DI2OI–03

CIRCUIT INSPECTION

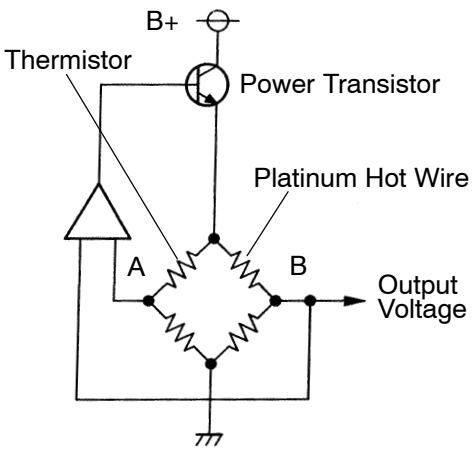
DTC	P0100	Mass Air Flow Circuit Malfunction

CIRCUIT DESCRIPTION

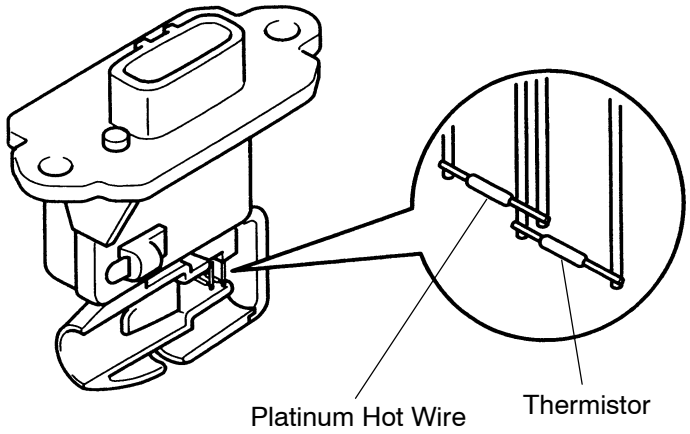
The mass air flow meter uses a platinum hot wire. The hot wire air flow meter consists of a platinum hot wire, thermistor and a control circuit installed in a plastic housing. The hot wire air flow meter works on the principle that the hot wire and thermistor located in the intake air bypass of the housing detect any changes in the intake air temperature.

The hot wire is maintained at the set temperature by controlling the current flow through the hot wire. This current flow is ten measured as the output voltage of the mass air flow meter.

The circuit is constructed so that the platinum hot wire and thermistor provide a bridge circuit with the power transistor controlled so that the potential of A and B remains equal to maintain the set temperature.



FI6929
S05741



A00435

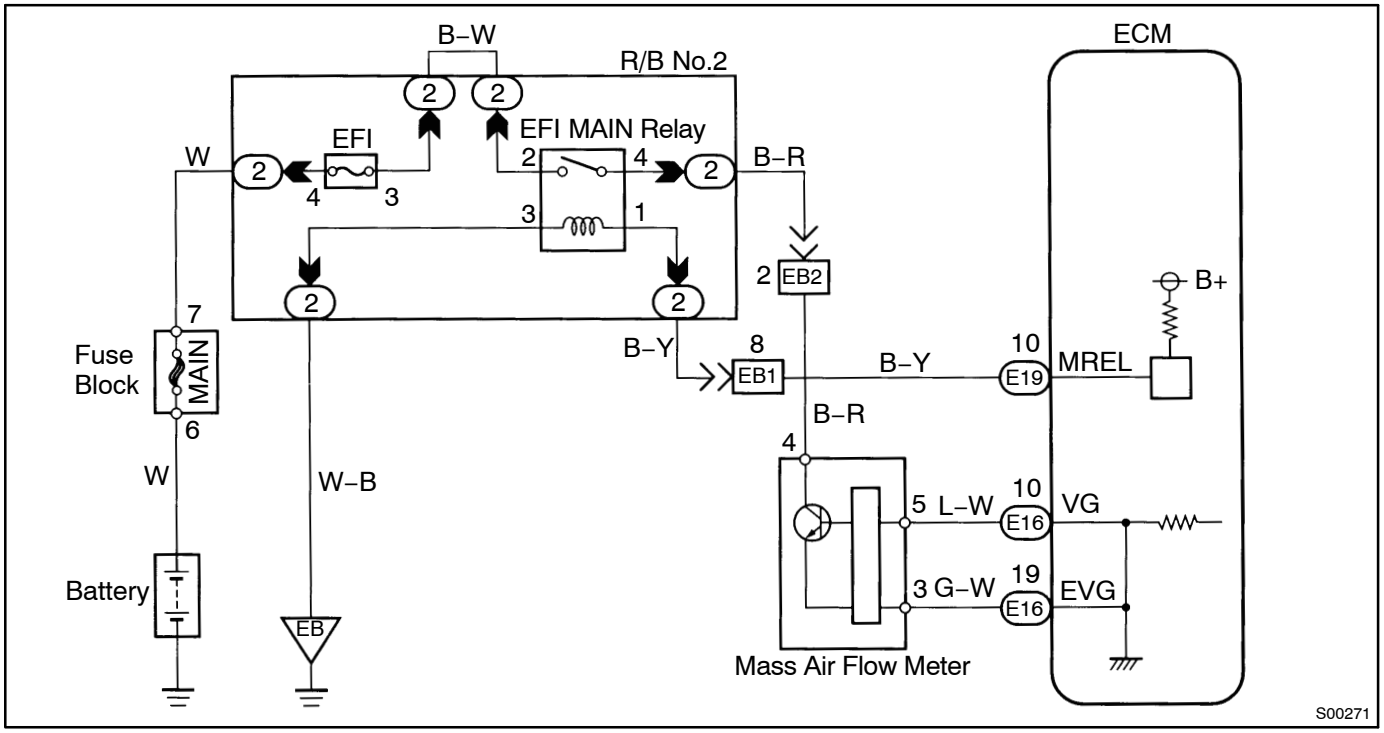
DTC No.	DTC Detecting Condition	Trouble Area
P0100	Open or short in mass air flow meter circuit with more than 3 sec. engine speed 4,000 rpm or less	• Open or short in mass air flow meter circuit • Mass air flow meter • ECM
	Open or short in mass air flow meter circuit with more than 3 sec. engine speed 4,000 rpm or more (2 trip detection logic)	

HINT:

After confirming DTC P0100, use the OBD II scan tool or LEXUS hand–held tester to confirm the mass air flow ratio from the CURRENT DATA.

Mass Air Flow Value (gm/sec.)	Malfunction
Approx. 0.0	• Mass air flow meter power source circuit open • VG circuit open or short
271.0 or more	• EVG circuit open

WIRING DIAGRAM



INSPECTION PROCEDURE

HINT:

Read freeze frame data using LEXUS hand–held tester or OBD II scan tool. Because freeze frame records the engine conditions when the malfunction is detected. When troubleshooting, it is useful for determining whether the vehicle was running or stopped, the engine was warmed up or not, the air–fuel ratio was lean or rich, etc. at the time of the malfunction.

1	**Connect OBD II scan tool or LEXUS hand–held tester, and read value of mass air flow rate.**

PREPARATION:

(a) Connect the OBD II scan tool or LEXUS hand–held tester to the DLC3.
(b) Turn the ignition switch ON and push the OBD II scan tool or LEXUS hand–held tester main switch ON.
(c) Start the engine.

CHECK:

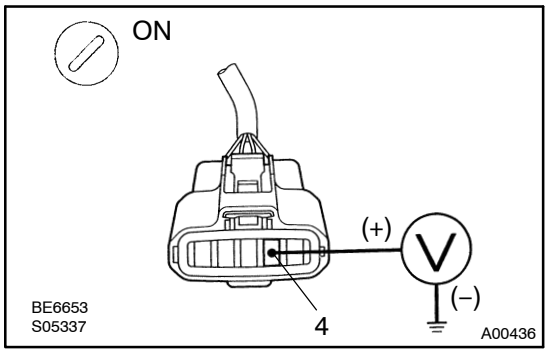
Read the mass air flow rate on the OBD II scan tool or LEXUS hand–held tester.

RESULT:

	Type I	Type II
Mass Air Flow Rata (gm/sec.)	0.0	271.0 or more

Type I	**Go to step 2.**
Type II	**Go to step 5.**

2	**Check voltage of mass air flow meter power source.**



PREPARATION:

(a) Disconnect the mass air flow meter connector.

(b) Turn the ignition switch ON.

CHECK:

Measure the voltage between terminal 4 of the mass air flow meter connector and body ground.

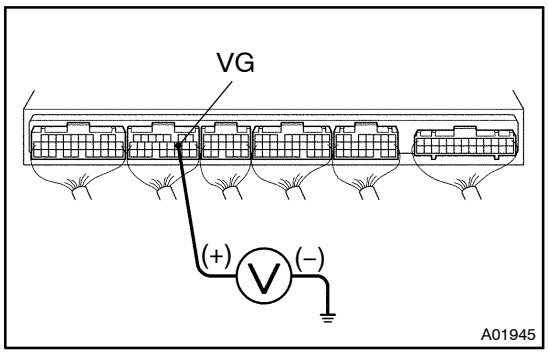
OK:

Voltage: 9 – 14 V

NG	**Check for open in harness and connector between EFI main relay (Marking: EFI) and mass air flow meter (See page IN–30).**

OK

3	**Check voltage between terminal VG of ECM connector and body ground.**



PREPARATION:

(a) Remove the ECM protector.

(b) Start the engine.

CHECK:

Measure the voltage between terminal VG of the ECM connector and body ground while the engine is idling.

OK:

Voltage:

0.5 – 3.0 V (P or N position and A/C switch OFF)

OK	**Check and replace ECM (See page IN–30).**

NG

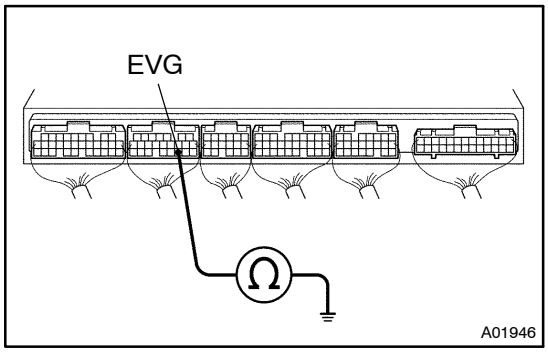
4	**Check for open and short in harness and connector between mass air flow meter and ECM (See page IN–30).**

NG	**Repair or replace harness or connector.**

OK

Replace mass air flow meter.

5	Check continuity between terminal EVG of ECM connector and body ground.



PREPARATION:
Remove the ECM protector.
CHECK:
Check the continuity between terminal EVG of the ECM connector and body ground.
OK:
Continuity (1 Ω or less)

NG → **Check and replace ECM (See page IN–30).**

OK

6	Check for open in harness and connector between mass air flow meter and ECM (See page IN–30).

NG → **Repair or replace harness or connector.**

OK

Replace mass air flow meter.