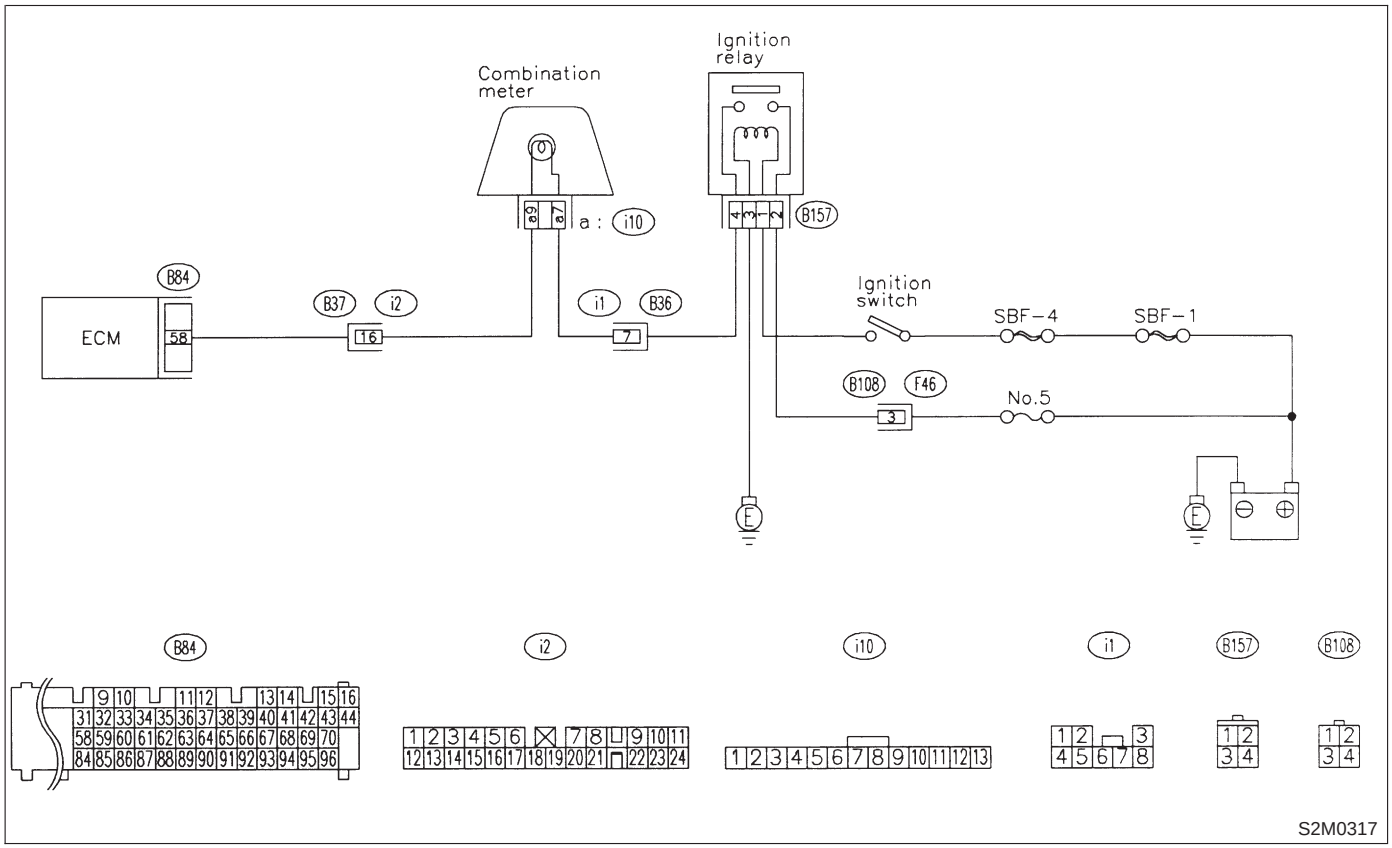
7. Diagnostics for CHECK ENGINE Malfunction Indicator Lamp (MIL)

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

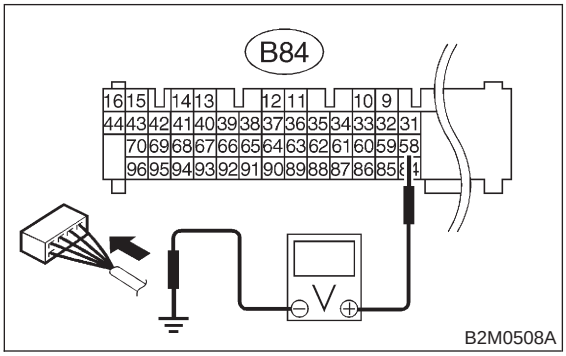
- **DIAGNOSIS:**
  - The CHECK ENGINE malfunction indicator lamp (MIL) circuit is open or shorted.
- **TROUBLE SYMPTOM:**
  - When ignition switch is turned ON (engine OFF), MIL does not come on.
- **WIRING DIAGRAM:**



7A1 : CHECK OUTPUT SIGNAL FROM ECM.

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

Connector & terminal
(B84) No. 58 (+) — Chassis ground (−):



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

7A2 : CHECK POOR CONTACT.

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

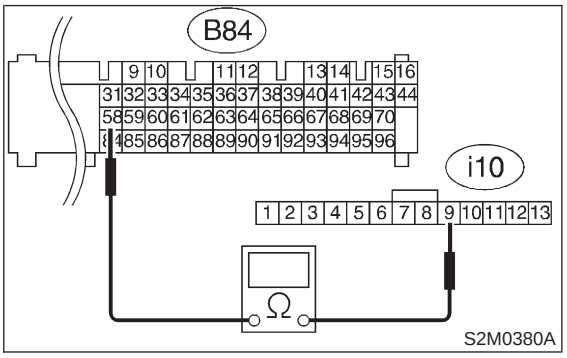
7A3 : CHECK ECM CONNECTOR.

CHECK : ***Is ECM connector correctly connected?***
YES : Replace ECM.
NO : Repair connection of ECM connector.

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

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

Connector & terminal
(B84) No. 58 — (i10) No. 9:



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

NOTE:
In this case, repair the following:
- Open circuit in harness between ECM and combination meter connector
- Poor contact in coupling connector (i2)

7A5 : CHECK POOR CONTACT.

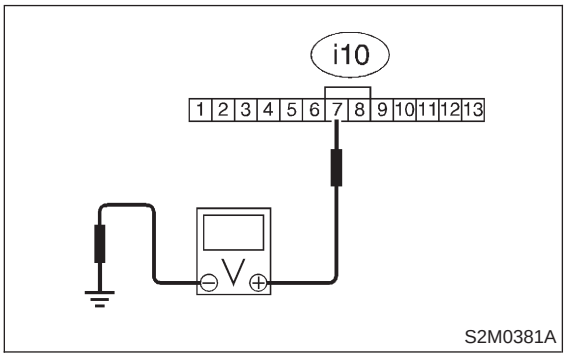
Check poor contact in combination meter connector. <Ref. to FOREWORD [T3C1].>

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

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

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

Connector & terminal
(i10) No. 7 (+) — Chassis ground (−):



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

NOTE:
- Broken down ignition relay.
- Blown out fuse (No. 15).
- If replaced fuse (No. 15) blows easily, check the harness for short circuit of harness between fuse (No. 15) and ignition relay connector.
- Open or short circuit in harness between fuse (No. 15) and battery terminal
- Open circuit in harness between fuse (No. 15) and ignition relay connector
- Poor contact in coupling connector (i1 and B108)
- Poor contact in ignition relay connector
- Poor contact in ignition switch connector

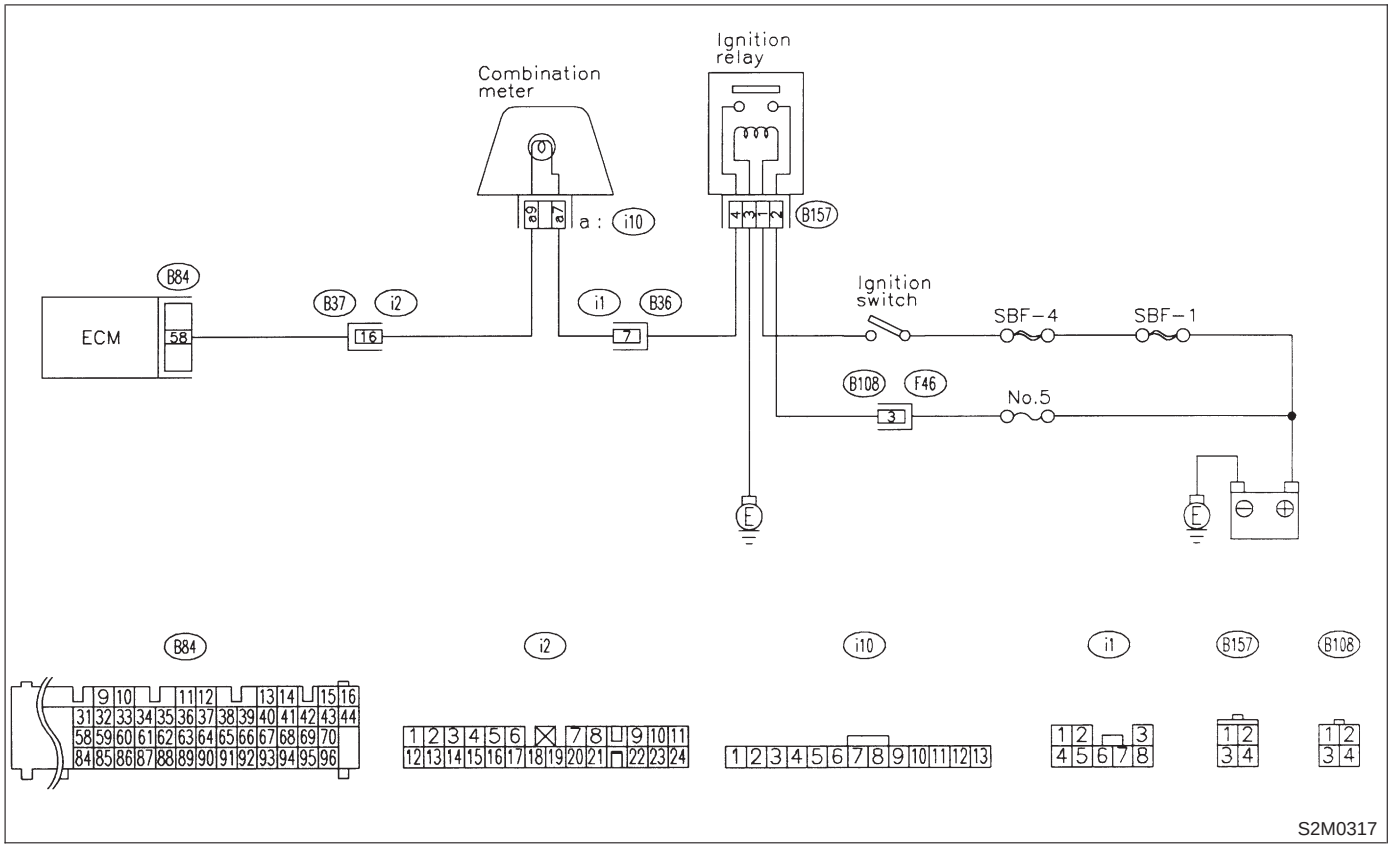
7A7 : CHECK POOR CONTACT.

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

CHECK : ***Is there poor contact in combination meter connector?***
YES : Repair poor contact in combination meter connector.
NO : Replace bulb or combination meter.

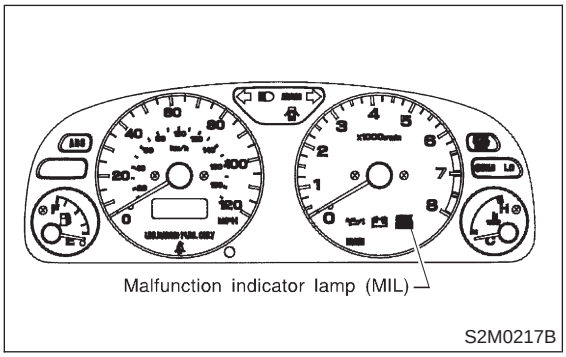
B: CHECK ENGINE MALFUNCTION INDICATOR LAMP (MIL) DOES NOT GO OFF.

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



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

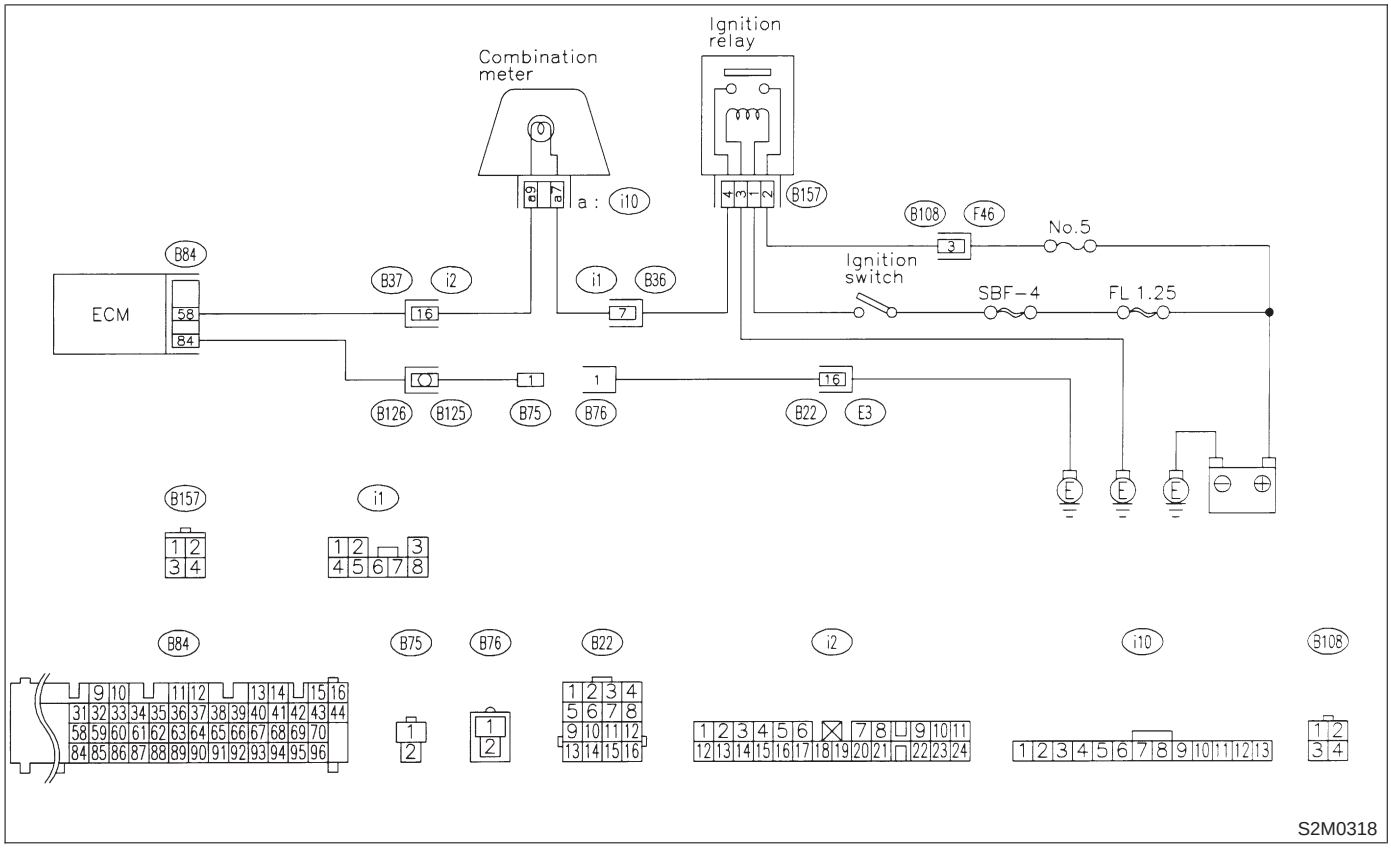
1) Turn ignition switch to OFF.
2) Disconnect connector from ECM.
3) Turn ignition switch to ON.



CHECK : ***Does the MIL come on?***
YES : Repair short circuit in harness between combination meter and ECM connector.
NO : Replace ECM.

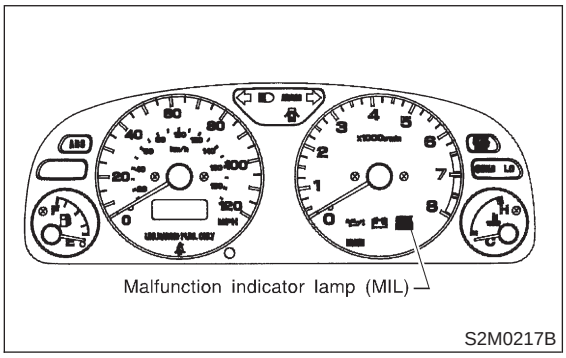
C: CHECK ENGINE MALFUNCTION INDICATOR LAMP (MIL) DOES NOT BLINK AT A CYCLE OF 3 Hz.

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



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

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

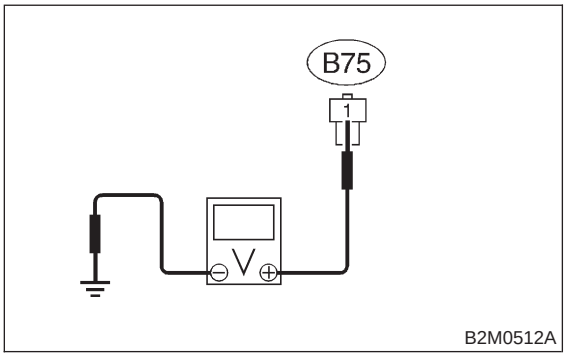


CHECK : ***Does the MIL come on?***
YES : Go to step **7C2**.
NO : Repair the MIL circuit. <Ref. to 2-7 [T7A0].>

7C2 : CHECK OUTPUT SIGNAL FROM ECM.

Measure voltage between test mode connector and chassis ground.

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

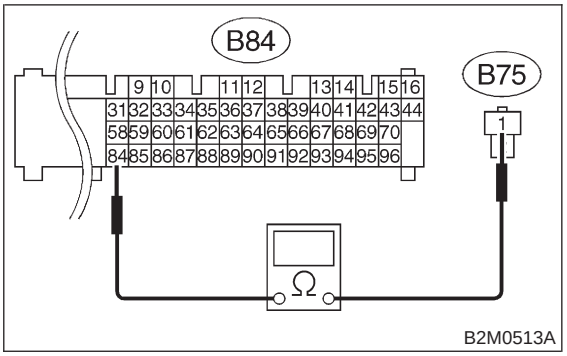


CHECK : ***Is voltage less than 1 V?***
YES : Go to step **7C3**.
NO : Go to step **7C5**.

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

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

Connector & terminal
(B84) No. 84 — (B75) No. 1:



CHECK : ***Is resistance less than 1 Ω?***
YES : Go to step **7C4**.
NO : Repair harness and connector.

NOTE:
In this case, repair the following:
- Open circuit in harness between ECM and test mode connector
- Poor contact in coupling connector (B125)

7C4 : CHECK POOR CONTACT.

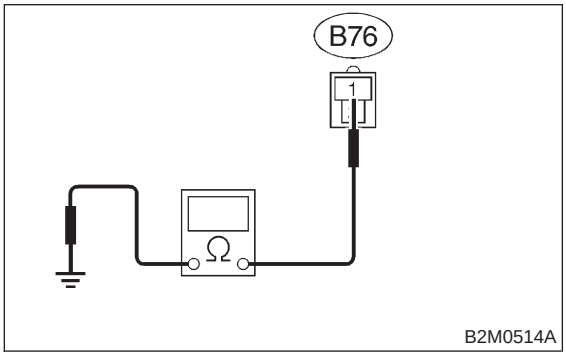
Check poor contact in ECM connector. <Ref. to FOREWORD [T3C1].>

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

7C5 : CHECK GROUND CIRCUIT.

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

Connector & terminal
(B76) No. 1 — Chassis ground:

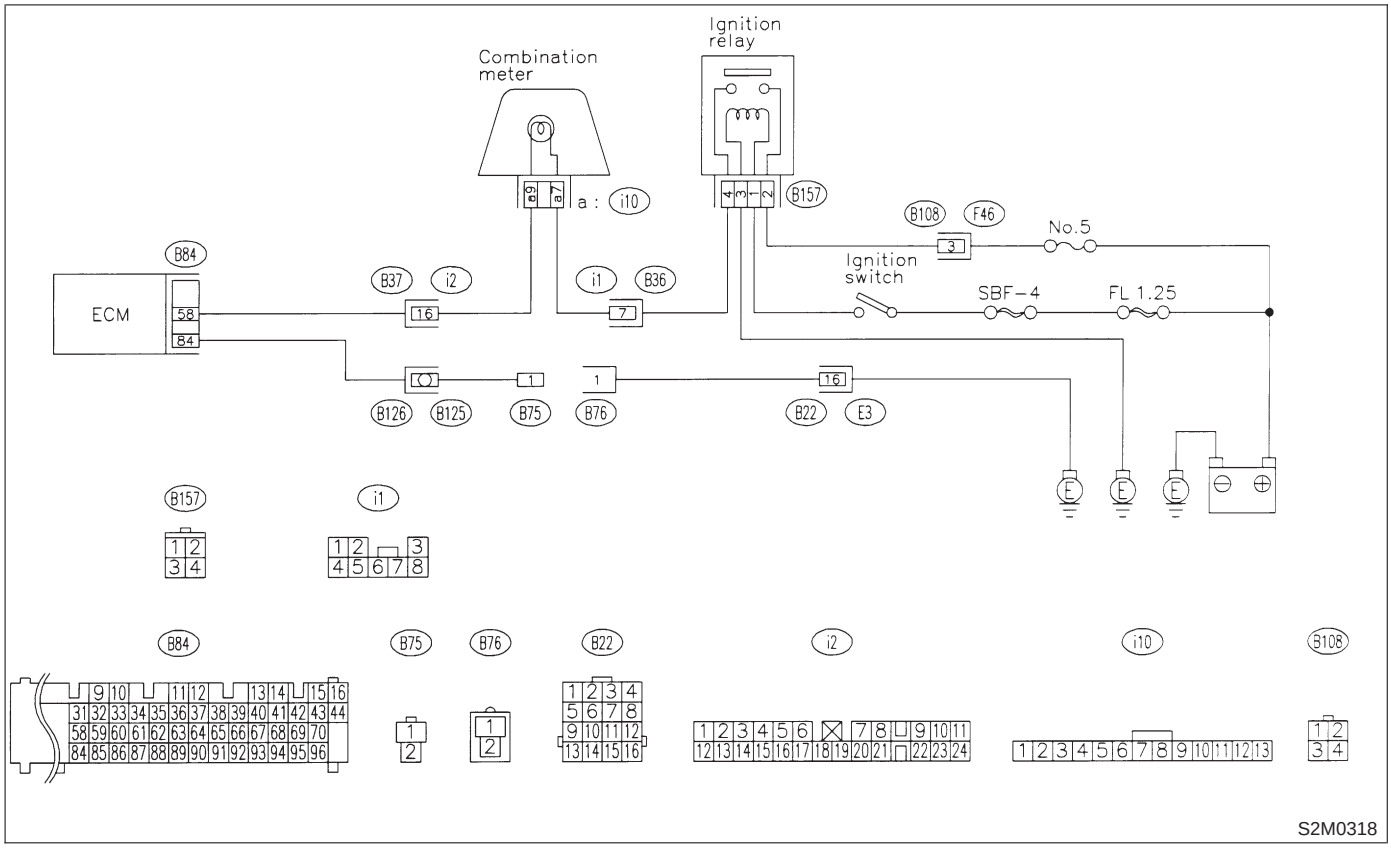


CHECK : ***Is resistance less than 5 Ω?***
YES : Repair poor contact in test mode connector.
NO : Repair harness and connector.

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

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

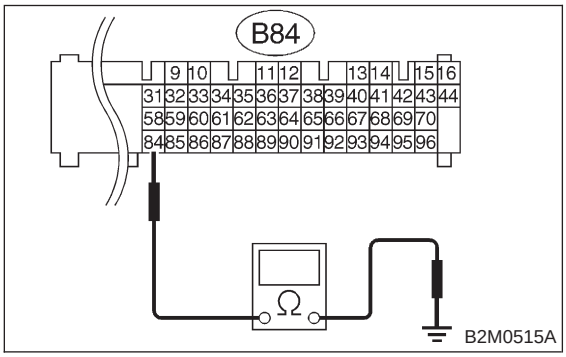
- **DIAGNOSIS:**
  - Test mode connector circuit is shorted.
- **TROUBLE SYMPTOM:**
  - Even though test mode connector is disconnected, MIL blinks at a cycle of 3 Hz when ignition switch is turned to ON.
- **WIRING DIAGRAM:**



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

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

Connector & terminal
(B84) No. 84 — Chassis ground:



CHECK : ***Is resistance less than 5 Ω?***
YES : Repair short circuit in harness between ECM and test mode connector.
NO : Replace ECM.