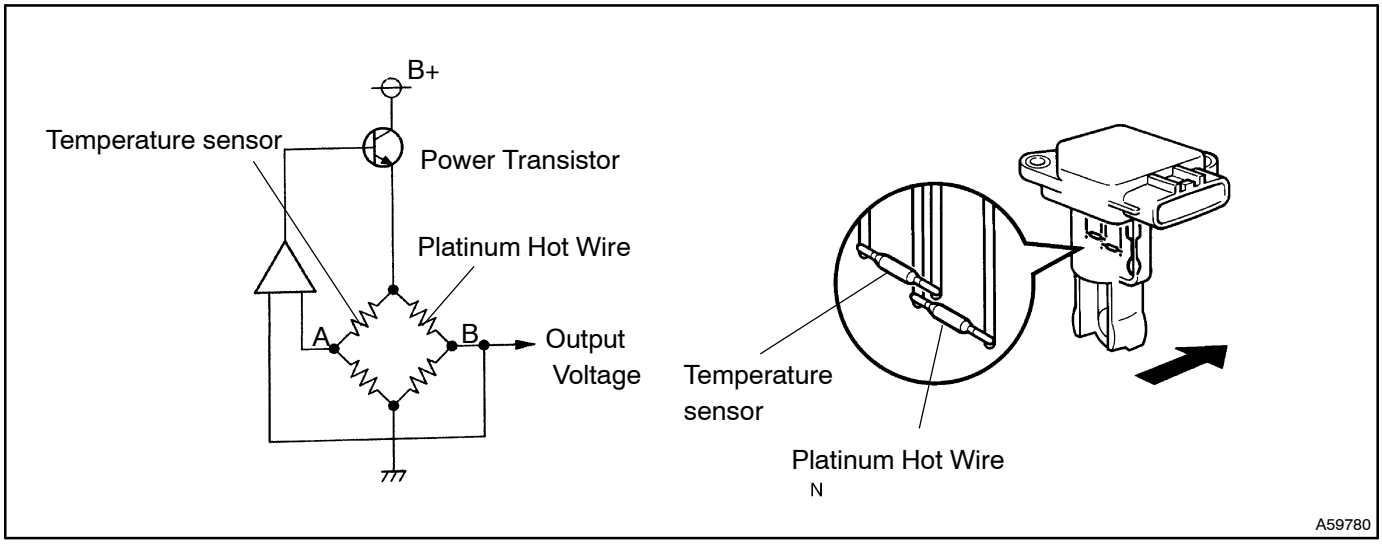
DTC P0100/31 MASS AIR FLOW CIRCUIT MALFUNCTION

CIRCUIT DESCRIPTION

The air flow meter uses a platinum hot wire. The hot wire air flow meter consists of a platinum hot wire, temperature sensor and a control circuit installed in a plastic housing. The hot wire air flow meter works on the principle that the hot wire and temperature sensor 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 the output voltage of the air flow meter.

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



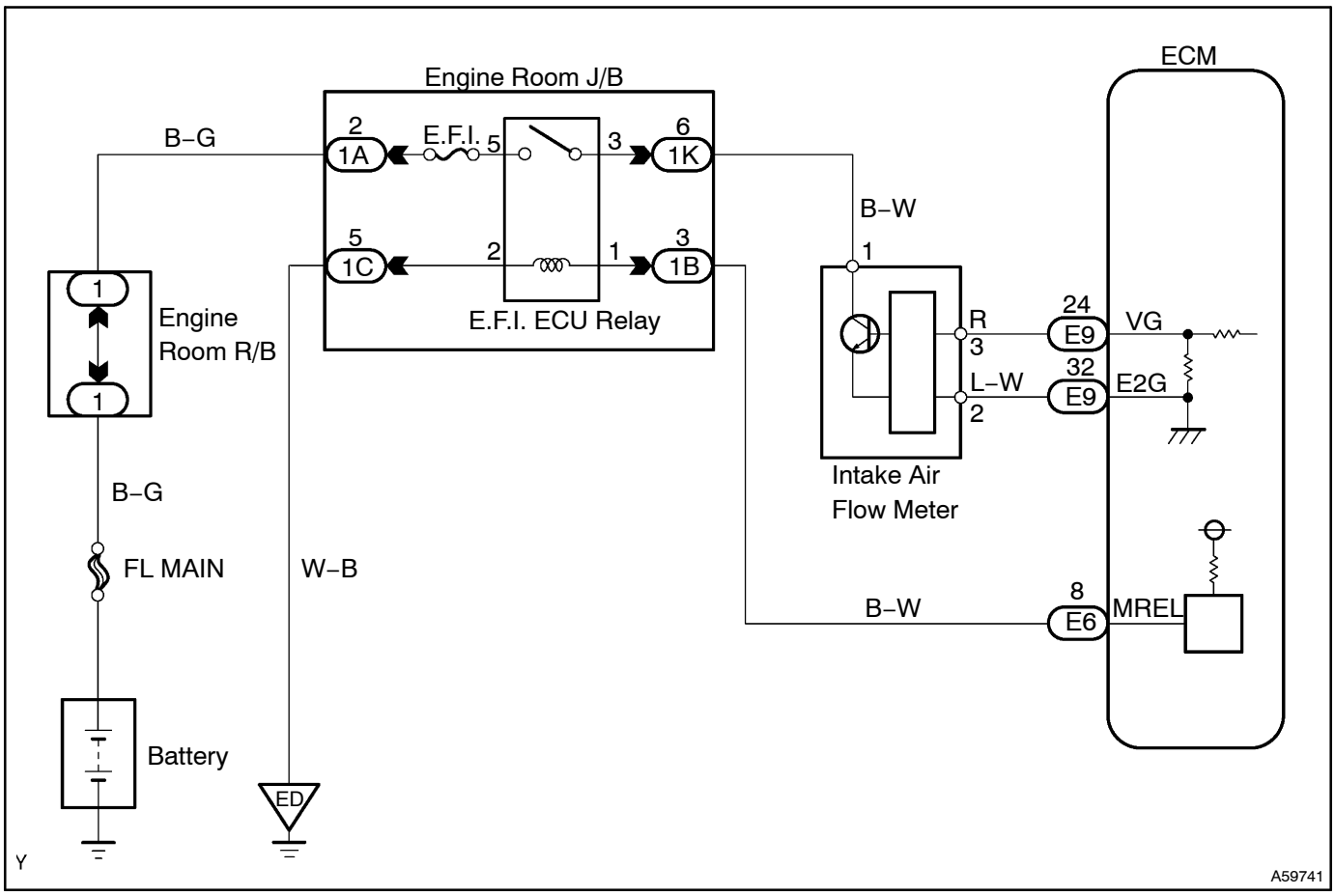
DTC No	DTC Detecting Condition	Trouble Area
P0100/31	Open or short in air flow meter circuit with more than 3 sec. engine speed less than 4,000 rpm	• Open or short in air flow meter circuit • Intake air flow meter • ECM

HINT:

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

Air Flow Value (g/s)	Malfunction
Approx. 0.0	• Air flow meter power source circuit open • VG circuit open or short
160.0 or more	• EVG circuit open

WIRING DIAGRAM



INSPECTION PROCEDURE

HINT:

Read freeze frame data using the hand–held tester, as 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.

1	READ VALUE OF HAND–HELD TESTER(MASS AIR FLOW RATE)

(a) Read air flow rate on the hand–held tester.

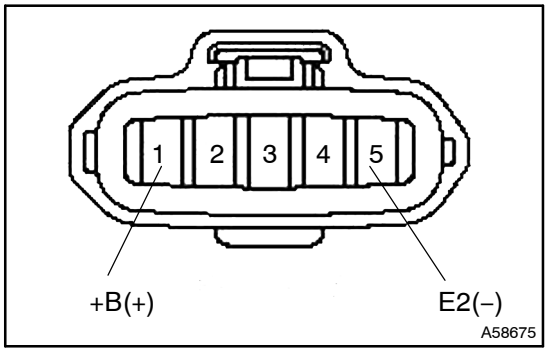
Result:

	A	B
Air flow rate (g/s)	0.0	160.0 or more

B → **Go to step 5**

A

2 INSPECT INTAKE AIR FLOW METER SUB–ASSY(POWER SOUCE VOLTAGE)

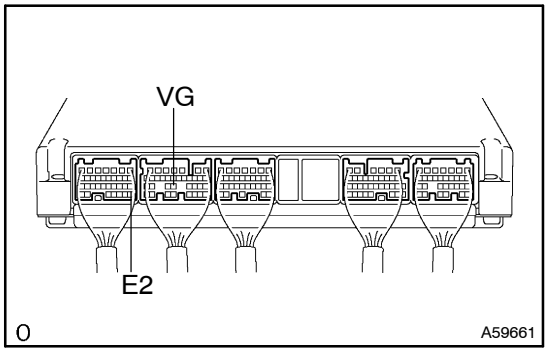


(a) Disconnect the intake air flow meter connector.
(b) Turn the ignition switch ON.
(c) Measure voltage between the terminals +B and E2 of the intake air flow meter connector.
Voltage: 9 – 14 V

NG → **Go to step 7**

OK

3 INSPECT ECM



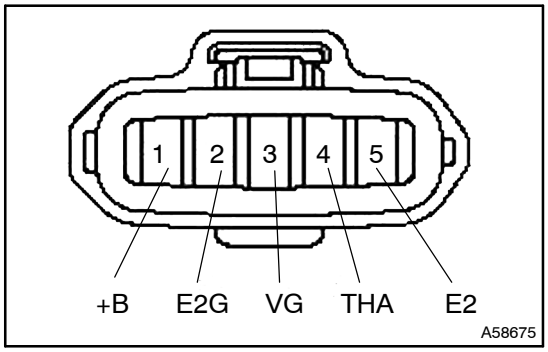
(a) Start the engine.
(b) Measure voltage between the terminals VG and E2 of the ECM connector while the engine is idling.
Voltage: 0.2 – 4.9 V

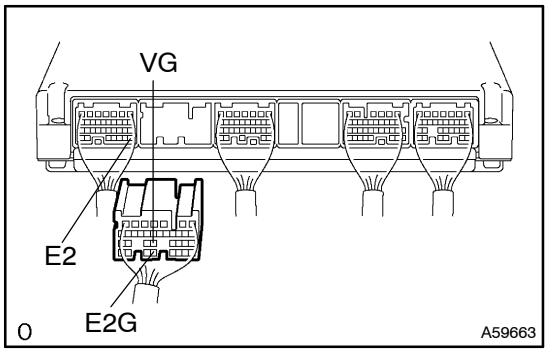
HINT:
The shift position should be P or N and A/C switch should be turned OFF.

OK → **CHECK AND REPLACE ECM**

NG

4 CHECK WIRE HARNESS OR CONNECTOR(ECM–INTAKE AIR FLOW METER)





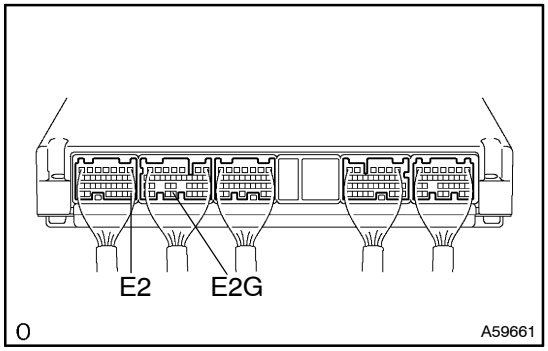
(a) Disconnect the intake air flow meter connector.
(b) Disconnect the ECM connector.
(c) Check continuity between the terminals VG of the air flow meter harness connector and VG of the ECM connector.
Resistance: 1 Ω or less
(d) Check for open between the terminals E2G of the intake air flow meter connector and E2G of the ECM connector.
Resistance: 1 Ω or less
(e) Check for short between the terminals VG and E2G of the ECM connector.
Resistance: 1 MΩ or more
(f) Check for short between the terminals E2G and E2 of the ECM connector.
Resistance: 1 MΩ or more

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

OK

REPLACE INTAKE AIR FLOW METER SUB–ASSY

5	INSPECT ECM(CHECK RESISTANCE)

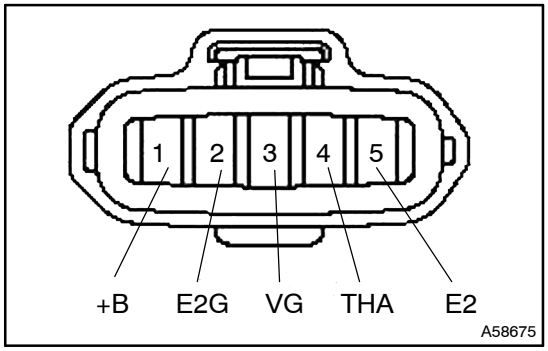


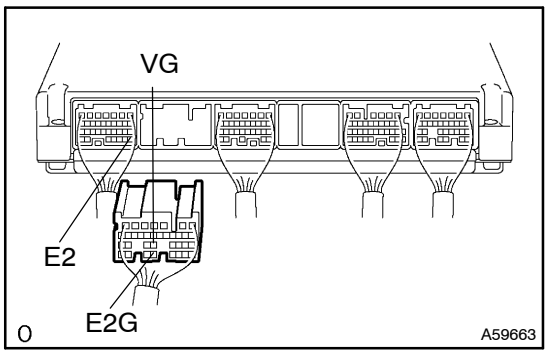
(a) Check continuity between the terminals E2G and E2 of the ECM connector.
Resistance: 1 Ω or less

NG → **CHECK AND REPLACE ECM**

OK

6	CHECK WIRE HARNESS OR CONNECTOR(ECM–INTAKE AIR FLOW METER)





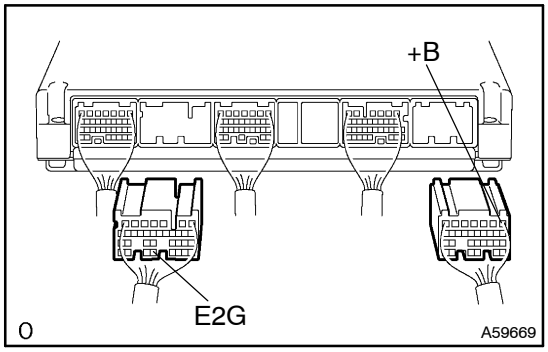
(a) Disconnect the intake air flow meter connector.
(b) Disconnect the ECM E9 connector.
(c) Check continuity between the terminals VG of the intake air flow meter harness connector and VG of the ECM connector.
Resistance: 1 Ω or less
(d) Check for open between the terminals E2G of the intake air flow meter connector and E2G of the ECM connector.
Resistance: 1 Ω or less
(e) Check for short between the terminals VG and E2G of the ECM connector.
Resistance: 1 MΩ or more
(f) Check for short between the terminals E2G and E2 of the ECM connector.
Resistance: 1 MΩ or more

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

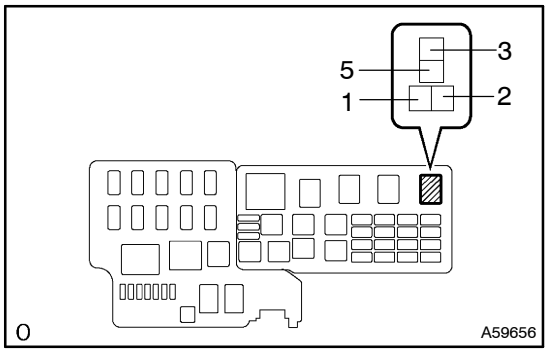
OK

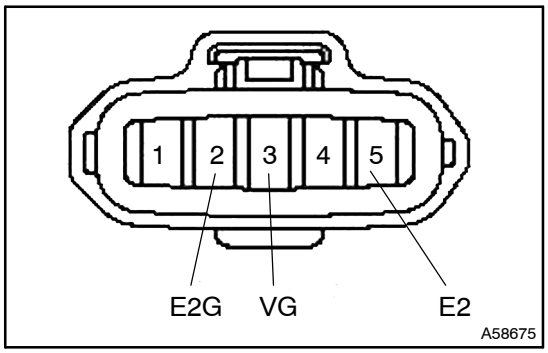
REPLACE INTAKE AIR FLOW METER SUB–ASSY

7	CHECK WIRE HARNESS OR CONNECTOR(E.F.I. ECU RELAY–INTAKE AIR FLOW METER)



(a) Disconnect the battery negative (–) terminal.
(b) Disconnect the ECM E6 and E9 connector.
(c) Check continuity between the terminals +B of the ECM connector and 3 of the E.F.I. ECU relay installation relay block.
Resistance: 1 Ω or less
(d) Disconnect the ECM connector.
(e) Check continuity between the terminals E2G of the intake air flow meter connector and E2G of the ECM connector.
Resistance: 1 Ω or less





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

OK

CHECK FOR ECM POWER SOURCE CIRCUIT (See page 05–123)