DI2S2-02

CIRCUIT INSPECTION

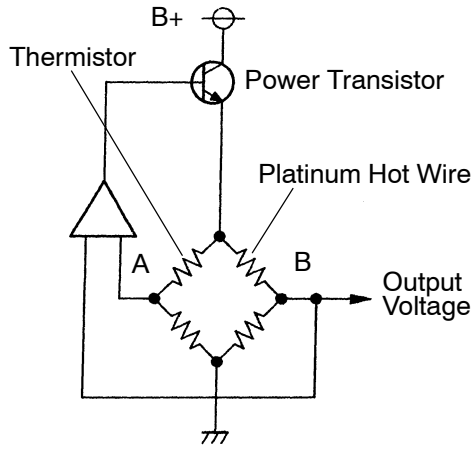
DTC	P0100/31	Air Flow Circuit Malfunction

CIRCUIT DESCRIPTION

The 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 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.



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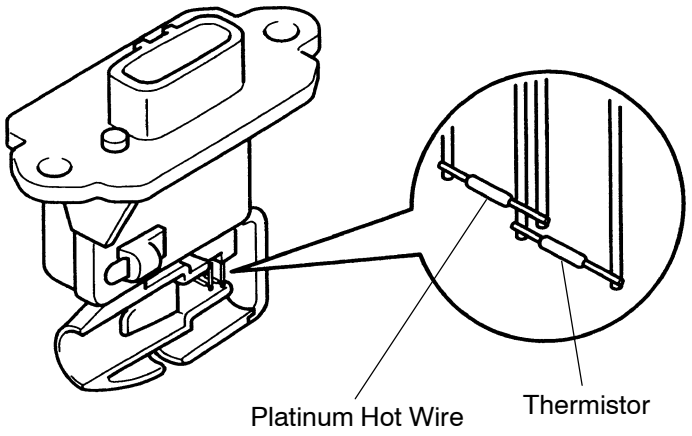

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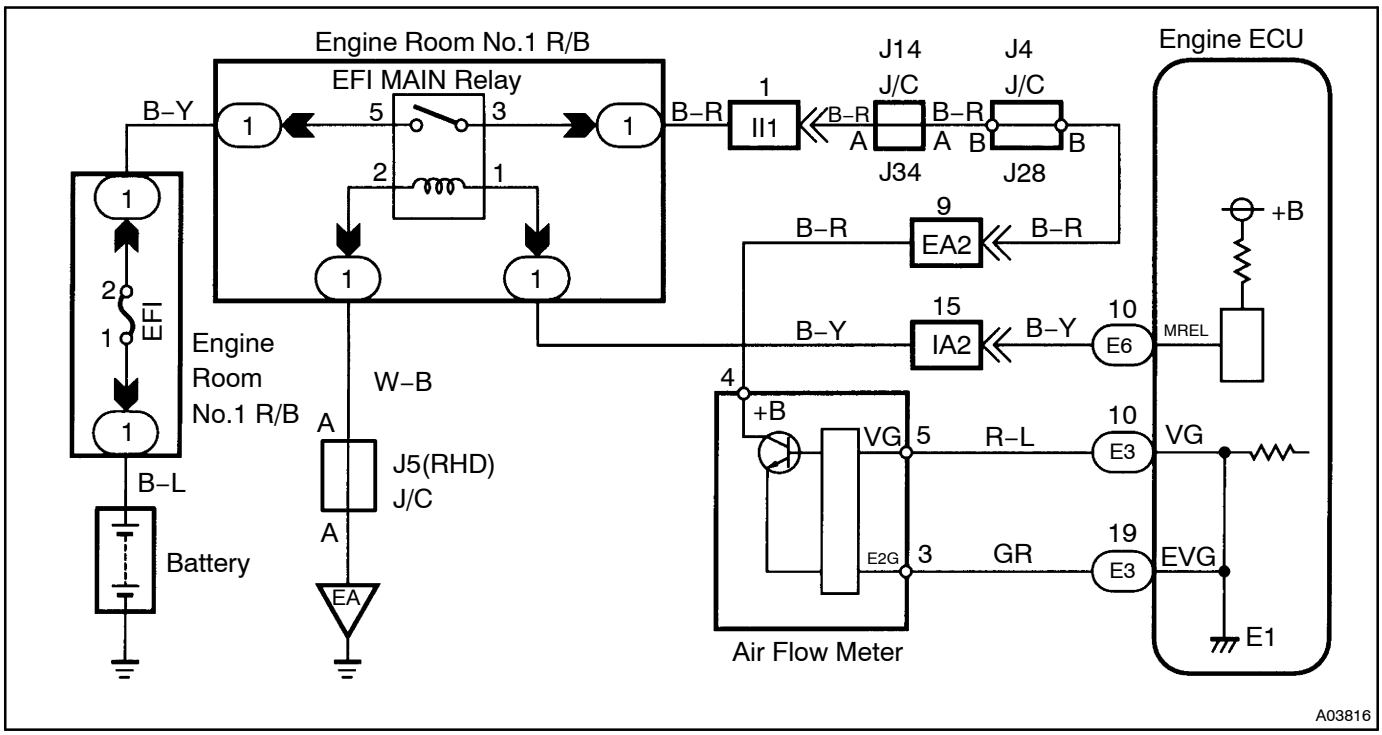
DTC No.	DTC Detecting Condition	Trouble Area
P0100/31	Open or short in air flow meter circuit with more than 3 sec. engine speed 4,000 rpm or less	• Open or short in air flow meter circuit • Air flow meter • Engine ECU
	Open or short in air flow meter circuit with more than 3 sec. engine speed 4,000 rpm or more (2 trip detection logic)	

HINT:

After confirming DTC P0100/31 use the hand–held tester to confirm the air flow ratio from CURRENT DATA.

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

WIRING DIAGRAM



INSPECTION PROCEDURE

When using hand–heit tester

HINT:

Read freeze frame data using hand–held tester. 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 warmed up or not, the air–fuel ratio lean or rich, etc. at the time of the malfunction.

1	**Connect hand–held tester, and read value of air flow rate.**

PREPARATION:

(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) Start the engine.

CHECK:

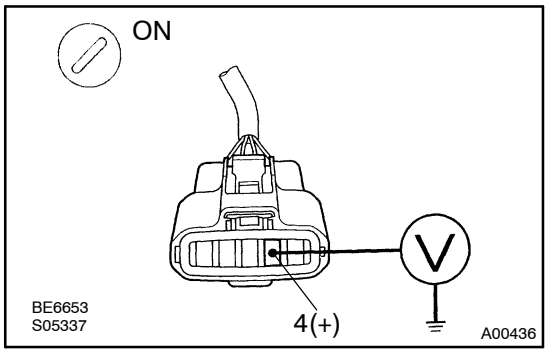
Read air flow rate on the hand–held tester.

RESULT:

	Type I	Type II
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 air flow meter power source.**



PREPARATION:

(a) Disconnect the air flow meter connector.

(b) Turn the ignition switch ON.

CHECK:

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

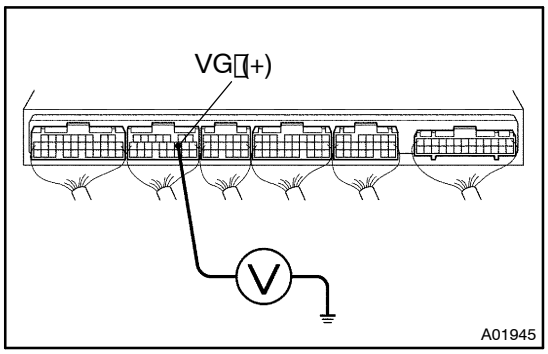
OK:

Voltage: 9 ~ 14 V

NG → **Check for open in harness and connector between EFI main relay and mass air flow meter (See page IN–29).**

OK

3	**Check voltage between terminals VG of engine engine ECU connector and body ground.**



PREPARATION:

(a) Remove the engine room engine ECU hood and cover.

(b) Start the engine.

CHECK:

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

OK:

Voltage:

1.1 ~ 1.5 V (P or N position and A/C switch OFF)

OK → **Check and replace engine ECU (See page IN–29).**

NG

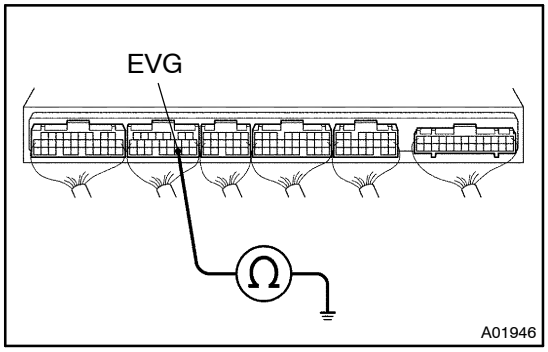
4	Check for open and short in harness and connector between air flow meter and engine ECU (See page IN–29).

NG → Repair or replace harness or connector.

OK →

Replace air flow meter.

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



PREPARATION:
Remove the engine room engine ECU hood and cover.
CHECK:
Check continuity between terminal EVG of the engine ECU connector and body ground.
OK:
Continuity (1 Ω or less)

NG → Check and replace engine ECU (See page IN–29).

OK →

6	Check for open in harness and connector between air flow meter and engine ECU (See page IN–29).

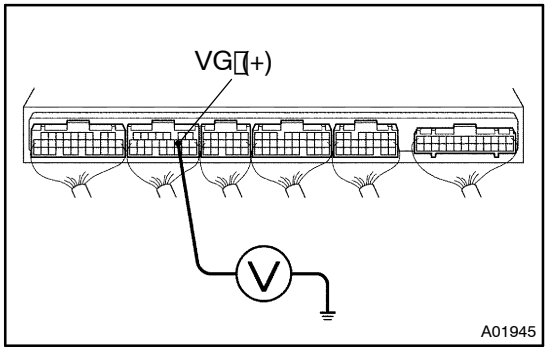
NG → Repair or replace harness or connector.

OK →

Replace air flow meter.

When not using hand-held tester

1	Check voltage between terminals VG of engine ECU connector and body ground.



PREPARATION:
(a) Remove the engine room engine ECU hood and cover.
(b) Start the engine.

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

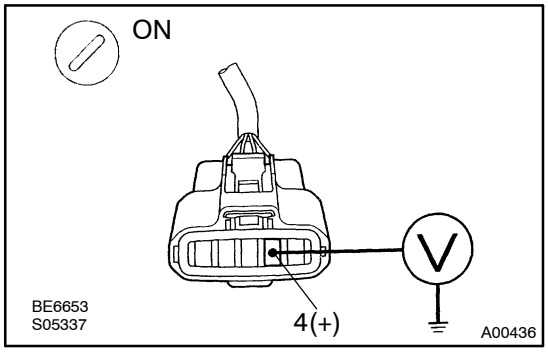
OK:

Voltage:
1.1 ~ 1.5 V (P or N position and A/C switch OFF)

OK	Check and replace engine ECU (See page IN–29).

NG

2	Check voltage of air flow meter power source.



PREPARATION:
(a) Disconnect the air flow meter connector.
(b) Turn the ignition switch ON.

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

OK:

Voltage: 9 ~ 14 V

NG	Check for open in harness and connector between EFI main relay and mass air flow meter (See page IN–29).

OK

3	Check for open in harness and connector between air flow meter and engine engine ECU (See page IN–29).

NG → Repair or replace harness or connector.

OK →

Replace air flow meter.