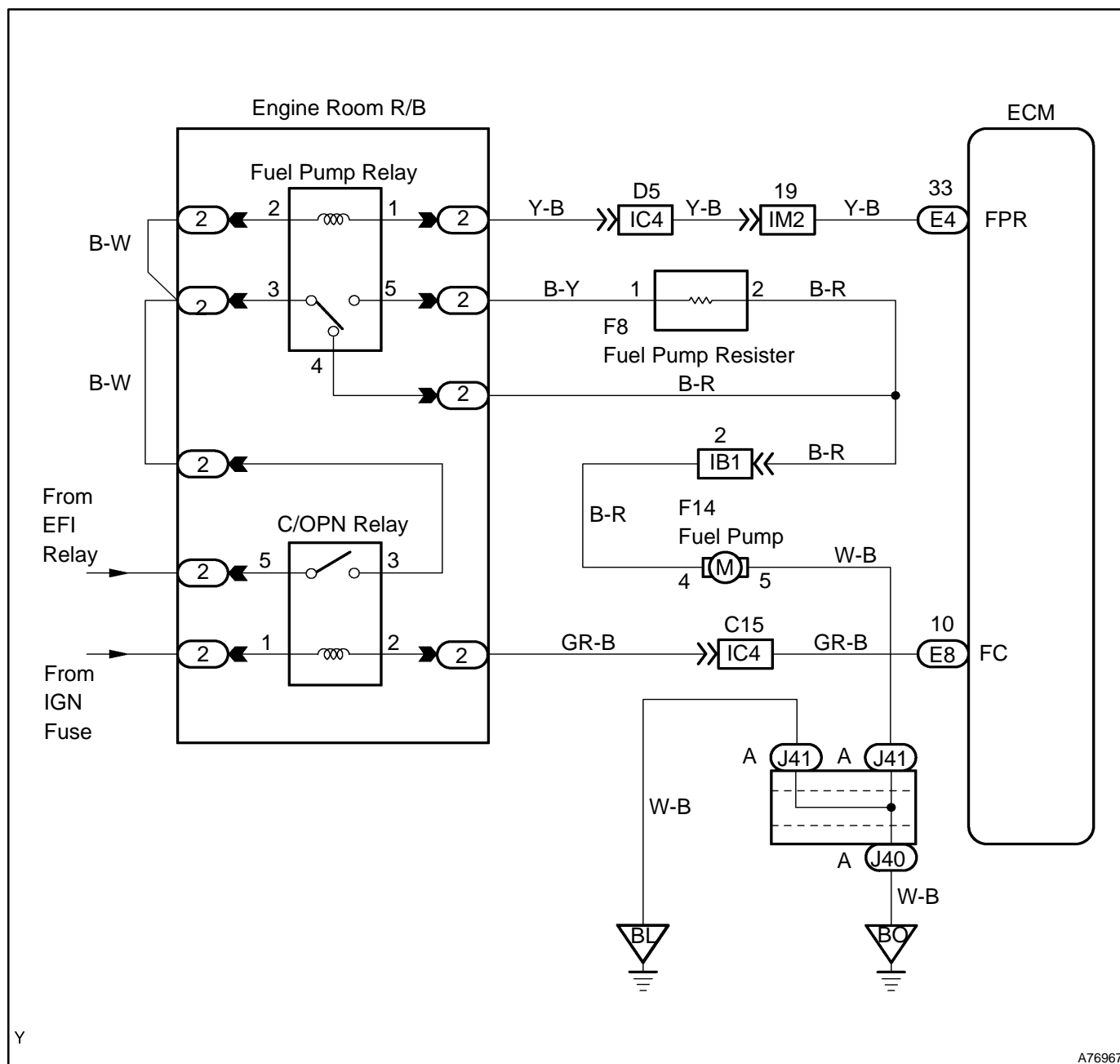


FUEL PUMP CONTROL CIRCUIT

CIRCUIT DESCRIPTION

Refer to DTC P0230 on page [05-90](#).

WIRING DIAGRAM



INSPECTION PROCEDURE

Hand-held tester:

1 CHECK FUEL PUMP OPERATION (See page [11-5](#))

(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 HAND-HELD TESTER(OPERATE CIRCUIT OPENING RELAY)

- Connect the hand-held tester to the DLC3.
- Turn the ignition switch ON and push the hand-held tester main switch ON.
- Select the item "DIAGNOSIS/ENHANCED OBD II/ACTIVE TEST/FUEL PUMP / SPD".
- Check the relay operation while operating it with the hand-held tester.

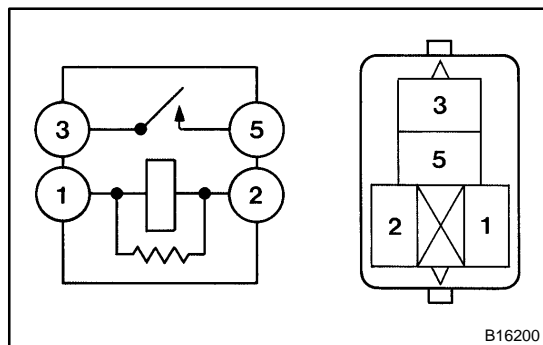
Standard: Operating noise can be heard from the relay.

OK

Go to step 5

NG

3 INSPECT CIRCUIT OPENING RELAY



- Remove the circuit opening relay from the engine room R/B.
- Inspect the circuit opening relay.

Standard:

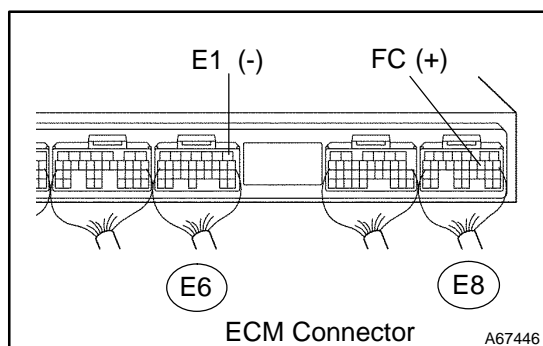
Terminal No.	Specified condition
1 - 2	Continuity
3 - 5	No Continuity
	Continuity (Apply battery voltage terminals 1 and 2)

NG

REPLACE CIRCUIT OPENING RELAY

OK

4 INSPECT ECM(FC VOLTAGE)



- Turn the ignition switch ON.
- Measure the voltage between the terminals of the E6 and E8 ECM connectors.

Standard:

Symbols (Terminal No.)	Specified condition
FC (E8-10) - E1 (E6-1)	9 to 14 V

OK

CHECK AND REPLACE ECM
(See page 01-35)

NG

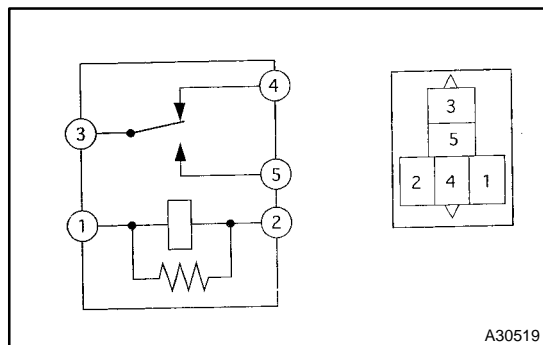
CHECK AND REPAIR HARNESS AND CONNECTOR (ECM - CIRCUIT OPENING RELAY, CIRCUIT OPENING RELAY - IGNITION SWITCH)

5 INSPECT ECM POWER SOURCE CIRCUIT (See page 05-228)

NG REPAIR OR REPLACE

OK

6 INSPECT FUEL PUMP RELAY ASSY



- (a) Remove the fuel pump relay from the engine room R/B.
(b) Inspect the fuel pump relay.

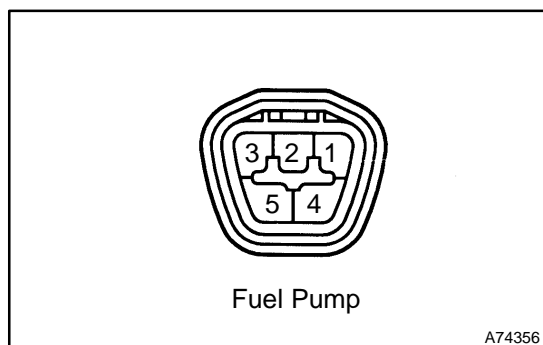
Standard:

Terminal No.	Specified condition
1 - 2 3 - 4	Continuity
3 - 5	No Continuity
	Continuity (Apply battery voltage terminals 1 and 2)

NG REPLACE FUEL PUMP RELAY ASSY

OK

7 INSPECT FUEL PUMP



Fuel Pump

- (a) Inspect fuel pump resistance.
(1) Measure the resistance between terminals 4 and 5.
Resistance: 0.2 to 3.0 Ω at 20°C (68°F)
(b) Inspect fuel pump operation
(1) Apply battery voltage to both terminals. Check that the pump operates.

NOTICE:

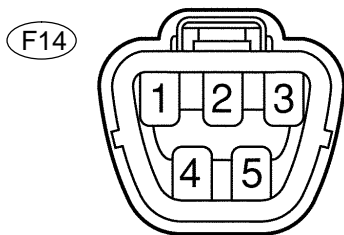
- These tests must be done quickly (within 10 seconds) to prevent the coil from burning out.
- Keep fuel pump as far away from the battery as possible.
- Always do the switching at the battery side.

NG REPLACE FUEL PUMP (See page 11-27)

OK

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

Wire Harness Side

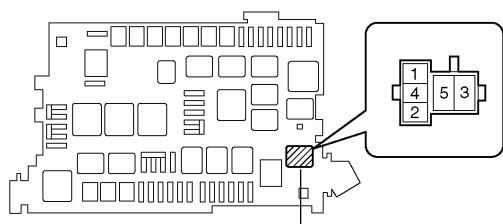


P

Fuel Pump Connector

A67586

Engine Room R/B



Y

Fuel Pump Relay

A66292

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

Standard (Check for open):

Symbols (Terminal No.)	Specified condition
Fuel pump (F14-4) - Fuel pump relay (4)	Continuity

Standard (Check for short):

Symbols (Terminal No.)	Specified condition
Fuel pump (F14-4) or Fuel pump relay (4) - Body ground	No continuity

- (b) Check the harness and connector between the fuel pump connector and body ground.
- (1) Disconnect the fuel pump connector.
 - (2) Check for continuity between the wire harness side connector and body ground.

Standard (Check for open):

Symbols (Terminal No.)	Specified condition
Fuel pump (F14-5) - Body ground	Continuity

NG

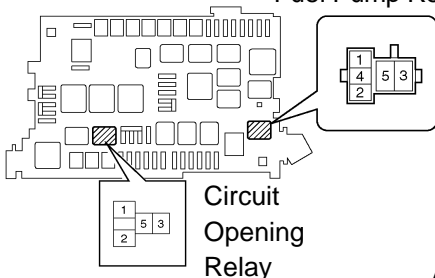
REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

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

Engine Room R/B

Fuel Pump Relay



Circuit Opening Relay

A79233

- (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) Check for continuity between the wire harness side connectors.

Standard (Check for open):

Symbols (Terminal No.)	Specified condition
Circuit opening relay (3) - Fuel pump relay (3)	Continuity

Standard (Check for short):

Symbols (Terminal No.)	Specified condition
Circuit opening relay (3) or Fuel pump relay (3) - Body ground	No continuity

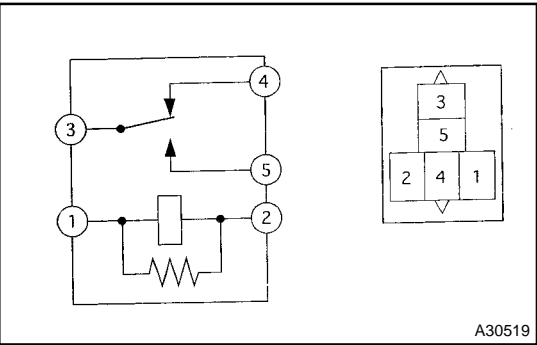
NG

REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

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

10 INSPECT FUEL PUMP RELAY ASSY



- (a) Remove the fuel pump relay from the engine room R/B.
- (b) Inspect the fuel pump relay.

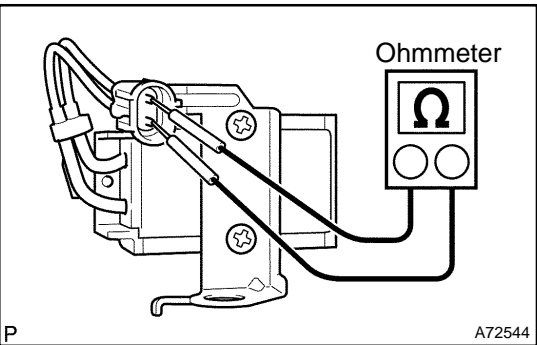
Standard:

Terminal No.	Specified condition
1 - 2 3 - 4	Continuity
3 - 5	No Continuity
	Continuity (Apply battery voltage terminal 1 and 2)

NG REPLACE FUEL PUMP RELAY ASSY

OK

11 INSPECT FUEL PUMP RESISTER(RESISTANCE)



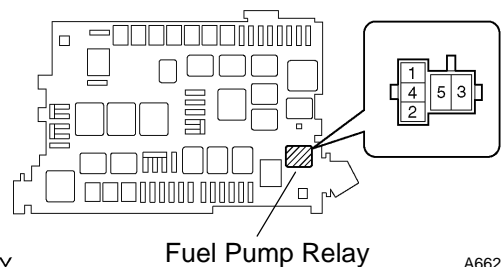
- (a) Inspect the fuel pump resistor resistance.
 - (1) Measure the resistance between terminal.
- Resistance: 0.70 to 0.76 Ω at 20°C (68°F)

NG REPLACE FUEL PUMP RESISTER

OK

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

Engine Room R/B



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

Standard (Check for open):

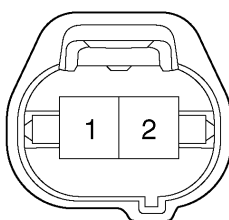
Symbols (Terminal No.)	Specified condition
Fuel pump relay (5) - Fuel pump resistor (F8-1)	Continuity

Standard (Check for short):

Symbols (Terminal No.)	Specified condition
Fuel pump relay (5) or Fuel pump resistor (F8-1) - Body ground	No continuity

Wire Harness Side

(F8)



- (b) Check the harness and connector between the fuel pump resistor connector and fuel pump connector.
- (1) Disconnect the fuel pump resistor connector.
 - (2) Disconnect the fuel pump connector.
 - (3) Check for continuity between the wire harness side connectors.

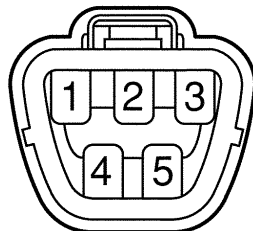
Standard (Check for open):

Symbols (Terminal No.)	Specified condition
Fuel pump resistor (F8-2) - Fuel pump (F14-4)	Continuity

Standard (Check for short):

Symbols (Terminal No.)	Specified condition
Fuel pump resistor (F8-2) or Fuel pump (F14-4) - Body ground	No continuity

(F14)



OK

PROCEED TO NEXT CIRCUIT INSPECTION SHOWN ON PROBLEM SYMPTOMS TABLE (See page 05-28)

NG

REPAIR OR REPLACE HARNESS OR CONNECTOR

OBD II scan tool (excluding hand-held tester):

1 CHECK FUEL PUMP OPERATION (See page 11-5)

- (a) Check if there is pressure in the fuel inlet hose.

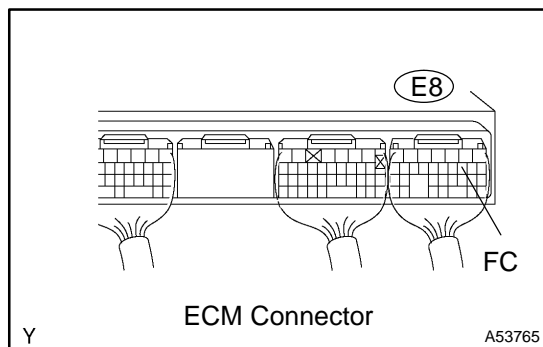
HINT:

If there is fuel pressure, you will hear the sound of fuel flowing.

OK

Go to step 10

NG

2 CHECK RELAY OPERATION(CIRCUIT OPENING RELAY)

- (a) When connecting between the terminal FC of the ECM connector and body ground, check the relay operation.

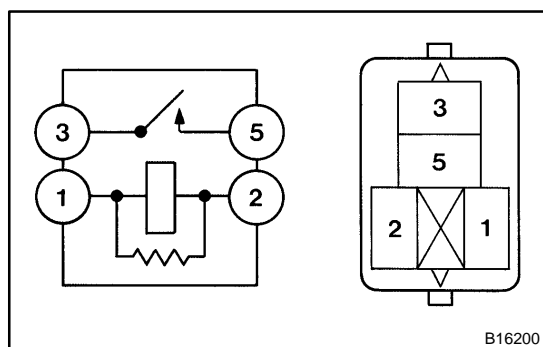
Standard:

Operating noise can be heard from the circuit opening relay.

OK

Go to step 5

NG

3 INSPECT CIRCUIT OPENING RELAY

- (a) Remove the circuit opening relay from the engine room R/B.

- (b) Inspect the circuit opening relay.

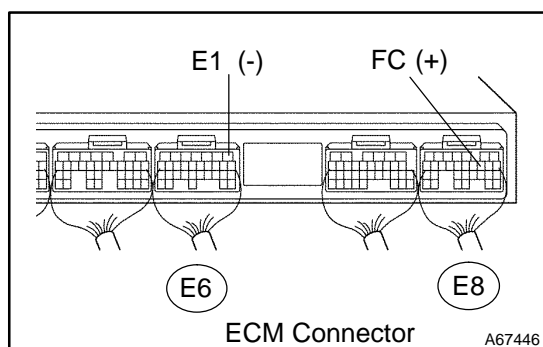
Standard:

Terminal No.	Specified condition
1 - 2	Continuity
3 - 5	No Continuity
	Continuity (Apply battery voltage terminals 1 and 2)

NG

REPLACE CIRCUIT OPENING RELAY

OK

4 INSPECT ECM(FC VOLTAGE)

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

Standard:

Symbols (Terminal No.)	Specified condition
FC (E8-10) - E1 (E6-1)	9 to 14 V

OK

**CHECK AND REPLACE ECM
(See page 01-35)**

NG

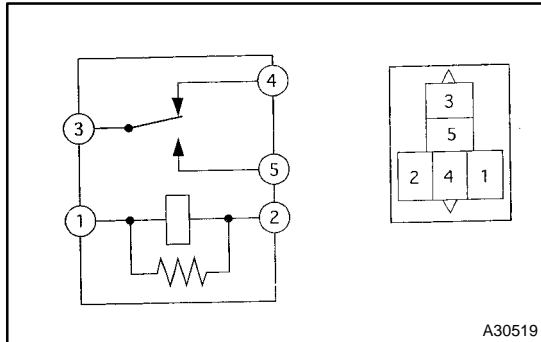
CHECK AND REPAIR HARNESS AND CONNECTOR (ECM - CIRCUIT OPENING RELAY, CIRCUIT OPENING RELAY - IGNITION SWITCH)

5 INSPECT ECM POWER SOURCE CIRCUIT (See page 05-228)

NG REPAIR OR REPLACE

OK

6 INSPECT FUEL PUMP RELAY ASSY



- (a) Remove the fuel pump relay from the engine room R/B.
(b) Inspect the fuel pump relay.

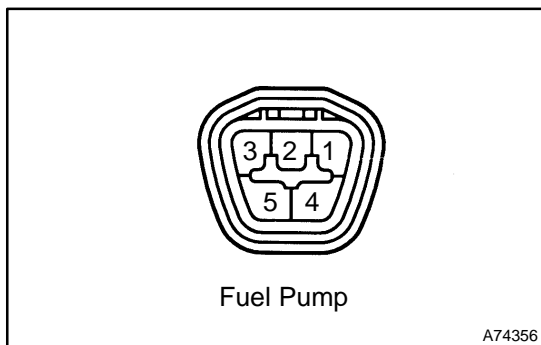
Standard:

Terminal No.	Specified condition
1 - 2 3 - 4	Continuity
3 - 5	No Continuity
	Continuity (Apply battery voltage terminals 1 and 2)

NG REPLACE FUEL PUMP RELAY ASSY

OK

7 INSPECT FUEL PUMP



Fuel Pump

- (a) Inspect fuel pump resistance.
(1) Measure the resistance between terminals 4 and 5.
Resistance: 0.2 to 3.0 Ω at 20°C (68°F)
(b) Inspect fuel pump operation
(1) Apply battery voltage to both terminals. Check that the pump operates.

NOTICE:

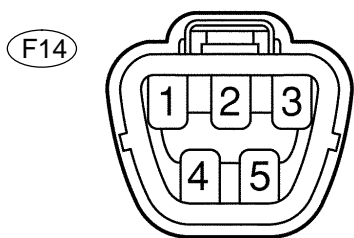
- These tests must be done quickly (within 10 seconds) to prevent the coil from burning out.
- Keep fuel pump as far away from the battery as possible.
- Always do the switching at the battery side.

NG REPLACE FUEL PUMP (See page 11-27)

OK

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

Wire Harness Side

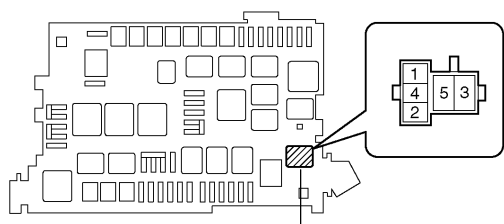


P

Fuel Pump Connector

A67586

Engine Room R/B



Y

Fuel Pump Relay

A66292

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

Standard (Check for open):

Symbols (Terminal No.)	Specified condition
Fuel pump (F14-4) - Fuel pump relay (4)	Continuity

Standard (Check for short):

Symbols (Terminal No.)	Specified condition
Fuel pump (F14-4) or Fuel pump relay (4) - Body ground	No continuity

- (b) Check the harness and connector between the fuel pump connector and body ground.
 - (1) Disconnect the fuel pump connector.
 - (2) Check for continuity between the wire harness side connector and body ground.

Standard (Check for open):

Symbols (Terminal No.)	Specified condition
Fuel pump (F14-5) - Body ground	Continuity

NG

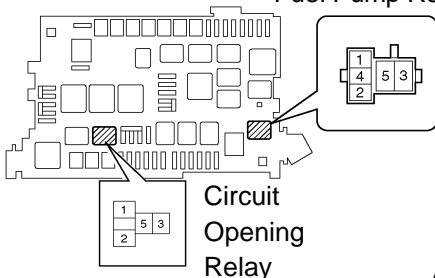
REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

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

Engine Room R/B

Fuel Pump Relay



A79233

- (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) Check for continuity between the wire harness side connectors.

Standard (Check for open):

Symbols (Terminal No.)	Specified condition
Circuit opening relay (3) - Fuel pump relay (3)	Continuity

Standard (Check for short):

Symbols (Terminal No.)	Specified condition
Circuit opening relay (3) or Fuel pump relay (3) - Body ground	No continuity

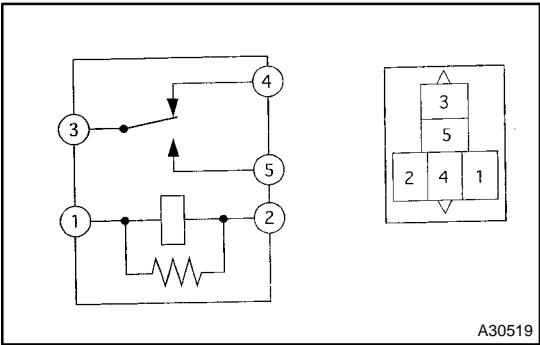
NG

REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

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

10 INSPECT FUEL PUMP RELAY ASSY



- (a) Remove the fuel pump relay from the engine room R/B.
- (b) Inspect the fuel pump relay.

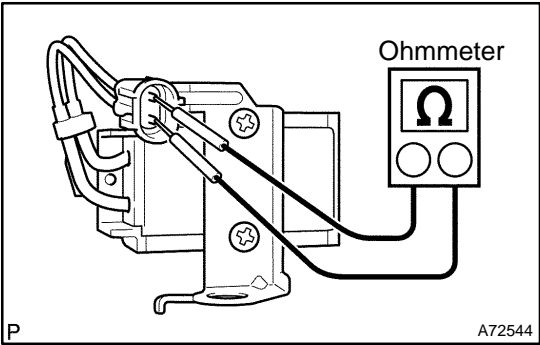
Standard:

Terminal No.	Specified condition
1 - 2 3 - 4	Continuity
3 - 5	No Continuity
	Continuity (Apply battery voltage terminals 1 and 2)

NG REPLACE FUEL PUMP RELAY ASSY

OK

11 INSPECT FUEL PUMP RESISTER(RESISTANCE)



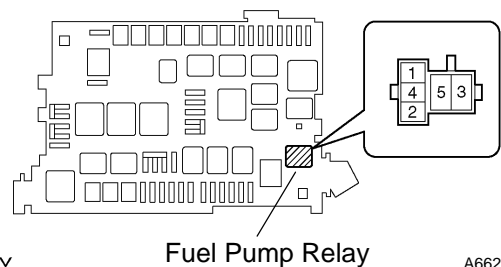
- (a) Inspect the fuel pump resistor resistance.
 - (1) Measure the resistance between terminal.
- Resistance: 0.70 to 0.76 Ω at 20°C (68°F)

NG REPLACE FUEL PUMP RESISTER

OK

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

Engine Room R/B



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

Standard (Check for open):

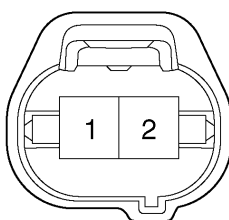
Symbols (Terminal No.)	Specified condition
Fuel pump relay (5) - Fuel pump resistor (F8-1)	Continuity

Standard (Check for short):

Symbols (Terminal No.)	Specified condition
Fuel pump relay (5) or Fuel pump resistor (F8-1) - Body ground	No continuity

Wire Harness Side

(F8)



- (b) Check the harness and connector between the fuel pump resistor connector and fuel pump connector.
- (1) Disconnect the fuel pump resistor connector.
 - (2) Disconnect the fuel pump connector.
 - (3) Check for continuity between the wire harness side connectors.

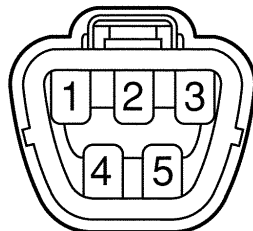
Standard (Check for open):

Symbols (Terminal No.)	Specified condition
Fuel pump resistor (F8-2) - Fuel pump (F14-4)	Continuity

Standard (Check for short):

Symbols (Terminal No.)	Specified condition
Fuel pump resistor (F8-2) or Fuel pump (F14-4) - Body ground	No continuity

(F14)



OK

PROCEED TO NEXT CIRCUIT INSPECTION SHOWN ON PROBLEM SYMPTOMS TABLE (See page 05-28)

NG

REPAIR OR REPLACE HARNESS OR CONNECTOR