Fuel Pump Control Circuit

DESCRIPTION

Refer to DTC P0230 (See page ES-168).

WIRING DIAGRAM

Refer to DTC P0230 (See page ES-170).

INSPECTION PROCEDURE

ES

1	CHECK FUEL PUMP OPERATION

(a) Check if there is pressure in the fuel inlet hose.
HINT:
If there is fuel pressure, you will hear the sound of fuel flowing.

OK → **Go to step 10**

NG

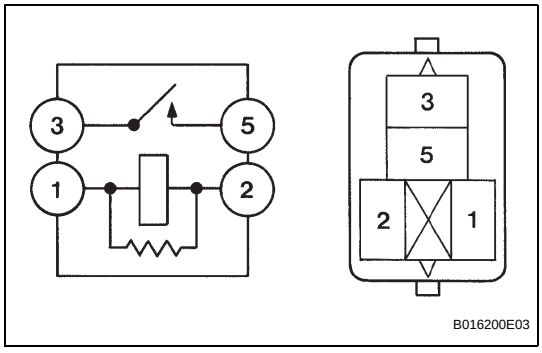
2	PERFORM ACTIVE TEST BY INTELLIGENT TESTER (OPERATE CIRCUIT OPENING RELAY)

(a) Connect the intelligent tester to the DLC3 with CAN VIM.
(b) Turn the ignition switch ON and turn the intelligent tester ON.
(c) Enter the following menus: DIAGNOSIS / ENHANCED OBD II / ACTIVE TEST / FUEL PUMP / SPD.
(d) Check the relay operation when it is operated by the intelligent tester.
Standard:
Operating sound can be heard from the relay.

OK → **Go to step 5**

NG

3	INSPECT CIRCUIT OPENING RELAY (Marking: C/OPN)



(a) Remove the circuit opening relay from the engine room relay block.
(b) Measure the resistance of the circuit opening relay.
Standard resistance

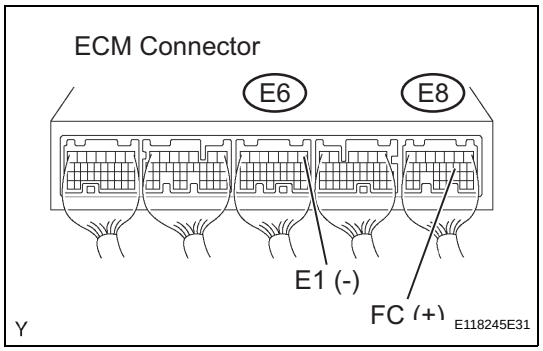
Tester Connection	Specified Condition
3 - 5	10 kΩ or higher
3 - 5	Below 1 Ω (when battery voltage is applied to terminals 1 and 2)

(c) Reinstall the circuit opening relay.

NG → **REPLACE CIRCUIT OPENING RELAY**

OK

4 INSPECT ECM (FC VOLTAGE)



(a) Turn the ignition switch ON.
(b) Measure the voltage of the E8 and E6 ECM connectors.
Standard voltage

Tester Connection	Specified Condition
FC (E8-10) - E1 (E6-1)	9 to 14 V

OK → **REPLACE ECM**

NG

CHECK AND REPAIR HARNESS OR CONNECTOR (ECM - CIRCUIT OPENING RELAY, CIRCUIT OPENING RELAY - IGNITION SWITCH)

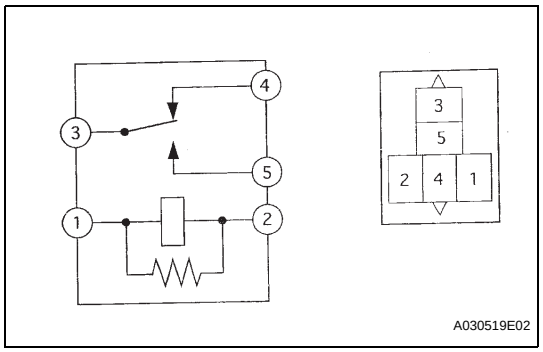
5 CHECK ECM POWER SOURCE CIRCUIT

(a) Check the ECM Power Source Circuit (See page ES-454).

NG → **REPAIR OR REPLACE**

OK

6 INSPECT FUEL PUMP RELAY



(a) Remove the fuel pump relay from the engine room relay block.
(b) Measure the resistance of the fuel pump relay.
Standard resistance

Tester Connection	Specified Condition
3 - 4	Below 1 Ω
3 - 5	10 kΩ or higher
3 - 4	10 kΩ or higher (when battery voltage is applied to terminals 1 and 2)
3 - 5	Below 1 Ω (when battery voltage is applied to terminals 1 and 2)

(c) Reinstall the fuel pump relay.

NG → **REPLACE FUEL PUMP RELAY**

OK

ES

7	INSPECT FUEL PUMP

(a) Check the fuel pump operation (See page FU-17).

NG → **REPLACE FUEL PUMP**

OK

8	CHECK HARNESS AND CONNECTOR (FUEL PUMP - FUEL PUMP RELAY, FUEL PUMP - BODY GROUND)

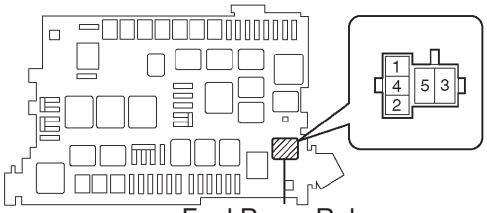
Wire Harness Side:

Fuel Pump Connector

F14

Front View

Engine Room R/B:



Fuel Pump Relay

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(a) Check the harness and connector between the fuel pump and fuel pump relay.
(1) Disconnect the F14 fuel pump connector.
(2) Remove the fuel pump relay from the engine room R/B.
(3) Measure the resistance between the wire harness side connectors.

Standard resistance (Check for open)

Tester Connection	Specified Condition
Fuel pump (F14-4) - Engine room R/B (Fuel pump relay terminal 4)	Below 1 Ω

Standard resistance (Check for short)

Tester Connection	Specified Condition
Fuel pump (F14-4) or Engine room R/B (Fuel pump relay terminal 4) - Body ground	10 kΩ or higher

(b) Check the harness and connector between the fuel pump and body ground.
(1) Disconnect the F14 fuel pump connector.
(2) Measure the resistance between the wire harness side connector and body ground.

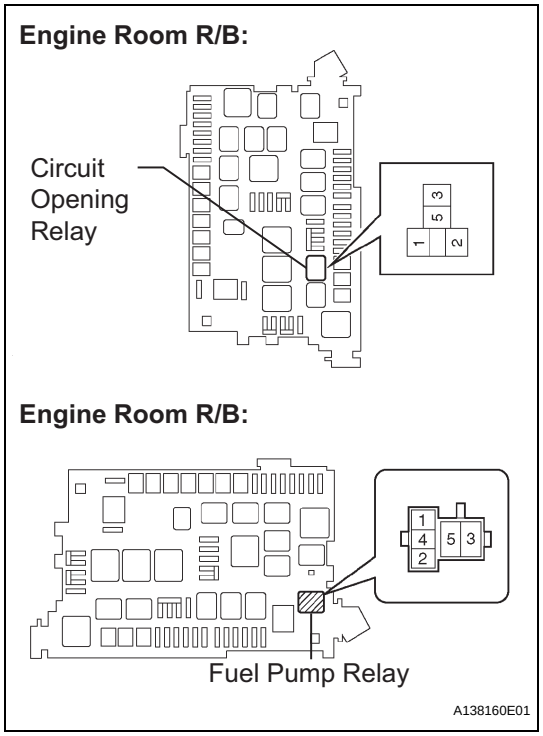
Standard resistance (Check for open)

Tester Connection	Specified Condition
Engine room R/B (Fuel pump relay terminal 5) - Body ground	Below 1 Ω

NG → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK

9	CHECK HARNESS AND CONNECTOR (CIRCUIT OPENING RELAY - FUEL PUMP RELAY)



(a) Remove the circuit opening relay from the engine room R/B.
(b) Remove the fuel pump relay from the engine room R/B.
(c) Measure the resistance between the wire harness side connectors.

Standard resistance (Check for open)

Tester Connection	Specified Condition
Circuit opening relay (3) - Engine room R/B (Fuel pump relay terminal 3)	Below 1 Ω

Standard resistance (Check for short)

Tester Connection	Specified Condition
Circuit opening relay (3) or Engine room R/B (Fuel pump relay terminal 3) - Body ground	10 kΩ or higher

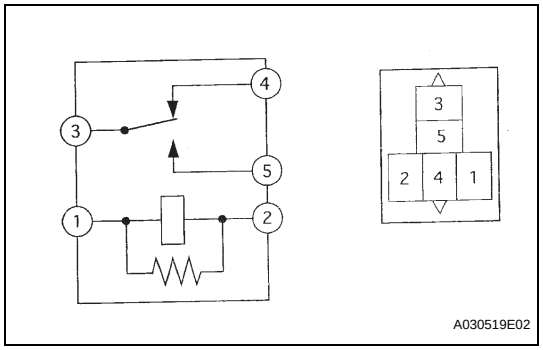
(d) Reinstall the circuit opening relay.
(e) Reinstall the fuel pump relay.

NG → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK

CHECK AND REPAIR HARNESS OR CONNECTOR (EFI RELAY - CIRCUIT OPENING RELAY)

10	INSPECT FUEL PUMP RELAY



(a) Remove the fuel pump relay from the engine room relay block.
(b) Measure the resistance of the fuel pump relay.

Standard resistance

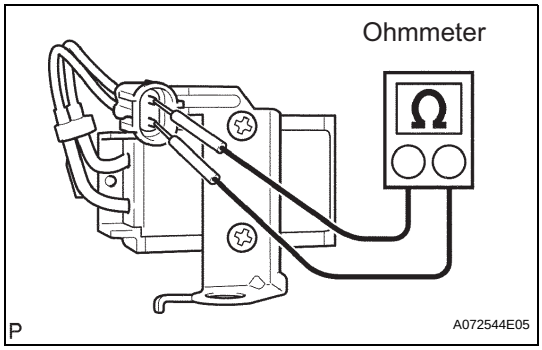
Tester Connection	Specified Condition
3 - 4	Below 1 Ω
3 - 5	10 kΩ or higher
3 - 4	10 kΩ or higher (when battery voltage is applied to terminals 1 and 2)
3 - 5	Below 1 Ω (when battery voltage is applied to terminals 1 and 2)

(c) Reinstall the fuel pump relay.

NG → **REPLACE FUEL PUMP RELAY**

OK

11	INSPECT FUEL PUMP RESISTOR (RESISTANCE)



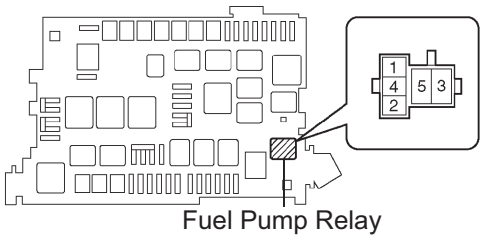
(a) Inspect the fuel pump resistor resistance.
  (1) Measure the resistance of the terminals.
  Resistance:
  0.70 to 0.76 Ω at 20°C (68°F)

NG → **REPLACE FUEL PUMP RESISTOR**

ES **OK**

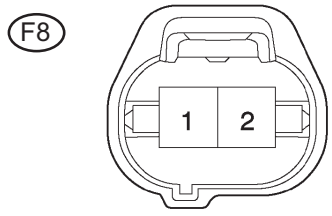
12	CHECK HARNESS AND CONNECTOR (FUEL PUMP RELAY - FUEL PUMP RESISTOR, FUEL PUMP RESISTOR - FUEL PUMP)

Engine Room R/B:



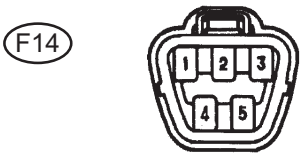
Wire Harness Side:

Fuel Pump Resistor Connector



Wire Harness Side:

Fuel Pump Connector



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(a) Check the harness and connector between the fuel pump relay and fuel pump resistor.
  (1) Remove the fuel pump relay from the engine room R/B.
  (2) Disconnect the F8 fuel pump resistor connector.
  (3) Check the resistance between the wire harness side connectors.
  Standard resistance (Check for open)

Tester Connection	Specified Condition
Engine room R/B (Fuel pump relay terminal 5) - Fuel pump resistor (F8-1)	Below 1 Ω

Standard resistance (Check for short)

Tester Connection	Specified Condition
Engine room R/B (Fuel pump relay terminal 5) or Fuel pump resistor (F8-1) - Body ground	10 kΩ or higher

  (4) Reinstall the fuel pump relay.
  (5) Reconnect the fuel pump resistor connector.

(b) Check the harness and connector between the fuel pump resistor and fuel pump.
  (1) Disconnect the F8 fuel pump resistor connector.
  (2) Disconnect the F14 fuel pump connector.
  (3) Check the resistance between the wire harness side connectors.
  Standard resistance (Check for open)

Tester Connection	Specified Condition
Fuel pump resistor (F8-2) - Fuel pump (F14-4)	Below 1 Ω

Standard resistance (Check for short)

Tester Connection	Specified Condition
Fuel pump resistor (F8-2) or Fuel pump (F14-4) - Body ground	10 kΩ or higher

(c) Reconnect the fuel pump resistor connector.

(d) Reconnect the fuel pump connector.

OK → **PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE**

NG

REPAIR OR REPLACE HARNESS OR CONNECTOR