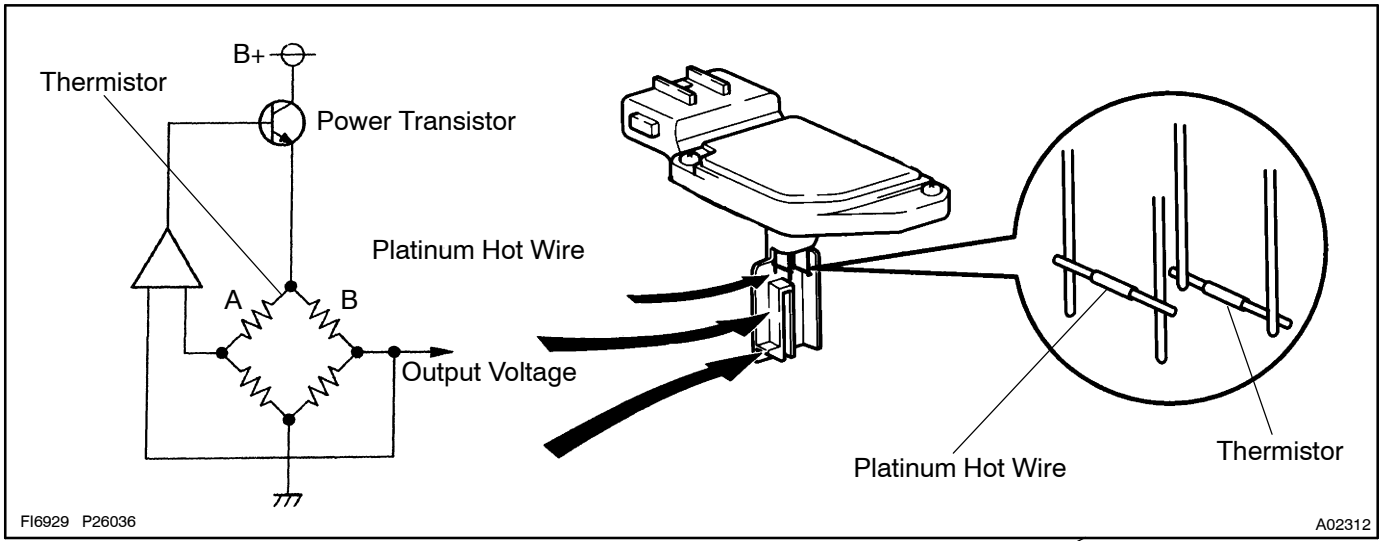
DI9TB–02

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 tempurature The hot wire is maintained at the set tempurature by controlling the current flow through the hot wire. This current flow is then 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, while the power transistor is controlled so that the potential of ”A” and ”B” remains equal to maintain the set tempurature.

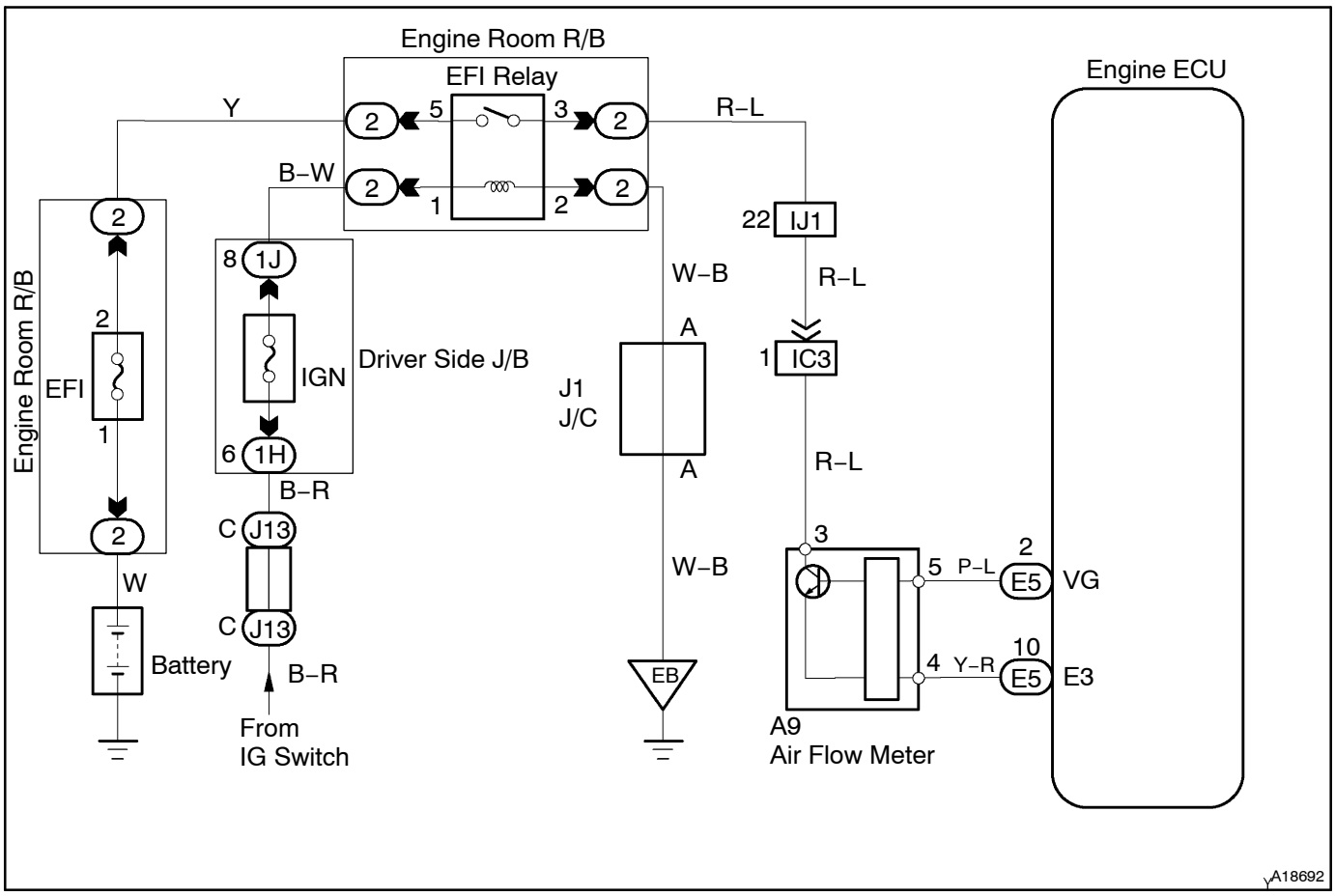


DTC No.	DTC Detecting Condition	Trouble Area
P0100/31	Open or short in air flow meter circuit for 3 sec. engine speed or more 3,000 rpm	• Open or short in air flow meter circuit • Air flow meter • Engine ECU

If the engine ECU detects DTC ”P0100/31”, it operates the fail–safe function, keeping the ignition timing and injection volume constant and marking it possible to drive the vehicle.
HINT:
After confirming DTC ”P0100/31” use the hand–held tester to confirm the air flow ratio from ”CURRENT DATA”.

Mass 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

HINT:

Read freeze frame data using the hand–held tester. Because freeze frame data 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.

When using hand–held tester

1	**Connect the 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.

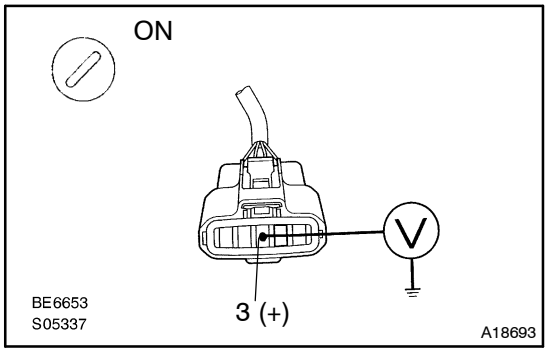
RESULT:

	Type I	Type II
Air flow rate (gm/sec.)	0.0 gm/sec.	271.0 gm/sec. or more

Type I

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 3 of the air flow meter connector and the body ground.

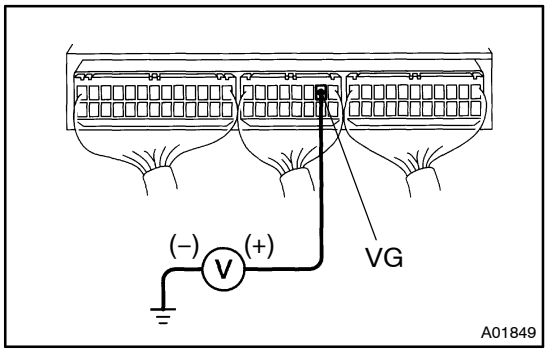
OK:

Voltage: 9 ~ 14 V

NG → **Check for open in harness and connector between EFI main relay (Marking: EFI) and air flow meter (See page IN–19).**

OK

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



PREPARATION:

(a) Remove the glove compartment.

(b) Start the engine.

CHECK:

Measure the voltage between terminal VG of the engine ECU and the body ground while the 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–19).**

NG

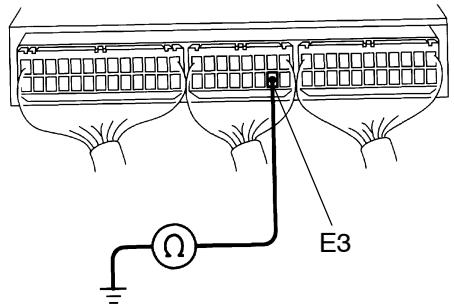
4	**Check for open and short in harness and connector between air flow meter and engine ECU (See page IN–19).**

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

OK

Replace air flow meter.

5	**Check continuity between terminal E3 of engine ECU connector and body ground.**



PREPARATION:
Remove the glove compartment.
CHECK:
Check the continuity between terminal E3 of the engine ECU connector and the body ground.
OK:
Continuity (1 Ω or less)

NG → **Check and replace engine ECU (See page IN–19).**

OK

6	**Check for open in harness and connector between air flow meter and engine ECU (See page IN–19).**

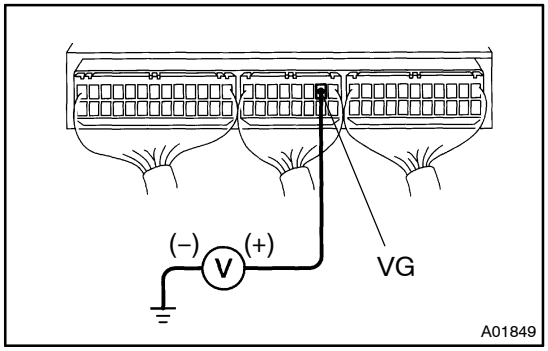
NG → **Repair or replace harness or connector.**

OK

Replace air flow meter.

When not using hand–held tester

1	**Check voltage between terminal VG of engine ECU and ground.**



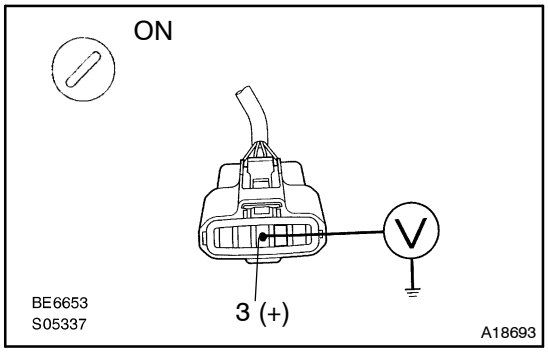
PREPARATION:
Remove the glove compartment.
CHECK:
Measure the voltage between terminal VG of the engine ECU and the body ground while the engine is idling.
OK:

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

OK	**Check and replace engine ECU (See page IN–19)**

OK

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



PREPARATION:
Disconnect the air flow meter connecter
Turn the ignition switch ON.
CHECK:
Measure the voltage between terminal 3 of the air flow meter connector and the body ground.
OK:

Voltage: 9 – 14 V

NG	**Check for open in harness and connecter between EFI main relay (Marking: EFI) and air flow meter (See page IN–19)**

OK

3	**Check for open in harness and connector between air flow meter and engine ECU (See page IN–19).**

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

OK

Replace air flow meter.