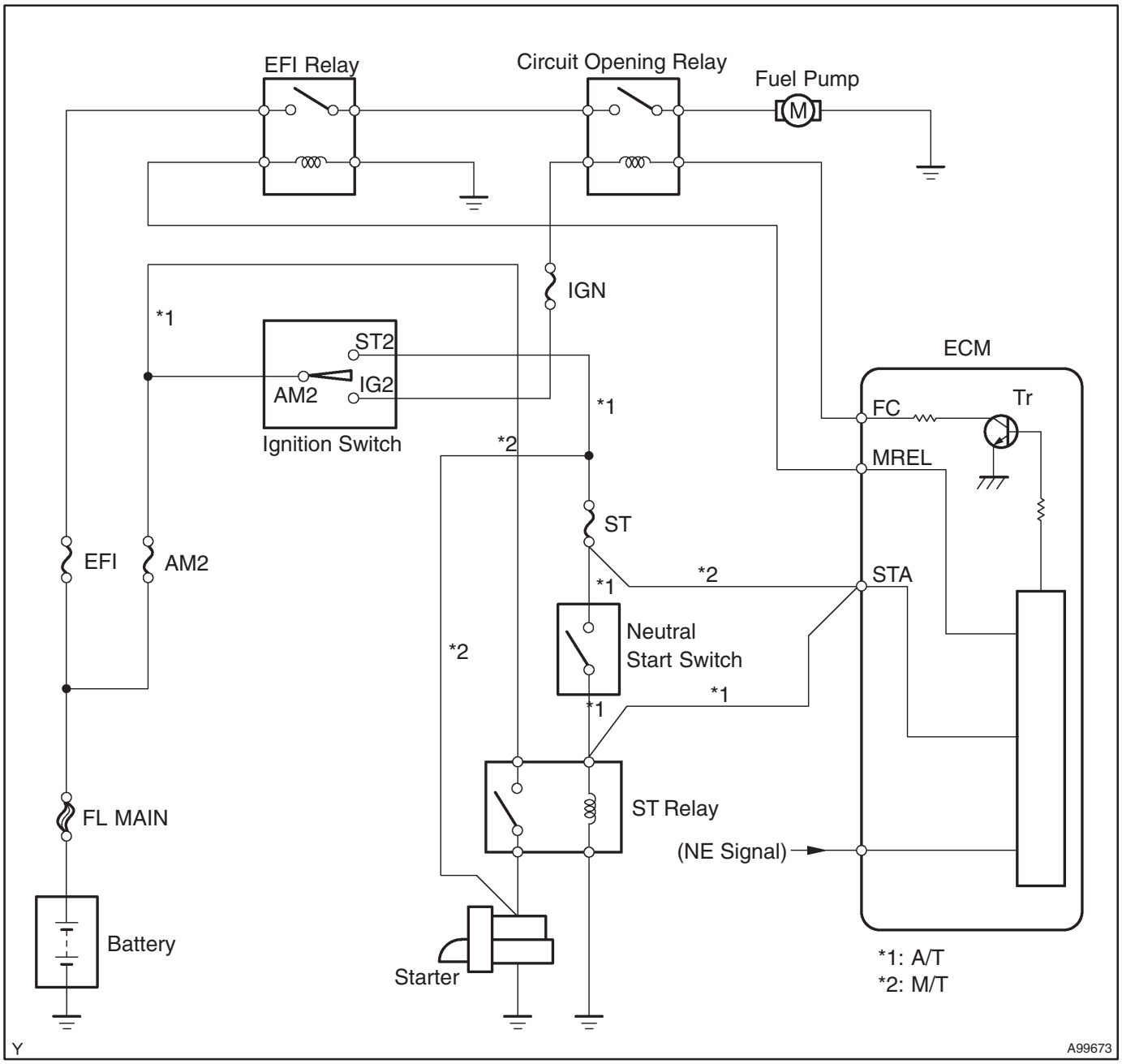
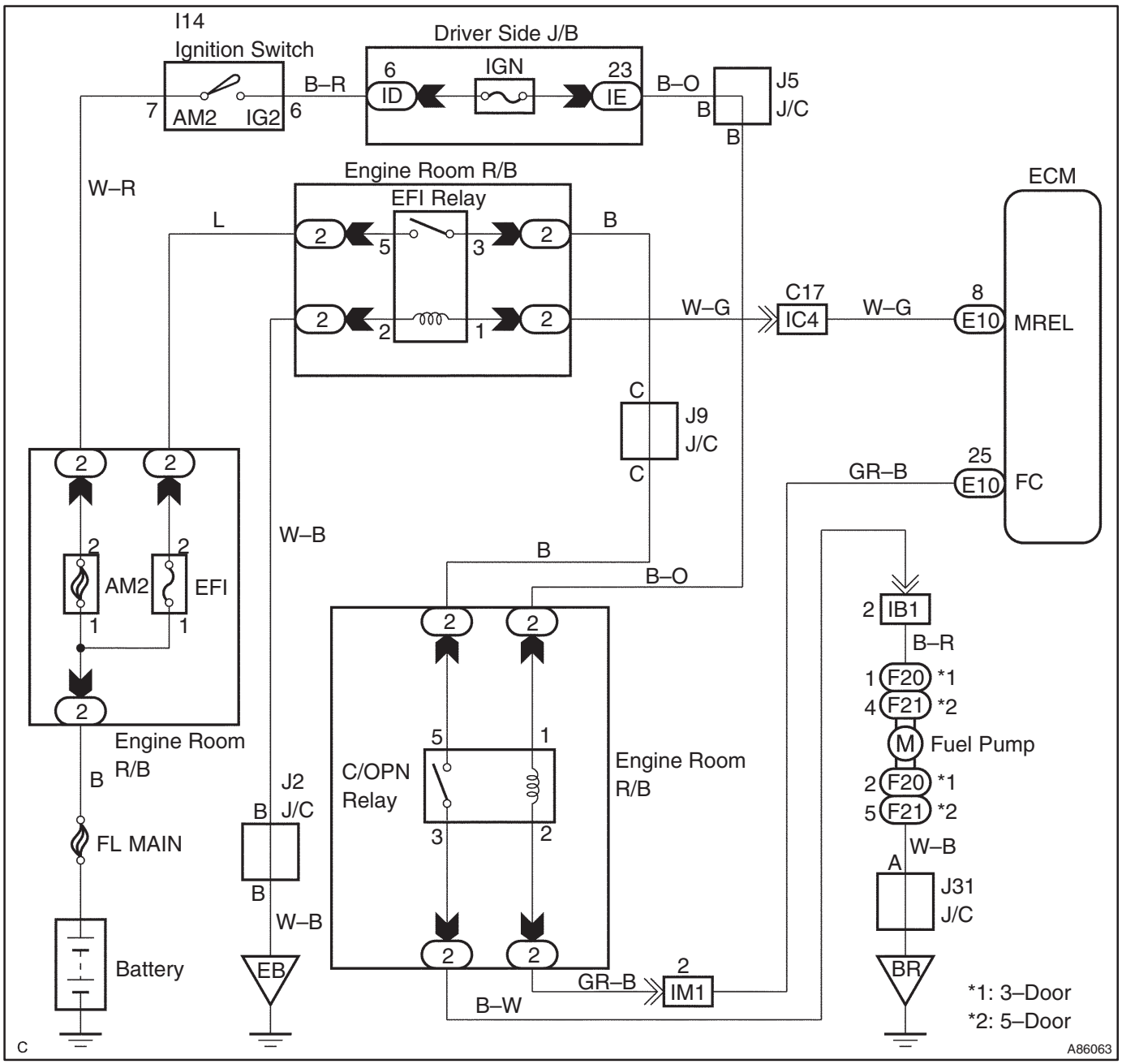
FUEL PUMP CONTROL CIRCUIT

CIRCUIT DESCRIPTION

In the diagram below, when the engine is cranked, a current flows from terminal IG2 of the ignition switch to the ST relay coil and also a current flows to terminal STA of the ECM (STA signal).
When the STA signal and NE signal are transmitted to the ECM, the power transistor (Tr) is turned ON, a current flows to the coil of the circuit opening relay, the relay switches on, the power is supplied to the fuel pump and the fuel pump operates.
While the NE signal is generated (when engine running), the ECM keeps Tr ON (circuit opening relay ON) and the fuel pump also keeps operating.



WIRING DIAGRAM



INSPECTION PROCEDURE

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

(a) Connect the intelligent tester II to the DLC3.
(b) Turn the ignition switch to ON and turn the intelligent tester II ON.
(c) Select the following menu items: Powertrain / Engine and ECT / Active Test / Fuel Pump Relay.
(d) Check the operation of the relay while operating it using the intelligent tester II.
OK: Operating sounds can be heard from the relay.

OK → **PROCEED TO NEXT CIRCUIT INSPECTION SHOWN ON PROBLEM SYMPTOMS TABLE (See page 05–8)**

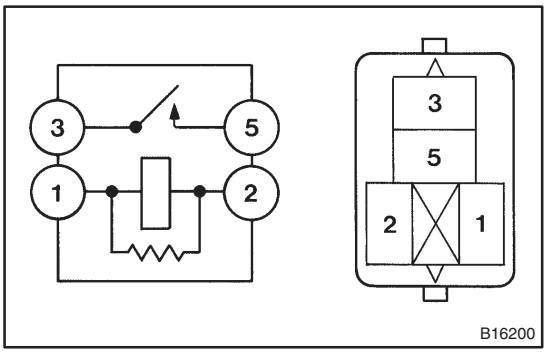
NG

2	CHECK ECM POWER SOURCE CIRCUIT (See page 05–168)

NG → **REPAIR OR REPLACE POWER SOURCE CIRCUIT**

OK

3	INSPECT CIRCUIT OPENING RELAY



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

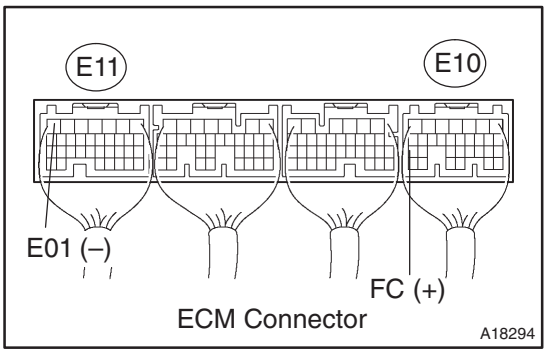
Tester Connection	Specified Condition
3 – 5	10 kΩ or higher
3 – 5	Below 1 Ω (when battery voltage applied to terminals 1 and 2)

(c) Reinstall the circuit opening relay.

NG → **REPLACE CIRCUIT OPENING RELAY**

OK

4 INSPECT ECM(FC VOLTAGE)



(a) Turn the ignition switch to ON.
(b) Measure the voltage according to the value(s) in the table below.

Standard:

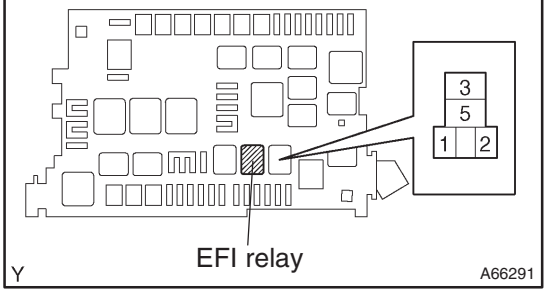
Tester Connection	Specified Condition
FC (E10–25) – E01 (E11–7)	9 to 14 V

OK → **Go to step 6**

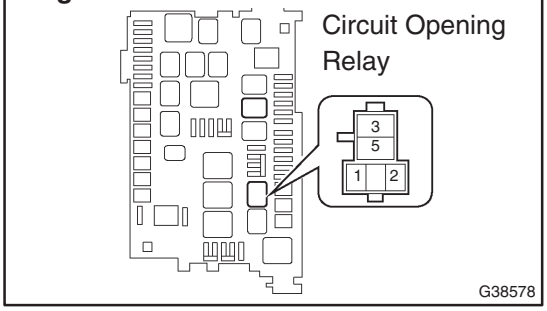
NG

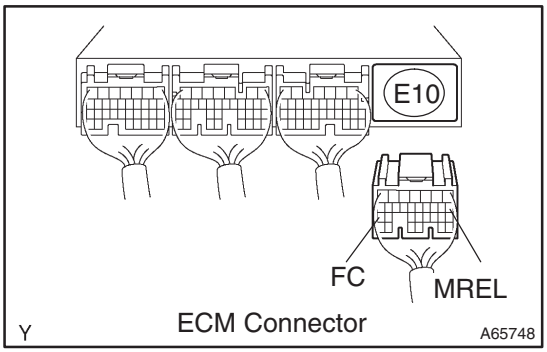
5 CHECK HARNESS AND CONNECTOR(EFI RELAY – ECM, CIRCUIT OPENING RELAY – ECM, EFI RELAY – CI)

Engine Room R/B:



Engine Room R/B:





(a) Remove the EFI relay and circuit opening relay from the engine room R/B.
(b) Disconnect the E10 ECM connector.
(c) Measure the resistance according to the value(s) in the table below.

Standard (Check for open):

Tester Connection	Specified Condition
Engine room R/B (EFI relay terminal 1) – MREL (E10–8)	Below 1 Ω
Engine room R/B (Circuit opening relay terminal 2) – FC (E10–25)	Below 1 Ω
Engine room R/B (EFI relay terminal 3) – Engine room R/B (Circuit opening relay terminal 5)	Below 1 Ω

Standard (Check for short):

Tester Connection	Specified Condition
Engine room R/B (EFI relay terminal 1) or MREL (E10–8) – Body ground	10 kΩ or higher
Engine room R/B (Circuit opening relay terminal 2) or FC (E10–25) – Body ground	10 kΩ or higher
Engine room R/B (EFI relay terminal 3) or Engine room R/B (Circuit opening relay terminal 5) – Body ground	10 kΩ or higher

(d) Reinstall the EFI relay.
(e) Reinstall the circuit opening relay.
(f) Reconnect the ECM connector.

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

OK

REPLACE ECM (See page 10–12)

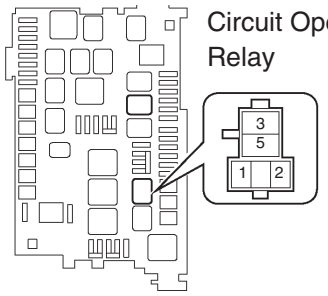
6	INSPECT FUEL PUMP (See page 11–8)

NG → REPAIR OR REPLACE FUEL PUMP

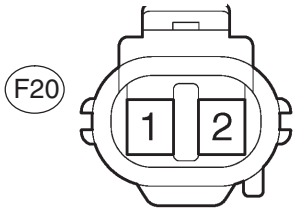
OK

7	CHECK HARNESS AND CONNECTOR(CIRCUIT OPENING RELAY – FUEL PUMP, FUEL PUMP – BODY GROUND)

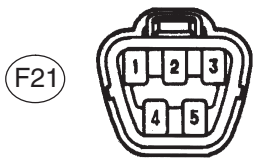
Engine Room R/B:



3–Door Model:
Wire Harness Side:



5–Door Model:
Wire Harness Side:



(a) Remove the circuit opening relay from the engine room R/B.
(b) 3–door model:
Disconnect the F20 fuel pump connector.
(c) 5–door model:
Disconnect the F21 fuel pump connector.
(d) Measure the resistance according to the value(s) in the table below.

3–door model:
Standard (Check for open):

Tester Connection	Specified Condition
Engine room R/B (Circuit opening relay terminal 3) – Fuel pump (F20–1)	Below 1 Ω
Fuel pump (F20–2) – Body ground	Below 1 Ω

5–door model:
Standard (Check for open):

Tester Connection	Specified Condition
Engine room R/B (Circuit opening relay terminal 3) – Fuel pump (F21–4)	Below 1 Ω
Fuel pump (F21–5) – Body ground	Below 1 Ω

3–door model:
Standard (Check for short):

Tester Connection	Specified Condition
Engine room R/B (Circuit opening relay terminal 3) or Fuel pump (F20–1) – Body ground	10 kΩ or higher

5–door model:
Standard (Check for short):

Tester Connection	Specified Condition
Engine room R/B (Circuit opening relay terminal 3) or Fuel pump (F21–4) – Body ground	10 kΩ or higher

(e) Reinstall the circuit opening relay.
(f) Reconnect the fuel pump connector.

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE ECM (See page 10–12)