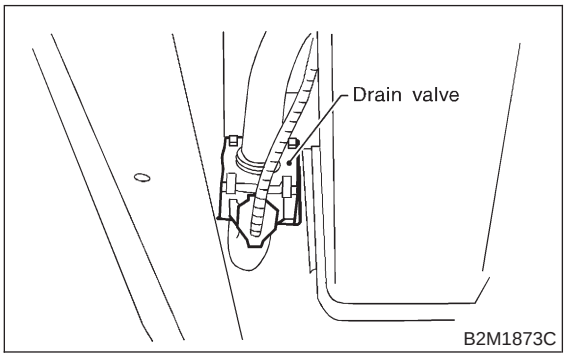
10AR4 : CHECK DRAIN VALVE.

1) Connect test mode connector.



2) Turn ignition switch to ON.

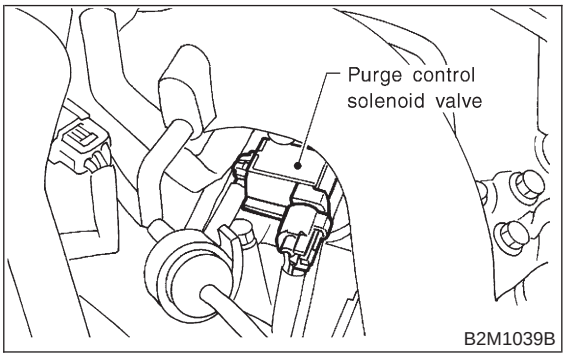
NOTE:
Drain valve operation check can also be executed using Subaru Select Monitor. For the procedure, refer to the “COMPULSORY VALVE OPERATION CHECK MODE”. <Ref. to 2-7 [T3F0].>



CHECK : ***Does drain valve produce operating sound?***
YES : Go to step **10AR5**.
NO : Replace drain valve.

10AR5 : CHECK PURGE CONTROL SOLENOID VALVE.

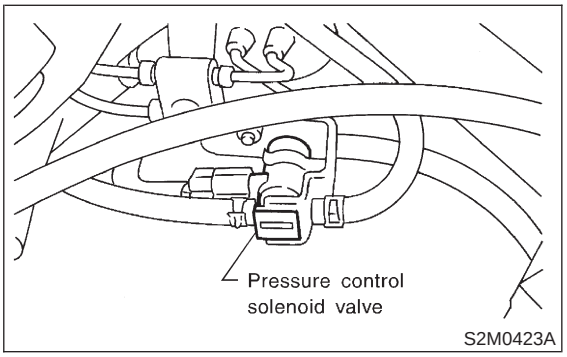
NOTE:
Purge control solenoid valve operation check can also be executed using Subaru Select Monitor. For the procedure, refer to the “COMPULSORY VALVE OPERATION CHECK MODE”. <Ref. to 2-7 [T3F0].>



CHECK : ***Does purge control solenoid valve produce operating sound?***
YES : Go to step **10AR6**.
NO : Replace purge control solenoid valve.

10AR6 : CHECK PRESSURE CONTROL SOLENOID VALVE.

NOTE:
Pressure control solenoid valve operation check can also be executed using Subaru Select Monitor. For the procedure, refer to the “COMPULSORY VALVE OPERATION CHECK MODE”. <Ref. to 2-7 [T3F0].>



CHECK : ***Does pressure control solenoid valve produce operating sound?***
YES : Go to step **10AR7**.
NO : Replace pressure control solenoid valve.

10AR7 : CHECK EVAPORATIVE EMISSION CONTROL SYSTEM LINE.

Turn ignition switch to OFF.

CHECK : ***Does fuel leak in fuel line?***
YES : Repair or replace fuel line.
NO : Go to step **10AR8**.

10AR8 : CHECK CANISTER.

CHECK : ***Is there any damage at canister?***
YES : Repair or replace canister.
NO : Go to step **10AR9**.

10AR9 : CHECK FUEL TANK.

CHECK : ***Is there any damage at fuel tank?***
YES : Repair or replace fuel tank.
NO : Go to step **10AR10**.

10AR10 : CHECK ANY OTHER MECHANICAL TROUBLE IN EVAPORATIVE EMISSION CONTROL SYSTEM.

CHECK : ***Are there holes, cracks, clogging or disconnections of hoses or pipes in evaporative emission control system?***
YES : Repair or replace hoses or pipes.
NO : Contact with SOA service.

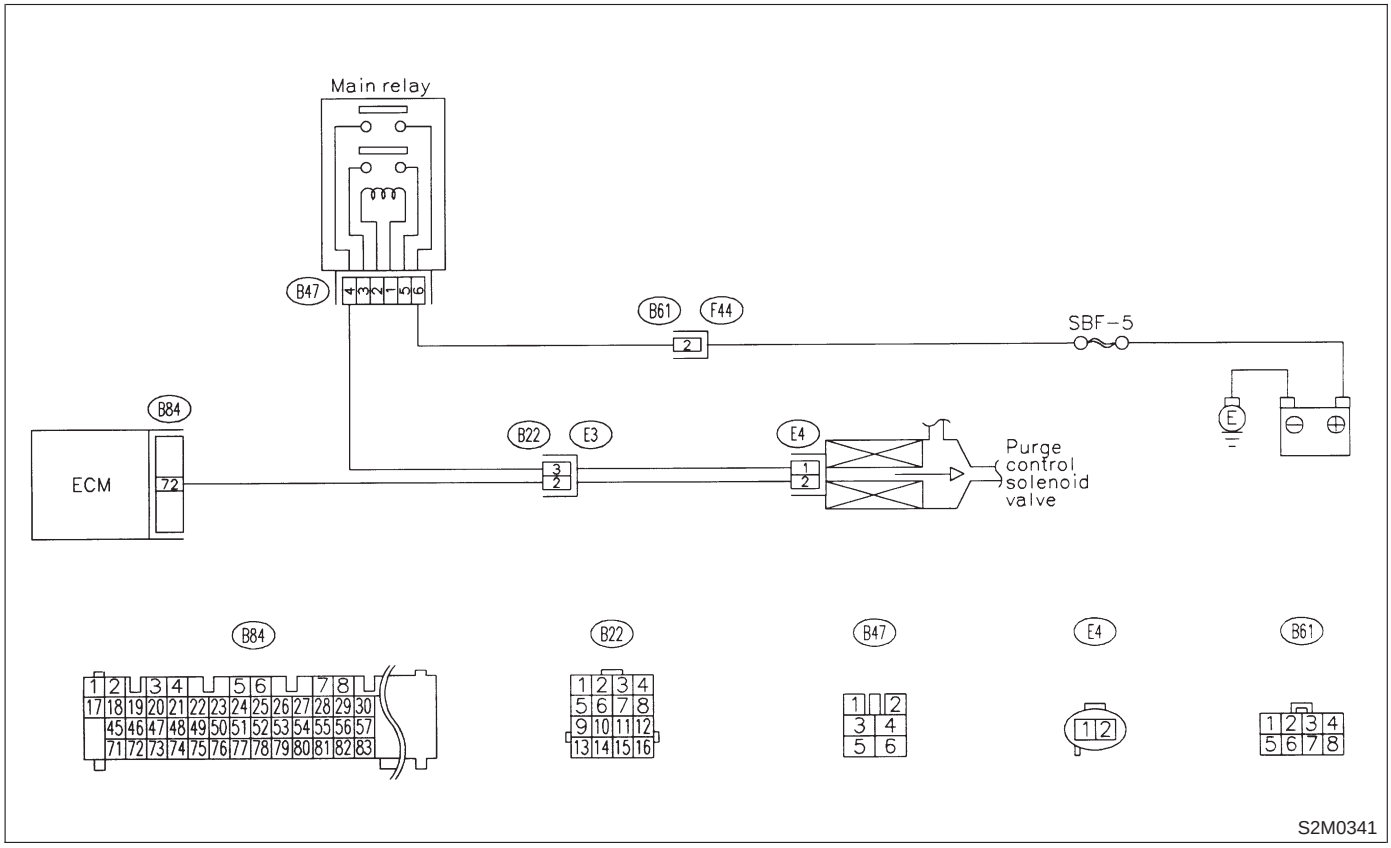
NOTE:
Inspection by DTM is required, because probable cause is deterioration of multiple parts.

AS: DTC P0441 — EVAPORATIVE EMISSION CONTROL SYSTEM INCORRECT PURGE FLOW —

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

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

- **WIRING DIAGRAM:**



10AS1 :	CHECK ANY OTHER DTC ON DISPLAY.

CHECK : ***Does the Subaru select monitor or OBD-II general scan tool indicate DTC P0106, P0107, P0108, P0443, P1102, P1122 or P1422?***

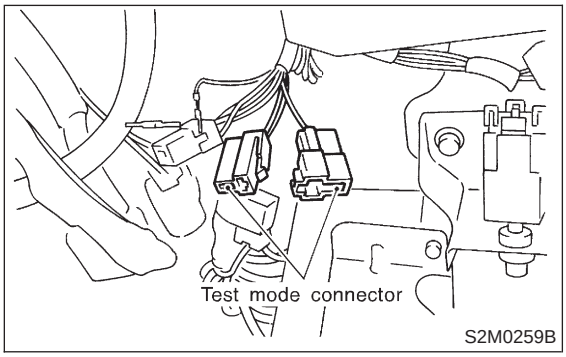
YES : Inspect the relevant DTC P0106, P0107, P0108, P0443, P1102, P1122 or P1422 using “10. Diagnostics Chart with Trouble Code”. <Ref. to 2-7 [T10A0].>

NOTE:
In this case, it is not necessary to inspect DTC P0441.

NO : Go to step **10AS2**.

10AS2 : 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.

NOTE:
Purge control solenoid valve operation check can also be executed using Subaru Select Monitor. For the procedure, refer to the "COMPULSORY VALVE OPERATION CHECK MODE". <Ref. to 2-7 [T3F0].>

CHECK : ***Does purge control solenoid valve produce operating sound at about 0.3 Hz?***
YES : Go to step **10AS3**.
NO : Replace purge control solenoid valve.

10AS3 : CHECK PURGE CONTROL SOLENOID VALVE.

Disconnect canister purge hose from canister.

CHECK : ***Does pulsation occur by blowing through the canister purge hose?***
YES : Repair or replace evaporation line.

NOTE:
In this case, repair the following:
- Loose connections in evaporation line
- Cracks in evaporation line
- Clogging in evaporation line

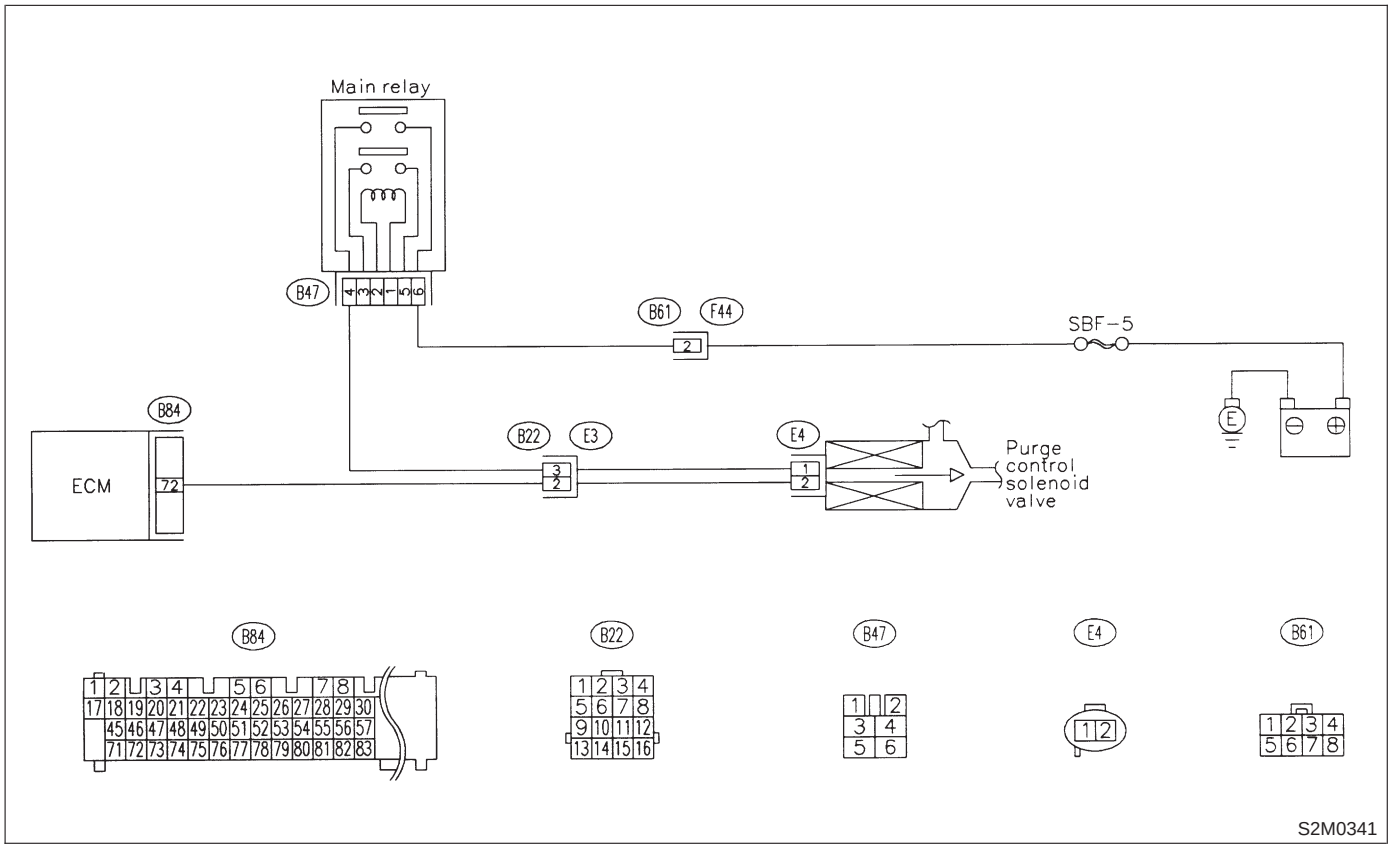
NO : Replace purge control solenoid valve.

AT: DTC P0443 — EVAPORATIVE EMISSION CONTROL SYSTEM PURGE CONTROL VALVE CIRCUIT LOW INPUT —

- **DTC DETECTING CONDITION:**
  - Two consecutive driving cycles with fault
- **TROUBLE SYMPTOM:**
  - Erroneous idling

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

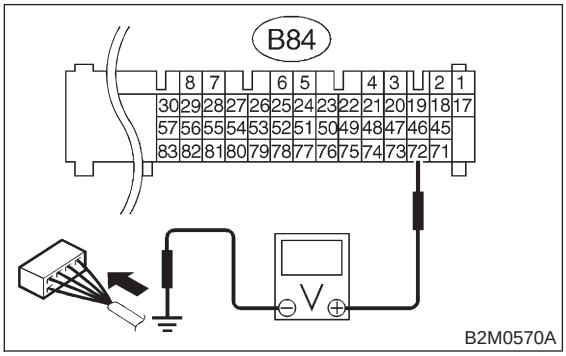
- **WIRING DIAGRAM:**



10AT1 : CHECK OUTPUT SIGNAL FROM ECM.

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

Connector & terminal
(B84) No. 72 (+) — Chassis ground (−):



CHECK : ***Is the voltage more than 10 V?***
YES : Even if MIL lights up, the circuit has returned to a normal condition at this time. Contact with SOA service.

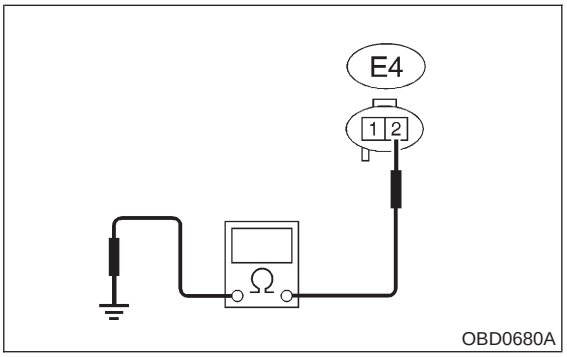
NOTE:
Inspection by DTM is required, because probable cause is deterioration of multiple parts.

NO : Go to step **10AT2**.

10AT2 : CHECK HARNESS BETWEEN PURGE CONTROL SOLENOID VALVE AND ECM CONNECTOR.

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

Connector & terminal
(E4) No. 2 — Engine ground:



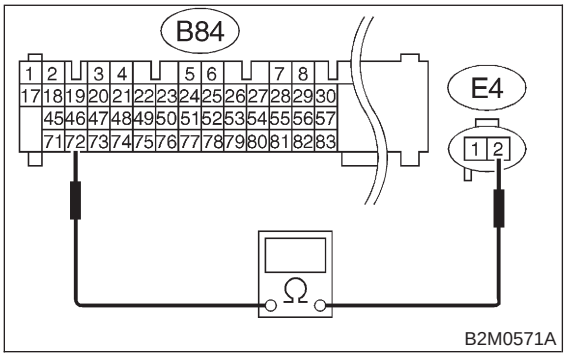
CHECK : ***Is the resistance less than 10 Ω?***
YES : Repair ground short circuit in harness between ECM and purge control solenoid valve connector.

NO : Go to step **10AT3**.

10AT3 : CHECK HARNESS BETWEEN PURGE CONTROL SOLENOID VALVE AND ECM CONNECTOR.

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

Connector & terminal
(B84) No. 72 — (E4) No. 2:



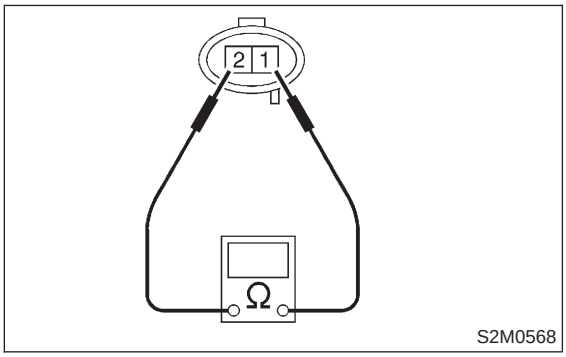
CHECK : ***Is the resistance less than 1 Ω?***
YES : Go to step **10AT4**.
NO : Repair harness and connector.

NOTE:
In this case, repair the following:
- Open circuit in harness between ECM and purge control solenoid valve connector
- Poor contact in coupling connector (B22)

10AT4 : CHECK PURGE CONTROL SOLENOID VALVE.

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

Terminals
No. 1 — No. 2:

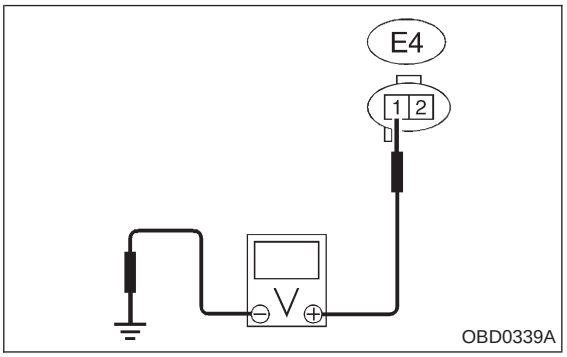


CHECK : ***Is the resistance between 10 and 100 Ω?***
YES : Go to step **10AT5**.
NO : Replace purge control solenoid valve.

10AT5 : CHECK POWER SUPPLY TO PURGE CONTROL SOLENOID VALVE.

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

Connector & terminal
(E4) No. 1 (+) — Engine ground (−):



CHECK : ***Is the voltage more than 10 V?***
YES : Go to step **10AT6**.
NO : Repair harness and connector.

NOTE:
In this case, repair the following:
- Open circuit in harness between main relay and purge control solenoid valve connector
- Poor contact in coupling connector (B22)
- Poor contact in main relay connector

10AT6 : CHECK POOR CONTACT.

Check poor contact in purge control solenoid valve connector. <Ref. to FOREWORD [T3C1].>

CHECK : ***Is there poor contact in purge control solenoid valve connector?***
YES : Repair poor contact in purge control solenoid valve connector.
NO : Contact with SOA service.

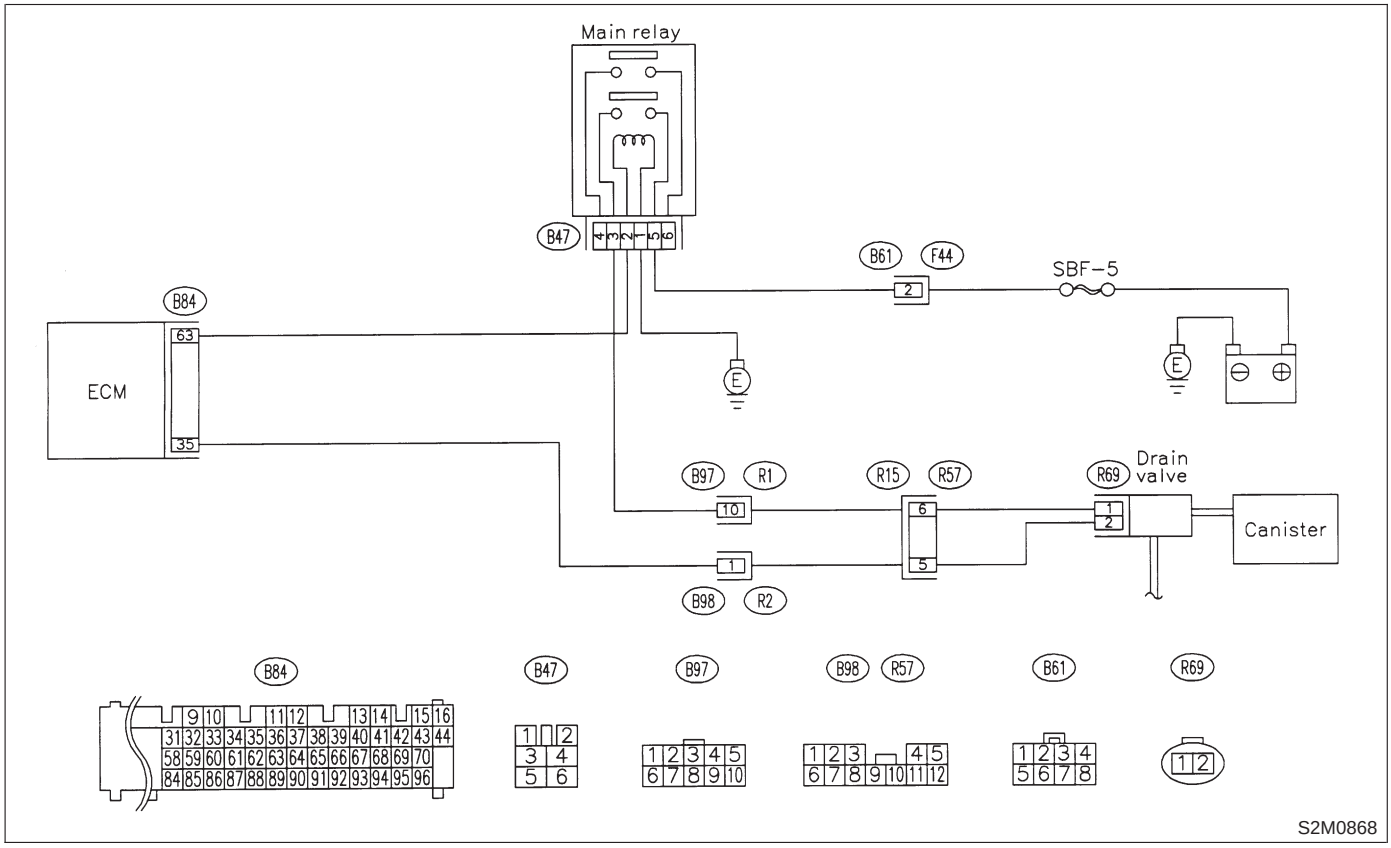
NOTE:
Inspection by DTM is required, because probable cause is deterioration of multiple parts.

AU: DTC P0446 — EVAPORATIVE EMISSION CONTROL SYSTEM VENT CONTROL LOW INPUT —

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

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

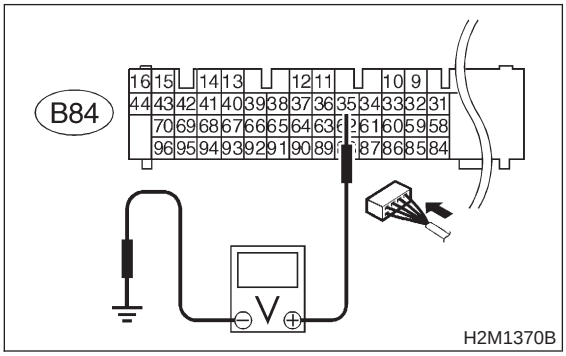
- **WIRING DIAGRAM:**



10AU1 : CHECK OUTPUT SIGNAL FROM ECM.

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

Connector & terminal
(B84) No. 35 (+) — Chassis ground (−):



CHECK : ***Is the voltage more than 10 V?***
YES : Go to step **10AU2**.
NO : Go to step **10AU3**.

10AU2 : CHECK POOR CONTACT.

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

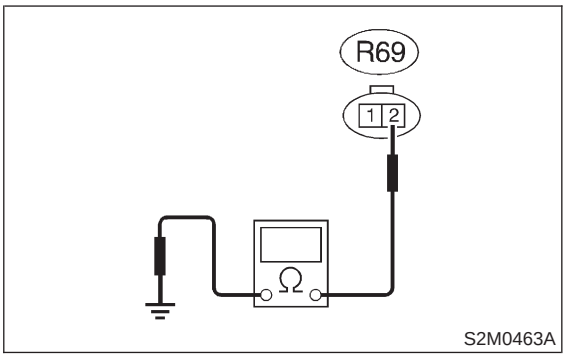
CHECK : ***Is there poor contact in ECM connector?***
YES : Repair poor contact in ECM connector.
NO : Even if MIL lights up, the circuit has returned to a normal condition at this time. (However, the possibility of poor contact still remains.)

NOTE:
In this case, repair the following:
- Poor contact in drain valve connector
- Poor contact in ECM connector
- Poor contact in coupling connectors (B97, B98 and R57)

10AU3 : CHECK HARNESS BETWEEN DRAIN VALVE AND ECM CONNECTOR.

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

Connector & terminal
(R69) No. 2 — Chassis ground:

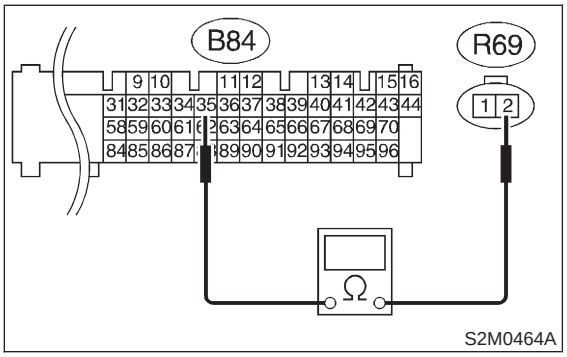


CHECK : ***Is the resistance less than 10 Ω?***
YES : Repair ground short circuit in harness between ECM and drain valve connector.
NO : Go to step **10AU4**.

10AU4 : CHECK HARNESS BETWEEN DRAIN VALVE AND ECM CONNECTOR.

Measure resistance of harness between ECM and drain valve connector.

Connector & terminal
(B84) No. 35 — (R69) No. 2:



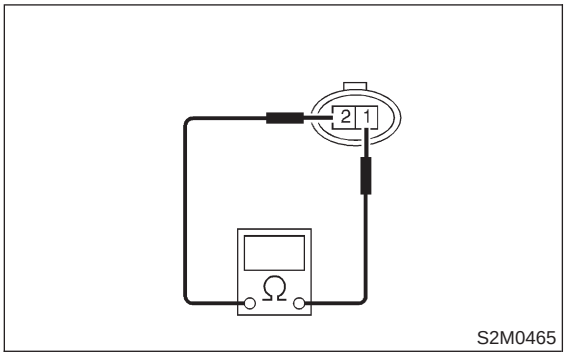
CHECK : ***Is the voltage less than 1 Ω?***
YES : Go to step **10AU5**.
NO : Repair harness and connector.

NOTE:
In this case, repair the following:
- Open circuit in harness between ECM and drain valve connector
- Poor contact in coupling connectors (B98 and R57)

10AU5 : CHECK DRAIN VALVE.

Measure resistance between drain valve terminals.

Terminals
No. 1 — No. 2:

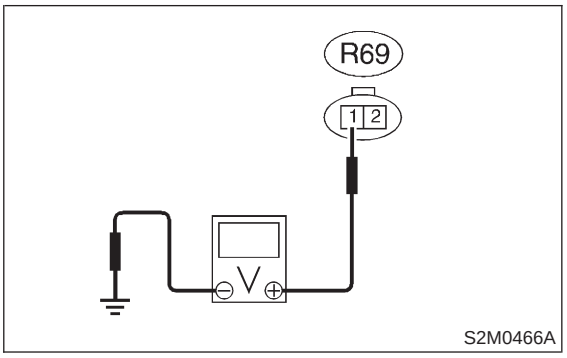


CHECK : ***Is the resistance between 10 and 100 Ω?***
YES : Go to step **10AU6**.
NO : Replace drain valve.

10AU6 : CHECK POWER SUPPLY TO DRAIN VALVE.

1) Turn ignition switch to ON.
2) Measure voltage between drain valve and chassis ground.

Connector & terminal
(R69) No. 1 (+) — Chassis ground (−):



CHECK : ***Is the voltage more than 10 V?***
YES : Go to step **10AU7**.
NO : Repair harness and connector.

NOTE:
In this case, repair the following:
- Open circuit in harness between main relay and drain valve
- Poor contact in coupling connectors (B97 and R57)
- Poor contact in main relay connector

10AU7 : CHECK POOR CONTACT.

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

CHECK : ***Is there poor contact in drain valve connector?***
YES : Repair poor contact in drain valve connector.
NO : Contact with SOA service.

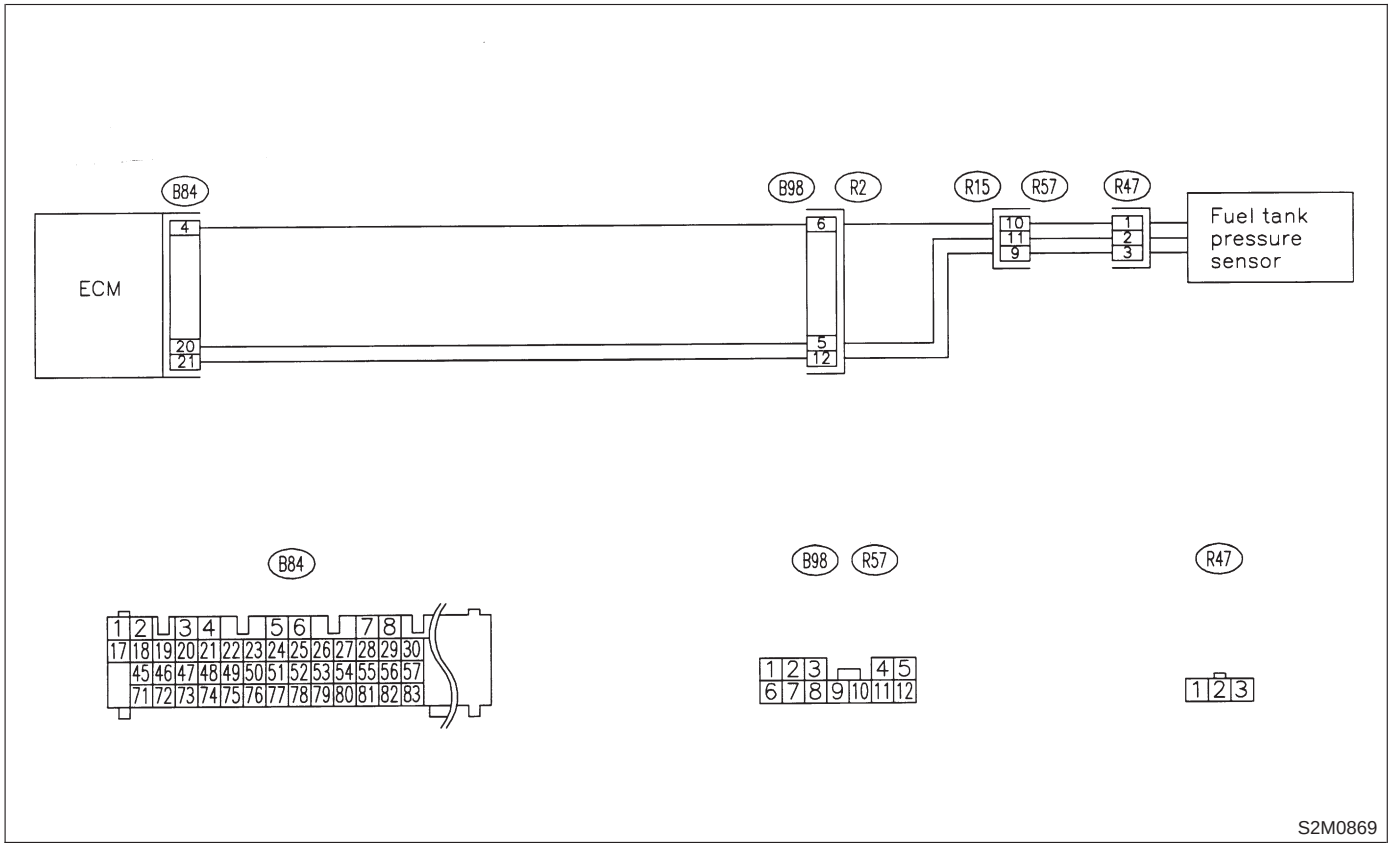
NOTE:
Inspection by DTM is required, because probable cause is deterioration of multiple parts.

AV: DTC P0451 — EVAPORATIVE EMISSION CONTROL SYSTEM PRESSURE SENSOR RANGE/PERFORMANCE PROBLEM —

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

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

- **WIRING DIAGRAM:**



10AV1 :	CHECK PRESSURE/VACUUM LINE.

NOTE:
Check the following items.
- Disconnection, leakage and clogging of the vacuum hoses and pipes between fuel tank pressure sensor and fuel tank
- Disconnection, leakage and clogging of air ventilation hoses and pipes between fuel filler pipe and fuel tank

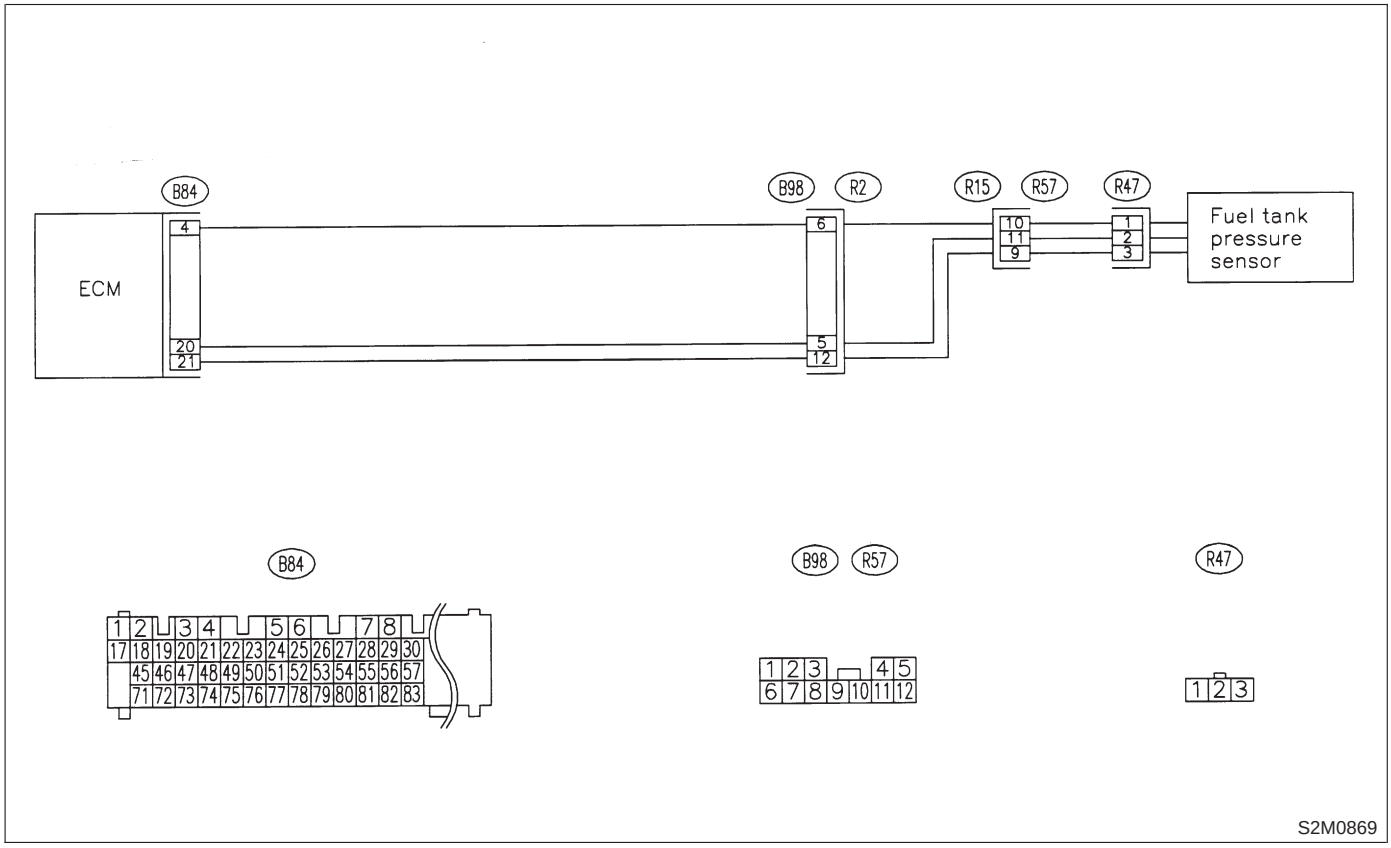
CHECK : ***Is there a fault in pressure/vacuum line?***
YES : Repair or replace hoses and pipes.
NO : Replace fuel tank pressure sensor.

AW: DTC P0452 — EVAPORATIVE EMISSION CONTROL SYSTEM PRESSURE SENSOR LOW INPUT —

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

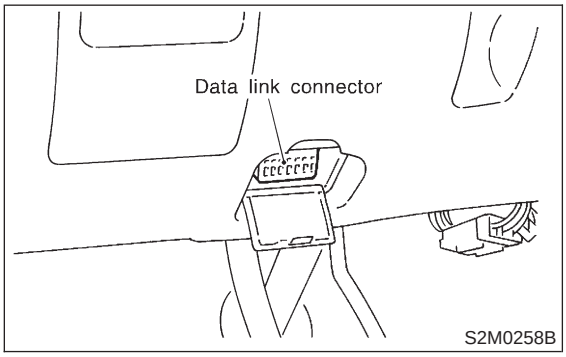
CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to 2-7 [T3D0].> and INSPECTION MODE <Ref. to 2-7 [T3E0].>.

- **WIRING DIAGRAM:**



10AW1 : CONNECT SUBARU SELECT MONITOR OR THE OBD-II GENERAL SCAN TOOL, AND READ DATA.

1) Turn ignition switch to OFF.
2) Remove fuel filler cap.
3) Install fuel filler cap.
4) Connect Subaru Select Monitor or the OBD-II general scan tool to data link connector.



5) Turn ignition switch to ON and Subaru Select Monitor or the OBD-II general scan tool switch to ON.
6) Read the data of fuel tank pressure sensor signal using Subaru Select Monitor or the OBD-II general scan tool.

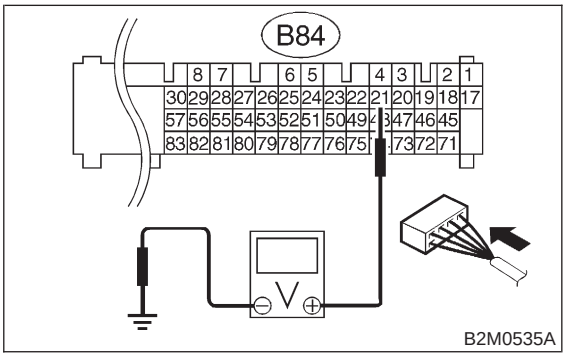
NOTE:
● Subaru Select Monitor
For detailed operation procedure, refer to the "READ CURRENT DATA SHOWN ON DISPLAY FOR ENGINE". <Ref. to 2-7 [T3C4].>
● OBD-II general scan tool
For detailed operation procedures, refer to the OBD-II General Scan Tool Instruction Manual.

CHECK : ***Is the value less than −2.8 kPa (−21.0 mmHg, −0.827 inHg)?***
YES : Go to step **10AW2**.
NO : Even if MIL lights up, the circuit has returned to a normal condition at this time.

10AW2 : CHECK POWER SUPPLY TO FUEL TANK PRESSURE SENSOR.

Measure voltage between ECM connector and chassis ground.

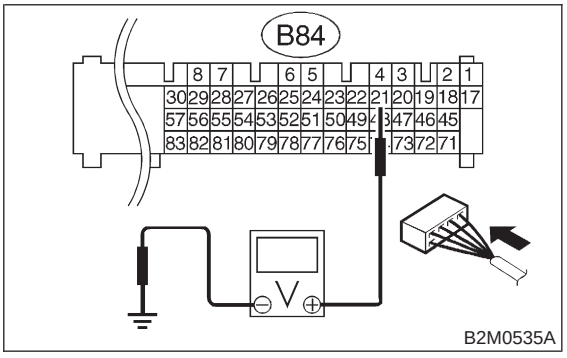
Connector & terminal
(B84) No. 21 (+) — Chassis ground (−):



CHECK : ***Is the voltage more than 4.5 V?***
YES : Go to step **10AW4**.
NO : Go to step **10AW3**.

10AW3 : CHECK POWER SUPPLY TO FUEL TANK PRESSURE SENSOR.

Measure voltage between ECM connector and chassis ground.



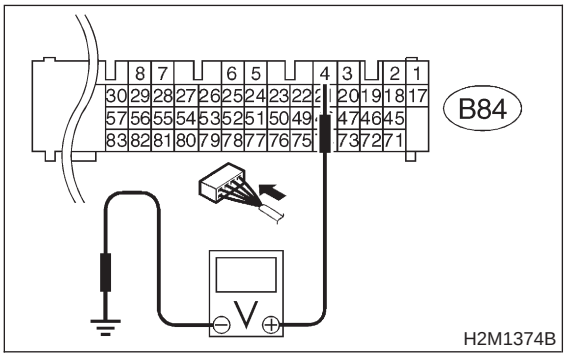
CHECK : ***Does the voltage change more than 4.5 V by shaking harness and connector of ECM while monitoring the value with voltage meter?***
YES : Repair poor contact in ECM connector.
NO : Contact with SOA service.

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

10AW4 : CHECK INPUT SIGNAL FOR ECM.

Measure voltage between ECM and chassis ground.

Connector & terminal
(B84) No. 4 (+) — Chassis ground (−):



CHECK : ***Is the voltage less than 0.2 V?***
YES : Go to step **10AW6**.
NO : Go to step **10AW5**.

10AW5 : CHECK INPUT SIGNAL FOR ECM. (USING SUBARU SELECT MONITOR.)

Read data of fuel tank pressure sensor signal using Subaru Select Monitor.

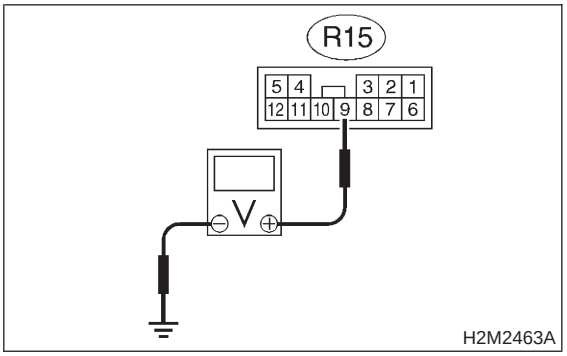
NOTE:
● Subaru Select Monitor
For detailed operation procedure, refer to the "READ CURRENT DATA SHOWN ON DISPLAY FOR ENGINE". <Ref. to 2-7 [T3C4].>

CHECK : ***Does the value change more than −2.8 kPa (−21.0 mmHg, −0.827 inHg) by shaking harness and connector of ECM while monitoring the value with Subaru select monitor?***
YES : Repair poor contact in ECM connector.
NO : Go to step **10AW6**.

10AW6 : CHECK HARNESS BETWEEN ECM AND COUPLING CONNECTOR IN REAR WIRING HARNESS.

1) Turn ignition switch to OFF.
2) Remove rear seat cushion.
3) Separate rear wiring harness and fuel tank cord.
4) Turn ignition switch to ON.
5) Turn ignition switch to ON.
6) Measure voltage between rear wiring harness connector and chassis ground.

Connector & terminal
(R15) No. 9 (+) — Chassis ground (−):



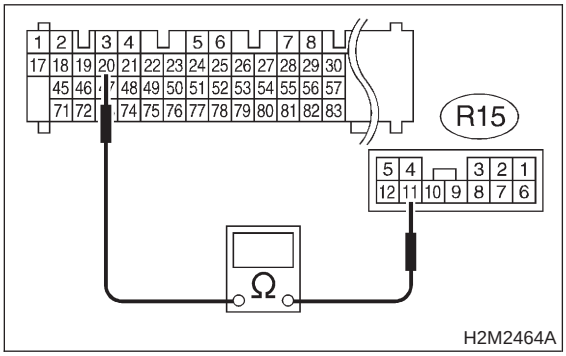
CHECK : ***Is the voltage more than 4.5 V?***
YES : Go to step **10AW7**.
NO : Repair harness and connector.

NOTE:
In this case, repair the following:
● Open circuit in harness between ECM and rear wiring harness connector (R15)
● Poor contact in coupling connector (B98)

10AW7 : CHECK HARNESS BETWEEN ECM AND COUPLING CONNECTOR IN REAR WIRING HARNESS.

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

Connector & terminal
(B84) No. 20 — (R15) No. 11:



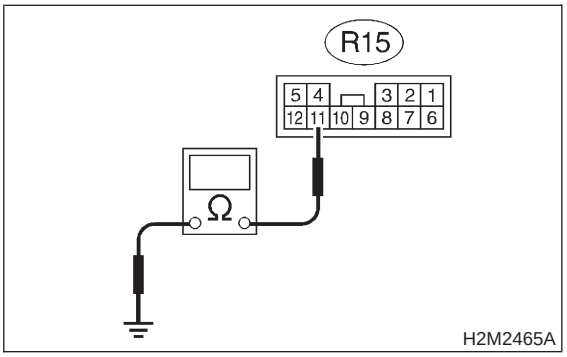
CHECK : ***Is the resistance less than 1 Ω?***
YES : Go to step **10AW8**.
NO : Repair harness and connector.

NOTE:
In this case, repair the following:
- Open circuit in harness between ECM and rear wiring harness connector (R15)
- Poor contact in coupling connector (B98)

10AW8 : CHECK HARNESS BETWEEN ECM AND COUPLING CONNECTOR IN REAR WIRING HARNESS.

Measure resistance of harness between rear wiring harness connector and chassis ground.

Connector & terminal
(R15) No. 11 — Chassis ground:

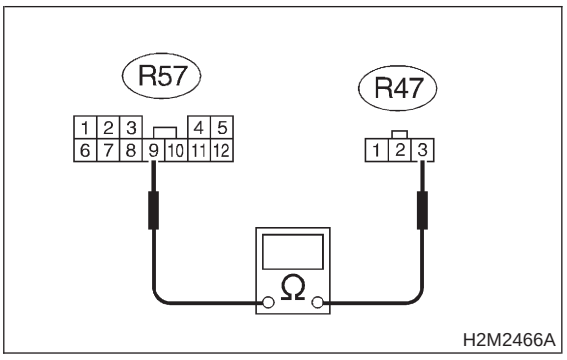


CHECK : ***Is the resistance more than 500 kΩ?***
YES : Go to step **10AW9**.
NO : Repair ground short circuit in harness between ECM and rear wiring harness connector (R15).

10AW9 : CHECK FUEL TANK CORD.

1) Remove fuel tank. <Ref. to 2-8 [W1A0].>
2) Disconnect connector from fuel tank pressure sensor.
3) Measure resistance of fuel tank cord.

Connector & terminal
(R57) No. 9 — (R47) No. 3:

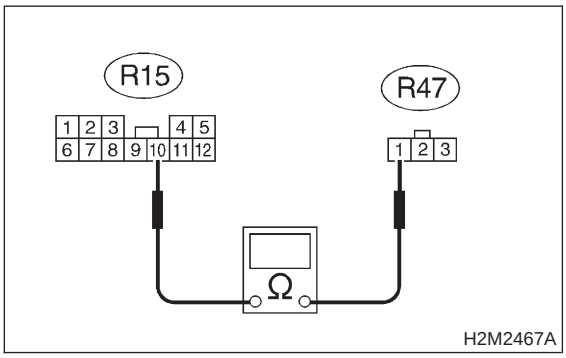


CHECK : ***Is the resistance less than 1 Ω?***
YES : Go to step **10AW10**.
NO : Repair open circuit in fuel tank cord.

10AW10 : CHECK FUEL TANK CORD.

Measure resistance of fuel tank cord.

Connector & terminal
(R15) No. 10 — (R47) No. 1:

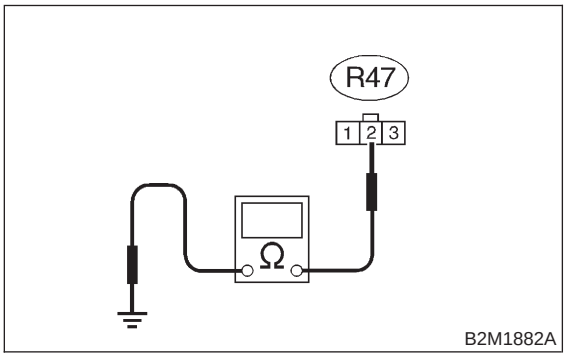


CHECK : ***Is the resistance less than 1 Ω?***
YES : Go to step **10AW11**.
NO : Repair open circuit in fuel tank cord.

10AW11 : CHECK FUEL TANK CORD.

Measure resistance of harness between fuel tank pressure sensor connector and chassis ground.

Connector & terminal
(R47) No. 2 — Chassis ground:



CHECK : ***Is the resistance more than 500 kΩ?***
YES : Go to step **10AW12**.
NO : Repair ground short circuit in fuel tank cord.

10AW12 : CHECK POOR CONTACT.

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

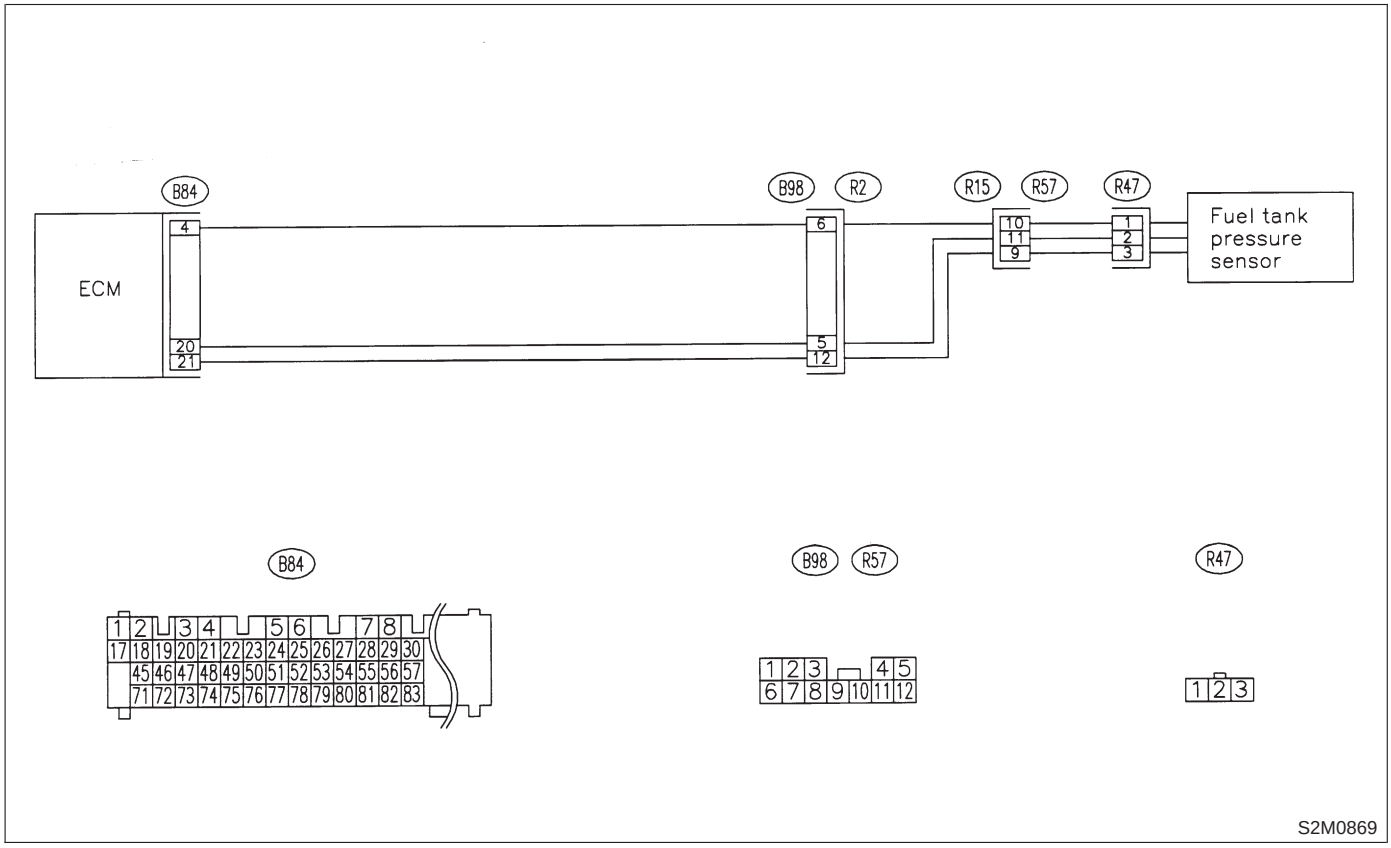
CHECK : ***Is there poor contact in fuel tank pressure sensor connector?***
YES : Repair poor contact in fuel tank pressure sensor connector.
NO : Replace fuel tank pressure sensor.

AX: DTC P0453 — EVAPORATIVE EMISSION CONTROL SYSTEM PRESSURE SENSOR HIGH INPUT —

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

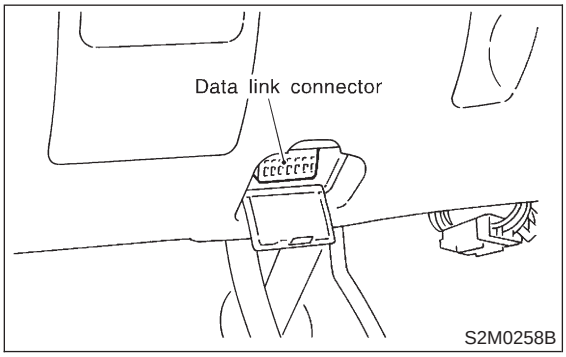
CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to 2-7 [T3D0].> and INSPECTION MODE <Ref. to 2-7 [T3E0].>.

- **WIRING DIAGRAM:**



10AX1 : CONNECT SUBARU SELECT MONITOR OR THE OBD-II GENERAL SCAN TOOL, AND READ DATA.

1) Turn ignition switch to OFF.
2) Remove fuel filler cap.
3) Install fuel filler cap.
4) Connect Subaru Select Monitor or the OBD-II general scan tool to data link connector.



5) Turn ignition switch to ON and Subaru Select Monitor or the OBD-II general scan tool switch to ON.
6) Read data of fuel tank pressure sensor signal using Subaru Select Monitor or OBD-II general scan tool.

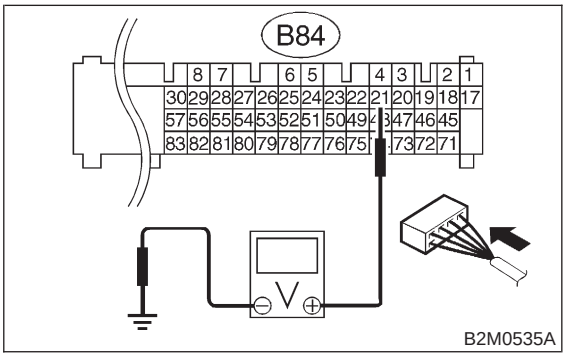
NOTE:
● Subaru Select Monitor
For detailed operation procedure, refer to the "READ CURRENT DATA SHOWN ON DISPLAY FOR ENGINE". <Ref. to 2-7 [T3C4].>
● OBD-II general scan tool
For detailed operation procedures, refer to the OBD-II General Scan Tool Instruction Manual.

CHECK : ***Is the value more than 2.8 kPa (21.0 mmHg, 0.827 inHg)?***
YES : Go to step **10AX12**.
NO : Go to step **10AX2**.

10AX2 : CHECK POWER SUPPLY TO FUEL TANK PRESSURE SENSOR.

Measure voltage between ECM connector and chassis ground.

Connector & terminal
(B84) No. 21 (+) — Chassis ground (−):

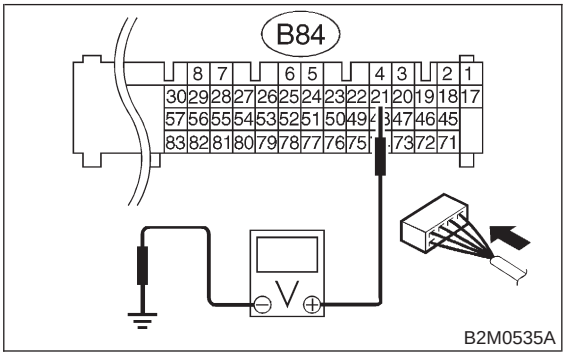


CHECK : ***Is the voltage more than 4.5 V?***
YES : Go to step **10AX4**.
NO : Go to step **10AX3**.

10AX3 : CHECK POWER SUPPLY TO FUEL TANK PRESSURE SENSOR.

Measure voltage between ECM connector and chassis ground.

Connector & terminal
(B84) No. 21 (+) — Chassis ground (−):

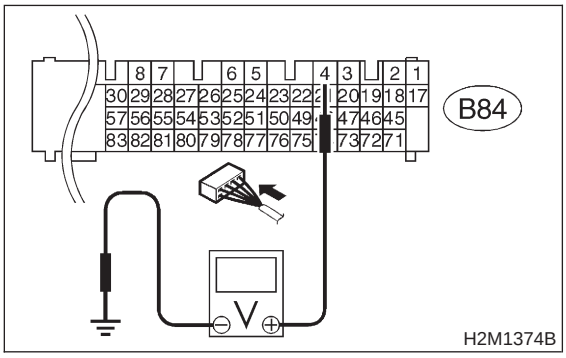


CHECK : ***Does the voltage change more than 4.5 V by shaking harness and connector of ECM while monitoring the value with voltage meter?***
YES : Repair poor contact in ECM connector.
NO : Replace ECM.

10AX4 : CHECK INPUT SIGNAL FOR ECM.

Measure voltage between ECM and chassis ground.

Connector & terminal
(B84) No. 4 (+) — Chassis ground (−):



CHECK : ***Is the voltage less than 0.2 V?***
YES : Go to step **10AX6**.
NO : Go to step **10AX5**.

10AX5 : CHECK INPUT SIGNAL FOR ECM. (USING SUBARU SELECT MONITOR.)

Read data of fuel tank pressure sensor signal using Subaru Select Monitor.

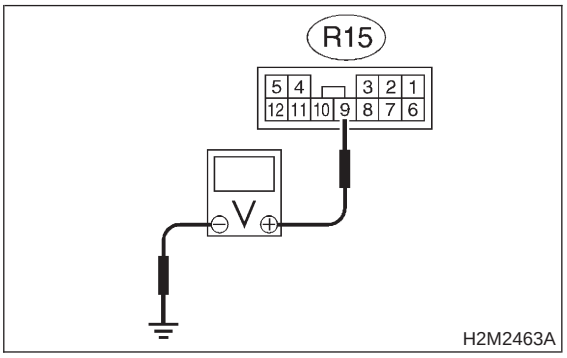
NOTE:
● Subaru Select Monitor
For detailed operation procedure, refer to the "READ CURRENT DATA SHOWN ON DISPLAY FOR ENGINE". <Ref. to 2-7 [T3C4].>

CHECK : ***Does the value change more than −2.8 kPa (−21.0 mmHg, −0.827 inHg) by shaking harness and connector of ECM while monitoring the value with Subaru select monitor?***
YES : Repair poor contact in ECM connector.
NO : Go to step **10AX6**.

10AX6 : CHECK HARNESS BETWEEN ECM AND COUPLING CONNECTOR IN REAR WIRING HARNESS.

1) Turn ignition switch to OFF.
2) Remove rear seat cushion.
3) Separate rear wiring harness and fuel tank cord.
4) Turn ignition switch to ON.
5) Measure voltage between rear wiring harness connector and chassis ground.

Connector & terminal
(R15) No. 9 (+) — Chassis ground (−):



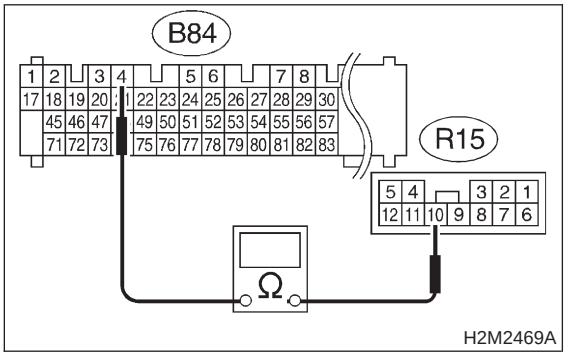
CHECK : ***Is the voltage more than 4.5 V?***
YES : Go to step **10AX7**.
NO : Repair harness and connector.

NOTE:
In this case, repair the following:
● Open circuit in harness between ECM and rear wiring harness connector (R15)
● Poor contact in coupling connector (B98)

10AX7 : CHECK HARNESS BETWEEN ECM AND COUPLING CONNECTOR IN REAR WIRING HARNESS.

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

Connector & terminal
(B84) No. 4 — (R15) No. 10:



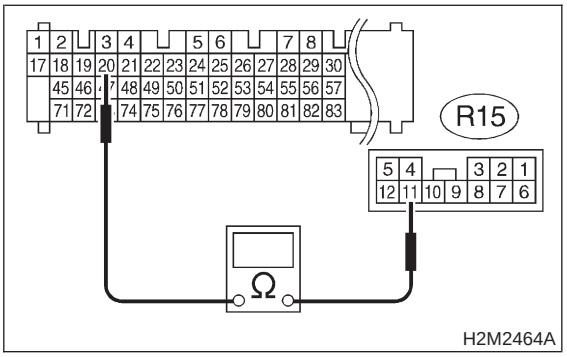
CHECK : ***Is the resistance less than 1 Ω?***
YES : Go to step **10AX8**.
NO : Repair harness and connector.

NOTE:
In this case, repair the following:
- Open circuit in harness between ECM and rear wiring harness connector (R15)
- Poor contact in coupling connector (B98)

10AX8 : CHECK HARNESS BETWEEN ECM AND COUPLING CONNECTOR IN REAR WIRING HARNESS.

Measure resistance of harness between rear wiring harness connector and chassis ground.

Connector & terminal
(B84) No. 20 — (R15) No. 11:

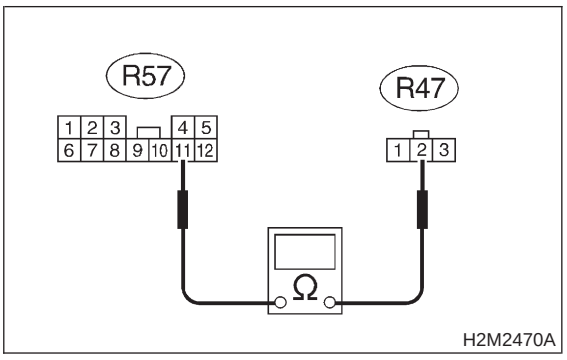


CHECK : ***Is the resistance less than 1 Ω?***
YES : Go to step **10AX9**.
NO : Repair ground short circuit in harness between ECM and rear wiring harness connector (R15).

10AX9 : CHECK FUEL TANK CORD.

1) Remove fuel tank. <Ref. to 2-8 [W1A0].>
2) Disconnect connector from fuel tank pressure sensor.
3) Measure resistance of fuel tank cord.

Connector & terminal
(R57) No. 11 — (R47) No. 2:

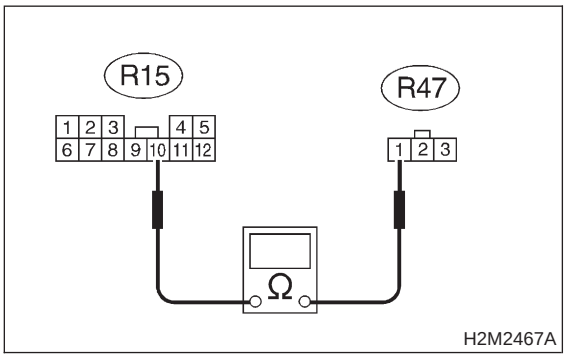


CHECK : ***Is the resistance less than 1 Ω?***
YES : Go to step **10AX10**.
NO : Repair open circuit in fuel tank cord.

10AX10 : CHECK FUEL TANK CORD.

Measure resistance of fuel tank cord.

Connector & terminal
(R57) No. 10 — (R47) No. 1:



CHECK : ***Is the resistance less than 1 Ω?***
YES : Go to step **10AX10**.
NO : Repair open circuit in fuel tank cord.

10AX11 : CHECK POOR CONTACT.

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

CHECK : ***Is there poor contact in fuel tank pressure sensor connector?***
YES : Repair poor contact in fuel tank pressure sensor connector.
NO : Replace fuel tank pressure sensor.

10AX12 : CHECK HARNESS BETWEEN ECM AND FUEL TANK PRESSURE SENSOR CONNECTOR.

1) Turn ignition switch to OFF and Subaru Select Monitor or the OBD-II general scan tool switch to OFF.
2) Remove fuel tank. <Ref. to 2-8 [W1A0].>
3) Remove fuel tank cord from fuel tank.
4) Connect fuel tank cord to rear wiring harness.
5) Remove fuel filler cap.
6) Install fuel filler cap.
7) Turn ignition switch to ON and Subaru Select Monitor or the OBD-II general scan tool switch to ON.
8) Read data of fuel tank pressure sensor signal using Subaru select monitor or the OBD-II general scan tool.

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

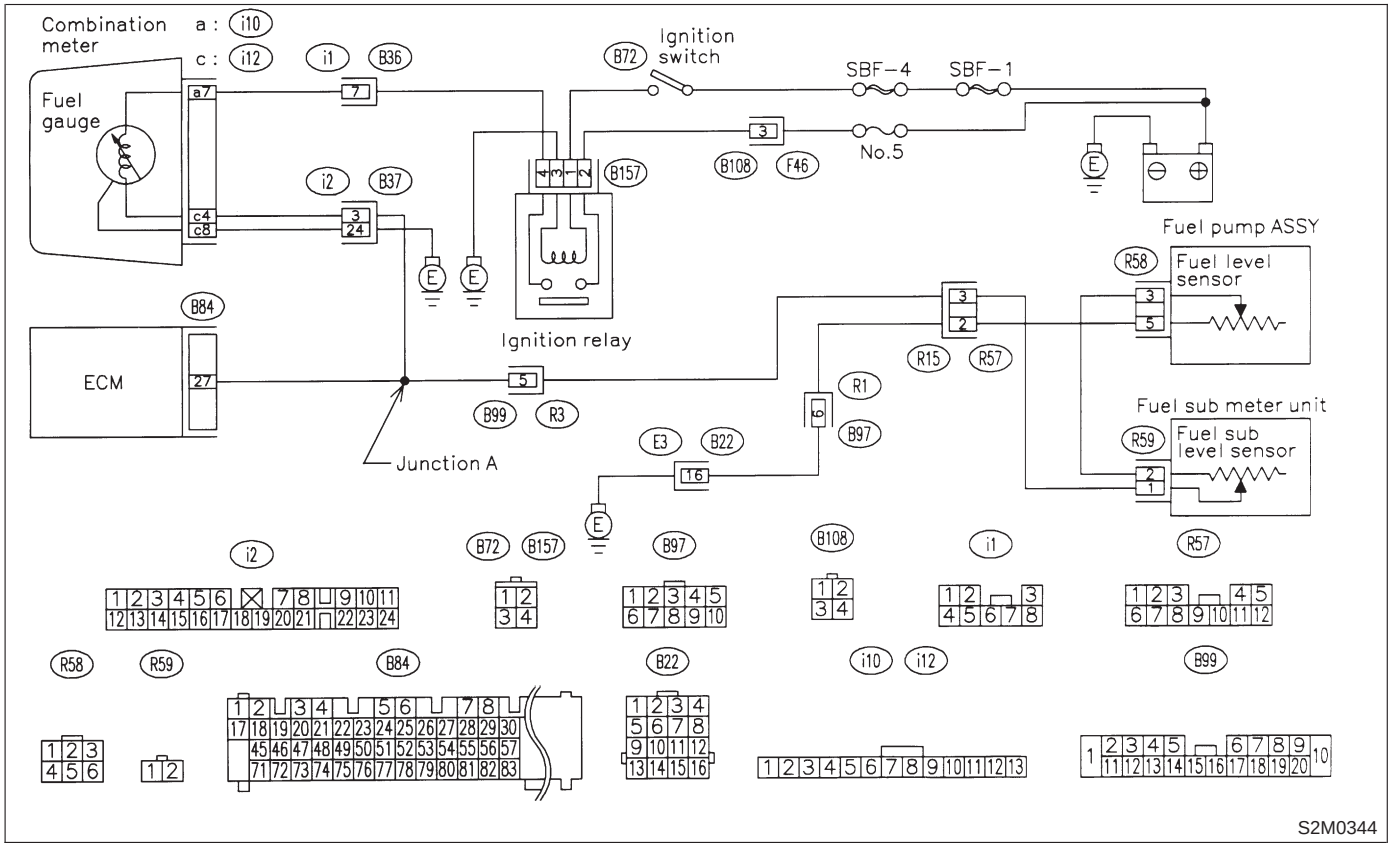
CHECK : ***Is the value more than 2.8 kPa (21.0 mmHg, 0.827 inHg)?***
YES : Repair battery short circuit in harness between ECM and fuel tank pressure sensor connector.
NO : Replace fuel tank pressure sensor.

AY: DTC P0461 — FUEL LEVEL SENSOR CIRCUIT RANGE/ PERFORMANCE PROBLEM —

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

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

- **WIRING DIAGRAM:**



10AY1 :	**CHECK ANY OTHER DTC ON DISPLAY.**

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

CHECK : ***Does the Subaru select monitor or OBD-II general scan tool indicate DTC P0462 or P0463?***

YES : Inspect DTC P0462 or P0463 using “10. Diagnostics Chart with Trouble Code”. <Ref. to 2-7 [T10A0].>

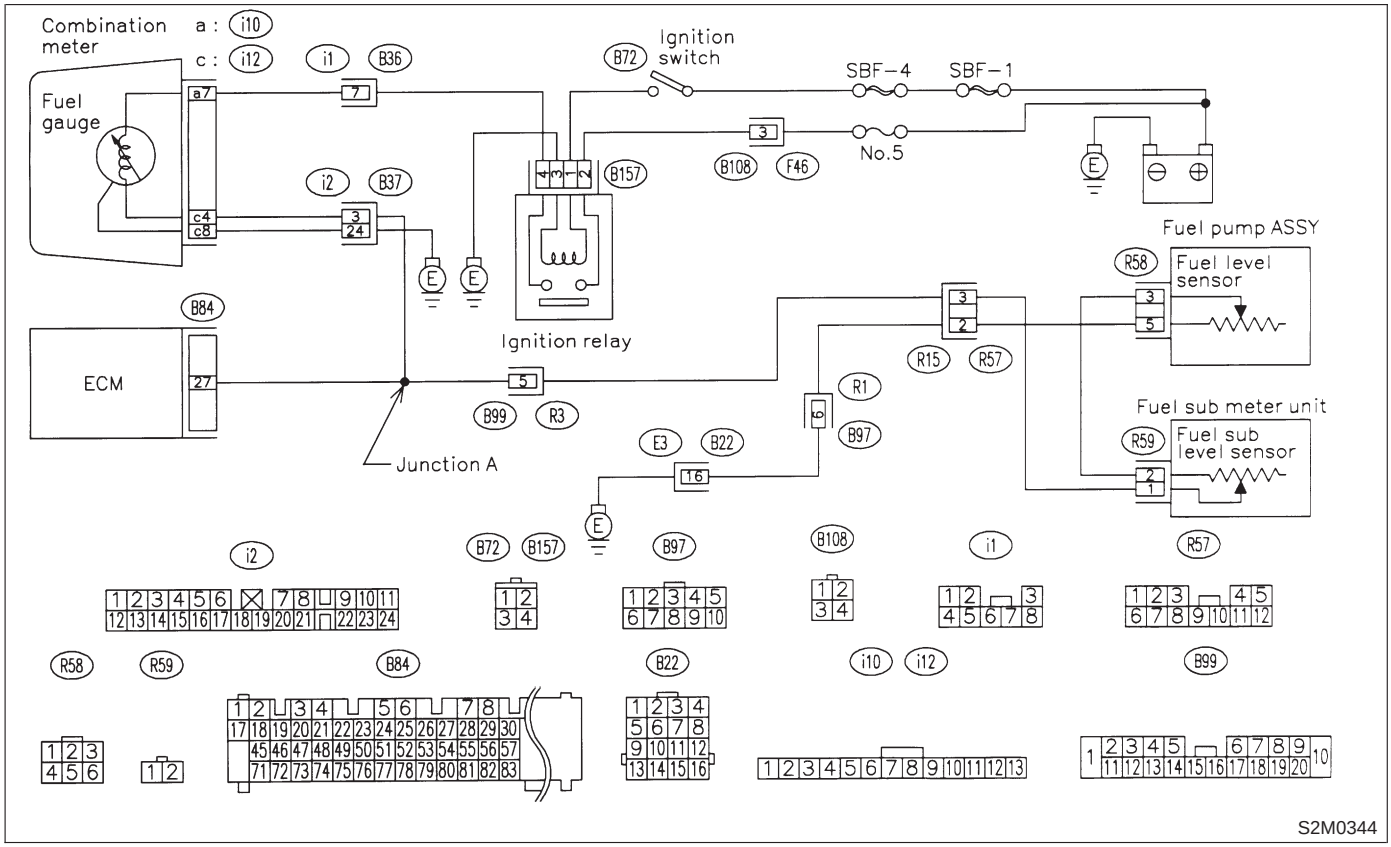
NO : Replace fuel sending unit and fuel sub meter unit.

AZ: DTC P0462 — FUEL LEVEL SENSOR CIRCUIT LOW INPUT —

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

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

- **WIRING DIAGRAM:**

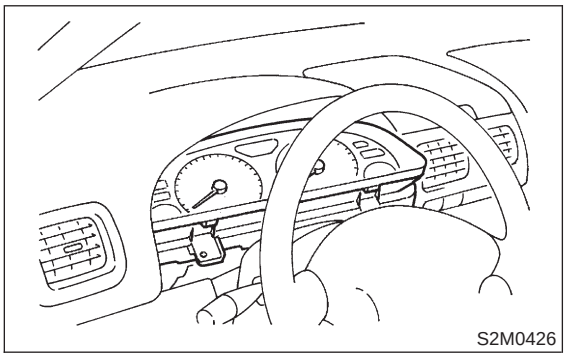


10AZ1 :	**CHECK SPEEDOMETER AND TACHOMETER OPERATION IN COMBINATION METER.**

CHECK : ***Does speedometer and tachometer operate normally?***
YES : Go to step **10AZ3**.
NO : Go to step **10AZ2**.

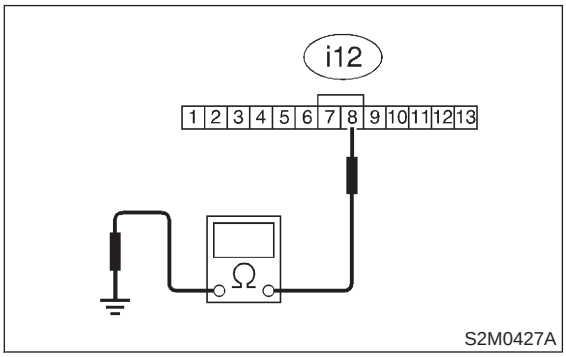
10AZ2 : CHECK GROUND CIRCUIT OF COMBINATION METER.

1) Turn ignition switch to OFF.
2) Pull out combination meter from instrument panel. <Ref. to 6-2 [W8A0].>



3) Disconnect connector from combination meter.
4) Measure resistance of harness between combination meter connector and chassis ground.

Connector & terminal
(i12) No. 8 — Chassis ground:



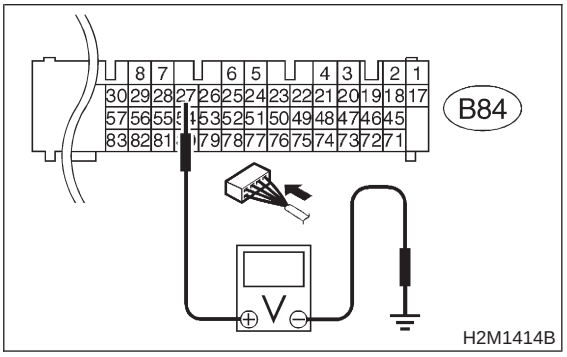
CHECK : ***Is resistance less than 5 Ω?***
YES : Repair or replace combination meter.
NO : Repair harness and connector.

NOTE:
In this case, repair the following:
- Open circuit in harness between combination meter connector and grounding terminal
- Poor contact in combination meter connector
- Poor contact in grounding terminal
- Poor contact in coupling connector (i2)

10AZ3 : CHECK INPUT SIGNAL FOR ECM.

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

Connector & terminal
(B84) No. 27 (+) — Chassis ground (−):



CHECK : ***Is the voltage less than 0.12 V?***
YES : Go to step **10AZ5**.
NO : Go to step **10AZ4**.

10AZ4 : CHECK INPUT SIGNAL FOR ECM (USING SUBARU SELECT MONITOR).

Read data of fuel level sensor signal using Subaru Select Monitor.

NOTE:
- Subaru Select Monitor

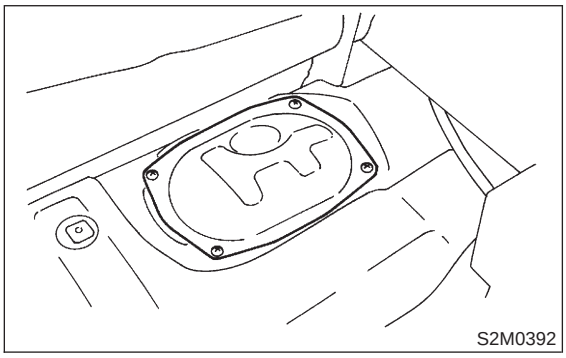
For detailed operation procedure, refer to the "READ CURRENT DATA SHOWN ON DISPLAY FOR ENGINE". <Ref. to 2-7 [T3C4].>

CHECK : ***Does the value change less than 0.12 V by shaking harness and connector of ECM while monitoring the value with Subaru Select Monitor?***
YES : Repair poor contact in ECM connector.
NO : Even if MIL lights up, the circuit has returned to a normal condition at this time. A temporary poor contact of the connector may be the cause.

NOTE:
In this case, repair the following:
- Poor contact in fuel pump connector
- Poor contact in combination meter connector
- Poor contact in ECM connector
- Poor contact in coupling connectors (i2, B22, B99, B97 and R57)

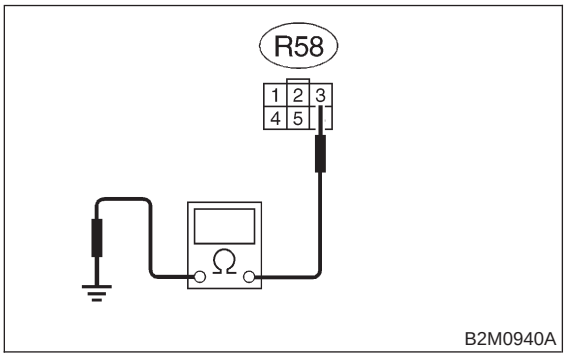
10AZ5 : CHECK HARNESS BETWEEN ECM, COMBINATION METER AND FUEL PUMP CONNECTOR.

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



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

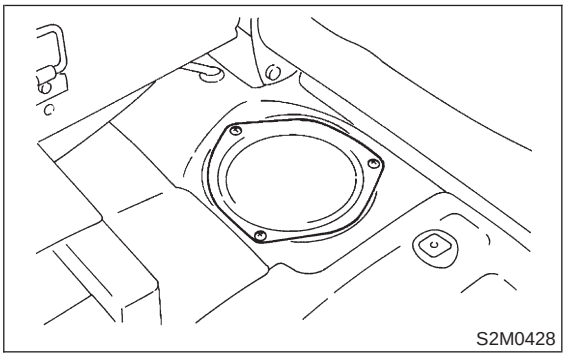
Connector & terminal
(R58) No. 3 — Chassis ground:



CHECK : ***Is the resistance less than 10 Ω?***
YES : Go to step **10AZ6**.
NO : Go to step **10AZ10**.

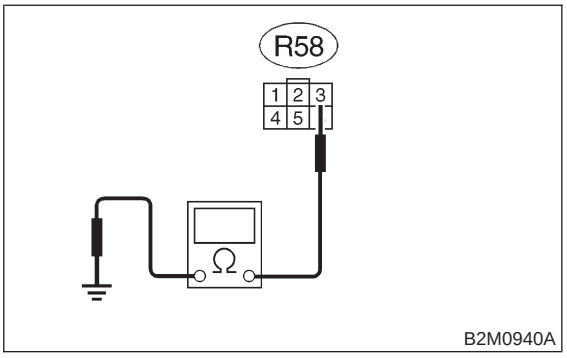
10AZ6 : CHECK HARNESS BETWEEN FUEL PUMP AND FUEL SUB METER UNIT CONNECTOR.

1) Remove service hole cover located on the left rear of luggage compartment floor.



2) Disconnect connector from fuel sub meter unit.
3) Measure resistance of harness between fuel pump connector and chassis ground.

Connector & terminal
(R58) No. 3 — Chassis ground:

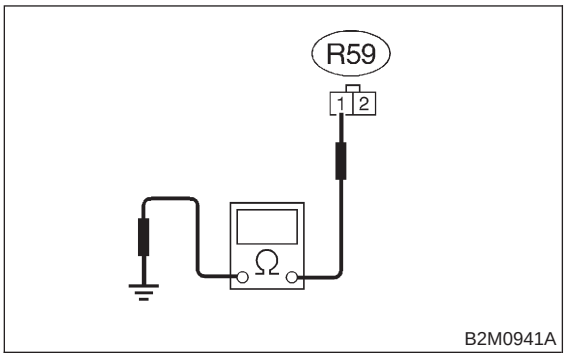


CHECK : ***Is the resistance less than 10 Ω?***
YES : Repair ground short circuit in harness between fuel pump and fuel sub meter unit connector.
NO : Go to step **10AZ7**.

10AZ7 : CHECK FUEL TANK CODE.

1) Separate fuel tank cord connector (R57) and rear wiring harness connector (R15).
2) Measure resistance of harness between fuel sub meter unit connector and chassis ground.

Connector & terminal
(R59) No. 1 — Chassis ground:

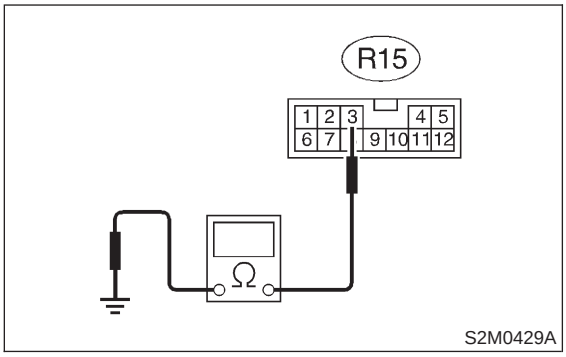


CHECK : ***Is the resistance less than 10 Ω?***
YES : Repair ground short circuit in fuel tank cord.
NO : Go to step **10AZ8**.

10AZ8 : CHECK REAR WIRING HARNESS.

1) Separate rear wiring harness connector (R3) and bulkhead wiring harness connector (B99).
2) Measure resistance of harness between rear wiring harness connector and chassis ground.

Connector & terminal
(R15) No. 3 — Chassis ground:

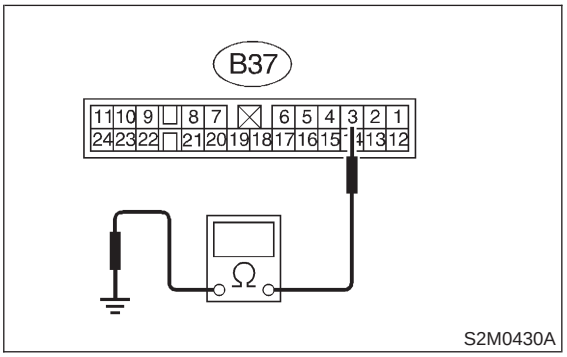


CHECK : ***Is the resistance less than 10 Ω?***
YES : Repair ground short circuit in rear wiring harness.
NO : Go to step **10AZ9**.

10AZ9 : CHECK BULKHEAD AND INSTRUMENT PANEL WIRING HARNESS.

1) Separate bulkhead wiring harness connector (B37) and instrument panel wiring harness connector (i2).
2) Measure resistance of harness between bulkhead wiring harness connector and chassis ground.

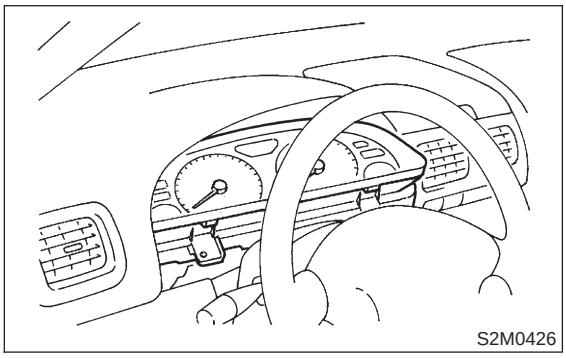
Connector & terminal
(B37) No. 3 — Chassis ground:



CHECK : ***Is the resistance less than 10 Ω?***
YES : Repair ground short circuit in bulkhead wiring harness.
NO : Repair ground short circuit in instrument panel wiring harness.

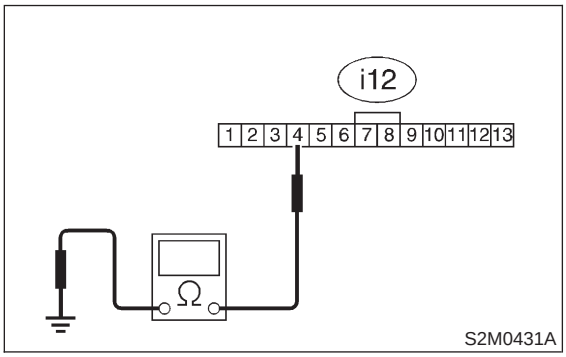
10AZ10 : CHECK HARNESS BETWEEN COMBINATION METER AND FUEL PUMP CONNECTOR.

1) Connect connector to fuel pump.
2) Pull out combination meter from instrument panel. <Ref. to 6-2 [W8A0].>


S2M0426

3) Disconnect connector from combination meter.
4) Measure resistance of harness between combination meter connector and chassis ground.

Connector & terminal
(i12) No. 4 — Chassis ground:



S2M0431A

CHECK : ***Is the resistance less than 200 Ω?***
YES : Go to step **10AZ11**.
NO : Repair harness and connector.

NOTE:
In this case, repair the following:
- Open circuit in harness between combination meter connector and junction A on rear wiring harness
- Poor contact in coupling connector (i2)

10AZ11 : CHECK COMBINATION METER.

Disconnect speedometer cable from combination meter and remove combination meter.

CHECK : ***Is the fuel meter installation screw tightened securely?***
YES : Go to step **10AZ12**.
NO : Tighten fuel meter installation screw securely.

10AZ12 : CHECK PRINTED CIRCUIT PLATE.

Remove printed circuit plate assembly from combination meter assembly.

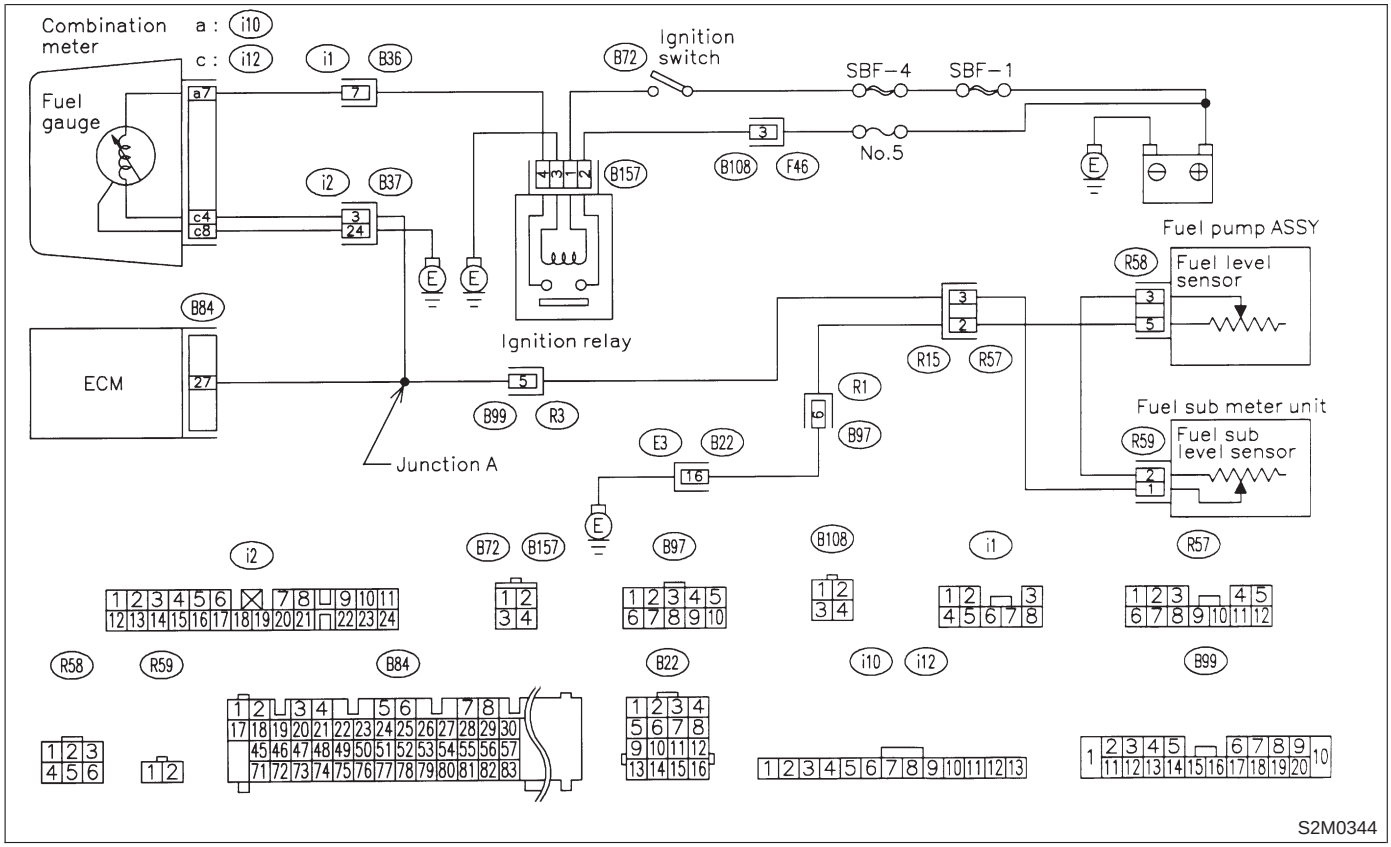
CHECK : ***Is there flaw or burning on printed circuit plate assembly?***
YES : Replace printed circuit plate assembly.
NO : Replace fuel meter assembly.

BA: DTC P0463 — FUEL LEVEL SENSOR CIRCUIT HIGH INPUT —

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

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

- **WIRING DIAGRAM:**



10BA1 :	**CHECK SPEEDOMETER AND TACHOMETER OPERATION IN COMBINATION METER.**

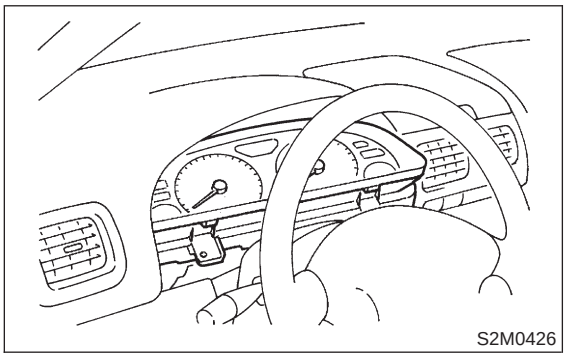
CHECK : ***Does speedometer and tachometer operate normally?***

YES : Go to step **10BA3**.

NO : Go to step **10BA2**.

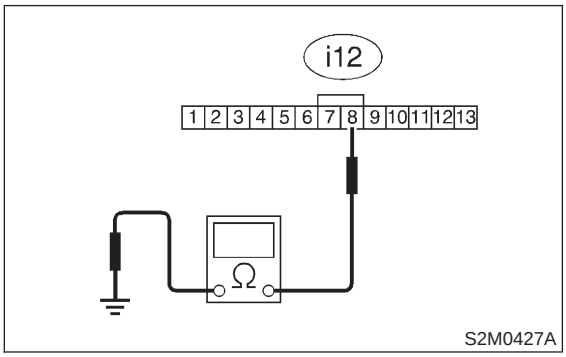
10BA2 : CHECK GROUND CIRCUIT OF COMBINATION METER.

1) Turn ignition switch to OFF.
2) Pull out combination meter from instrument panel. <Ref. to 6-2 [W8A0].>



3) Disconnect connector from combination meter.
4) Measure resistance of harness between combination meter connector and chassis ground.

Connector & terminal
(i12) No. 3 — Chassis ground:



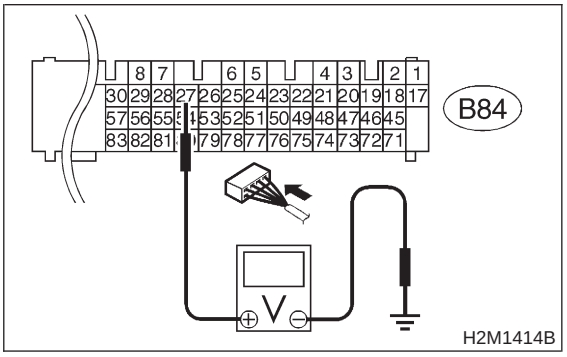
CHECK : ***Is resistance less than 5 Ω?***
YES : Repair or replace combination meter.
NO : Repair harness and connector.

NOTE:
In this case, repair the following:
- Open circuit in harness between combination meter connector and grounding terminal
- Poor contact in combination meter connector
- Poor contact in grounding terminal

10BA3 : CHECK INPUT SIGNAL FOR ECM.

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

Connector & terminal
(B84) No. 27 (+) — Chassis ground (−):

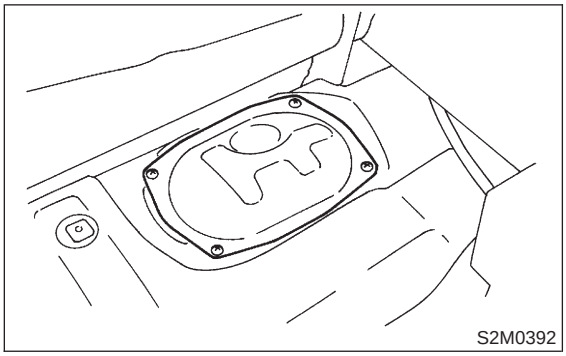


CHECK : ***Is the voltage more than 4.75 V?***
YES : Go to step **10BA4**.
NO : Even if MIL lights up, the circuit has returned to a normal condition at this time. A temporary poor contact of the connector may be the cause.

NOTE:
In this case, repair the following:
- Poor contact in fuel pump connector
- Poor contact in combination meter connector
- Poor contact in ECM connector
- Poor contact in coupling connectors (i2, B22, B99, B97 and R57)

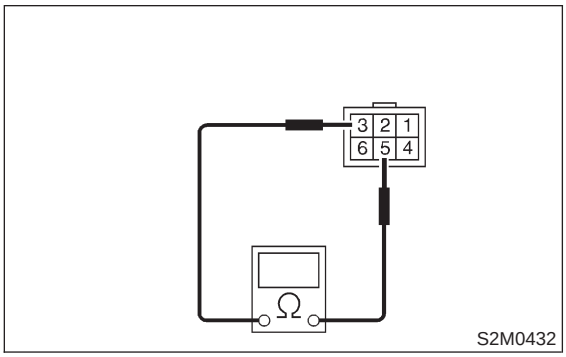
10BA4 : CHECK FUEL LEVEL SENSOR.

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



3) Disconnect connector from fuel pump.
4) Measure resistance between connector terminals of fuel pump.

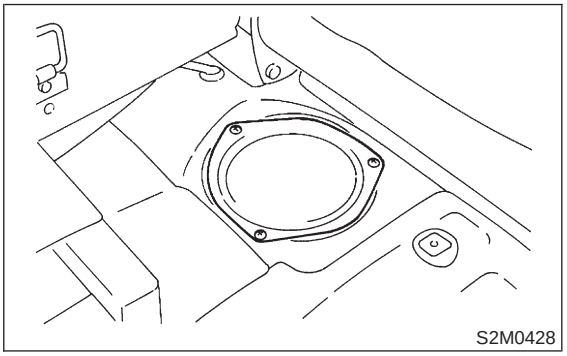
Terminals
No. 3 — No. 5:



CHECK : ***Is the resistance less than 100 Ω?***
YES : Go to step **10BA5**.
NO : Replace fuel sending unit.

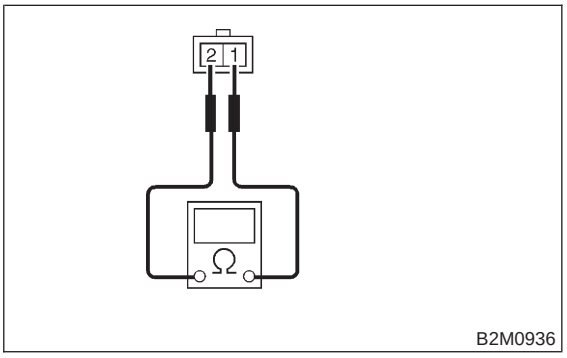
10BA5 : CHECK FUEL SUB LEVEL SENSOR.

1) Remove service hole cover located on the left rear of luggage compartment floor.



2) Disconnect connector from fuel sub meter unit.
3) Measure resistance between connector terminals of fuel sub meter unit.

Terminals
No. 1 — No. 2:

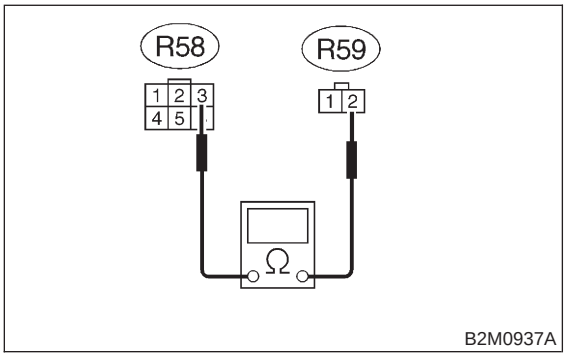


CHECK : ***Is the resistance less than 100 Ω?***
YES : Go to step **10BA6**.
NO : Replace fuel sub meter unit.

10BA6 : CHECK HARNESS BETWEEN FUEL PUMP AND FUEL SUB METER UNIT CONNECTOR.

Measure resistance of harness between fuel pump and fuel sub meter unit connector.

Connector & terminal
(R58) No. 3 — (R59) No. 2:

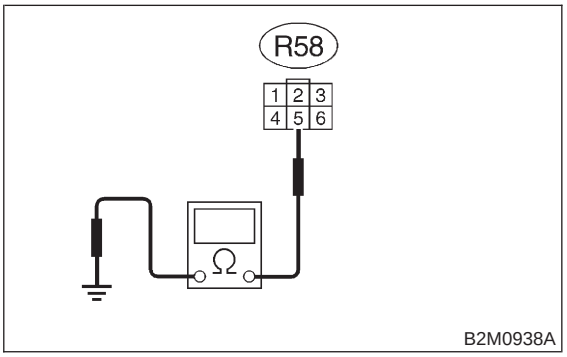


CHECK : ***Is the resistance less than 1 Ω?***
YES : Go to step **10BA7**.
NO : Repair open circuit in harness between fuel pump and fuel sub meter unit connector.

10BA7 : CHECK GROUND CIRCUIT OF FUEL LEVEL SENSOR.

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

Connector & terminal
(R58) No. 5 — Chassis ground:



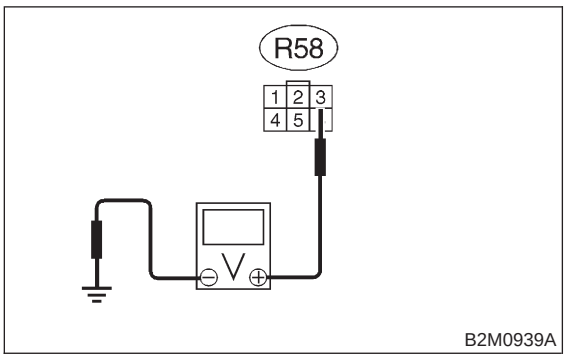
CHECK : ***Is the resistance less than 5 Ω?***
YES : Go to step **10BA8**.
NO : Repair harness and connector.

NOTE:
In this case, repair the following:
- Open circuit in harness between fuel pump connector and chassis grounding terminal
- Poor contact in fuel pump connector
- Poor contact in coupling connectors (R57, B97 and B22)

10BA8 : CHECK HARNESS BETWEEN ECM AND FUEL PUMP CONNECTOR.

1) Connect connector to fuel sub meter unit.
2) Turn ignition switch to ON.
3) Measure voltage between fuel pump connector and chassis ground.

Connector & terminal
(R58) No. 3 (+) — Chassis ground (−):



CHECK : ***Is the voltage less than 1 V?***
YES : Repair harness and connector.

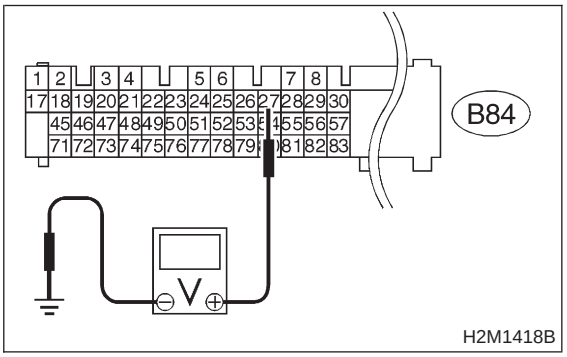
NOTE:
In this case, repair the following:
- Open circuit in harness between fuel pump connector and junction A on rear wiring harness
- Poor contact in fuel sub meter unit connector
- Poor contact in fuel pump connector
- Poor contact in coupling connectors (R57 and B99)

NO : Go to step **10BA9**.

10BA9 : CHECK HARNESS BETWEEN ECM AND FUEL PUMP CONNECTOR.

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

Connector & terminal
(B84) No. 27 (+) — Chassis ground:



CHECK : ***Is the voltage less than 1 V?***
YES : Repair harness and connector.

NOTE:
In this case, repair the following:
- Open circuit in harness between ECM connector and junction A on rear wiring harness
- Poor contact in coupling connector (B99)

NO : Repair connector.

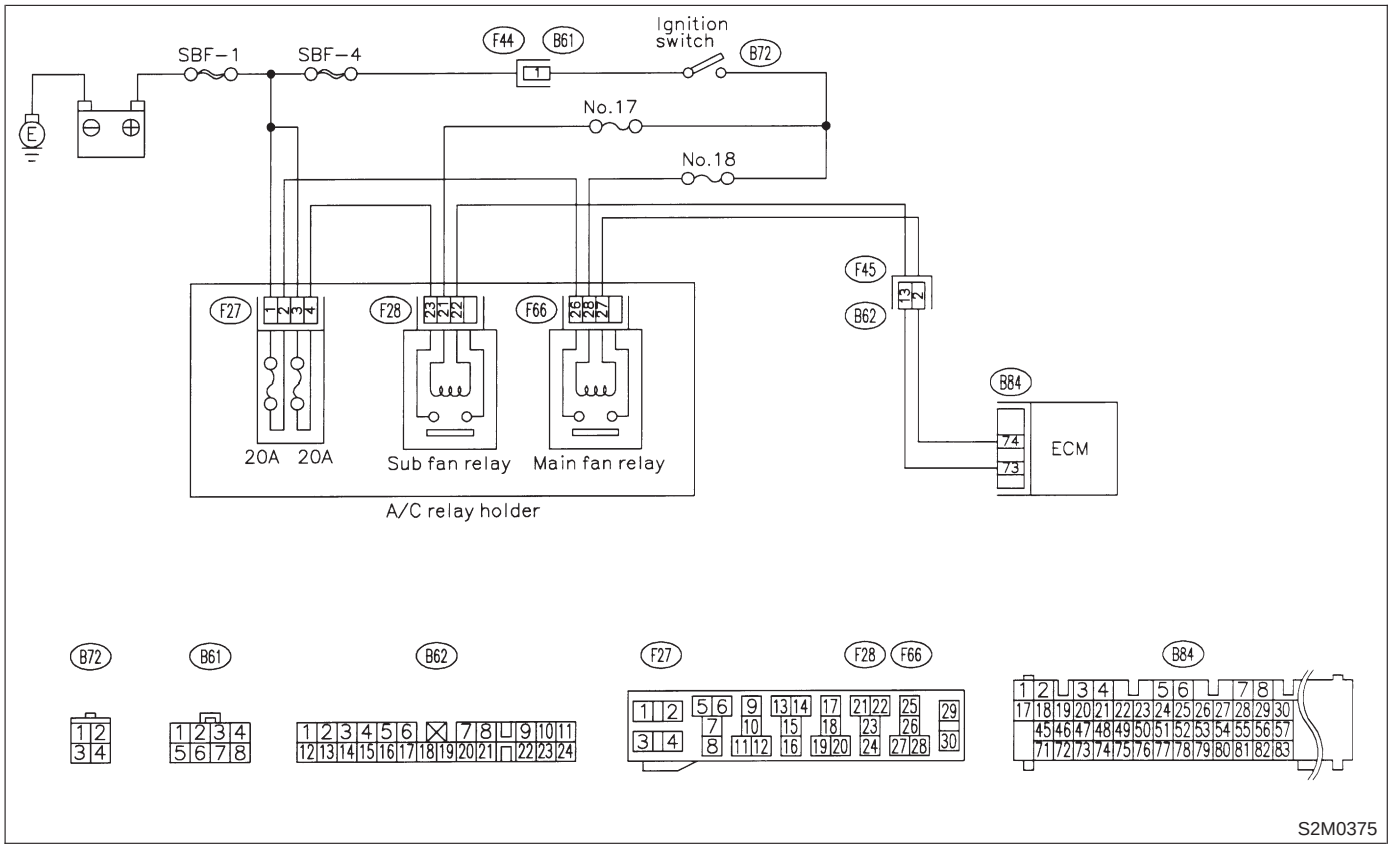
NOTE:
In this case, repair the following:
- Poor contact in fuel pump connector
- Poor contact in fuel sub meter unit
- Poor contact in ECM connector

BB: DTC P0480 — COOLING FAN RELAY 1 CIRCUIT LOW INPUT —

- **DTC DETECTING CONDITION:**
  - Two consecutive driving cycles with fault
- **TROUBLE SYMPTOM:**
  - Radiator fan does not operate properly.
  - Overheating

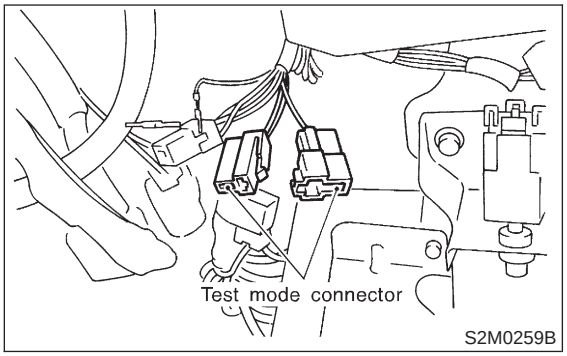
CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY and INSPECTION MODE. <Ref. to 2-7 [T3D0] and [T3E0].>

- **WIRING DIAGRAM:**



10BB1 : 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.

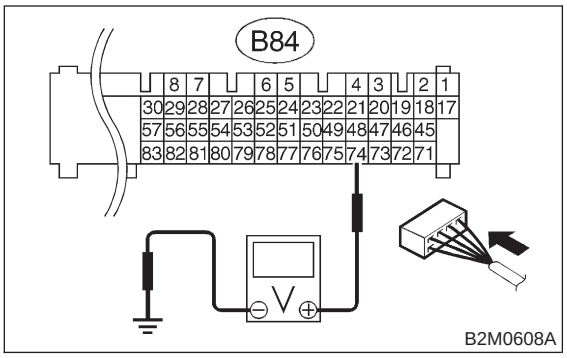


3) Turn ignition switch to ON.

NOTE:
Radiator fan relay operation check can be executed using Subaru Select Monitor. For procedure, refer to the "COMPULSORY VALVE OPERATION CHECK MODE". <Ref. to 2-7 [T3F0].>

4) Measure voltage between ECM and chassis ground.

Connector & terminal
(B84) No. 74 (+) — Chassis ground:

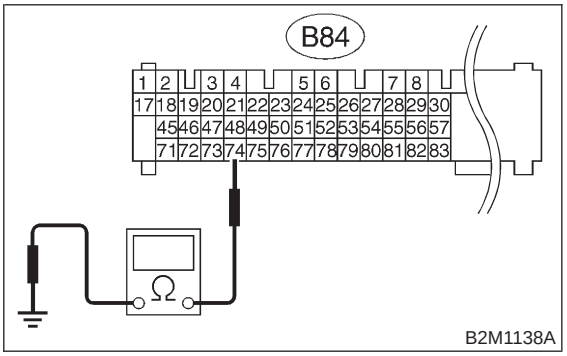


CHECK : ***Does voltage change between 0 and 10 volts?***
YES : Repair poor contact in ECM connector.
NO : Go to step **10BB2**.

10BB2 : CHECK GROUND SHORT CIRCUIT IN RADIATOR FAN RELAY 1 CONTROL CIRCUIT.

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

Connector & terminal
(B84) No. 74 — Chassis ground:

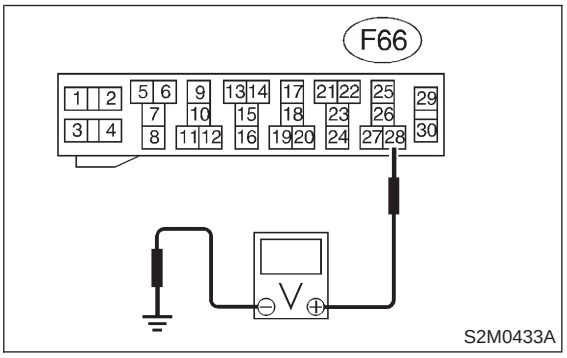


CHECK : ***Is the resistance less than 10 Ω?***
YES : Repair ground short circuit in radiator fan relay 1 control circuit.
NO : Go to step **10BB3**.

10BB3 : CHECK POWER SUPPLY FOR RELAY.

1) Remove main fan relay from A/C relay holder.
2) Turn ignition switch to ON.
3) Measure voltage between main fan relay connector and chassis ground.

Connector & terminal
(F66) No. 28 (+) — Chassis ground (−):

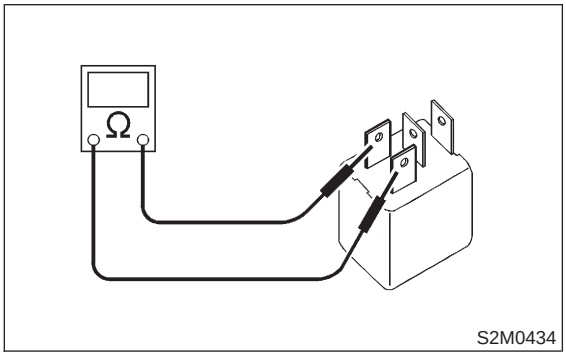


CHECK : ***Is the voltage more than 10 V?***
YES : Go to step **10BB4**.
NO : Repair open circuit in harness between ignition switch and A/C relay holder connector.

10BB4 : CHECK MAIN FAN RELAY.

1) Turn ignition switch to OFF.
2) Measure resistance between main fan relay terminals.

Terminal
No. 27 — No. 28:

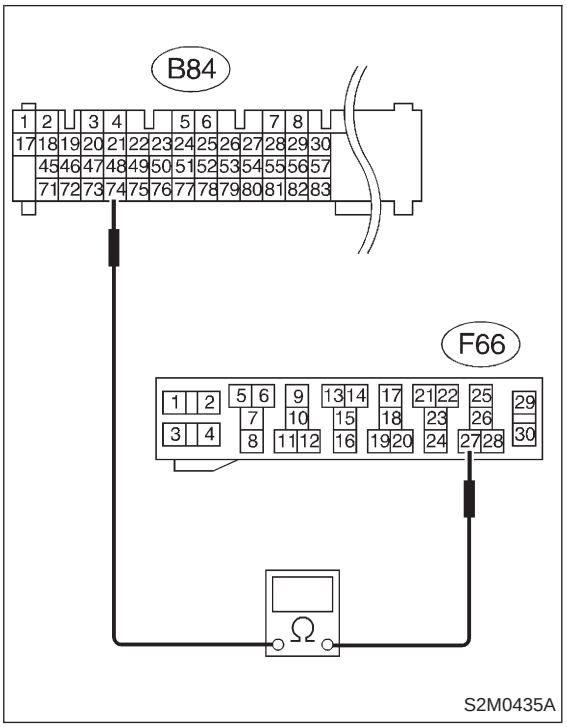


CHECK : ***Is the resistance between 74 and 118 Ω?***
YES : Go to step **10BB5**.
NO : Replace main fan relay.

10BB5 : CHECK OPEN CIRCUIT IN RADIATOR FAN RELAY 1 CONTROL CIRCUIT.

Measure resistance of harness between ECM and main fan relay connector.

Connector & terminal
(B84) No. 74 — (F66) No. 27:



CHECK : ***Is the resistance less than 1 Ω?***
YES : Go to step **10BB6**.
NO : Repair harness and connector.

NOTE:
In this case, repair the following:
- Open circuit in harness between ECM and A/C relay holder connector
- Poor contact in coupling connector (B62)

10BB6 : CHECK POOR CONTACT.

Check poor contact in ECM or main fan relay connector. <Ref. to FOREWORD [T3C1].>

CHECK : ***Is there poor contact in ECM or main fan relay connector?***
YES : Repair poor contact in ECM or main fan relay connector.
NO : Contact with SOA service.

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

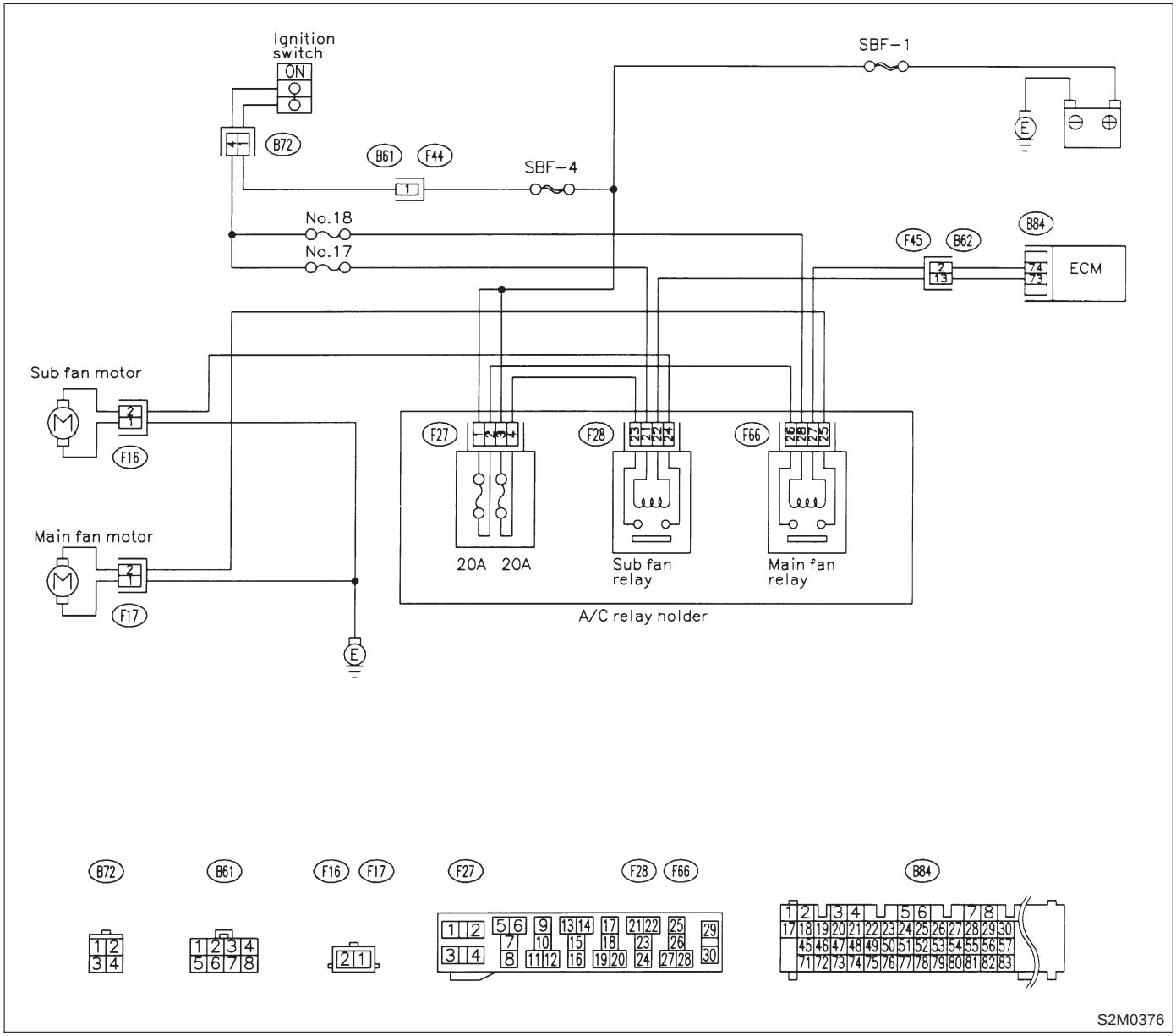
BC: DTC P0483 — COOLING FAN FUNCTION PROBLEM —

- **DTC DETECTING CONDITION:**
  - Two consecutive driving cycles with fault
- **TROUBLE SYMPTOM:**
  - Occurrence of noise
  - Overheating

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

- **WIRING DIAGRAM:**



10BC1 :	CHECK ANY OTHER DTC ON DISPLAY.

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

YES : Inspect the relevant DTC using “10. Diagnostics Chart with Trouble Code”. <Ref. to 2-7 [T10A0].>

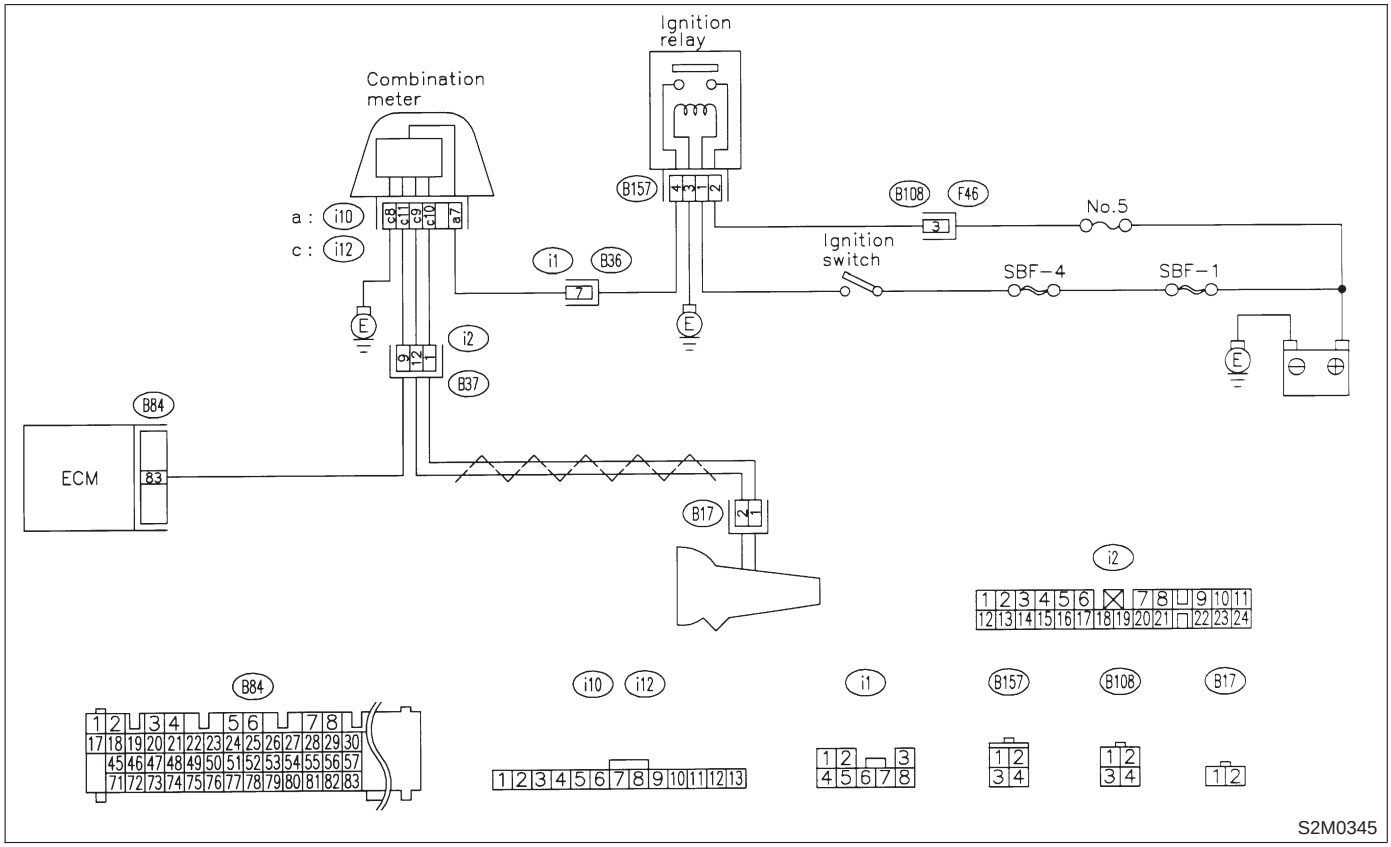
NO : Check engine cooling system. <Ref. to 2-5 [T100].>

BD: DTC P0500 — VEHICLE SPEED SENSOR MALFUNCTION —

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

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

- **WIRING DIAGRAM:**



10BD1 : CHECK SPEEDOMETER OPERATION IN COMBINATION METER.

CHECK : ***Does speedometer operate normally?***

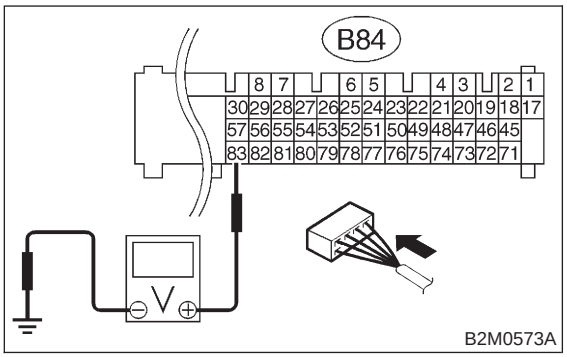
YES : Go to step **10BD2**.

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

10BD2 : CHECK HARNESS BETWEEN ECM AND COMBINATION METER CONNECTOR.

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

Connector & terminal
(B84) No. 83 (+) — Chassis ground (−):



CHECK : ***Is the voltage more than 2 V?***
YES : Repair harness and connector.

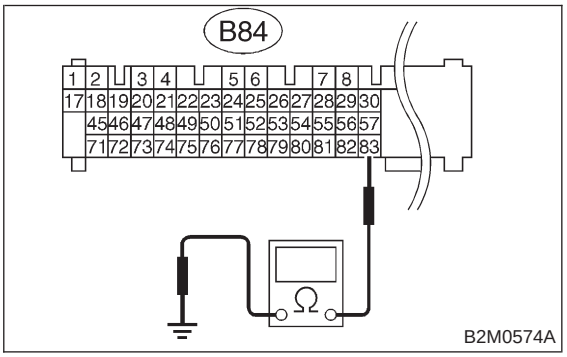
NOTE:
In this case, repair the following:
- Open circuit in harness between ECM and combination meter connector
- Poor contact in ECM connector
- Poor contact in combination meter connector
- Poor contact in coupling connector (i2)

NO : Go to step **10BD3**.

10BD3 : CHECK HARNESS BETWEEN ECM AND COMBINATION METER CONNECTOR.

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

Connector & terminal
(B84) No. 83 — Chassis ground:



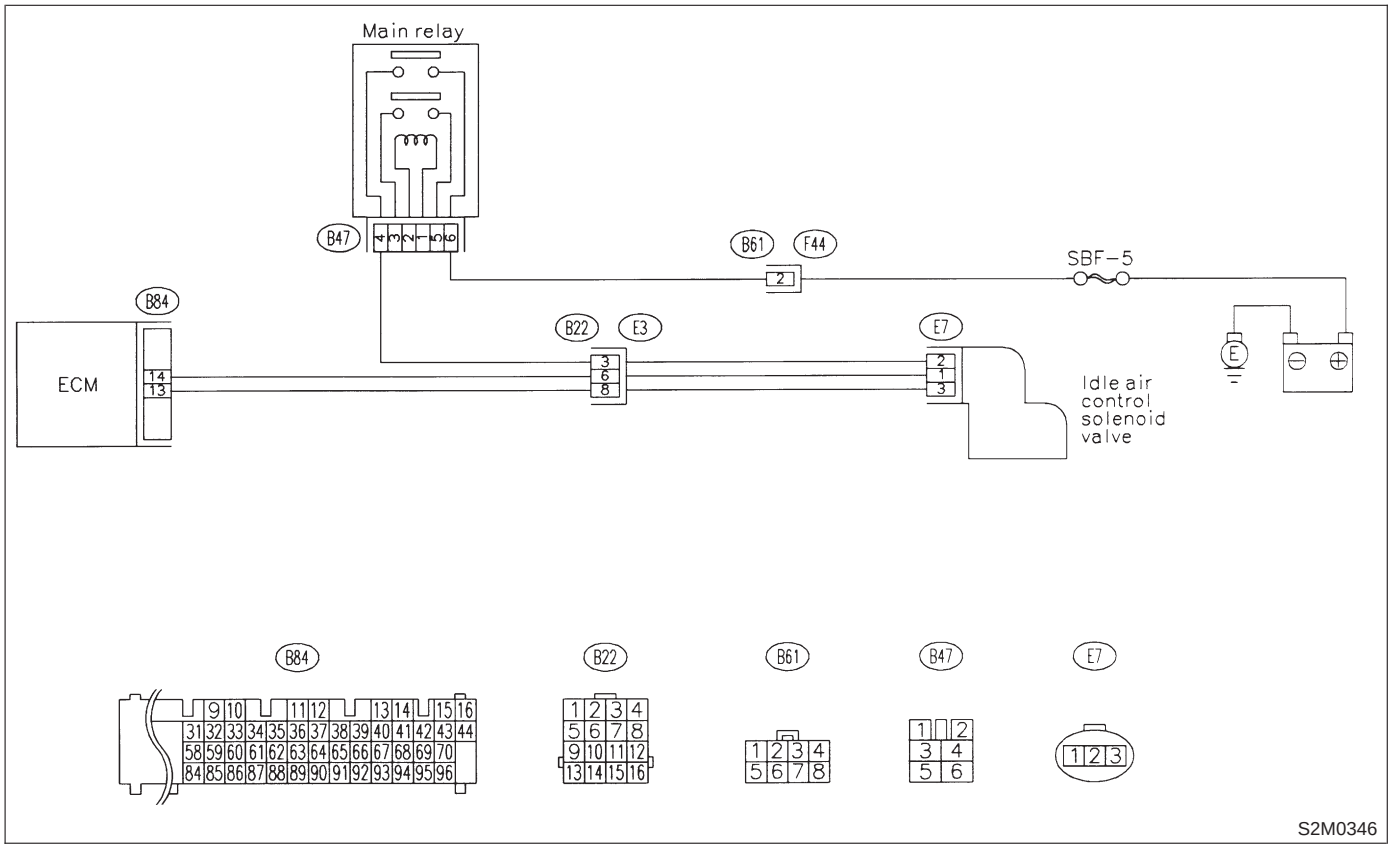
CHECK : ***Is the resistance less than 10 Ω?***
YES : Repair ground short circuit in harness between ECM and combination meter connector.
NO : Repair poor contact in ECM connector.

BE: DTC P0505 — IDLE CONTROL SYSTEM MALFUNCTION —

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

- **WIRING DIAGRAM:**



10BE1 : CHECK AIR INTAKE SYSTEM.

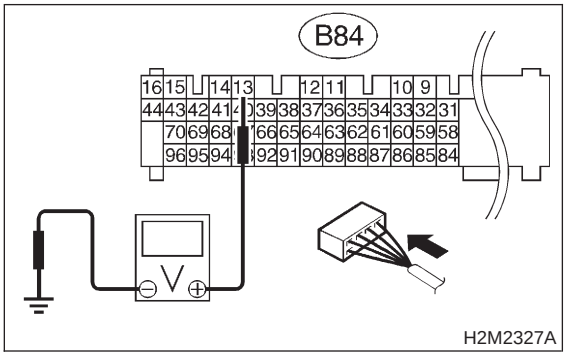
1) Turn ignition switch to ON.
2) Start engine, and idle it.
3) Check the following items.
- Loose installation of intake manifold, idle air control solenoid valve and throttle body
- Cracks of intake manifold gasket, idle air control solenoid valve gasket and throttle body gasket
- Loose connections and cracks of idle air control solenoid valve by-pass hoses
- Disconnections of vacuum hoses

CHECK : ***Is there a fault in air intake system?***
YES : Repair or replace air intake system.
NO : Go to step **10BE2**.

10BE2 : CHECK OUTPUT SIGNAL FROM ECM.

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

Connector & terminal
(B84) No. 13 (+) — Chassis ground (−):

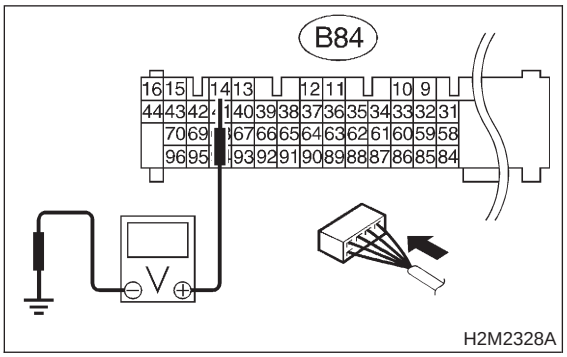


CHECK : ***Is the voltage more than 3 V?***
YES : Go to step **10BE3**.
NO : Go to step **10BE13**.

10BE3 : CHECK OUTPUT SIGNAL FROM ECM.

Measure voltage between ECM and chassis ground.

Connector & terminal
(B84) No. 14 (+) — Chassis ground (−):

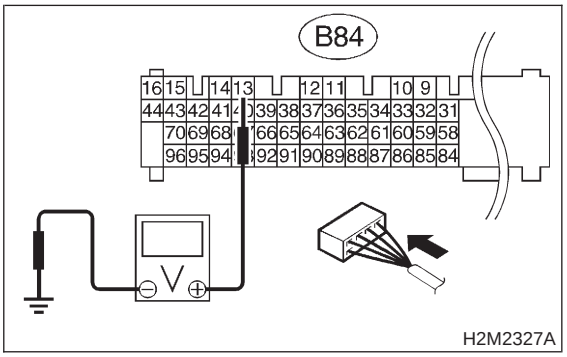


CHECK : ***Is the voltage more than 3 V?***
YES : Go to step **10BE4**.
NO : Go to step **10BE13**.

10BE4 : CHECK OUTPUT SIGNAL FROM ECM.

1) Turn ignition switch to OFF.
2) Disconnect connector from idle air control solenoid valve.
3) Turn ignition switch to ON.
4) Measure voltage between ECM and chassis ground.

Connector & terminal
(B84) No. 13 (+) — Chassis ground (−):

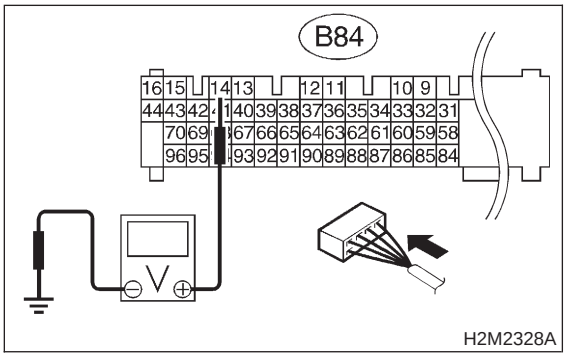


CHECK : ***Is the voltage more than 10 V?***
YES : Repair battery short circuit in harness between ECM and idle air control solenoid valve connector. After repair, replace ECM.
NO : Go to step **10BE5**.

10BE5 : CHECK OUTPUT SIGNAL FROM ECM.

Measure voltage between ECM and chassis ground.

Connector & terminal
(B84) No. 14 (+) — Chassis ground (−):



CHECK : ***Is the voltage more than 10 V?***
YES : Repair battery short circuit in harness between ECM and idle air control solenoid valve connector. After repair, replace ECM.
NO : Go to step **10BE6**.

10BE6 : CHECK POOR CONTACT.

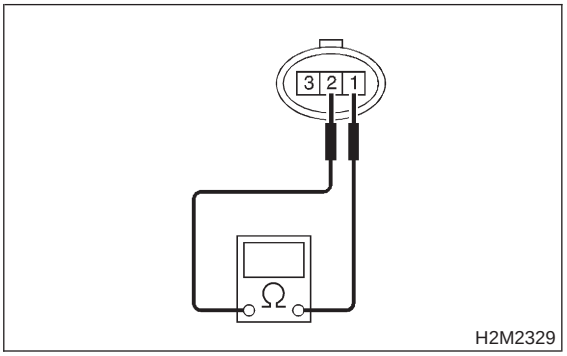
Check poor contact in ECM connector. <Ref. to FOREWORD [T3C1].>

CHECK : ***Is there poor contact in ECM connector?***
YES : Repair poor contact in ECM connector.
NO : Go to step **10BE7**.

10BE7 : CHECK IDLE AIR CONTROL SOLENOID VALVE.

1) Turn ignition switch to OFF.
2) Measure resistance between idle air control solenoid valve connector terminals.

Terminals
No. 1 — No. 2:

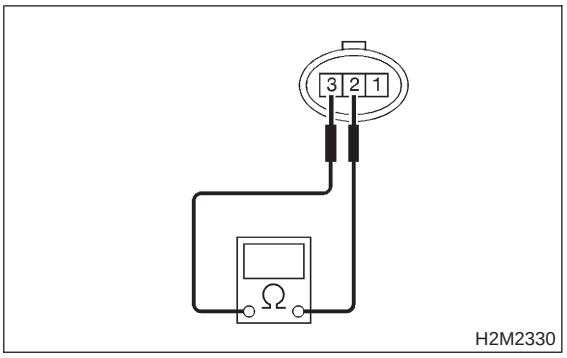


CHECK : ***Is the resistance more than 20 Ω?***
YES : Replace idle air control solenoid valve.
NO : Go to step **10BE8**.

10BE8 : CHECK IDLE AIR CONTROL SOLENOID VALVE.

Measure resistance between idle air control solenoid valve connector terminals.

Terminals
No. 2 — No. 3:

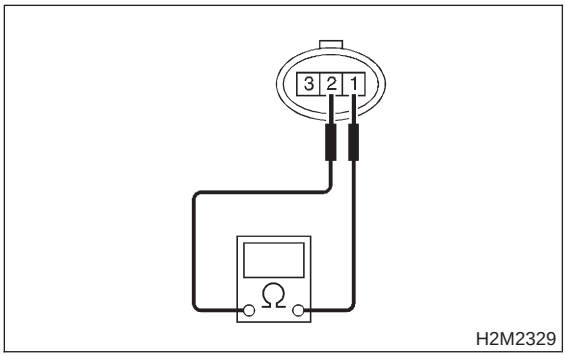


CHECK : ***Is the resistance more than 20 Ω?***
YES : Replace idle air control solenoid valve.
NO : Go to step **10BE9**.

10BE9 : CHECK IDLE AIR CONTROL SOLENOID VALVE.

Measure resistance between idle air control solenoid valve connector terminals.

Terminals
No. 1 — No. 2:

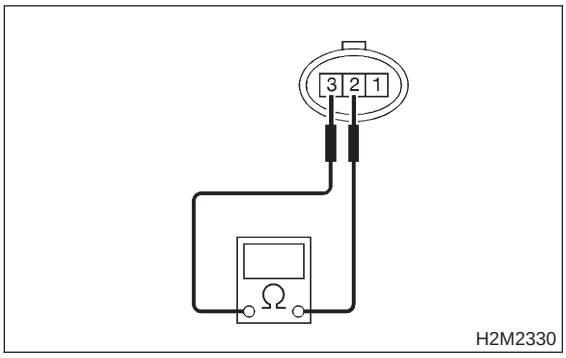


CHECK : ***Is the resistance less than 5 Ω?***
YES : Replace idle air control solenoid valve and ECM.
NO : Go to step **10BE10**.

10BE10 : CHECK IDLE AIR CONTROL SOLENOID VALVE.

Measure resistance between idle air control solenoid valve connector terminals.

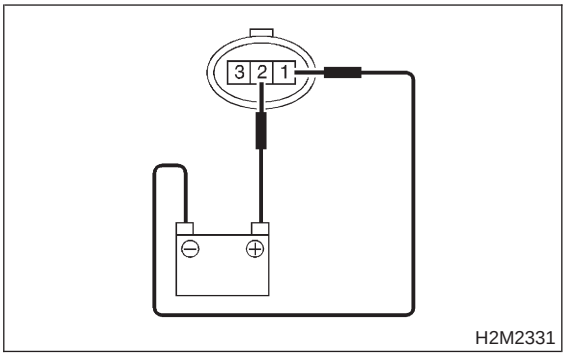
Terminals
No. 2 — No. 3:



CHECK : ***Is the resistance less than 5 Ω?***
YES : Replace idle air control solenoid valve and ECM.
NO : Go to step **10BE11**.

10BE11 : CHECK IDLE AIR CONTROL SOLENOID VALVE.

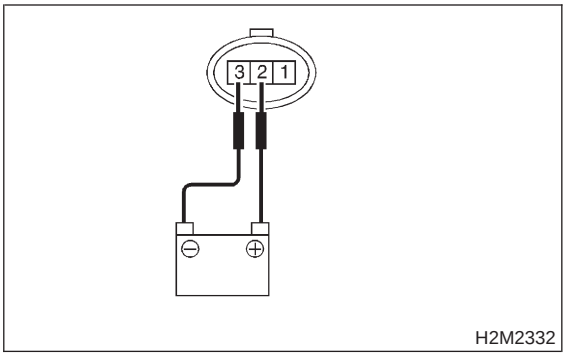
1) Remove idle air control solenoid valve. <Ref. to 2-7 [W13A0].>
2) Check operation of idle air control solenoid valve.



CHECK : ***Is idle air control solenoid valve fully opened when applying the battery to terminals No. 2 (+) and No. 1 (−)?***
YES : Go to step **10BE12**.
NO : Clean idle air control solenoid valve. <Ref. to 2-7 [W13B0].>

10BE12 : CHECK IDLE AIR CONTROL SOLENOID VALVE.

Check operation of idle air control solenoid valve.

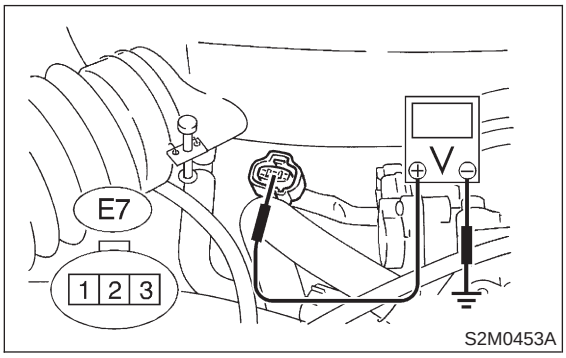


CHECK : ***Is idle air control solenoid valve fully closed when applying the battery to terminals No. 2 (+) and No. 3 (−)?***
YES : Go to step **10BE13**.
NO : Clean idle air control solenoid valve. <Ref. to 2-7 [W13B0].>

10BE13 : 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) Disconnect connector from idle air control solenoid valve.
4) Measure voltage between idle air control solenoid valve and engine ground.

Connector & terminal
(E7) No. 2 (+) — Engine ground (−):



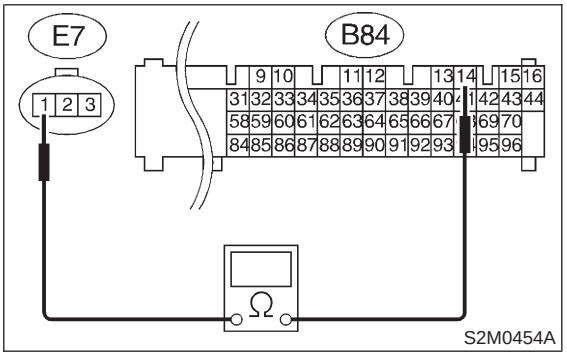
CHECK : ***Is the voltage more than 10 V?***
YES : Go to step **10BE14**.
NO : Repair harness and connector.

NOTE:
In this case, repair the following:
- Open circuit in harness between idle air control solenoid valve and main relay connector
- Poor contact in coupling connector (B22)

10BE14 : CHECK HARNESS BETWEEN ECM AND IDLE AIR CONTROL SOLENOID VALVE CONNECTOR.

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

Connector & terminal
(B84) No. 14 — (E7) No. 1:



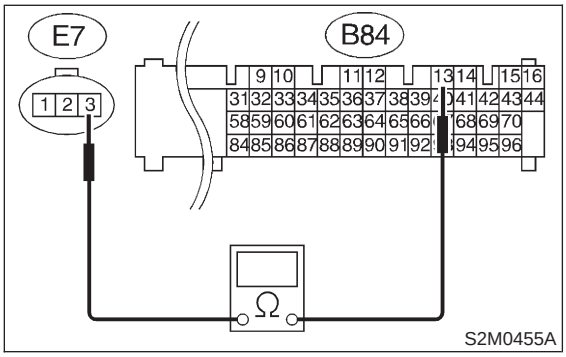
CHECK : ***Is the resistance less than 1 Ω?***
YES : Go to step **10BE15**.
NO : Repair harness and connector.

NOTE:
In this case, repair the following:
- Open circuit in harness between ECM and idle air control solenoid valve connector
- Poor contact in coupling connector (B22)

10BE15 : CHECK HARNESS BETWEEN ECM AND IDLE AIR CONTROL SOLENOID VALVE CONNECTOR.

Measure resistance of harness between ECM and idle air control solenoid valve connector.

Connector & terminal
(B84) No. 13 — (E7) No. 3:



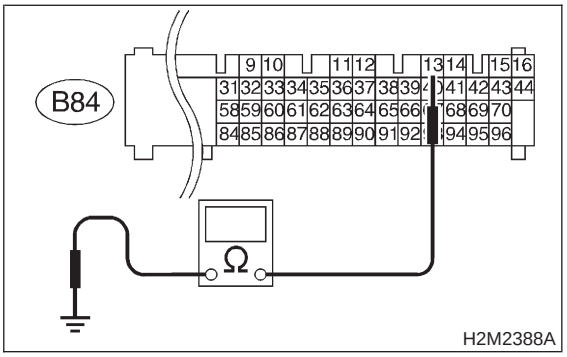
CHECK : ***Is the resistance less than 1 Ω?***
YES : Go to step **10BE16**.
NO : Repair harness and connector.

NOTE:
In this case, repair the following:
- Open circuit in harness between ECM and idle air control solenoid valve connector
- Poor contact in coupling connector (B22)

10BE16 : CHECK HARNESS BETWEEN ECM AND IDLE AIR CONTROL SOLENOID VALVE CONNECTOR.

Measure resistance of harness between ECM and chassis ground.

Connector & terminal
(B84) No. 13 — Chassis ground:

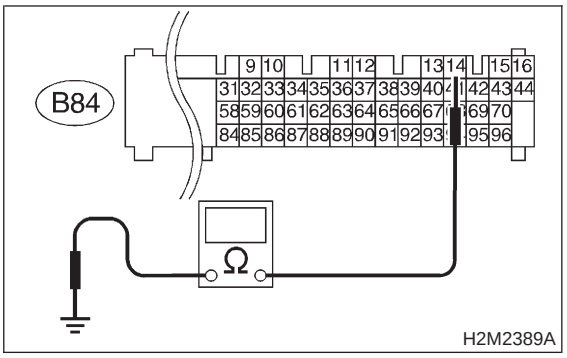


CHECK : ***Is the resistance less than 10 Ω?***
YES : Repair ground short circuit in harness between ECM and idle air control solenoid valve connector.
NO : Go to step **10BE17**.

10BE17 : CHECK HARNESS BETWEEN ECM AND IDLE AIR CONTROL SOLENOID VALVE CONNECTOR.

Measure resistance of harness between ECM and chassis ground.

Connector & terminal
(B84) No. 14 — Chassis ground:



CHECK : ***Is the resistance less than 10 Ω?***
YES : Repair ground short circuit in harness between ECM and idle air control solenoid valve connector.
NO : Go to step **10BE18**.

10BE18 : CHECK POOR CONTACT.

Check poor contact in idle air control solenoid valve connector. <Ref. to FOREWORD [T3C1].>

CHECK : ***Is there poor contact in idle air control solenoid valve connector?***

YES : Repair poor contact in idle air control solenoid valve connector.

NO : Contact with SOA service.

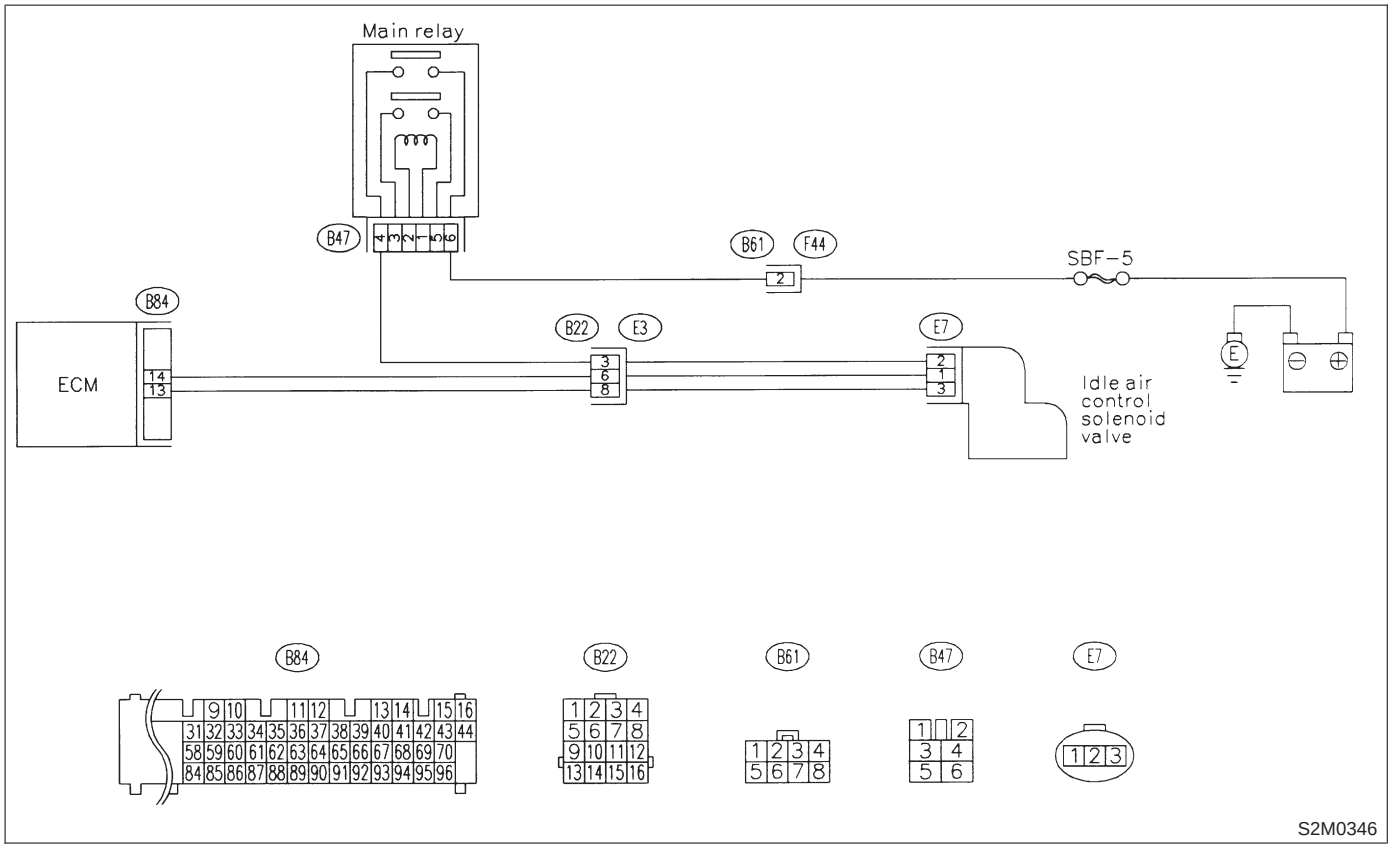
NOTE:
Inspection by DTM is required, because probable cause is deterioration of multiple parts.

BF: DTC P0506 — IDLE CONTROL SYSTEM RPM LOWER THAN EXPECTED —

- **DTC DETECTING CONDITION:**
  - Two consecutive driving cycles with fault
- **TROUBLE SYMPTOM:**
  - Engine is difficult to start.
  - Engine does not start.
  - Erroneous idling
  - Engine stalls.

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

- **WIRING DIAGRAM:**



10BF1 : CHECK ANY OTHER DTC ON DISPLAY.

CHECK : ***Does the Subaru select monitor or OBD-II general scan tool indicate DTC P0505?***

YES : Inspect DTC P0505 using “10. Diagnostics Chart with Trouble Code”. <Ref. to 2-7 [T10A0].>

NOTE:
In this case, it is not necessary to inspect DTC P0506.

NO : Go to step **10BF2**.

10BF2 : 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.

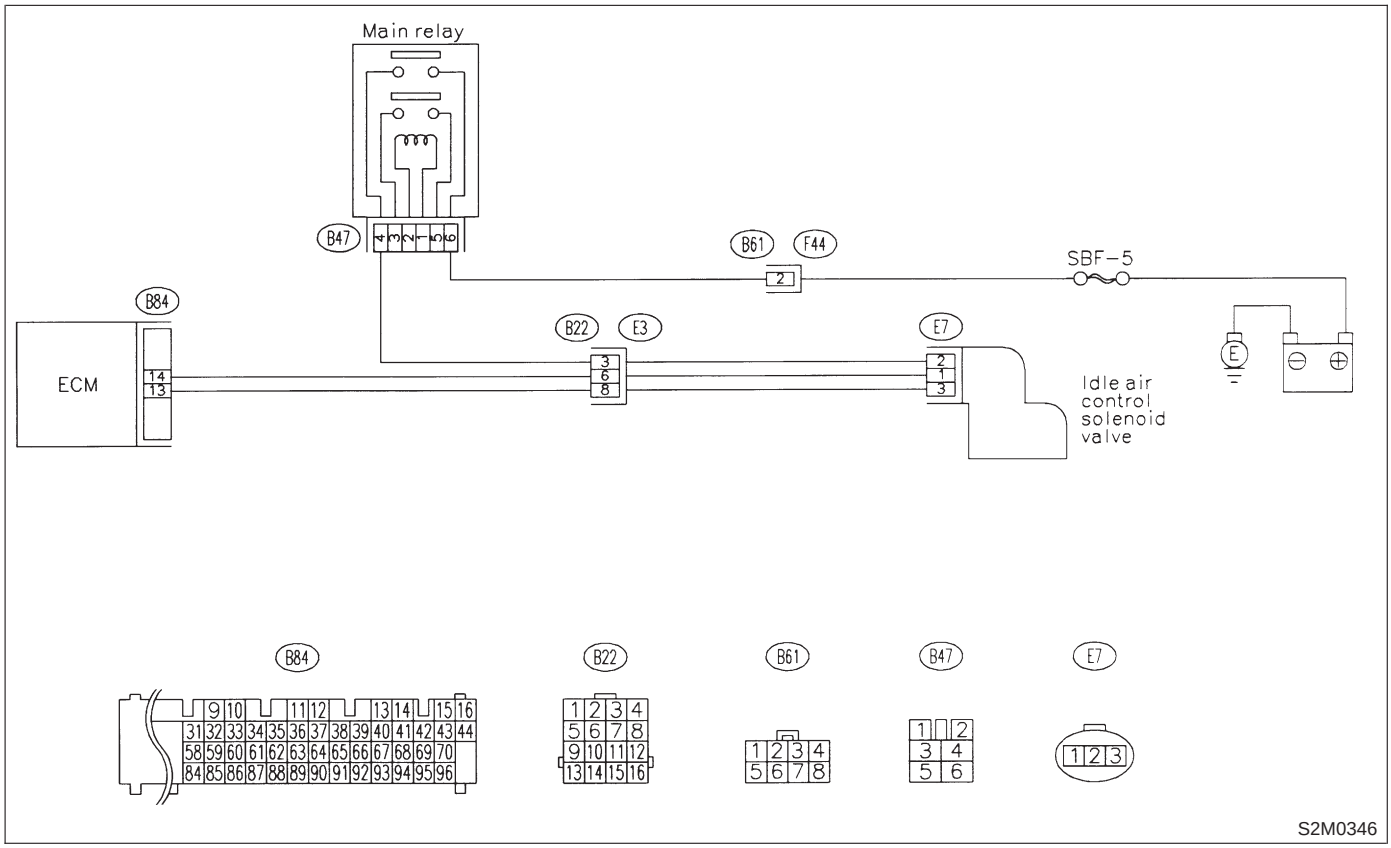
NO : Replace idle air control solenoid valve.

BG: DTC P0507 — IDLE CONTROL SYSTEM RPM HIGHER THAN EXPECTED —

- **DTC DETECTING CONDITION:**
  - Two consecutive driving cycles with fault
- **TROUBLE SYMPTOM:**
  - Engine keeps running at higher revolution than specified idling revolution.

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

- **WIRING DIAGRAM:**



10BG1 : CHECK ANY OTHER DTC ON DISPLAY.

CHECK : ***Does the Subaru select monitor or OBD-II general scan tool indicate DTC P0505?***

YES : Inspect DTC P0505 using “10. Diagnostics Chart with Trouble Code”. <Ref. to 2-7 [T10A0].>

NOTE:
In this case, it is not necessary to inspect DTC P0507.

NO : Go to step **10BG2**.

10BG2 : CHECK AIR INTAKE SYSTEM.

1) Turn ignition switch to ON.
2) Start engine, and idle it.
3) Check the following items.

- Loose installation of intake manifold, idle air control solenoid valve and throttle body
- Cracks of intake manifold gasket, idle air control solenoid valve gasket and throttle body gasket
- Loose connections and cracks of idle air control solenoid valve by-pass hoses
- Disconnections of vacuum hoses

CHECK : ***Is there a fault in air intake system?***

YES : Repair air suction and leaks.

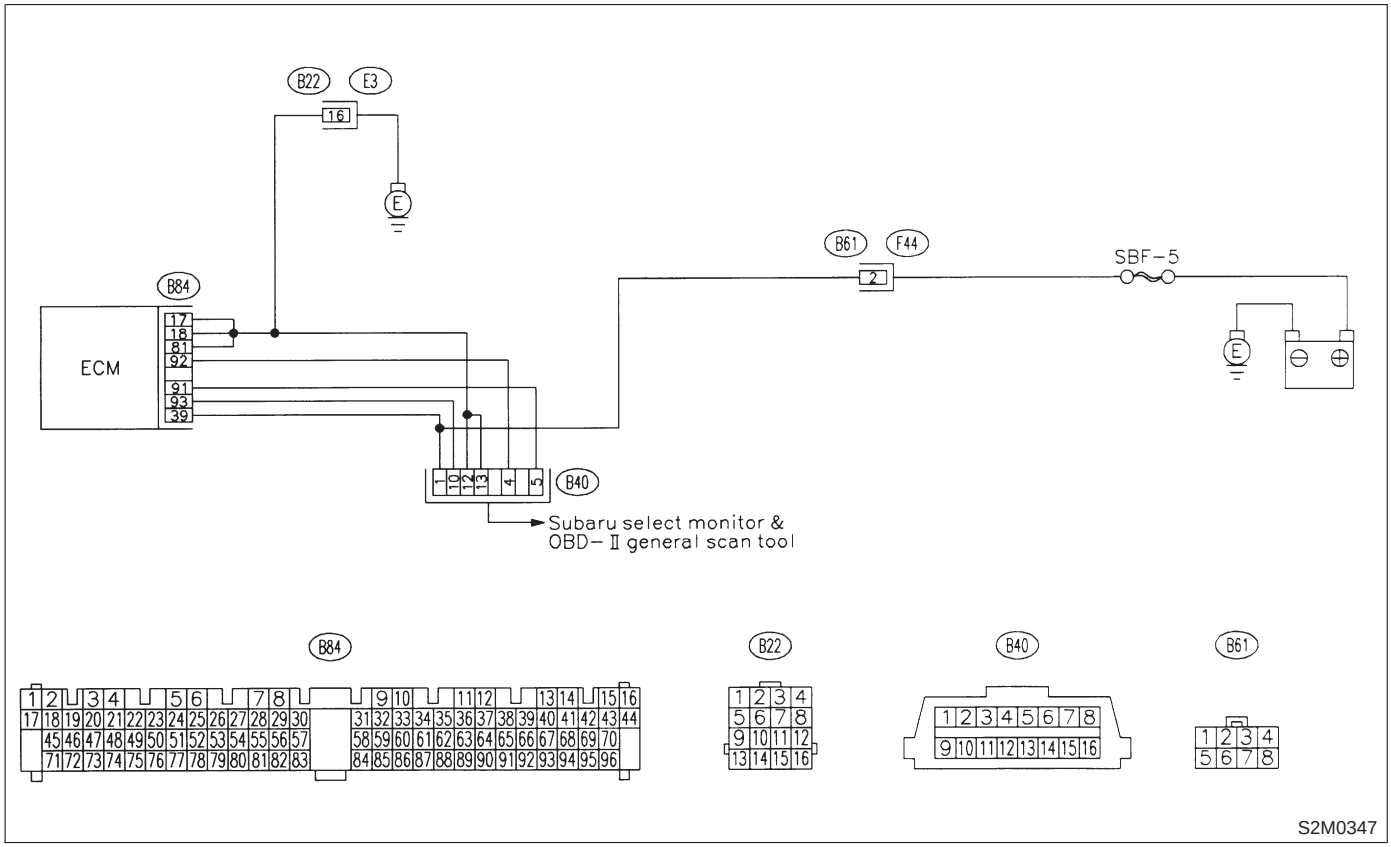
NO : Replace idle air control solenoid valve.

BH: DTC P0600 — SERIAL COMMUNICATION LINK MALFUNCTION —

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

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

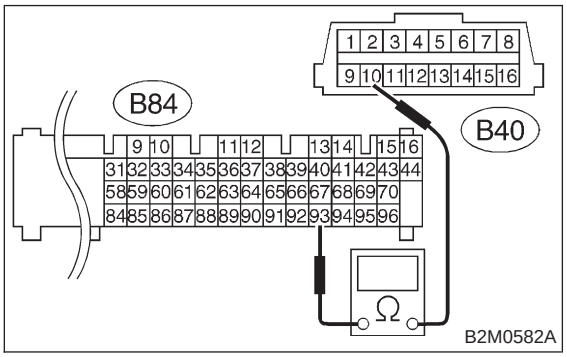
- **WIRING DIAGRAM:**



10BH1 : CHECK HARNESS BETWEEN ECM AND DATA LINK CONNECTOR.

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

Connector & terminal
(B84) No. 93 — (B40) No. 10:

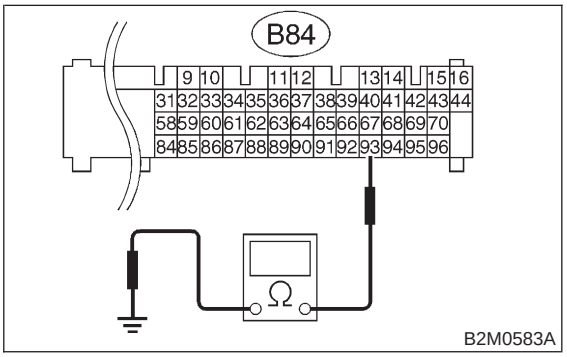


CHECK : ***Is the resistance less than 1 Ω?***
YES : Go to step **10BH2**.
NO : Repair open circuit in harness between ECM and data link connector.

10BH2 : CHECK HARNESS BETWEEN ECM AND DATA LINK CONNECTOR.

Measure resistance of harness between ECM and chassis ground.

Connector & terminal
(B84) No. 93 — Chassis ground:



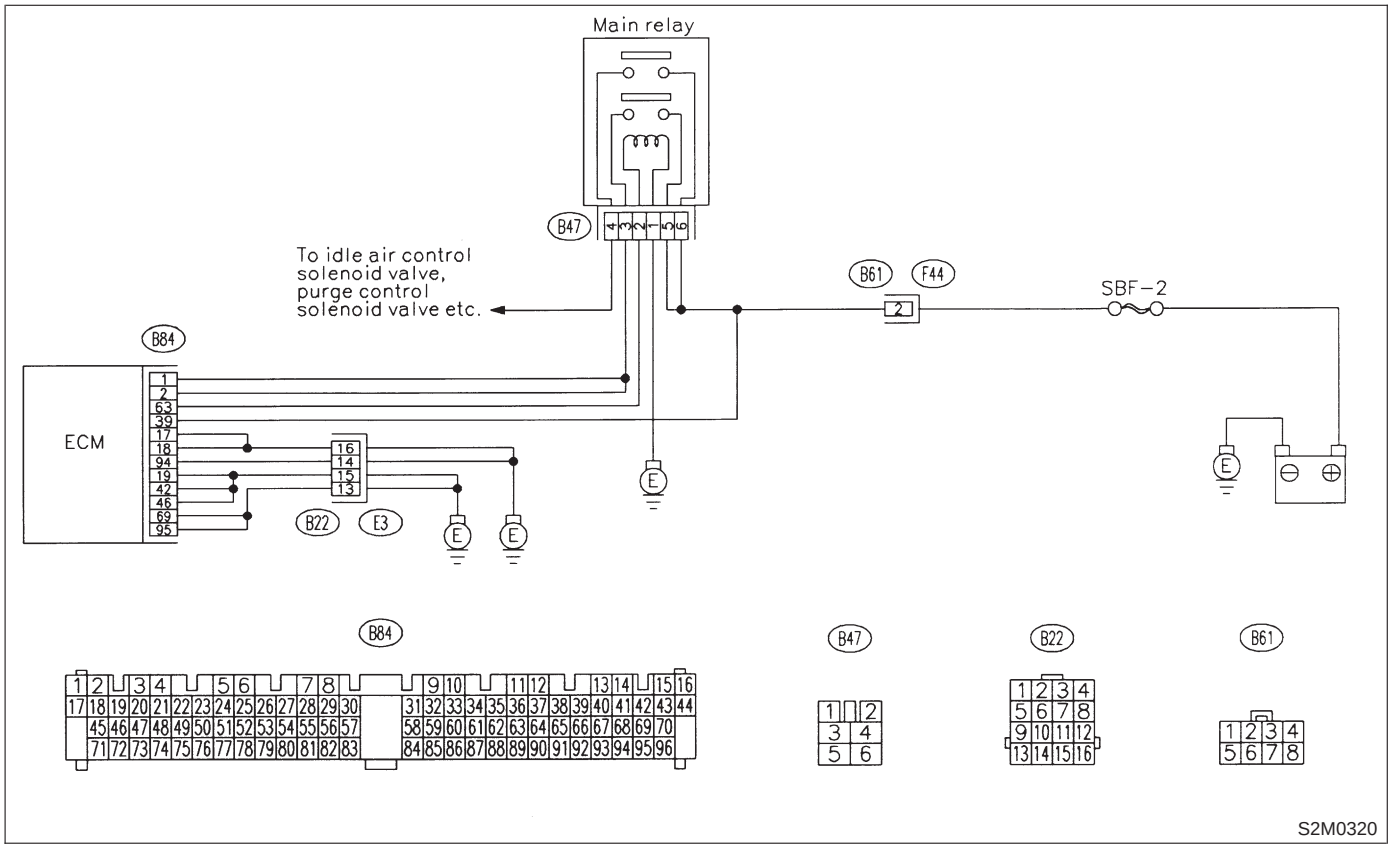
CHECK : ***Is the resistance less than 10 Ω?***
YES : Repair ground short circuit in harness between ECM and data link connector.
NO : Repair poor contact in ECM connector and data link connector.

BI: DTC P0601 — INTERNAL CONTROL MODULE MEMORY CHECK SUM ERROR —

- **DTC DETECTING CONDITION:**
  - Two consecutive driving cycles with fault
- **TROUBLE SYMPTOM:**
  - Engine does not start.
  - Engine stalls.

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

- **WIRING DIAGRAM:**



10BI1 : CHECK DTC P0601 ON DISPLAY.

CHECK : ***Does the Subaru select monitor or OBD-II general scan tool indicate DTC P0601?***

YES : Replace ECM.

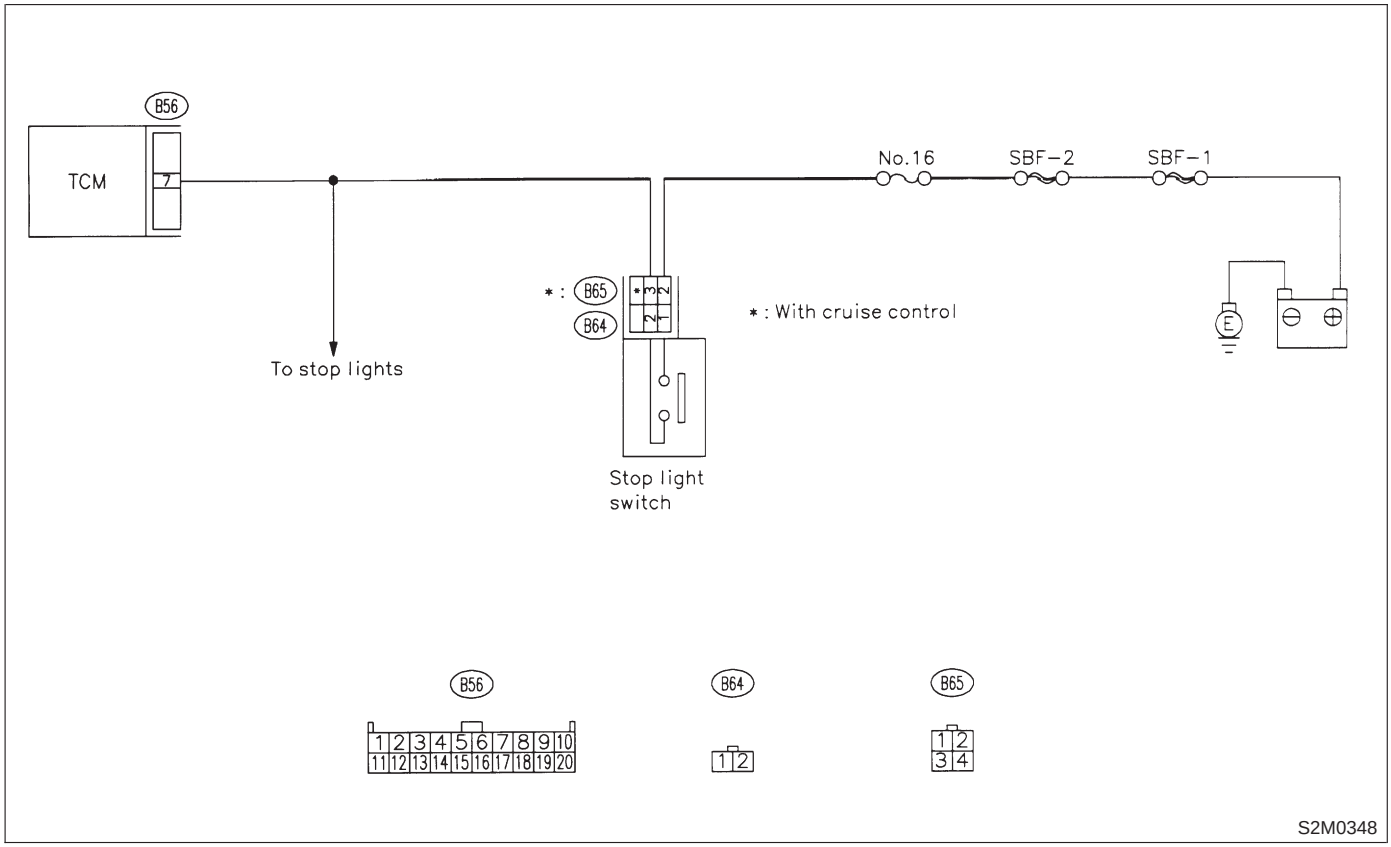
NO : It is not necessary to inspect DTC P0601.

BJ: DTC P0703 — BRAKE SWITCH INPUT MALFUNCTION —

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

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

- **WIRING DIAGRAM:**



10BJ1 : CHECK OPERATION OF BRAKE LIGHT.

CHECK : ***Does brake light come on when depressing the brake pedal?***

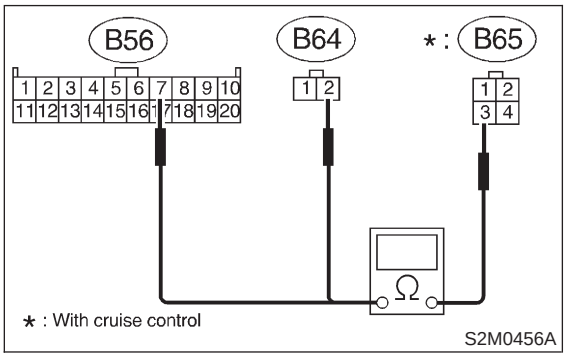
YES : Go to step **10BJ2**.

NO : Repair or replace brake light circuit.

10BJ2 : CHECK HARNESS BETWEEN TCM AND BRAKE LIGHT SWITCH CONNECTOR.

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

Connector & terminal
(B56) No. 7 — (B64) No. 2 (Without cruise control):
(B56) No. 7 — (B65) No. 3 (With cruise control):



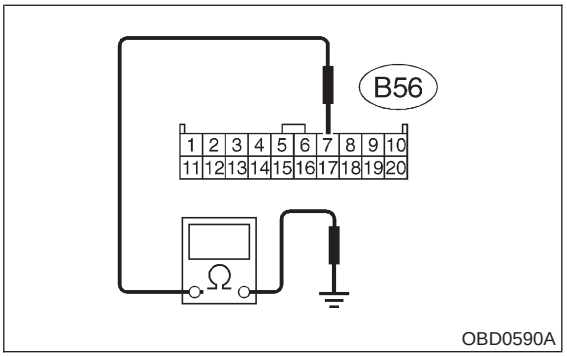
CHECK : ***Is the resistance less than 1 Ω?***
YES : Go to step **10BJ3**.
NO : Repair harness and connector.

NOTE:
In this case, repair the following:
- Open circuit in harness between TCM and brake light switch connector
- Poor contact in TCM connector
- Poor contact in brake light switch connector

10BJ3 : CHECK HARNESS BETWEEN TCM AND BRAKE LIGHT SWITCH CONNECTOR.

Measure resistance of harness between TCM and chassis ground.

Connector & terminal
(B56) No. 7 — Chassis ground:

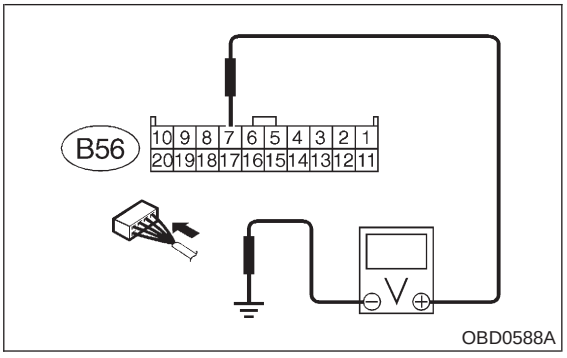


CHECK : ***Is the resistance more than 1 MΩ?***
YES : Go to step **10BJ4**.
NO : Repair ground short circuit in harness between TCM and brake light switch connector.

10BJ4 : CHECK INPUT SIGNAL FOR TCM.

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

Connector & terminal
(B56) No. 7 (+) — Chassis ground (−):

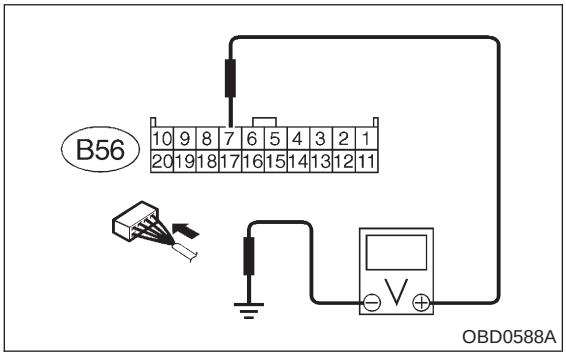


CHECK : ***Is the voltage less than 1 V when releasing the brake pedal?***
YES : Go to step **10BJ5**.
NO : Adjust or replace brake light switch.

10BJ5 : CHECK INPUT SIGNAL FOR TCM.

Measure voltage between TCM and chassis ground.

Connector & terminal
(B56) No. 7 (+) — Chassis ground (−):



CHECK : ***Is the voltage more than 10 V when depressing the brake pedal?***
YES : Go to step **10BJ6**.
NO : Adjust or replace brake light switch.

10BJ6 : CHECK POOR CONTACT.

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

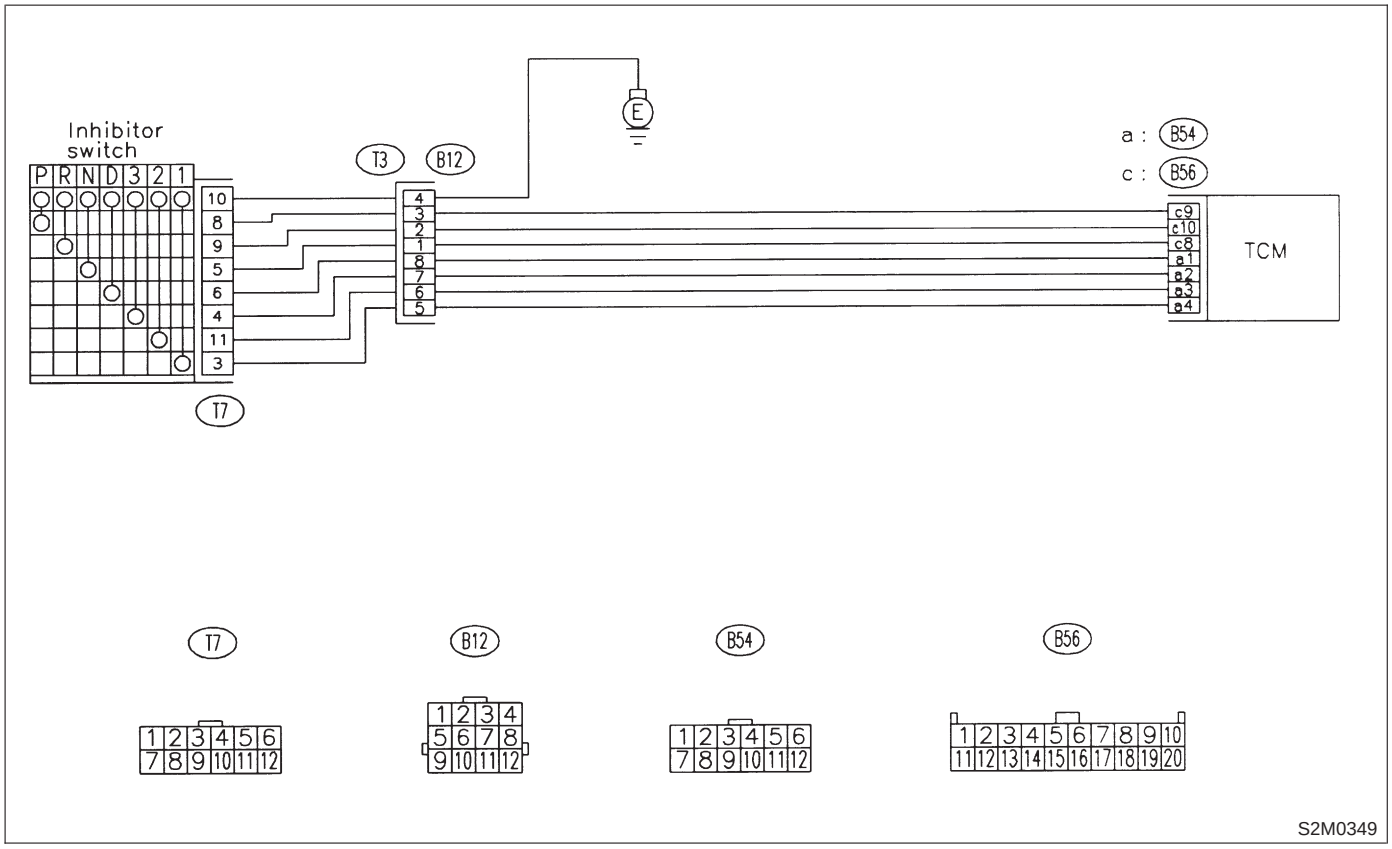
CHECK : ***Is there poor contact in TCM connector?***
YES : Repair poor contact in TCM connector.
NO : Replace TCM.

BK: DTC P0705 — TRANSMISSION RANGE SENSOR CIRCUIT MALFUNCTION —

- **DTC DETECTING CONDITION:**
  - Two consecutive driving cycles with fault
- **TROUBLE SYMPTOM:**
  - Starter does not rotate when selector lever is in “P” or “N” range.
  - Starter rotates when selector lever is in “R”, “D”, “3”, “2” or “1” range.
  - Engine brake is not effected when selector lever is in “3” range.
  - Shift characteristics are erroneous.

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

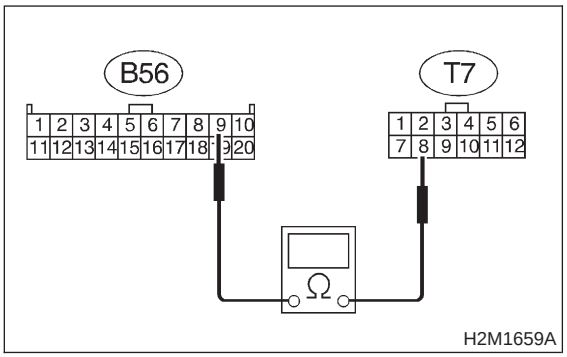
- **WIRING DIAGRAM:**



10BK1 : CHECK HARNESS BETWEEN TCM AND INHIBITOR SWITCH CONNECTOR.

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

Connector & terminal
(B56) No. 9 — (T7) No. 8:



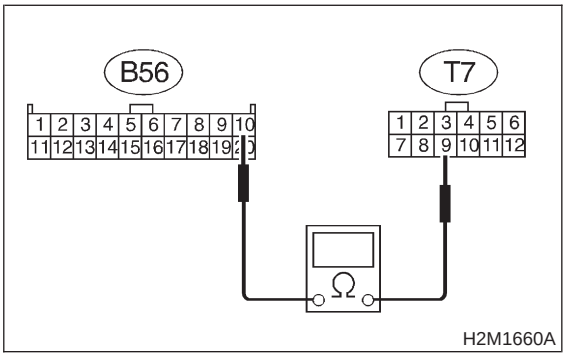
CHECK : ***Is the resistance less than 1 Ω?***
YES : Go to step **10BK2**.
NO : Repair harness and connector.

NOTE:
In this case, repair the following:
- Open circuit in harness between ECM and inhibitor switch connector
- Poor contact in coupling connector (B12)

10BK2 : CHECK HARNESS BETWEEN TCM AND INHIBITOR SWITCH CONNECTOR.

Measure resistance of harness between TCM and transmission harness connector.

Connector & terminal
(B56) No. 10 — (T7) No. 9:



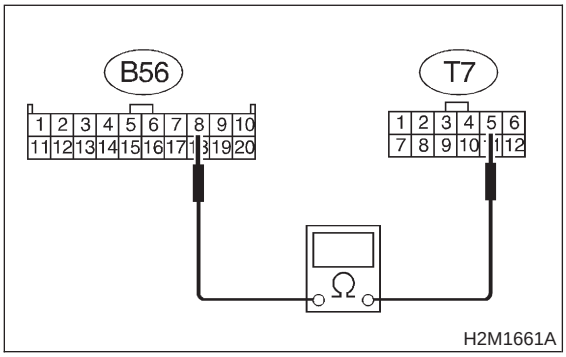
CHECK : ***Is the resistance less than 1 Ω?***
YES : Go to step **10BK3**.
NO : Repair harness and connector.

NOTE:
In this case, repair the following:
- Open circuit in harness between ECM and inhibitor switch connector
- Poor contact in coupling connector (B12)

10BK3 : CHECK HARNESS BETWEEN TCM AND INHIBITOR SWITCH CONNECTOR.

Measure resistance of harness between TCM and transmission harness connector.

Connector & terminal
(B56) No. 8 — (T7) No. 5:



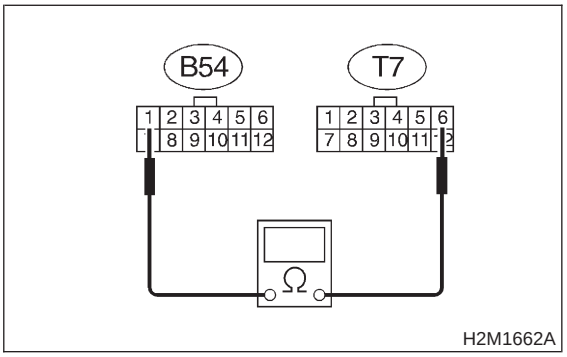
CHECK : ***Is the resistance less than 1 Ω?***
YES : Go to step **10BK4**.
NO : Repair harness and connector.

NOTE:
In this case, repair the following:
- Open circuit in harness between ECM and inhibitor switch connector.
- Poor contact in coupling connector (B12)

10BK4 : CHECK HARNESS BETWEEN TCM AND INHIBITOR SWITCH CONNECTOR.

Measure resistance of harness between TCM and transmission harness connector.

Connector & terminal
(B54) No. 1 — (T7) No. 6:



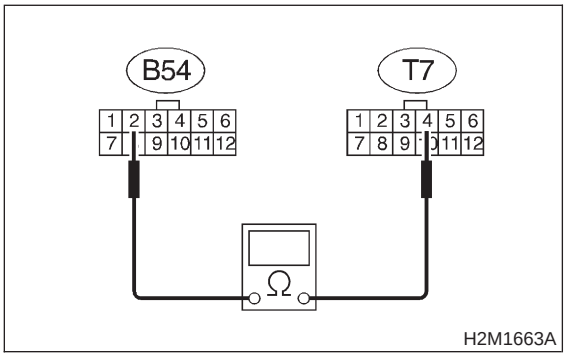
CHECK : ***Is the resistance less than 1 Ω?***
YES : Go to step **10BK5**.
NO : Repair harness and connector.

NOTE:
In this case, repair the following:
- Open circuit in harness between ECM and inhibitor switch connector
- Poor contact in coupling connector (B12)

10BK5 : CHECK HARNESS BETWEEN TCM AND INHIBITOR SWITCH CONNECTOR.

Measure resistance of harness between TCM and transmission harness connector.

Connector & terminal
(B54) No. 2 — (T7) No. 4:



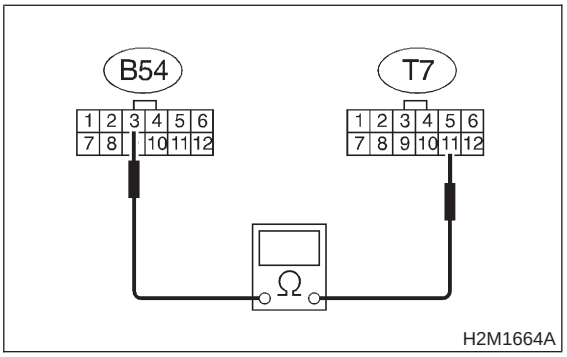
CHECK : ***Is the resistance less than 1 Ω?***
YES : Go to step **10BK6**.
NO : Repair harness and connector.

NOTE:
In this case, repair the following:
- Open circuit in harness between ECM and inhibitor switch connector
- Poor contact in coupling connector (B12)

10BK6 : CHECK HARNESS BETWEEN TCM AND INHIBITOR SWITCH CONNECTOR.

Measure resistance of harness between TCM and transmission harness connector.

Connector & terminal
(B54) No. 3 — (T7) No. 11:



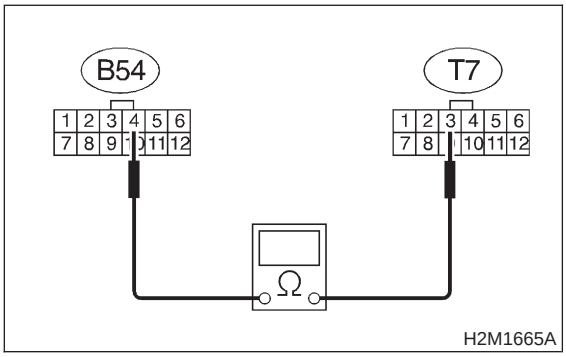
CHECK : ***Is the resistance less than 1 Ω?***
YES : Go to step **10BK7**.
NO : Repair harness and connector.

NOTE:
In this case, repair the following:
- Open circuit in harness between ECM and inhibitor switch connector
- Poor contact in coupling connector (B12)

10BK7 : CHECK HARNESS BETWEEN TCM AND INHIBITOR SWITCH CONNECTOR.

Measure resistance of harness between TCM and transmission harness connector.

Connector & terminal
(B54) No. 4 — (T7) No. 3:



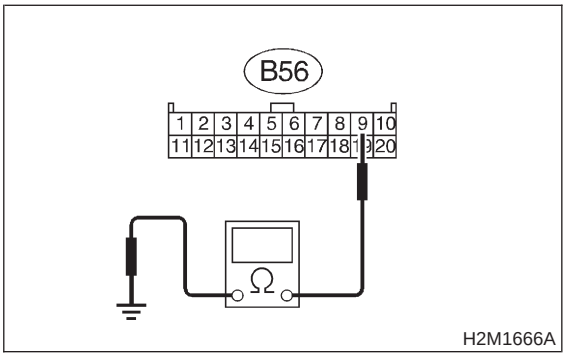
CHECK : ***Is the resistance less than 1 Ω?***
YES : Go to step **10BK8**.
NO : Repair harness and connector.

NOTE:
In this case, repair the following:
- Open circuit in harness between ECM and inhibitor switch connector
- Poor contact in coupling connector (B12)

10BK8 : CHECK HARNESS BETWEEN TCM AND INHIBITOR SWITCH CONNECTOR.

Measure resistance of harness between TCM and chassis ground.

Connector & terminal
(B56) No. 9 — Chassis ground:

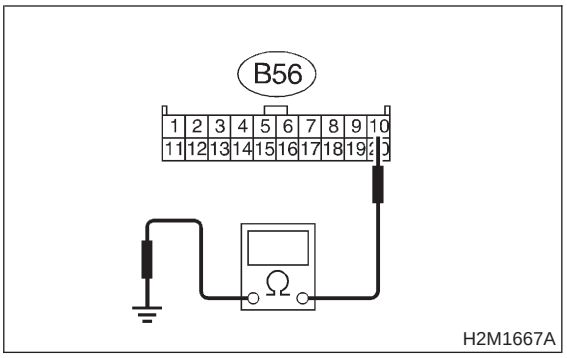


CHECK : ***Is the resistance more than 1 MΩ?***
YES : Go to step **10BK9**.
NO : Repair ground short circuit in harness between TCM and transmission harness connector.

10BK9 : CHECK HARNESS BETWEEN TCM AND INHIBITOR SWITCH CONNECTOR.

Measure resistance of harness between TCM and chassis ground.

Connector & terminal
(B56) No. 10 — Chassis ground:

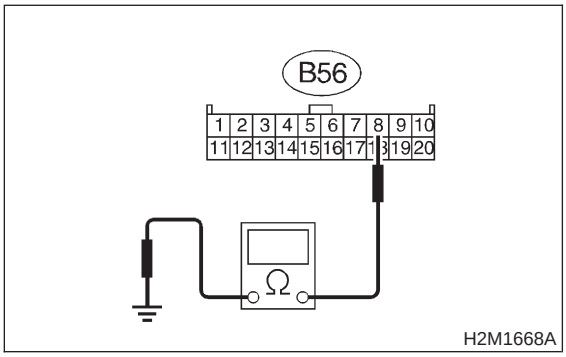


CHECK : ***Is the resistance more than 1 MΩ?***
YES : Go to step **10BK10**.
NO : Repair ground short circuit in harness between TCM and transmission harness connector.

10BK10 : CHECK HARNESS BETWEEN TCM AND INHIBITOR SWITCH CONNECTOR.

Measure resistance of harness between TCM and chassis ground.

Connector & terminal
(B56) No. 8 — Chassis ground:

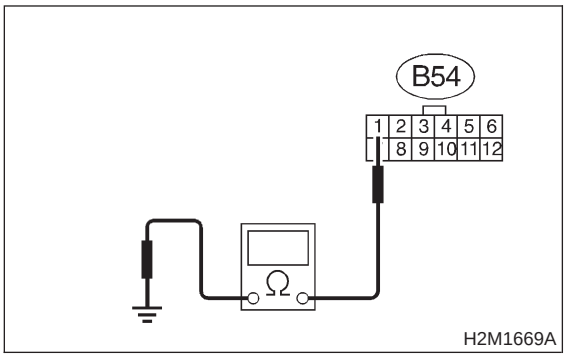


CHECK : ***Is the resistance more than 1 MΩ?***
YES : Go to step **10BK11**.
NO : Repair ground short circuit in harness between TCM and transmission harness connector.

10BK11 : CHECK HARNESS BETWEEN TCM AND INHIBITOR SWITCH CONNECTOR.

Measure resistance of harness between TCM and chassis ground.

Connector & terminal
(B54) No. 1 — Chassis ground:

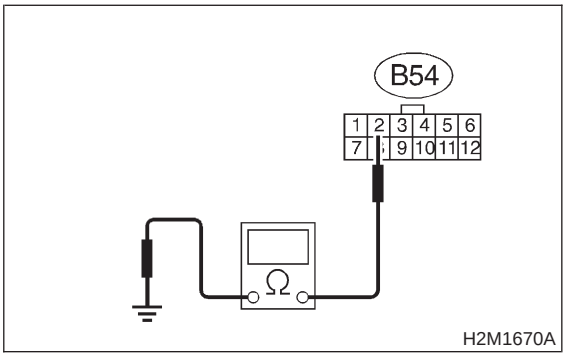


CHECK : ***Is the resistance more than 1 MΩ?***
YES : Go to step **10BK12**.
NO : Repair ground short circuit in harness between TCM and transmission harness connector.

10BK12 : CHECK HARNESS BETWEEN TCM AND INHIBITOR SWITCH CONNECTOR.

Measure resistance of harness between TCM and chassis ground.

Connector & terminal
(B54) No. 2 — Chassis ground:

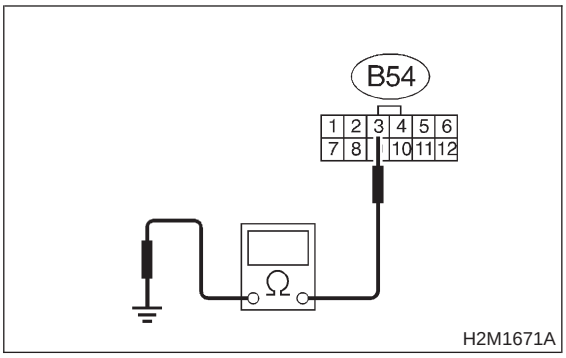


CHECK : ***Is the resistance more than 1 MΩ?***
YES : Go to step **10BK13**.
NO : Repair ground short circuit in harness between TCM and transmission harness connector.

10BK13 : CHECK HARNESS BETWEEN TCM AND INHIBITOR SWITCH CONNECTOR.

Measure resistance of harness between TCM and chassis grond.

Connector & terminal
(B54) No. 3 — Chassis ground:

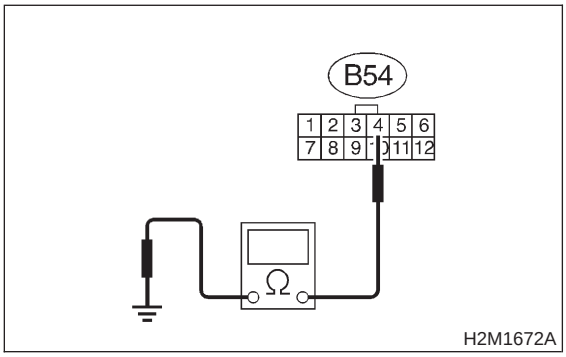


CHECK : ***Is the resistance more than 1 MΩ?***
YES : Go to step **10BK14**.
NO : Repair ground short circuit in harness between TCM and transmission harness connector.

10BK14 : CHECK HARNESS BETWEEN TCM AND INHIBITOR SWITCH CONNECTOR.

Measure resistance of harness between TCM and chassis ground.

Connector & terminal
(B54) No. 4 — Chassis ground:

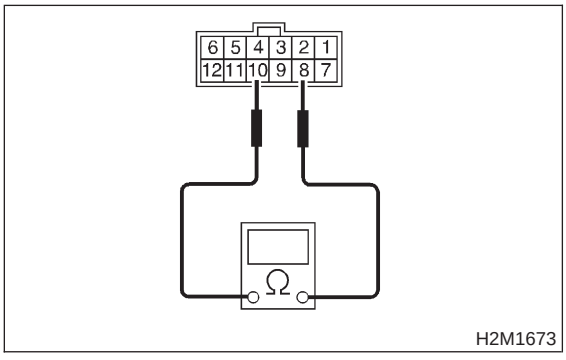


CHECK : ***Is the resistance more than 1 MΩ?***
YES : Go to step **10BK15**.
NO : Repair ground short circuit in harness between TCM and transmission harness connector.

10BK15 : CHECK INHIBITOR SWITCH.

Measure resistance between inhibitor switch connector receptacle's terminals in selector "P" position.

Terminals
No. 8 — No. 10

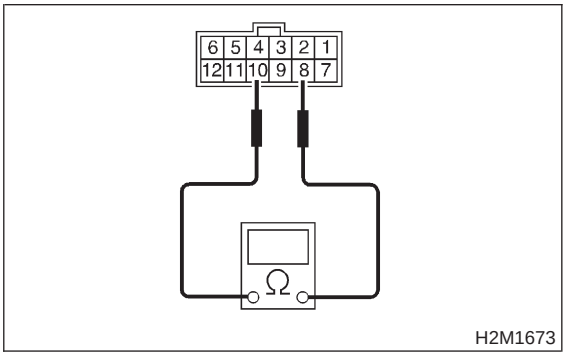


CHECK : ***Is the resistance less than 1 Ω?***
YES : Go to step **10BK16**.
NO : Go to step **10BK29**.

10BK16 : CHECK INHIBITOR SWITCH.

Measure resistance between inhibitor switch connector receptacle's terminals in selector lever except for "P" position.

Terminals
No. 8 — No. 10

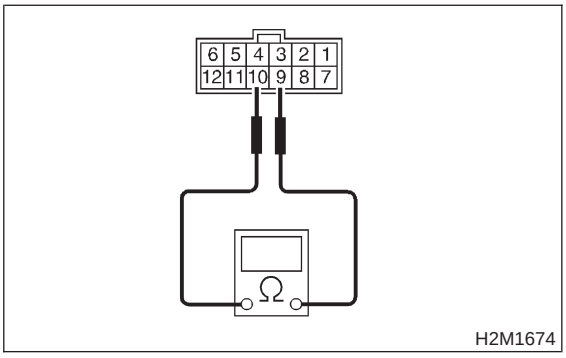


CHECK : ***Is the resistance more than 1 MΩ?***
YES : Go to step **10BK17**.
NO : Go to step **10BK29**.

10BK17 : CHECK INHIBITOR SWITCH.

Measure resistance between inhibitor switch connector receptacle's terminals in selector lever "R" position.

Terminals
No. 9 — No. 10

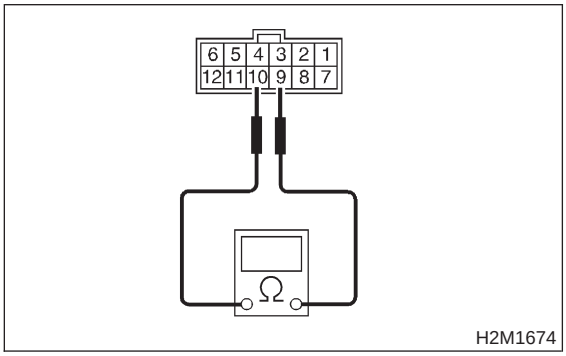


CHECK : ***Is the resistance less than 1 Ω?***
YES : Go to step **10BK18**.
NO : Go to step **10BK29**.

10BK18 : CHECK INHIBITOR SWITCH.

Measure resistance between inhibitor switch connector receptacle's terminals in selector lever except for "R" position.

Terminals
No. 9 — No. 10

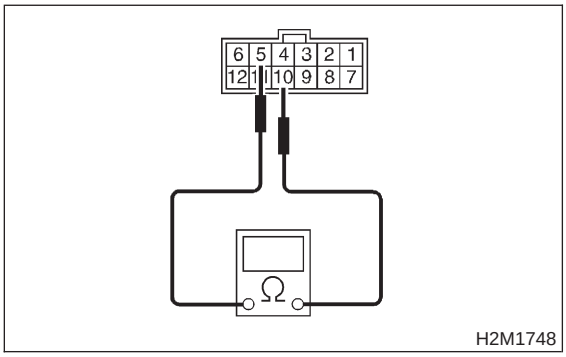


CHECK : ***Is the resistance more than 1 MΩ?***
YES : Go to step **10BK19**.
NO : Go to step **10BK29**.

10BK19 : CHECK INHIBITOR SWITCH.

Measure resistance between inhibitor switch connector receptacle's terminals in selector lever "N" position.

Terminals
No. 5 — No. 10

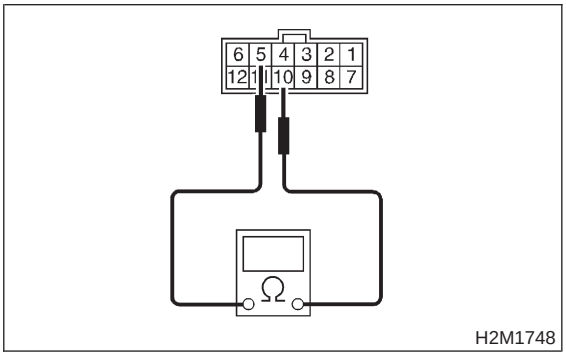


CHECK : ***Is the resistance less than 1 Ω in "N" position?***
YES : Go to step **10BK20**.
NO : Go to step **10BK29**.

10BK20 : CHECK INHIBITOR SWITCH.

Measure resistance between inhibitor switch connector receptacle's terminals in selector lever except for "N" position.

Terminals
No. 5 — No. 10

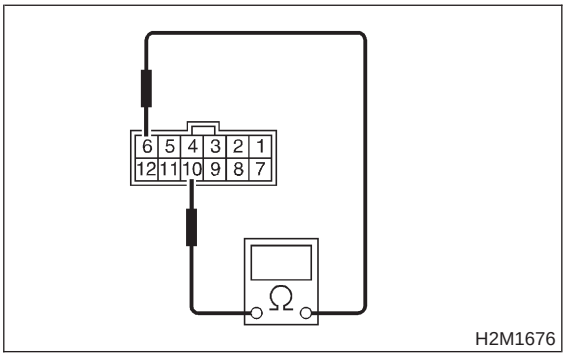


CHECK : ***Is the resistance more than 1 MΩ?***
YES : Go to step **10BK21**.
NO : Go to step **10BK29**.

10BK21 : CHECK INHIBITOR SWITCH.

Measure resistance between inhibitor switch connector receptacle's terminals in selector lever "D" position.

Terminals
No. 6 — No. 10

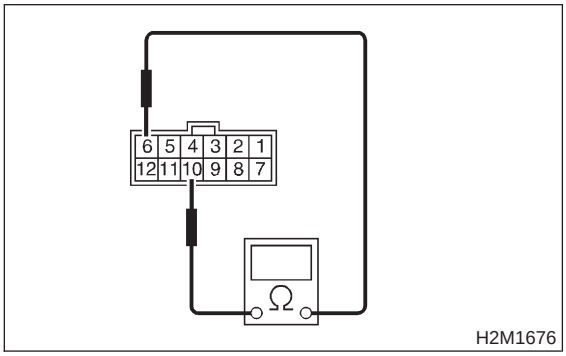


CHECK : ***Is the resistance less than 1 Ω***
YES : Go to step **10BK22**.
NO : Go to step **10BK29**.

10BK22 : CHECK INHIBITOR SWITCH.

Measure resistance between inhibitor switch connector receptacle's terminals in selector lever except for "D" position..

Terminals
No. 6 — No. 10

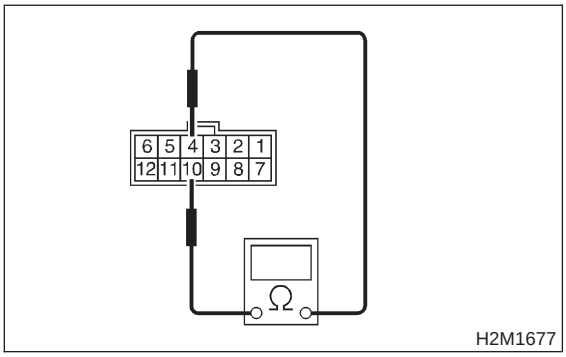


CHECK : ***Is the resistance more than 1 Ω?***
YES : Go to step **10BK23**.
NO : Go to step **10BK29**.

10BK23 : CHECK INHIBITOR SWITCH.

Measure resistance between inhibitor switch connector receptacle's terminals in selector lever "3" position.

Terminals
No. 4 — No. 10

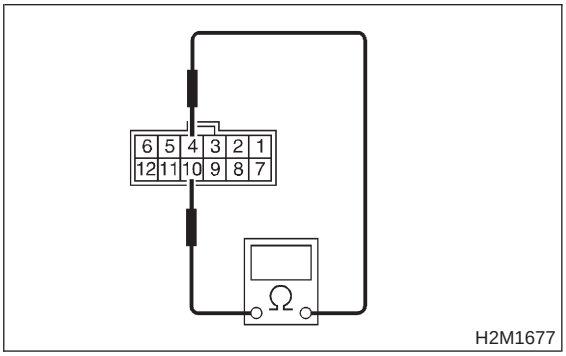


CHECK : ***Is the resistance less than 1 Ω?***
YES : Go to step **10BK24**.
NO : Go to step **10BK29**.

10BK24 : CHECK INHIBITOR SWITCH.

Measure resistance between inhibitor switch connector receptacle's terminals in selector lever except for "3" position.

Terminals
No. 4 — No. 10

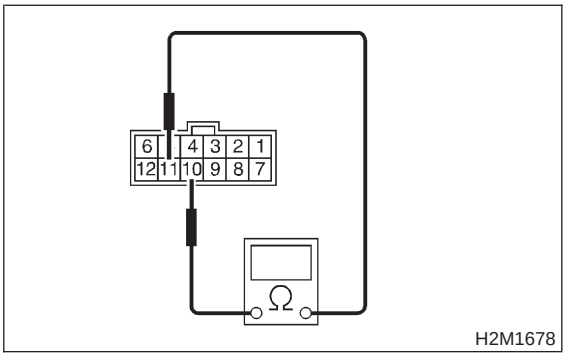


CHECK : ***Is the resistance more than 1 MΩ?***
YES : Go to step **10BK25**.
NO : Go to step **10BK29**.

10BK25 : CHECK INHIBITOR SWITCH.

Measure resistance between inhibitor switch connector receptacle's terminals in selector lever "2" position.

Terminals
No. 11 — No. 10

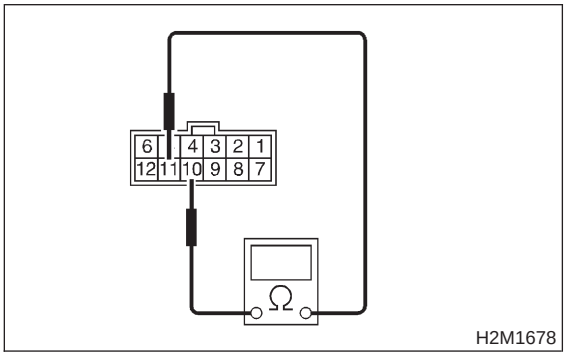


CHECK : ***Is the resistance less than 1 Ω?***
YES : Go to step **10BK26**.
NO : Go to step **10BK29**.

10BK26 : CHECK INHIBITOR SWITCH.

Measure resistance between inhibitor switch connector receptacle's terminals in selector lever except for "2" position.

Terminals
No. 11 — No. 10

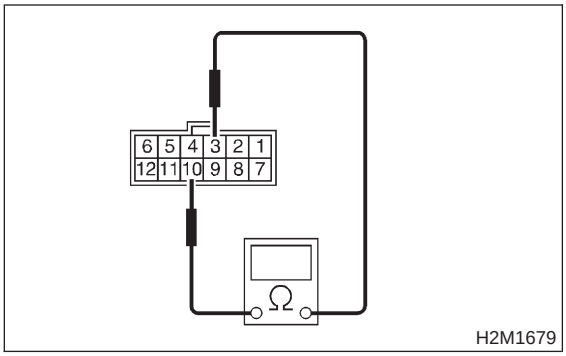


CHECK : ***Is the resistance more than 1 MΩ?***
YES : Go to step **10BK27**.
NO : Go to step **10BK29**.

10BK27 : CHECK INHIBITOR SWITCH.

Measure resistance between inhibitor switch connector receptacle's terminals.

Terminals
No. 3 — No. 10

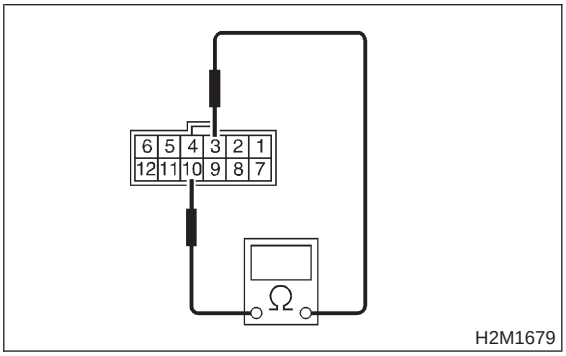


CHECK : ***Is the resistance less than 1 Ω in "1" position?***
YES : Go to step **10BK28**.
NO : Go to step **10BK29**.

10BK28 : CHECK INHIBITOR SWITCH.

Measure resistance between inhibitor switch connector receptacle's terminals in selector lever except for "1" position.

Terminals
No. 3 — No. 10



CHECK : ***Is the resistance more than 1 MΩ?***
YES : Go to step **10BK30**.
NO : Go to step **10BK29**.

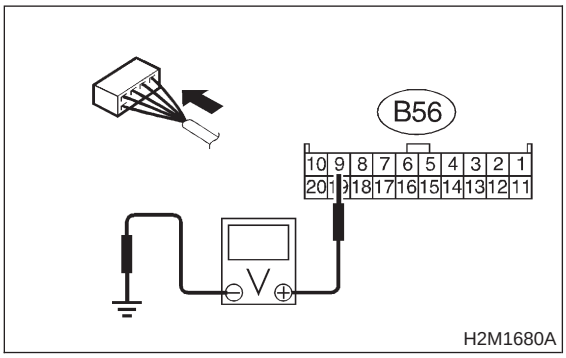
10BK29 : CHECK SELECTOR CABLE.

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

10BK30 : CHECK INPUT SIGNAL FOR TCM.

1) Turn ignition switch to OFF.
2) Connect connector to TCM and transmission.
3) Turn ignition switch to ON.
4) Measure voltage between TCM and chassis ground in selector lever “P” position.

Connector & terminal
(B56) No. 9 (+) — Chassis ground (−):

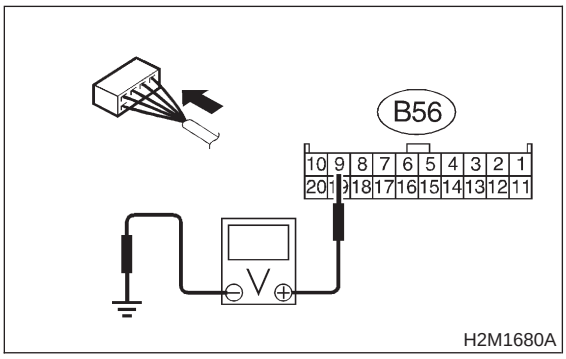


CHECK : ***Is the voltage less than 1 V?***
YES : Go to step **10BK31**.
NO : Go to step **10BK44**.

10BK31 : CHECK INPUT SIGNAL FOR TCM.

Measure voltage between TCM and chassis ground in selector lever except for “P” position.

Connector & terminal
(B56) No. 9 (+) — Chassis ground (−):

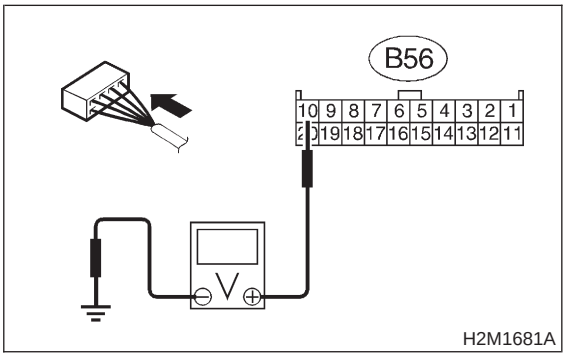


CHECK : ***Is the voltage more than 8 V?***
YES : Go to step **10BK32**.
NO : Go to step **10BK44**.

10BK32 : CHECK INPUT SIGNAL FOR TCM.

Measure voltage between TCM and chassis ground in selector lever “R” position.

Connector & terminal
(B56) No. 10 (+) — Chassis ground (−):

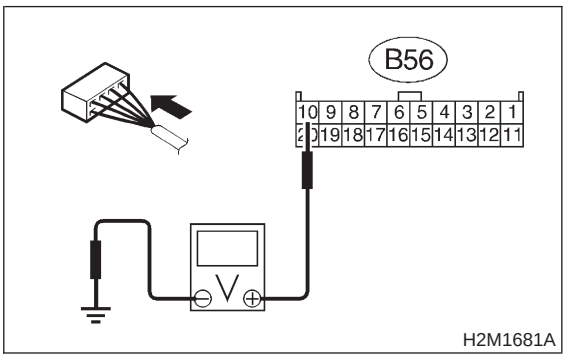


CHECK : ***Is the voltage less than 1 V?***
YES : Go to step **10BK33**.
NO : Go to step **10BK44**.

10BK33 : CHECK INPUT SIGNAL FOR TCM.

Measure voltage between TCM and chassis ground in selector lever except for “R” position.

Connector & terminal
(B56) No. 10 (+) — Chassis ground (−):

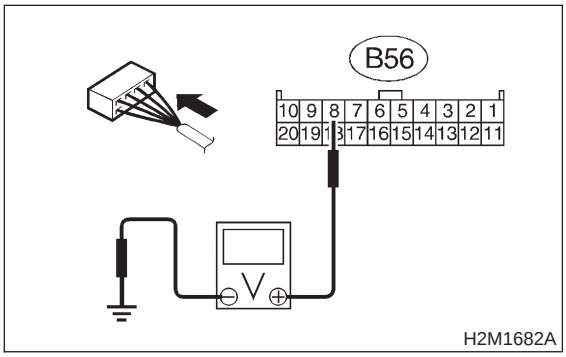


CHECK : ***Is the voltage more than 6 V?***
YES : Go to step **10BK34**.
NO : Go to step **10BK44**.

10BK34 : CHECK INPUT SIGNAL FOR TCM.

Measure voltage between TCM and chassis ground in selector lever “N” position.

Connector & terminal
(B56) No. 8 (+) — Chassis ground (−):

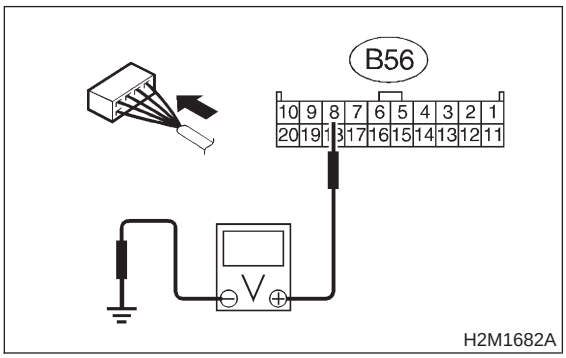


CHECK : ***Is the voltage less than 1 V?***
YES : Go to step **10BK35**.
NO : Go to step **10BK44**.

10BK35 : CHECK INPUT SIGNAL FOR TCM.

Measure voltage between TCM and chassis ground in selector lever except for “N” position.

Connector & terminal
(B56) No. 8 (+) — Chassis ground (−):

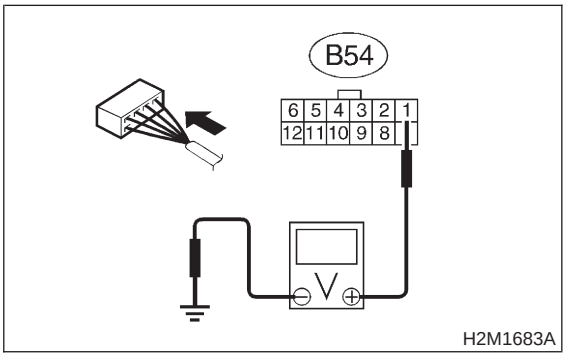


CHECK : ***Is the voltage more than 8 V?***
YES : Go to step **10BK36**.
NO : Go to step **10BK44**.

10BK36 : CHECK INPUT SIGNAL FOR TCM.

Measure voltage between TCM and chassis ground in selector lever “D” position.

Connector & terminal
(B54) No. 1 (+) — Chassis ground (−):

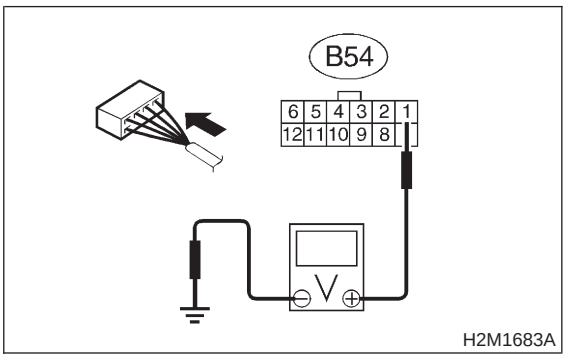


CHECK : ***Is the voltage less than 1 V?***
YES : Go to step **10BK37**.
NO : Go to step **10BK44**.

10BK37 : CHECK INPUT SIGNAL FOR TCM.

Measure voltage between TCM and chassis ground in selector lever except for “D” position.

Connector & terminal
(B54) No. 1 (+) — Chassis ground (−):

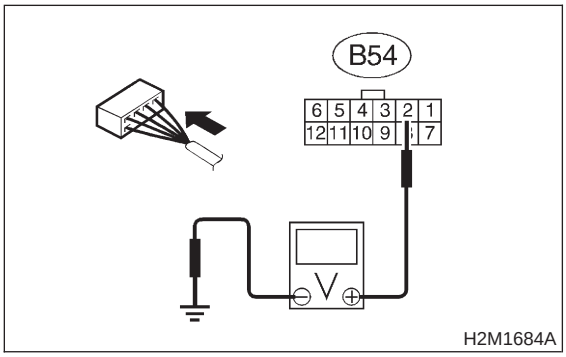


CHECK : ***Is the voltage more than 6 V?***
YES : Go to step **10BK38**.
NO : Go to step **10BK44**.

10BK38 : CHECK INPUT SIGNAL FOR TCM.

Measure voltage between TCM and chassis ground in selector lever “3” position.

Connector & terminal
(B54) No. 2 (+) — Chassis ground (−):

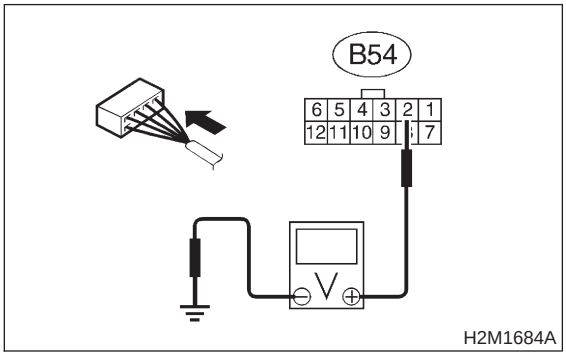


CHECK : ***Is the voltage less than 1 V?***
YES : Go to step **10BK39**.
NO : Go to step **10BK44**.

10BK39 : CHECK INPUT SIGNAL FOR TCM.

Measure voltage between TCM and chassis ground in selector lever except for “3” position.

Connector & terminal
(B54) No. 2 (+) — Chassis ground (−):

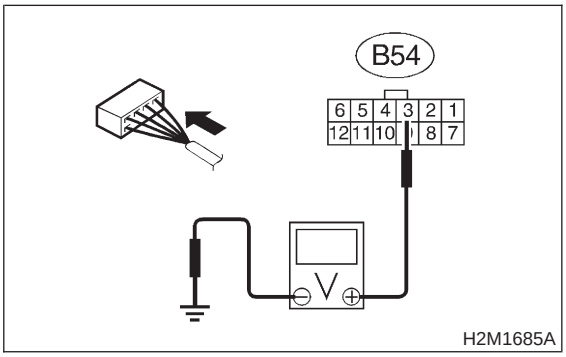


CHECK : ***Is the voltage more than 6 V?***
YES : Go to step **10BK40**.
NO : Go to step **10BK44**.

10BK40 : CHECK INPUT SIGNAL FOR TCM.

Measure voltage between TCM and chassis ground in selector lever “2” position.

Connector & terminal
(B54) No. 3 (+) — Chassis ground (−):

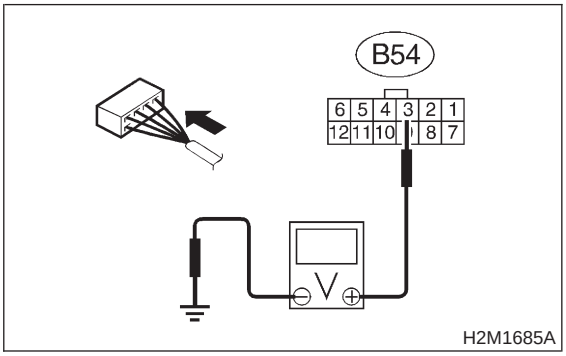


CHECK : ***Is the voltage less than 1 V?***
YES : Go to step **10BK41**.
NO : Go to step **10BK44**.

10BK41 : CHECK INPUT SIGNAL FOR TCM.

Measure voltage between TCM and chassis ground in selector lever except for “2” position.

Connector & terminal
(B54) No. 3 (+) — Chassis ground (−):

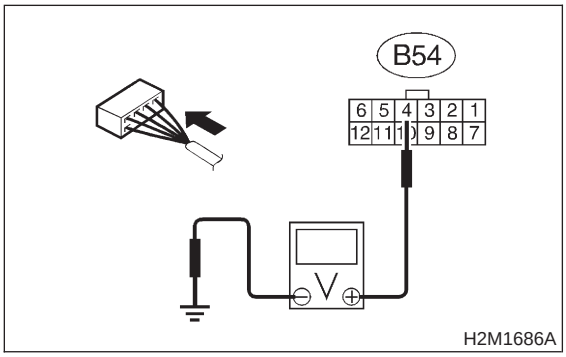


CHECK : ***Is the voltage more than 6 V?***
YES : Go to step **10BK42**.
NO : Go to step **10BK44**.

10BK42 : CHECK INPUT SIGNAL FOR TCM.

Measure voltage between TCM and chassis ground in selector lever “1” position.

Connector & terminal
(B54) No. 4 (+) — Chassis ground (−):

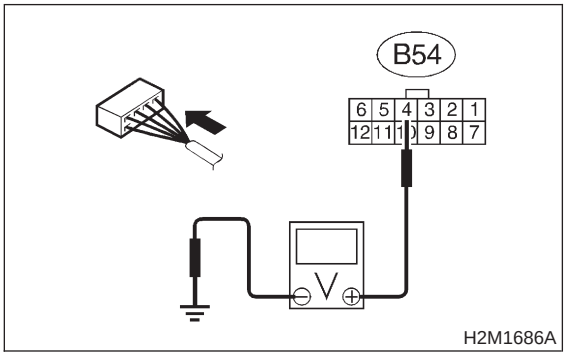


CHECK : ***Is the voltage less than 1 V?***
YES : Go to step **10BK43**.
NO : Go to step **10BK44**.

10BK43 : CHECK INPUT SIGNAL FOR TCM.

Measure voltage between TCM and chassis ground in selector lever except for “1” position.

Connector & terminal
(B54) No. 4 (+) — Chassis ground (−):



CHECK : ***Is the voltage more than 6 V?***
YES : Repair poor contact in TCM connector.
NO : Go to step **10BK44**.

10BK44 : CHECK POOR CONTACT.

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

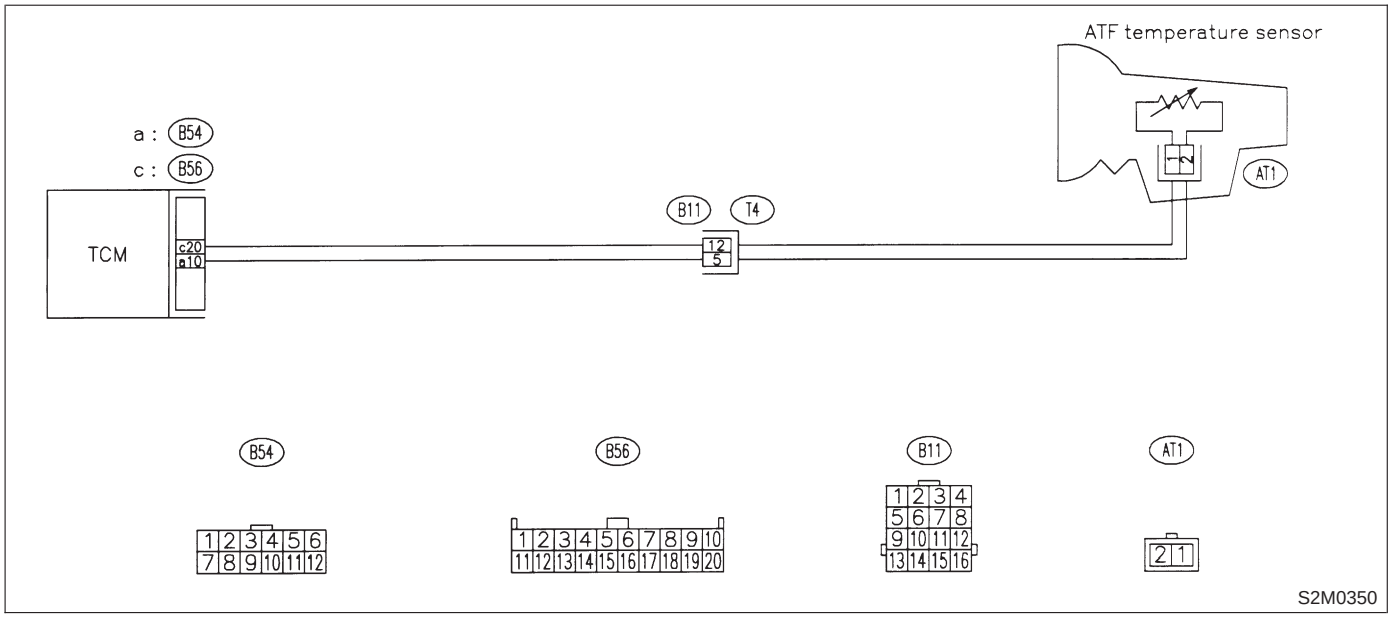
CHECK : ***Is there poor contact in TCM connector?***
YES : Repair poor contact in TCM connector.
NO : Replace TCM.

BL: DTC P0710 — TRANSMISSION FLUID TEMPERATURE SENSOR CIRCUIT MALFUNCTION —

- **DTC DETECTING CONDITION:**
  - Two consecutive driving cycles with fault
- **TROUBLE SYMPTOM:**
  - No shift up to 4th speed (after engine warm-up)
  - No lock-up (after engine warm-up)
  - Excessive shift shock

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

- **WIRING DIAGRAM:**



10BL1 : CHECK DTC P0710 ON DISPLAY.

CHECK : ***Does the Subaru select monitor or OBD-II general scan tool indicate DTC P0710?***

YES : Check ATF temperature sensor circuit. <Ref. to 3-2 [T8H0].>

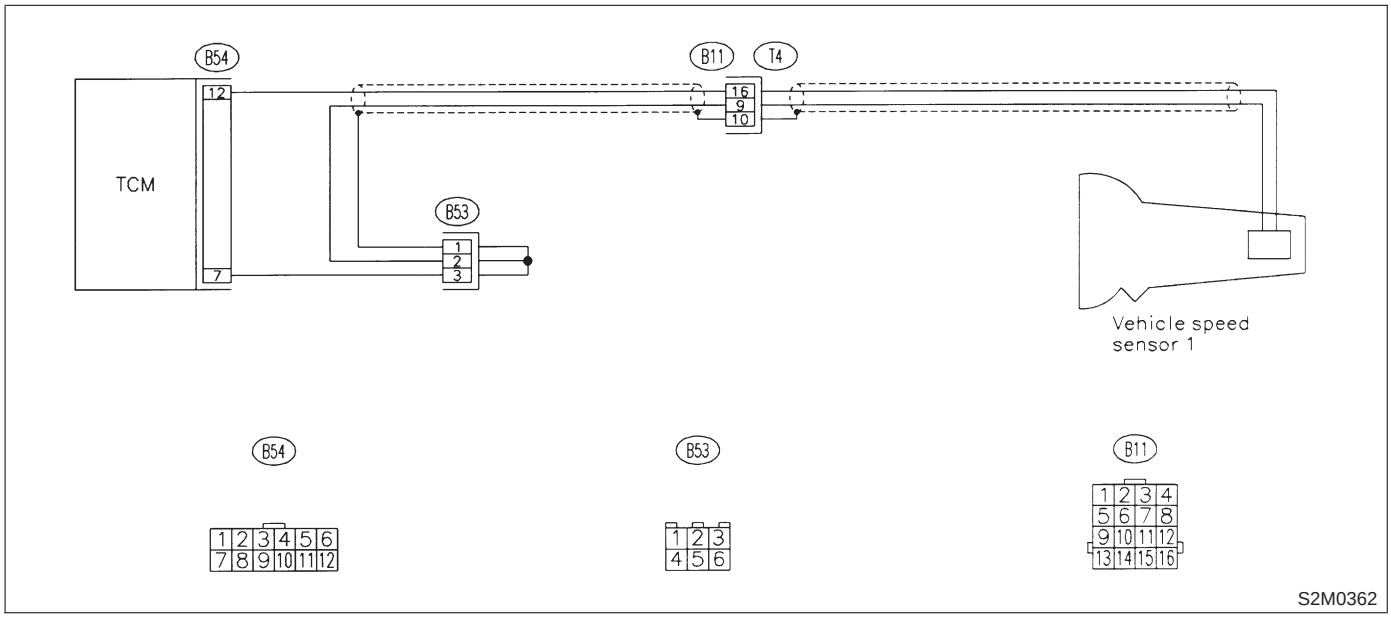
NO : It is not necessary to inspect DTC P0710.

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

- **DTC DETECTING CONDITION:**
  - Two consecutive driving cycles with fault
- **TROUBLE SYMPTOM:**
  - No shift or excessive tight corner “braking”

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

- **WIRING DIAGRAM:**



10BM1 : CHECK DTC P0720 ON DISPLAY.

CHECK : ***Does the Subaru select monitor or OBD-II general scan tool indicate DTC P0720?***

YES : Check vehicle speed sensor 1 circuit. <Ref. to 3-2 [T8N0].>

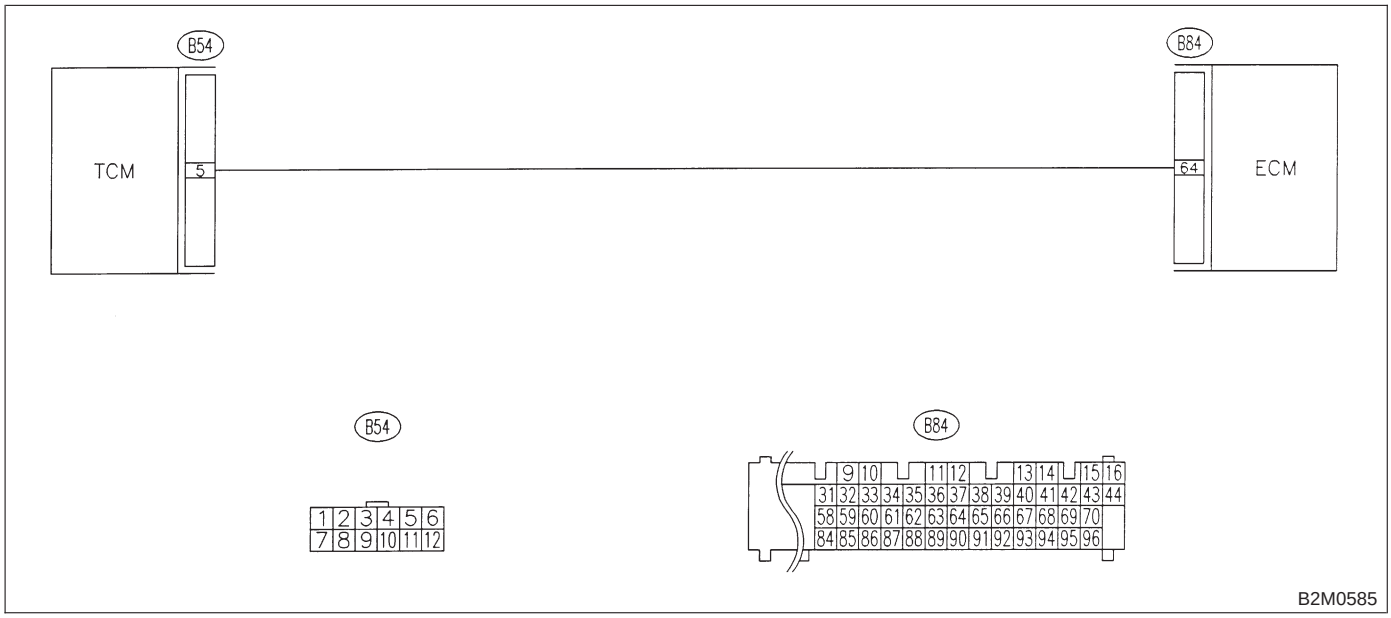
NO : It is not necessary to inspect DTC P0720.

BN: DTC P0725 — ENGINE SPEED INPUT CIRCUIT MALFUNCTION —

- **DTC DETECTING CONDITION:**
  - Two consecutive driving cycles with fault
- **TROUBLE SYMPTOM:**
  - No lock-up (after engine warm-up)
  - AT diagnostic indicator light (AT OIL TEMP indicator light) remains on when vehicle speed is “0”.

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

- **WIRING DIAGRAM:**



10BN1 : CHECK DTC P0725 ON DISPLAY.

CHECK : ***Does the Subaru select monitor or OBD-II general scan tool indicate DTC P0725?***

YES : Check engine speed input signal circuit. <Ref. to 3-2 [T8J0].>

NO : It is not necessary to inspect DTC P0725.

BO: DTC P0731 — GEAR 1 INCORRECT RATIO —

NOTE:
For the diagnostic procedure, refer to 2-7 [T10BR0]. <Ref. to 2-7 [T10BR0].>

BP: DTC P0732 — GEAR 2 INCORRECT RATIO —

NOTE:
For the diagnostic procedure, refer to 2-7 [T10BR0]. <Ref. to 2-7 [T10BR0].>

BQ: DTC P0733 — GEAR 3 INCORRECT RATIO —

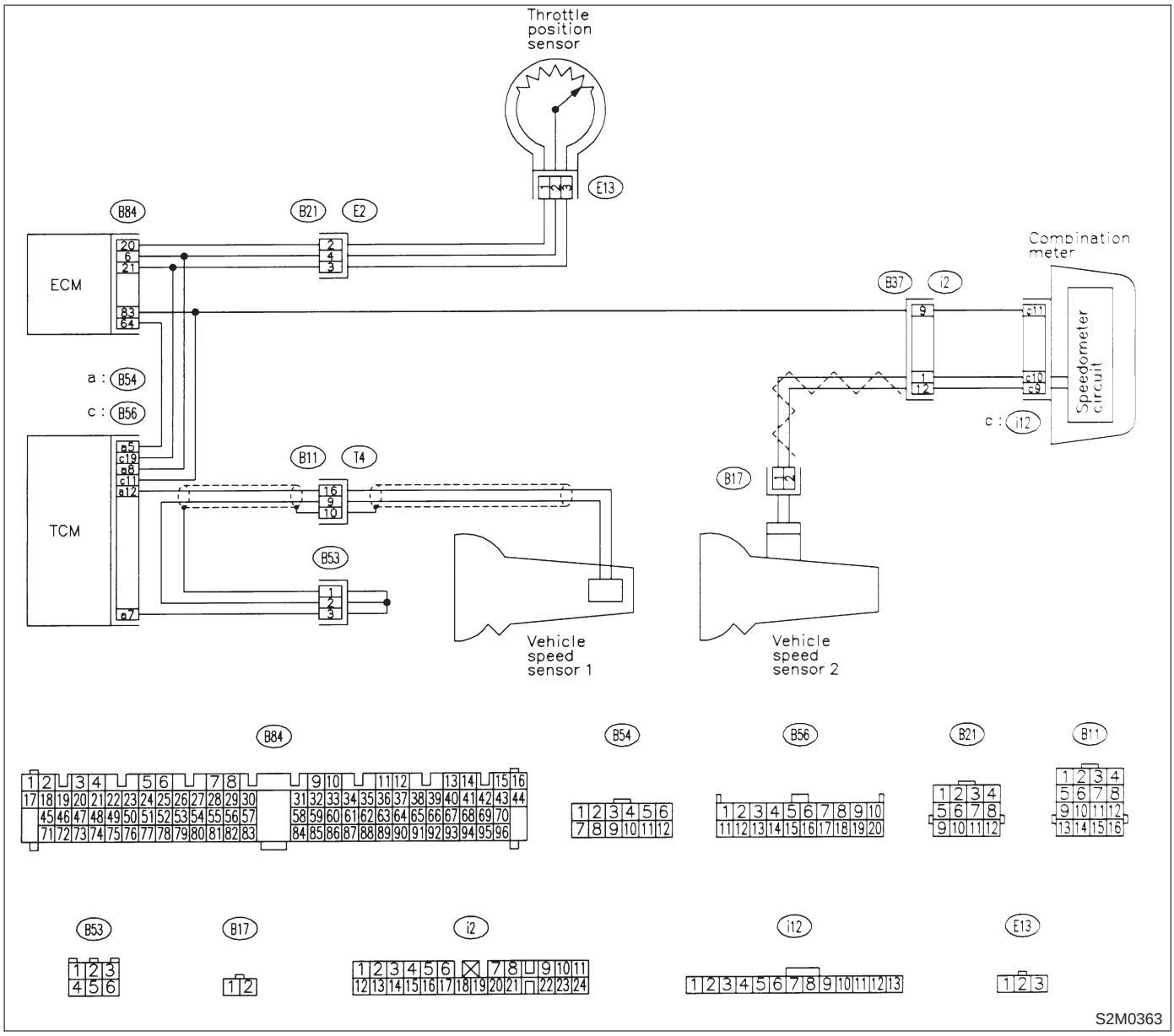
NOTE:
For the diagnostic procedure, refer to 2-7 [T10BR0]. <Ref. to 2-7 [T10BR0].>

BR: DTC P0734 — GEAR 4 INCORRECT RATIO —

- **DTC DETECTING CONDITION:**
  - Two consecutive driving cycles with fault
- **TROUBLE SYMPTOM:**
  - Shift point too high or too low; engine brake not effected in “3” range; excessive shift shock; excessive tight corner “braking”

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

● **WIRING DIAGRAM:**



10BR1 : CHECK ANY OTHER DTC ON DISPLAY.

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

YES : Inspect relevant DTC using “10. Diagnostics Chart with Trouble Code”. <Ref. to 2-7 [T10A0].>

NO : Go to step **10BR2**.

10BR2 : CHECK THROTTLE POSITION SENSOR CIRCUIT.

Check throttle position sensor circuit. <Ref. to 3-2 [T8M0].>

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

YES : Repair or replace throttle position sensor circuit.

NO : Go to step **10BR3**.

10BR3 : CHECK VEHICLE SPEED SENSOR 1 CIRCUIT.

Check vehicle speed sensor 1 circuit. <Ref. to 3-2 [T8N0].>

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

YES : Repair or replace vehicle speed sensor 1 circuit.

NO : Go to step **10BR4**.

10BR4 : CHECK VEHICLE SPEED SENSOR 2 CIRCUIT.

Check vehicle speed sensor 2 circuit. <Ref. to 3-2 [T8O0].>

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

YES : Repair or replace vehicle speed sensor 2 circuit.

NO : Go to step **10BR5**.

10BR5 : CHECK ENGINE SPEED INPUT CIRCUIT.

Check engine speed input circuit. <Ref. to 3-2 [T8J0].>

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

YES : Repair or replace engine speed input circuit.

NO : Go to step **10BR6**.

10BR6 : CHECK POOR CONTACT.

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

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

YES : Repair poor contact in TCM connector.

NO : Go to step **10BR7**.

10BR7 : CHECK MECHANICAL TROUBLE.

Check mechanical trouble in automatic transmission.

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

YES : Repair or replace automatic transmission.

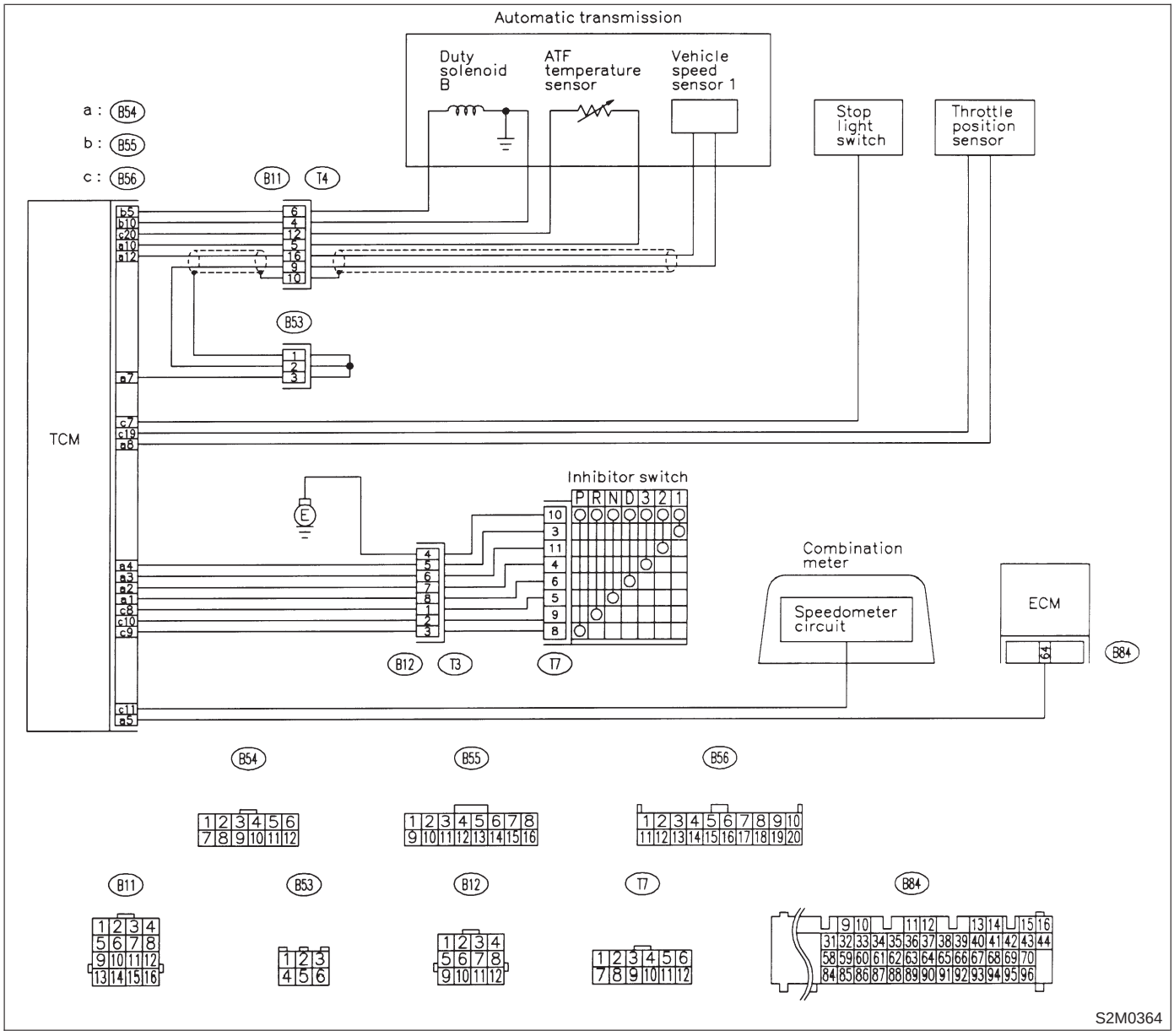
NO : Replace TCM.

BS: DTC P0740 — TORQUE CONVERTER CLUTCH SYSTEM MALFUNCTION —

- **DTC DETECTING CONDITION:**
  - Two consecutive driving cycles with fault
- **TROUBLE SYMPTOM:**
  - No shift or excessive tight corner “braking”
  - No shift or excessive tight corner “braking”

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

- **WIRING DIAGRAM:**



10BS1 : CHECK ANY OTHER DTC ON DISPLAY.

CHECK : ***Is there any other DTC on display?***
YES : Inspect the relevant DTC using “10. Diagnostics Chart with Trouble Code”. <Ref. to 2-7 [T10A0].>
NO : Go to step **10BS2**.

10BS2 : CHECK DUTY SOLENOID B CIRCUIT.

Check duty solenoid B circuit. <Ref. to 3-2 [T8D0].>

CHECK : ***Is there any trouble in duty solenoid B circuit?***
YES : Repair or replace duty solenoid B circuit.
NO : Go to step **10BS3**.

10BS3 : CHECK THROTTLE POSITION SENSOR CIRCUIT.

Check throttle position sensor circuit. <Ref. to 3-2 [T8M0].>

CHECK : ***Is there any trouble in throttle position sensor circuit?***
YES : Repair or replace throttle position sensor circuit.
NO : Go to step **10BS4**.

10BS4 : CHECK VEHICLE SPEED SENSOR 1 CIRCUIT.

Check vehicle speed sensor 1 circuit. <Ref. to 3-2 [T8N0].>

CHECK : ***Is there any trouble in vehicle speed sensor 1 circuit?***
YES : Repair or replace vehicle speed sensor 1 circuit.
NO : Go to step **10BS5**.

10BS5 : CHECK VEHICLE SPEED SENSOR 2 CIRCUIT.

Check vehicle speed sensor 2 circuit. <Ref. to 3-2 [T8O0].>

CHECK : ***Is there any trouble in vehicle speed sensor 2 circuit?***
YES : Repair or replace vehicle speed sensor 2 circuit.
NO : Go to step **10BS6**.

10BS6 : CHECK ENGINE SPEED INPUT CIRCUIT.

Check engine speed input circuit. <Ref. to 3-2 [T8J0].>

CHECK : ***Is there any trouble in engine speed input circuit?***
YES : Repair or replace engine speed input circuit.
NO : Go to step **10BS7**.

10BS7 : CHECK INHIBITOR SWITCH CIRCUIT.

Check inhibitor switch circuit. <Ref. to 2-7 [T10BK0].>

CHECK : ***Is there any trouble in inhibitor switch circuit?***
YES : Repair or replace inhibitor switch circuit.
NO : Go to step **10BS8**.

10BS8 : CHECK BRAKE LIGHT SWITCH CIRCUIT.

Check brake light switch circuit. <Ref. to 2-7 [T10BJ0].>

CHECK : ***Is there any trouble in brake light switch circuit?***
YES : Repair or replace brake light switch circuit.
NO : Go to step **10BS9**.

10BS9 : CHECK ATF TEMPERATURE SENSOR CIRCUIT.

Check ATF temperature sensor circuit. <Ref. to 3-2 [T8H0].>

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

YES : Repair or replace ATF temperature sensor circuit.

NO : Go to step **10BS10**.

10BS10 : CHECK POOR CONTACT.

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

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

YES : Repair poor contact in TCM connector.

NO : Go to step **10BS11**.

10BS11 : CHECK MECHANICAL TROUBLE.

Check mechanical trouble in automatic transmission.

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

YES : Repair or replace automatic transmission.

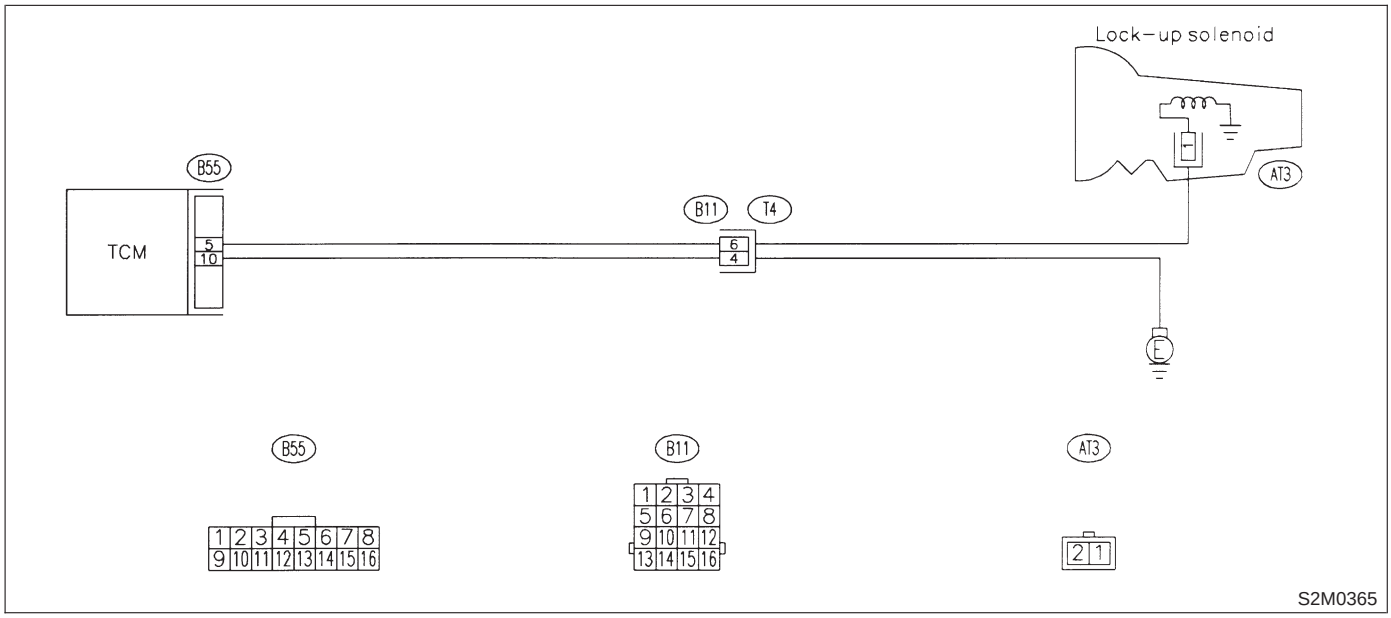
NO : Replace TCM.

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

- **DTC DETECTING CONDITION:**
  - Two consecutive driving cycles with fault
- **TROUBLE SYMPTOM:**
  - No lock-up (after engine warm-up)

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

- **WIRING DIAGRAM:**



10BT1 : CHECK DTC P0743 ON DISPLAY.

CHECK : ***Does the Subaru select monitor or OBD-II general scan tool indicate DTC P0743?***

YES : Check duty solenoid B circuit. <Ref. to 3-2 [T8D0].>

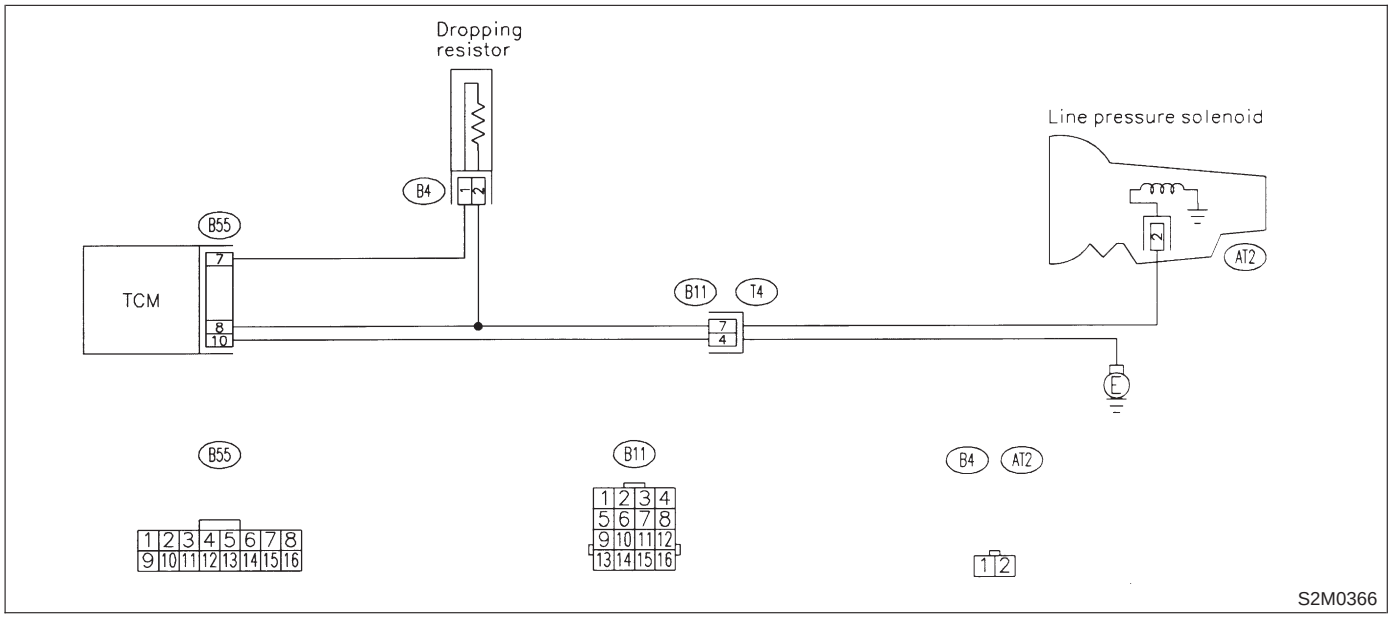
NO : It is not necessary to inspect DTC P0743.

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

- **DTC DETECTING CONDITION:**
  - Two consecutive driving cycles with fault
- **TROUBLE SYMPTOM:**
  - Excessive shift shock

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

- **WIRING DIAGRAM:**



10BU1 : CHECK DTC P0748 ON DISPLAY.

CHECK : ***Does the Subaru select monitor or OBD-II general scan tool indicate DTC P0748?***

YES : Check duty solenoid A circuit. <Ref. to 3-2 [T8C0].>

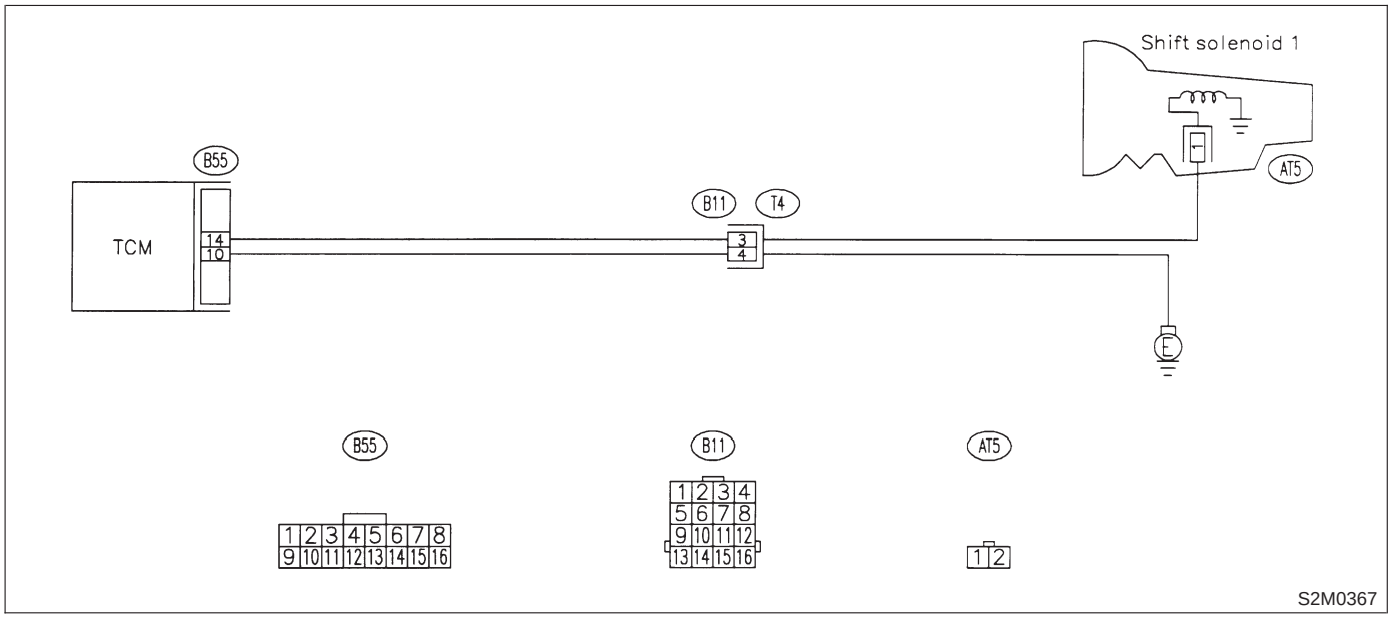
NO : It is not necessary to inspect DTC P0748.

BV: DTC P0753 — SHIFT SOLENOID A (SHIFT SOLENOID 1) ELECTRICAL —

- **DTC DETECTING CONDITION:**
  - Two consecutive driving cycles with fault
- **TROUBLE SYMPTOM:**
  - No shift

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

- **WIRING DIAGRAM:**



10BV1 : CHECK DTC P0753 ON DISPLAY.

CHECK : ***Does the Subaru select monitor or OBD-II general scan tool indicate DTC P0753?***

YES : Check shift solenoid 1 circuit. <Ref. to 3-2 [T8G0].>

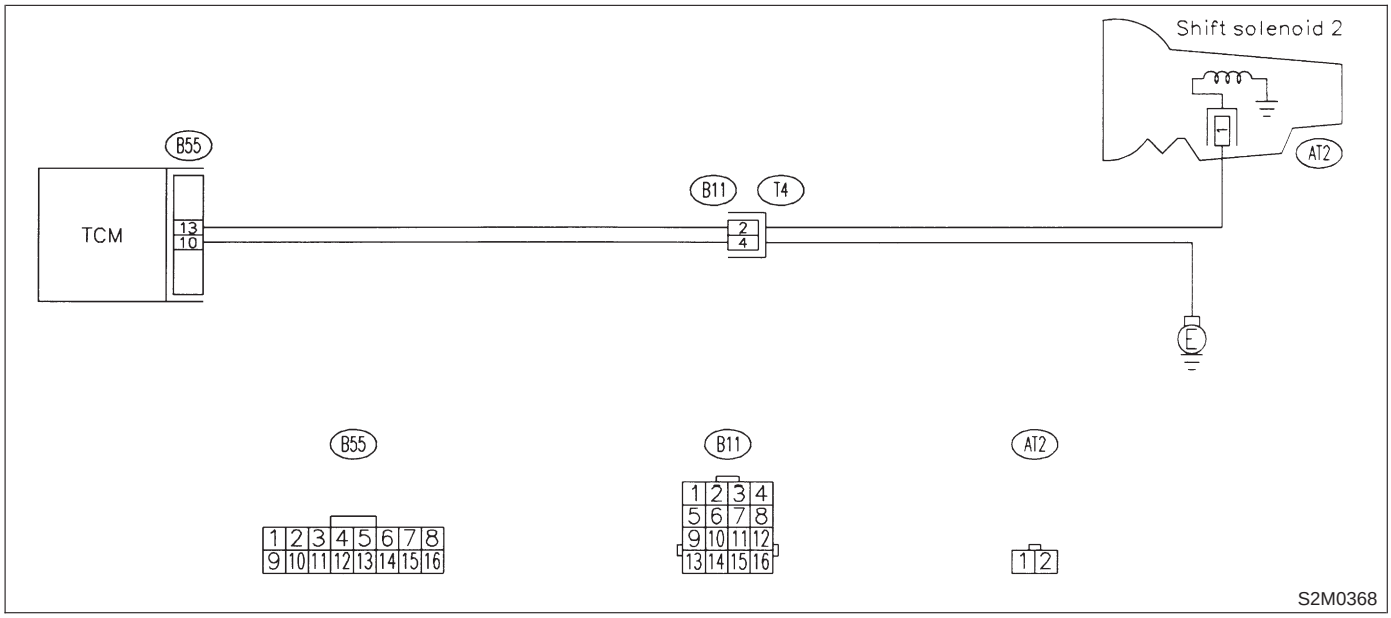
NO : It is not necessary to inspect DTC P0753.

BW: DTC P0758 — SHIFT SOLENOID B (SHIFT SOLENOID 2) ELECTRICAL —

- **DTC DETECTING CONDITION:**
  - Two consecutive driving cycles with fault
- **TROUBLE SYMPTOM:**
  - No shift

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

- **WIRING DIAGRAM:**



10BW1 : CHECK DTC P0758 ON DISPLAY.

CHECK : ***Does the Subaru select monitor or OBD-II general scan tool indicate DTC P0758?***

YES : Check shift solenoid 2 circuit. <Ref. to 3-2 [T8F0].>

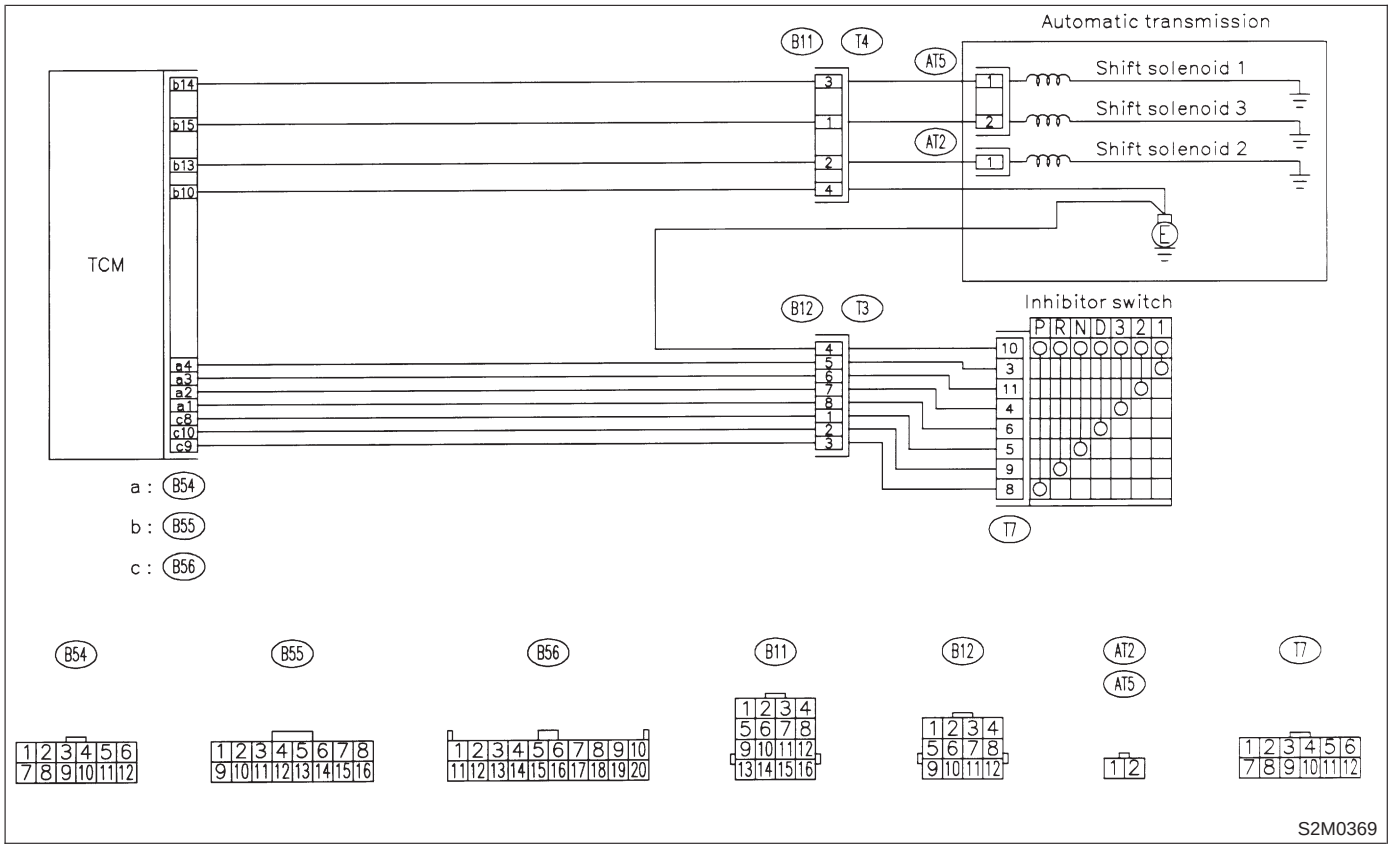
NO : It is not necessary to inspect DTC P0758.

BX: DTC P0760 — SHIFT SOLENOID C (SHIFT SOLENOID 3) MALFUNCTION —

- **DTC DETECTING CONDITION:**
  - Two consecutive driving cycles with fault
- **TROUBLE SYMPTOM:**
  - Ineffective engine brake with selector lever in “3”

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

- **WIRING DIAGRAM:**



10BX1 : CHECK ANY OTHER DTC ON DISPLAY.

CHECK : ***Is there any other DTC on display?***
YES : Inspect relevant DTC using “10. Diagnostics Chart with Trouble Code”. <Ref. to 2-7 [T10A0].>
NO : Go to step **10BX2**.

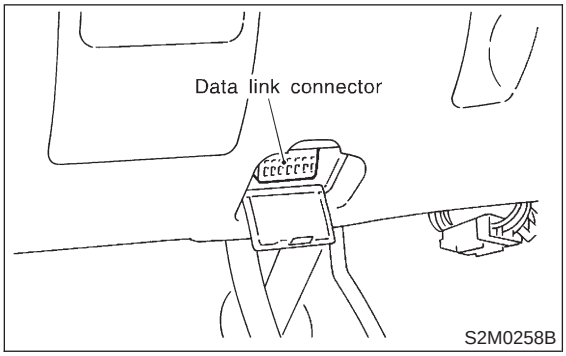
10BX2 : CHECK INHIBITOR SWITCH CIRCUIT.

Check inhibitor switch circuit. <Ref. to 2-7 [T10BK0].>

CHECK : ***Is there any trouble in inhibitor switch circuit?***
YES : Repair or replace inhibitor switch circuit.
NO : Go to step **10BX3**.

10BX3 : 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) Read data of gear position signal using Subaru select monitor.
(1) On the ┌Main Menu┘ display screen, select the {2. Check of Each System} and press the [YES] key.
(2) On the ┌System Selection Menu┘ display screen, select the {AT/ECVT} and press the [YES] key.
(3) Press the [YES] key after displayed the information of transmission type.
(4) On the ┌E-4AT/ECVT Diagnosis┘ display screen, select the {1. Current Data Display & Save} and press the [YES] key.
(5) On the ┌Data Display Menu┘ display screen, select the {4. 1 Data Display with Detail} and press the [YES] key.
(6) Use the scroll key to show {Gear Position} items on the display screen.

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

7) Move selector lever to “D” and drive the vehicle.

CHECK : ***Does gear position change according to throttle position and vehicle speed?***
YES : Go to step **10BX4**.
NO : Go to step **10BX6**.

10BX4 : CHECK POOR CONTACT.

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

CHECK : ***Is there poor contact in TCM connector?***
YES : Repair poor contact in TCM connector.
NO : Go to step **10BX5**.

10BX5 : CHECK MECHANICAL TROUBLE.

Check mechanical trouble in automatic transmission.

CHECK : ***Is there any mechanical trouble in automatic transmission?***
YES : Repair or replace automatic transmission.
NO : Replace TCM.

10BX6 : CHECK SHIFT SOLENOID 1 CIRCUIT.

Check shift solenoid 1 circuit. <Ref. to 3-2 [T8G0].>

CHECK : ***Is there any trouble in shift solenoid 1 circuit?***
YES : Repair or replace shift solenoid 1 circuit.
NO : Go to step **10BX7**.

10BX7 : CHECK SHIFT SOLENOID 2 CIRCUIT.

Check shift solenoid 2 circuit. <Ref. to 3-2 [T8F0].>

CHECK : ***Is there any trouble in shift solenoid 2 circuit?***
YES : Repair or replace shift solenoid 2 circuit.
NO : Go to step **10BX8**.

10BX8 : CHECK SHIFT SOLENOID 3 CIRCUIT.

Check shift solenoid 3 circuit. <Ref. to 3-2 [T8E0].>

CHECK : ***Is there any trouble in shift solenoid 3 circuit?***
YES : Repair or replace shift solenoid 3 circuit.
NO : Go to step **10BX9**.

10BX9 : CHECK POOR CONTACT.

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

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

YES : Repair poor contact in TCM connector.

NO : Go to step **10BX10**.

10BX10 : CHECK MECHANICAL TROUBLE.

Check mechanical trouble in automatic transmission.

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

YES : Repair or replace automatic transmission.

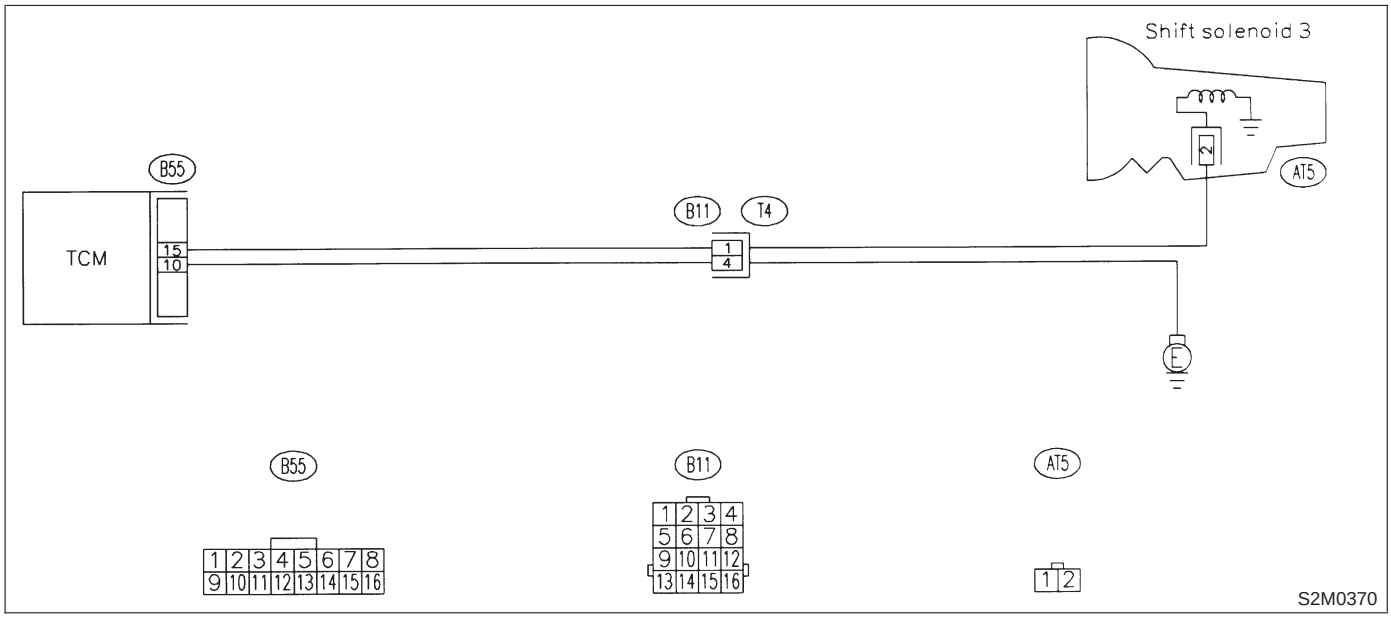
NO : Replace TCM.

BY: DTC P0763 — SHIFT SOLENOID C (SHIFT SOLENOID 3) ELECTRICAL —

- **DTC DETECTING CONDITION:**
  - Two consecutive driving cycles with fault
- **TROUBLE SYMPTOM:**
  - Ineffective engine brake with selector lever in “3”

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

- **WIRING DIAGRAM:**



10BY1 : CHECK DTC P0763 ON DISPLAY.

CHECK : ***Does the Subaru select monitor or OBD-II general scan tool indicate DTC P0763?***

YES : Check shift solenoid 3 circuit. <Ref. to 3-2 [T8E0].>

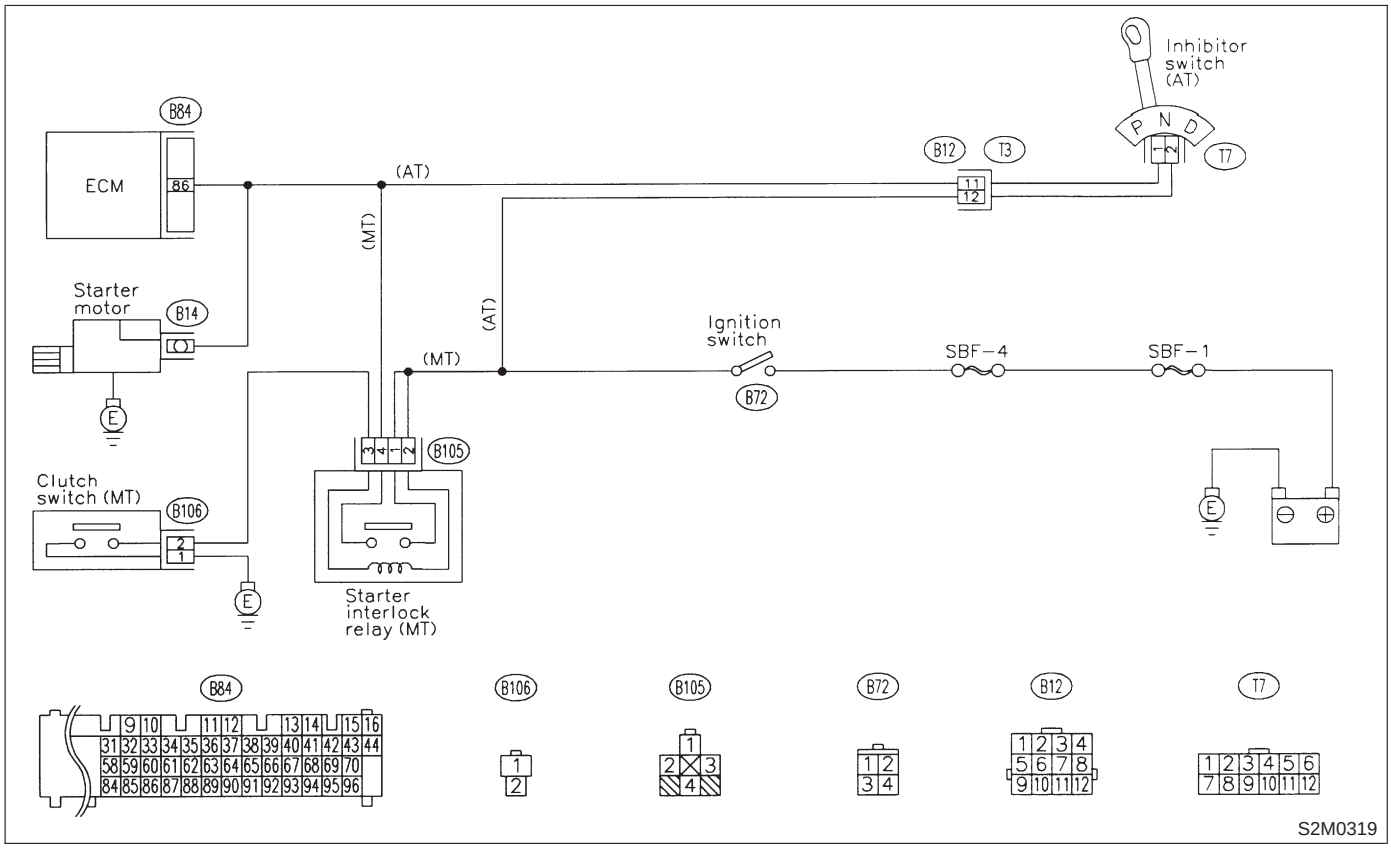
NO : It is not necessary to inspect DTC P0763.

BZ: DTC P1100 — STARTER SWITCH CIRCUIT LOW INPUT —

- **DTC DETECTING CONDITION:**
  - Two consecutive driving cycles with fault
- **TROUBLE SYMPTOM:**
  - Failure of engine to start

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

- **WIRING DIAGRAM:**



10BZ1 : CHECK OPERATION OF STARTER MOTOR.

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

CHECK : ***Does starter motor operate when ignition switch to "ST"?***

YES : Repair harness and connector.

NOTE:
In this case, repair the following:
- Open or ground short circuit in harness between ECM and starter motor connector.
- Poor contact in ECM connector.

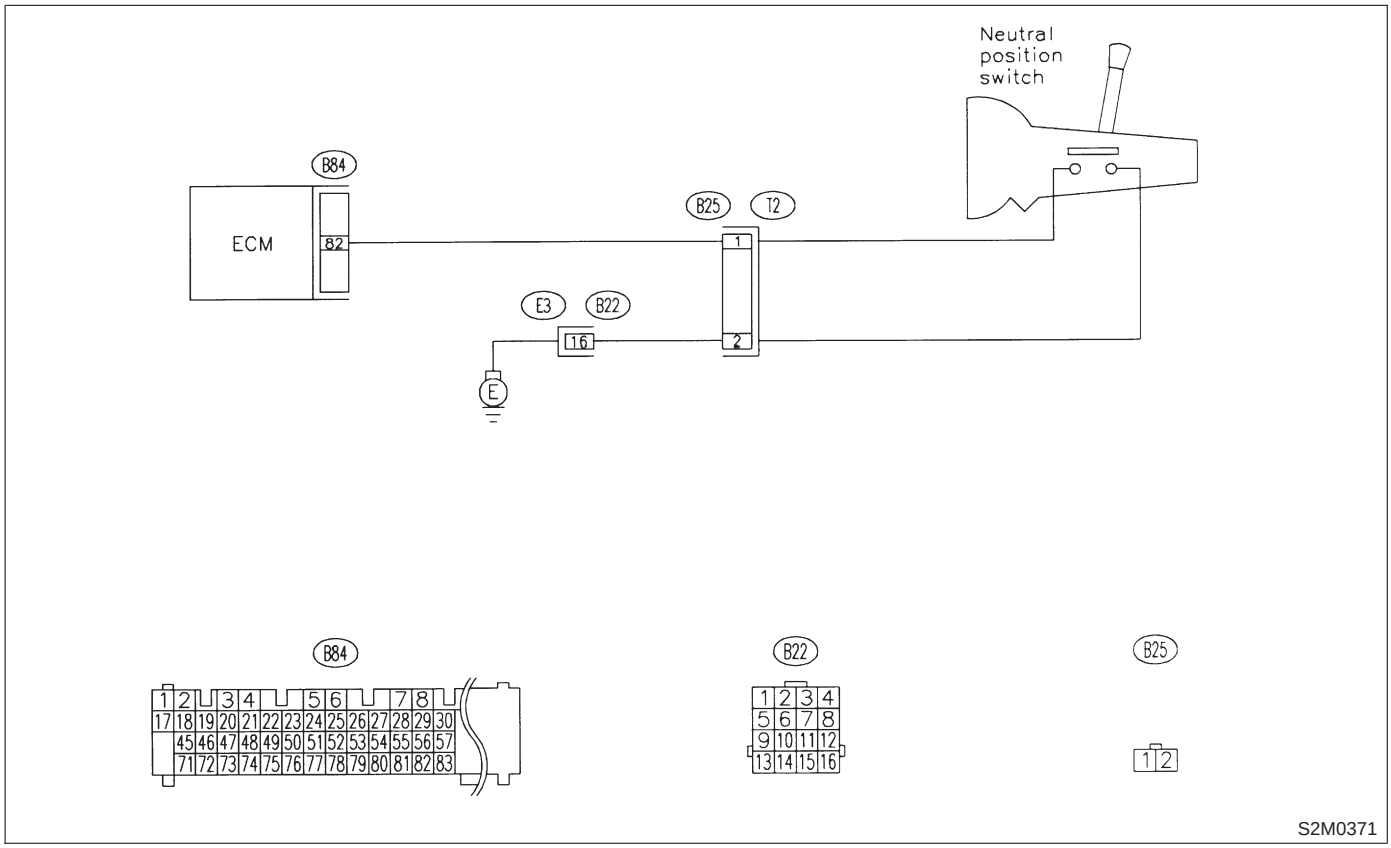
NO : Check starter motor circuit. <Ref. to 2-7 [T8B0].>

CA: DTC P1101 — NEUTRAL POSITION SWITCH CIRCUIT MALFUNCTION [MT VEHICLES] —

- **DTC DETECTING CONDITION:**
  - Two consecutive driving cycles with fault
- **TROUBLE SYMPTOM:**
  - Erroneous idling

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

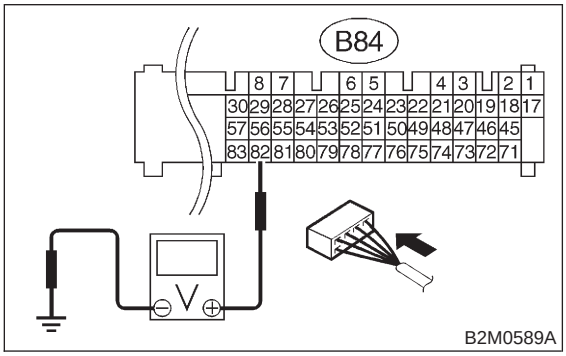
- **WIRING DIAGRAM:**



10CA1 : CHECK INPUT SIGNAL FOR ECM.

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

Connector & terminal
(B84) No. 82 (+) — Chassis ground (−):

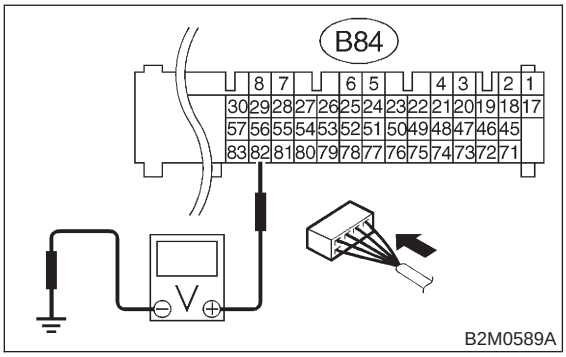


CHECK : ***Is the voltage between 4.5 and 5.5 V in neutral position?***
YES : Go to step **10CA2**.
NO : Go to step **10CA4**.

10CA2 : CHECK INPUT SIGNAL FOR ECM.

Measure voltage between ECM and chassis ground.

Connector & terminal
(B84) No. 82 (+) — Chassis ground (−):



CHECK : ***Is the voltage less than 1 V in other positions?***
YES : Go to step **10CA3**.
NO : Go to step **10CA4**.

10CA3 : CHECK POOR CONTACT.

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

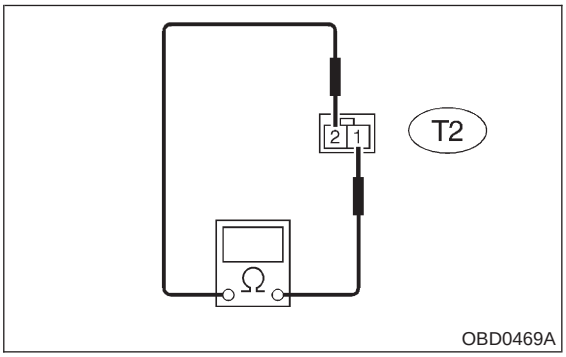
CHECK : ***Is there poor contact in ECM connector?***
YES : Repair poor contact in ECM connector.
NO : Contact with SOA service.

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

10CA4 : CHECK NEUTRAL POSITION SWITCH.

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

Connector & terminal
(T2) No. 1 — No. 2:

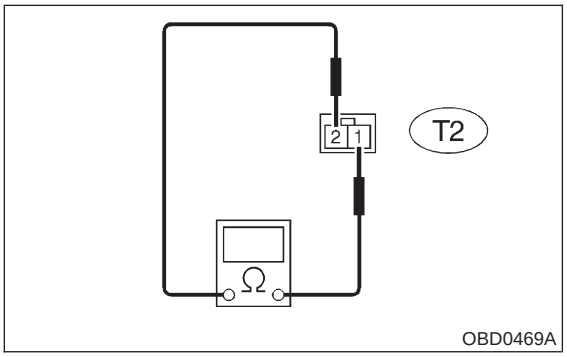


CHECK : ***Is the resistance more than 1 MΩ in neutral position?***
YES : Go to step **10CA5**.
NO : Repair short circuit in transmission harness or replace neutral position switch.

10CA5 : CHECK NEUTRAL POSITION SWITCH.

Measure resistance between transmission harness connector terminals.

Connector & terminal
(T2) No. 1 — No. 2:

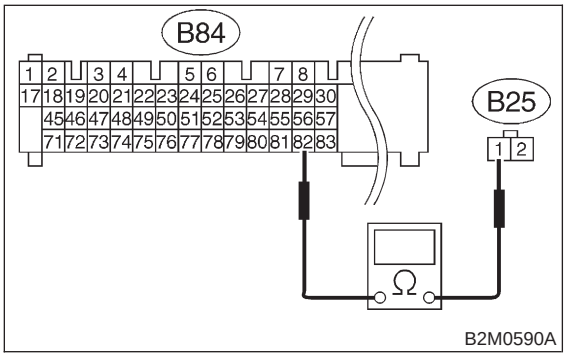


CHECK : ***Is the resistance less than 1 Ω in other positions?***
YES : Go to step **10CA6**.
NO : Repair open circuit in transmission harness or replace neutral position switch.

10CA6 : CHECK HARNESS BETWEEN ECM AND NEUTRAL POSITION SWITCH CONNECTOR.

1) Disconnect connector from ECM.
2) Measure resistance of harness between ECM and transmission harness connector.

Connector & terminal
(B84) No. 82 — (B25) No. 1:

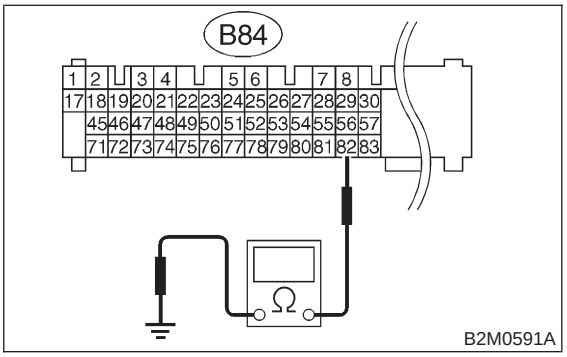


CHECK : ***Is the resistance less than 1 Ω?***
YES : Go to step **10CA7**.
NO : Repair open circuit in harness between ECM and transmission harness connector.

10CA7 : CHECK HARNESS BETWEEN ECM AND NEUTRAL POSITION SWITCH CONNECTOR.

Measure resistance between ECM and chassis ground.

Connector & terminal
(B84) No. 82 — Chassis ground:

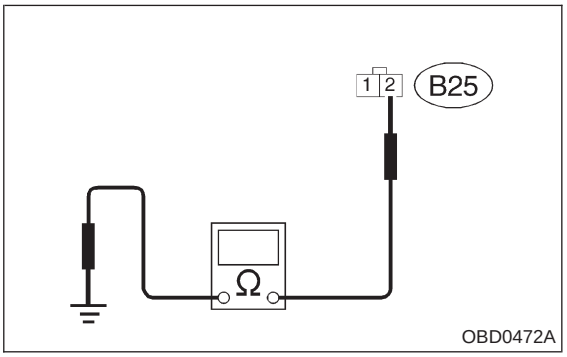


CHECK : ***Is the resistance less than 10 Ω?***
YES : Repair ground short circuit in harness between ECM and transmission harness connector.
NO : Go to step **10CA8**.

10CA8 : CHECK NEUTRAL POSITION SWITCH GROUND CIRCUIT.

Measure resistance of harness between transmission harness connector and engine ground.

Connector & terminal
(B25) No. 2 — Engine ground:



CHECK : ***Is the resistance less than 5 Ω?***
YES : Go to step **10CA9**.
NO : Repair harness and connector.

NOTE:
In this case, repair the following:
● Open circuit in harness between transmission harness connector and engine grounding terminal
● Poor contact in coupling connector (B22)

10CA9 : CHECK POOR CONTACT.

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

CHECK : ***Is there poor contact in transmission harness connector?***

YES : Repair poor contact in transmission harness connector.

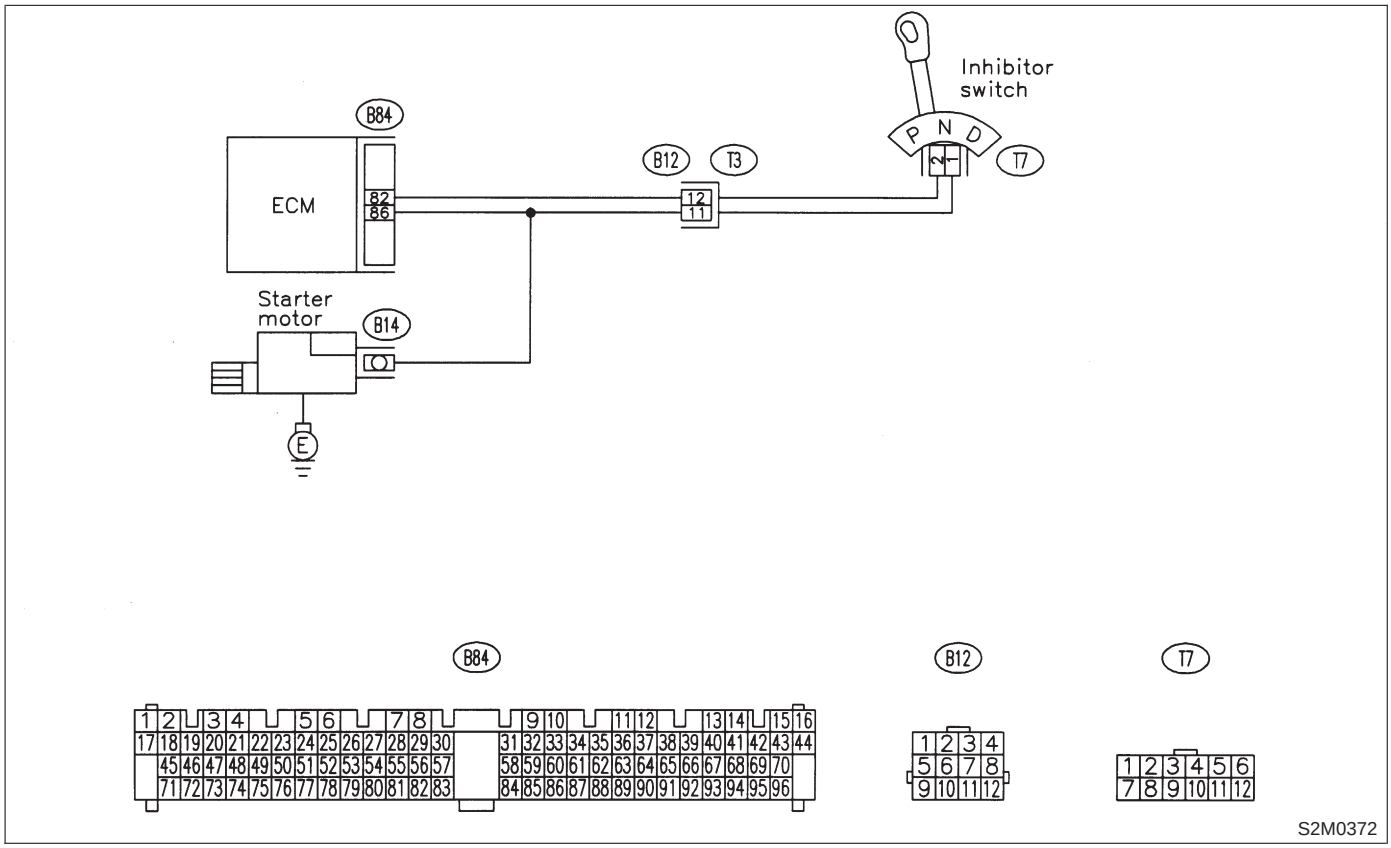
NO : Replace ECM.

CB: DTC P1101 — NEUTRAL POSITION SWITCH CIRCUIT HIGH INPUT [AT VEHICLES] —

- **DTC DETECTING CONDITION:**
  - Two consecutive driving cycles with fault
- **TROUBLE SYMPTOM:**
  - Erroneous idling

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

- **WIRING DIAGRAM:**



10CB1 : CHECK DTC P0705 ON DISPLAY.

CHECK : ***Does the Subaru select monitor or OBD-II general scan tool indicate DTC P0705?***

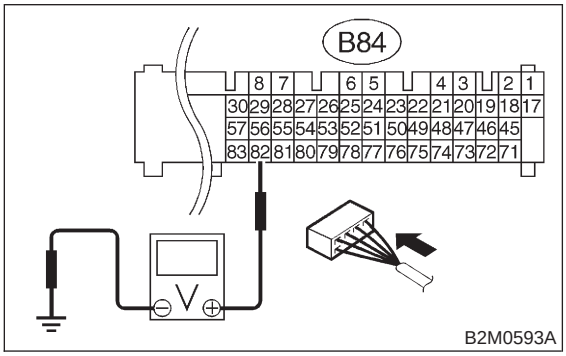
YES : Inspect DTC P0705 using “10. Diagnostics Chart with Trouble Code”. <Ref. to 2-7 [T10A0].>

NO : Go to step **10CB2**.

10CB2 : CHECK INPUT SIGNAL FOR ECM.

1) Turn ignition switch to ON.
2) Measure voltage between ECM and chassis ground in selector lever “N” and “P” positions.

Connector & terminal
(B84) No. 82 (+) — Chassis ground (−):

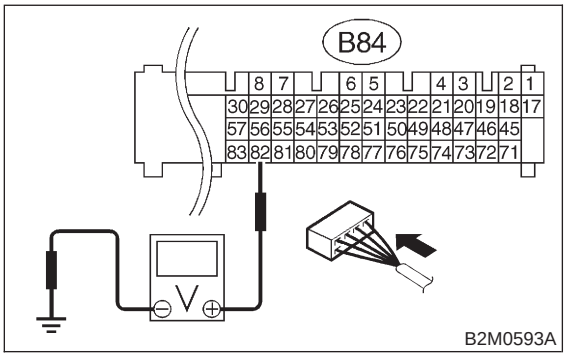


CHECK : ***Is the voltage less than 1 V?***
YES : Go to step **10CB3**.
NO : Go to step **10CB5**.

10CB3 : CHECK INPUT SIGNAL FOR ECM.

Measure voltage between ECM and chassis ground in selector lever except for “N” and “P” positions.

Connector & terminal
(B84) No. 82 (+) — Chassis ground (−):



CHECK : ***Is the voltage between 4.5 and 5.5 V?***
YES : Go to step **10CB4**.
NO : Go to step **10CB5**.

10CB4 : CHECK POOR CONTACT.

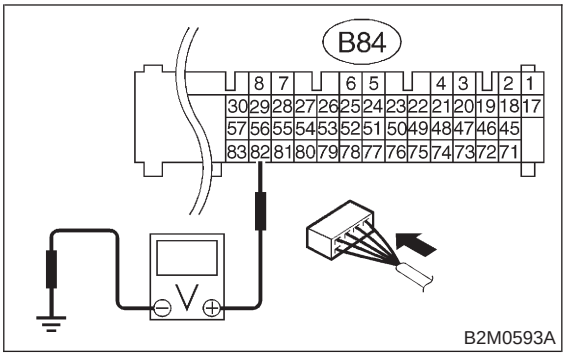
Check poor contact in ECM connector. <Ref. to FOREWORD [T3C1].>

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

10CB5 : CHECK INPUT SIGNAL FOR ECM.

Measure voltage between ECM and chassis ground.

Connector & terminal
(B84) No. 82 (+) — Chassis ground (−):

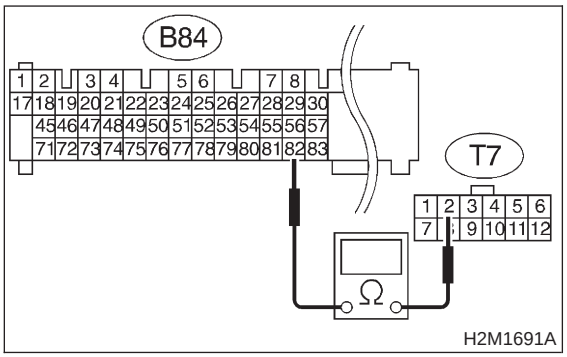


CHECK : ***Is the voltage more than 10 V?***
YES : Repair battery short circuit in harness between ECM and inhibitor switch connector.
NO : Go to step **10CB6**.

10CB6 : CHECK HARNESS BETWEEN ECM AND INHIBITOR SWITCH CONNECTOR.

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

Connector & terminal
(B84) No. 82 — (T7) No. 2:



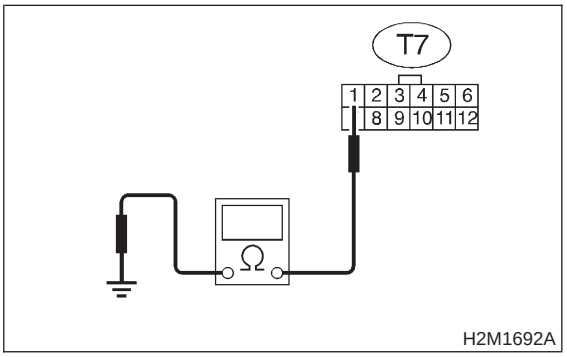
CHECK : ***Is the resistance less than 1 Ω?***
YES : Go to step **10CB7**.
NO : Repair harness and connector.

NOTE:
In this case, repair the following:
- Open circuit in harness between ECM and inhibitor switch connector
- Poor contact in coupling connector (B12)
- Poor contact in inhibitor switch connector
- Poor contact in ECM connector

10CB7 : CHECK INHIBITOR SWITCH GROUND LINE.

Measure resistance of harness between inhibitor switch connector and engine ground.

Connector & terminal
(T7) No. 1 — Engine ground:

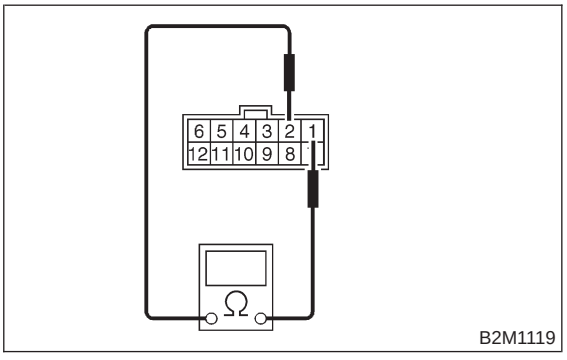


CHECK : ***Is the resistance less than 5 Ω?***
YES : Go to step **10CB8**.
NO : Repair open circuit in inhibitor switch ground line.

10CB8 : CHECK INHIBITOR SWITCH.

Measure resistance between inhibitor switch connector receptacle's terminals in selector lever "N" and "P" positions.

Terminals
No. 1 — No. 2:



CHECK : ***Is the resistance less than 1 Ω?***
YES : Go to step **10CB9**.
NO : Replace inhibitor switch.

10CB9 : CHECK SELECTOR CABLE CONNECTION.

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

YES : Repair selector cable connection. <Ref. to 3-2 [W3B0].>

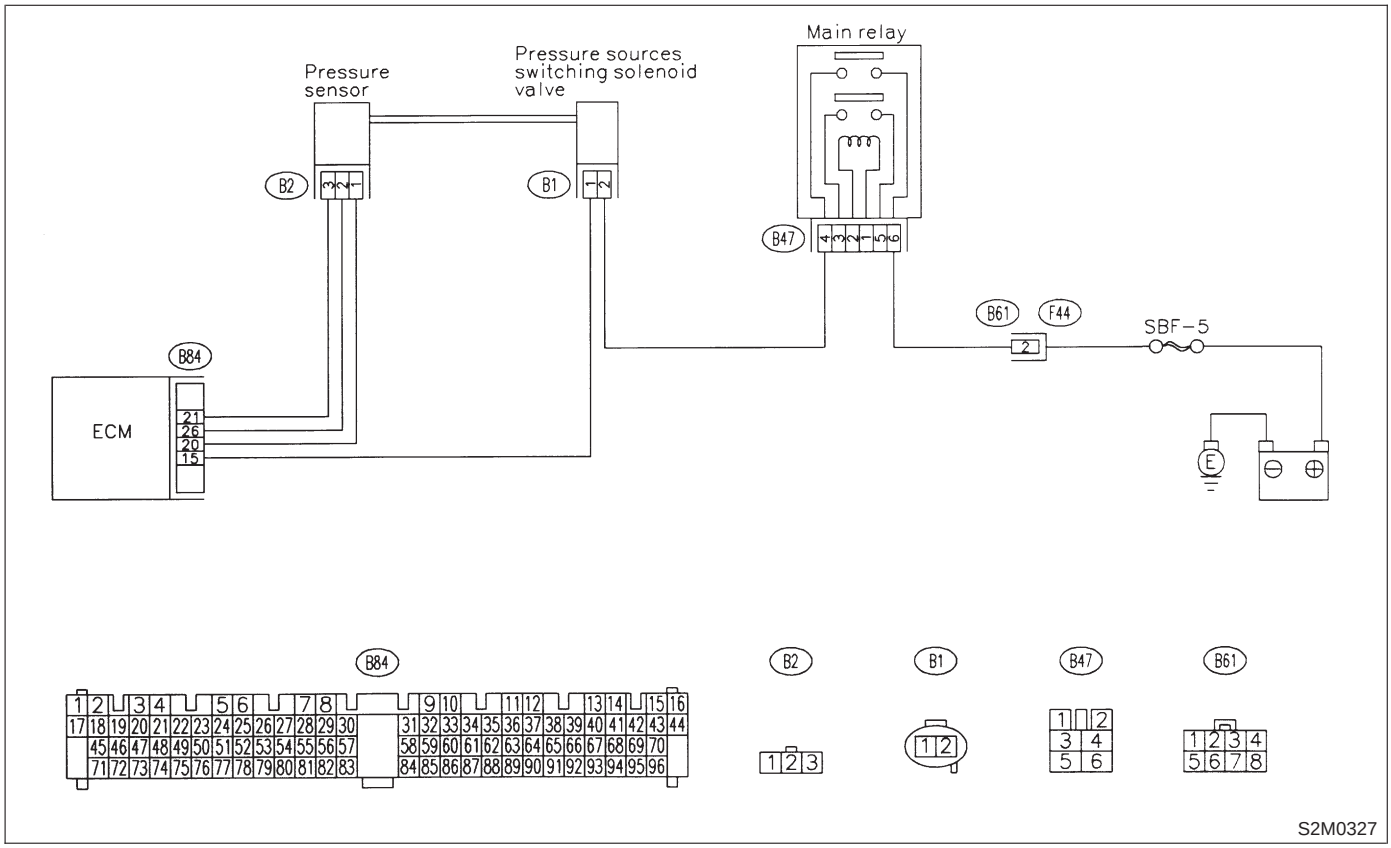
NO : Replace ECM.

CC: DTC P1102 — PRESSURE SOURCES SWITCHING SOLENOID VALVE CIRCUIT LOW INPUT —

- **DTC DETECTING CONDITION:**
  - Two consecutive driving cycles with fault
- **TROUBLE SYMPTOM:**
  - Erroneous idling
  - Failure of engine to start

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

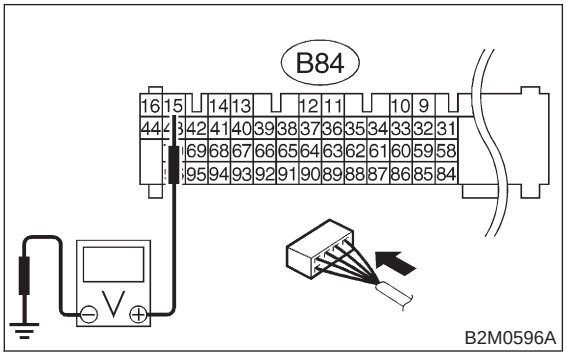
- **WIRING DIAGRAM:**



10CC1 : CHECK OUTPUT SIGNAL FROM ECM.

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

Connector & terminal
(B84) No. 15 (+) — Chassis ground (−):



CHECK : ***Is the voltage more than 10 V?***
YES : Go to step **10CC2**.
NO : Go to step **10CC3**.

10CC2 : CHECK POOR CONTACT.

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

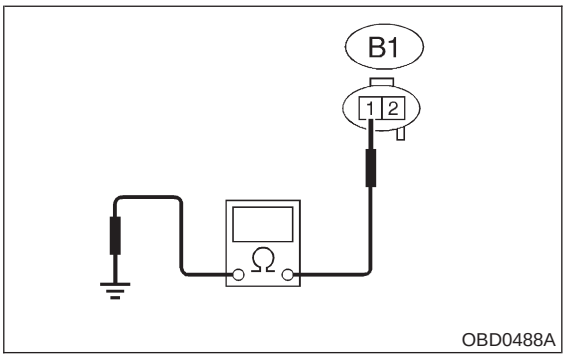
CHECK : ***Is there poor contact in ECM connector?***
YES : Repair poor contact in ECM connector.
NO : Contact with SOA service.

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

10CC3 : CHECK HARNESS BETWEEN ECM AND PRESSURE SOURCES SWITCHING SOLENOID VALVE CONNECTOR.

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

Connector & terminal
(B1) No. 1 — Engine ground:

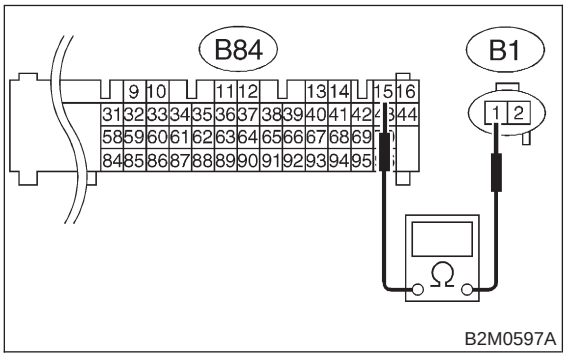


CHECK : ***Is the resistance less than 10 Ω?***
YES : Repair ground short circuit in harness between ECM and pressure sources switching solenoid valve connector.
NO : Go to step **10CC4**.

10CC4 : CHECK HARNESS BETWEEN ECM AND PRESSURE SOURCES SWITCHING SOLENOID VALVE CONNECTOR.

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

Connector & terminal
(B84) No. 15 — (B1) No. 1:

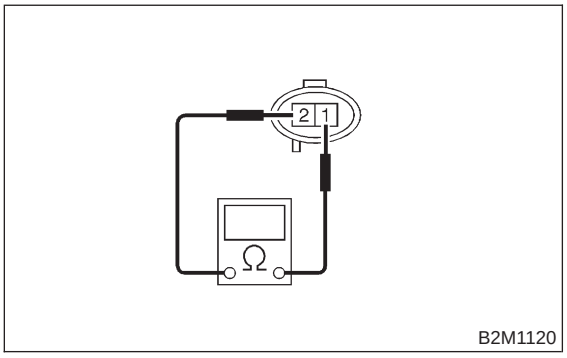


CHECK : ***Is the resistance less than 1 Ω?***
YES : Go to step **10CC5**.
NO : Repair open circuit in harness between ECM and pressure sources switching solenoid valve connector.

10CC5 : CHECK PRESSURE SOURCES SWITCHING SOLENOID VALVE.

Measure resistance between pressure sources switching solenoid valve connector terminals.

Terminals
No. 1 — No. 2:

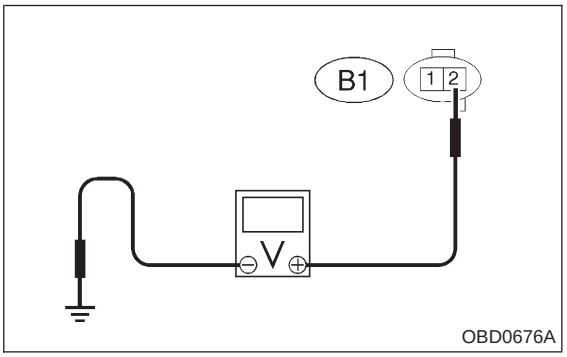


CHECK : ***Is the resistance between 10 and 100 Ω?***
YES : Go to step **10CC6**.
NO : Replace pressure sources switching solenoid valve.

10CC6 : CHECK POWER SUPPLY TO PRESSURE SOURCES SWITCHING SOLENOID VALVE.

1) Turn ignition switch to ON.
2) Measure voltage between pressure sources switching solenoid valve harness connector and engine ground.

Connector & terminal
(B1) No. 2 (+) — Engine ground (−):



CHECK : ***Is the voltage more than 10 V?***
YES : Go to step **10CC7**.
NO : Repair open circuit in harness between main relay and pressure sources switching solenoid valve connector.

10CC7 : CHECK POOR CONTACT.

Check poor contact in pressure sources switching solenoid valve connector. <Ref. to FOREWORD [T3C1].>

CHECK : ***Is there poor contact in pressure sources switching solenoid valve connector?***
YES : Repair poor contact in pressure sources switching solenoid valve connector.
NO : Contact with SOA service.

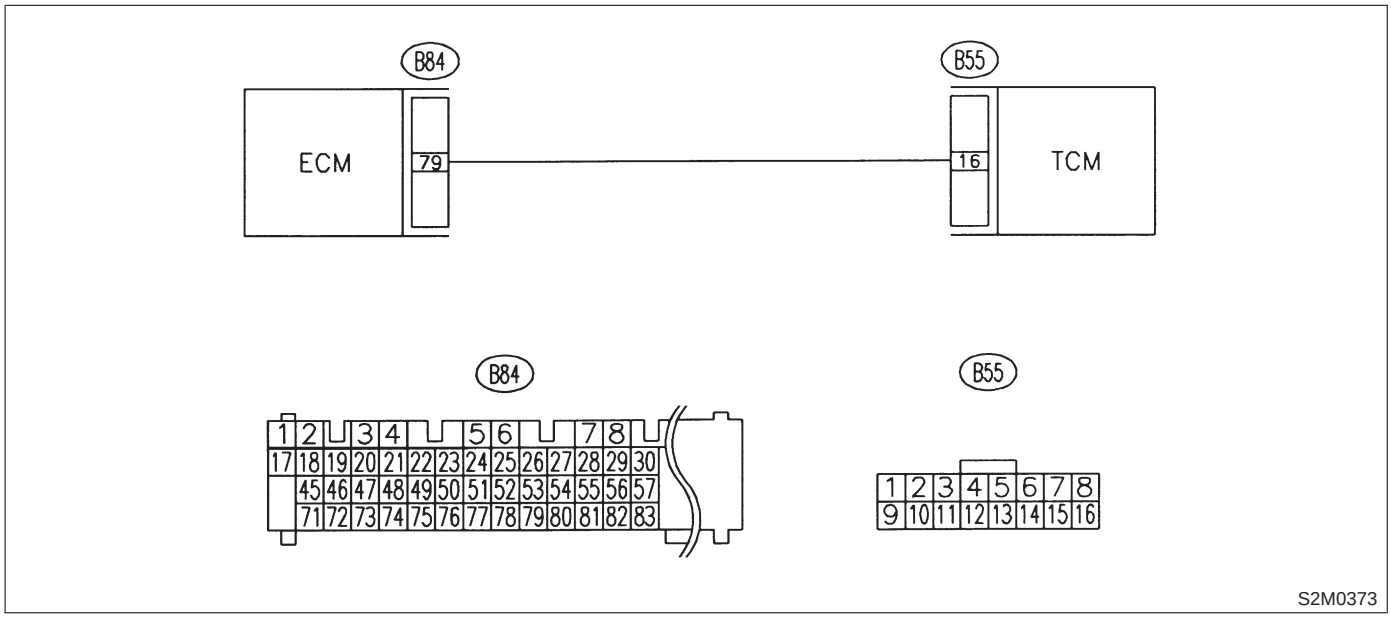
NOTE:
Inspection by DTM is required, because probable cause is deterioration of multiple parts.

CD: DTC P1103 — ENGINE TORQUE CONTROL SIGNAL CIRCUIT MALFUNCTION —

- **DTC DETECTING CONDITION:**
  - Two consecutive driving cycles with fault
- **TROUBLE SYMPTOM:**
  - Excessive shift shock

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

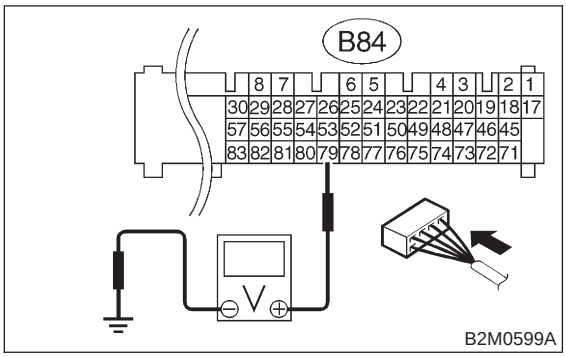
- **WIRING DIAGRAM:**



10CD1 : CHECK INPUT SIGNAL FOR ECM.

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

Connector & terminal
(B84) No. 79 (+) — Chassis ground (−):



CHECK : ***Is the voltage more than 4.5 V?***
YES : Go to step **10CD2**.
NO : Go to step **10CD3**.

10CD2 : CHECK POOR CONTACT.

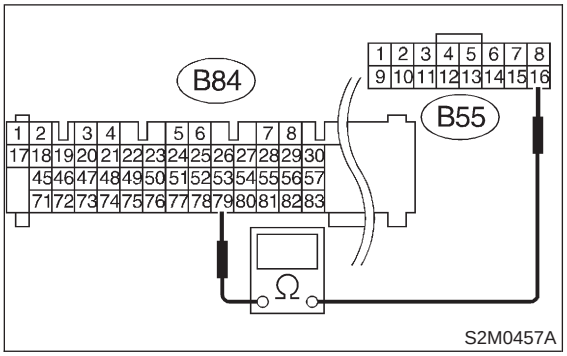
Check poor contact in ECM connector. <Ref. to FOREWORD [T3C1].>

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

10CD3 : CHECK HARNESS BETWEEN ECM AND TCM CONNECTOR.

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

Connector & terminal
(B84) No. 79 — (B55) No. 16:

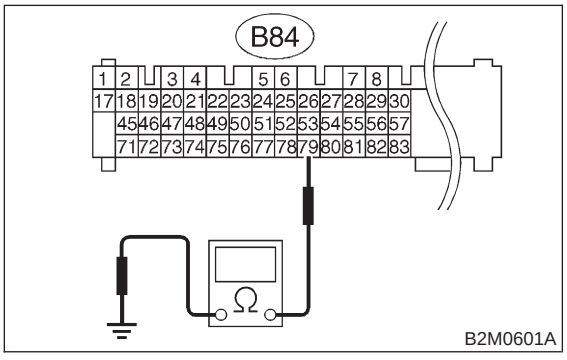


CHECK : ***Is the resistance less than 1 Ω?***
YES : Go to step **10CD4**.
NO : Repair open circuit in harness between ECM and TCM connector.

10CD4 : CHECK HARNESS BETWEEN ECM AND TCM CONNECTOR.

Measure resistance of harness between ECM and chassis ground.

Connector & terminal
(B84) No. 79 — Chassis ground:



CHECK : ***Is the resistance less than 10 Ω?***
YES : Repair ground short circuit in harness between ECM and TCM connector.
NO : Go to step **10CD5**.

10CD5 : CHECK POOR CONTACT.

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

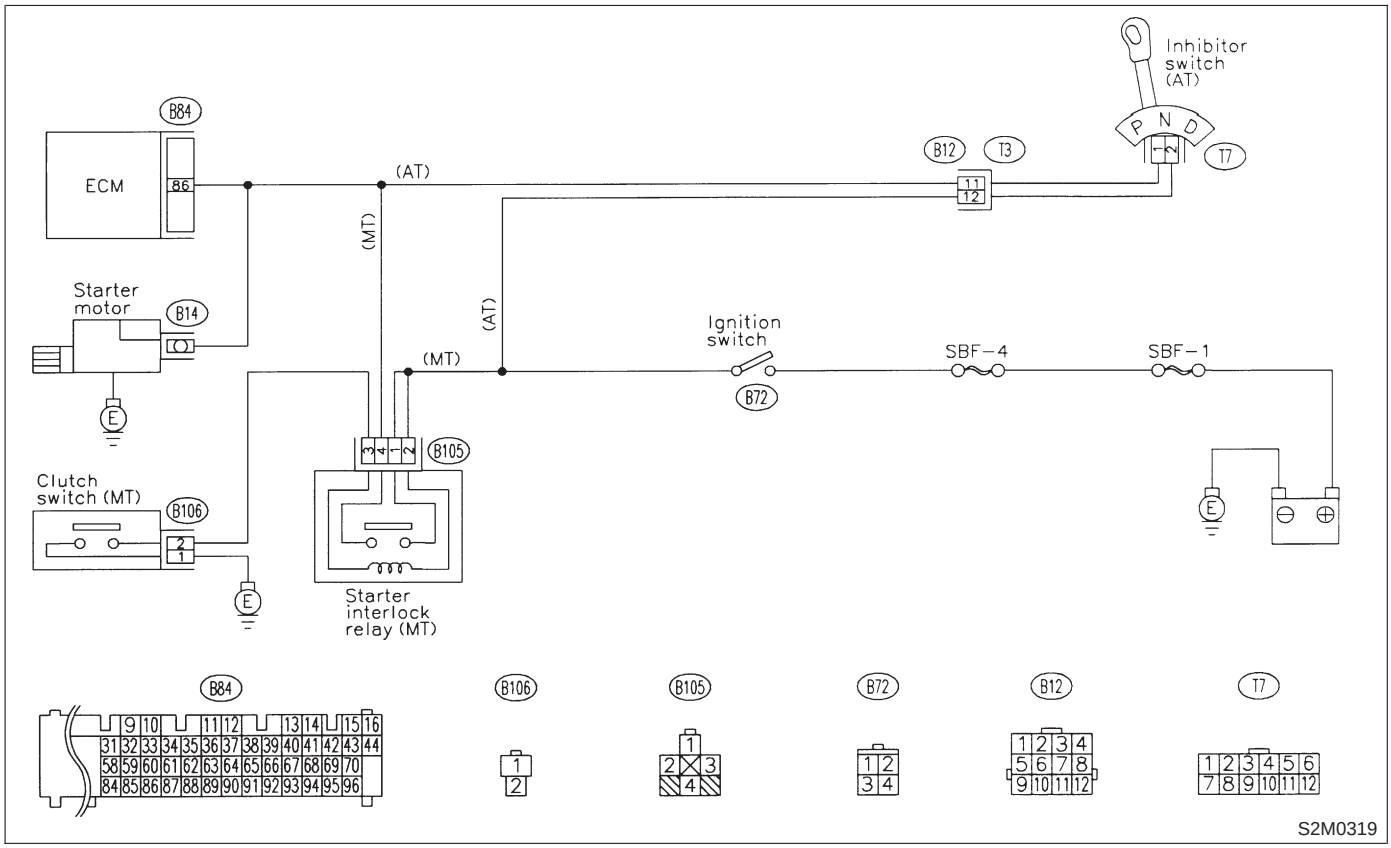
CHECK : ***Is there poor contact in TCM connector?***
YES : Repair poor contact in TCM connector.
NO : Replace TCM.

CE: DTC P1120 — STARTER SWITCH CIRCUIT HIGH INPUT —

- **DTC DETECTING CONDITION:**
  - Two consecutive driving cycles with fault
- **TROUBLE SYMPTOM:**
  - Failure of engine to start

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

- **WIRING DIAGRAM:**



10CE1 : CHECK OPERATION OF STARTER MOTOR.

NOTE:
- On AT vehicles, place the inhibitor switch in each position.
- On MT vehicles, depress or release the clutch pedal.

CHECK : ***Does starter motor operate when ignition switch to "ON"?***

YES : Repair battery short circuit in starter motor circuit. After repair, replace ECM.

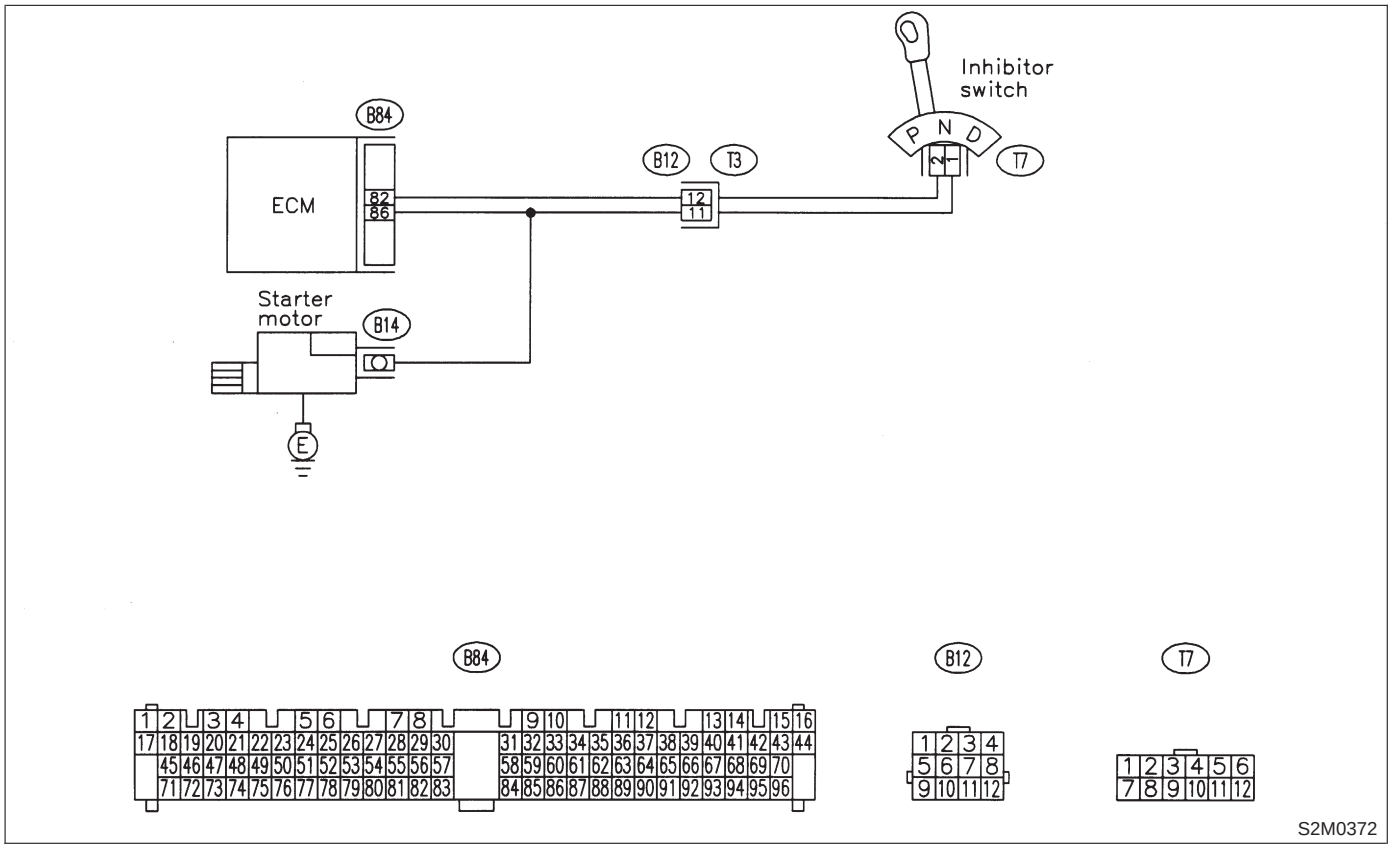
NO : Check starter motor circuit. <Ref. to 2-7 [T8B0].>

CF: DTC P1121 — NEUTRAL POSITION SWITCH CIRCUIT LOW INPUT [AT VEHICLES] —

- **DTC DETECTING CONDITION:**
  - Two consecutive driving cycles with fault
- **TROUBLE SYMPTOM:**
  - Erroneous idling

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

- **WIRING DIAGRAM:**



10CF1 : CHECK DTC P0705 ON DISPLAY.

CHECK : ***Does the Subaru select monitor or OBD-II general scan tool indicate DTC P0705?***

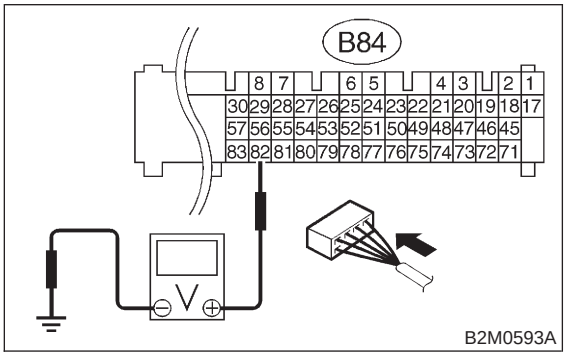
YES : Inspect DTC P0705 using “10. Diagnostics Chart with Trouble Code”. <Ref. to 2-7 [T10A0].>

NO : Go to step **10CF2**.

10CF2 : CHECK INPUT SIGNAL FOR ECM.

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

Connector & terminal
(B84) No. 82 (+) — Chassis ground (−):



CHECK : ***Is the voltage between 4.5 and 5.5 V in other positions?***

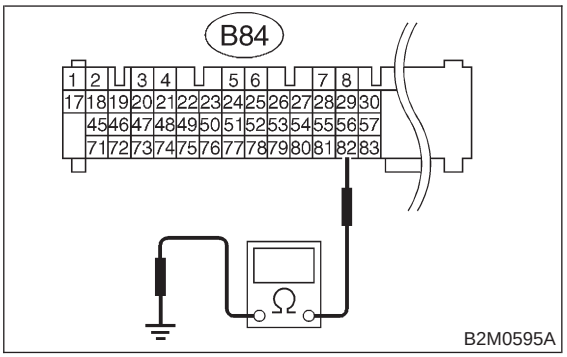
YES : Even if MIL lights up, the circuit has returned to a normal condition at this time.

NO : Go to step **10CF3**.

10CF3 : CHECK HARNESS BETWEEN ECM AND TRANSMISSION HARNESS CONNECTOR.

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

Connector & terminal
(B84) No. 82 — Chassis ground:



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

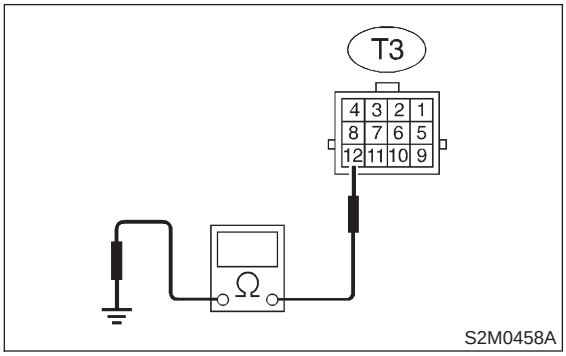
YES : Repair ground short circuit in harness between ECM and transmission harness connector.

NO : Go to step **10CF4**.

10CF4 : CHECK TRANSMISSION HARNESS CONNECTOR.

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

Connector & terminal
(T3) No. 12 — Engine ground:

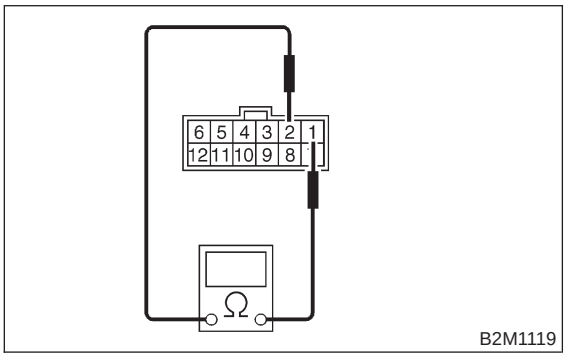


CHECK : ***Is the resistance less than 10 Ω?***
YES : Repair ground short circuit in harness between transmission harness and inhibitor switch connector.
NO : Go to step **10CF5**.

10CF5 : CHECK INHIBITOR SWITCH.

Measure resistance between inhibitor switch connector receptacle's terminals in selector lever except for "N" and "P" positions.

Terminals
No. 1 — No. 2:



CHECK : ***Is the resistance more than 1 MΩ?***
YES : Go to step **10CF6**.
NO : Replace inhibitor switch.

10CF6 : CHECK SELECTOR CABLE CONNECTION.

CHECK : ***Is there any fault in selector cable connection to inhibitor switch?***
YES : Repair selector cable connection. <Ref. to 3-2 [W3B0].>
NO : Contact with SOA service.

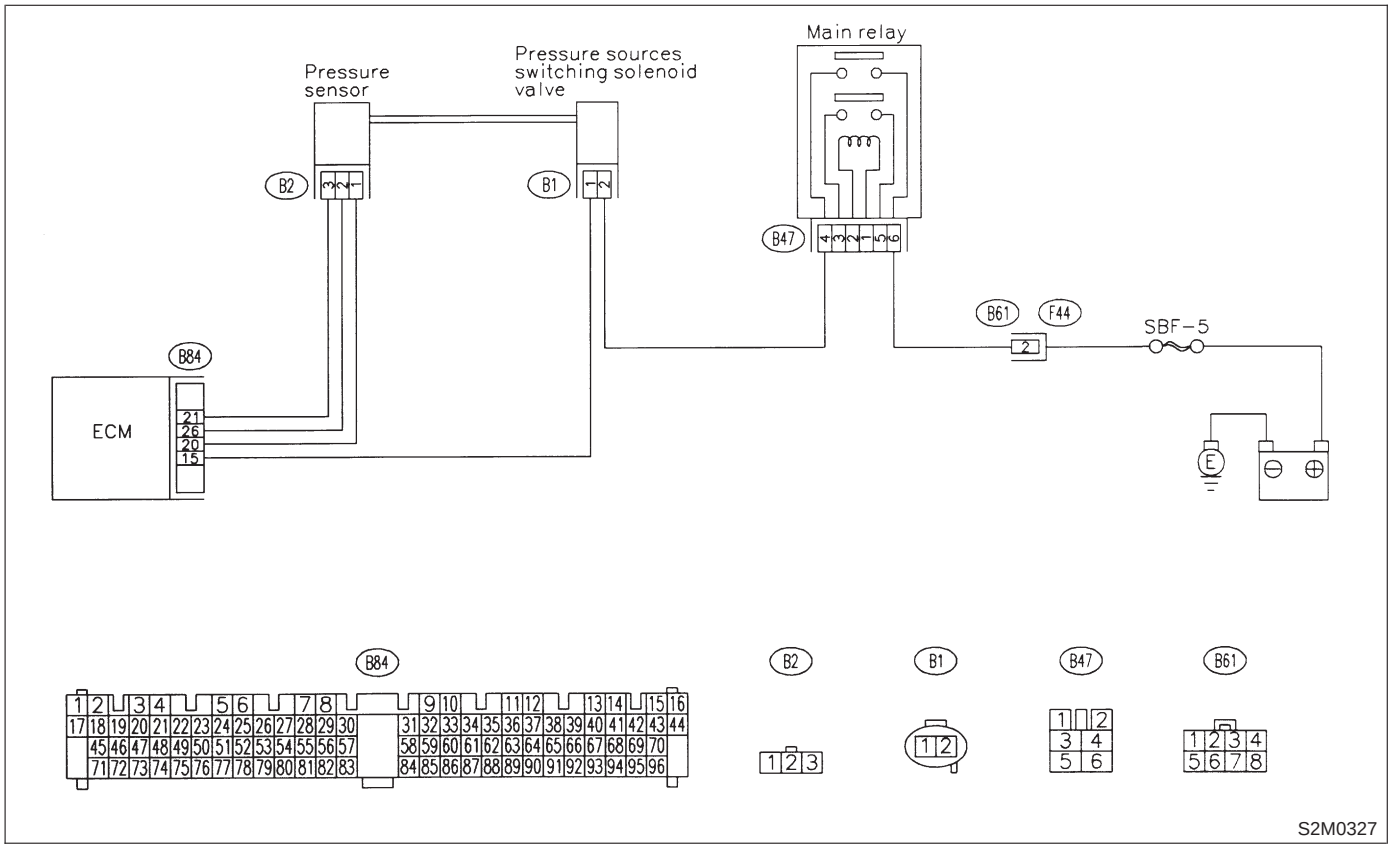
NOTE:
Inspection by DTM is required, because probable cause is deterioration of multiple parts.

CG: DTC P1122 — PRESSURE SOURCES SWITCHING SOLENOID VALVE CIRCUIT HIGH INPUT —

- **DTC DETECTING CONDITION:**
  - Two consecutive driving cycles with fault
- **TROUBLE SYMPTOM:**
  - Erroneous idling
  - Failure of engine to start

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

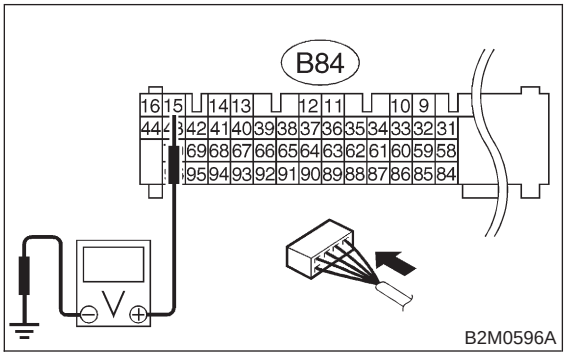
- **WIRING DIAGRAM:**



10CG1 : CHECK OUTPUT SIGNAL FROM ECM.

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

Connector & terminal
(B84) No. 15 (+) — Chassis ground (−):



CHECK : ***Is the voltage more than 10 V?***
YES : Go to step **10CG3**.
NO : Go to step **10CG2**.

10CG2 : CHECK POOR CONTACT.

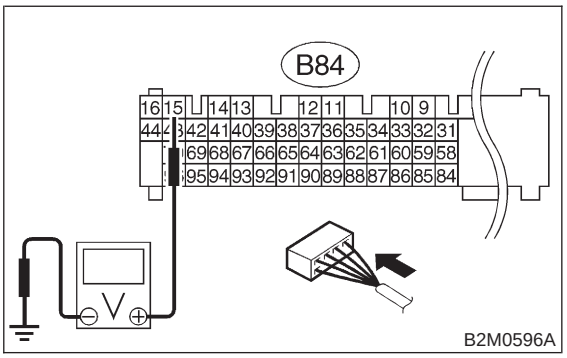
Check poor contact in ECM connector. <Ref. to FOREWORD [T3C1].>

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

10CG3 : CHECK HARNESS BETWEEN ECM AND PRESSURE SOURCES SWITCHING SOLENOID VALVE CONNECTOR.

1) Turn ignition switch to OFF.
2) Disconnect connector from pressure sources switching solenoid valve.
3) Turn ignition switch to ON.
4) Measure voltage between ECM and chassis ground.

Connector & terminal
(B84) No. 15 (+) — Chassis ground (−):

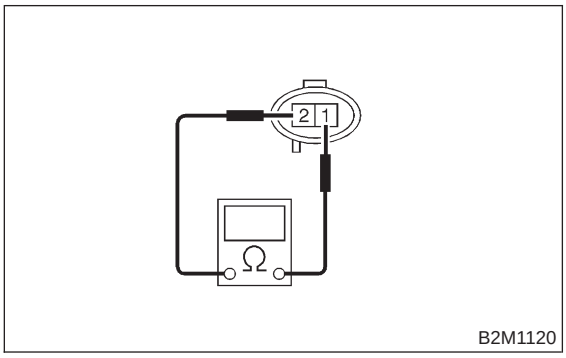


CHECK : ***Is the voltage more than 10 V?***
YES : Repair battery short circuit in harness between ECM and pressure sources switching solenoid valve connector. After repair, replace ECM.
NO : Go to step **10CG4**.

10CG4 : CHECK PRESSURE SOURCES SWITHING SOLENOID VALVE.

1) Turn ignition switch to OFF.
2) Measure resistance between pressure sources switching solenoid valve connector terminals.

Terminals
No. 1 — No. 2:



CHECK : ***Is the resistance less than 1 Ω?***
YES : Replace pressure sources switching solenoid valve and ECM.
NO : Go to step **10CG5**.

10CG5 : CHECK POOR CONTACT.

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

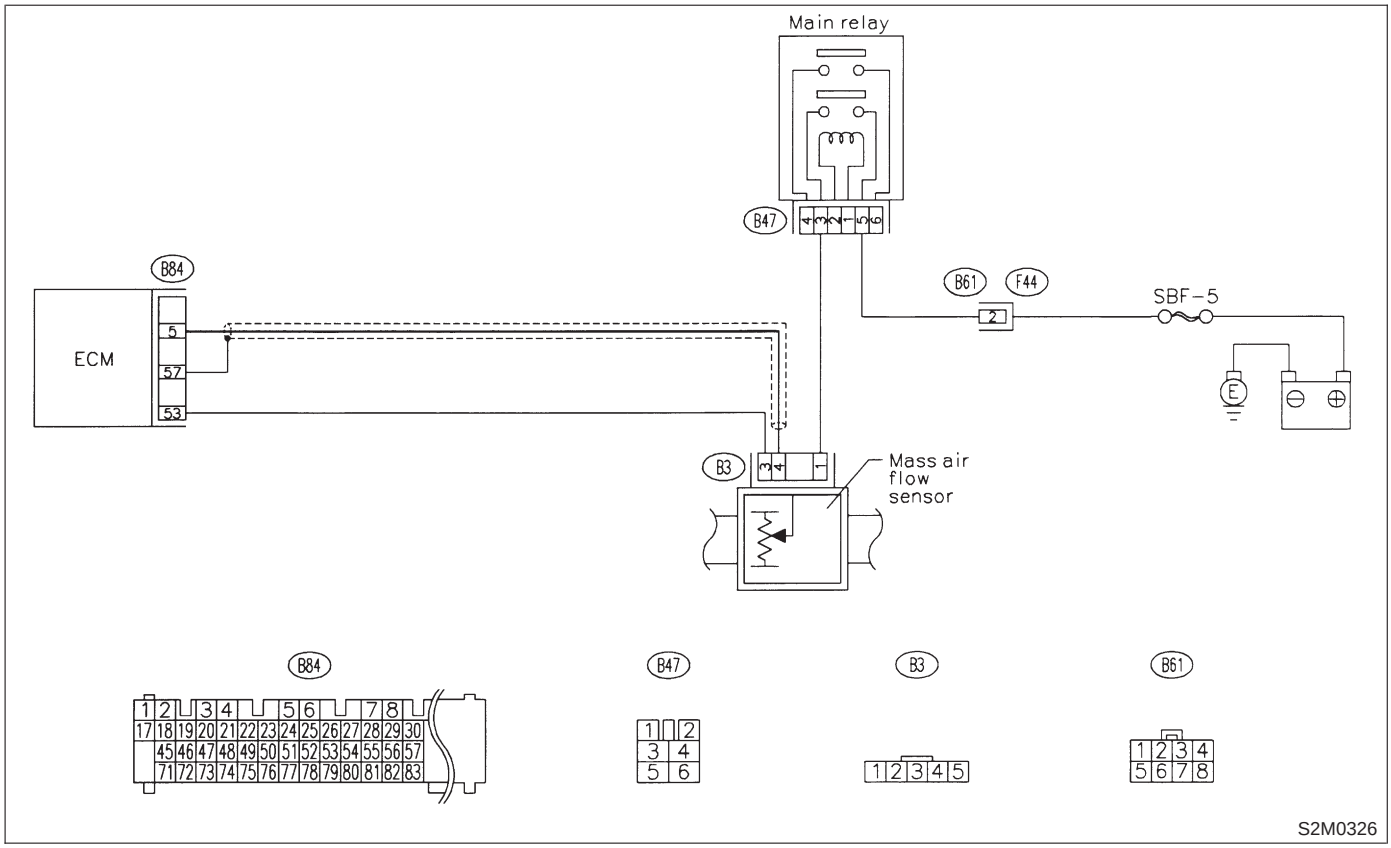
CHECK : ***Is there poor contact in ECM connector?***
YES : Repair poor contact in ECM connector.
NO : Replace ECM.

CH: DTC P1141 — MASS AIR FLOW SENSOR CIRCUIT RANGE/PERFORMANCE PROBLEM (HIGH INPUT) —

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

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

- **WIRING DIAGRAM:**



10CH1 : CHECK ANY OTHER DTC ON DISPLAY.

CHECK : ***Does the Subaru select monitor or OBD-II general scan tool indicate DTC P0102 or P0103?***

YES : Inspect DTC P0102 or P0103 using “10. Diagnostics Chart with Trouble Code”. <Ref. to 2-7 [T10A0].>

NOTE:
In this case, it is not necessary to inspect DTC P1141.

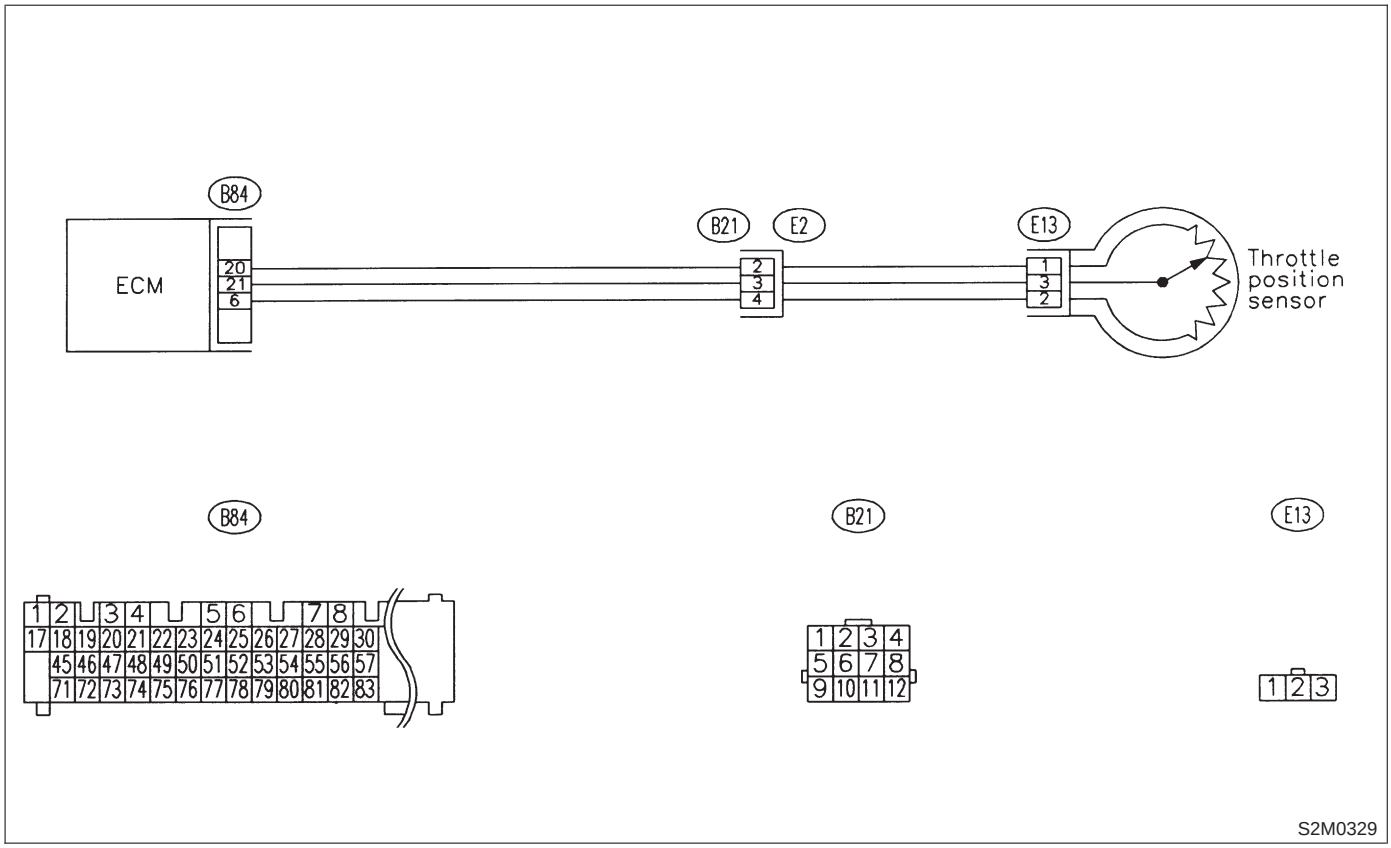
NO : Replace mass air flow sensor.

CI: DTC P1142 — THROTTLE POSITION SENSOR CIRCUIT RANGE/PERFORMANCE PROBLEM (LOW INPUT) —

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

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

- **WIRING DIAGRAM:**



10CI1 :	CHECK ANY OTHER DTC ON DISPLAY.

CHECK : ***Does the Subaru select monitor or OBD-II general scan tool indicate DTC P0122 or P0123?***

YES : Inspect DTC P0122 or P0123 using “10. Diagnostics Chart with Trouble Code”. <Ref. to 2-7 [T10A0].>

NOTE:
In this case, it is not necessary to inspect DTC P1142.

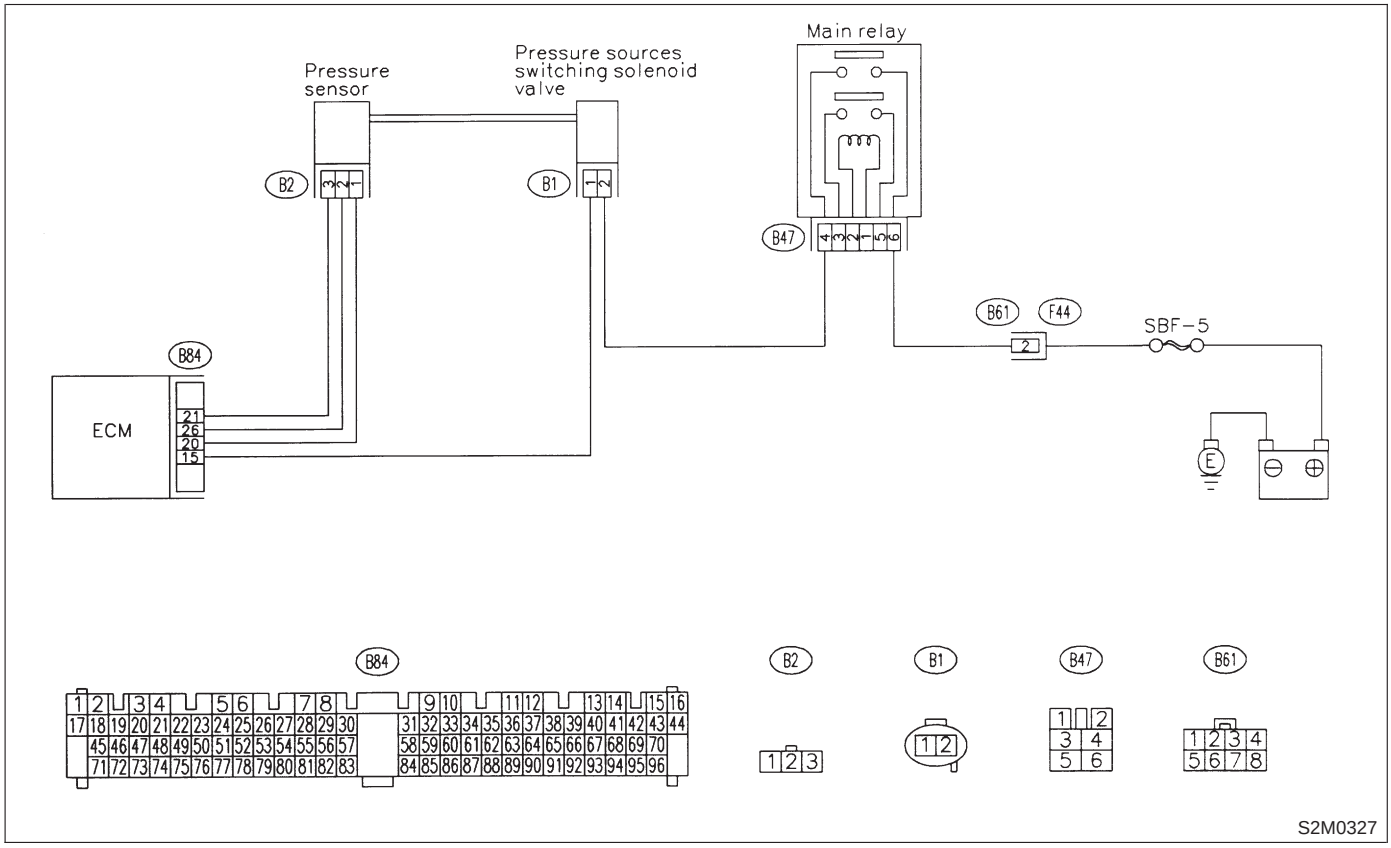
NO : Replace throttle position sensor.

CJ: DTC P1143 — PRESSURE SENSOR CIRCUIT RANGE/PERFORMANCE PROBLEM (LOW INPUT) —

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

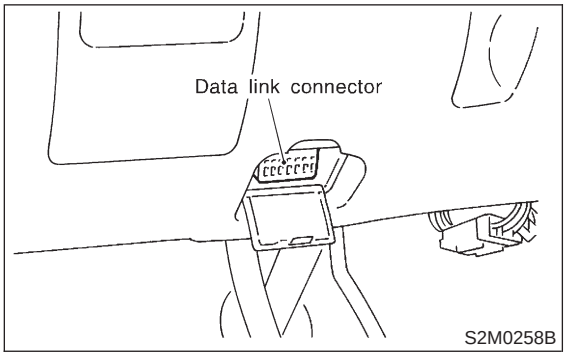
CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY and INSPECTION MODES. <Ref. to 2-7 [T3D0] and [T3E0].>

- **WIRING DIAGRAM:**



10CJ1 : CHECK DATA FOR CONTROL.

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



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

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

CHECK : ***Is the value less than 32 kPa (240 mmHg, 9.45 inHg)?***
YES : Go to step **10CJ3**.
NO : Go to step **10CJ2**.

10CJ2 : CHECK PRESSURE SENSOR.

1) Measure actual atmospheric pressure.
2) Read data of atmospheric absolute pressure signal using Subaru Select Monitor or OBD-II general scan tool.

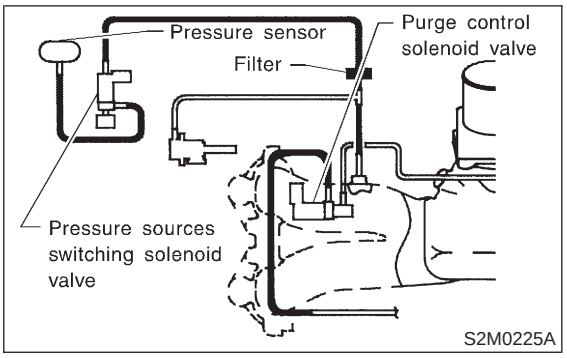
NOTE:
● Subaru Select Monitor
For detailed operation procedure, refer to the "READ CURRENT DATA SHOWN ON DISPLAY FOR ENGINE". <Ref. to 2-7 [T3C4].>

CHECK : ***Is the difference between absolute value of Subaru Selector Monitor indication and actual atmospheric pressure greater than 10 kPa (75 mmHg, 2.95 inHg)?***
YES : Replace pressure sensor.
NO : Even if MIL lights up, the circuit has returned to a normal condition at this time. Contact with SOA service.

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

10CJ3 : CHECK VACUUM HOSES.

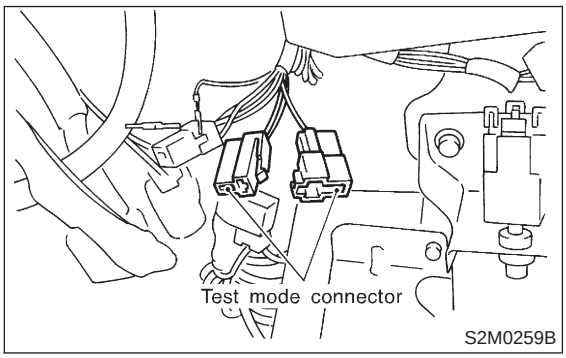
Check the following item. Incorrect hose connections in line between the pressure sources switching solenoid valve and pressure sensor, intake manifold and/or CPC solenoid valve.



CHECK : ***Is there a fault in vacuum hose?***
YES : Repair or replace hoses or filter.
NO : Go to step **10CJ4**.

10CJ4 : CHECK PRESSURE SOURCES SWITCHING SOLENOID VALVE.

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



3) Turn ignition switch to ON.

NOTE:
Pressure sources switching solenoid valve operation check can also be executed using Subaru Select Monitor. For the procedure, refer to the "COMPULSORY VALVE OPERATION CHECK MODE". <Ref. to 2-7 [T3F0].>

CHECK : ***Does pressure sources switching solenoid valve produce operating sound? (ON ⟷ OFF each 1.5 sec.)***

YES : Replace pressure sensor.

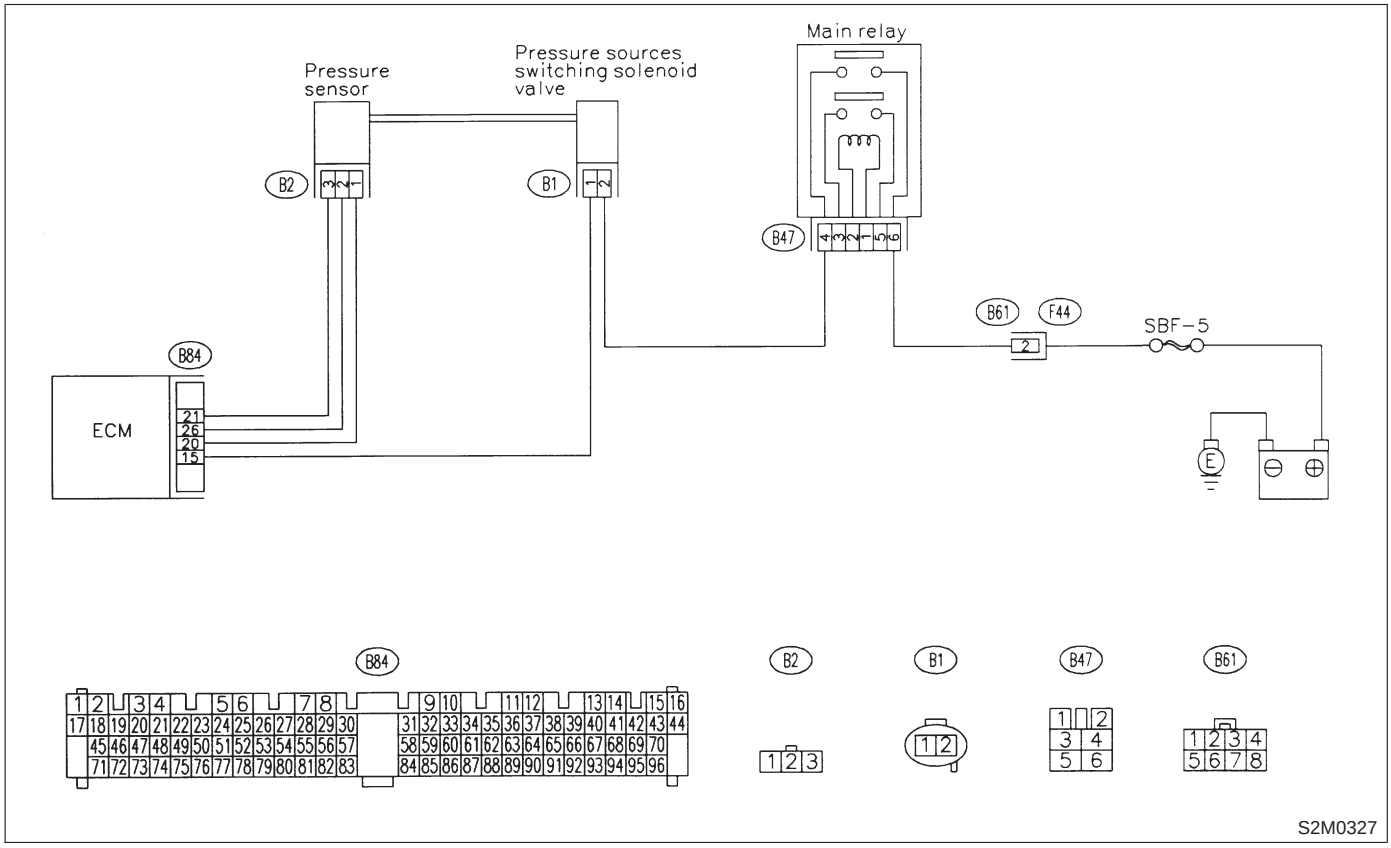
NO : Replace pressure sources switching solenoid valve.

CK: DTC P1144 — PRESSURE SENSOR CIRCUIT RANGE/PERFORMANCE PROBLEM (HIGH INPUT) —

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

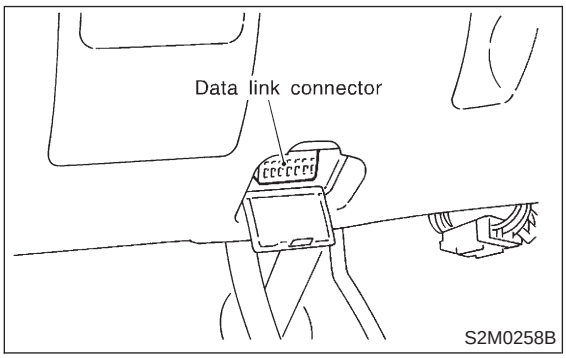
CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY and INSPECTION MODES. <Ref. to 2-7 [T3D0] and [T3E0].>

- **WIRING DIAGRAM:**



10CK1 : CHECK DATA FOR CONTROL.

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



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

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

CHECK : ***Is the value more than 133 kPa (998 mmHg, 39.29 inHg)?***
YES : Replace pressure sensor.
NO : Even if MIL lights up, the circuit has returned to a normal condition at this time. Contact with SOA service.

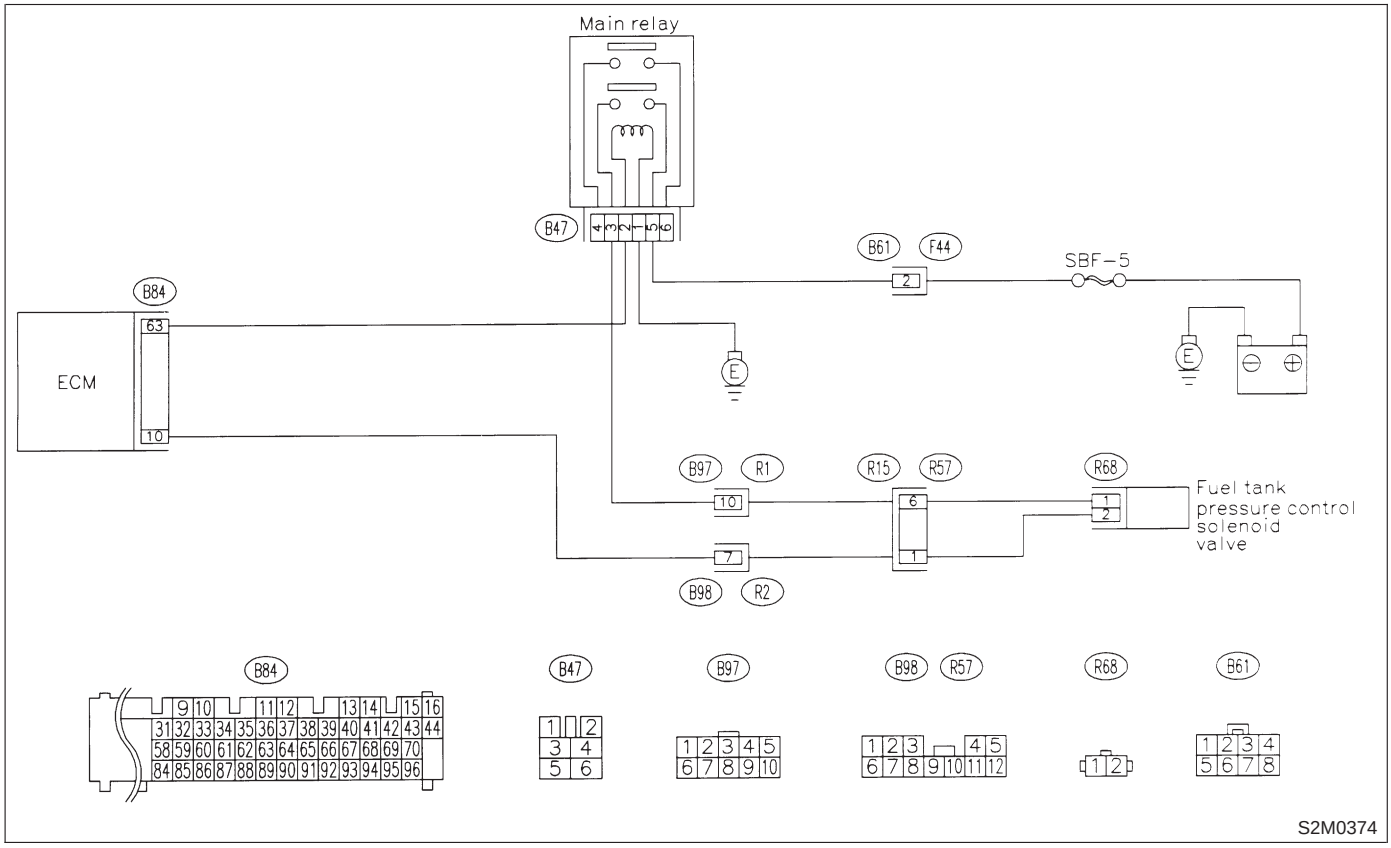
NOTE:
Inspection by DTM is required, because probable cause is deterioration of multiple parts.

CL: DTC P1400 — FUEL TANK PRESSURE CONTROL SOLENOID VALVE CIRCUIT LOW INPUT —

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

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

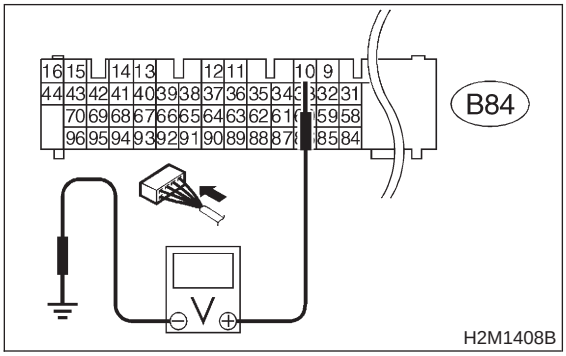
- **WIRING DIAGRAM:**



10CL1 : CHECK OUTPUT SIGNAL FROM ECM.

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

Connector & terminal
(B84) No. 10 (+) — Chassis ground (−):



CHECK : ***Is the voltage more than 10 V?***
YES : Go to step **10CL2**.
NO : Go to step **10CL3**.

10CL2 : CHECK POOR CONTACT.

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

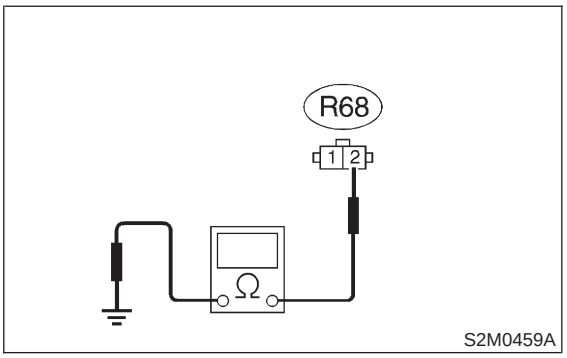
CHECK : ***Is there poor contact in ECM connector?***
YES : Repair poor contact in ECM connector.
NO : Contact with SOA service.

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

10CL3 : CHECK HARNESS BETWEEN FUEL TANK PRESSURE CONTROL SOLENOID VALVE AND ECM CONNECTOR.

1) Turn ignition switch to OFF.
2) Disconnect connectors from fuel tank pressure control solenoid valve and ECM.
3) Measure resistance of harness between fuel tank pressure control solenoid valve connector and chassis ground.

Connector & terminal
(R68) No. 2 — Chassis ground:

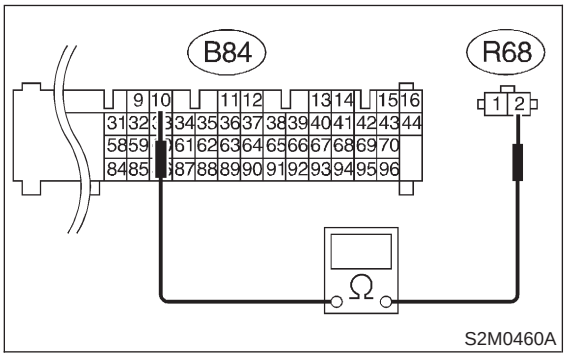


CHECK : ***Is the resistance less than 10 Ω?***
YES : Repair ground short circuit in harness between ECM and fuel tank pressure control solenoid valve connector.
NO : Go to step **10CL4**.

10CL4 : CHECK HARNESS BETWEEN FUEL TANK PRESSURE CONTROL SOLENOID VALVE AND ECM CONNECTOR.

Measure resistance of harness between ECM and fuel tank pressure control solenoid valve connector.

Connector & terminal
(B84) No. 10 — (R68) No. 2:



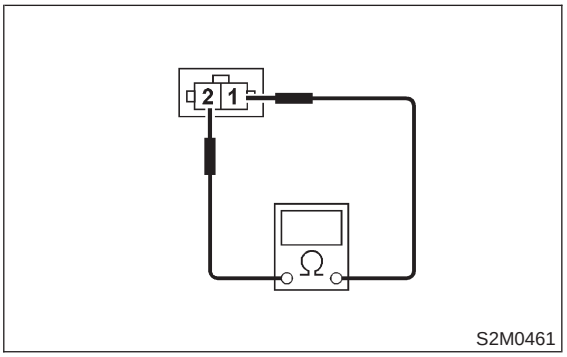
CHECK : ***Is the voltage less than 1 Ω?***
YES : Go to step **10CL5**.
NO : Repair harness and connector.

NOTE:
In this case, repair the following:
● Open circuit in harness between ECM and fuel tank pressure control solenoid valve connector
● Poor contact in coupling connectors (B98 and R57)

10CL5 : CHECK FUEL TANK PRESSURE CONTROL SOLENOID VALVE.

Measure resistance between fuel tank pressure control solenoid valve terminals.

Terminals
No. 1 — No. 2:

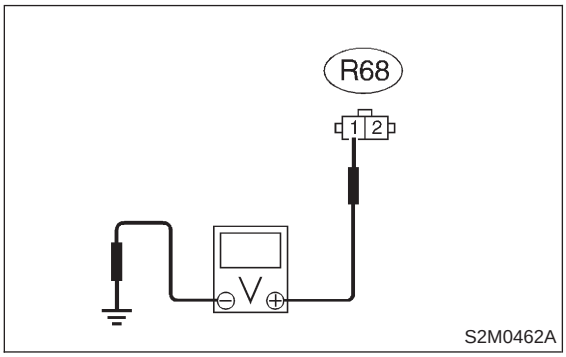


CHECK : ***Is the resistance between 10 and 100 Ω?***
YES : Go to step **10CL6**.
NO : Replace fuel tank pressure control solenoid valve.

10CL6 : CHECK POWER SUPPLY TO FUEL TANK PRESSURE CONTROL SOLENOID VALVE.

1) Turn ignition switch to ON.
2) Measure voltage between fuel tank pressure control solenoid valve and chassis ground.

Connector & terminal
(R68) No. 1 (+) — Chassis ground (−):



CHECK : ***Is the voltage more than 10 V?***
YES : Go to step **10CL7**.
NO : Repair harness and connector.

NOTE:
In this case, repair the following:
- Open circuit in harness between main relay and fuel tank pressure control solenoid valve connector
- Poor contact in coupling connectors (B97 and R57)
- Poor contact in main relay connector

10CL7 : CHECK POOR CONTACT.

Check poor contact in fuel tank pressure control solenoid valve connector. <Ref. to FOREWORD [T3C1].>

CHECK : ***Is there poor contact in fuel tank pressure control solenoid valve connector?***
YES : Repair poor contact in fuel tank pressure control solenoid valve connector.
NO : Contact with SOA service.

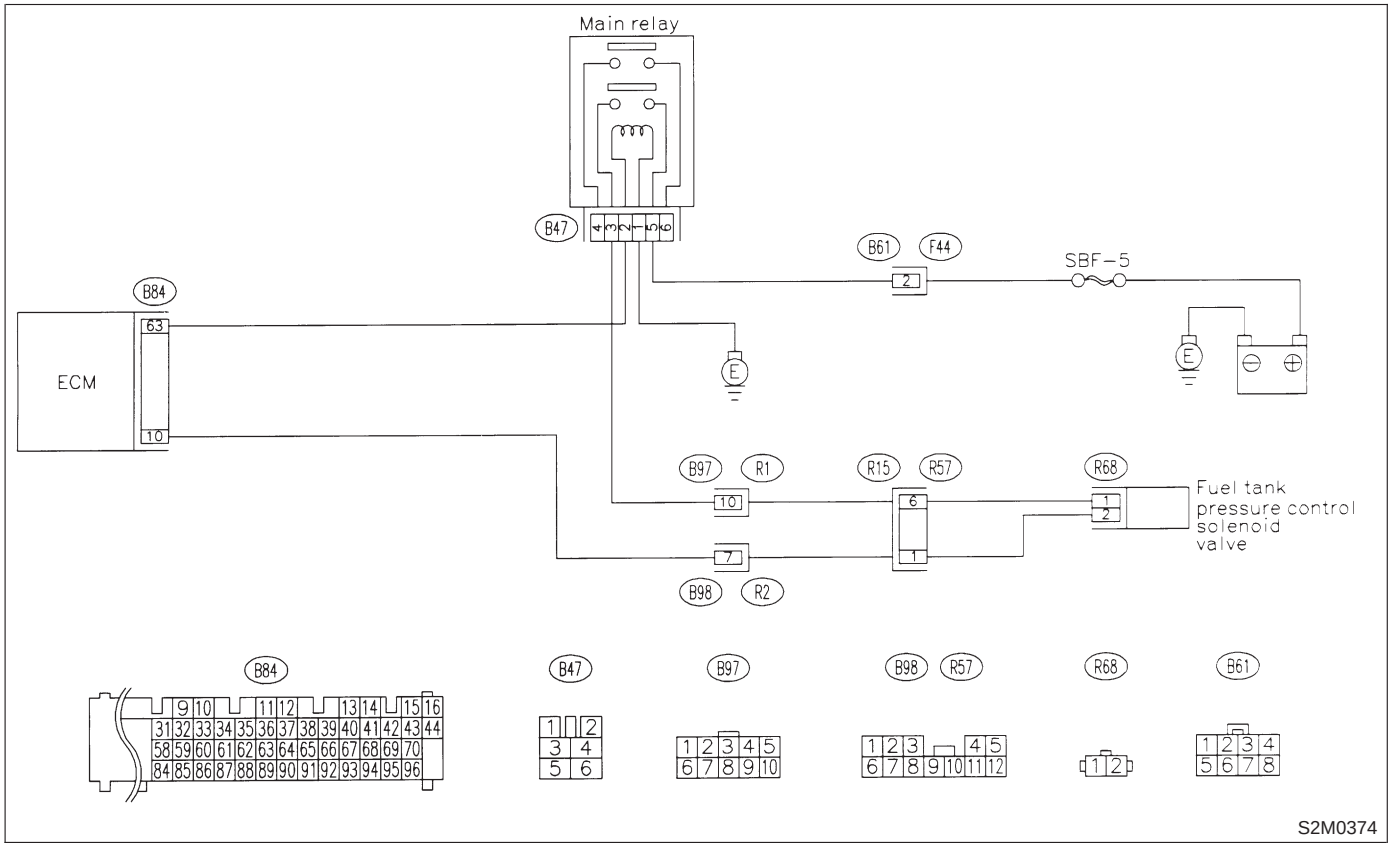
NOTE:
Inspection by DTM is required, because probable cause is deterioration of multiple parts.

CM: DTC P1420 — FUEL TANK PRESSURE CONTROL SOLENOID VALVE CIRCUIT HIGH INPUT —

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

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

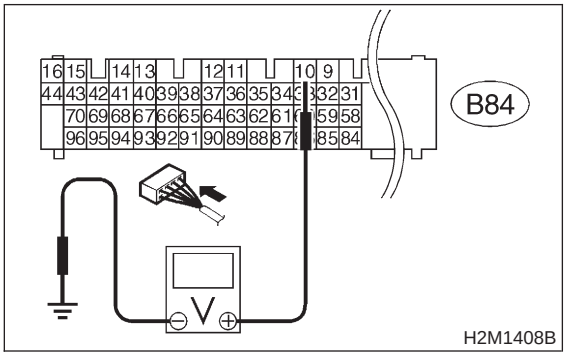
- **WIRING DIAGRAM:**



10CM1 : CHECK OUTPUT SIGNAL FROM ECM.

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

Connector & terminal
(B84) No. 10 (+) — Chassis ground (−):



CHECK : ***Is the voltage more than 10 V?***
YES : Go to step **10CM3**.
NO : Go to step **10CM2**.

10CM2 : CHECK POOR CONTACT.

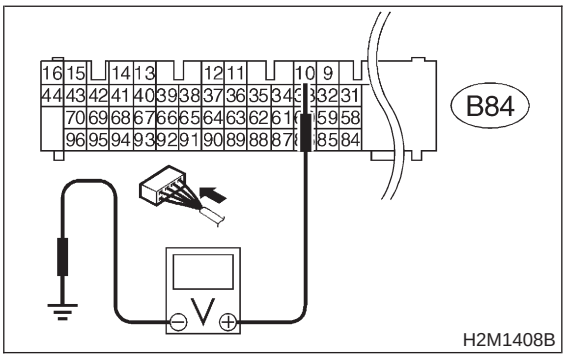
Check poor contact in ECM connector. <Ref. to FOREWORD [T3C1].>

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

10CM3 : CHECK HARNESS BETWEEN FUEL TANK PRESSURE CONTROL SOLENOID VALVE AND ECM CONNECTOR.

1) Turn ignition switch to OFF.
2) Disconnect connector from fuel tank pressure control solenoid valve.
3) Turn ignition switch to ON.
4) Measure voltage between ECM and chassis ground.

Connector & terminal
(B84) No. 10 (+) — Chassis ground (−):

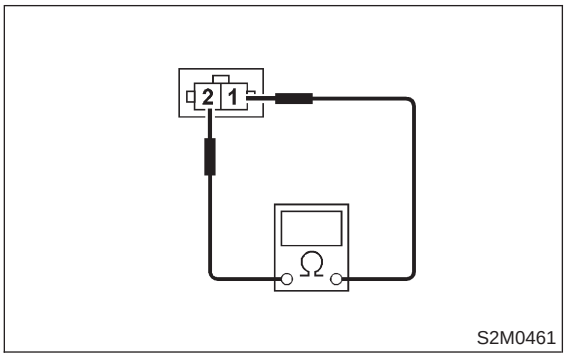


CHECK : ***Is the voltage more than 10 V?***
YES : Repair battery short circuit in harness between ECM and fuel tank pressure control solenoid valve connector. After repair, replace ECM.
NO : Go to step **10CM4**.

10CM4 : CHECK FUEL TANK PRESSURE CONTROL SOLENOID VALVE.

1) Turn ignition switch to OFF.
2) Measure resistance between fuel tank pressure control solenoid valve terminals.

Terminals
No. 1 — No. 2:



CHECK : ***Is the resistance less than 1 Ω?***
YES : Replace fuel tank pressure control solenoid valve and ECM.
NO : Go to step **10CM5**.

10CM5 : CHECK POOR CONTACT.

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

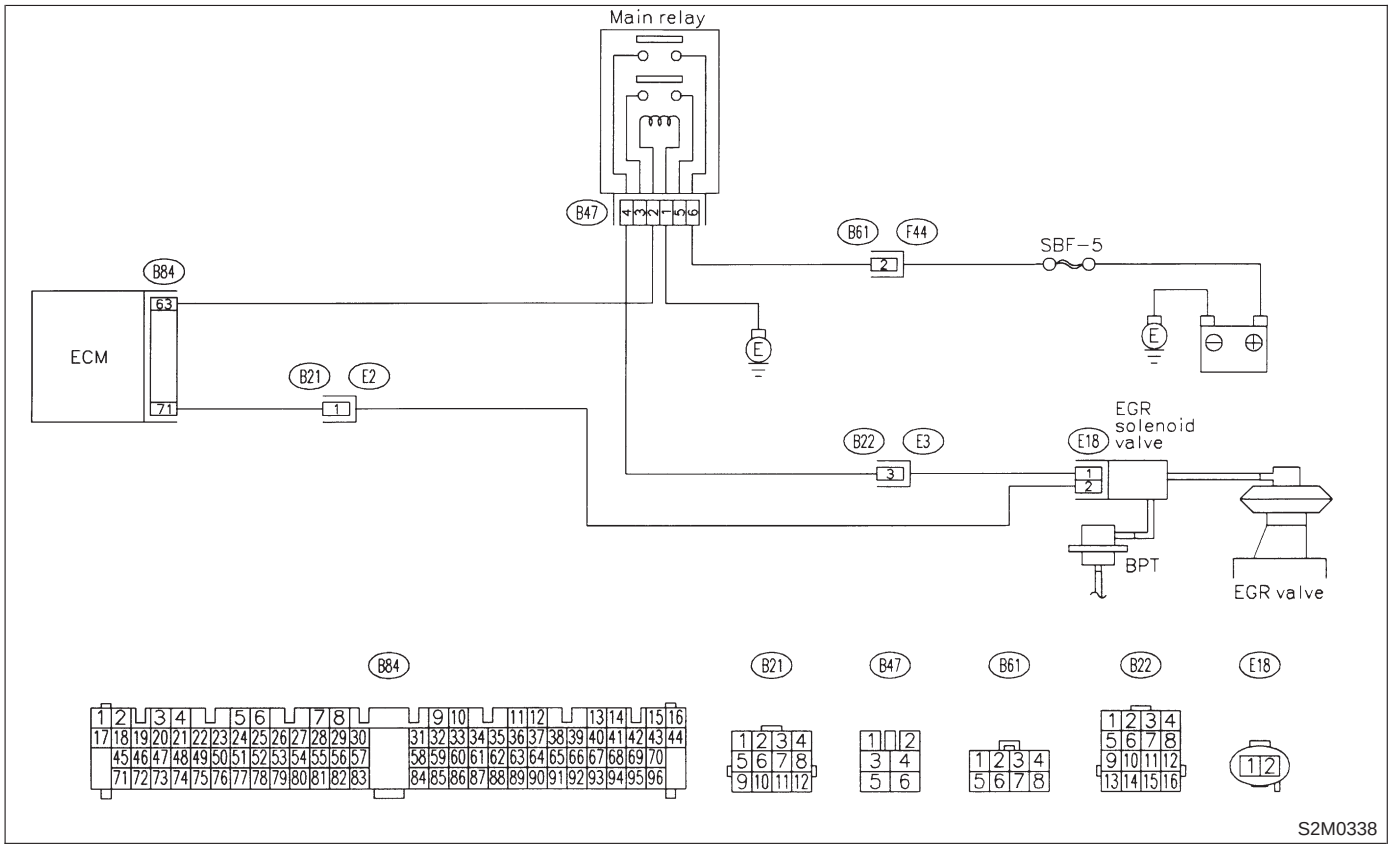
CHECK : ***Is there poor contact in ECM connector?***
YES : Repair poor contact in ECM connector.
NO : Replace ECM.

CN: DTC P1421 — EXHAUST GAS RECIRCULATION CIRCUIT HIGH INPUT —

- **DTC DETECTING CONDITION:**
  - Two consecutive driving cycles 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 2-7 [T3D0] and [T3E0].>

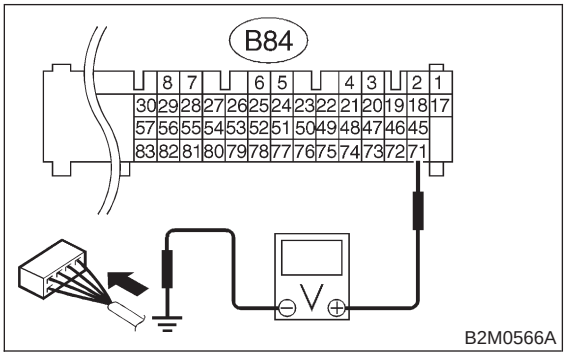
- **WIRING DIAGRAM:**



10CN1 : CHECK OUTPUT SIGNAL FROM ECM.

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

Connector & terminal
(B84) No. 71 (+) — Chassis ground (−):



CHECK : ***Is the voltage more than 10 V?***
YES : Go to step **10CN3**.
NO : Go to step **10CN2**.

10CN2 : CHECK POOR CONTACT.

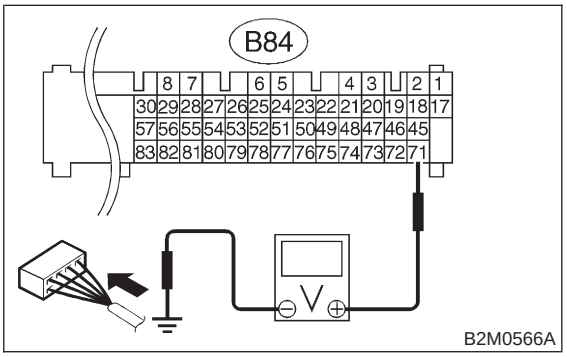
Check poor contact in ECM connector. <Ref. to FOREWORD [T3C1].>

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

10CN3 : CHECK HARNESS BETWEEN EGR SOLENOID VALVE AND ECM CONNECTOR.

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 chassis ground.

Connector & terminal
(B84) No. 71 (+) — Chassis ground (−):

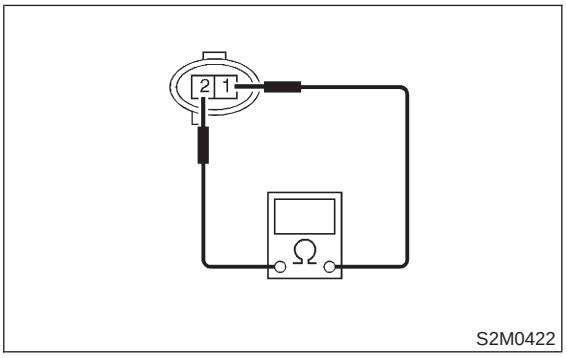


CHECK : ***Is the voltage more than 10 V?***
YES : Repair battery short circuit in harness between ECM and EGR solenoid valve connector. After repair, replace ECM.
NO : Go to step **10CN4**.

10CN4 : CHECK EGR SOLENOID VALVE.

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

Terminals
No. 1 — No. 2:



CHECK : ***Is the resistance less than 1 Ω?***
YES : Replace EGR solenoid valve and ECM.
NO : Go to step **10CN5**.

10CN5 : CHECK POOR CONTACT.

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

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

YES : Repair poor contact in ECM connector.

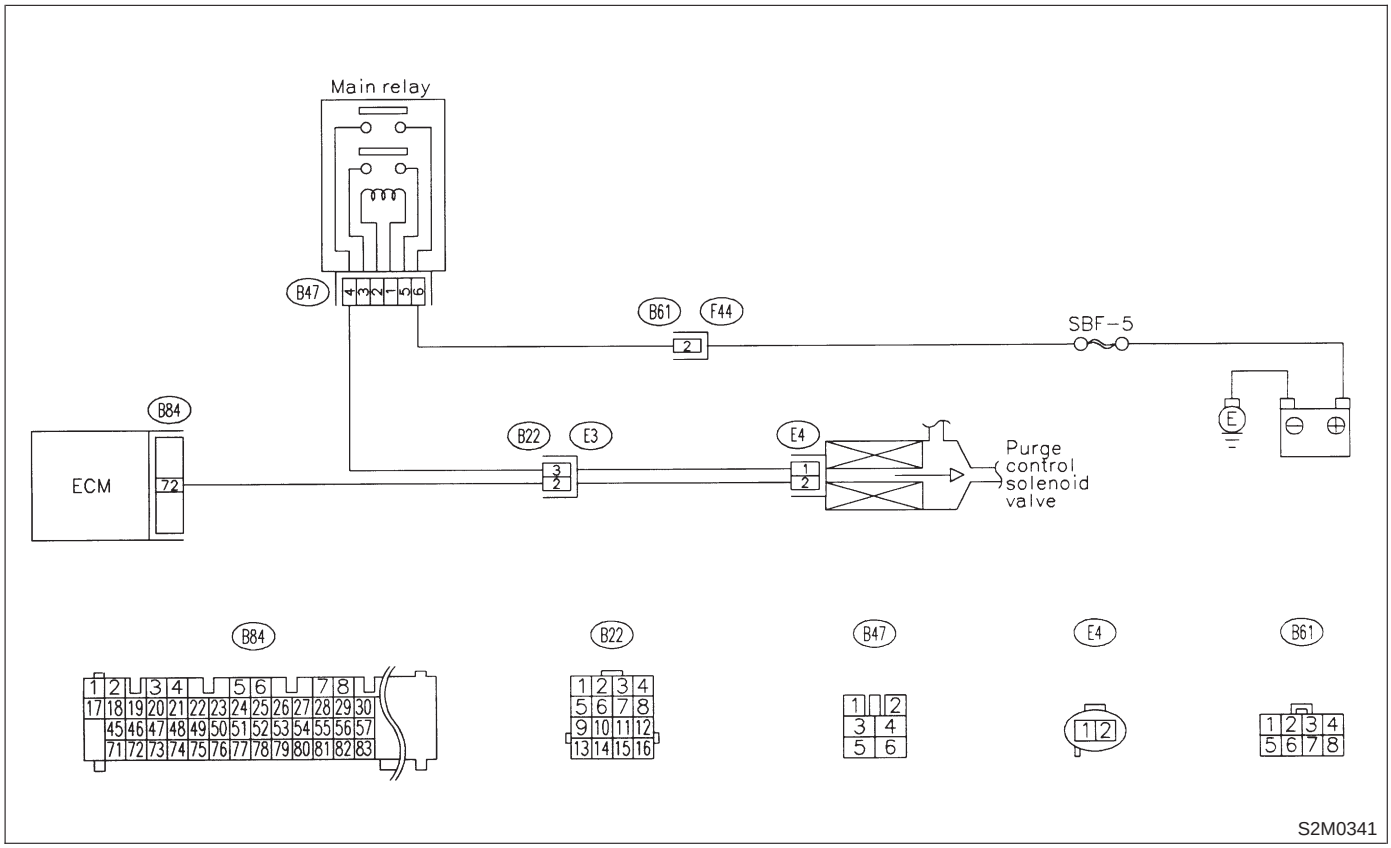
NO : Replace ECM.

CO: DTC P1422 — EVAPORATIVE EMISSION CONTROL SYSTEM PURGE CONTROL VALVE CIRCUIT HIGH INPUT —

- **DTC DETECTING CONDITION:**
  - Two consecutive driving cycles with fault
- **TROUBLE SYMPTOM:**
  - Erroneous idling

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

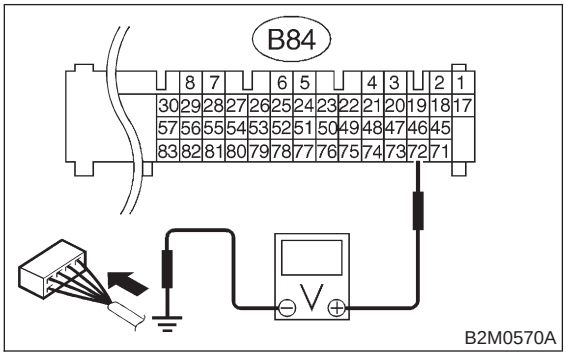
- **WIRING DIAGRAM:**



10CO1 : CHECK OUTPUT SIGNAL FROM ECM.

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

Connector & terminal
(B84) No. 72 (+) — Chassis ground (−):



CHECK : ***Is the voltage more than 10 V?***
YES : Go to step **10CO3**.
NO : Go to step **10CO2**.

10CO2 : CHECK POOR CONTACT.

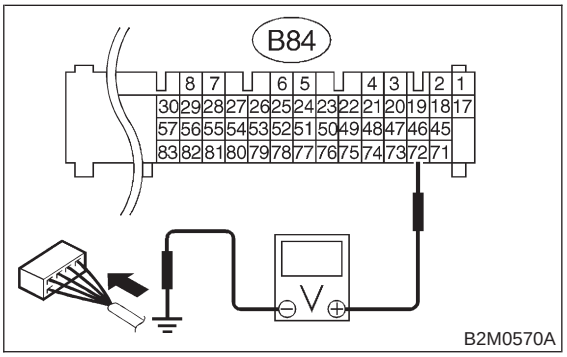
Check poor contact in ECM connector. <Ref. to FOREWORD [T3C1].>

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

10CO3 : CHECK HARNESS BETWEEN PURGE CONTROL SOLENOID VALVE AND ECM CONNECTOR.

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

Connector & terminal
(B84) No. 72 (+) — Chassis ground (−):

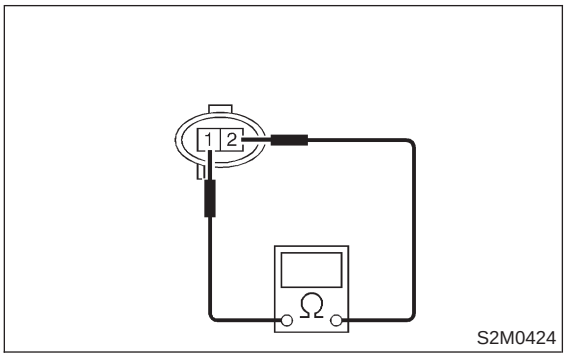


CHECK : ***Is the voltage more than 10 V?***
YES : Repair battery short circuit in harness between ECM and purge control solenoid valve connector. After repair, replace ECM.
NO : Go to step **10CO4**.

10CO4 : CHECK PURGE CONTROL SOLENOID VALVE.

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

Terminals
No. 1 — No. 2:



CHECK : ***Is the resistance less than 1 Ω?***
YES : Replace purge control solenoid valve and ECM.
NO : Go to step **10CO5**.

10CO5 : CHECK POOR CONTACT.

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

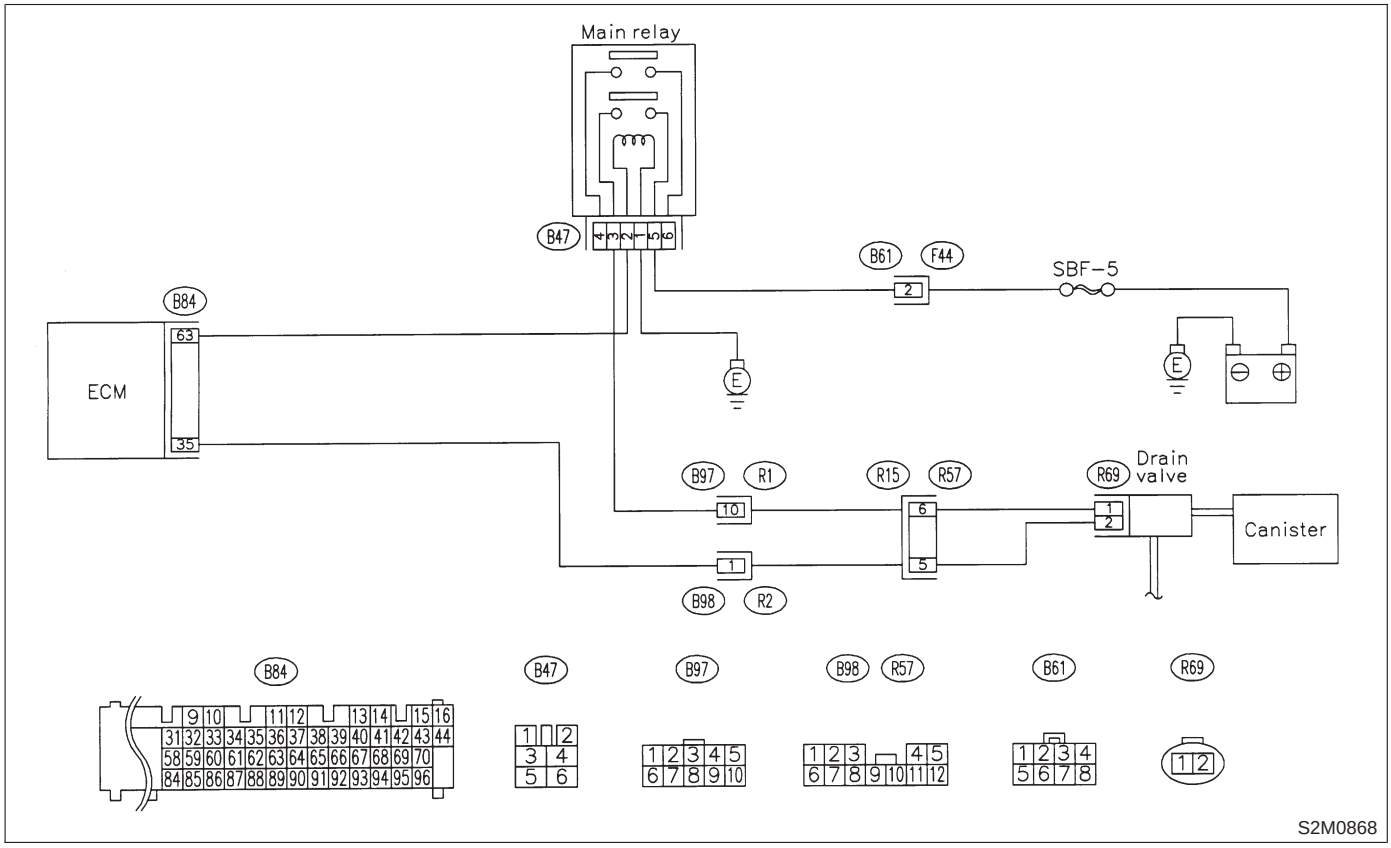
CHECK : ***Is there poor contact in ECM connector?***
YES : Repair poor contact in ECM connector.
NO : Replace ECM.

CP: DTC P1423 — EVAPORATIVE EMISSION CONTROL SYSTEM VENT CONTROL HIGH INPUT —

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

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

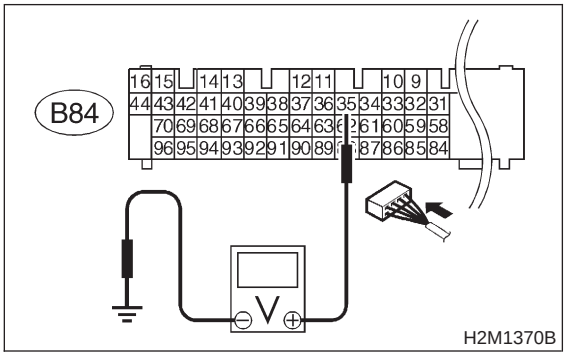
- **WIRING DIAGRAM:**



10CP1 : CHECK OUTPUT SIGNAL FROM ECM.

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

Connector & terminal
(B84) No. 35 (+) — Chassis ground (−):



CHECK : ***Is the voltage more than 10 V?***
YES : Go to step **10CP3**.
NO : Go to step **10CP2**.

10CP2 : CHECK POOR CONTACT.

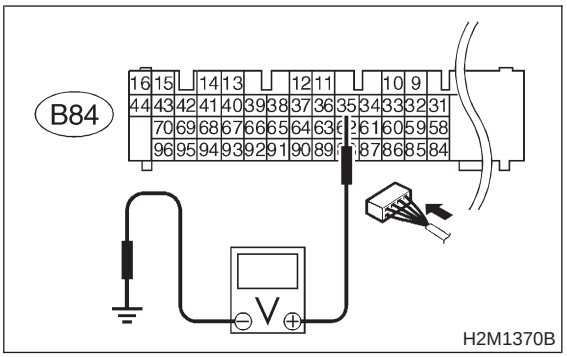
Check poor contact in ECM connector. <Ref. to FOREWORD [T3C1].>

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

10CP3 : CHECK HARNESS BETWEEN DRAIN VALVE AND ECM CONNECTOR.

1) Turn ignition switch to OFF.
2) Disconnect connector from drain valve.
3) Turn ignition switch to ON.
4) Measure voltage between ECM and chassis ground.

Connector & terminal
(B84) No. 35 (+) — Chassis ground (−):

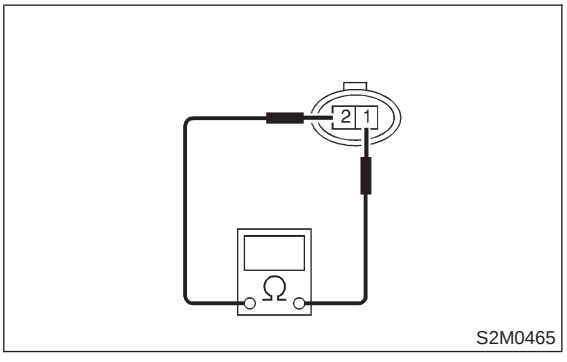


CHECK : ***Is the voltage more than 10 V?***
YES : Repair battery short circuit in harness between ECM and drain valve connector. After repair, replace ECM.
NO : Go to step **10CP4**.

10CP4 : CHECK DRAIN VALVE.

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

Terminals
No. 1 — No. 2:



CHECK : ***Is the resistance less than 1 Ω?***
YES : Replace drain valve and ECM.
NO : Go to step **10CP5**.

10CP5 : CHECK POOR CONTACT.

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

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

YES : Repair poor contact in ECM connector.

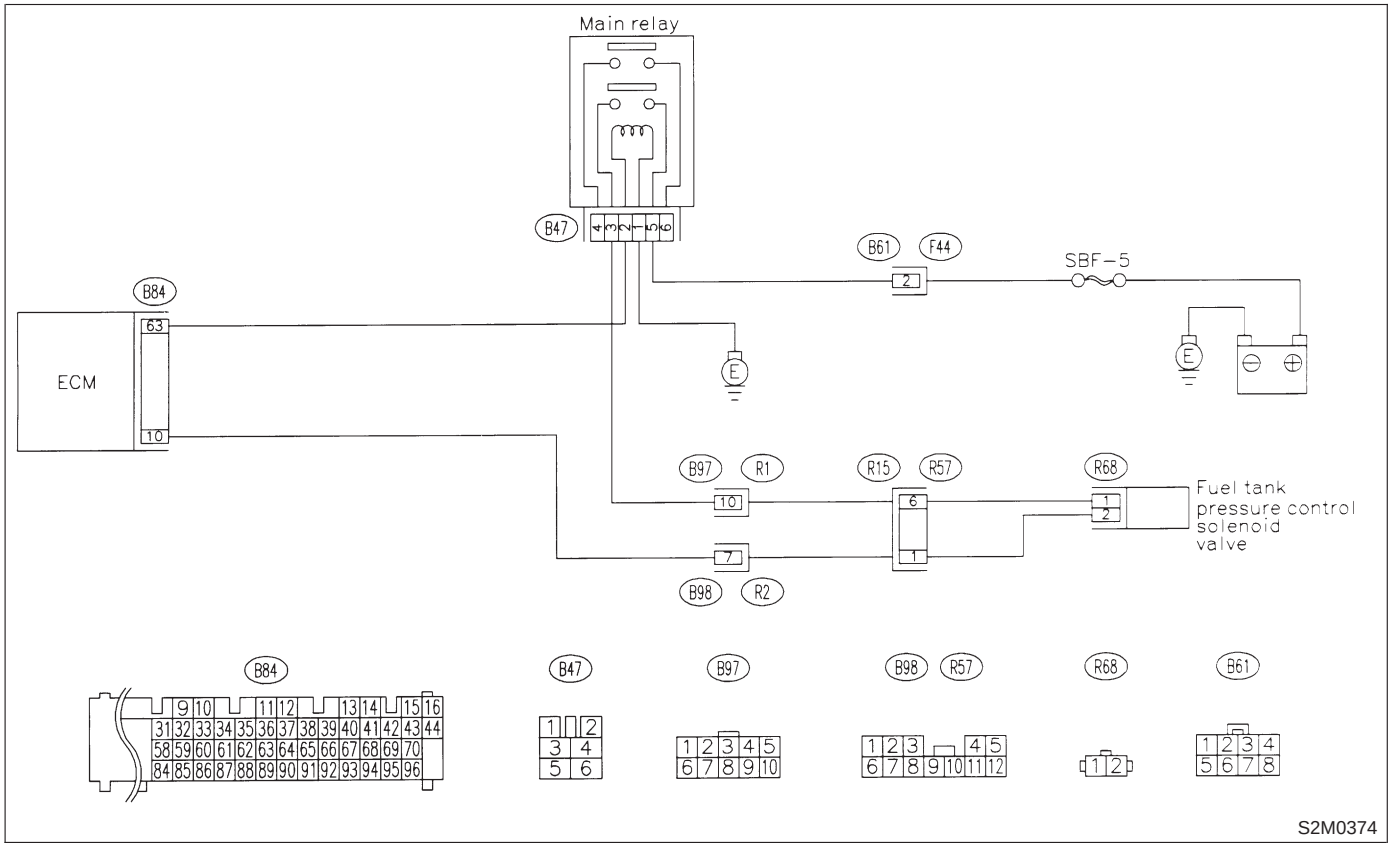
NO : Replace ECM.

CQ: DTC P1440 — FUEL TANK PRESSURE CONTROL SYSTEM FUNCTION PROBLEM (LOW INPUT) —

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

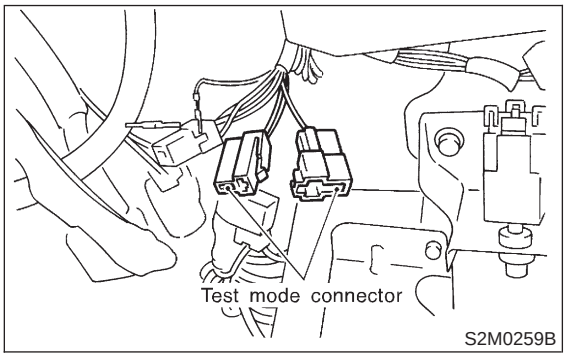
CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to 2-7 [T3D0].> and INSPECTION MODE <Ref. to 2-7 [T3E0].>.

- **WIRING DIAGRAM:**



10CQ1 : CHECK FUEL TANK PRESSURE CONTROL SOLENOID VALVE.

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



3) Turn ignition switch to ON.

NOTE:
Fuel tank pressure control solenoid valve operation check can also be executed using Subaru Select Monitor. For the procedure, refer to the "COMPULSORY VALVE OPERATION CHECK MODE". <Ref. to 2-7 [T3F0].>

CHECK : ***Does fuel tank pressure control solenoid valve produce operating sound?***
YES : Go to step **10CQ2**.
NO : Replace fuel tank pressure control solenoid valve.

10CQ2 : CHECK FUEL FILLER CAP.

1) Turn ignition switch to OFF.
2) Open the fuel flap.

CHECK : ***Is the fuel filler cap tightened securely?***
YES : Tighten fuel filler cap securely.
NO : Go to step **10CQ3**.

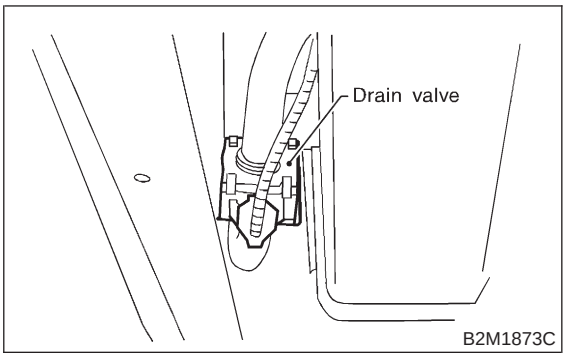
10CQ3 : CHECK FUEL FILLER PIPE SEAL.

CHECK : ***Is there any damage to the seal between fuel filler cap and fuel filler pipe?***
YES : Repair or replace fuel filler cap and fuel filler pipe.
NO : Go to step **10CQ4**.

10CQ4 : CHECK DRAIN VALVE.

Turn ignition switch to ON.

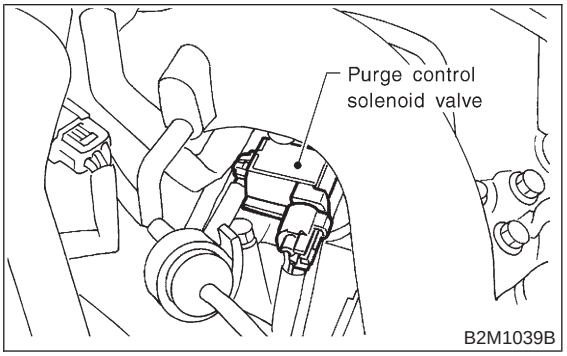
NOTE:
Drain valve operation check can also be executed using Subaru Select Monitor. For the procedure, refer to "COMPULSORY VALVE OPERATION CHECK MODE". <Ref. to 2-7 [T3F0].>



CHECK : ***Does drain valve produce operating sound?***
YES : Go to step **10CQ5**.
NO : Replace drain valve.

10CQ5 : CHECK PURGE CONTROL SOLENOID VALVE.

NOTE:
Purge control solenoid valve operation check can also be executed using Subaru Select Monitor. For the procedure, refer to "COMPULSORY VALVE OPERATION CHECK MODE". <Ref. to 2-7 [T3F0].>



CHECK : ***Does purge control solenoid valve produce operating sound?***
YES : Go to step **10CQ6**.
NO : Replace purge control solenoid valve.

10CQ6 : CHECK FUEL LINE.

Turn ignition switch to OFF.

CHECK : ***Does fuel leak in fuel line?***
YES : Repair or replace fuel line.
NO : Go to step **10CQ7**.

10CQ7 : CHECK CANISTER.

CHECK : ***Is there any damage at canister?***
YES : Repair or replace canister.
NO : Go to step **10CQ8**.

10CQ8 : CHECK FUEL TANK.

CHECK : ***Is there any damage at fuel tank?***
YES : Repair or replace fuel tank.
NO : Go to step **10CQ9**.

10CQ9 : CHECK OTHER MECHANICAL TROUBLE.

CHECK : ***Are there holes, cracks or disconnections of hoses or pipes in evaporative emission control system?***
YES : Repair or replace hoses or pipes.
NO : Contact with SOA service.

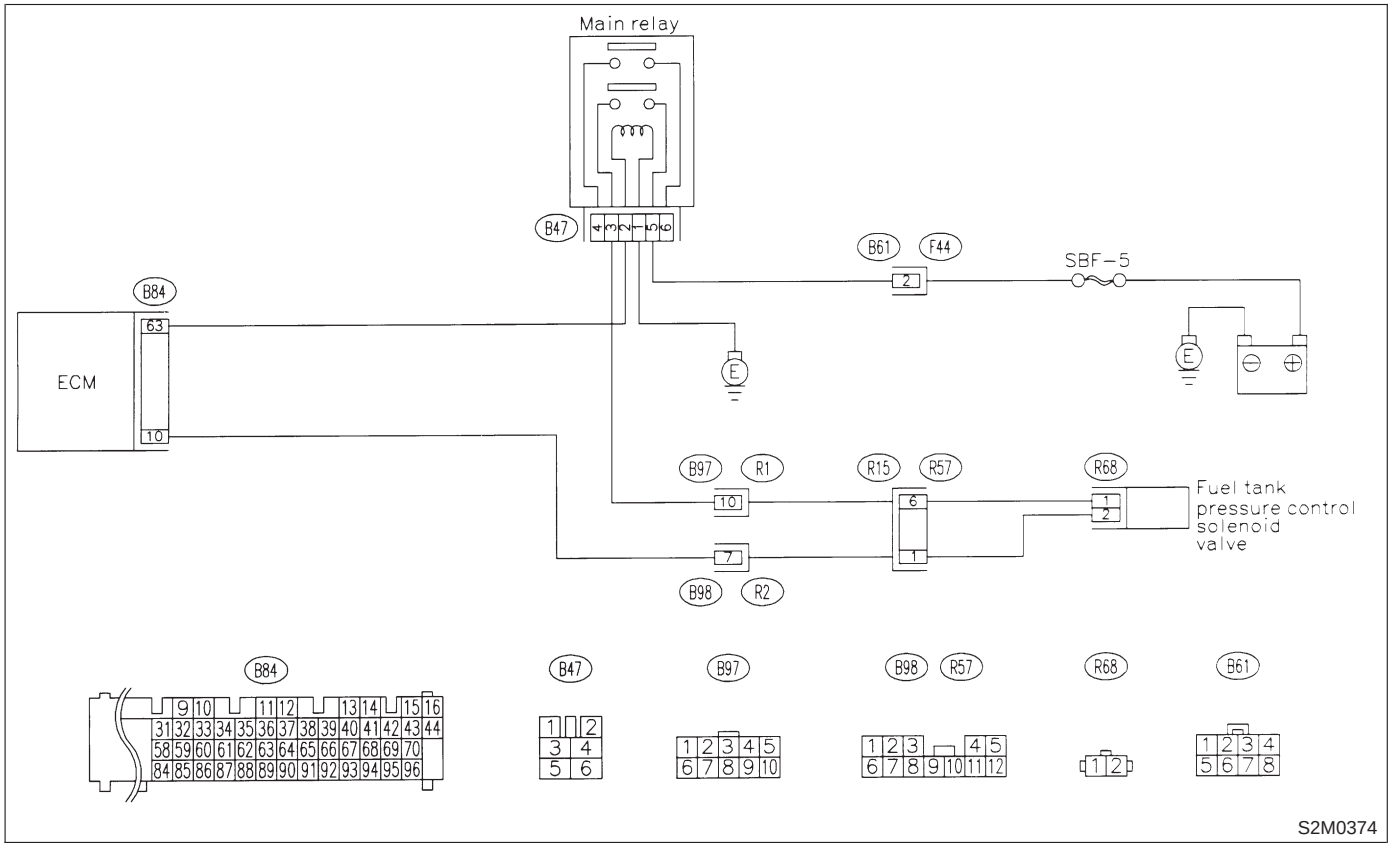
NOTE:
Inspection by DTM is required, because probable cause is deterioration of multiple parts.

CR: P1441 — FUEL TANK PRESSURE CONTROL SYSTEM FUNCTION PROBLEM (HIGH INPUT) —

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

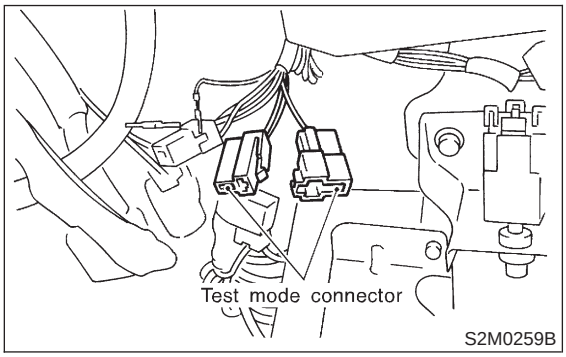
CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to 2-7 [T3D0].> and INSPECTION MODE <Ref. to 2-7 [T3E0].>.

- **WIRING DIAGRAM:**



10CR1 : CHECK FUEL TANK PRESSURE CONTROL SOLENOID VALVE.

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



3) Turn ignition switch to ON.

NOTE:
Fuel tank pressure control solenoid valve operation check can also be executed using Subaru Select Monitor. For the procedure, refer to “COMPULSORY VALVE OPERATION CHECK MODE”. <Ref. to 2-7 [T3F0].>

CHECK : ***Does fuel tank pressure control solenoid valve produce operating sound?***
YES : Go to step **10CR2**.
NO : Replace fuel tank pressure control solenoid valve.

10CR2 : CHECK FUEL FILLER CAP AND FUEL FILLER PIPE.

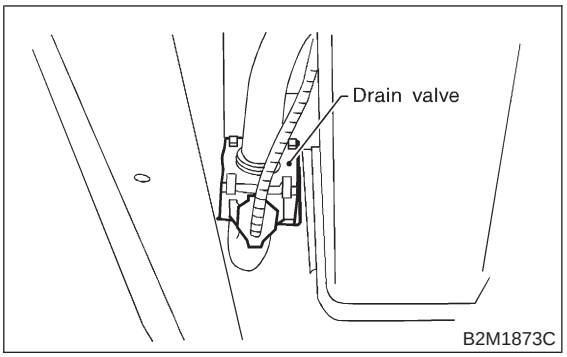
1) Turn ignition switch to OFF.
2) Open the fuel flap.

CHECK : ***Is there any damage at fuel filler cap and fuel filler pipe?***
YES : Repair or replace fuel filler cap and fuel filler pipe.
NO : Go to step **10CR3**.

10CR3 : CHECK DRAIN VALVE.

Turn ignition switch to ON.

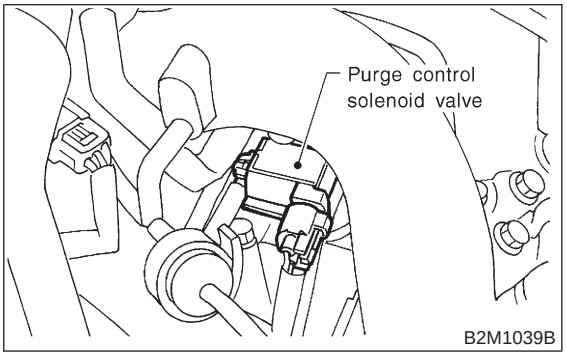
NOTE:
Drain valve operation check can also be executed using Subaru Select Monitor. For the procedure, refer to “COMPULSORY VALVE OPERATION CHECK MODE”. <Ref. to 2-7 [T3F0].>



CHECK : ***Does drain valve produce operating sound?***
YES : Go to step **10CR4**.
NO : Replace drain valve.

10CR4 : CHECK PURGE CONTROL SOLENOID VALVE.

NOTE:
Purge control solenoid valve operation check can also be executed using Subaru Select Monitor. For the procedure, refer to “COMPULSORY VALVE OPERATION CHECK MODE”. <Ref. to 2-7 [T3F0].>



CHECK : ***Does purge control solenoid valve produce operating sound?***
YES : Go to step **10CR5**.
NO : Replace purge control solenoid valve.

10CR5 : CHECK CANISTER.

Turn ignition switch to OFF.

CHECK : ***Is there any damage at canister?***
YES : Repair or replace canister.
NO : Go to step **10CR6**.

10CR6 : CHECK FUEL TANK.

CHECK : ***Is there any damage at fuel tank?***
YES : Repair or replace fuel tank.
NO : Go to step **10CR7**.

10CR7 : CHECK OTHER MECHANICAL TROUBLE.

CHECK : ***Is there clogging of hoses or pipes in evaporative emission control system?***
YES : Repair or replace hoses or pipes.
NO : Contact with SOA service.

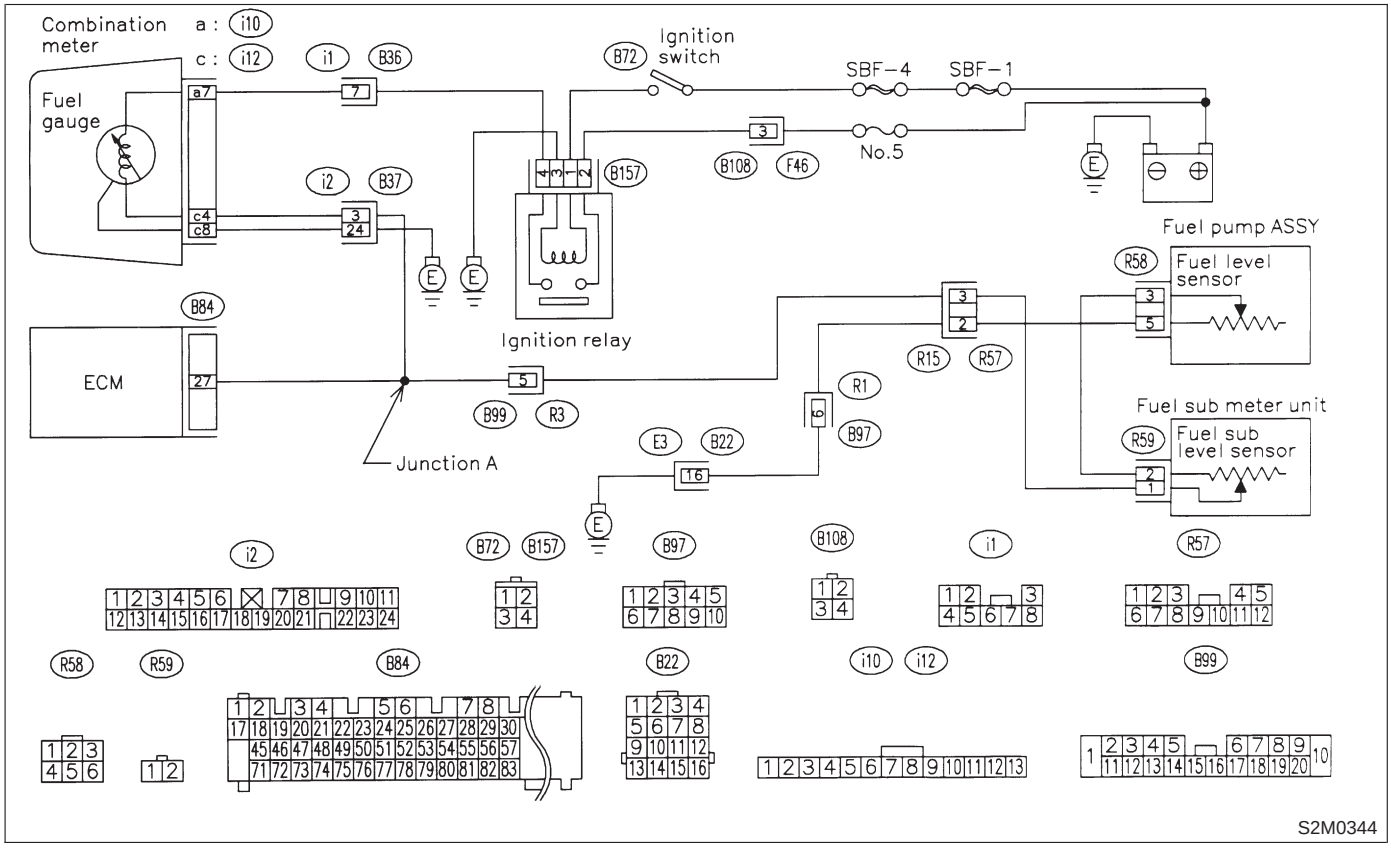
NOTE:
Inspection by DTM is required, because probable cause is deterioration of multiple parts.

CS: DTC P1442 — FUEL LEVEL SENSOR CIRCUIT RANGE/ PERFORMANCE PROBLEM 2 —

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

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

- **WIRING DIAGRAM:**



10CS1 : CHECK ANY OTHER DTC ON DISPLAY.

CHECK : ***Does the Subaru select monitor or OBD-II general scan tool indicate DTC P0461, P0462 or P0463?***

YES : Inspect DTC P0461, P0462 or P0463 using “10. Diagnostics Chart with Trouble Code”. <Ref. to 2-7 [T10A0].>

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

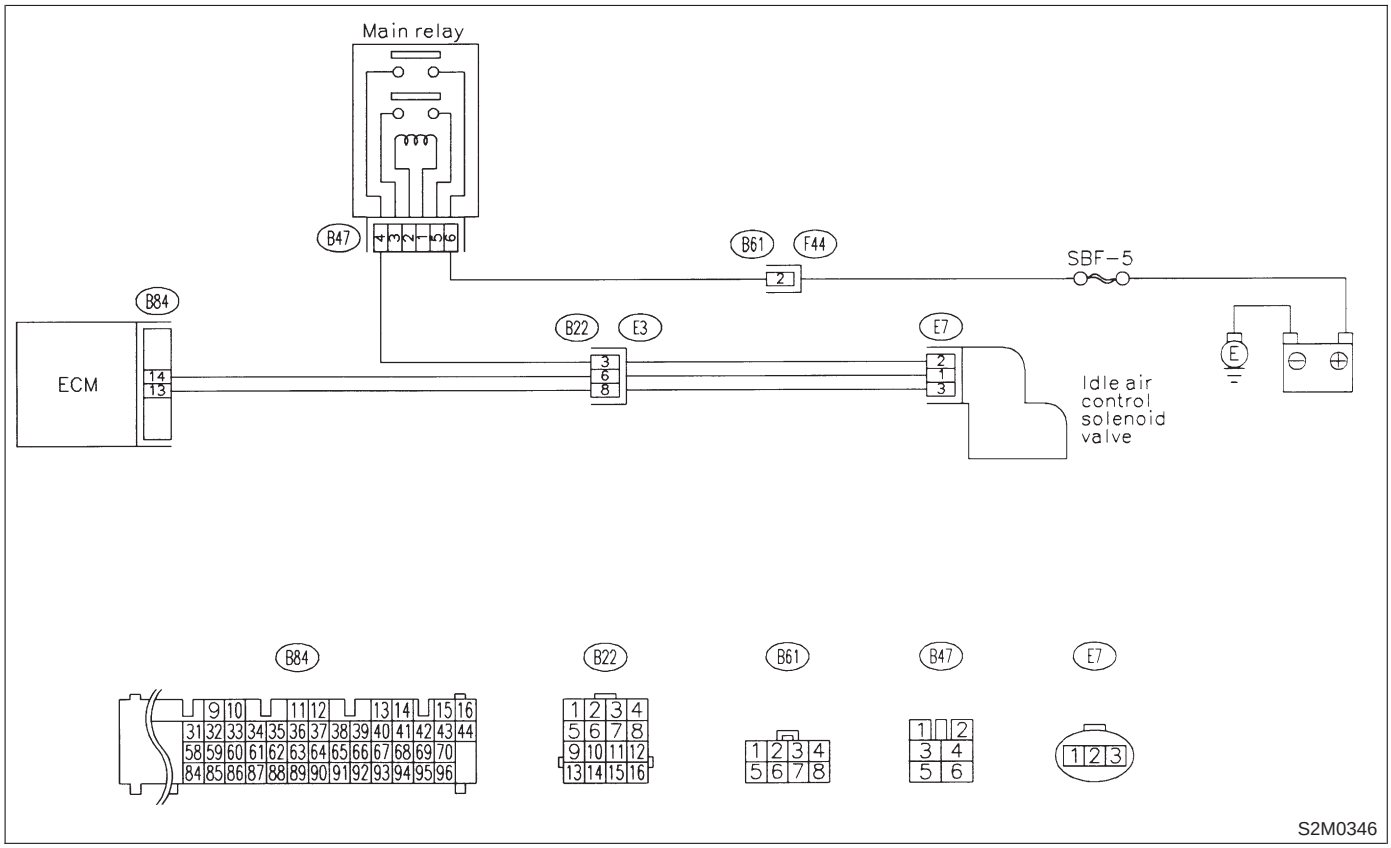
NO : Replace fuel sending unit and fuel sub meter unit.

CT: DTC P1507 — IDLE CONTROL SYSTEM MALFUNCTION (FAIL-SAFE) —

- **DTC DETECTING CONDITION:**
  - Two consecutive driving cycles with fault
- **TROUBLE SYMPTOM:**
  - Engine keeps running at higher revolution than specified idling revolution.

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

- **WIRING DIAGRAM:**



10CT1 : CHECK ANY OTHER DTC ON DISPLAY.

CHECK : ***Does the Subaru select monitor or OBD-II general scan tool indicate DTC P0505?***

YES : Inspect DTC P0505 using “10. Diagnostics Chart with Trouble Code”. <Ref. to 2-7 [T10A0].>

NOTE:
In this case, it is not necessary to inspect DTC P1507.

NO : Go to step **10CT2**.

10CT2 : CHECK AIR INTAKE SYSTEM.

1) Turn ignition switch to ON.
2) Start engine, and idle it.
3) Check the following items.

- Loose installation of intake manifold, idle air control solenoid valve and throttle body
- Cracks of intake manifold gasket, idle air control solenoid valve gasket and throttle body gasket
- Loose connections and cracks of idle air control solenoid valve by-pass hoses
- Disconnections of vacuum hoses

CHECK : ***Is there a fault in air intake system?***

YES : Repair air suction and leaks.

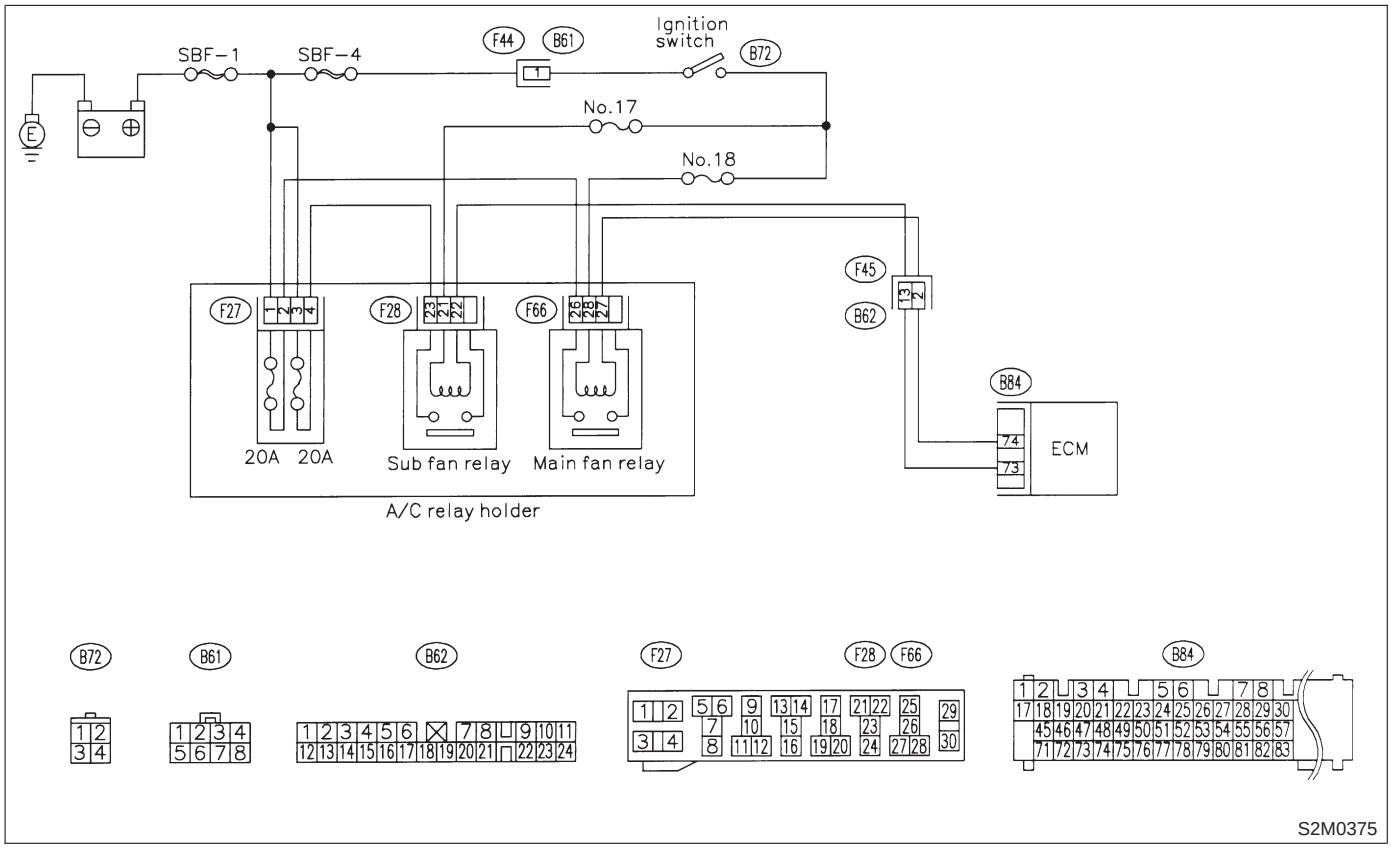
NO : Replace idle air control solenoid valve.

CU: DTC P1520 — COOLING FAN RELAY 1 CIRCUIT HIGH INPUT —

- **DTC DETECTING CONDITION:**
  - Two consecutive driving cycles with fault
- **TROUBLE SYMPTOM:**
  - Radiator fan does not operate properly.
  - Overheating

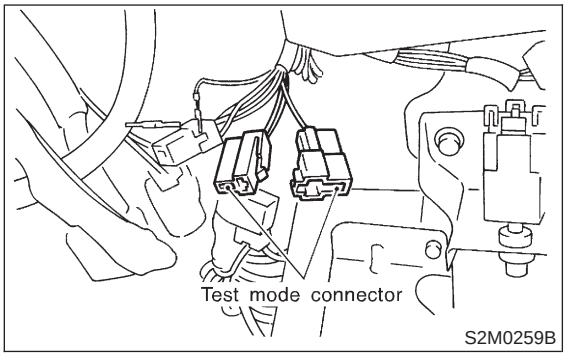
CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY and INSPECTION MODE. <Ref. to 2-7 [T3D0] and [T3E0].>

- **WIRING DIAGRAM:**



10CU1 : 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.

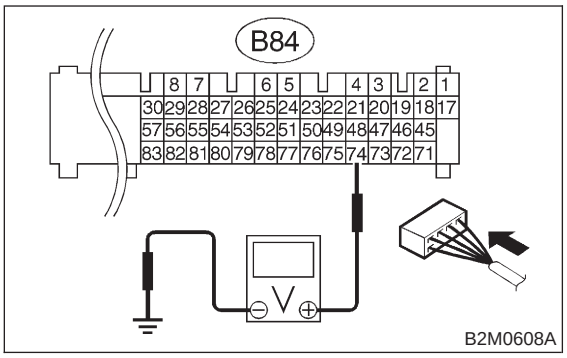


3) Turn ignition switch to ON.

NOTE:
Radiator fan relay operation check can be executed using Subaru Select Monitor. For procedure, refer to "COMPULSORY VALVE OPERATION CHECK MODE". <Ref. to 2-7 [T3F0].>

4) Measure voltage between ECM and chassis ground.

Connector & terminal
(B84) No. 74 (+) — Chassis ground:



CHECK : ***Does voltage change between 0 and 10 volts?***

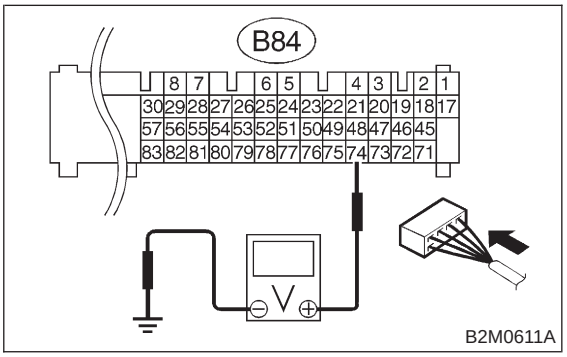
YES : Even if MIL lights up, the circuit has returned to a normal condition at this time. In this case, repair poor contact in ECM connector.

NO : Go to step **10CU2**.

10CU2 : CHECK SHORT CIRCUIT IN RADIATOR FAN RELAY 1 CONTROL CIRCUIT.

1) Turn ignition switch to OFF.
2) Remove main fan relay.
3) Disconnect test mode connector.
4) Turn ignition switch to ON.
5) Measure voltage between ECM and chassis ground.

Connector & terminal
(B84) No. 74 (+) — Chassis ground (–):



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

YES : Repair battery short circuit in radiator fan relay 1 control circuit. After repair, replace ECM.

NO : Go to step **10CU3**.

10CU3 : CHECK POOR CONTACT.

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

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

YES : Repair poor contact in ECM connector.

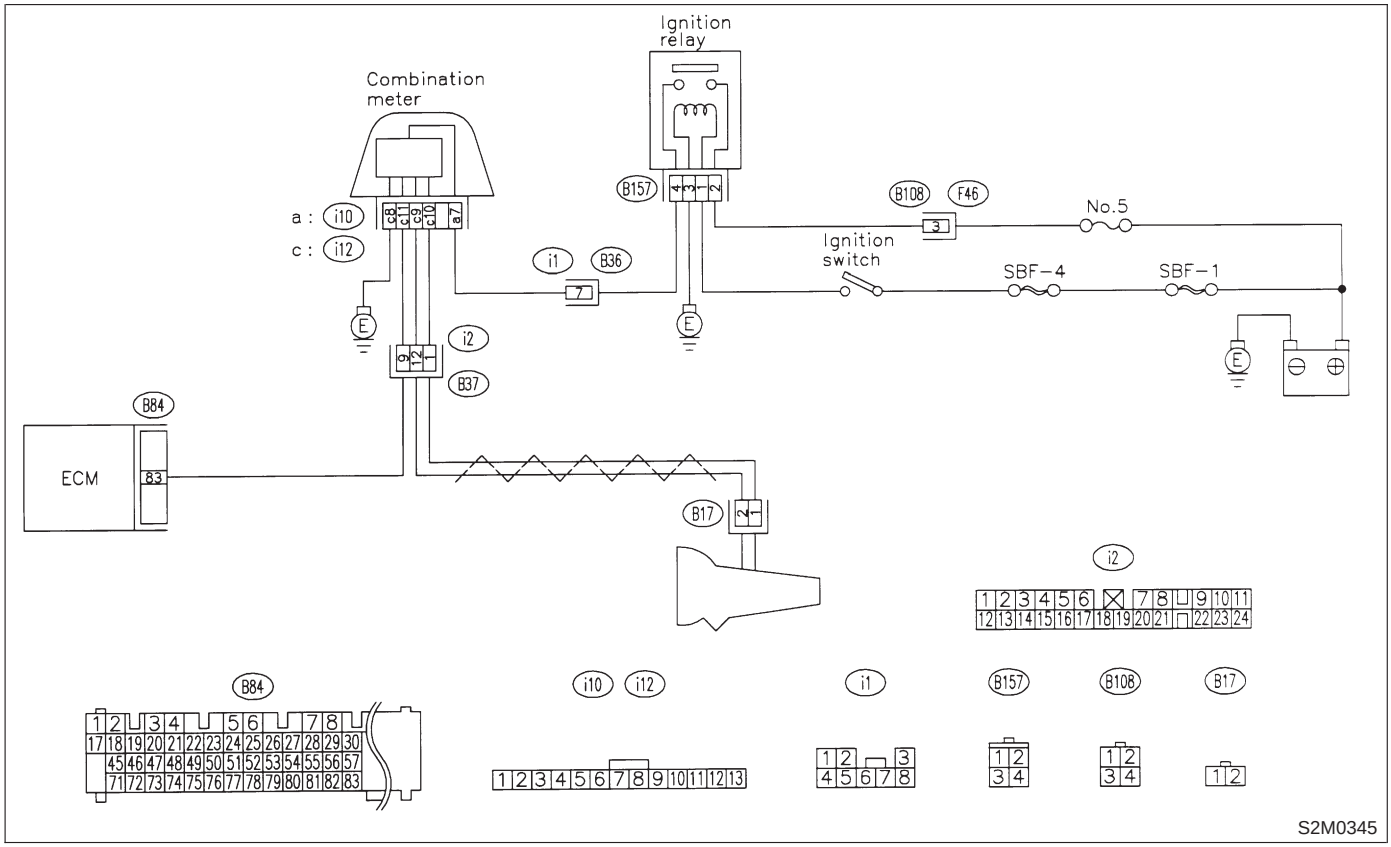
NO : Replace ECM.

CV: DTC P1540 — VEHICLE SPEED SENSOR MALFUNCTION 2 —

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

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

- **WIRING DIAGRAM:**



10CV1 : CHECK SPEEDOMETER OPERATION IN COMBINATION METER.

CHECK : ***Does speedometer operate normally?***

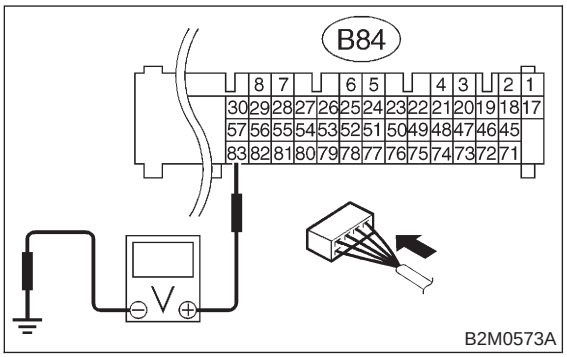
YES : Go to step **10CV2**.

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

10CV2 : CHECK HARNESS BETWEEN ECM AND COMBINATION METER CONNECTOR.

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

Connector & terminal
(B84) No. 83 (+) — Chassis ground (−):



CHECK : ***Is the voltage more than 2 V?***
YES : Repair harness and connector.

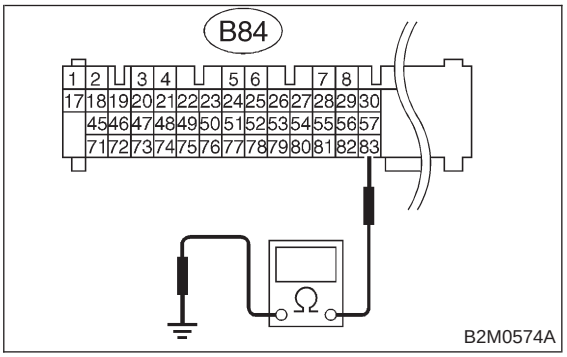
NOTE:
In this case, repair the following:
- Open circuit in harness between ECM and combination meter connector
- Poor contact in ECM connector
- Poor contact in combination meter connector
- Poor contact in coupling connector (i2)

NO : Go to step **10CV3**.

10CV3 : CHECK HARNESS BETWEEN ECM AND COMBINATION METER CONNECTOR.

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

Connector & terminal
(B84) No. 83 — Chassis ground:



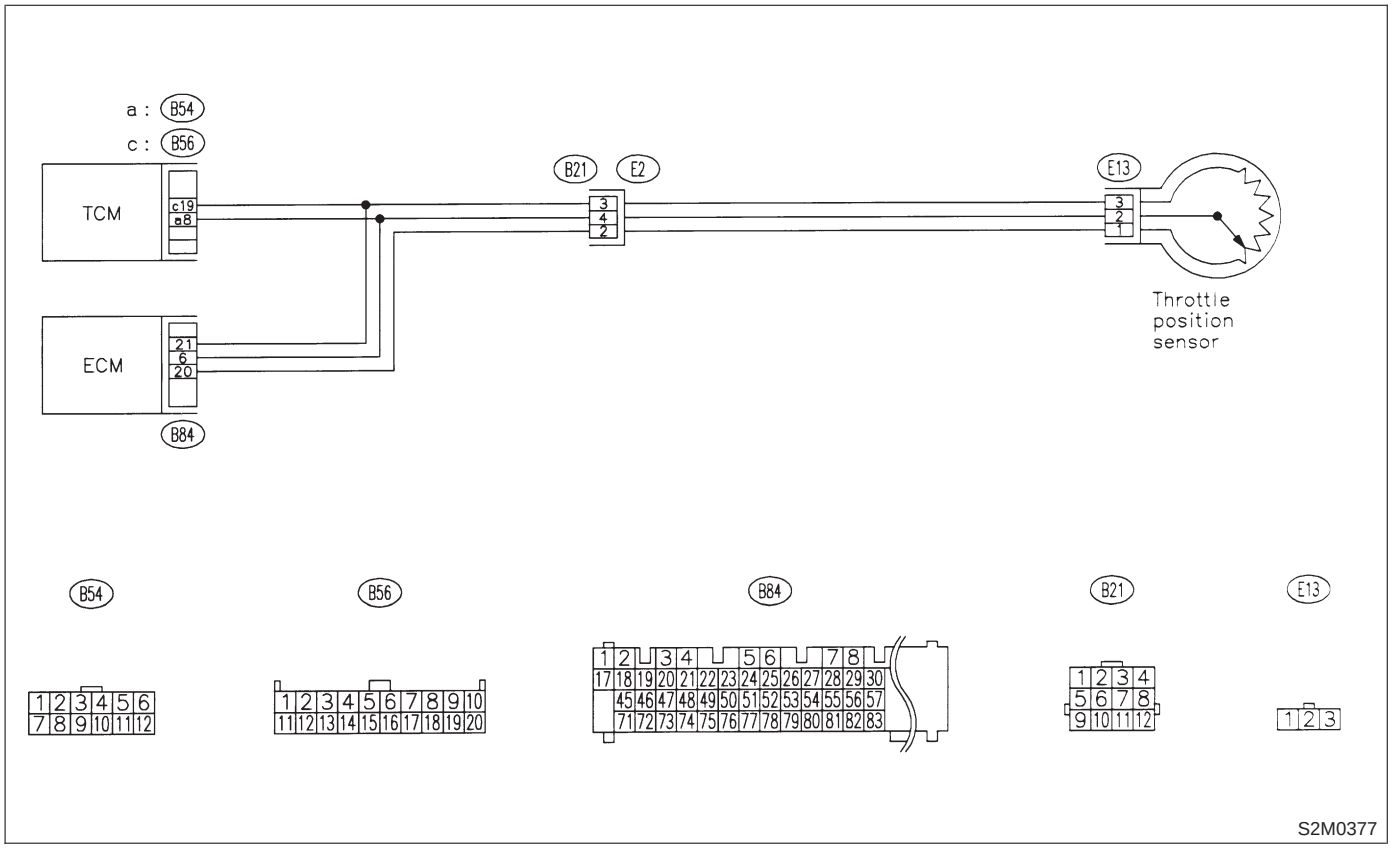
CHECK : ***Is the resistance less than 10 Ω?***
YES : Repair ground short circuit in harness between ECM and combination meter connector.
NO : Repair poor contact in ECM connector.

CW: DTC P1700 — THROTTLE POSITION SENSOR CIRCUIT MALFUNCTION FOR AUTOMATIC TRANSMISSION —

- **DTC DETECTING CONDITION:**
  - Two consecutive driving cycles with fault
- **TROUBLE SYMPTOM:**
  - Shift point too high or too low; engine brake not effected in “3” range; excessive shift shock; excessive tight corner “braking”

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

- **WIRING DIAGRAM:**



10CW1 : CHECK DTC P1700 ON DISPLAY.

CHECK : ***Does the Subaru select monitor or OBD-II general scan tool indicate DTC P1700?***

YES : Check throttle position sensor circuit. <Ref. to 3-2 [T8M0].>

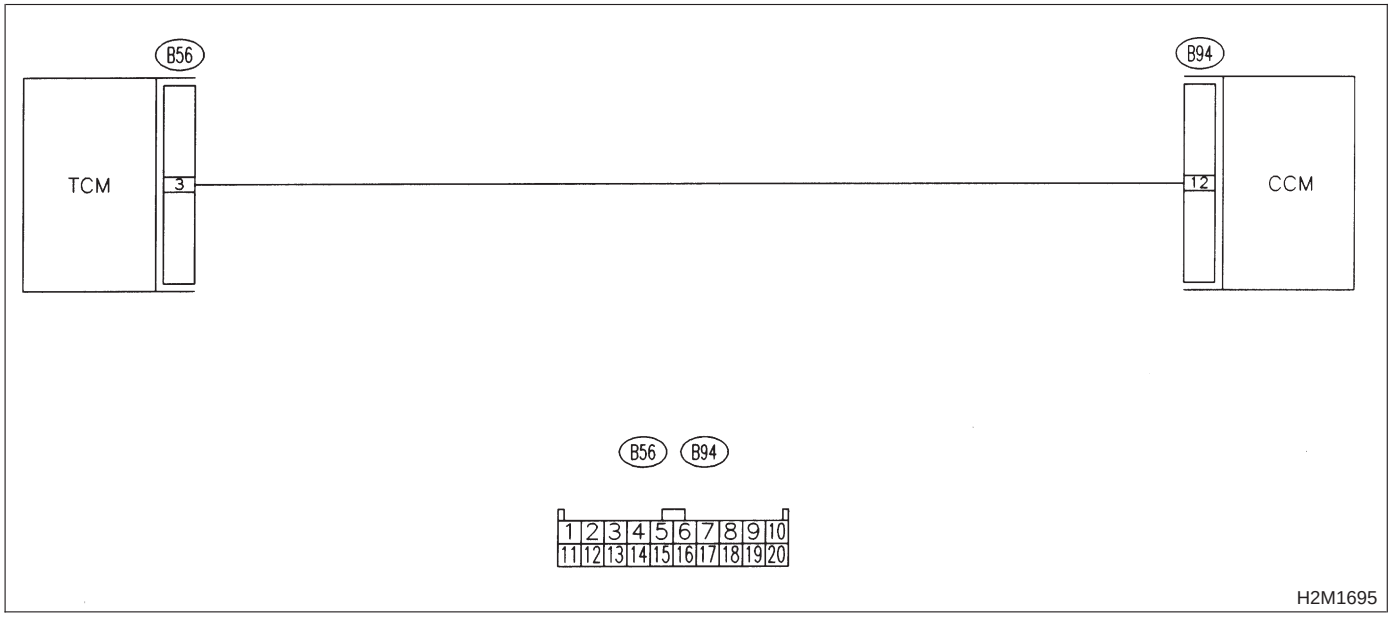
NO : It is not necessary to inspect DTC P1700.

CX: DTC P1701 — CRUISE CONTROL SET SIGNAL CIRCUIT MALFUNCTION FOR AUTOMATIC TRANSMISSION —

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

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

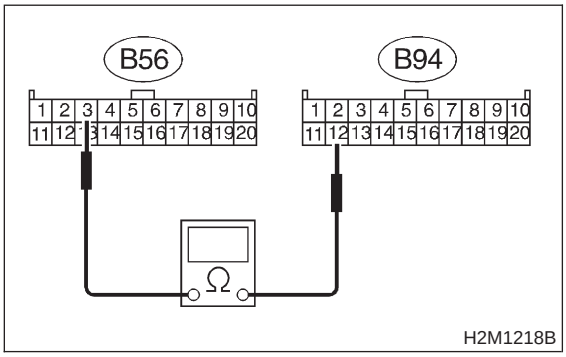
- **WIRING DIAGRAM:**



10CX1 : CHECK HARNESS BETWEEN TCM AND CCM CONNECTOR.

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

Connector & terminal
(B56) No. 3 — (B94) No. 12:

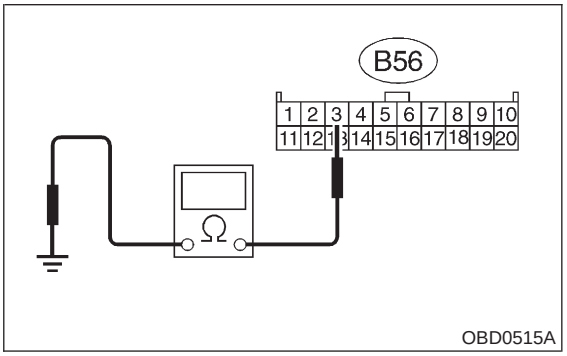


CHECK : ***Is the resistance less than 1 Ω?***
YES : Go to step **10CX2**.
NO : Repair open circuit in harness between TCM and CCM connector.

10CX2 : CHECK HARNESS BETWEEN TCM AND CCM CONNECTOR.

Measure resistance of harness between TCM and chassis ground.

Connector & terminal
(B56) No. 3 — Chassis ground:



CHECK : ***Is the resistance less than 10 Ω?***
YES : Repair ground short circuit in harness between TCM and CCM connector.
NO : Go to step **10CX3**.

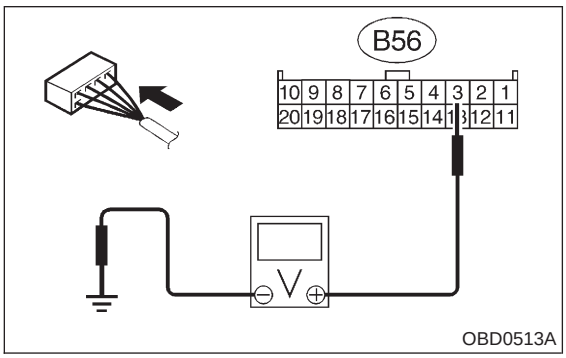
10CX3 : CHECK INPUT SIGNAL FOR TCM.

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 chassis ground.

Connector & terminal
(B56) No. 3 (+) — Chassis ground (−):



CHECK : ***Is the voltage less than 1 V?***
YES : Go to step **10CX4**.
NO : Check cruise control set circuit. <Ref. to 6-2 [T600].>

10CX4 : CHECK POOR CONTACT.

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

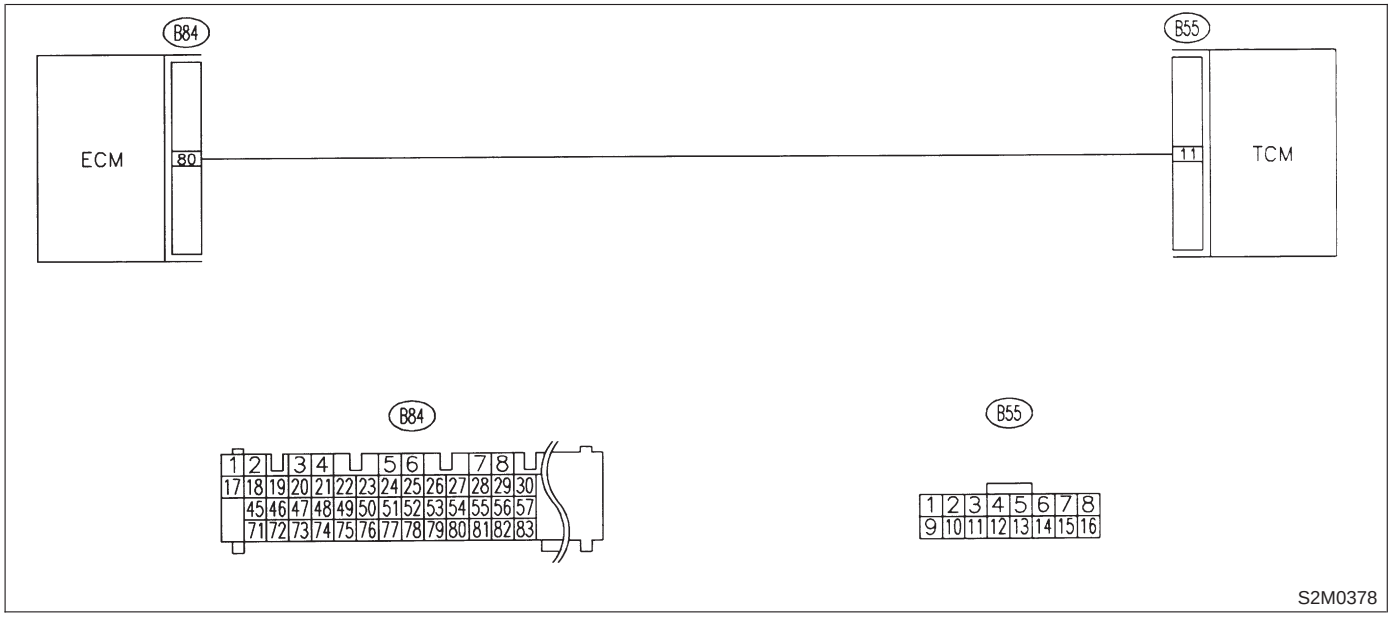
CHECK : ***Is there poor contact in TCM connector?***
YES : Repair poor contact in TCM connector.
NO : Replace TCM.

CY: DTC P1702 — AUTOMATIC TRANSMISSION DIAGNOSIS INPUT SIGNAL CIRCUIT LOW INPUT —

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

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

- **WIRING DIAGRAM:**



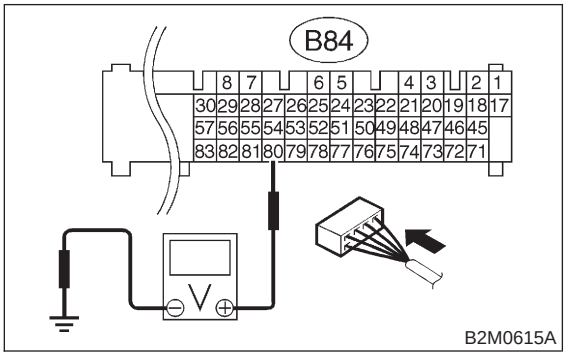
10CY1 : CHECK TRANSMISSION TYPE.

CHECK : ***Is transmission type AT?***
YES : Go to step **10CY2**.
NO : Check AT/MT identification circuit. <Ref. to 2-7 [T10DB0].>

10CY2 : CHECK HARNESS BETWEEN ECM AND TCM CONNECTOR.

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

Connector & terminal
(B84) No. 80 (+) — Chassis ground (−):



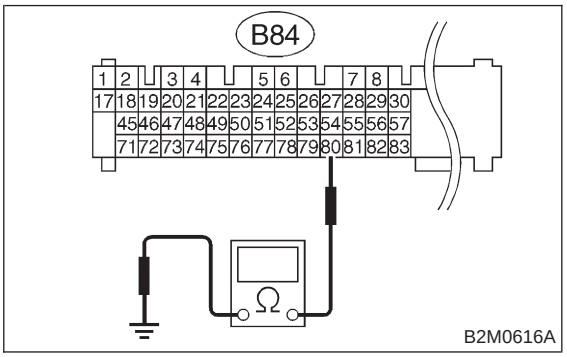
CHECK : ***Is the voltage less than 1 V?***
YES : Go to step **10CY3**.
NO : Even if MIL lights up, the circuit has returned to a normal condition at this time.

NOTE:
In this case, repair the following:
- Poor contact in ECM connector
- Poor contact in TCM connector

10CY3 : CHECK HARNESS BETWEEN ECM AND TCM CONNECTOR.

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

Connector & terminal
(B84) No. 80 — Chassis ground:

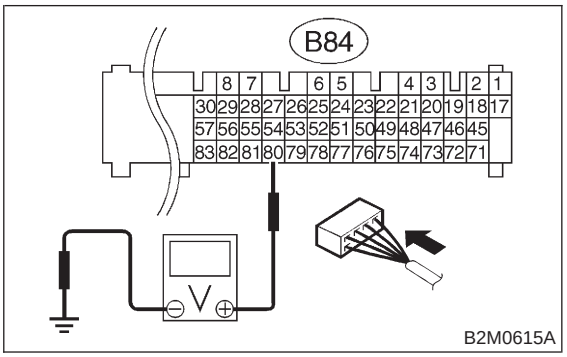


CHECK : ***Is the resistance less than 10 Ω?***
YES : Repair ground short circuit in harness between ECM and TCM connector.
NO : Go to step **10CY4**.

10CY4 : CHECK OUTPUT SIGNAL FROM ECM.

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

Connector & terminal
(B84) No. 80 (+) — Chassis ground (−):



CHECK : ***Is the voltage more than 5 V?***
YES : Replace TCM.
NO : Contact SOA service.

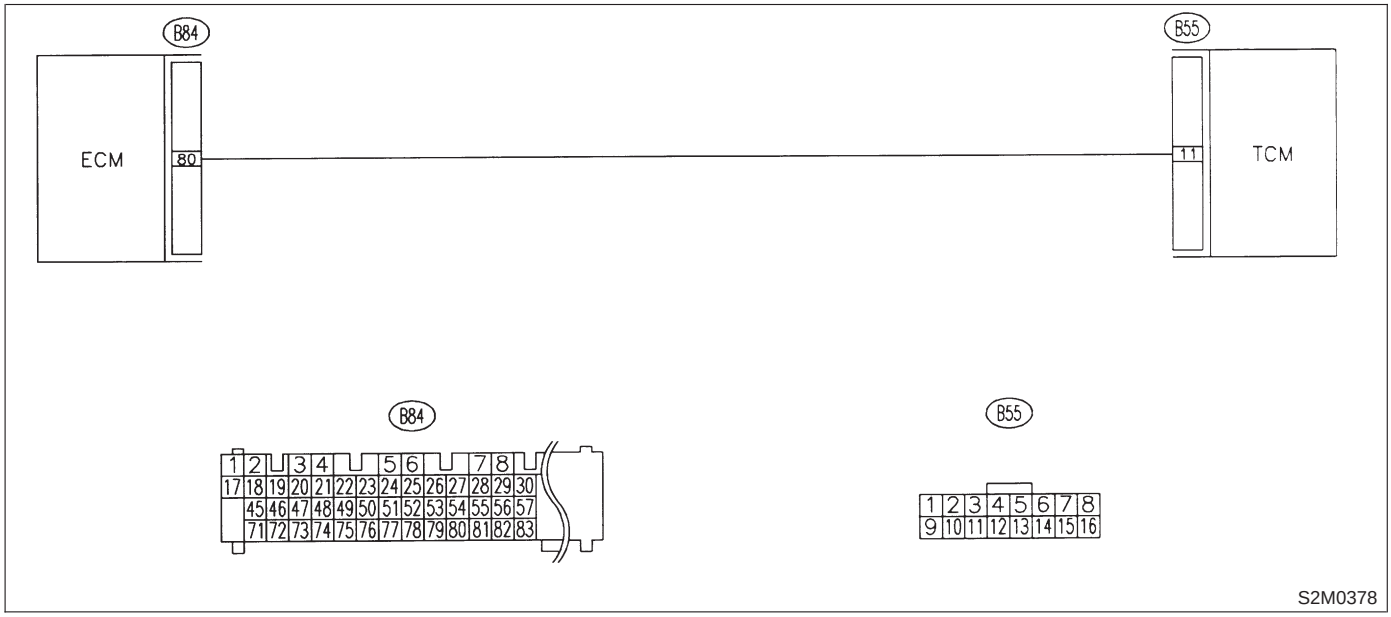
NOTE:
Inspection by DTM is required, because probable cause is deterioration of multiple parts.

CZ: DTC P1722 — AUTOMATIC TRANSMISSION DIAGNOSIS INPUT SIGNAL CIRCUIT HIGH INPUT —

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

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

- **WIRING DIAGRAM:**



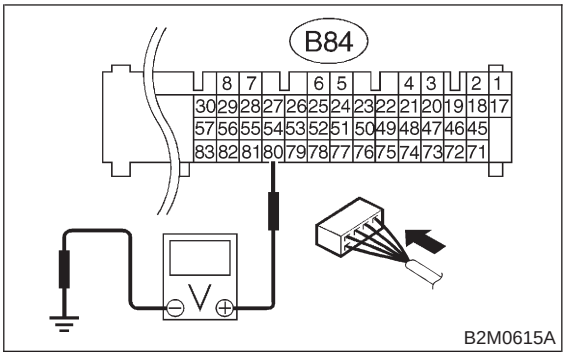
10CZ1 : CHECK TRANSMISSION TYPE.

CHECK : ***Is transmission type AT?***
YES : Go to step **10CZ2**.
NO : Check AT/MT identification circuit. <Ref. to 2-7 [T10DB0].>

10CZ2 : CHECK HARNESS BETWEEN ECM AND TCM CONNECTOR.

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

Connector & terminal
(B84) No. 80 (+) — Chassis ground (−):

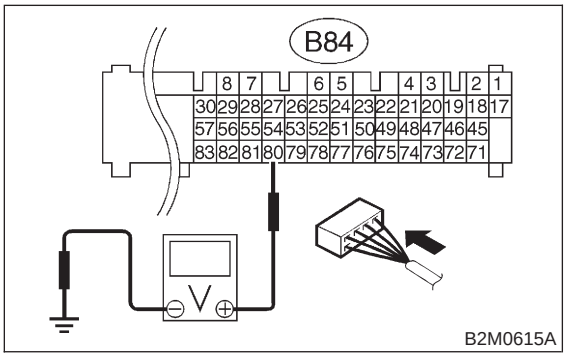


CHECK : ***Is the voltage more than 10 V?***
YES : Repair battery short circuit in harness between ECM and TCM connector. After repair, replace ECM.
NO : Go to step **10CZ3**.

10CZ3 : CHECK HARNESS BETWEEN ECM AND TCM CONNECTOR.

Measure voltage between ECM and chassis ground.

Connector & terminal
(B84) No. 80 (+) — Chassis ground (−):

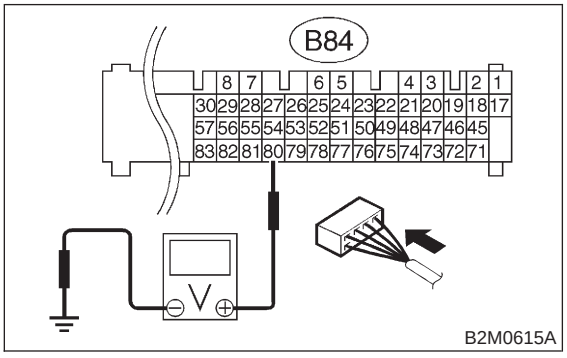


CHECK : ***Is the voltage more than 4 V?***
YES : Go to step **10CZ6**.
NO : Go to step **10CZ4**.

10CZ4 : CHECK HARNESS BETWEEN ECM AND TCM CONNECTOR.

Measure voltage between ECM and chassis ground.

Connector & terminal
(B84) No. 80 (+) — Chassis ground (−):

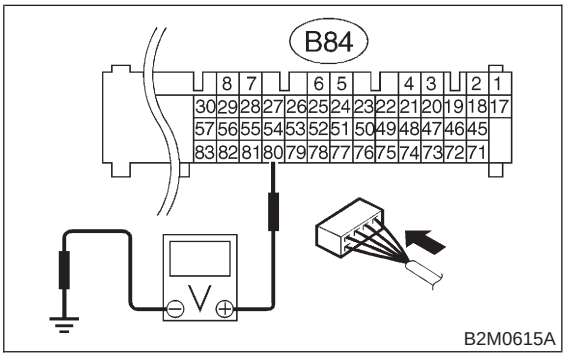


CHECK : ***Is the voltage less than 1 V?***
YES : Repair poor contact in ECM connector.
NO : Go to step **10CZ5**.

10CZ5 : CHECK OUTPUT SIGNAL FROM ECM.

Measure voltage between ECM and chassis ground.

Connector & terminal
(B84) No. 80 (+) — Chassis ground (−):



CHECK : ***Does the voltage change from 1 V to 4 V while monitoring the value with voltage meter?***
YES : Even if MIL lights up, the circuit has returned to a normal condition at this time.

NOTE:
In this case, repair the following:
- Poor contact in ECM connector
- Poor contact in TCM connector

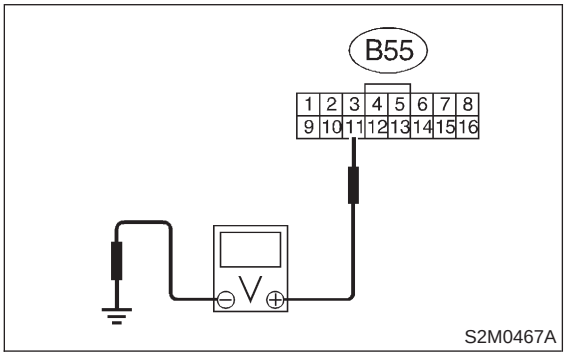
NO : Contact with SOA service.

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

10CZ6 : CHECK HARNESS BETWEEN ECM AND TCM CONNECTOR.

Measure voltage between TCM and chassis ground.

Connector & terminal
(B55) No. 11 (+) — Chassis ground (−):



CHECK : ***Is the voltage more than 4 V?***
YES : Go to step **10CZ7**.
NO : Repair open circuit in harness between ECM and TCM connector.

10CZ7 : CHECK POOR CONTACT.

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

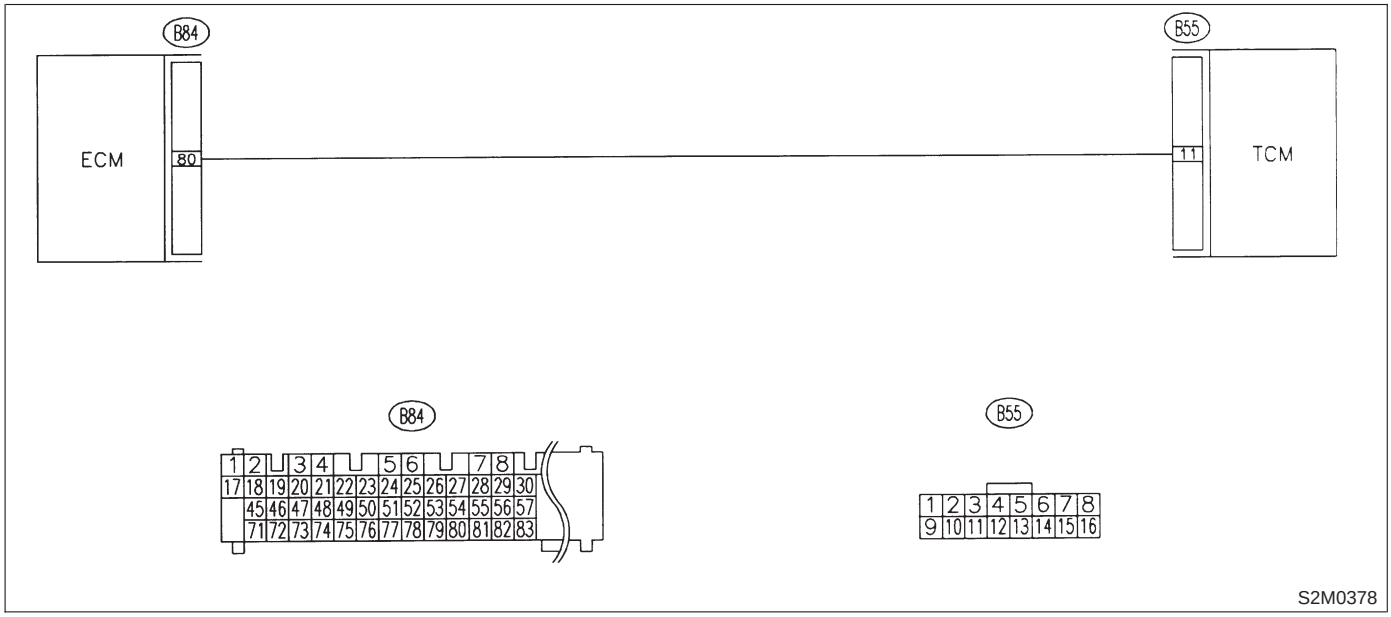
CHECK : ***Is there poor contact in TCM connector?***
YES : Repair poor contact in TCM connector.
NO : Check TCM power supply line and grounding line.

DA: DTC P1742 — AUTOMATIC TRANSMISSION DIAGNOSIS INPUT SIGNAL CIRCUIT MALFUNCTION —

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

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

- **WIRING DIAGRAM:**



10DA1 : CHECK TRANSMISSION TYPE.

CHECK : ***Is transmission type AT?***
YES : Go to step **10DA2**.
NO : Check AT/MT identification circuit. <Ref. to 2-7 [T10DB0].>

10DA2 : CHECK DRIVING CONDITION.

1) Start and warm-up the engine until the radiator fan makes one complete rotation.
2) Drive the vehicle.

CHECK : ***Is AT shift control functioning properly?***
YES : Go to step **10DA3**.
NO : Replace TCM.

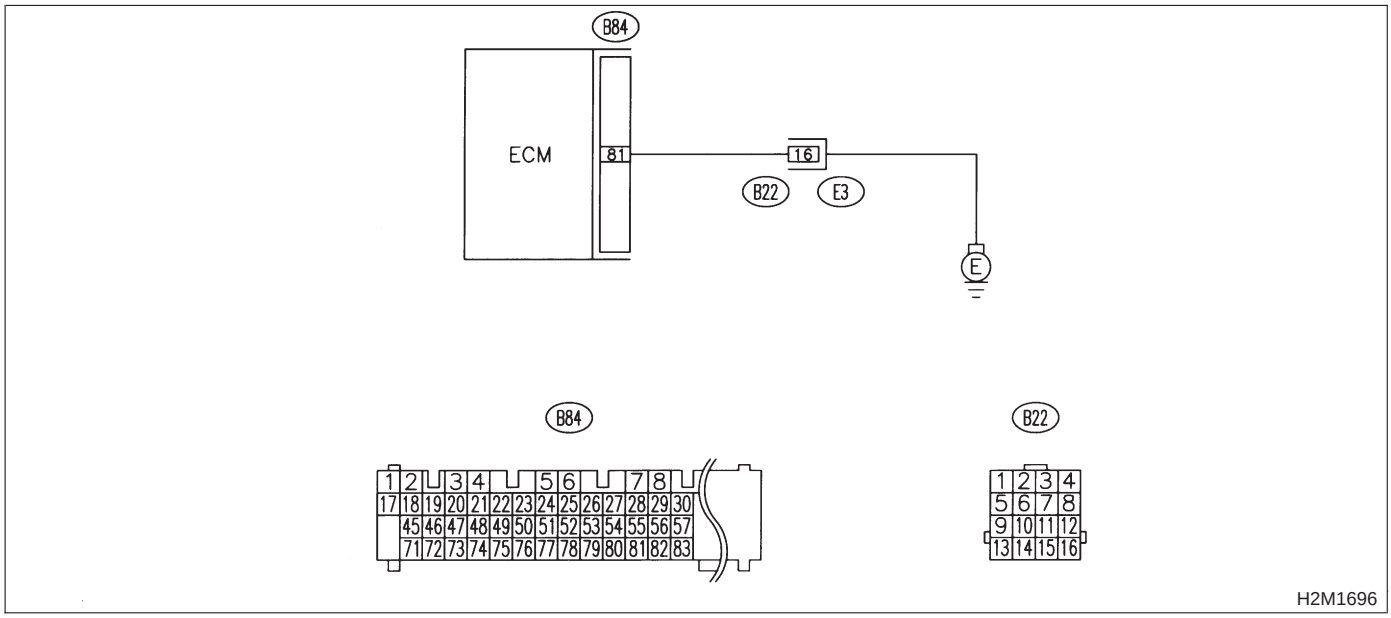
10DA3 : CHECK ACCESSORY.

CHECK : ***Are car phone and/or CB installed on vehicle?***
YES : Repair grounding line of car phone or CB system.
NO : Replace TCM.

DB: — AT/MT IDENTIFICATION CIRCUIT MALFUNCTION [MT VEHICLES] —

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

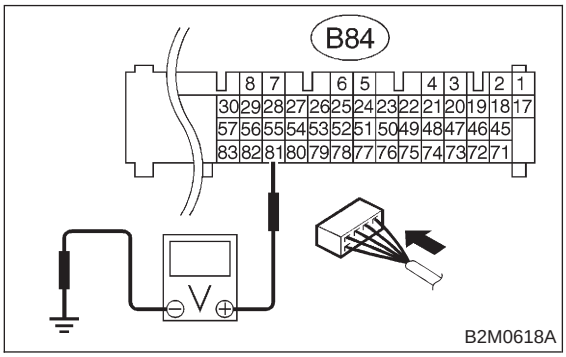
- **WIRING DIAGRAM:**



10DB1 : CHECK HARNESS BETWEEN ECM CONNECTOR AND CHASSIS GROUND.

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

Connector & terminal
(B84) No. 81 (+) — Chassis ground (−):



CHECK : ***Is the voltage more than 2 V?***
YES : Repair harness and connector.

NOTE:
In this case, repair the following:
- Open circuit in harness between ECM connector and engine grounding terminal
- Poor contact in engine grounding terminal
- Poor contact in coupling connector (B22)

NO : Go to step **10DB2**.

10DB2 : CHECK POOR CONTACT.

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

CHECK : ***Is there poor contact in ECM connector?***
YES : Repair poor contact in ECM connector.
NO : Contact with SOA service.

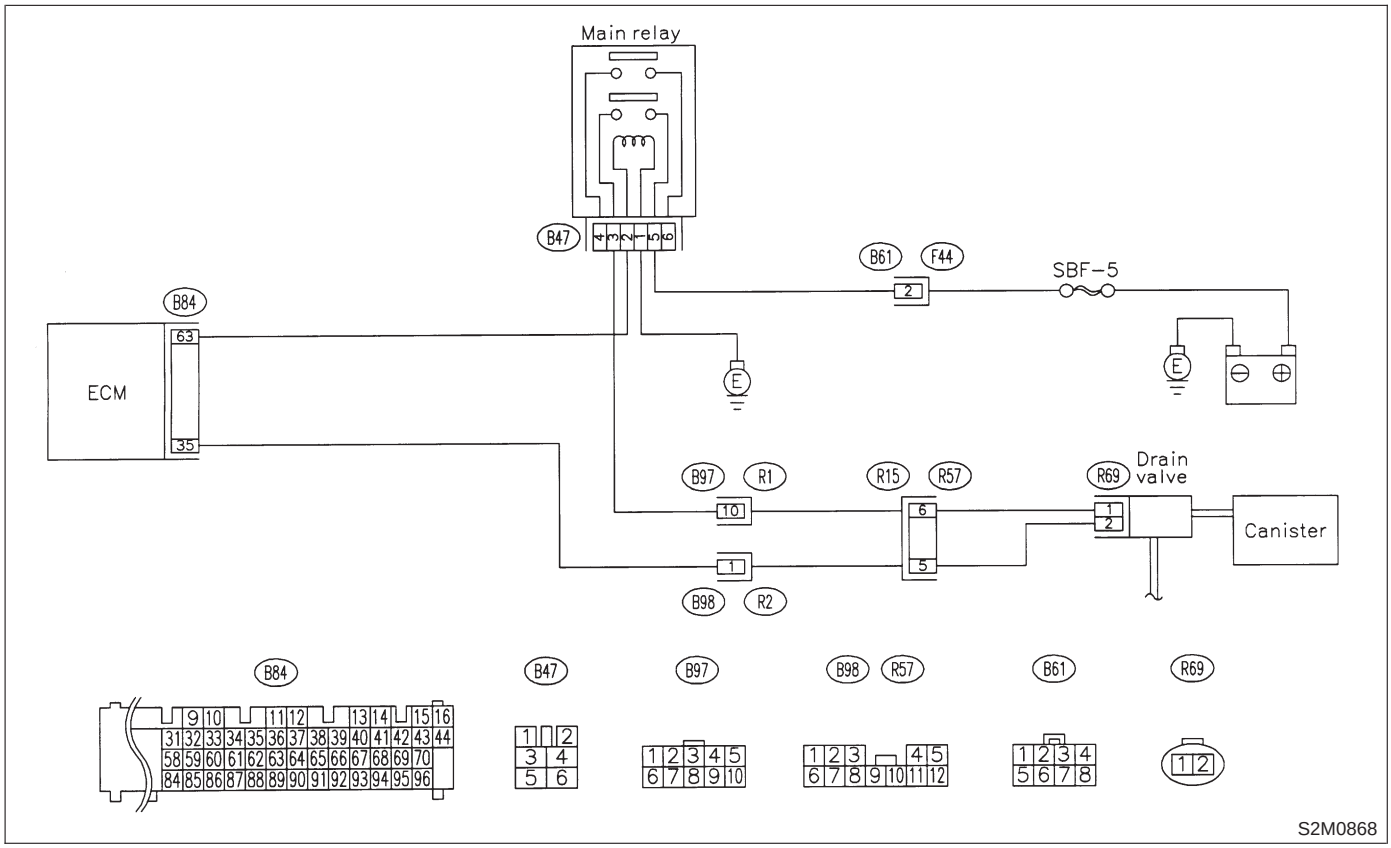
NOTE:
Inspection by DTM is required, because probable cause is deterioration of multiple parts.

DC: DTC P1443 — EVAPORATIVE EMISSION CONTROL SYSTEM VENT CONTROL FUNCTION PROBLEM —

- **DTC DETECTING CONDITION:**
  - Immediately after fault occurrence
- **TROUBLE SYMPTOM:**
  - Improper fuel supply

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

- **WIRING DIAGRAM:**



10DC1 :	CHECK ANY OTHER DTC ON DISPLAY.

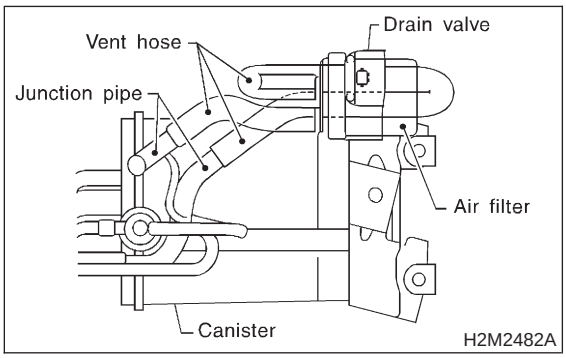
CHECK : ***Is there any other DTC on display?***

YES : Inspect the relevant DTC using “10. Diagnostics Chart with Trouble Code”. <Ref. to 2-7 [T10A0].>

NO : Go to step **10DC2**.

10DC2 : CHECK VENT LINE HOSES.

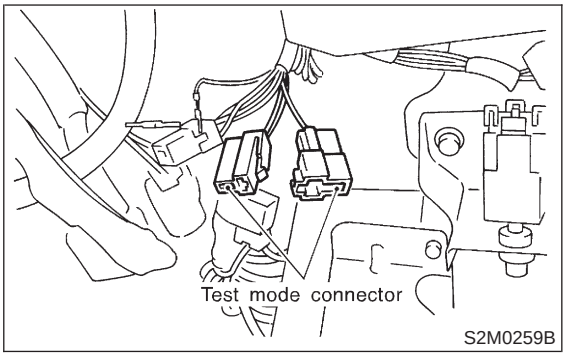
Check the following items.
- Clogging of vent hoses between canister and drain valve
- Clogging of vent hose between drain valve and air filter
- Clogging of vent hose between air filter and junction pipe
- Clogging of junction pipe
- Clogging of air filter



CHECK : ***Is there a fault in vent line?***
YES : Repair or replace the faulty part.
NO : Go to step **10DC3**.

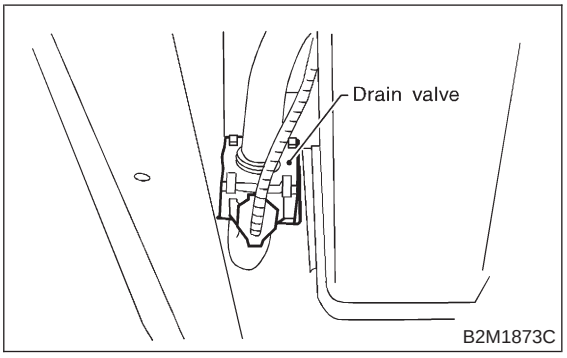
10DC3 : CHECK DRAIN VALVE OPERATION.

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



3) Turn ignition switch to ON.

NOTE:
Drain valve operation check can also be executed using Subaru Select Monitor. For the procedure, refer to the "COMPULSORY VALVE OPERATION CHECK MODE". <Ref. to 2-7 [T3F0].>



CHECK : ***Does drain valve produce operating sound?***
YES : Contact with SOA service.

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

NO : Replace drain valve.

MEMO: