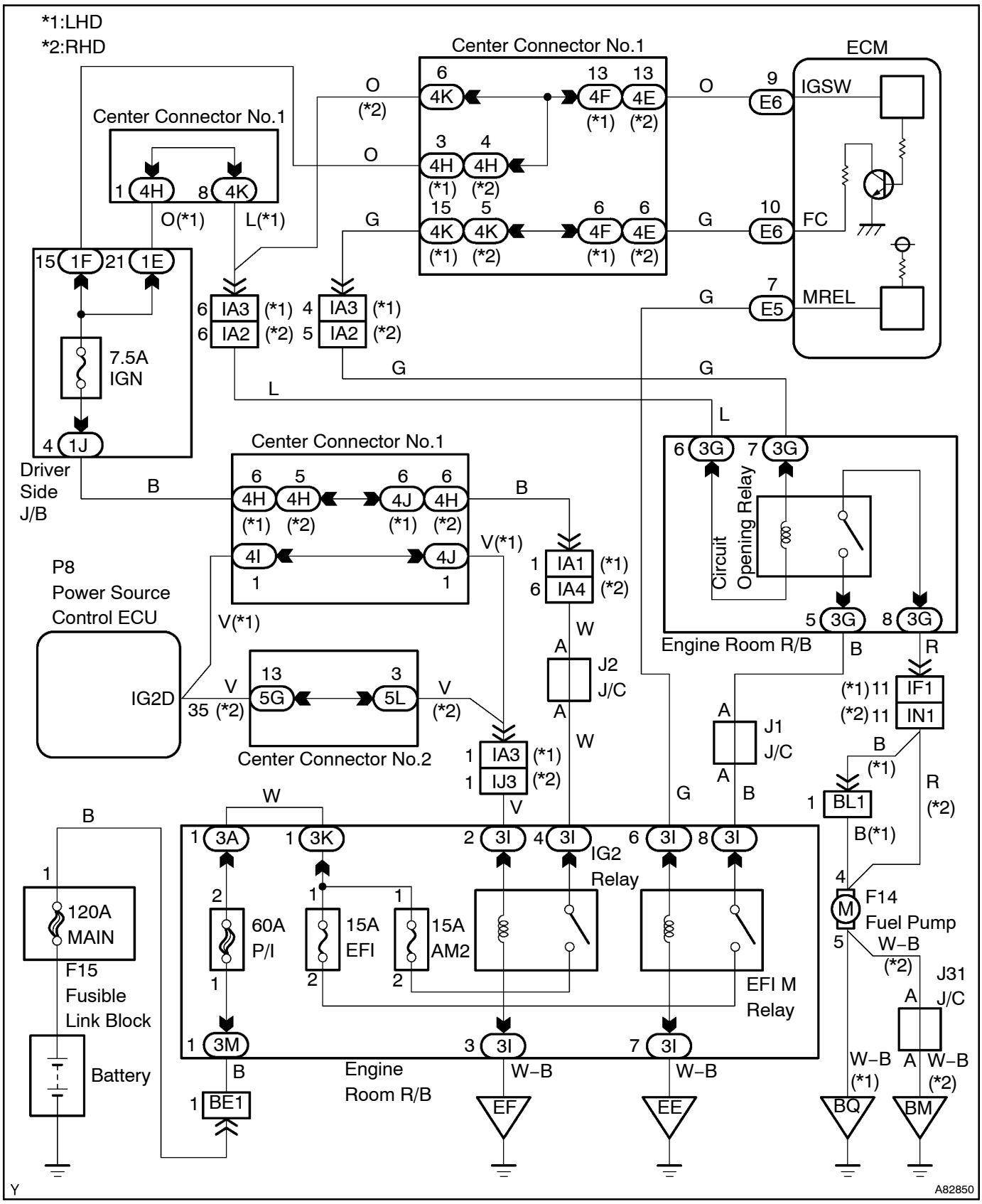
FUEL PUMP CONTROL CIRCUIT

CIRCUIT DESCRIPTION

The fuel pump is operated by the ECM according to the vehicle running condition. After the ECM receives the engine start requirement signal from the HV ECU, an NE signal comes in immediately when the engine is cranked by MG1 (basically, the fuel pump can operate while the NE signal is generated).
The ECM grounds the FC terminal line after receiving NE signal. It causes to energize the coil in the circuit opening relay, and the current flows to the fuel pump.
When the signal to stop the engine comes from HV ECU to the ECM, or when the fuel cut operation is performed such as decelerating by the engine brake, the fuel pump is stopped.

WIRING DIAGRAM



INSPECTION PROCEDURE

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

(a) Connect the intelligent tester II to the DLC3.
(b) Turn the power switch ON (IG).
(c) Turn the intelligent tester II ON.
(d) Select the item: Powertrain / Engine and ECT / Active Test / Control the Fuel Pump/Speed.
(e) Check the relay operation while operating it using the intelligent tester II.
Standard: Operating noise can be heard from the relay.

OK	PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE

NG

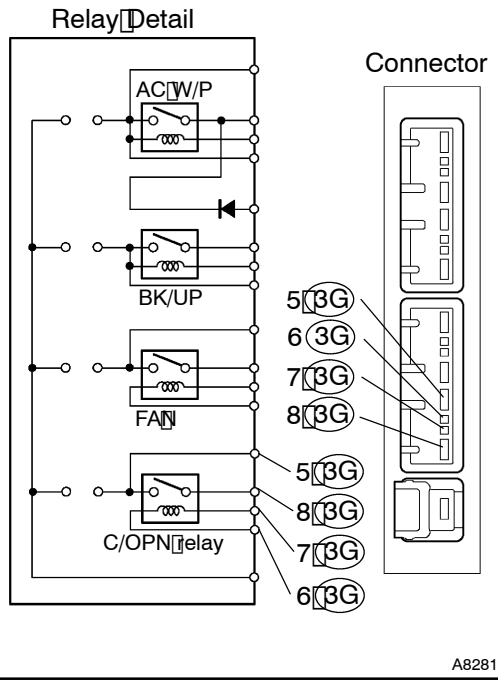
2	INSPECT POWER SOURCE CIRCUIT (See page 05–197)

NG	REPAIR OR REPLACE POWER SOURCE CIRCUIT COMPONENTS

OK

3	INSPECT INTEGRATION RELAY(C/OPN RELAY)

Integration Relay:



(a) Remove the integration relay from the engine room R/B.
(b) Inspect the circuit opening relay.
Standard:

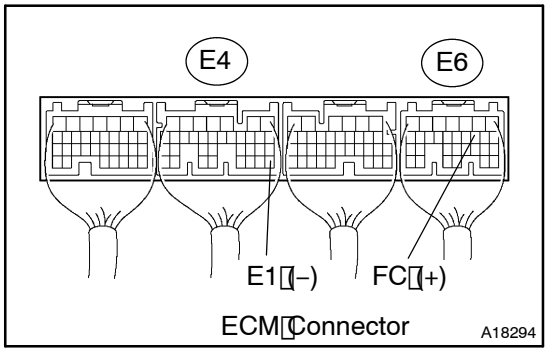
Tester Connection	Specified Condition
(3G–5) – (3G–8)	10 kΩ or higher
(3G–5) – (3G–8)	Below 1 Ω (Apply battery voltage to terminals 3G–6 and 3G–7)

(c) Reinstall the integration relay.

NG	REPLACE INTEGRATION RELAY

OK

4 INSPECT ECM(FC VOLTAGE) (CHECK VOLTAGE)



(a) Turn the power switch ON (IG).
(b) Measure the voltage between the specified terminals of the E4 and E6 ECM connectors.

Standard:

Tester Connection	Specified Condition
FC (E6–10) – E1 (E4–28)	9 to 14 V

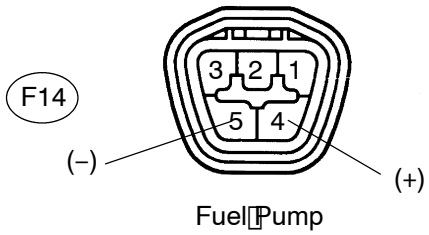
OK ▷ **Go to step 5**

NG

CHECK AND REPAIR HARNESS OR CONNECTOR

5 INSPECT FUEL PUMP

Component Side:



(a) Inspect the fuel pump resistance.
(1) Disconnect the fuel pump connector.
(2) Measure the resistance between terminals 4 and 5.

Standard:

Tester Connection	Specified Condition
4 – 5	0.2 to 3.0 Ω at 20°C (68°F)

(b) Inspect the fuel pump operation.
(1) Apply battery voltage to the fuel pump terminals. Check that the pump operates.

NOTICE:

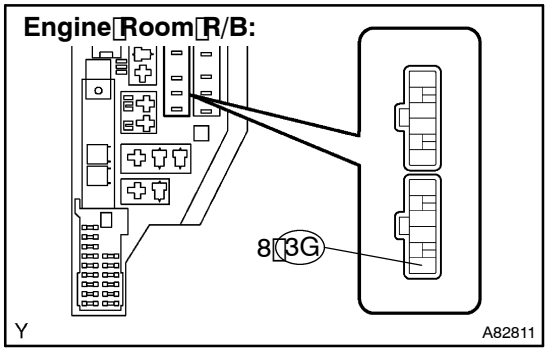
- **These tests must be done quickly (within 10 seconds) to prevent the coil from burning out.**
- **Keep fuel pump as far away from the battery as possible.**
- **Always do the switching at the battery side.**

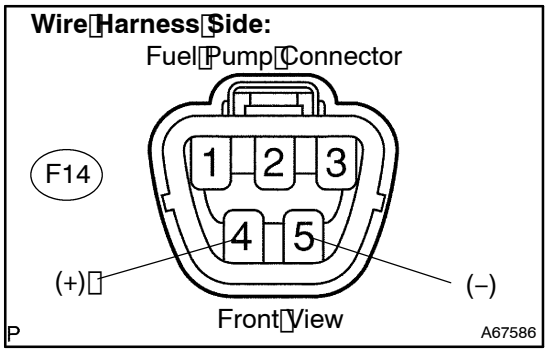
(2) Reconnect the fuel pump connector.

NG ▷ **REPAIR OR REPLACE FUEL PUMP (See page 11–23)**

OK

6	CHECK HARNESS AND CONNECTOR(C/OPN RELAY – FUEL PUMP, FUEL PUMP – BODY GROUND)





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

Standard (Check for open):

Tester Connection	Specified Condition
Circuit opening relay (3G–8) – Fuel pump (F14–4)	Below 1 Ω

Standard (Check for short):

Tester Connection	Specified Condition
Circuit opening relay (3G–8) or Fuel pump (F14–4) – Body ground	10 kΩ or higher

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

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

Standard (Check for open):

Tester Connection	Specified Condition
Fuel pump (F14–5) – Body ground	Below 1 Ω

(3) Reconnect the fuel pump connector.

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

OK →

REPLACE ECM (See page 10–24)