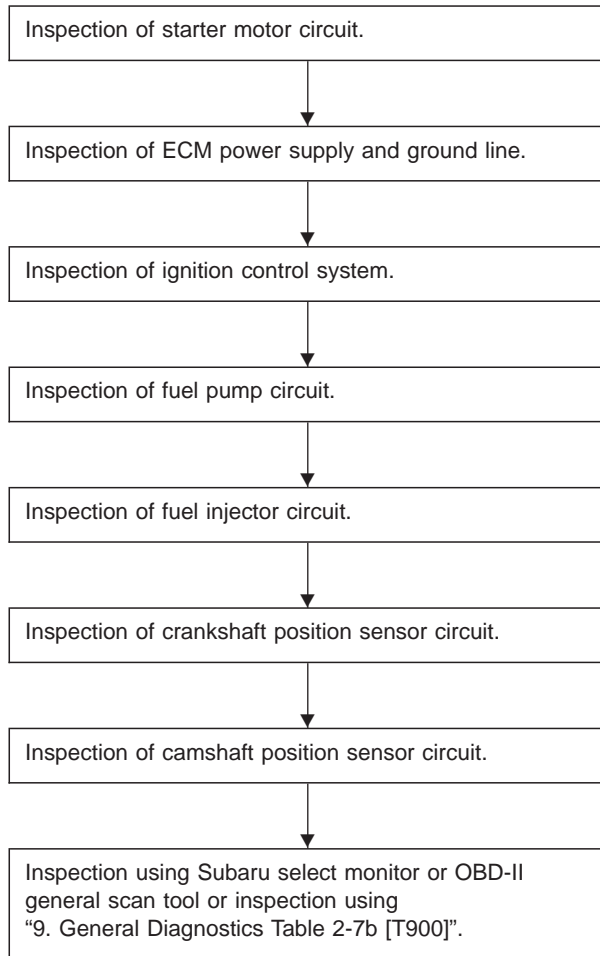
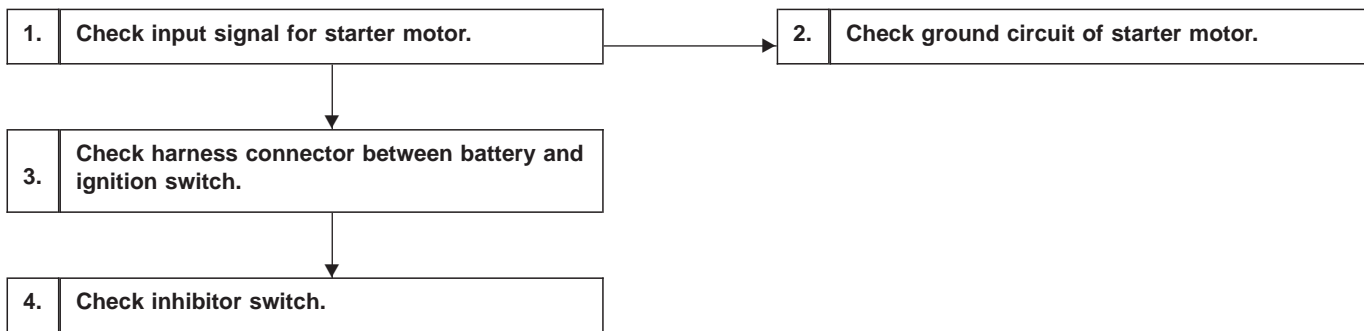


## 8. Diagnostics for Engine Starting Failure

### A: BASIC DIAGNOSTICS CHART

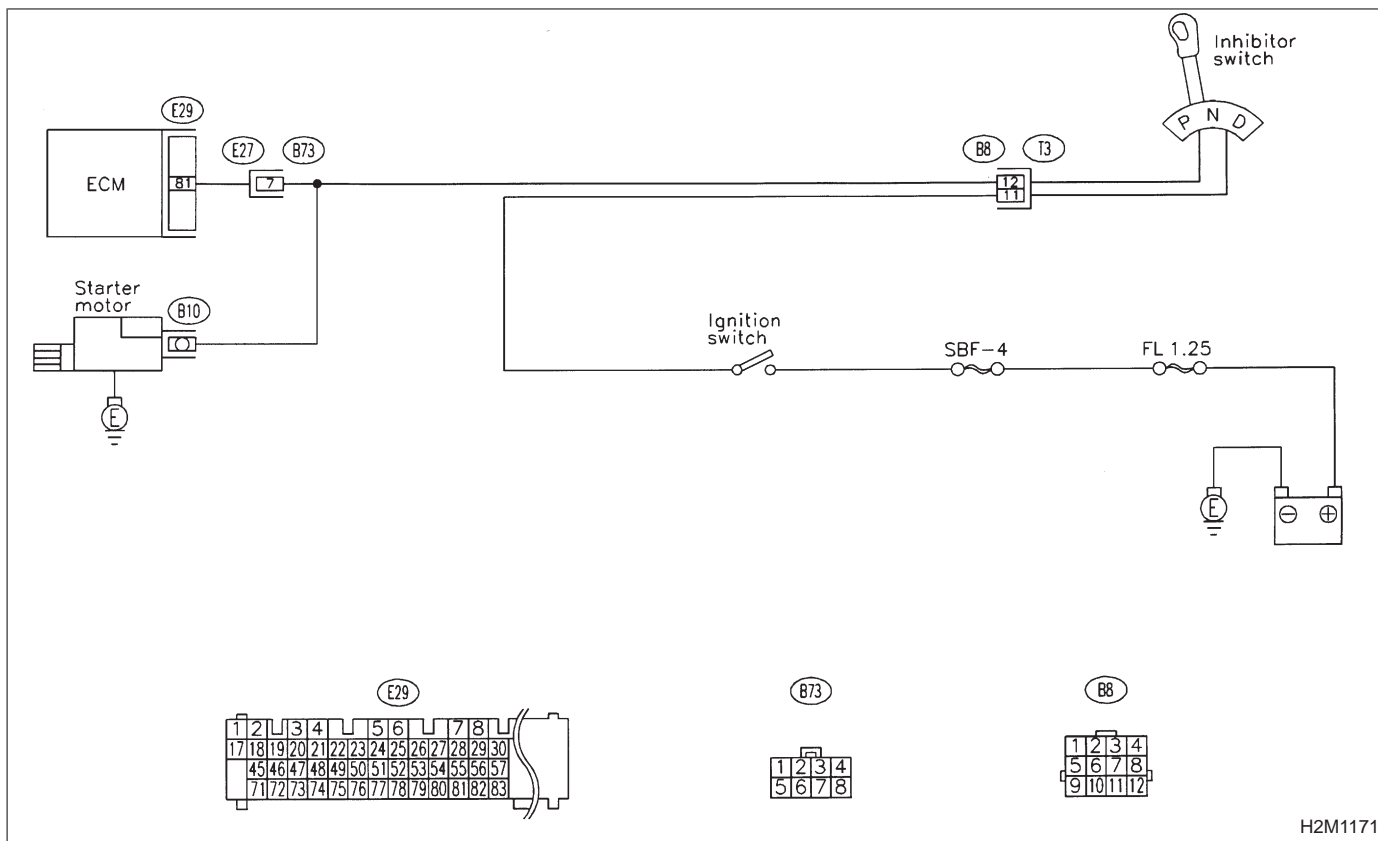


**B: STARTER MOTOR CIRCUIT**

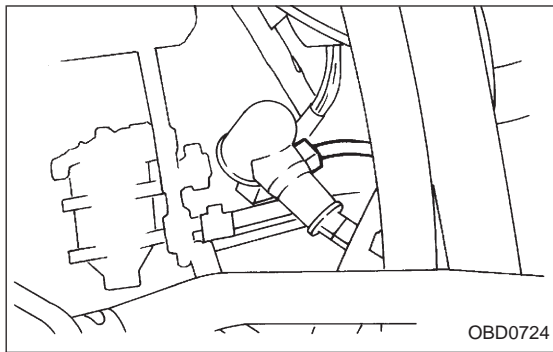


**CAUTION:**  
 After repair or replacement of faulty parts, conduct **CLEAR MEMORY** and **INSPECTION MODES**.  
 <Ref. to 2-7b [T3D0] and [T3E0].>

**WIRING DIAGRAM:**

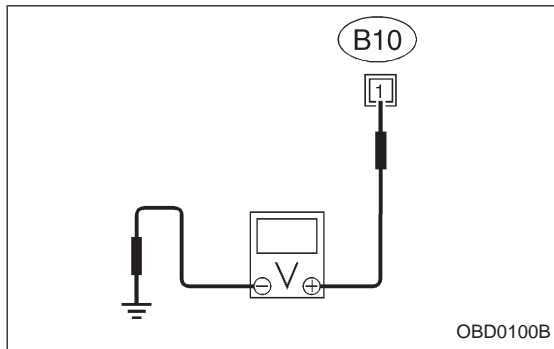


H2M1171



### 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.

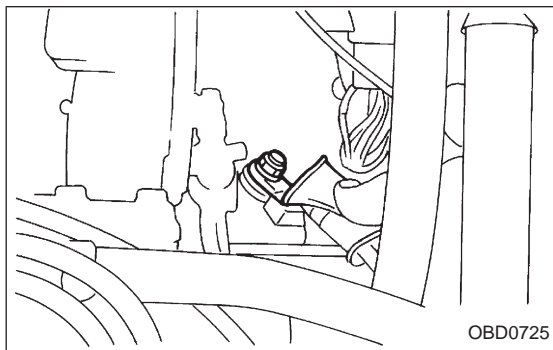
**CHECK** : **Connector & terminal (B10) No. 1 — Body/10 V, or more**

#### NOTE:

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

**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 5 Ω?**

**YES** : Check starter motor. <Ref. to 6-1 [T100].>

**NO** : Repair open circuit of ground cable.

### 3 CHECK HARNESS CONNECTOR BETWEEN BATTERY AND IGNITION SWITCH.

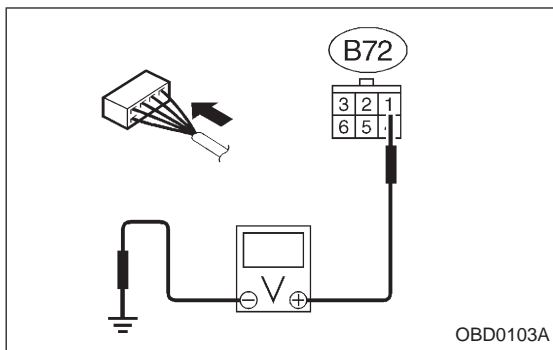
- 1) Turn ignition switch to OFF.
- 2) Remove SBF No. 4 from main fuse box.
- 3) Measure resistance of fuse.

**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.

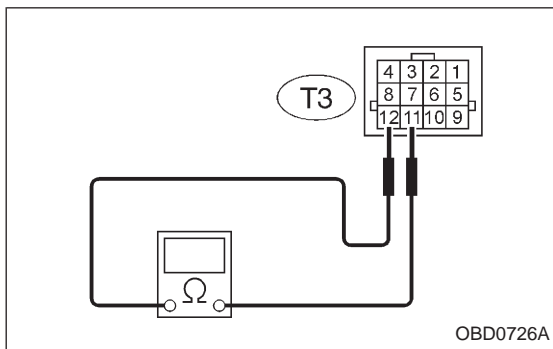


6) Measure power supply voltage between ignition switch connector and body.

**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.**

- 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. 12/1 Ω, or less**

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

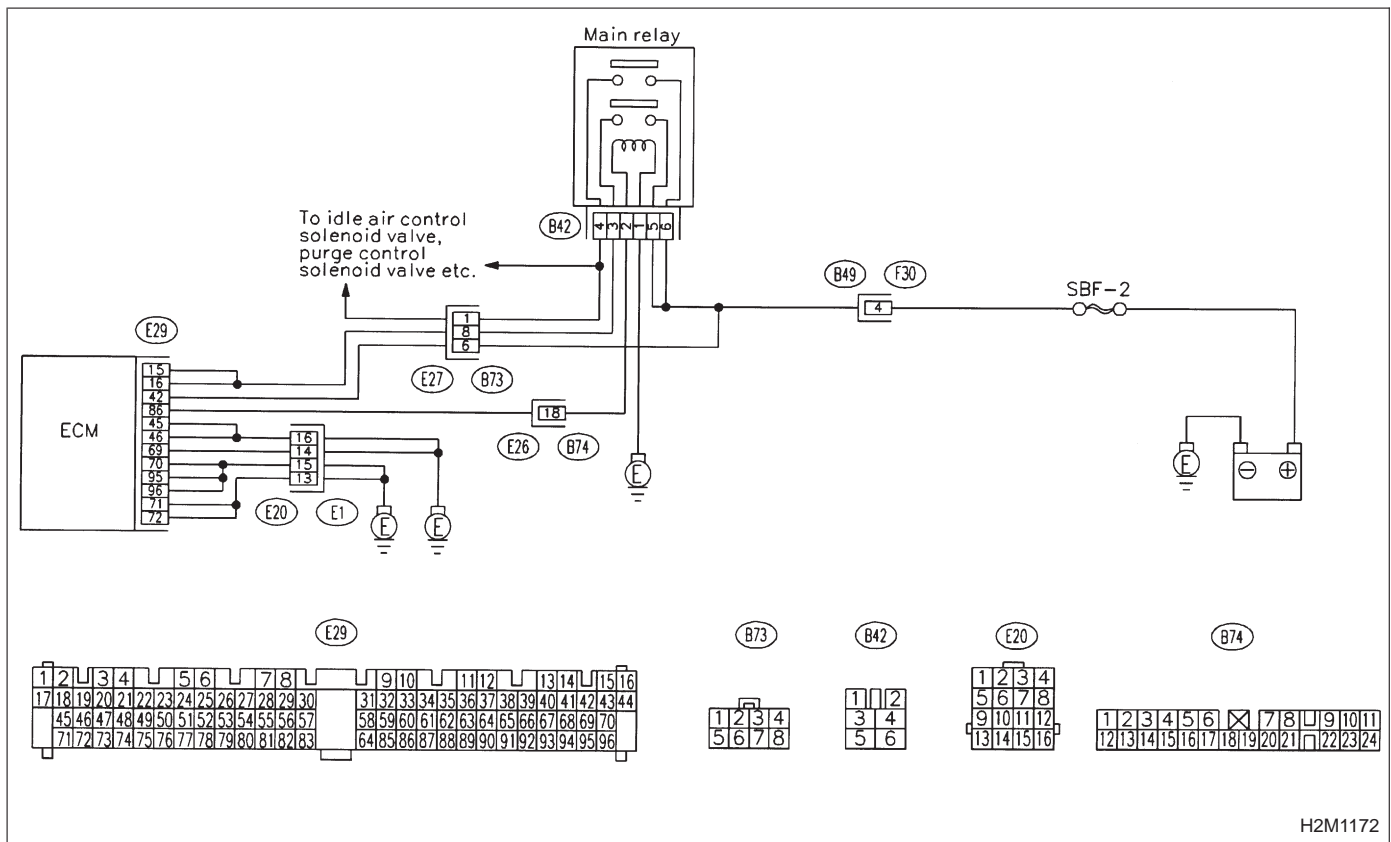
**NO** : Repair or replace inhibitor switch.

**C: CONTROL MODULE POWER SUPPLY AND GROUND LINE**

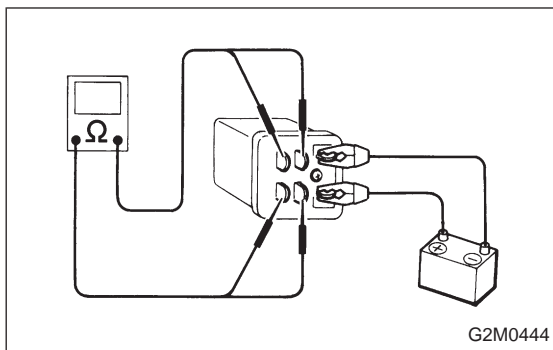
1. Check main relay.
2. Check power supply circuit of ECM.
3. Check ground circuit of ECM.

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

**WIRING DIAGRAM:**



H2M1172



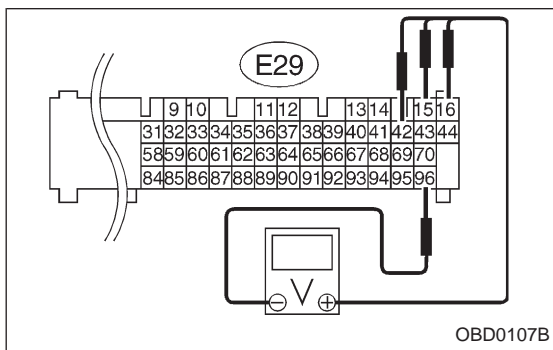
**1 CHECK MAIN RELAY.**

- 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.



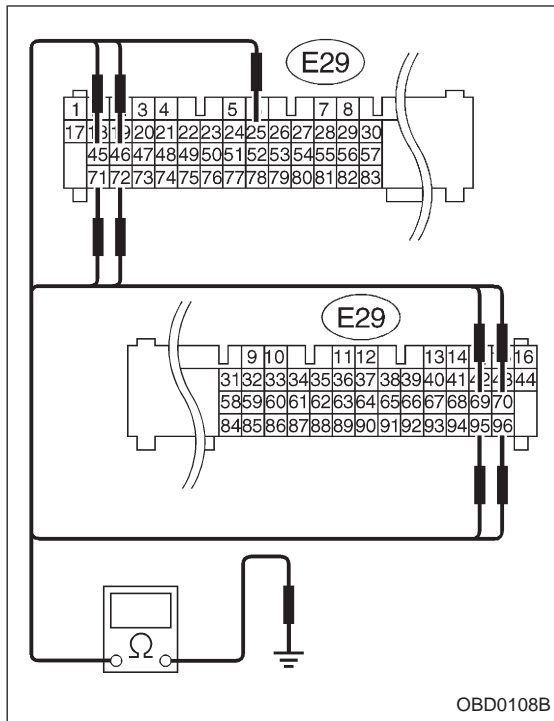
**2 CHECK POWER SUPPLY CIRCUIT OF ECM.**

- 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*  
**(E29) No. 15 — No. 96/10 V, or more**  
**(E29) No. 16 — No. 96/10 V, or more**  
**(E29) 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**  
 (E29) No. 25 — **Body/5 Ω, or less**  
 (E29) No. 45 — **Body/5 Ω, or less**  
 (E29) No. 46 — **Body/5 Ω, or less**  
 (E29) No. 69 — **Body/5 Ω, or less**  
 (E29) No. 70 — **Body/5 Ω, or less**  
 (E29) No. 71 — **Body/5 Ω, or less**  
 (E29) No. 72 — **Body/5 Ω, or less**  
 (E29) No. 95 — **Body/5 Ω, or less**  
 (E29) No. 96 — **Body/5 Ω, or less**

**YES** : Check ignition control system. <Ref. to 2-7b [T8D0].>

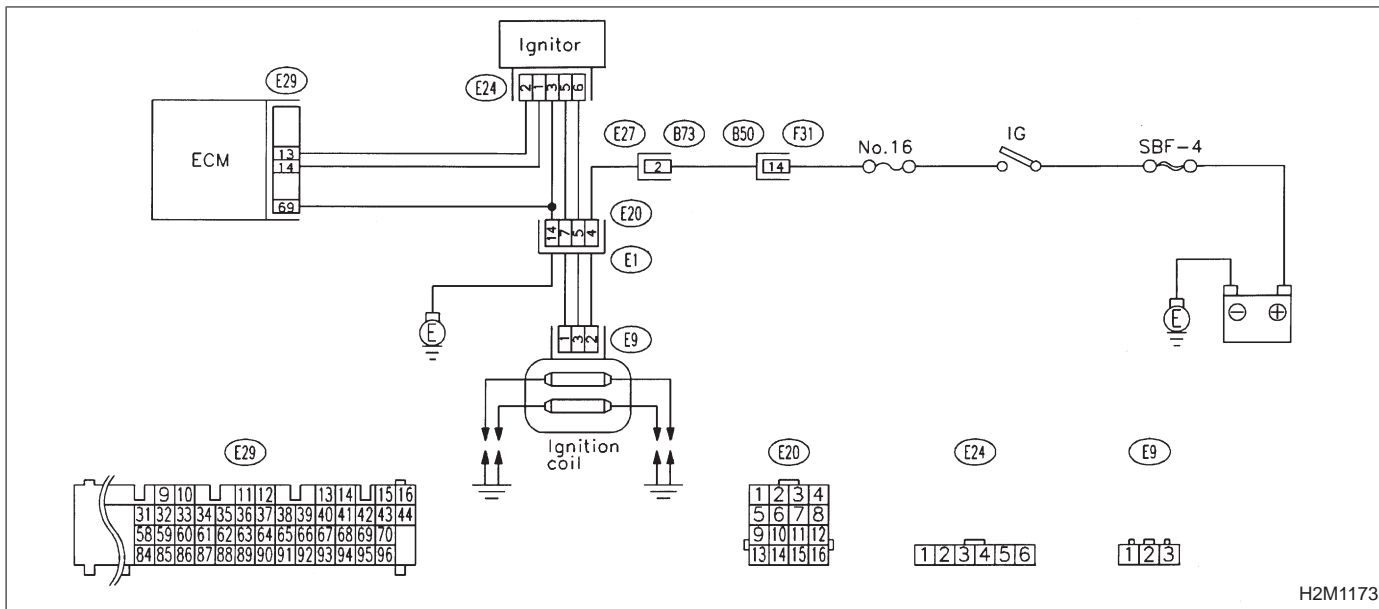
**NO** : Repair harness between ECM connector and body.

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.

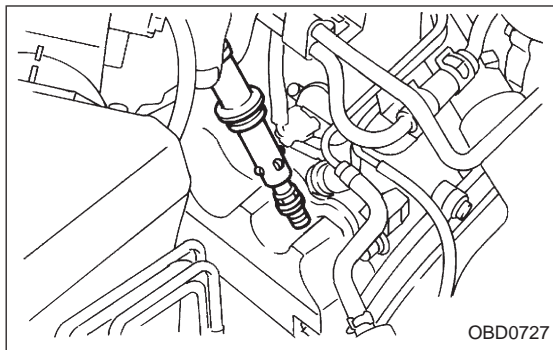
**CAUTION:**  
 After repair or replacement of faulty parts, conduct **CLEAR MEMORY** and **INSPECTION MODES**.  
 <Ref. to 2-7b [T3D0] and [T3E0].>

WIRING DIAGRAM:



H2M1173





### 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:

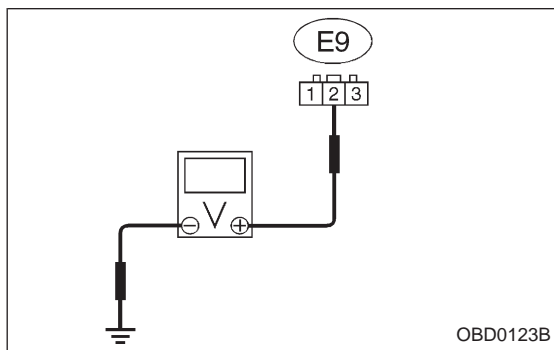
**Do not remove spark plug from engine.**

- 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 2-7b [T8E0].>

**NO** : Go to step 2.



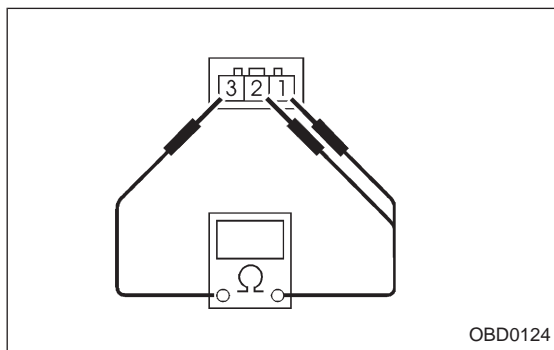
### 2 CHECK POWER SUPPLY CIRCUIT FOR IGNITION COIL.

- 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 (E9) No. 2 — Body/10 V, or more**

**YES** : Go to step 3.

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



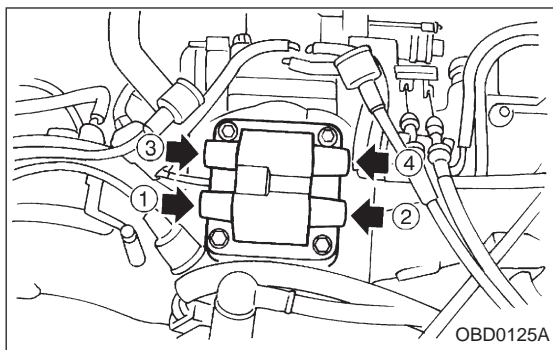
### 3 CHECK IGNITION COIL.

- 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.

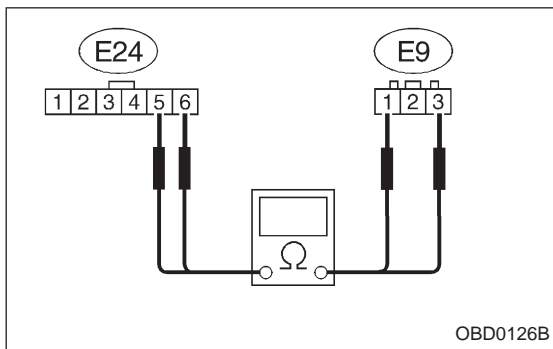
**YES** : Go to next step.



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.

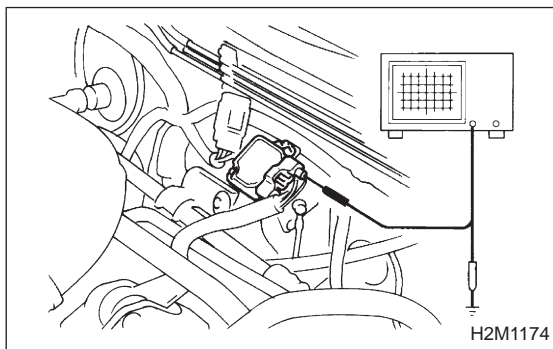


**4 CHECK HARNESS CONNECTOR BETWEEN IGNITOR AND IGNITION COIL.**

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**  
 (E24) No. 5 — (E9) No. 1/1 Ω, or less  
 (E24) No. 6 — (E9) No. 3/1 Ω, or less

**YES** : Go to step 5.  
**NO** : Go to next **CHECK** .  
**CHECK** : **Is there poor contact in coupling connector (B20)?**  
**YES** : Repair poor contact in coupling connector.  
**NO** : Repair harness between ignition coil and ignitor connector.

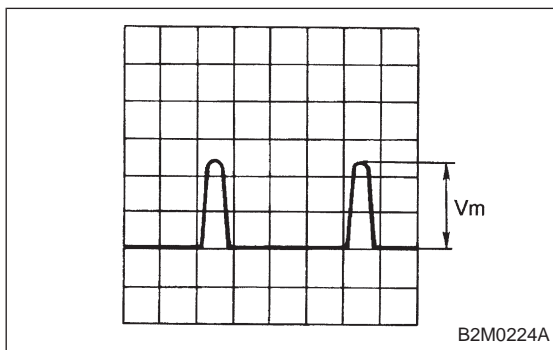


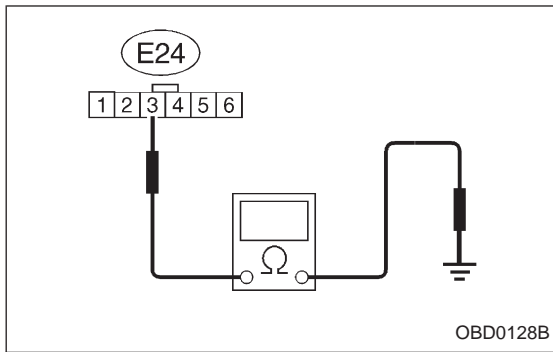
**5 CHECK INPUT SIGNAL FOR IGNITOR.**

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

**CHECK** : **Connector & terminal:**  
 (E24) No. 1 — Body/10 V, or more  
 (E24) No. 2 — Body/10 V, or more

**YES** : Go to step 6.  
**NO** : Replace ignitor.





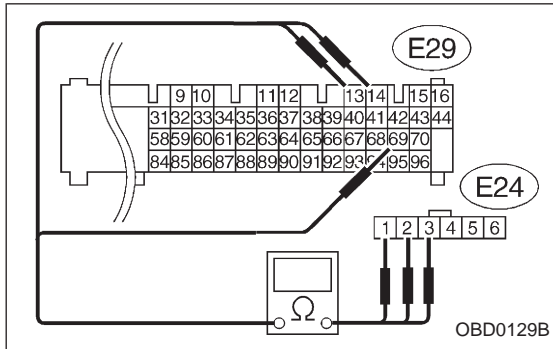
**6 CHECK HARNESS CONNECTOR OF IGNITOR GROUND CIRCUIT.**

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

**CHECK** : **Connector & terminal (E24) No. 3 — Body/5 Ω, or less**

**YES** : Go to step 7.

**NO** : Repair harness between ignitor connector and body.



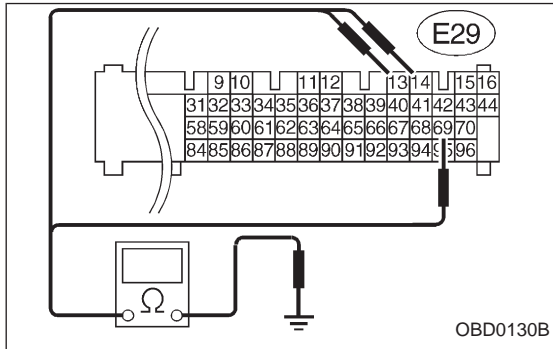
**7 CHECK HARNESS CONNECTOR BETWEEN ECM AND IGNITOR.**

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

**CHECK** : **Connector & terminal (E29) No. 14 — (E24) No. 1/1 Ω, or less (E29) No. 13 — (E24) No. 2/1 Ω, or less (E29) No. 69 — (E24) No. 3/1 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 (E29) No. 13 — Body/1 MΩ, or more (E29) No. 14 — Body/1 MΩ, or more**

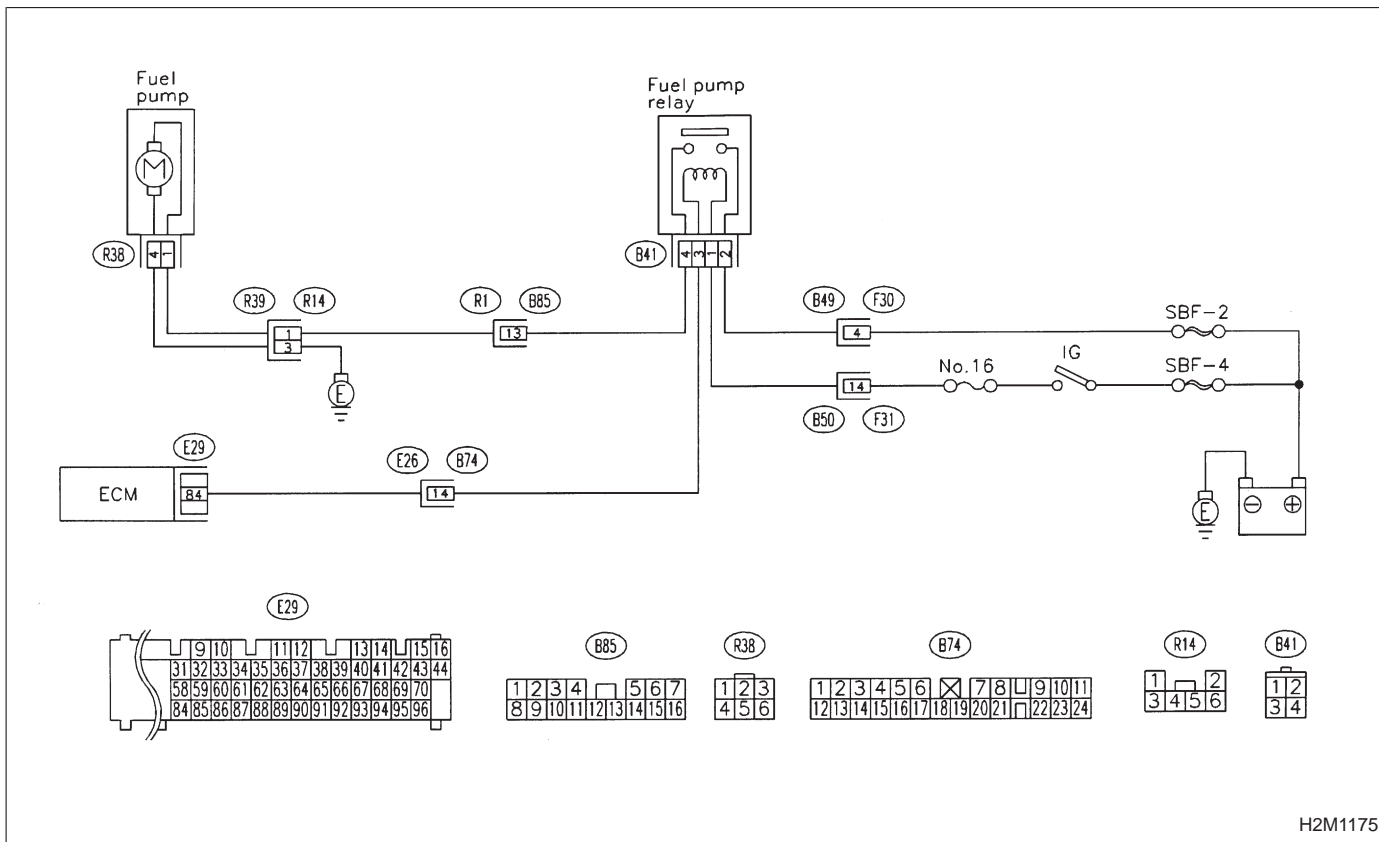
**NO** : Repair short circuit of harness between ECM and ignitor.

**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:



H2M1175

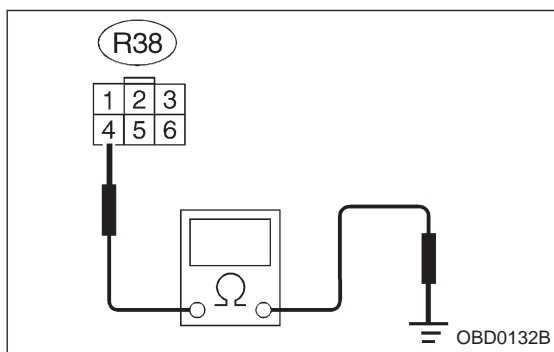
**1 CHECK OPERATING SOUND OF FUEL PUMP.**

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 2-7b [T10Q0].>

**NO** : Go to step 2.

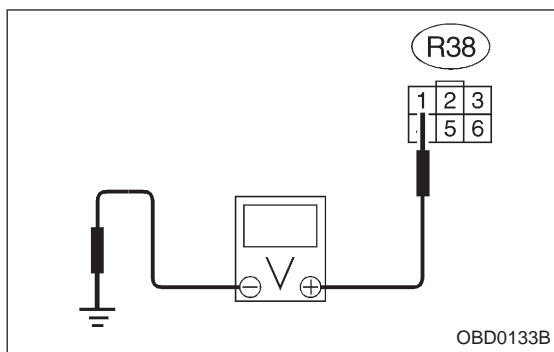
**2 CHECK GROUND CIRCUIT OF FUEL PUMP.**

- 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**  
**(R38) No. 4 — Body/5 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**  
**(R38) No. 1 — Body/10 V, or more**

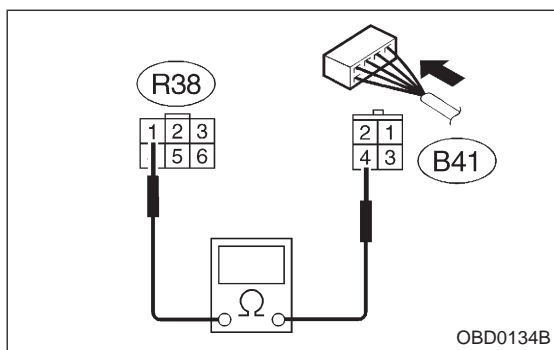
**YES** : Go to next **CHECK** .

**NO** : Go to step 4.

**CHECK** : **Is there poor contact in fuel pump connector?**

**YES** : Repair poor contact in fuel pump connector.

**NO** : Replace fuel pump.

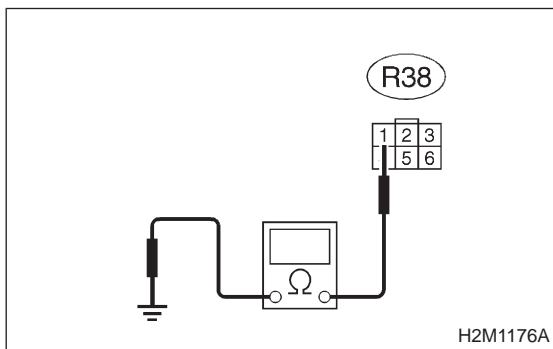
**4 CHECK HARNESS CONNECTOR BETWEEN FUEL PUMP AND FUEL PUMP RELAY.**

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

**CHECK** : **Connector & terminal**  
**(R38) No. 1 — (B41) No. 4/1 Ω, or less**

**YES** : Go to next **CHECK** .

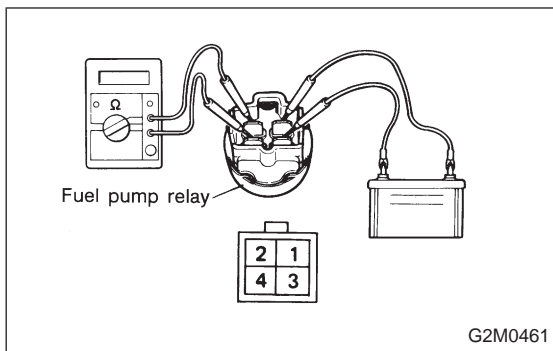
**(NO)** : Repair open circuit of harness between fuel pump and fuel pump relay connector.



**(CHECK)** : **Connector & terminal (R38) 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.



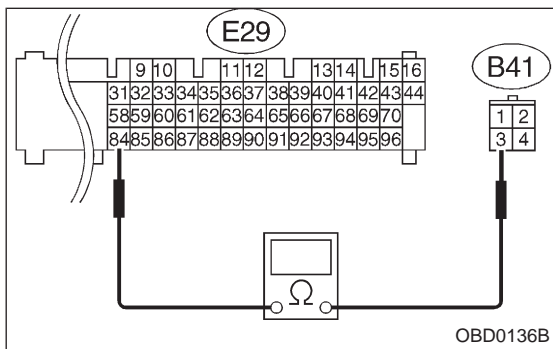
**5 CHECK FUEL PUMP RELAY.**

- 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.**

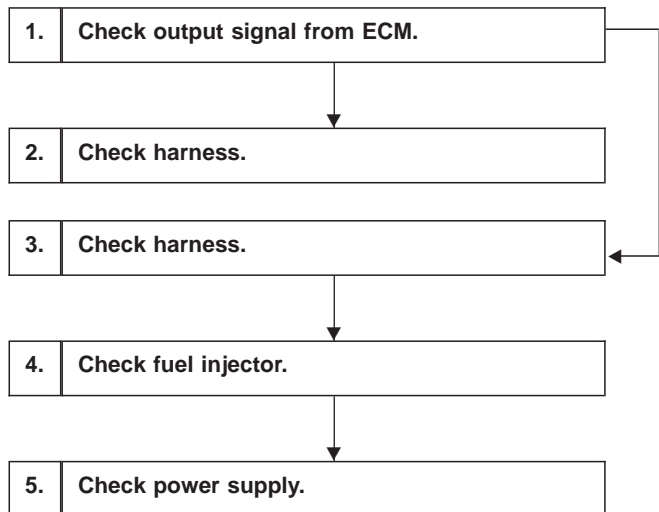
- 1) Disconnect connectors from ECM.
- 2) Measure resistance of harness connector between ECM and fuel pump relay.

**(CHECK)** : **Connector & terminal (E29) No. 84** — (B41) No. 3/1 Ω, or less

**(NO)** : Confirm good connection in ECM connector.

**YES** : Repair open circuit of harness between ECM and fuel pump relay connector.

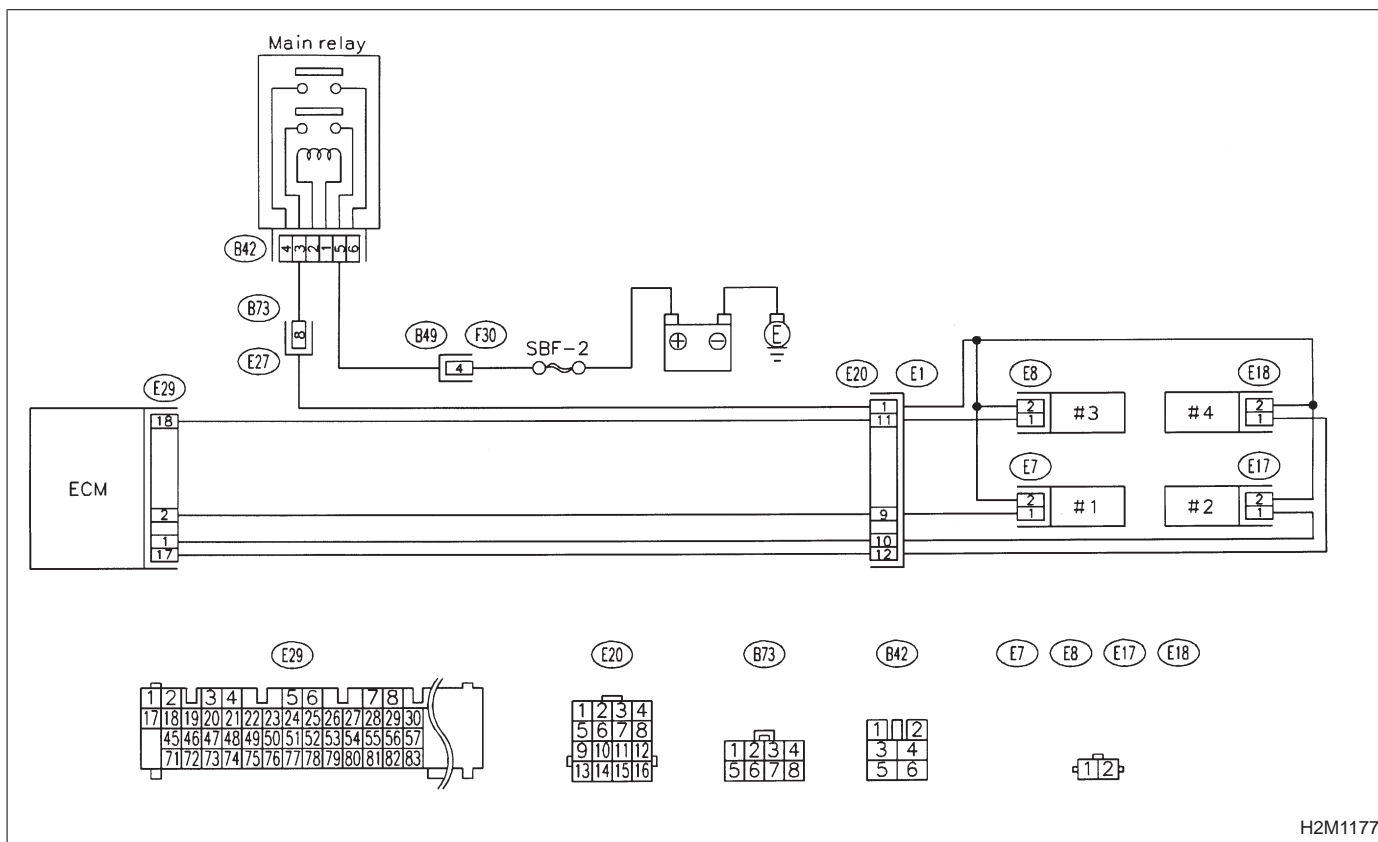
F: FUEL INJECTOR CIRCUIT



CAUTION:

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

WIRING DIAGRAM:



H2M1177

NOTE:

For the diagnostic procedure on fuel injector circuit, refer to 2-7b [T10Q0].



**G: CRANKSHAFT POSITION SENSOR CIRCUIT**

1. Check harness.

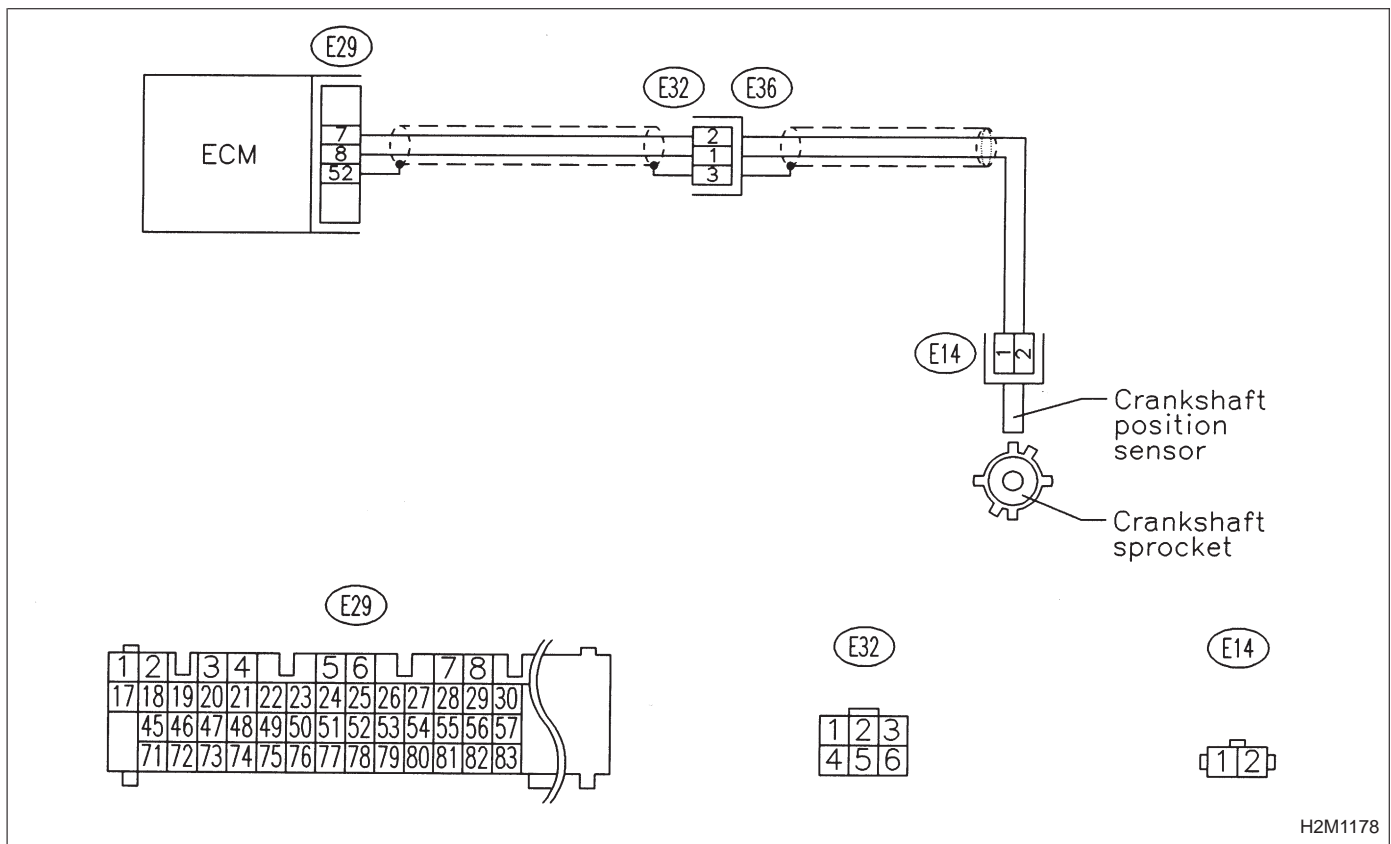


2. Check crankshaft position sensor.

**CAUTION:**

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

**WIRING DIAGRAM:**



H2M1178

**NOTE:**

For the diagnostic procedure on crankshaft position sensor circuit, refer to 2-7b [T10Z0].

**H: CAMSHAFT POSITION SENSOR CIRCUIT**

1. Check harness.

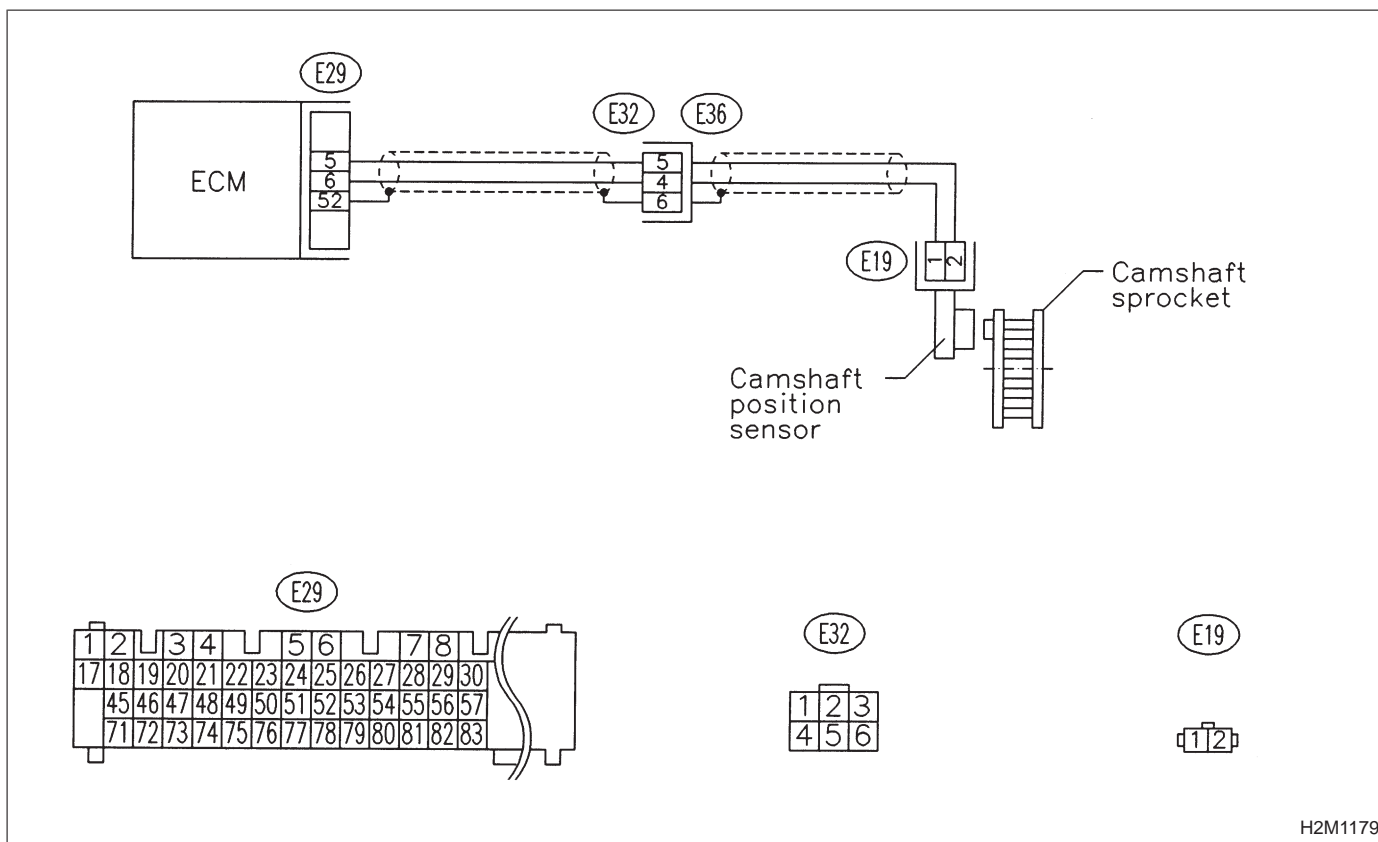


2. Check camshaft position sensor.

**CAUTION:**

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

**WIRING DIAGRAM:**



H2M1179

**NOTE:**

For the diagnostic procedure on camshaft position sensor circuit, refer to 2-7b [T10A0].