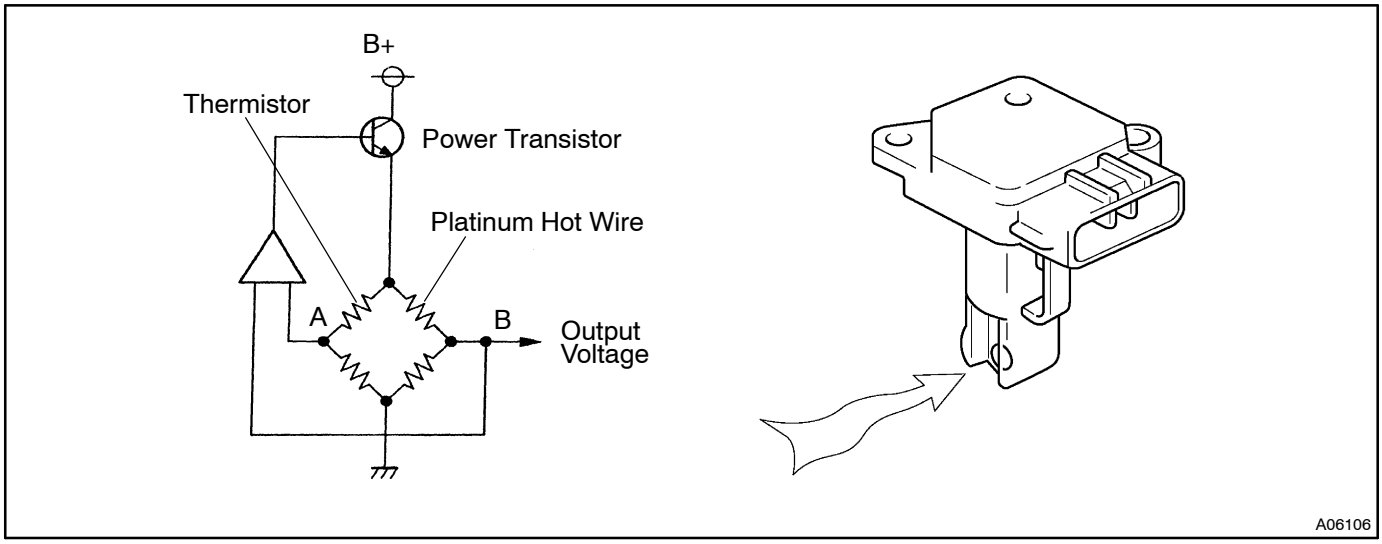
DI6AP–03

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, athermistor 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 then measured as an output voltage of the air flow meter.
The circuit is constructed so that the platinum hot wire and the thermistor provide a bridge circuit, while the power transistor is controlled so that the potential of A and B remains equal to maintain the set temperature.

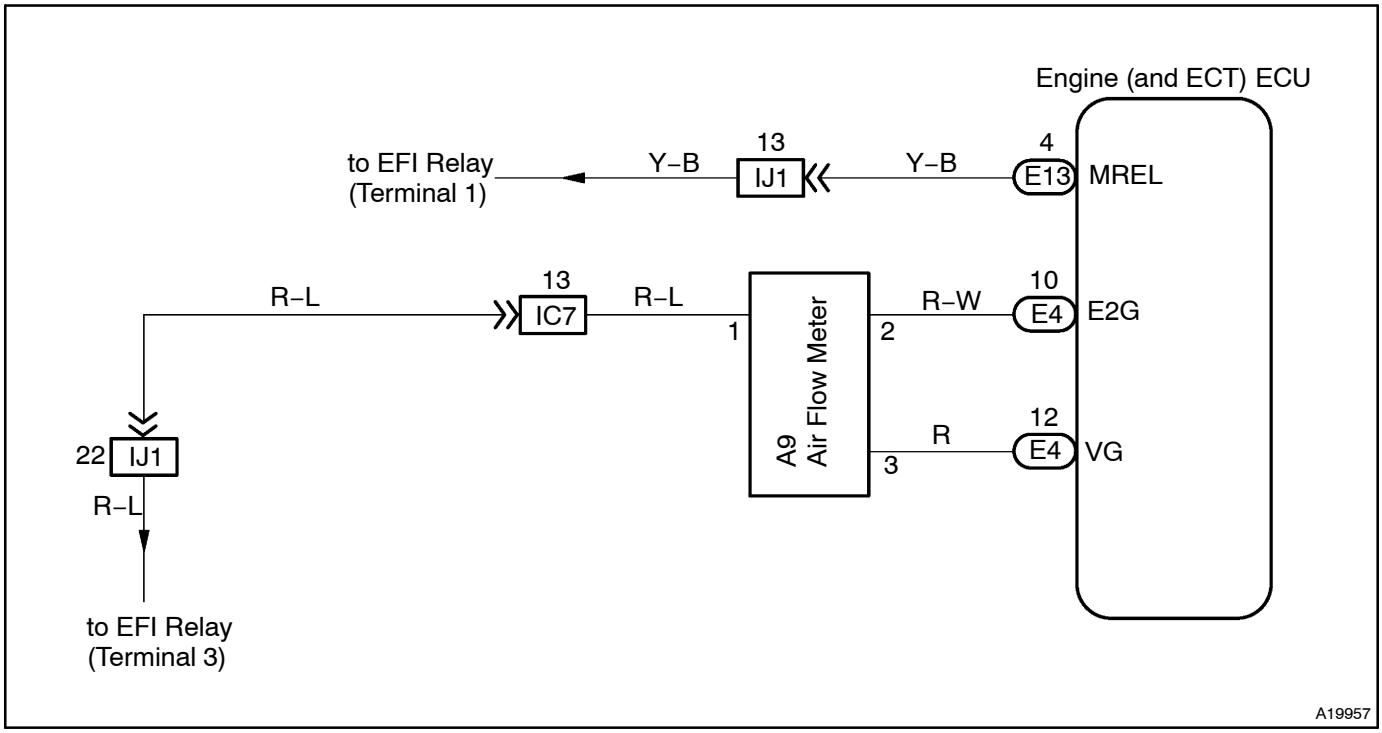


DTC No.	DTC Detecting Condition	Trouble Area
P0100/31	Open or short in air flow meter circuit with engine speed 2,000 rpm or less for 3 seconds or more	• Open or short in air flow meter circuit • Air flow meter • Engine (and ECT) ECU
	Open or short in air flow meter circuit with engine speed 3,000 rpm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

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

Air Flow Value (gm/sec.)	Malfunction
Approx. 0	• Air flow meter power source circuit open • VG circuit open or short
271.0 or more	• E2G circuit open

WIRING DIAGRAM



INSPECTION PROCEDURE

When using hand–held tester

HINT:

Read the freeze frame data on the hand–held tester, which is recorded when a malfunction is detected on the engine. When troubleshooting, it is useful to determine 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 mass air flow rate on the hand–held tester.

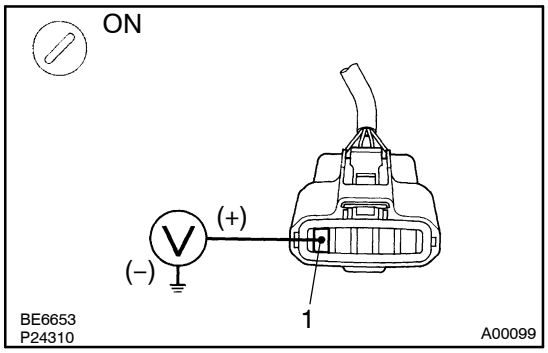
RESULT:

	A	B
Air flow rate (gm/sec.)	Approx. 0	271.0 or more

B	**Go to step 5.**

A

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 the voltage between terminal 1 of the air flow meter connector and the body ground.

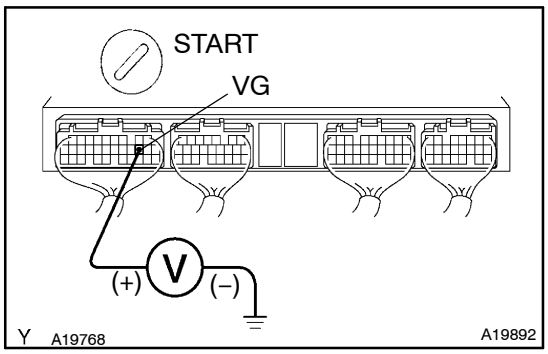
OK:

Voltage: 9 – 14 V

NG → **Check for open in harness and connector between EFI relay (Marking: EFI) and air flow meter (See page IN–20).**

OK

3	Check voltage between terminal VG of engine (and ECT) ECU connector and body ground.



PREPARATION:

(a) Remove the glove compartment door.

(b) Start the engine.

CHECK:

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

OK:

Voltage:

1.1 – 1.5 V (P or N range and A/C switch OFF)

OK → **Check and replace engine (and ECT) ECU (See page IN–20).**

NG

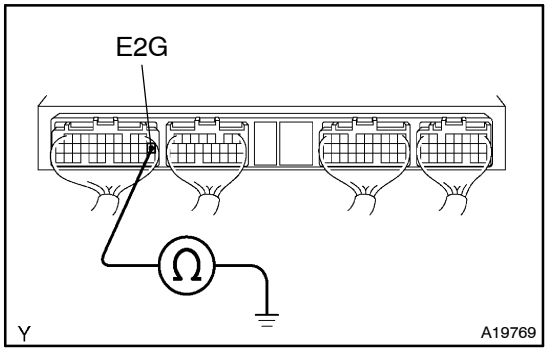
4	**Check for open and short in harness and connector between air flow meter and engine (and ECT) ECU (See page IN–20).**

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

OK

Replace air flow meter.

5	**Check continuity between terminal E2G of engine (and ECT) ECU connector and body ground.**



PREPARATION:
Remove the glove compartment door.
CHECK:
Check the continuity between terminal E2G of the engine (and ECT) ECU connector and the body ground.
OK:

Continuity

NG → **Check and replace engine (and ECT) ECU (See page IN–20).**

OK

6	**Check for open in harness and connector between air flow meter and engine (and ECT) ECU (See page IN–20).**

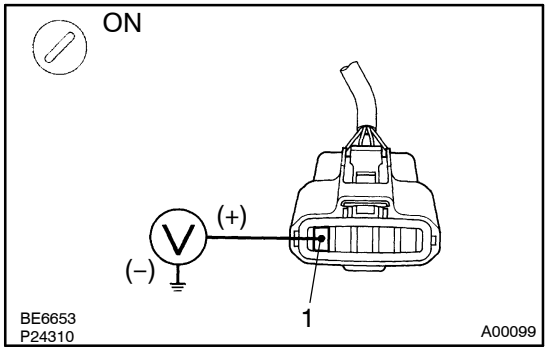
NG → **Repair or replace harness or connector.**

OK

Replace air flow meter.

When not using hand–held tester

1	**Check voltage of air flow meter power source.**



PREPARATION:

(a) Disconnect the air flow meter connector.

(b) Turn the ignition switch ON.

CHECK:

Measure the voltage between terminal 1 of the air flow meter connector and the body ground.

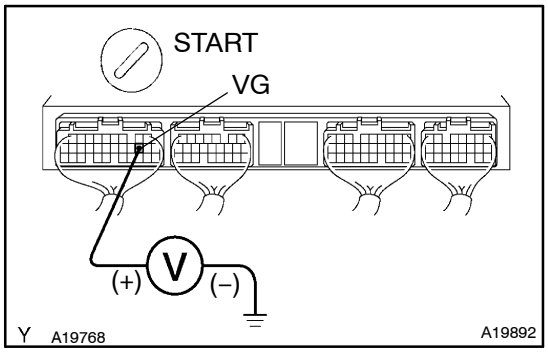
OK:

Voltage: 9 – 14 V

NG	**Check for open in harness and connector between EFI relay (Marking: EFI) and air flow meter (See page IN–20).**

OK

2	**Check voltage between terminals VG of engine (and ECT) ECU connector and body ground.**



PREPARATION:

(a) Remove the glove compartment door.

(b) Start the engine.

CHECK:

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

OK:

voltage:

1.1 – 1.5 V (P or N range and A/C switch OFF)

OK	**Check and replace engine (and ECT) ECU (See page IN–20).**

NG

3	**Check for open in harness and connector between air flow meter and engine (and ECT) ECU (See page IN–20).**

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

OK

Replace air flow meter.