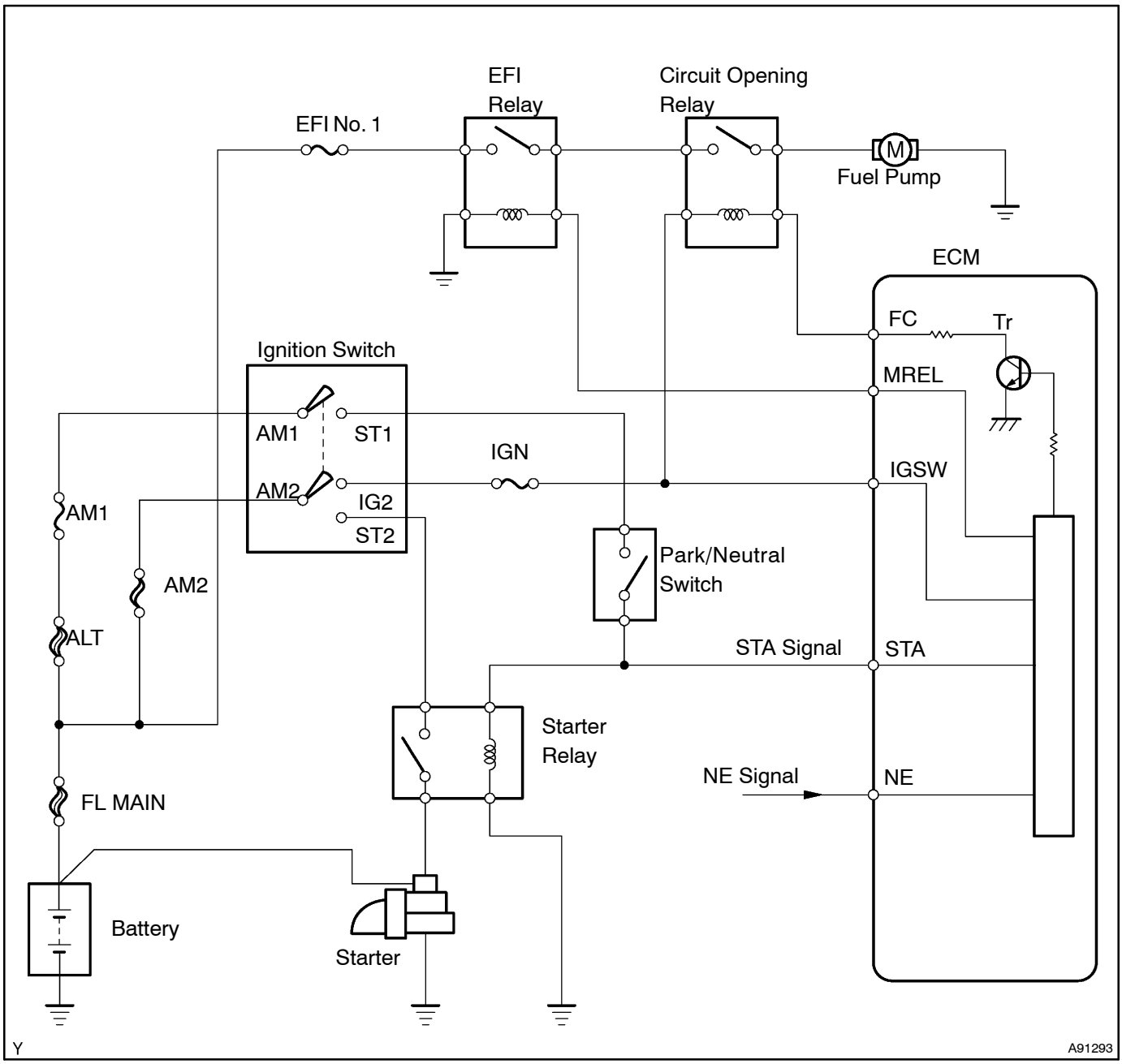
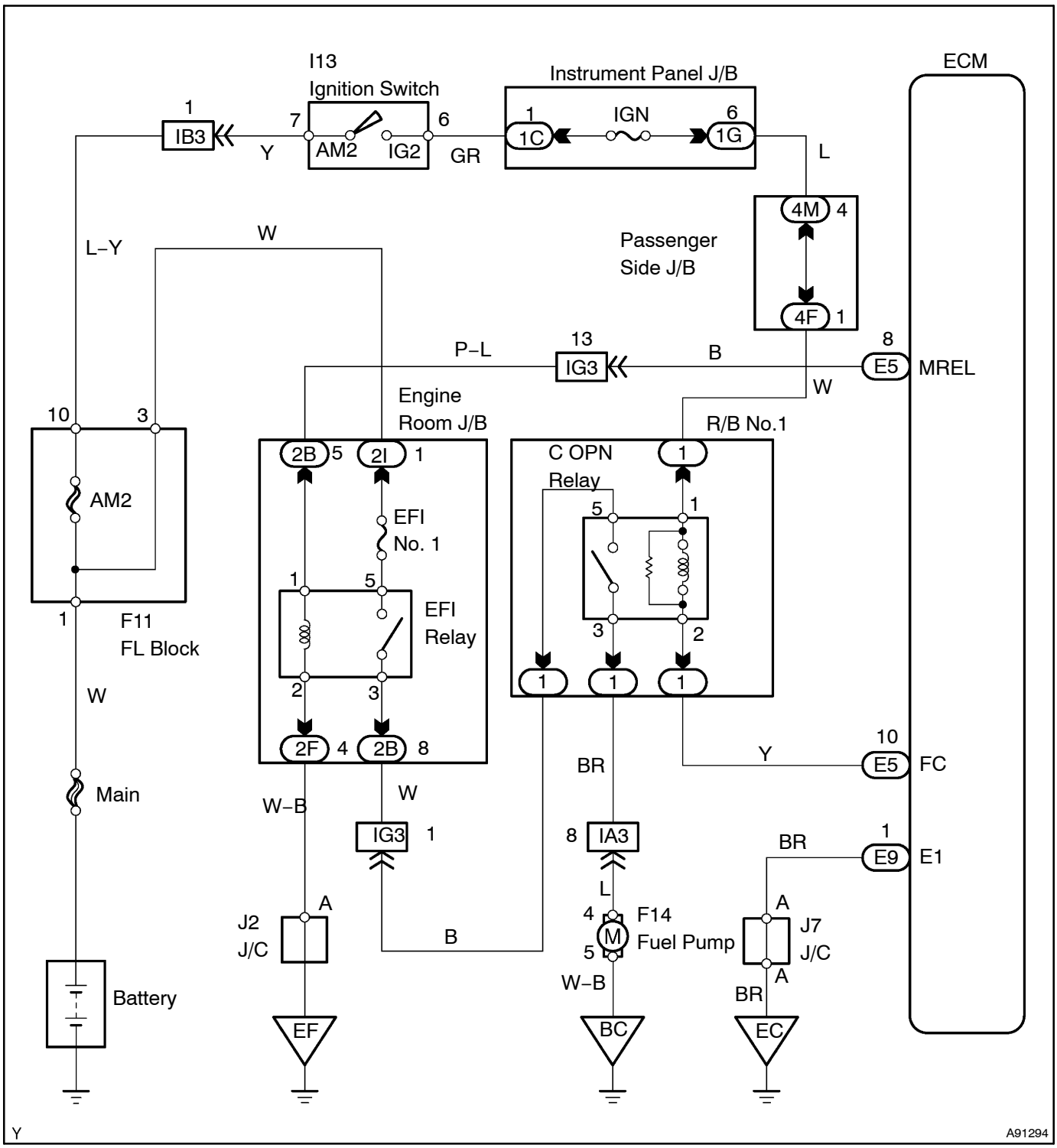
FUEL PUMP CONTROL CIRCUIT

CIRCUIT DESCRIPTION

When the engine is cranked, current flows from the ignition switch terminal ST1 to the starter relay (Marking: ST), and current flows to terminal STA of ECM (STA signal).
When the STA signal and NE signal are input to the ECM, Tr is turned ON, current flows to coil of the circuit opening relay (Marking: C/OPN), the relay switches on, power is supplied to the fuel pump and the fuel pump operates.
While the NE signal is generated and the engine is running, the ECM keeps Tr ON (C/OPN relay ON) and the fuel pump also keeps operating.



WIRING DIAGRAM



INSPECTION PROCEDURE

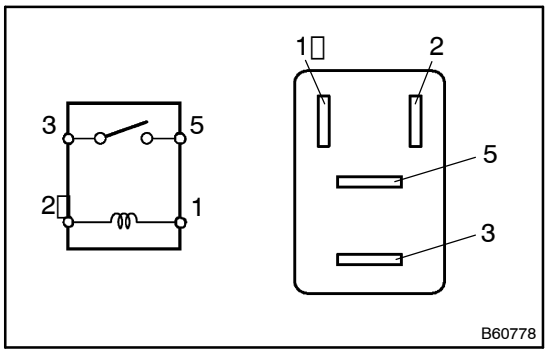
1	PERFORM ACTIVE TEST BY HAND–HELD TESTER (OPERATE CIRCUIT OPENING RELAY)

(a) Connect the hand–held tester to the DLC3.
(b) Turn the ignition switch ON and push the hand–held tester main switch ON.
(c) Enter the following menus: DIAGNOSIS / OBD / MOBD / ACTIVE TEST / FUEL PUMP / SPD.
(d) 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

2	INSPECT RELAY (C/OPN)



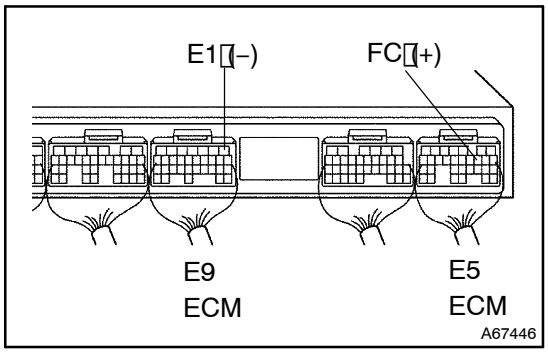
(a) Remove the C/OPN relay from the R/B No. 1.
(b) Check the resistance of the C/OPN relay.
Standard:

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)

NG ⇨ **REPLACE RELAY**

OK

3	INSPECT ECM (FC VOLTAGE)



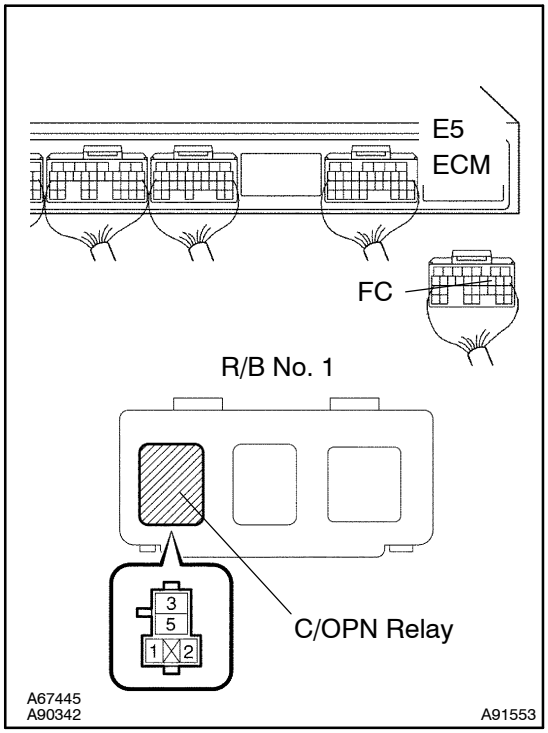
(a) Turn the ignition switch ON.
(b) Check the voltage of the ECM connectors.
Standard:

Tester Connection	Specified Condition
E5–10 (FC) – E9–1 (E1)	9 to 14 V

OK ⇨ **REPLACE ECM (See page 10–13)**

NG

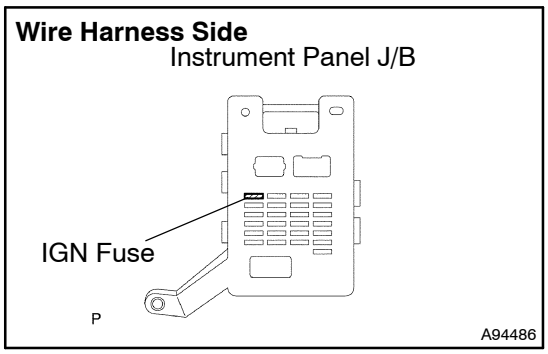
4 CHECK WIRE HARNESS (ECM – C/OPN RELAY, C/OPN RELAY – IGNITION)



(a) Check the wire harness between the ECM and C/OPN relay.
(1) Disconnect the E5 ECM connector.
(2) Remove the C/OPN relay from the R/B No. 1.
(3) Check the resistance of the wire harness side connectors.

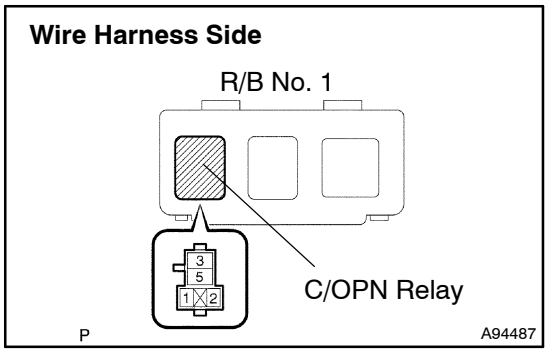
Standard:

Tester Connection	Specified Condition
E5–10 (FC) – 2 of C/OPN relay	Below 1 Ω
E5–10 (FC) or 2 of C/OPN relay – Body ground	10 kΩ or higher

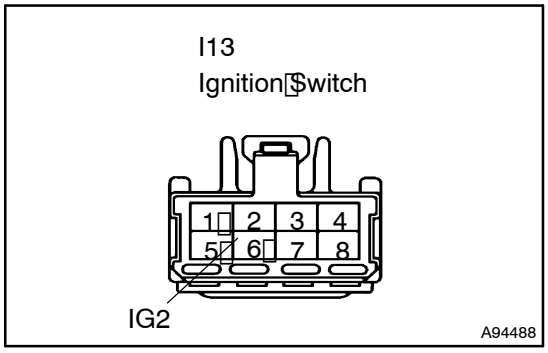


(b) Check the wire harness between the C/OPN relay and ignition switch.
(1) Check the IGN fuse.
- Remove the IGN fuse from the instrument panel J/B.
- Check the resistance of the IGN fuse.

Standard: Below 1 Ω
- Reinstall the IGN fuse.



(2) Remove the C/OPN relay from the R/B No. 1.



(3) Disconnect the I13 ignition switch connector.
(4) Check the resistance of the wire harness side connectors.

Standard:

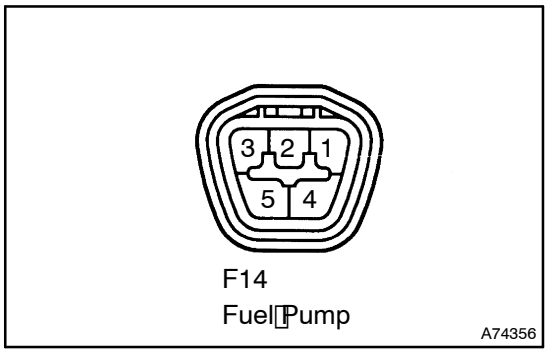
Tester Connection	Specified Condition
J/B C/OPN relay terminal 1 – I13–6	Below 1 Ω
J/B C/OPN relay terminal 1 or I13–6 – Body ground	10 kΩ or higher

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

OK

REPLACE ECM (See page 10–13)

5 INSPECT FUEL PUMP



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

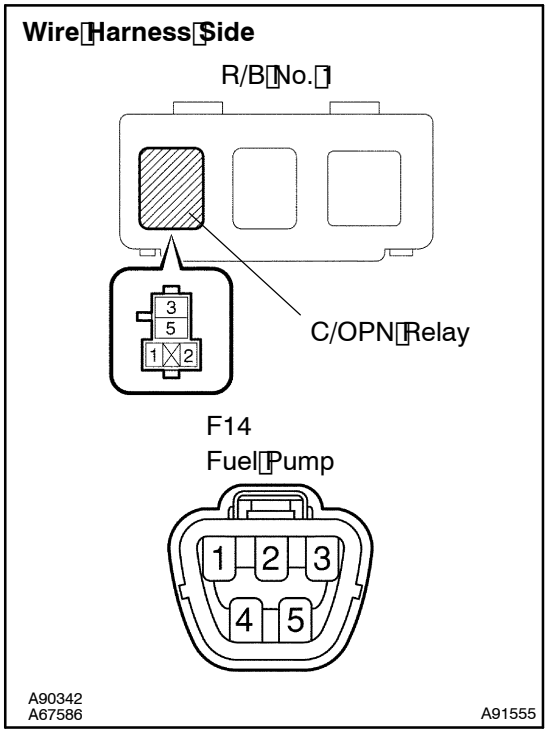
NOTICE:

- **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 turn on and off the voltage on the battery side, not the fuel pump side.**

NG → **REPLACE FUEL PUMP**

OK

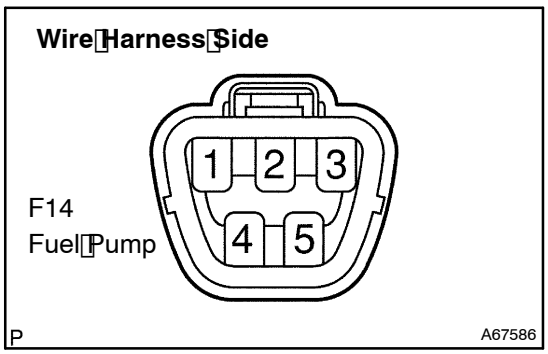
6	CHECK WIRE HARNESS (C/OPN RELAY – FUEL PUMP, FUEL PUMP – BODY GROUND)



(a) Check the wire harness between the C/OPN relay and fuel pump.
(1) Remove the C/OPN relay from the R/B No. 1.
(2) Disconnect the F14 fuel pump connector.
(3) Check the resistance of the wire harness side connectors.

Standard:

Tester Connection	Specified Condition
R/B C/OPN relay terminal 3 – F14–4	Below 1 Ω
R/B C/OPN relay terminal 3 or F14–4 – Body ground	10 kΩ or higher



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

Standard:

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

OK	REPAIR OR REPLACE HARNESS OR CONNECTOR

NG

REPLACE ECM (See page 10–13)