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].☆1>
P0102	Mass air flow sensor circuit low input	<Ref. to 2-7 [T10C0].☆1>
P0103	Mass air flow sensor circuit high input	<Ref. to 2-7 [T10D0].☆1>
P0106	Pressure sensor circuit range/performance problem	<Ref. to 2-7 [T10E0].☆1>
P0107	Pressure sensor circuit low input	<Ref. to 2-7 [T10F0].☆1>
P0108	Pressure sensor circuit high input	<Ref. to 2-7 [T10G0].☆1>
P0117	Engine coolant temperature sensor circuit low input	<Ref. to 2-7 [T10H0].☆1>
P0118	Engine coolant temperature sensor circuit high input	<Ref. to 2-7 [T10I0].☆1>
P0121	Throttle position sensor circuit range/performance problem (high input)	<Ref. to 2-7 [T10J0].☆1>
P0122	Throttle position sensor circuit low input	<Ref. to 2-7 [T10K0].☆1>
P0123	Throttle position sensor circuit high input	<Ref. to 2-7 [T10L0].☆1>
P0125	Insufficient coolant temperature for closed loop fuel control	<Ref. to 2-7 [T10M0].☆1>
P0130	Front oxygen sensor circuit malfunction	<Ref. to 2-7 [T10N0].☆1>
P0133	Front oxygen sensor circuit slow response	<Ref. to 2-7 [T10O0].☆1>
P0135	Front oxygen sensor heater circuit malfunction	<Ref. to 2-7 [T10P0].☆1>
P0136	Rear oxygen sensor circuit malfunction	<Ref. to 2-7 [T10Q0].☆1>
P0139	Rear oxygen sensor circuit slow response	<Ref. to 2-7 [T10R0].☆1>
P0141	Rear oxygen sensor heater circuit malfunction	<Ref. to 2-7 [T10S0].☆1>
P0170	Fuel trim malfunction	<Ref. to 2-7 [T10T0].☆1>
P0181	Fuel temperature sensor A circuit range/performance problem	<Ref. to 2-7 [T10U0].☆1>
P0182	Fuel temperature sensor A circuit low input	<Ref. to 2-7 [T10V0].☆1>
P0183	Fuel temperature sensor A circuit high input	<Ref. to 2-7 [T10W0].☆1>
P0261	Fuel injector circuit low input - #1	<Ref. to 2-7 [T10X0].☆1>
P0262	Fuel injector circuit high input - #1	<Ref. to 2-7 [T10Y0].☆1>
P0264	Fuel injector circuit low input - #2	<Ref. to 2-7 [T10Z0].☆1>

DTC No.	Item	Index
P0265	Fuel injector circuit high input - #2	<Ref. to 2-7 [T10AA0].☆1>
P0267	Fuel injector circuit low input - #3	<Ref. to 2-7 [T10AB0].☆1>
P0268	Fuel injector circuit high input - #3	<Ref. to 2-7 [T10AC0].☆1>
P0270	Fuel injector circuit low input - #4	<Ref. to 2-7 [T10AD0].☆1>
P0271	Fuel injector circuit high input - #4	<Ref. to 2-7 [T10AE0].☆1>
P0301	Cylinder 1 misfire detected	<Ref. to 2-7 [T10AF0].☆1>
P0302	Cylinder 2 misfire detected	<Ref. to 2-7 [T10AG0].☆1>
P0303	Cylinder 3 misfire detected	<Ref. to 2-7 [T10AH0].☆1>
P0304	Cylinder 4 misfire detected	<Ref. to 2-7 [T10AI0].☆1>
P0325	Knock sensor circuit malfunction	<Ref. to 2-7 [T10AJ0].☆1>
P0335	Crankshaft position sensor circuit malfunction	<Ref. to 2-7 [T10AK0].☆1>
P0336	Crankshaft position sensor circuit range/performance problem	<Ref. to 2-7 [T10AL0].☆1>
P0340	Camshaft position sensor circuit malfunction	<Ref. to 2-7 [T10AM0].☆1>
P0341	Camshaft position sensor circuit range/performance problem	<Ref. to 2-7 [T10AN0].☆1>
P0400	Exhaust gas recirculation flow malfunction	<Ref. to 2-7 [T10AO0].☆1>
P0403	Exhaust gas recirculation circuit low input	<Ref. to 2-7 [T10AP0].☆1>
P0420	Catalyst system efficiency below threshold	<Ref. to 2-7 [T10AQ0].☆1>
P0440	Evaporative emission control system malfunction	<Ref. to 2-7 [T10AR0].☆2>
P0441	Evaporative emission control system incorrect purge flow	<Ref. to 2-7 [T10AS0].☆1>
P0443	Evaporative emission control system purge control valve circuit low input	<Ref. to 2-7 [T10AT0].☆1>
P0446	Evaporative emission control system vent control low input	<Ref. to 2-7 [T10AU0].☆2>
P0451	Evaporative emission control system pressure sensor range/performance problem	<Ref. to 2-7 [T10AV0].☆2>
P0452	Evaporative emission control system pressure sensor low input	<Ref. to 2-7 [T10AW0].☆2>
P0453	Evaporative emission control system pressure sensor high input	<Ref. to 2-7 [T10AX0].☆2>
P0461	Fuel level sensor circuit range/performance problem	<Ref. to 2-7 [T10AY0].☆1>
P0462	Fuel level sensor circuit low input	<Ref. to 2-7 [T10AZ0].☆1>
P0463	Fuel level sensor circuit high input	<Ref. to 2-7 [T10BA0].☆1>

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

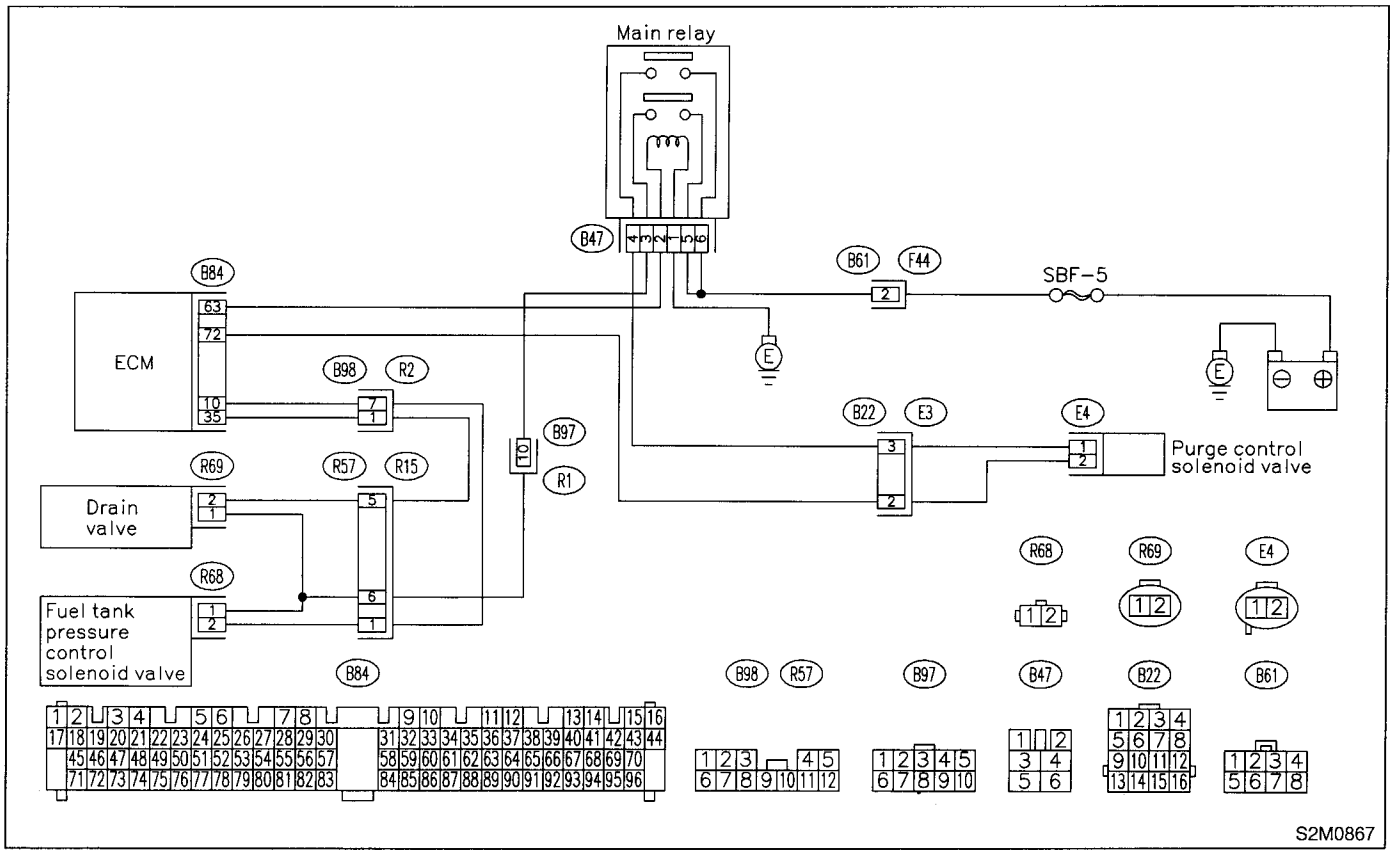
DTC No.	Item	Index
P1102	Pressure sources switching solenoid valve circuit low input	<Ref. to 2-7 [T10CC0].☆1>
P1103	Engine torque control signal circuit malfunction	<Ref. to 2-7 [T10CD0].☆1>
P1120	Starter switch circuit high input	<Ref. to 2-7 [T10CE0].☆1>
P1121	Neutral position switch circuit low input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

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 <Ref. to 2-7 [T3D0].☆1> and INSPECTION MODES <Ref. to 2-7 [T3E0].☆1>.

- **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].☆2>
NO : Go to step **10AR2**.

10AR2 : CHECK FUEL FILLER CAP.

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

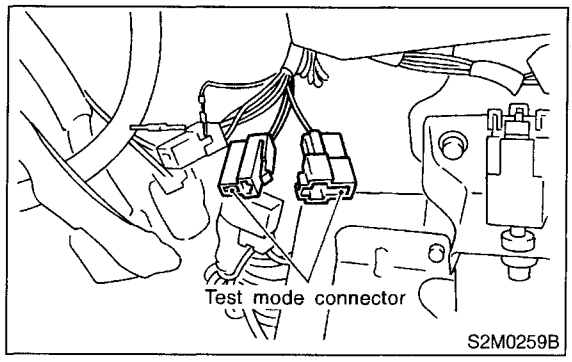
CHECK : ***Is the fuel filler cap tightened securely?***
YES : Tighten fuel filler cap securely.
NO : Go to step **10AR3**.

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**.

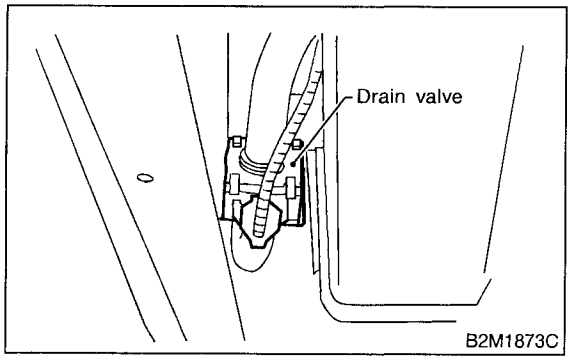
10AR4 : CHECK DRAIN VALVE.

1) Connect test mode connector.



2) Turn ignition switch to ON.

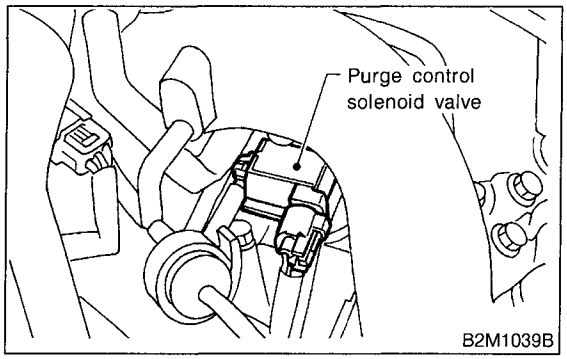
NOTE:
Drain valve operation check can also be executed using Subaru Select Monitor. For the procedure, refer to the "COMPULSORY VALVE OPERATION CHECK MODE". <Ref. to 2-7 [T3F0].☆2>



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

10AR5 : CHECK PURGE CONTROL SOLENOID VALVE.

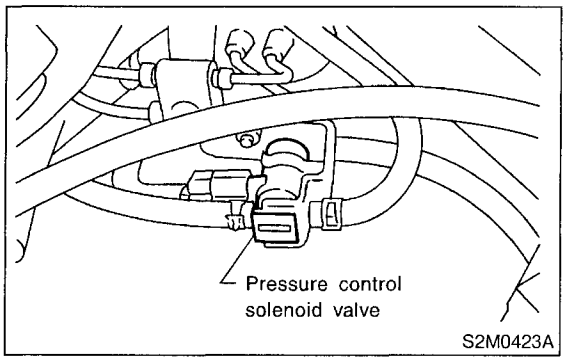
NOTE:
Purge control solenoid valve operation check can also be executed using Subaru Select Monitor. For the procedure, refer to the "COMPULSORY VALVE OPERATION CHECK MODE". <Ref. to 2-7 [T3F0].☆2>



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].☆2>



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.

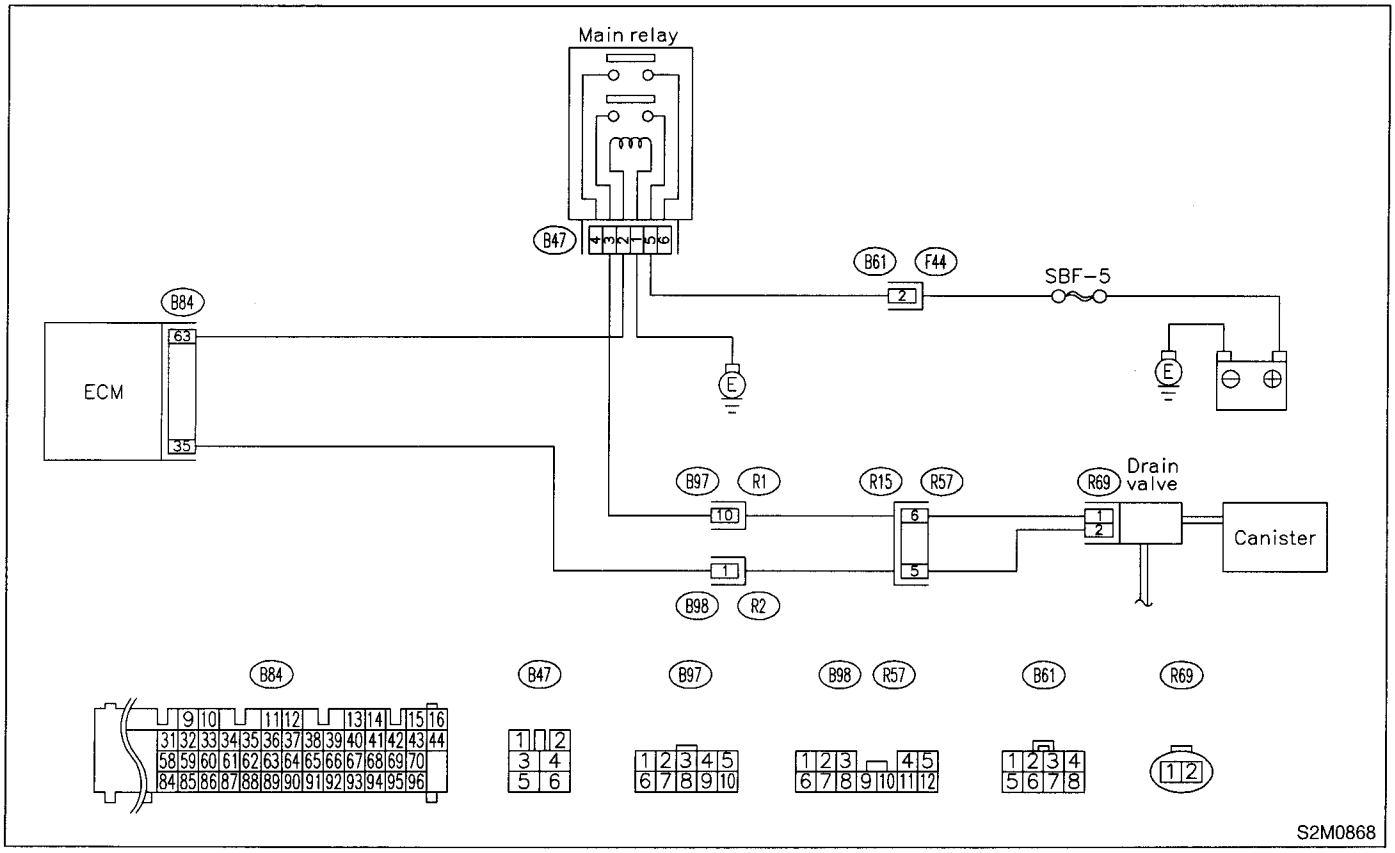
NOTE:
Inspection by DTM is required, because probable cause is deterioration of multiple parts.

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 <Ref. to 2-7 [T3D0].☆1> and INSPECTION MODES <Ref. to 2-7 [T3E0].☆1>.

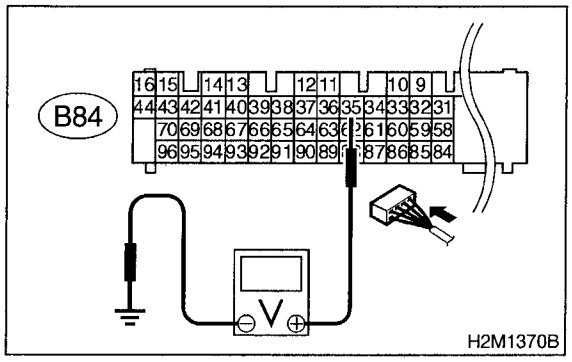
- **WIRING DIAGRAM:**



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].☆2>

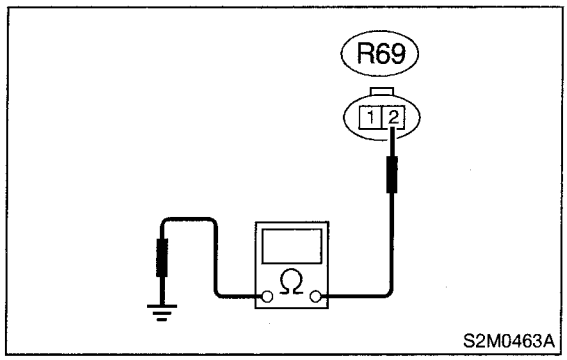
CHECK : ***Is there poor contact in ECM connector?***
YES : Repair poor contact in ECM connector.
NO : Even if MIL lights up, the circuit has returned to a normal condition at this time. (However, the possibility of poor contact still remains.)

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:

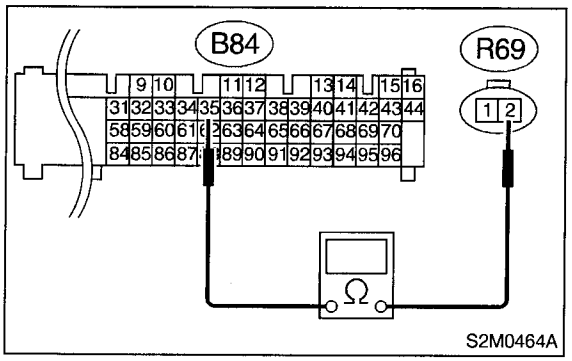


CHECK : ***Is the resistance less than 10 Ω?***
YES : Repair ground short circuit in harness between ECM and drain valve connector.
NO : Go to step **10AU4**.

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:



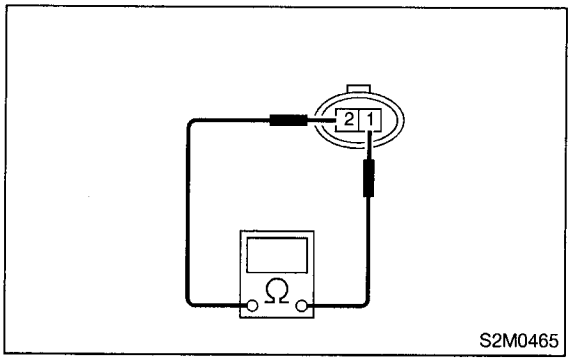
CHECK : ***Is the voltage less than 1 Ω?***
YES : Go to step **10AU5**.
NO : Repair harness and connector.

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:

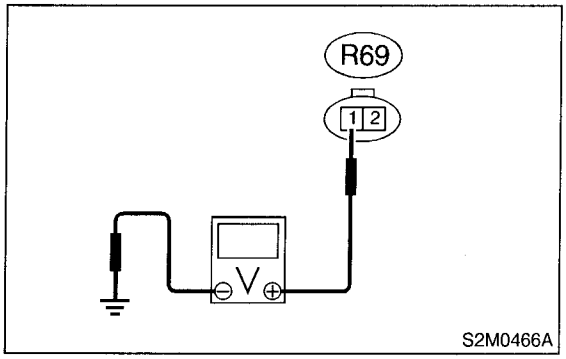


CHECK : ***Is the resistance between 10 and 100 Ω?***
YES : Go to step **10AU6**.
NO : Replace drain valve.

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].☆2>

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

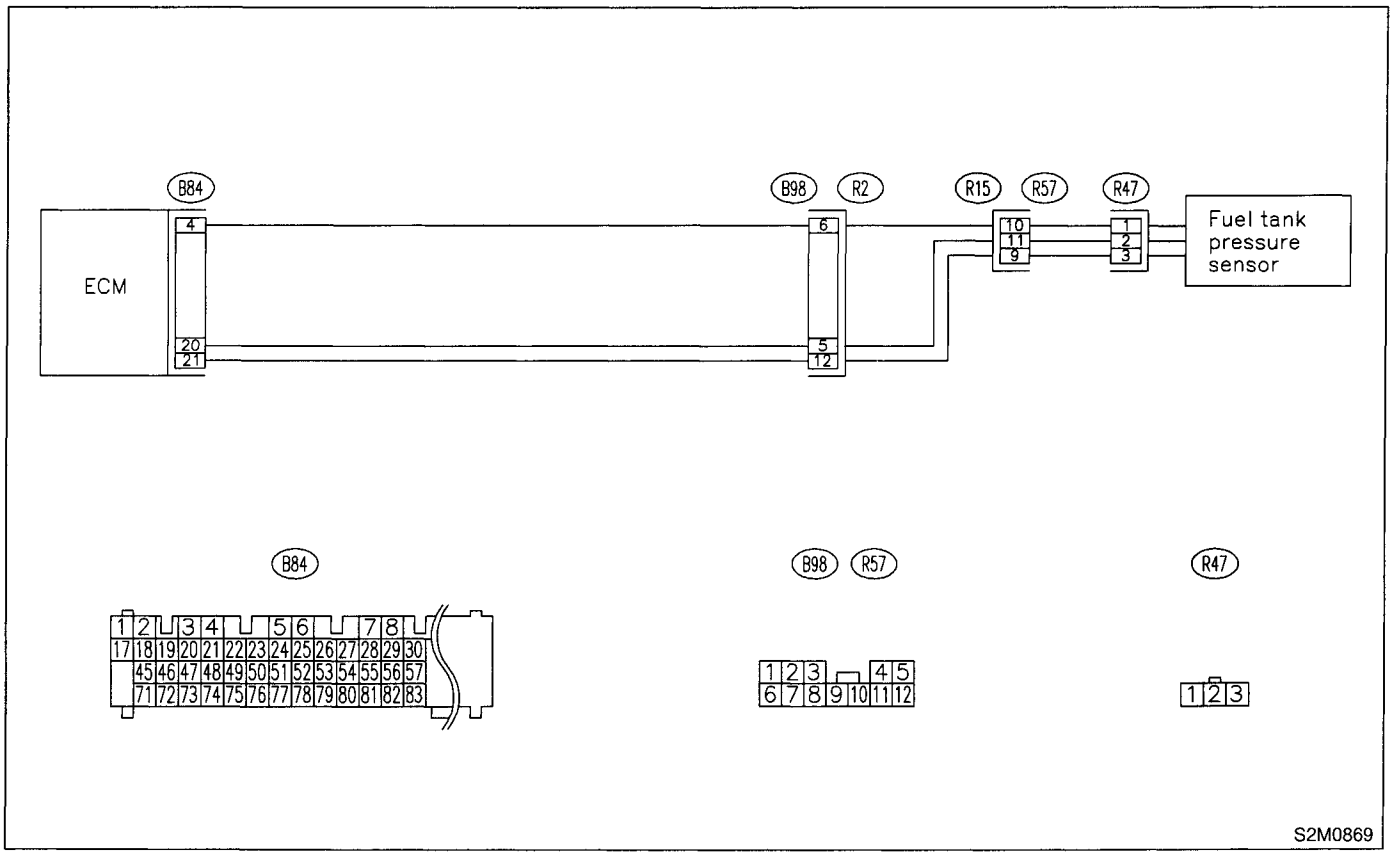
NOTE:
Inspection by DTM is required, because probable cause is deterioration of multiple parts.

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 <Ref. to 2-7 [T3D0].☆1> and INSPECTION MODES <Ref. to 2-7 [T3E0].☆1>.

- **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

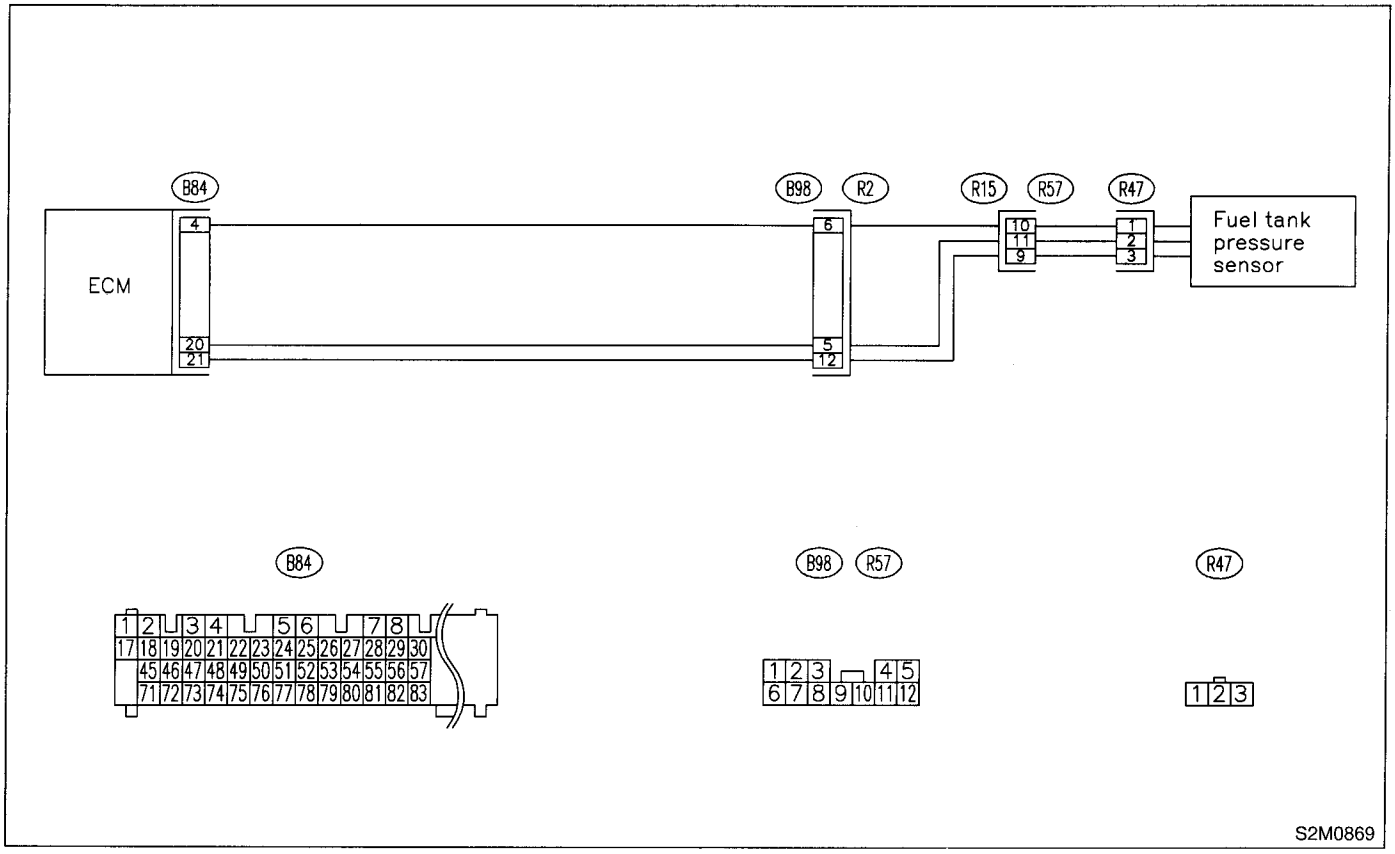
(CHECK) : ***Is there a fault in pressure/vacuum line?***
(YES) : Repair or replace hoses and pipes.
(NO) : Replace fuel tank pressure sensor.

AW: DTC P0452 — EVAPORATIVE EMISSION CONTROL SYSTEM PRESSURE SENSOR LOW INPUT —

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

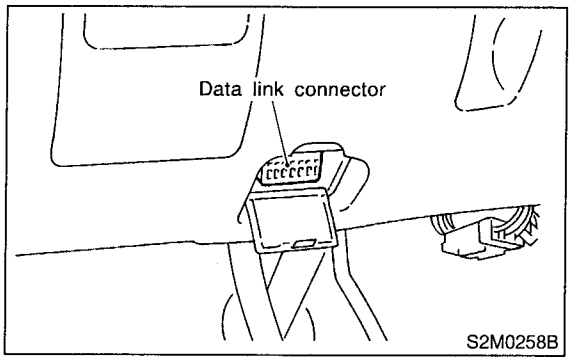
CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY <Ref. to 2-7 [T3D0].☆1> and INSPECTION MODES <Ref. to 2-7 [T3E0].☆1>.

- **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].☆2>
- OBD-II general scan tool

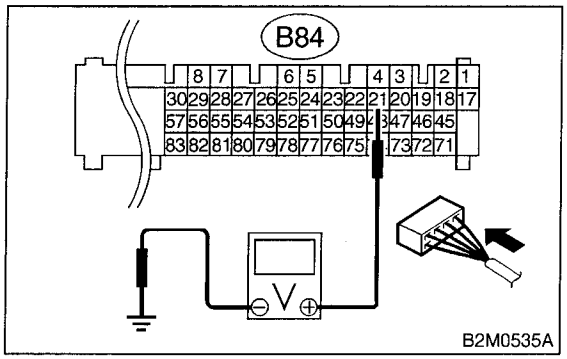
For detailed operation procedures, refer to the OBD-II General Scan Tool Instruction Manual.

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.

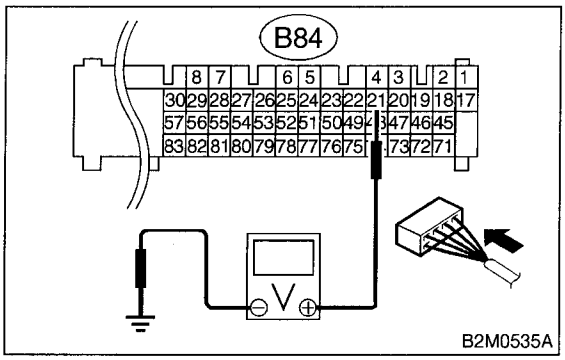
Connector & terminal
(B84) No. 21 (+) — Chassis ground (–):



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.



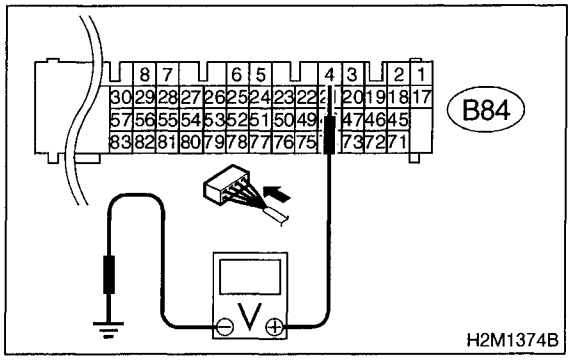
CHECK : ***Does the voltage change more than 4.5 V by shaking harness and connector of ECM while monitoring the value with voltage meter?***
YES : Repair poor contact in ECM connector.
NO : Contact with SOA service.

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

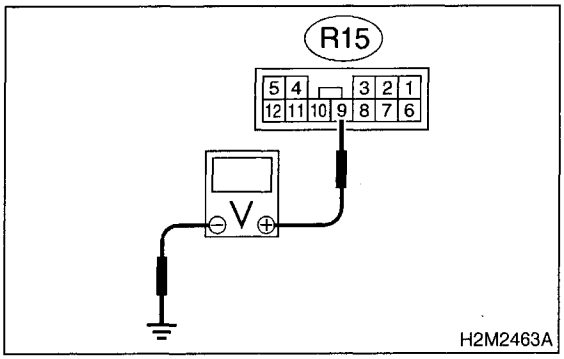
For detailed operation procedure, refer to the "READ CURRENT DATA SHOWN ON DISPLAY FOR ENGINE". <Ref. to 2-7 [T3C4].☆2>

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) Measure voltage between rear wiring harness connector and chassis ground.

Connector & terminal
(R15) No. 9 (+) — Chassis ground (–):



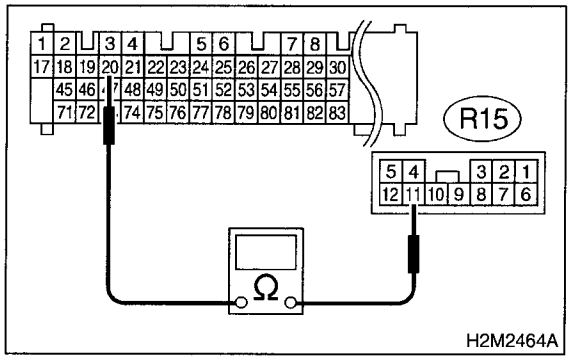
CHECK : ***Is the voltage more than 4.5 V?***
YES : Go to step **10AW7**.
NO : Repair harness and connector.

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:



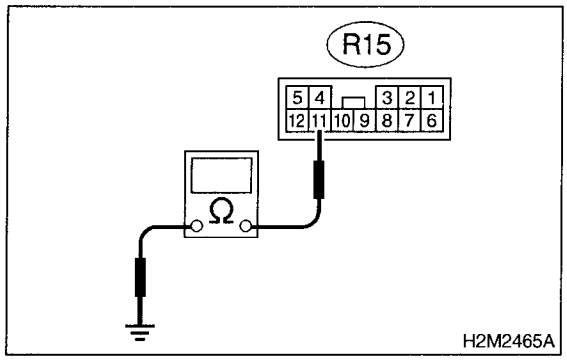
CHECK : ***Is the resistance less than 1 Ω?***
YES : Go to step **10AW8**.
NO : Repair harness and connector.

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:

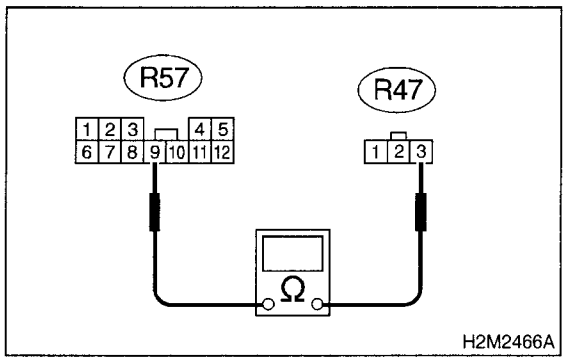


CHECK : ***Is the resistance more than 500 kΩ?***
YES : Go to step **10AW9**.
NO : Repair ground short circuit in harness between ECM and rear wiring harness connector (R15).

10AW9 : CHECK FUEL TANK CORD.

1) Remove fuel tank. <Ref. to 2-8 [W2A0].☆2>
2) Disconnect connector from fuel tank pressure sensor.
3) Measure resistance of fuel tank cord.

Connector & terminal
(R57) No. 9 — (R47) No. 3:

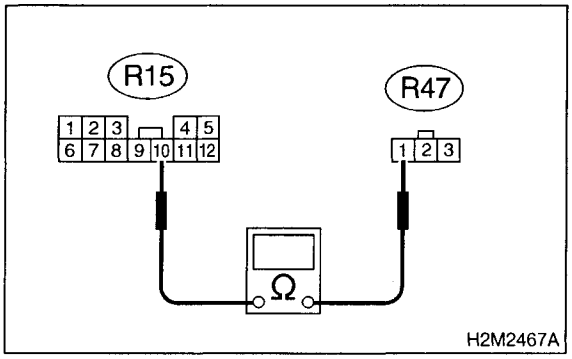


CHECK : ***Is the resistance less than 1 Ω?***
YES : Go to step **10AW10**.
NO : Repair open circuit in fuel tank cord.

10AW10 : CHECK FUEL TANK CORD.

Measure resistance of fuel tank cord.

Connector & terminal
(R15) No. 10 — (R47) No. 1:

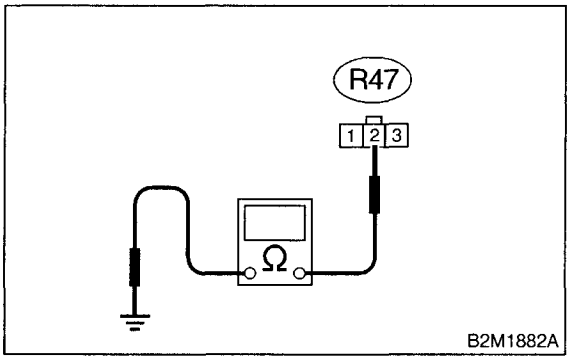


CHECK : ***Is the resistance less than 1 Ω?***
YES : Go to step **10AW11**.
NO : Repair open circuit in fuel tank cord.

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].☆2>

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.

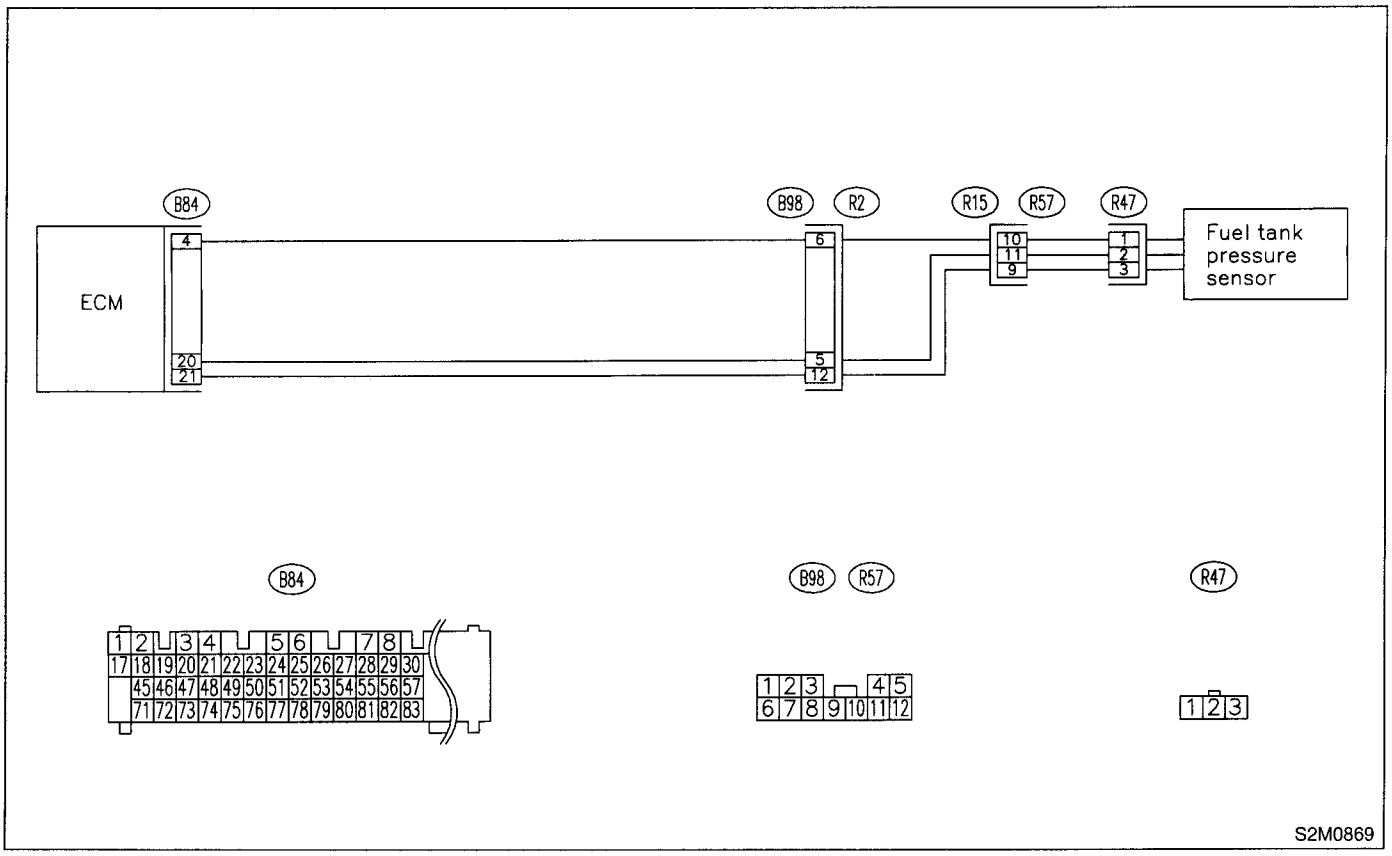
MEMO:

AX: DTC P0453 — EVAPORATIVE EMISSION CONTROL SYSTEM PRESSURE SENSOR HIGH INPUT —

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

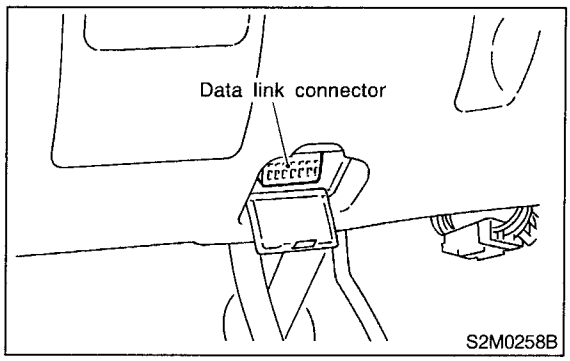
CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY <Ref. to 2-7 [T3D0].☆1> and INSPECTION MODES <Ref. to 2-7 [T3E0].☆1>.

- **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].☆2>
- OBD-II general scan tool

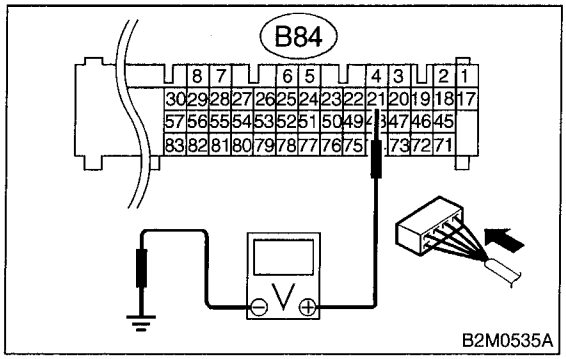
For detailed operation procedures, refer to the OBD-II General Scan Tool Instruction Manual.

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 (–):

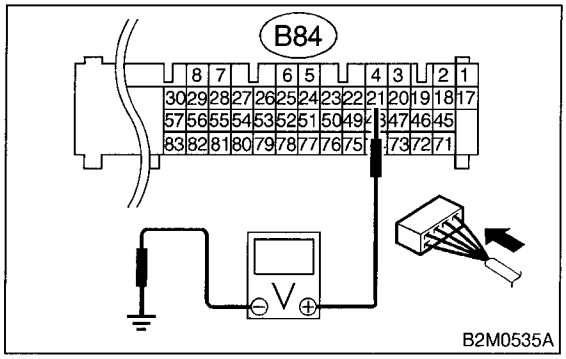


CHECK : ***Is the voltage more than 4.5 V?***
YES : Go to step **10AX4**.
NO : Go to step **10AX3**.

10AX3 : CHECK POWER SUPPLY TO FUEL TANK PRESSURE SENSOR.

Measure voltage between ECM connector and chassis ground.

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

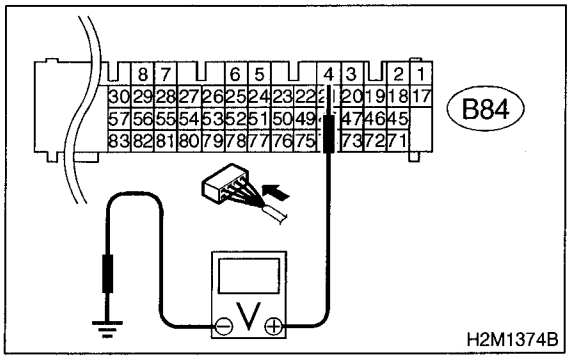


CHECK : ***Does the voltage change more than 4.5 V by shaking harness and connector of ECM while monitoring the value with voltage meter?***
YES : Repair poor contact in ECM connector.
NO : Replace ECM.

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

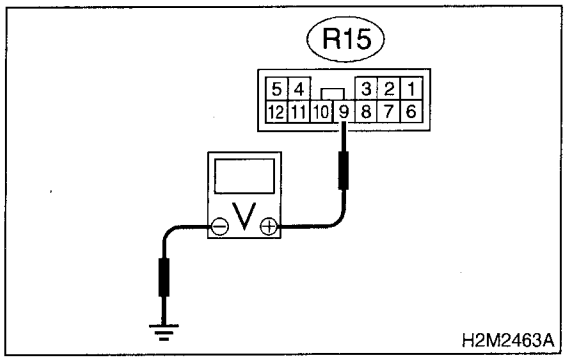
For detailed operation procedure, refer to the "READ CURRENT DATA SHOWN ON DISPLAY FOR ENGINE". <Ref. to 2-7 [T3C4].☆2>

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 (–):



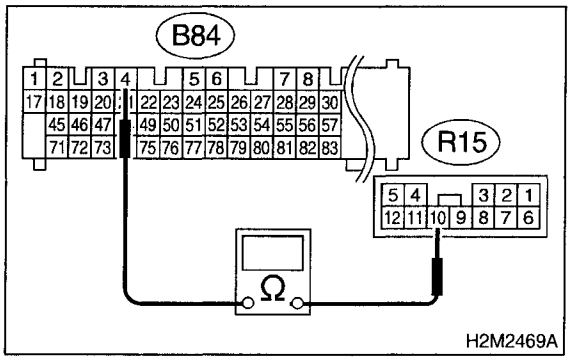
CHECK : ***Is the voltage more than 4.5 V?***
YES : Go to step **10AX7**.
NO : Repair harness and connector.

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:



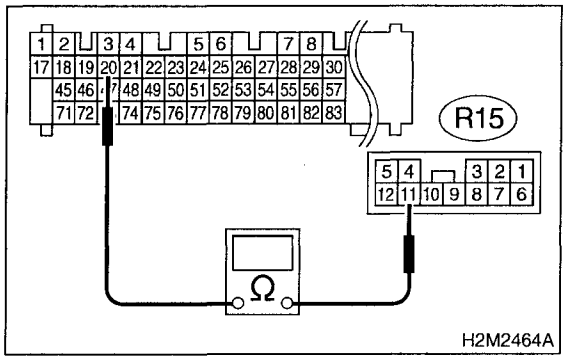
CHECK : ***Is the resistance less than 1 Ω?***
YES : Go to step **10AX8**.
NO : Repair harness and connector.

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:

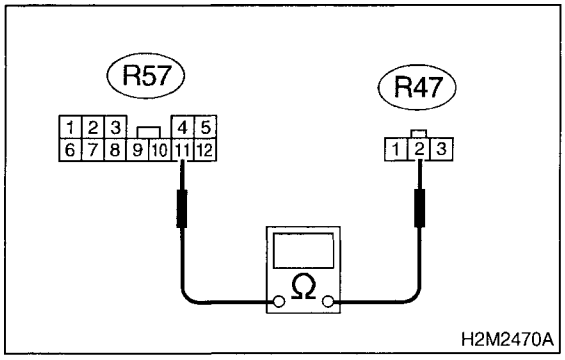


CHECK : ***Is the resistance less than 1 Ω?***
YES : Go to step **10AX9**.
NO : Repair ground short circuit in harness between ECM and rear wiring harness connector (R15).

10AX9 : CHECK FUEL TANK CORD.

1) Remove fuel tank. <Ref. to 2-8 [W2A0].☆2>
2) Disconnect connector from fuel tank pressure sensor.
3) Measure resistance of fuel tank cord.

Connector & terminal
(R57) No. 11 — (R47) No. 2:

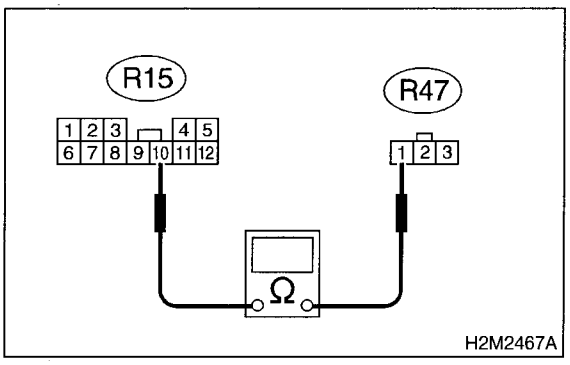


CHECK : ***Is the resistance less than 1 Ω?***
YES : Go to step **10AX10**.
NO : Repair open circuit in fuel tank cord.

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 **10AX11**.
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].☆2>

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 [W2A0].☆2>
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].☆2>
- 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.

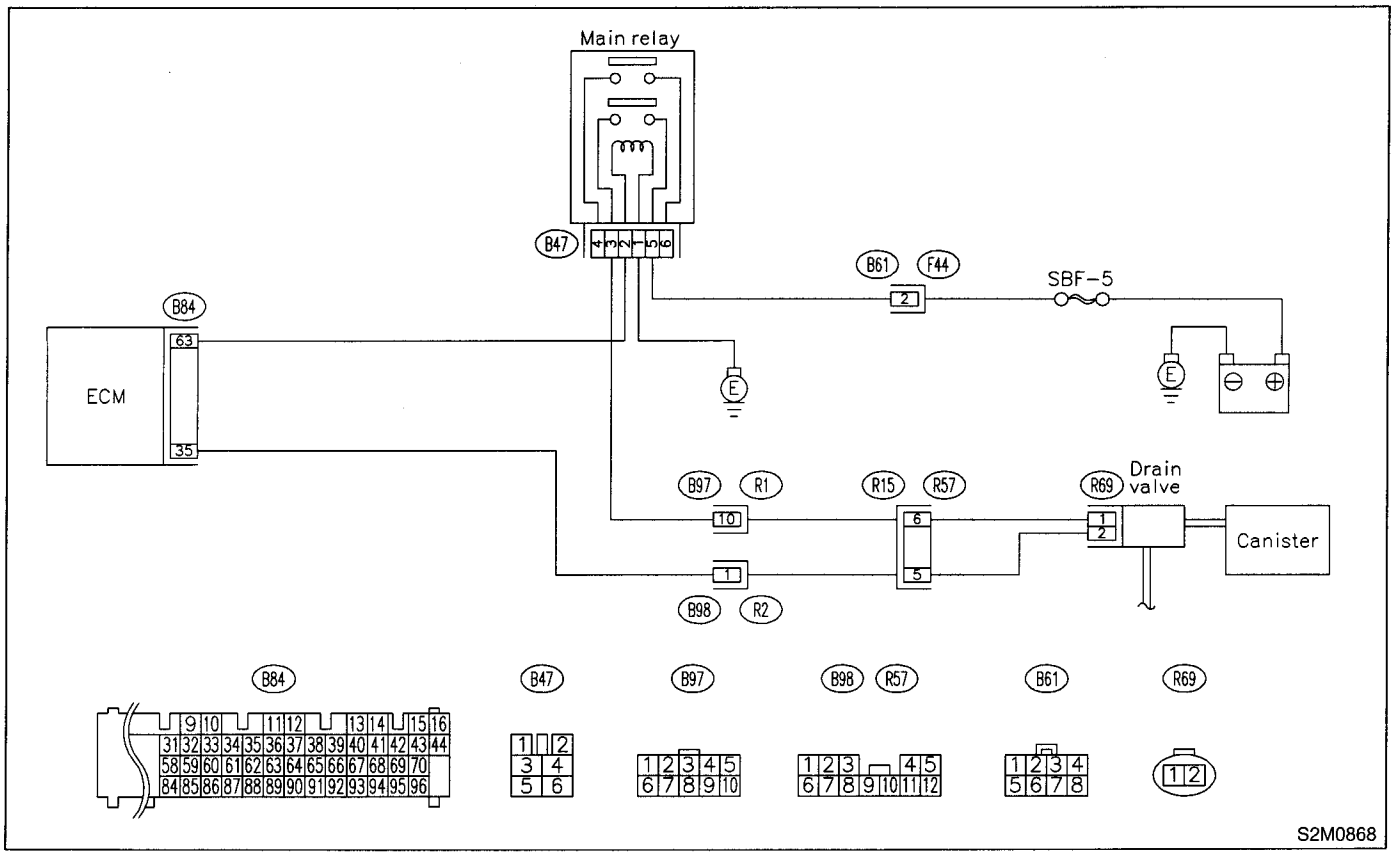
MEMO:

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 <Ref. to 2-7 [T3D0].☆1> and INSPECTION MODES <Ref. to 2-7 [T3E0].☆1>.

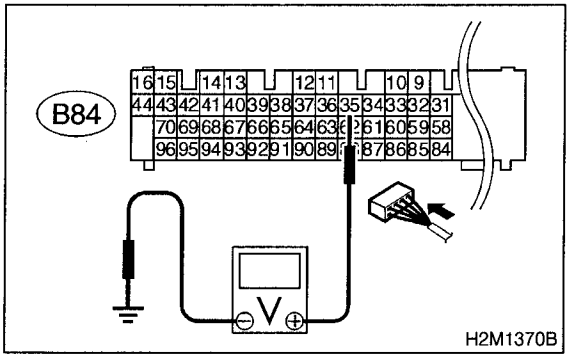
- **WIRING DIAGRAM:**



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.

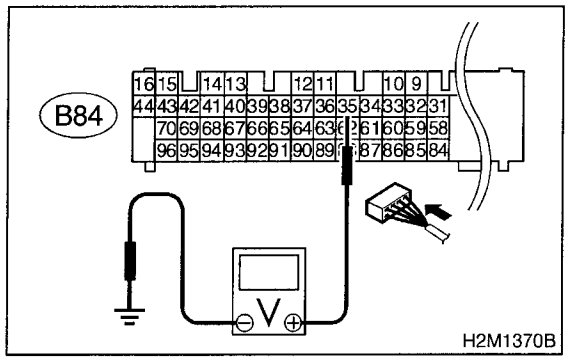
Check poor contact in ECM connector. <Ref. to FOREWORD [T3C1].☆2>

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 (–):

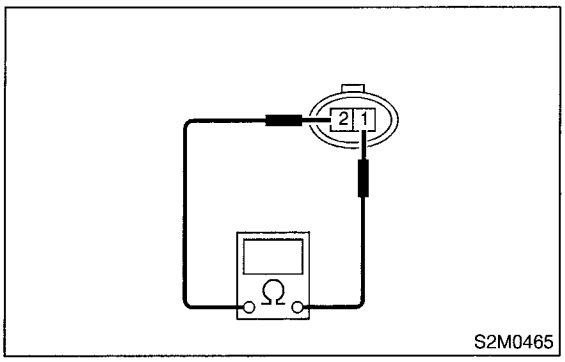


CHECK : ***Is the voltage more than 10 V?***
YES : Repair battery short circuit in harness between ECM and drain valve connector. After repair, replace ECM.
NO : Go to step **10CP4**.

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].☆2>

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

YES : Repair poor contact in ECM connector.

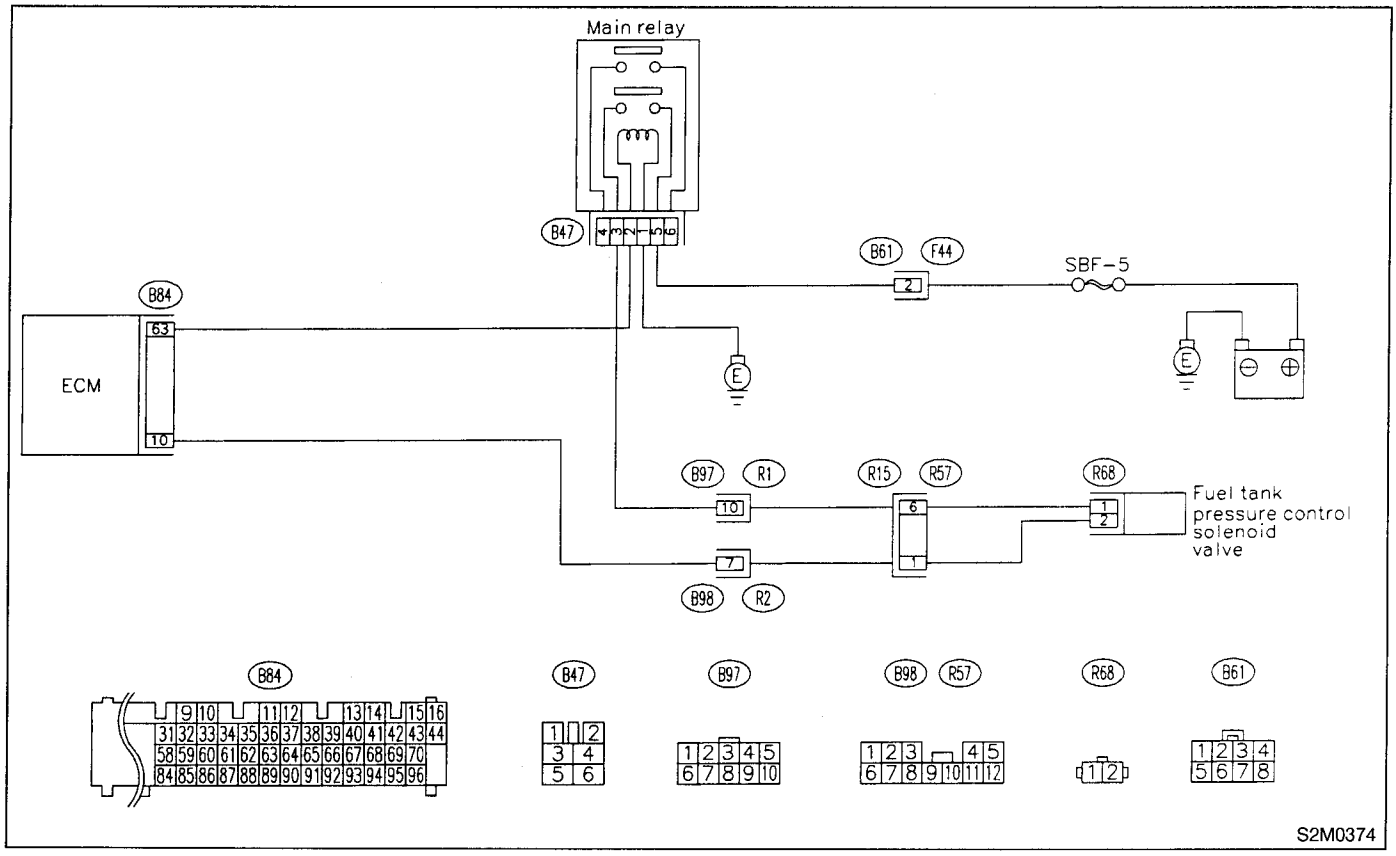
NO : Replace ECM.

CQ: DTC P1440 — FUEL TANK PRESSURE CONTROL SYSTEM FUNCTION PROBLEM (LOW INPUT) —

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

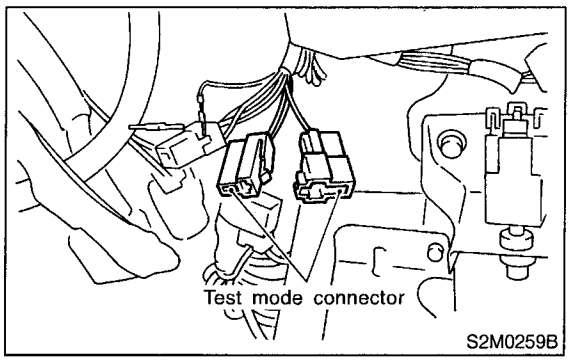
CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY <Ref. to 2-7 [T3D0].☆1> and INSPECTION MODES <Ref. to 2-7 [T3E0].☆1>.

- **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].☆2>

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**.

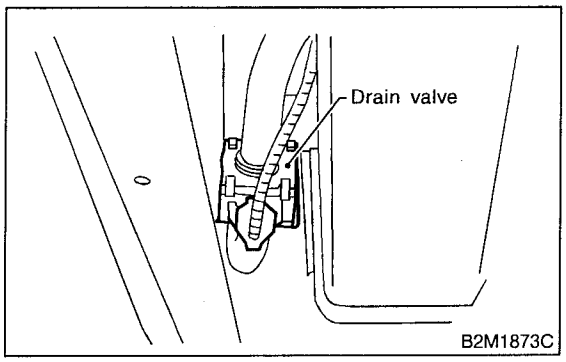
10CQ3 : CHECK FUEL FILLER PIPE SEAL.

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.

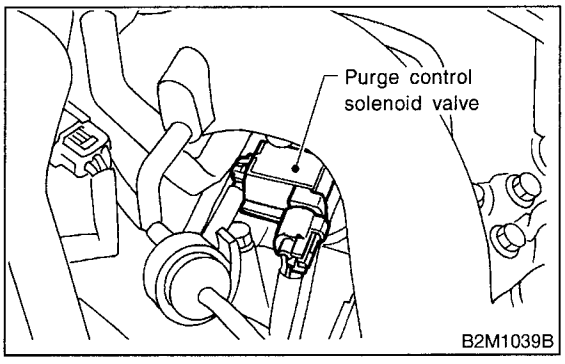
NOTE:
Drain valve operation check can also be executed using Subaru Select Monitor. For the procedure, refer to "COMPULSORY VALVE OPERATION CHECK MODE". <Ref. to 2-7 [T3F0].☆2>



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].☆2>



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.

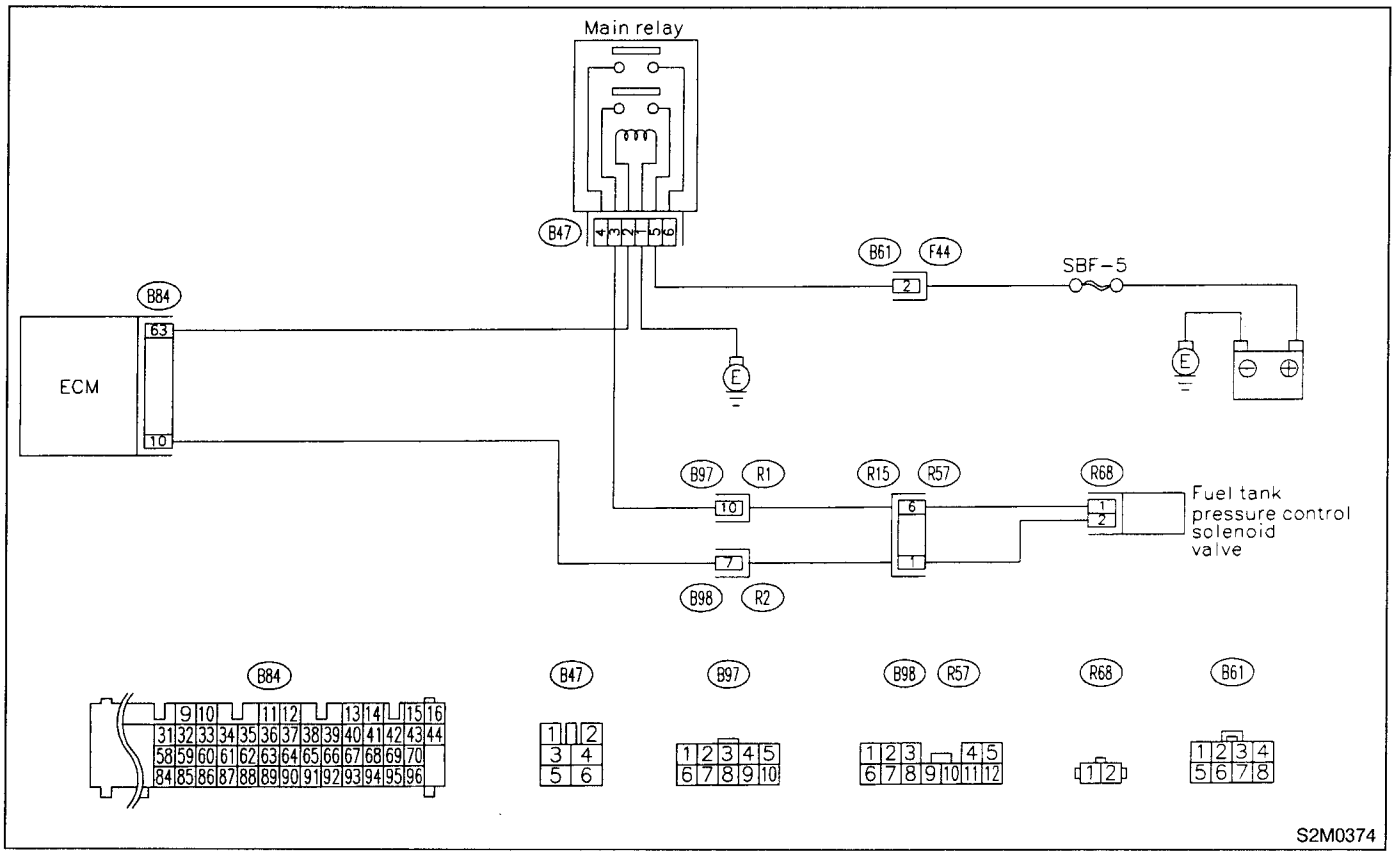
NOTE:
Inspection by DTM is required, because probable cause is deterioration of multiple parts.

CR: P1441 — FUEL TANK PRESSURE CONTROL SYSTEM FUNCTION PROBLEM (HIGH INPUT) —

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

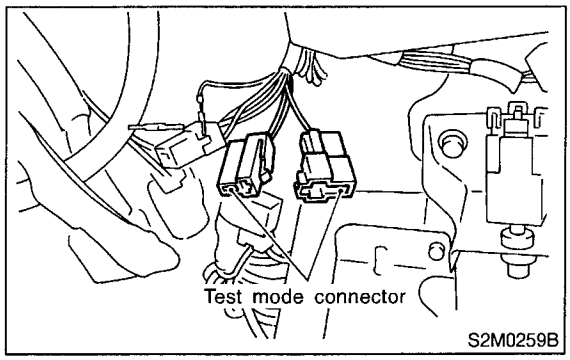
CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY <Ref. to 2-7 [T3D0].☆1> and INSPECTION MODES <Ref. to 2-7 [T3E0].☆1>.

- **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].☆2>

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.

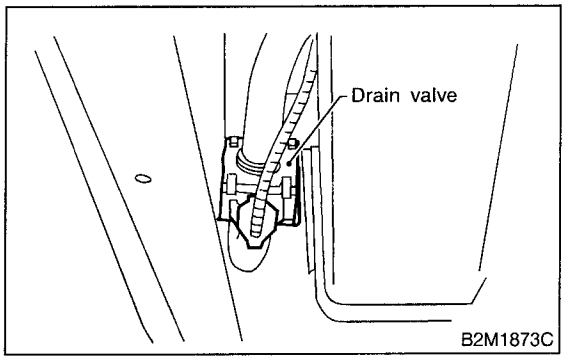
1) Turn ignition switch to OFF.
2) Open the fuel flap.

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.

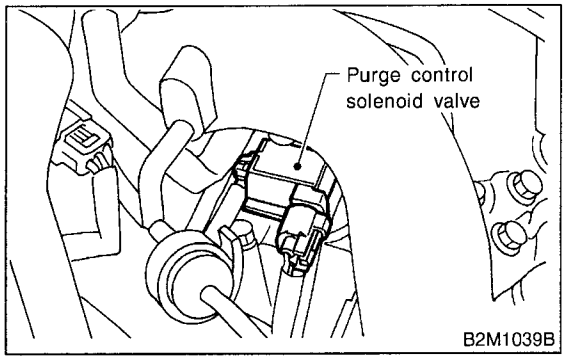
NOTE:
Drain valve operation check can also be executed using Subaru Select Monitor. For the procedure, refer to "COMPULSORY VALVE OPERATION CHECK MODE". <Ref. to 2-7 [T3F0].☆2>



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].☆2>



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.

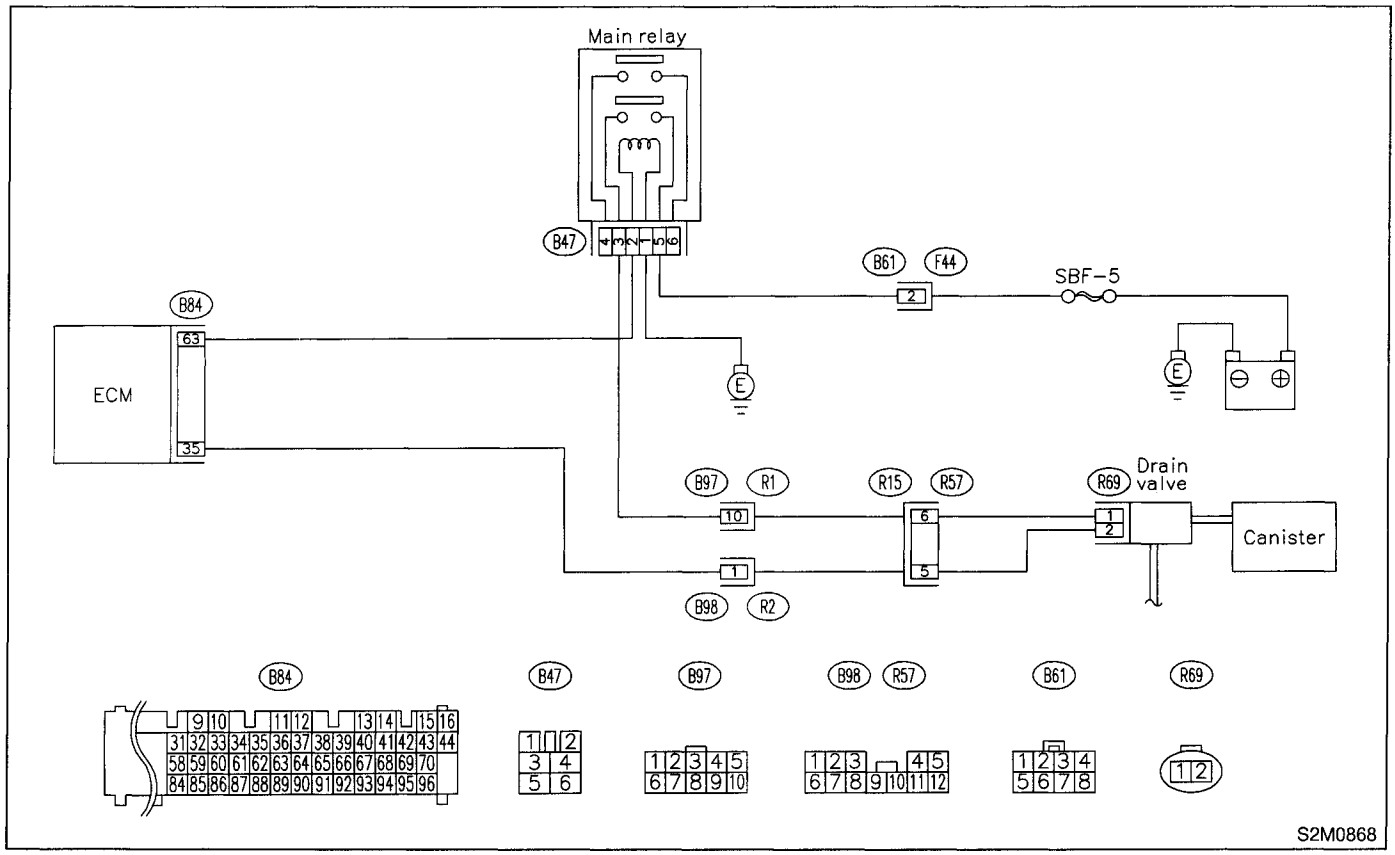
NOTE:
Inspection by DTM is required, because probable cause is deterioration of multiple parts.

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 <Ref. to 2-7 [T3D0].☆1> and INSPECTION MODES <Ref. to 2-7 [T3E0].☆1>.

- **WIRING DIAGRAM:**



10DC1 :	CHECK ANY OTHER DTC ON DISPLAY.

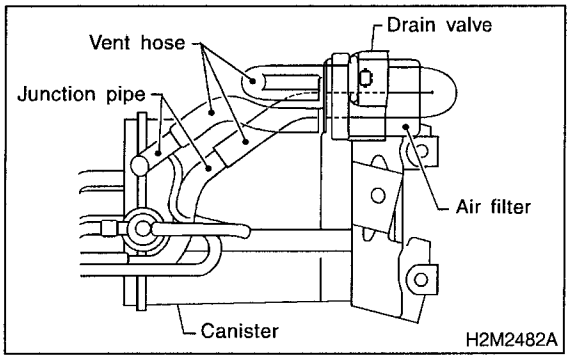
CHECK : ***Is there any other DTC on display?***

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

NO : Go to step **10DC2**.

10DC2 : CHECK VENT LINE HOSES.

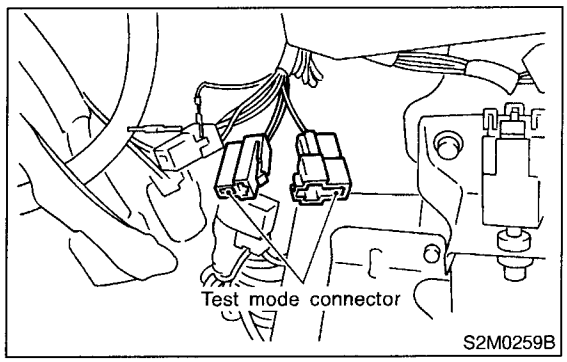
Check the following items.
- Clogging of vent hoses between canister and drain valve
- Clogging of vent hose between drain valve and air filter
- Clogging of vent hose between air filter and junction pipe
- Clogging of junction pipe
- Clogging of air filter



CHECK : ***Is there a fault in vent line?***
YES : Repair or replace the faulty part.
NO : Go to step **10DC3**.

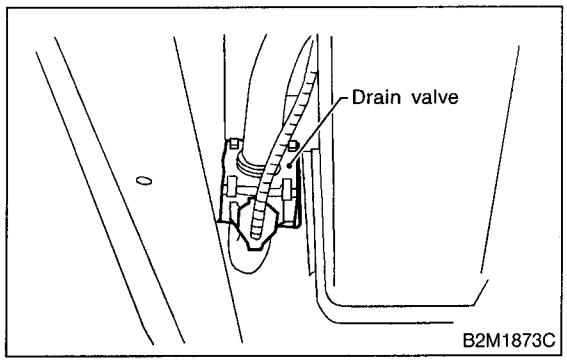
10DC3 : CHECK DRAIN VALVE OPERATION.

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].☆2>



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.