

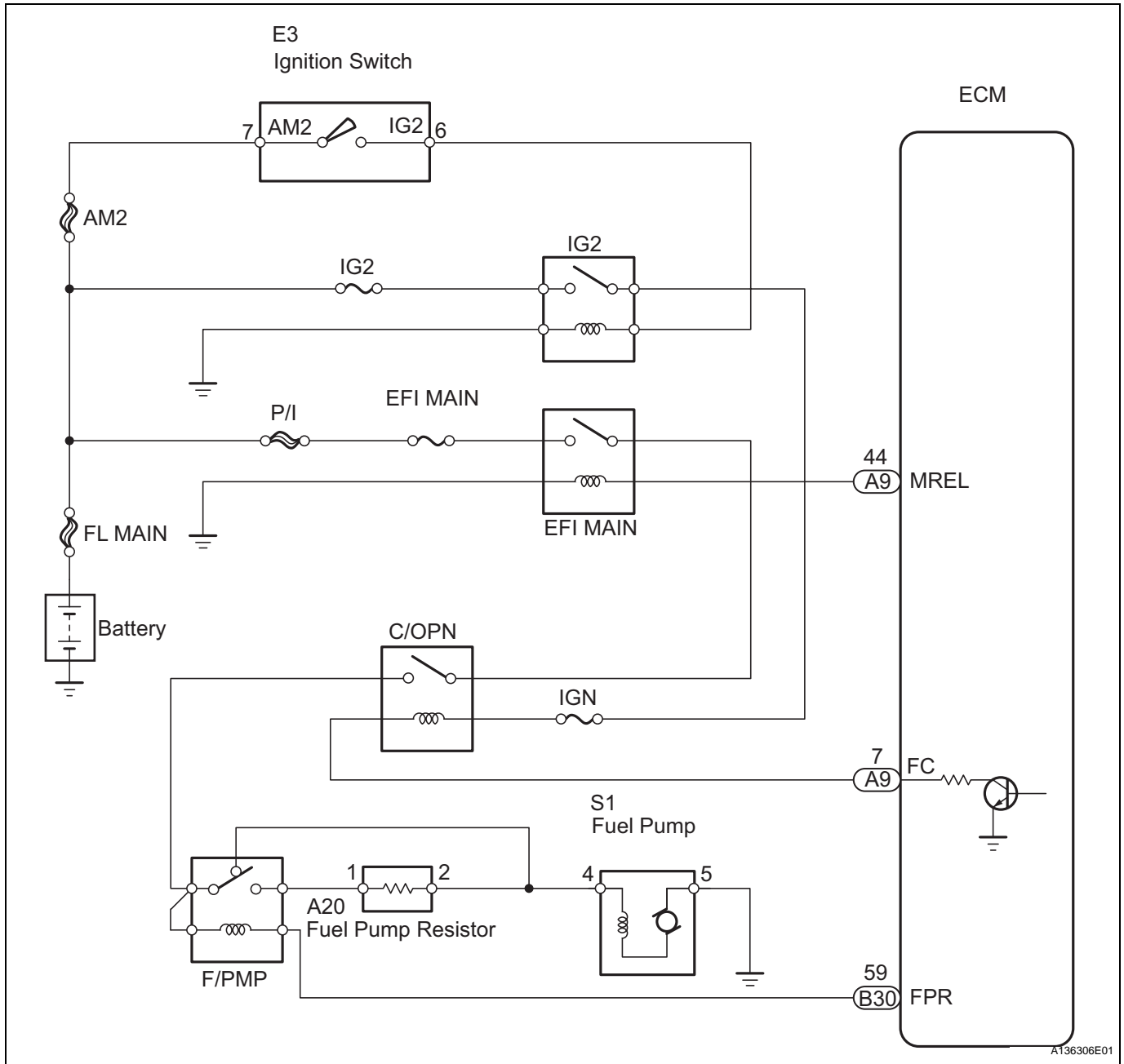
DTC**P0230****Fuel Pump Primary Circuit****DESCRIPTION**

- This DTC is designed to detect a malfunction in the fuel pump (F/PMP) relay circuit. When the system is normal, the battery voltage is applied to FPR terminal of the ECM while the F/PMP relay is turned OFF. If the battery voltage is not applied to the FPR terminal while the F/PMP relay is OFF, the ECM interprets this as a malfunction. The ECM then illuminates the MIL and sets a DTC.
- The F/PMP relay switches the fuel pump speed according to the engine conditions. The fuel pump operates when the ECM receives the starter-operating signal (STA) and crankshaft-rotating signal (NE). The F/PMP relay is turned ON while the engine is idling or operating at low load. This causes current to flow through the fuel pump resistor to the fuel pump. The fuel pump then operates at low speed. The F/PMP relay is turned OFF while the engine is cranking or operating at high load. The fuel pump then operates at normal speed.

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DTC No.	DTC Detection Condition	Trouble Area
P0230	Open or short in F/PMP relay circuit (1 trip detection logic)	<ul style="list-style-type: none"> • Open or short in F/PMP relay circuit • F/PMP relay • ECM

WIRING DIAGRAM



This troubleshooting procedure is based on the premise that the engine is started. If the engine is not started, proceed to the problem symptoms table (see page [ES-27](#)).

INSPECTION PROCEDURE

1

PERFORM ACTIVE TEST BY INTELLIGENT TESTER

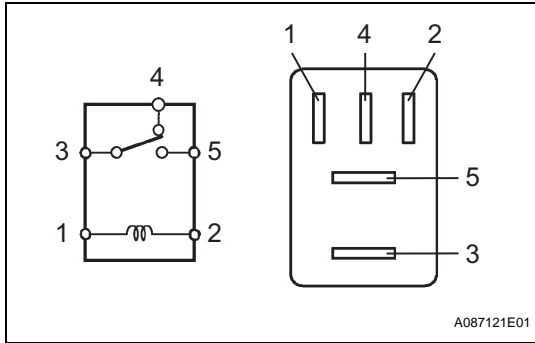
- Connect the intelligent tester to the DLC3.
- Turn the ignition switch ON and turn the intelligent tester ON.
- Enter the following menus: DIAGNOSIS / ENHANCED OBD II / ACTIVE TEST / FUEL PUMP SP CTL.
- Check the operation of the relay while operating it using the intelligent tester.

OK:
Operating noise can be heard from the relay.

OK → **CHECK INTERMITTENT PROBLEMS**

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2 INSPECT FUEL PUMP RELAY (Marking: F/PMP)



- (a) Remove the F/PMP relay from the engine room No. 1 relay block.
- (b) Measure the resistance according to the value(s) in the table below.

Standard resistance

Tester Connection	Specified Condition
3 - 4	Below 1 Ω
3 - 5	10 kΩ or more
3 - 4	10 kΩ or more (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)

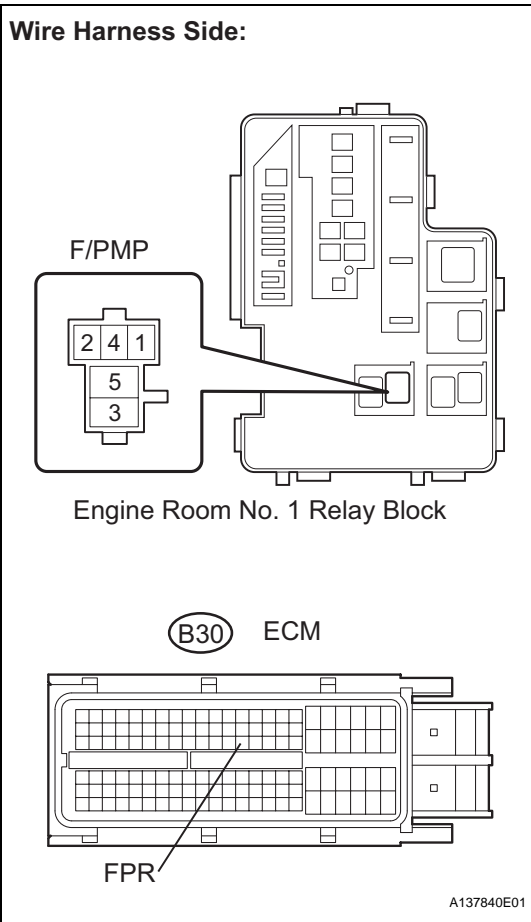
NG → **REPLACE FUEL PUMP RELAY (Marking: F/PMP)**

OK

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3 CHECK WIRE HARNESS (F/PMP RELAY - ECM)



- (a) Remove the F/PMP relay from the engine room No. 1 relay block.
- (b) Disconnect the B30 ECM connector.
- (c) Measure the resistance according to the value(s) in the table below.

Standard resistance

Tester Connection	Specified Condition
F/PMP relay terminal 1- B30-59 (FPR)	Below 1 Ω
F/PMP relay terminal 1 or B30-59 (FPR) - Body Ground	10 kΩ or higher

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

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OK

REPLACE ECM