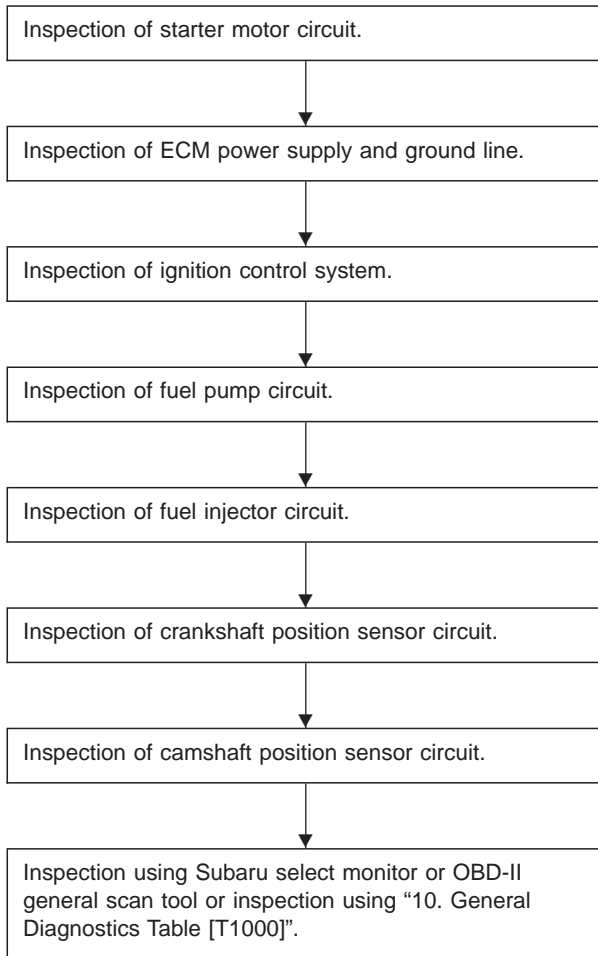
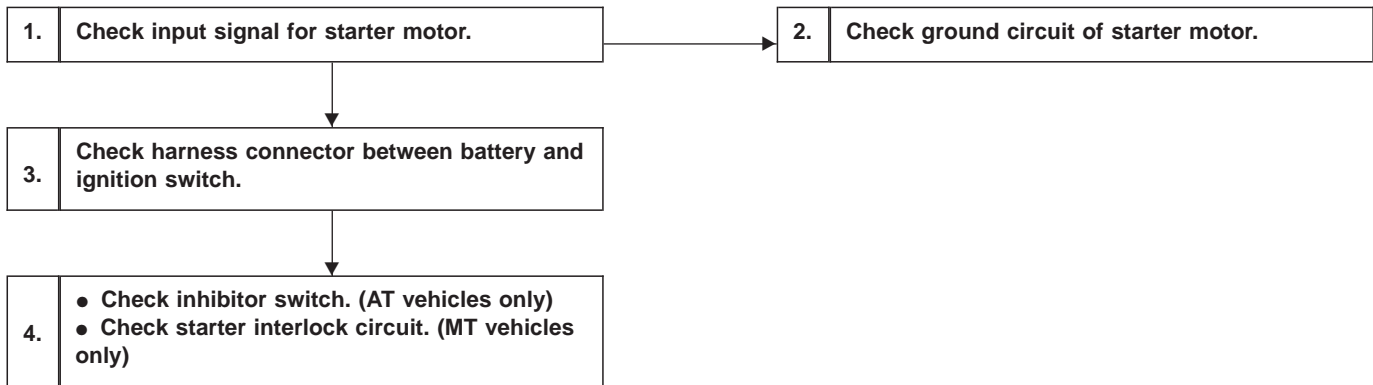


9. Diagnostics for Engine Starting Failure

A: BASIC DIAGNOSTICS CHART

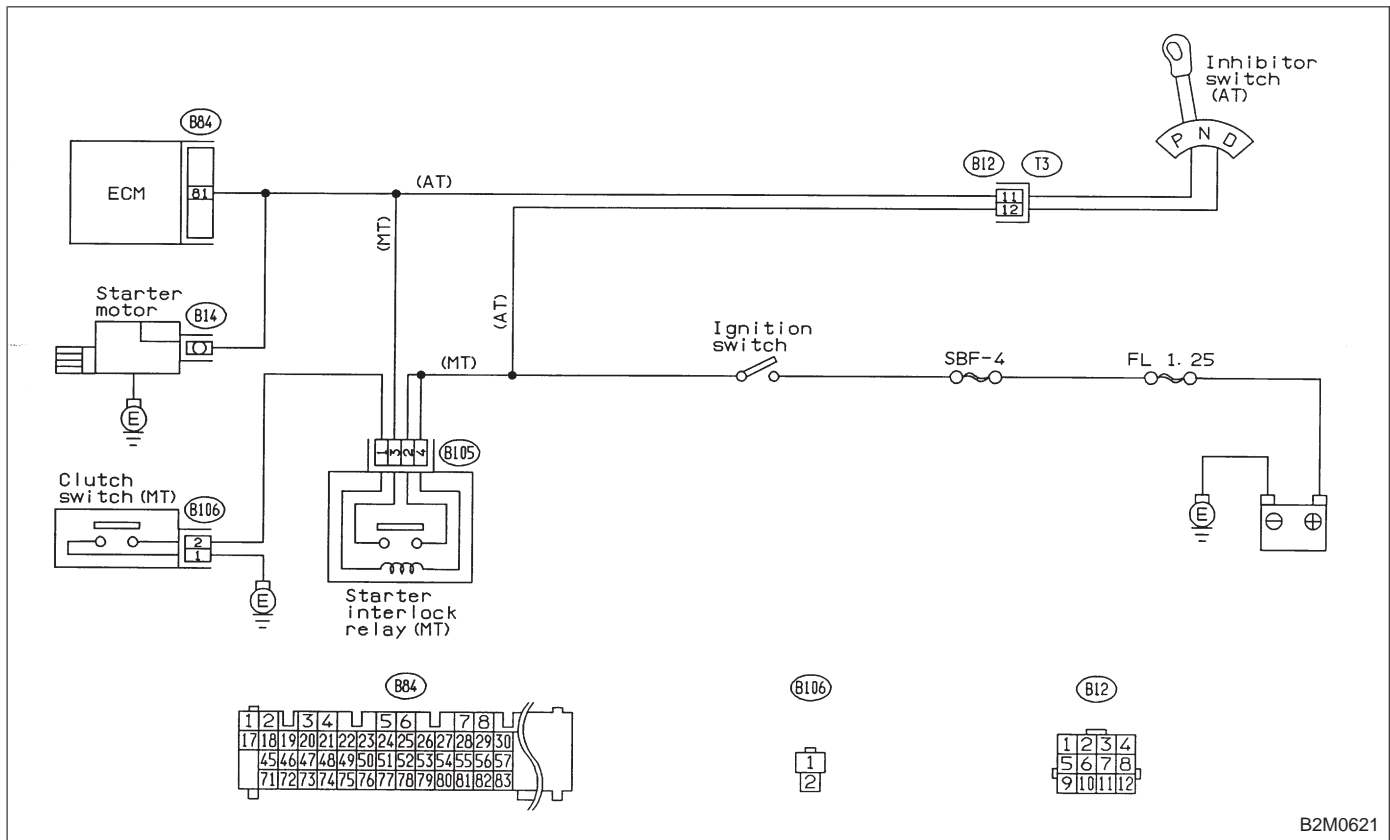


B: STARTER MOTOR CIRCUIT

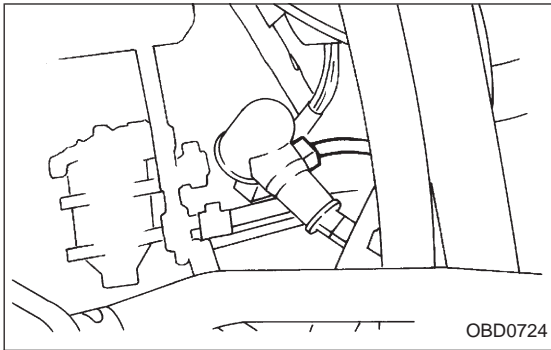


CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY and INSPECTION MODES. <Ref. to [T3D0] and [T3E0].>

WIRING DIAGRAM:

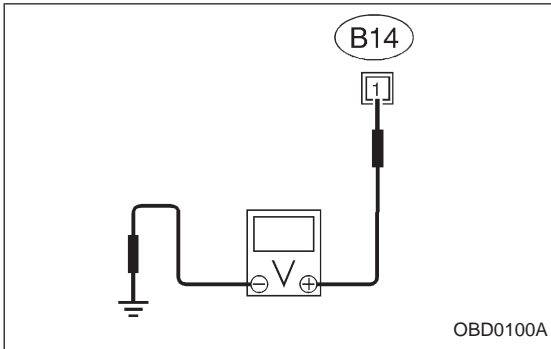


B2M0621



1 CHECK INPUT SIGNAL FOR STARTER MOTOR.

- 1) Turn ignition switch to OFF.
- 2) Disconnect connector from starter motor.
- 3) Turn ignition switch to ST.



- 4) Measure power supply voltage between starter motor connector terminal and body.

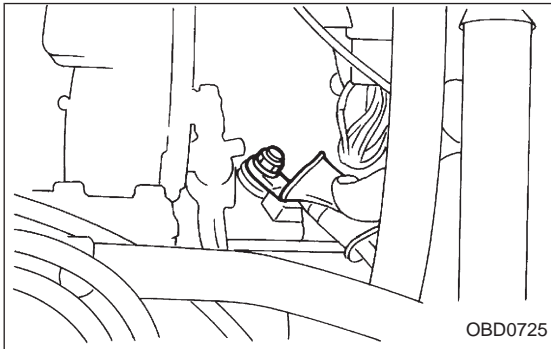
CHECK : **Connector & terminal (B14) No. 1 — Body/10 V, or more**

NOTE:

- On AT vehicles, place the inhibitor switch in the “P” or “N” position.
- On MT vehicles, depress the clutch pedal.

YES : Go to step 2.

NO : Go to step 3.



2 CHECK GROUND CIRCUIT OF STARTER MOTOR.

- 1) Turn ignition switch to OFF.
- 2) Disconnect terminal from starter motor.
- 3) Measure resistance of ground cable between ground cable terminal and body.

CHECK : **Is resistance less than 10 Ω?**

YES : Check starter motor. <Ref. to “6-1 [K100]”.>

NO : Repair open circuit of ground cable.

3 CHECK HARNESS CONNECTOR BETWEEN BATTERY AND IGNITION SWITCH.

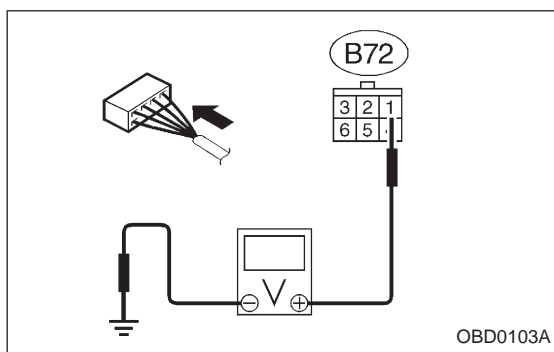
- 1) Turn ignition switch to OFF.
- 2) Remove SBF No. 4 from main fuse box.
- 3) Measure resistance of fuse.

CHECK : **Is resistance less than 1 Ω?**

NO : Replace SBF No. 4.

YES : Go to next step.

- 4) Install SBF No. 4 to main fuse box.
- 5) Turn ignition switch to ON.

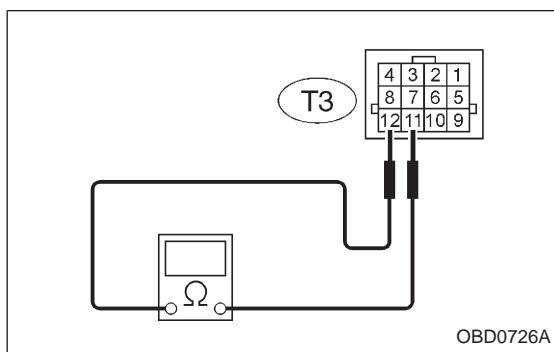


- 6) Measure power supply voltage between ignition switch connector and body.

CHECK : **Connector & terminal (B72) No. 1 — Body/10 V, or more**

YES : Go to step 4.

NO : Repair harness between ignition switch connector and body.



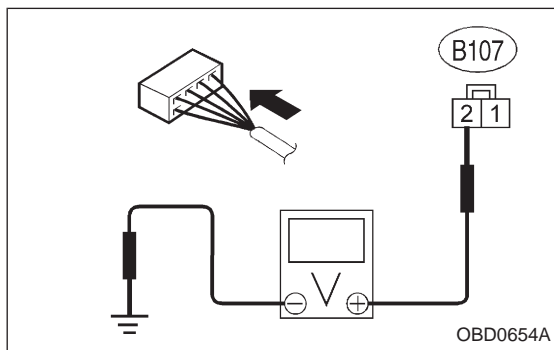
4 ● CHECK INHIBITOR SWITCH. (AT VEHICLES ONLY)

- 1) Turn ignition switch to OFF.
- 2) Disconnect connector from transmission.
- 3) Measure resistance between transmission harness connector receptacle's terminals.

CHECK : **Connector & terminal (T3) No. 11 — No. 12/10 Ω, or less**

YES : Repair harness between starter motor and ignition switch connector.

NO : Repair or replace inhibitor switch.



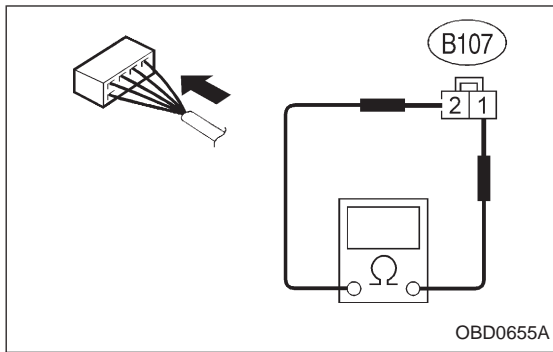
4 ● CHECK STARTER INTERLOCK CIRCUIT. (MT VEHICLES ONLY)

- 1) Turn ignition switch to "ST".
- 2) Measure voltage between clutch switch connector and body.

CHECK : **Connector & terminal (B107) No. 2 — Body/10 V, or more**

NO : Replace starter interlock relay.

YES : Go to next step.



- 3) Turn ignition switch to OFF.
- 4) Measure resistance between clutch switch connector terminals while depressing the clutch pedal.

CHECK : **Connector & terminal**
(B107) No. 1 — No. 2/10 Ω , or less

YES : Repair harness between starter motor and ignition switch connector.

NO : Replace clutch switch.

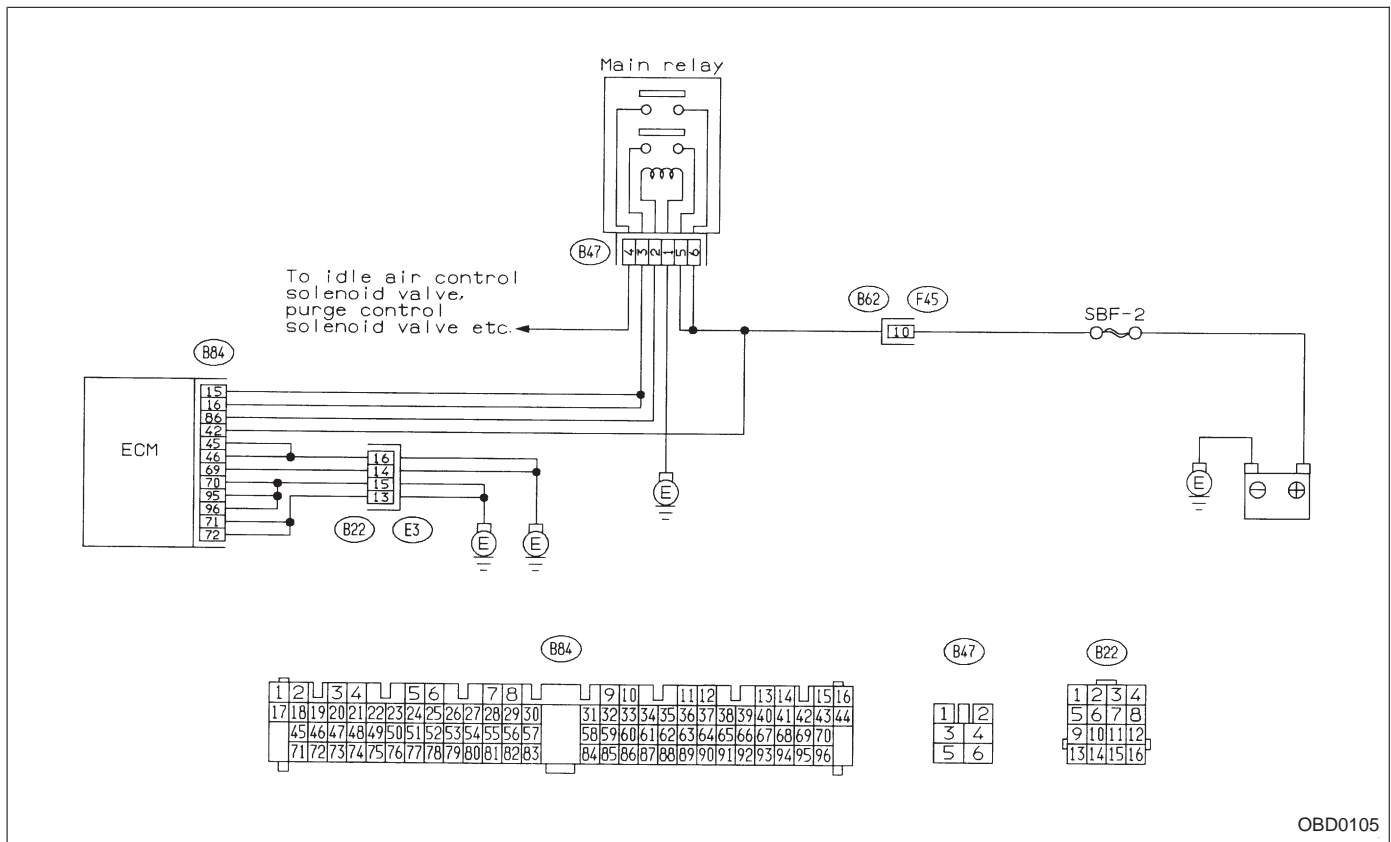
C: CONTROL MODULE POWER SUPPLY AND GROUND LINE

1. Check main relay.
2. Check power supply circuit of ECM.
3. Check ground circuit of ECM.

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

WIRING DIAGRAM:

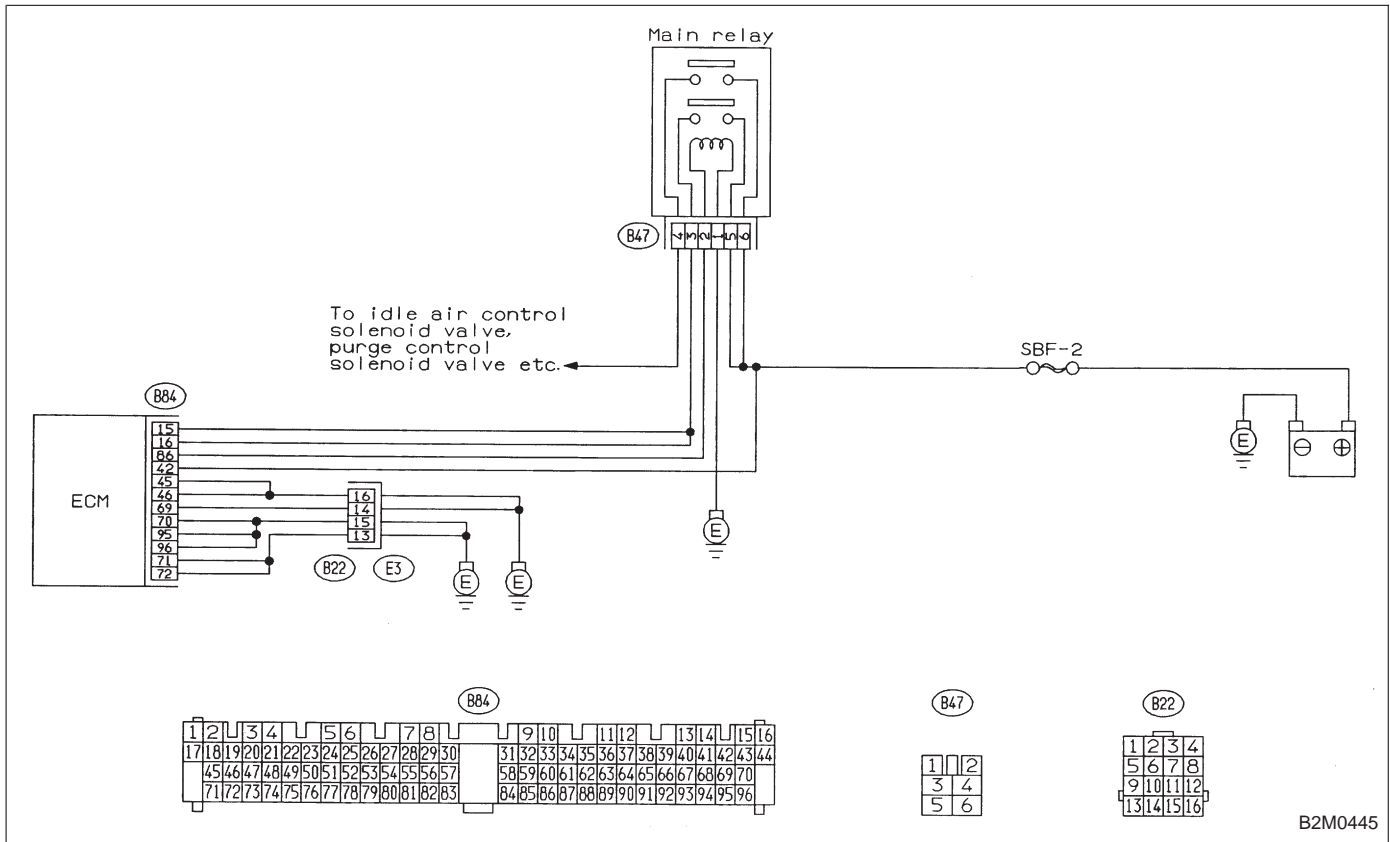
● LHD model

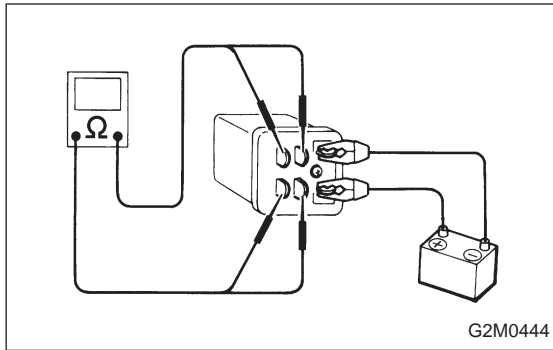


OBD0105

WIRING DIAGRAM:

- RHD model





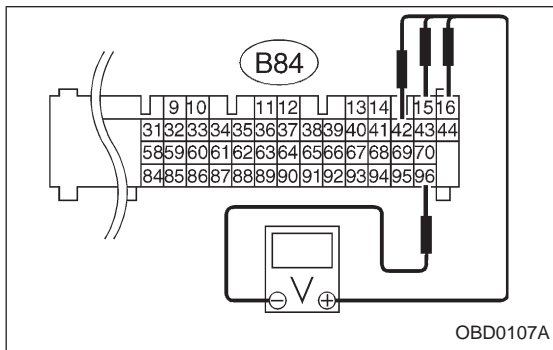
1 CHECK MAIN RELAY.

- 1) Turn the ignition switch to OFF.
- 2) Remove main relay.
- 3) Connect battery to main relay terminals No. 1 and No. 2.
- 4) Measure resistance between main relay terminals.

CHECK : **Terminals**
No. 3 — No. 5/10 Ω , or less
No. 4 — No. 6/10 Ω , or less

YES : Go to step 2.

NO : Replace main relay.



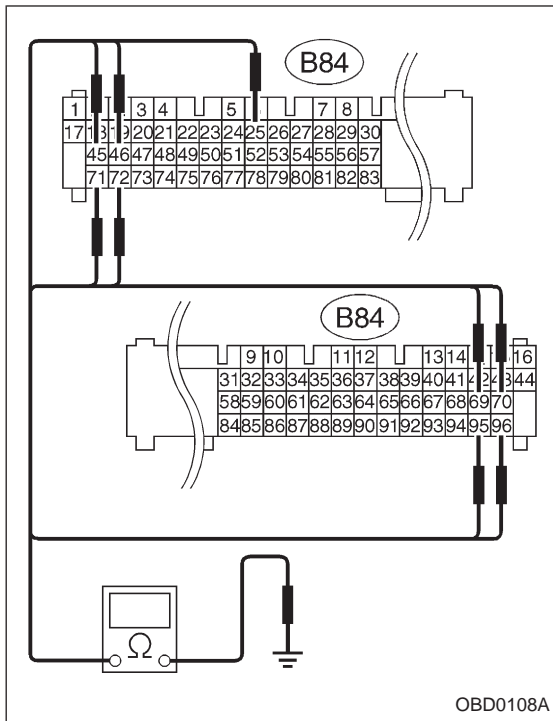
2 CHECK POWER SUPPLY CIRCUIT OF ECM.

- 1) Install main relay.
- 2) Disconnect connectors from ECM.
- 3) Turn ignition switch to ON.
- 4) Measure power supply voltage between ECM connector terminals.

CHECK : **Connector & terminal**
(B84) No. 15 — No. 96/10 V, or more
(B84) No. 16 — No. 96/10 V, or more
(B84) No. 42 — No. 96/10 V, or more

YES : Go to step 3.

NO : Repair harness of power supply circuit.



3 CHECK GROUND CIRCUIT OF ECM.

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

CHECK : **Connector & terminal**
 (B84) No. 25 — Body/10 Ω, or less
 (B84) No. 45 — Body/10 Ω, or less
 (B84) No. 46 — Body/10 Ω, or less
 (B84) No. 69 — Body/10 Ω, or less
 (B84) No. 70 — Body/10 Ω, or less
 (B84) No. 71 — Body/10 Ω, or less
 (B84) No. 72 — Body/10 Ω, or less
 (B84) No. 95 — Body/10 Ω, or less
 (B84) No. 96 — Body/10 Ω, or less

YES : Check ignition control system. <Ref. to “2-7 [T9D0]”.>

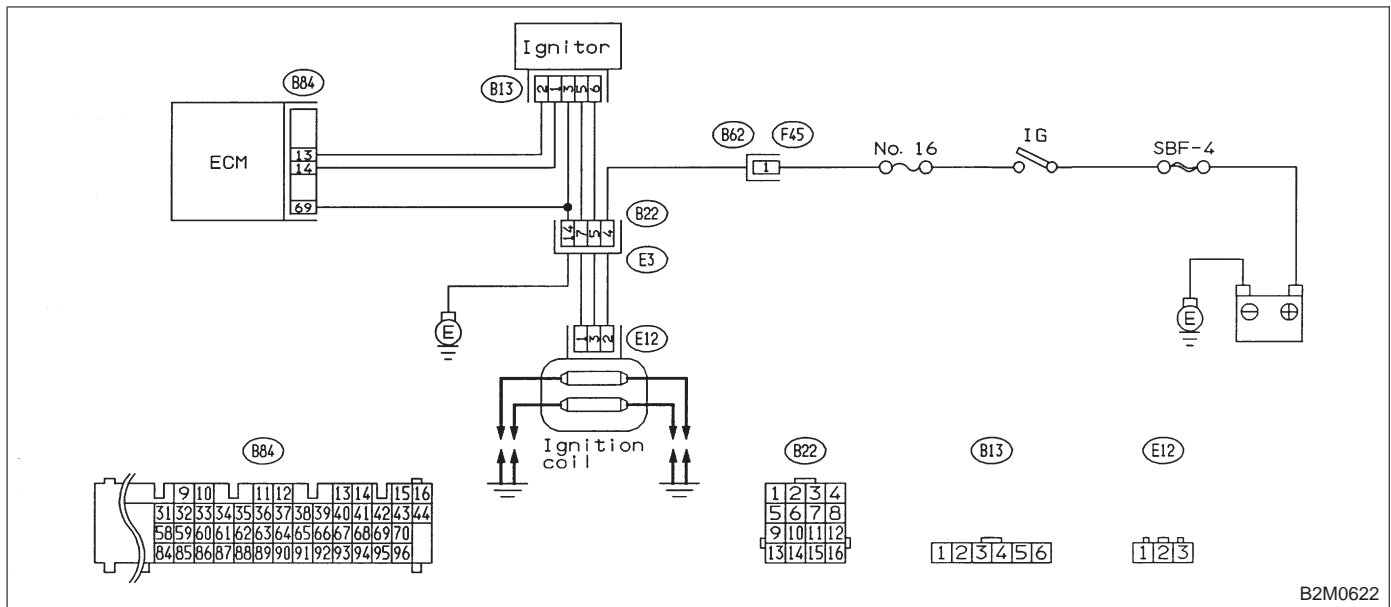
NO : Repair harness between ECM connector and body.

D: IGNITION CONTROL SYSTEM

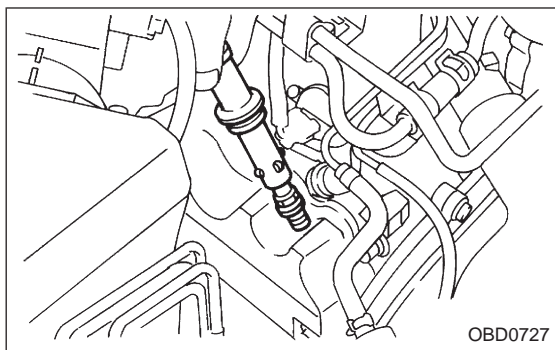
1. Check ignition system for sparks.
2. Check power supply circuit for ignition coil.
3. Check ignition coil.
4. Check harness connector between ignitor and ignition coil.
5. Check input signal for ignitor.
6. Check harness connector of ignitor ground circuit.
7. Check harness connector between ECM and ignitor.

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

WIRING DIAGRAM:



B2M0622



1 CHECK IGNITION SYSTEM FOR SPARKS.

- 1) Remove plug cord cap from each spark plug.
- 2) Install new spark plug on plug cord cap.

CAUTION:

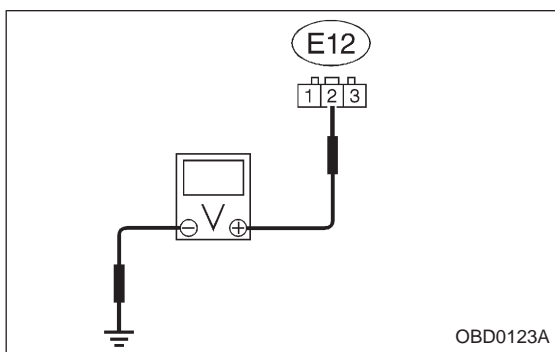
Do not remove spark plug from engine.

- 3) Contact spark plug's thread portion on engine.
- 4) While opening throttle valve fully, crank engine to check that spark occurs at each cylinder.

CHECK : **Does spark occur at each cylinder?**

YES : Check fuel pump system. <Ref. to "2-7 [T9E0]">

NO : Go to step 2.



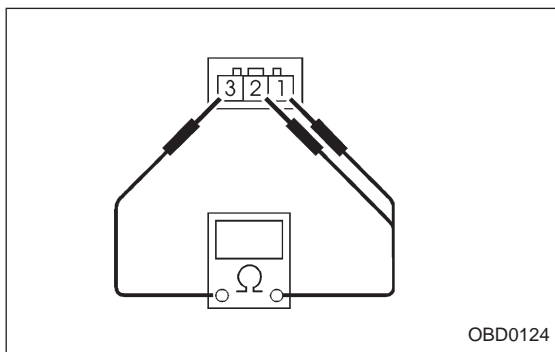
2 CHECK POWER SUPPLY CIRCUIT FOR IGNITION COIL.

- 1) Turn ignition switch to OFF.
- 2) Disconnect connector from ignition coil.
- 3) Turn ignition switch to ON.
- 4) Measure power supply voltage between ignition coil connector terminal and body.

CHECK : **Connector & terminal (E12) No. 2 — Body /10 V, or more**

YES : Go to step 3.

NO : Repair harness between ignition coil and ignition switch connector.



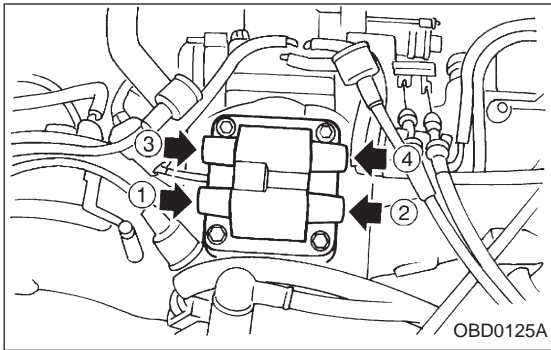
3 CHECK IGNITION COIL.

- 1) Measure resistance between ignition coil terminals to check primary coil.

CHECK : **Terminals**
No. 2 — No. 1/0.7±0.3 Ω
No. 2 — No. 3/0.7±0.3 Ω

NO : Replace ignition coil.

YES : Go to next step.

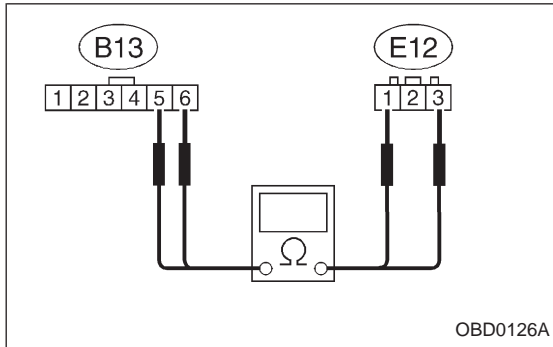


2) Measure resistance between spark plug cord contact portions to check secondary coil.

CHECK : **Connector & terminal**
 #1 — #2 /21±3 kΩ
 #3 — #4 /21±3 kΩ

YES : Go to step 4.

NO : Replace ignition coil.



4 CHECK HARNESS CONNECTOR BETWEEN IGNITOR AND IGNITION COIL.

1) Turn ignition switch to OFF.

2) Disconnect connector from ignitor.

3) Measure resistance of harness connector between ignition coil and ignitor.

CHECK : **Connector & terminal**
 (B13) No. 5 — (E12) No. 1/10 Ω, or less
 (B13) No. 6 — (E12) No. 3/10 Ω, or less

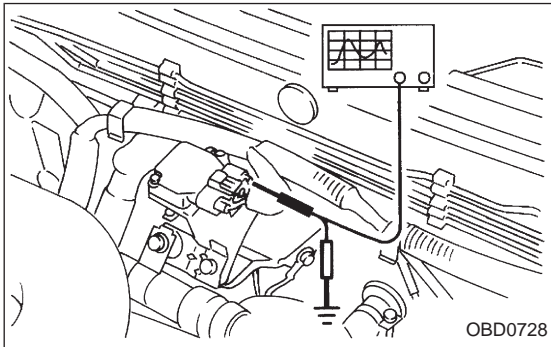
YES : Go to step 5.

NO : Go to next **CHECK** .

CHECK : **Is there poor contact in coupling connector (B22)?**

YES : Repair poor contact in coupling connector.

NO : Repair harness between ignition coil and ignitor connector.



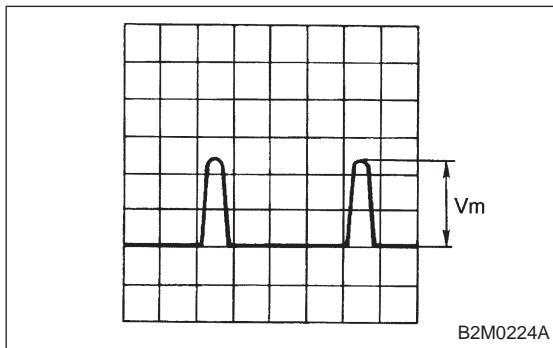
5 CHECK INPUT SIGNAL FOR IGNITOR.

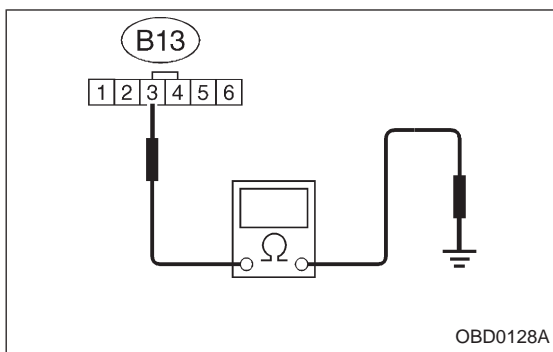
Check if voltage varies synchronously with engine speed when cranking, while monitoring voltage between ignitor connector and body.

CHECK : **Connector & terminal:**
 (B13) No. 1 — Body/10 V, or more
 (B13) No. 2 — Body/10 V, or more

YES : Go to step 6.

NO : Replace ignitor.





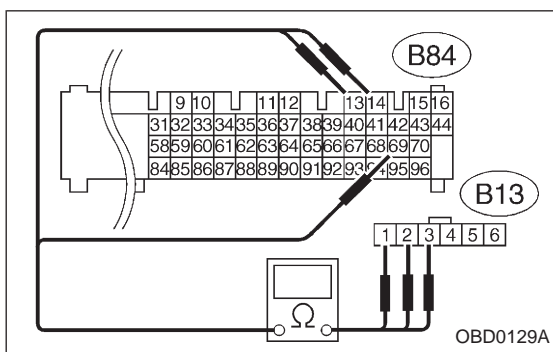
6 CHECK HARNESS CONNECTOR OF IGNITOR GROUND CIRCUIT.

- 1) Turn ignition switch to OFF.
- 2) Measure resistance between ignitor and body.

CHECK : **Connector & terminal**
(B13) No. 3 — Body /10 Ω, or less

YES : Go to step 7.

NO : Repair harness between ignitor connector and body.



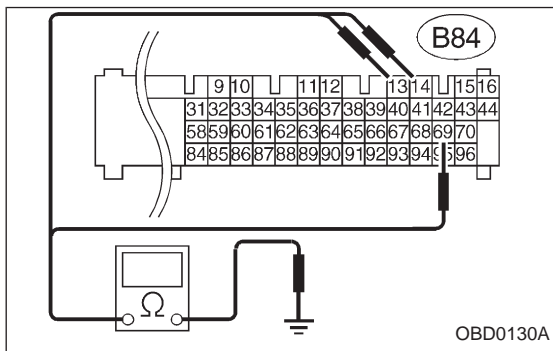
7 CHECK HARNESS CONNECTOR BETWEEN ECM AND IGNITOR.

- 1) Disconnect connector from ECM.
- 2) Measure resistance of harness connector between ECM and ignitor.

CHECK : **Connector & terminal**
(B84) No. 14 — (B13) No. 1/10 Ω, or less
(B84) No. 13 — (B13) No. 2/10 Ω, or less
(B84) No. 69 — (B13) No. 3/10 Ω, or less

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

YES : Go to next step.



- 3) Measure resistance of harness connector between ECM and body.

CHECK : **Connector & terminal**
(B84) No. 13 — Body/1 MΩ, or more
(B84) No. 14 — Body/1 MΩ, or more

NO : Repair short circuit of harness between ECM and ignitor.

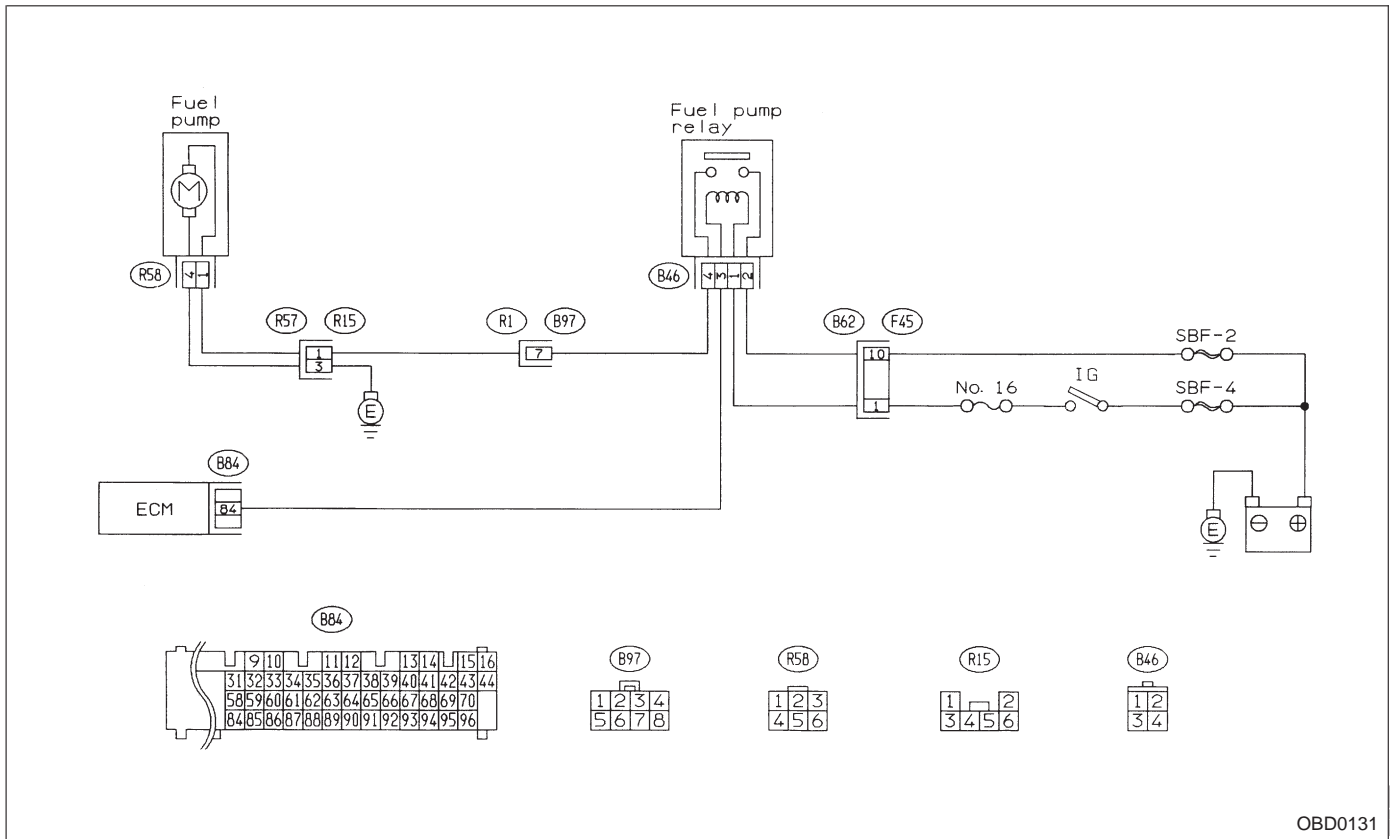
YES : Confirm good connection in ECM connector.

E: FUEL PUMP CIRCUIT

1. Check operating sound of fuel pump.
2. Check ground circuit of fuel pump.
3. Check power supply to fuel pump.
4. Check harness connector between fuel pump and fuel pump relay.
5. Check fuel pump relay.
6. Check harness connector between ECM and fuel pump relay.

WIRING DIAGRAM:

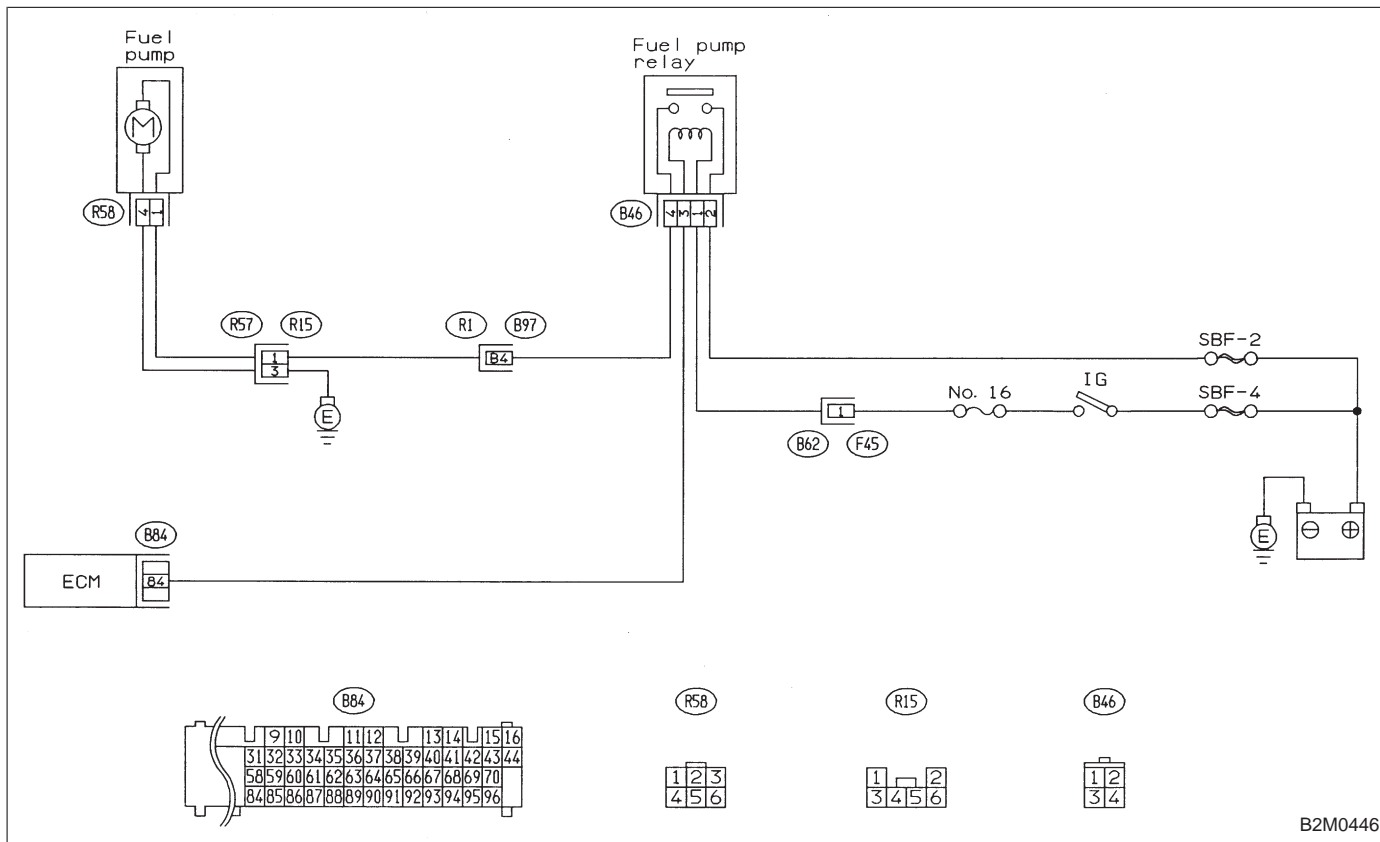
● LHD model



OBD0131

WIRING DIAGRAM:

- RHD model

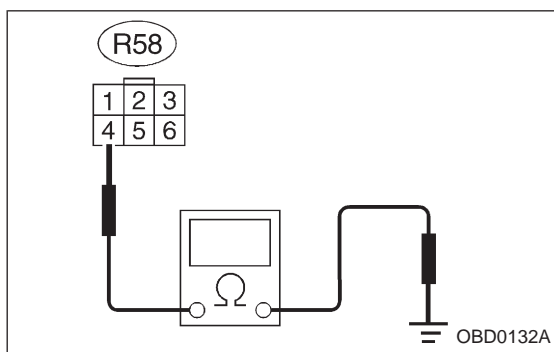


B2M0446

1 CHECK OPERATING SOUND OF FUEL PUMP.

Make sure that fuel pump is in operation for two seconds when turning ignition switch to ON.

- CHECK** : **Does fuel pump produce operating sound?**
YES : Check fuel injector circuit. <Ref. to "2-7 [T11Q0]">
NO : Go to step 2.

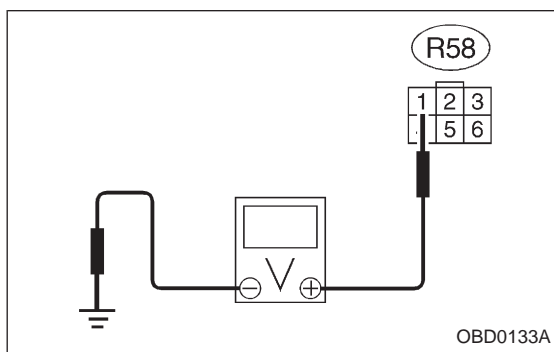
**2 CHECK GROUND CIRCUIT OF FUEL PUMP.**

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

CHECK : **Connector & terminal**
(R58) No. 4 — Body /10 Ω, or less

YES : Go to step 3.

NO : Repair open circuit of fuel pump ground circuit.

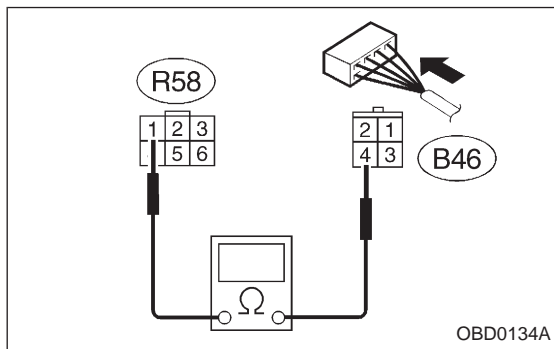
**3 CHECK POWER SUPPLY TO FUEL PUMP.**

- 1) Turn ignition switch to ON.
- 2) Measure voltage of power supply circuit between fuel pump connector and body.

CHECK : **Connector & terminal**
(R58) No. 1 — Body /10 V, or more

YES : Replace fuel pump.

NO : Go to step 4.

**4 CHECK HARNESS CONNECTOR BETWEEN FUEL PUMP AND FUEL PUMP RELAY.**

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

CHECK : **Connector & terminal**
(R58) No. 1 — (B46) No. 4/10 Ω, or less

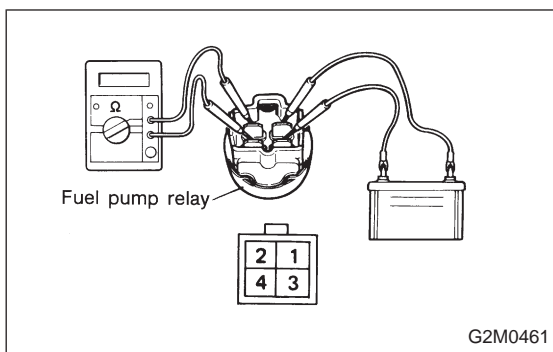
YES : Go to next **CHECK** .

NO : Repair open circuit of harness between fuel pump and fuel pump relay connector.

CHECK : **Connector & terminal**
(R58) No. 1 — Body/1 MΩ, or more

YES : Go to step 5.

NO : Repair short circuit of harness between fuel pump and fuel pump relay connector.



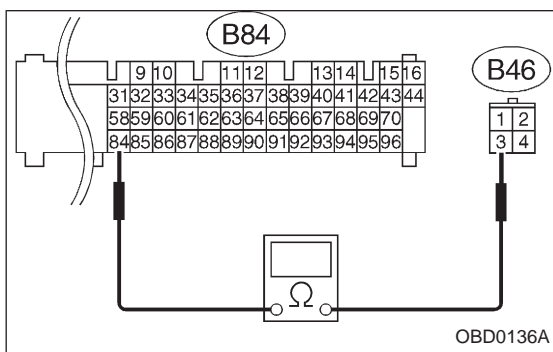
5 CHECK FUEL PUMP RELAY.

- 1) Disconnect connectors from fuel pump relay and main relay.
- 2) Remove fuel pump relay and main relay with bracket.
- 3) Connect battery to fuel pump relay connector terminals No. 1 and No. 3.
- 4) Measure resistance between connector terminals of fuel pump relay.

CHECK : **Terminals**
No. 2 — No. 4/10 Ω, or less

YES : Go to step 6.

NO : Replace fuel pump relay.



6 CHECK HARNESS CONNECTOR BETWEEN ECM AND FUEL PUMP RELAY.

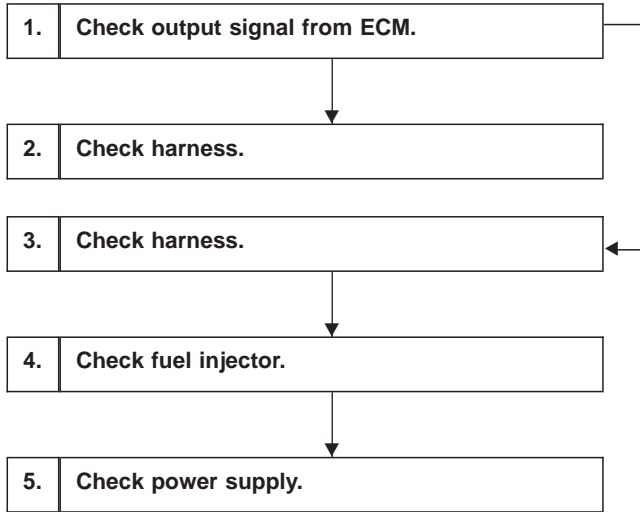
- 1) Disconnect connectors from ECM.
- 2) Measure resistance of harness connector between ECM and fuel pump relay.

CHECK : **Connector & terminal**
(B84) No. 84 — (B46) No. 3/10 Ω, or less

NO : Repair harness between ECM and fuel pump relay connector.

YES : Confirm good connection in ECM connector.

F: FUEL INJECTOR CIRCUIT

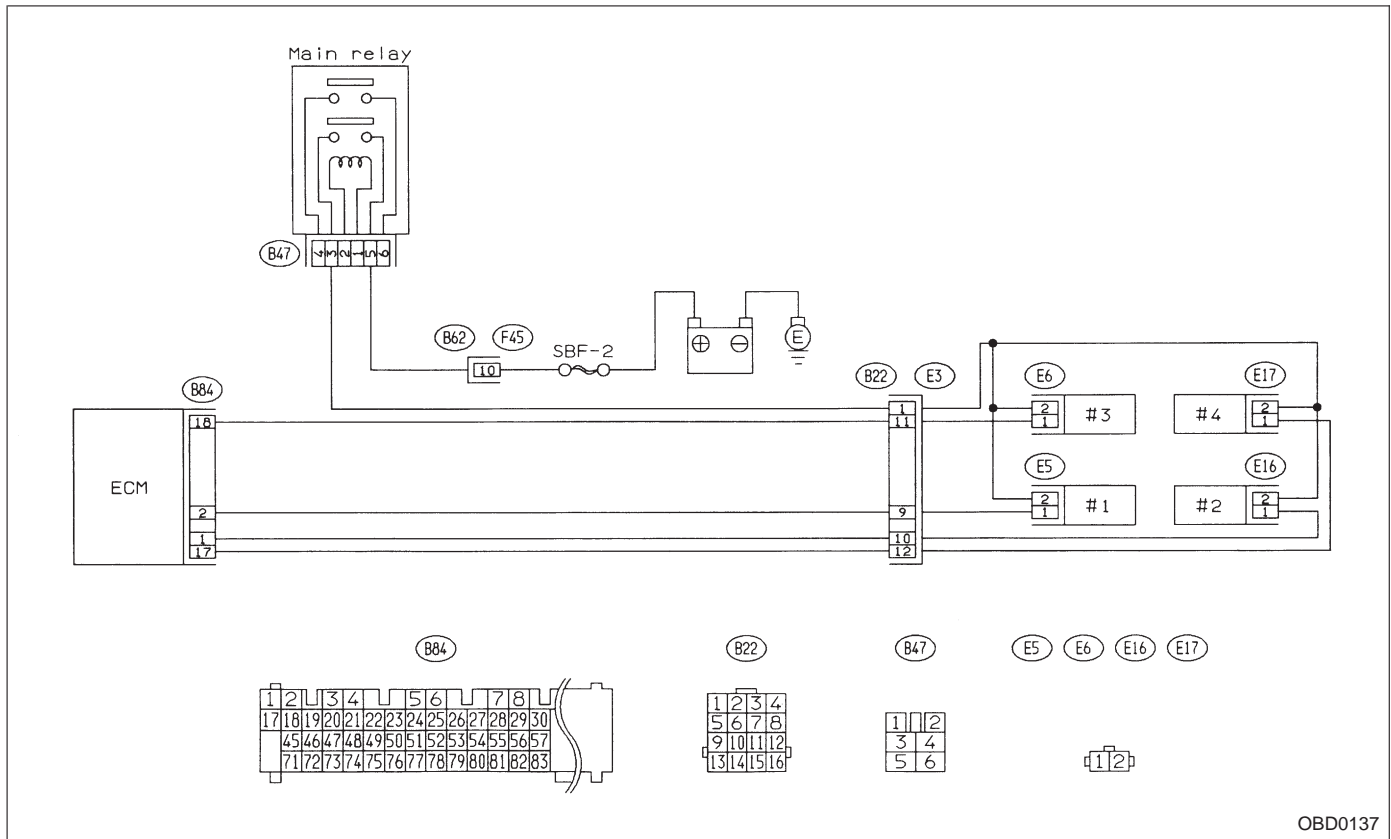


CAUTION:

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

WIRING DIAGRAM:

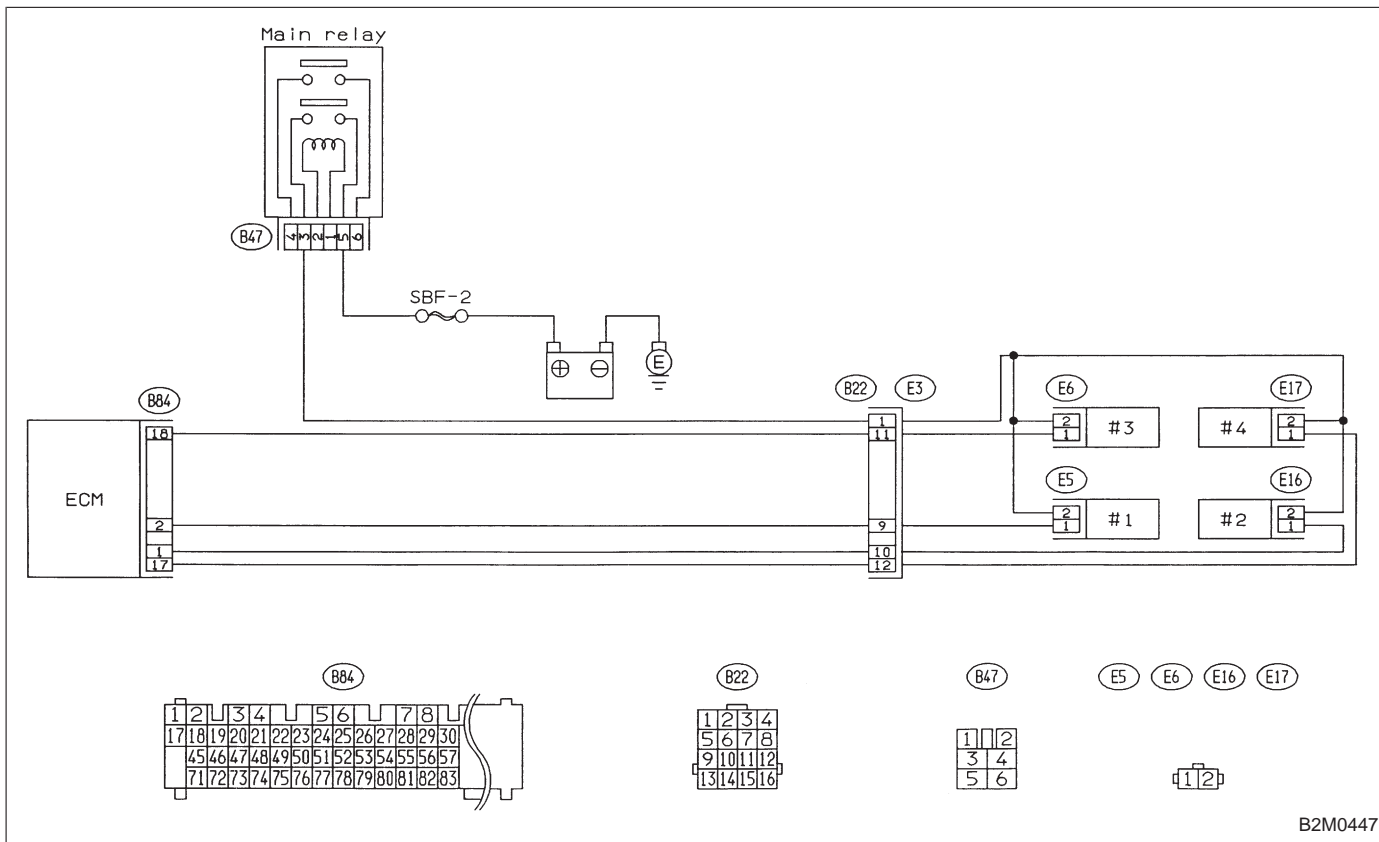
- LHD model



OBD0137

WIRING DIAGRAM:

- RHD model



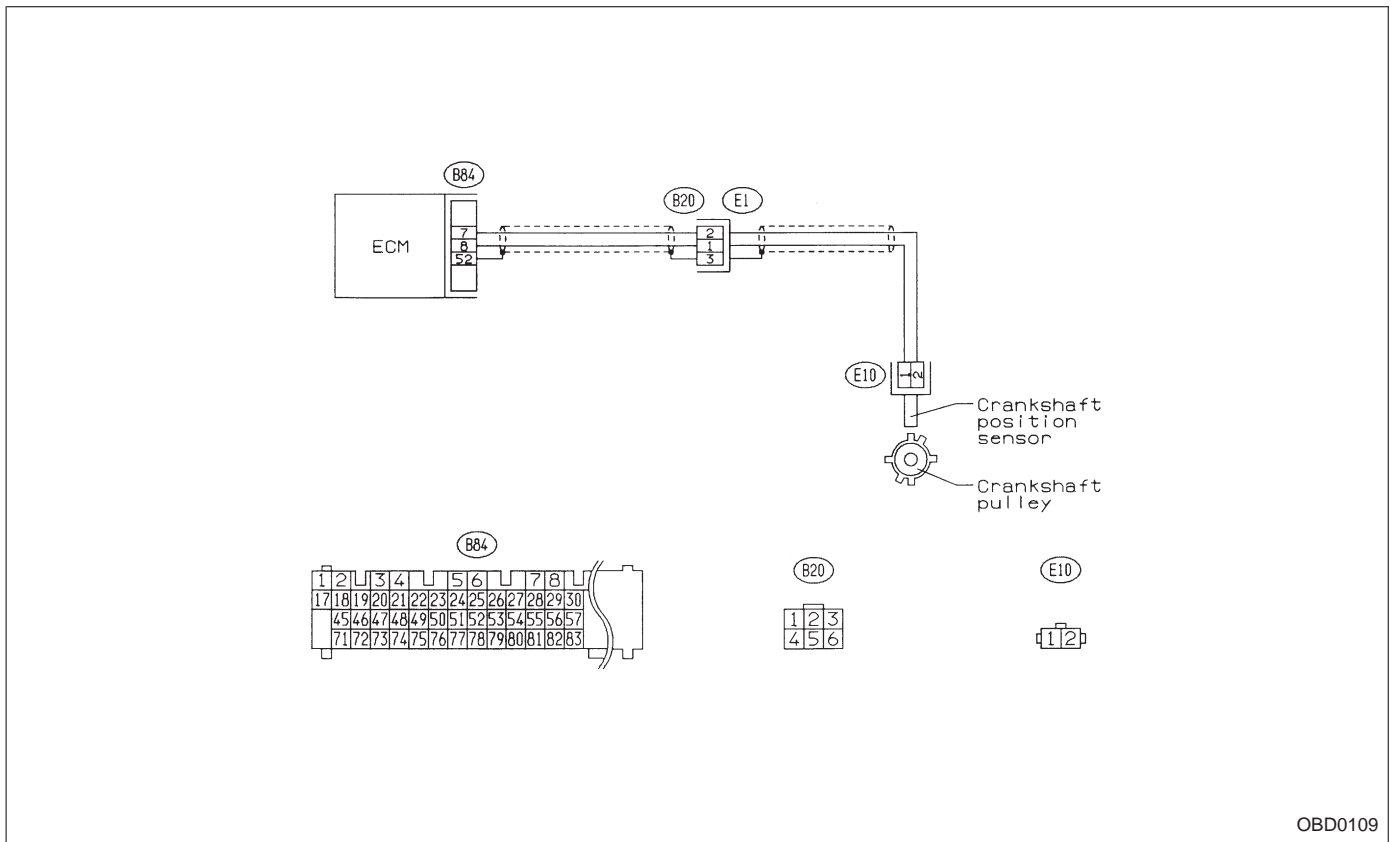
NOTE:
For the diagnostic procedure on fuel injector circuit, refer to "2-7 [T11Q0]".

G: CRANKSHAFT POSITION SENSOR CIRCUIT

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

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

WIRING DIAGRAM:



OBD0109

NOTE:
 For the diagnostic procedure on crankshaft position sensor circuit, refer to "2-7 [T11Z0]".

H: CAMSHAFT POSITION SENSOR CIRCUIT

1. Check harness.



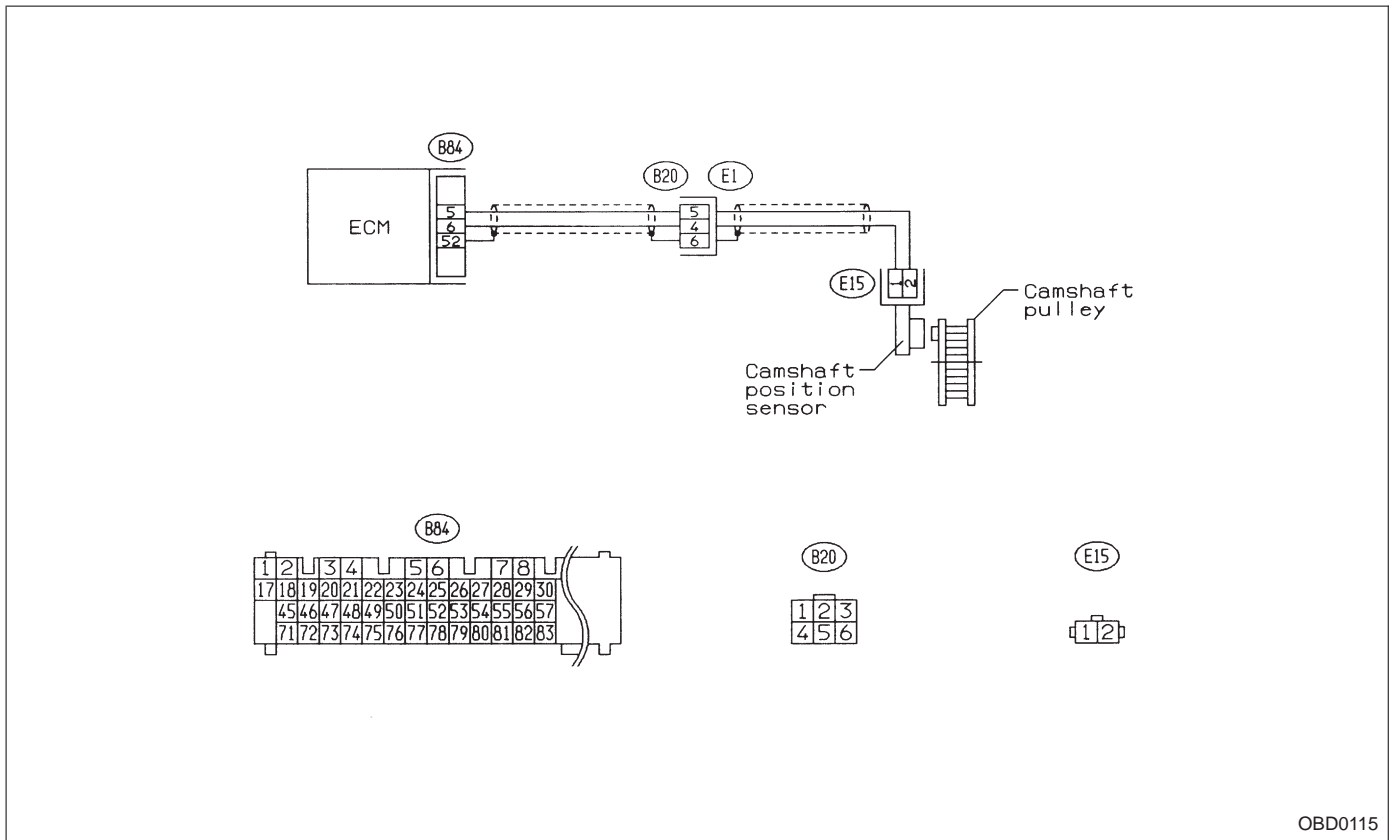
2. Check camshaft position sensor.

CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY and INSPECTION MODES.

<Ref. to [T3D0] and [T3E0].>

WIRING DIAGRAM:



OBD0115

NOTE:

For the diagnostic procedure on crankshaft position sensor circuit, refer to "2-7 [T11AA]".