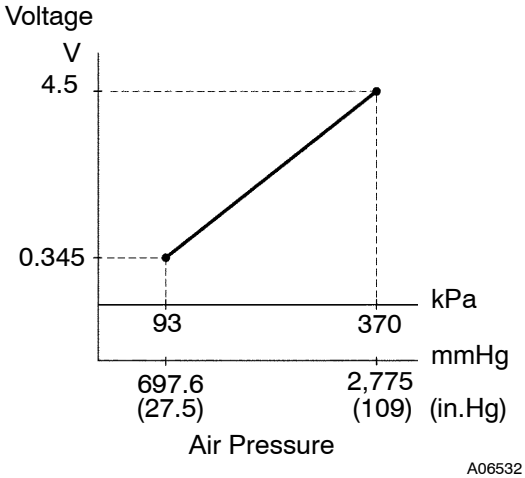
DTC	P0105/31	MANIFOLD ABSOLUTE PRESSURE/BAROMETRIC PRESSURE CIRCUIT

DTC	P0107/31	MANIFOLD ABSOLUTE PRESSURE/BAROMETRIC PRESSURE CIRCUIT LOW INPUT

DTC	P0108/31	MANIFOLD ABSOLUTE PRESSURE/BAROMETRIC PRESSURE CIRCUIT HIGH INPUT

CIRCUIT DESCRIPTION



By a built–in sensor unit, the turbo pressure sensor (manifold absolute pressure sensor) detects the intake manifold pressure as a voltage. The ECM then determines the basic injection duration and basic ignition advance angle based on this voltage.

Since the turbo pressure sensor does not use the atmospheric pressure as a criterion, but senses the absolute pressure inside the intake manifold (the pressure in proportion to the preset absolute vacuum 0), it is not influenced by fluctuations in the atmospheric pressure due to high altitude and other factors. This permits it to control the air fuel ratio at the proper level under all conditions.

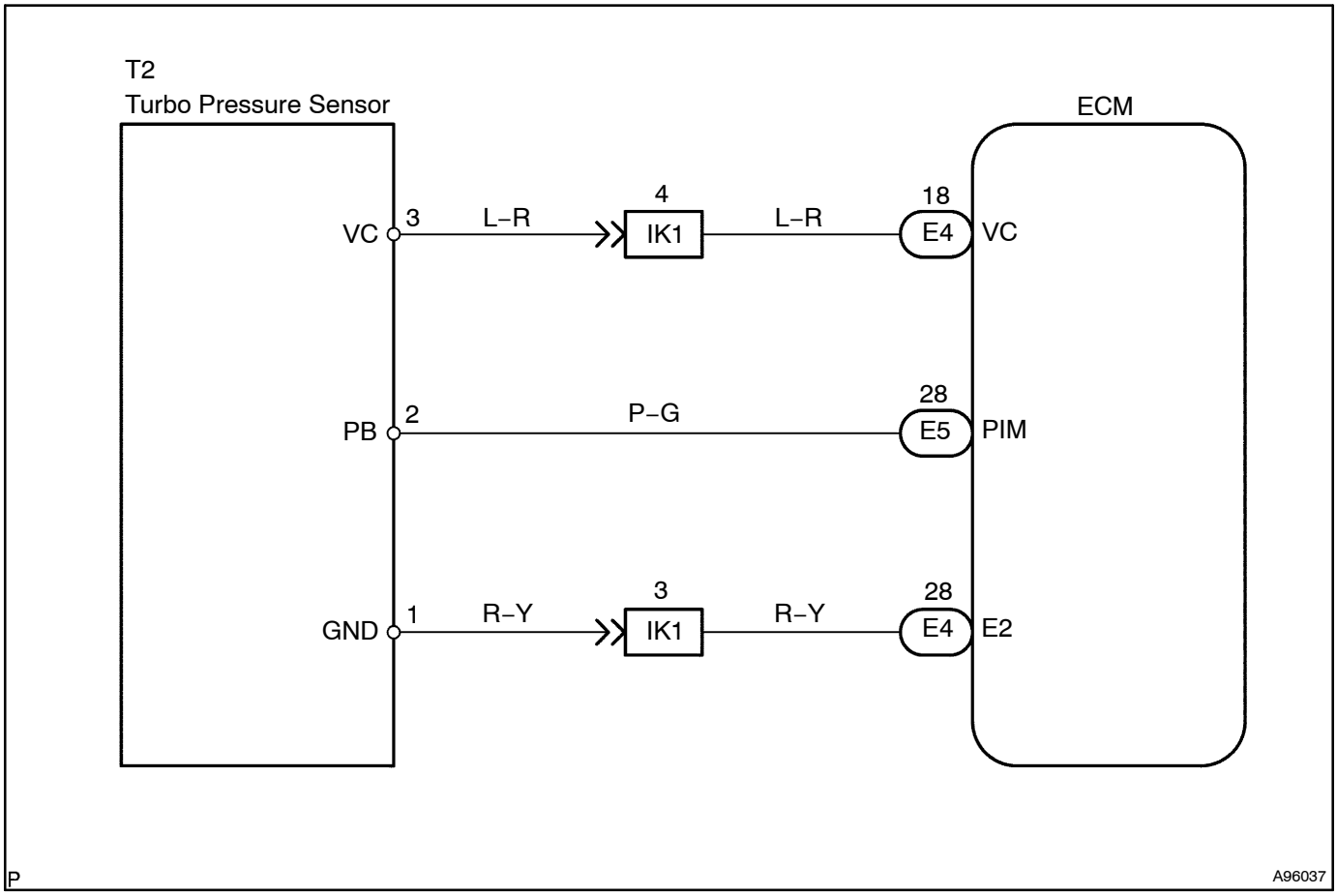
DTC No.	DTC Detection Condition	Trouble Area
P0105/31	After engine is started, condition (a) continues for more than 2.0 seconds (a) Open or short in turbo pressure sensor circuit for 0.5 seconds or more	• Open or short in turbo pressure sensor circuit • Turbo pressure sensor • ECM
P0107/31	After engine is started, condition (a) continues for more than 2.0 seconds (a) Short in turbo pressure sensor circuit for 0.5 seconds or more	Same as DTC No. P0105/31
P0108/31	After engine is started, condition (a) continues for more than 2.0 seconds (a) Open in turbot pressure sensor circuit for 0.5 seconds or more	Same as DTC No. P0105/31

HINT:

After confirming DTC P0105/31, P0107/31 or P0108/31, use the hand–held tester to confirm the intake manifold pressure from the PIM menu (to reach the PIM menu: DIAGNOSIS / OBD/MOBD / DATA LIST / ALL / PIM).

Intake Manifold Pressure (kPa)	Malfunction
Approximately 0	• Short in PIM circuit
370 or more	• Open or short in VC circuit • Open in PIM circuit • Open in E2 circuit

WIRING DIAGRAM



INSPECTION PROCEDURE

HINT:

- If DTCs that are related to different systems are output simultaneously while terminal E2 is used as a ground terminal, terminal E2 may have an open circuit.
- Read freeze frame data using the hand–held tester. Freeze frame data records the engine conditions when a malfunction is detected. When troubleshooting, freeze frame data can help determine if the vehicle was running or stopped, if the engine was warmed up or not, if the air–fuel ratio was lean or rich, and other data from the time the malfunction occurred.

When using hand–held tester:

1	READ VALUE OF DATA LIST (MANIFOLD ABSOLUTE PRESSURE)

(a) Connect the hand–held tester (with 24 V VIM) to the DLC3.
(b) Turn the ignition switch ON and turn the hand–held tester ON.
(c) On the hand–held tester, enter the following menus: DIAGNOSIS / OBD/MOBD / DATA LIST / ALL / PIM. Read the values.
Standard: Same value as the actual atmospheric pressure.
Result:

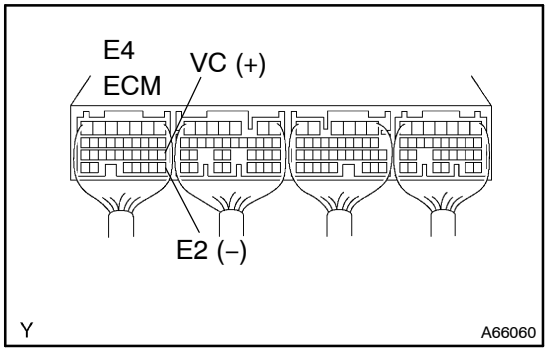
Pressure Displayed	Proceed to
130 kPa	A
0 kPa	B
OK (same as atmospheric pressure near to intake manifold)	C

B → **Go to step 3**

C → **CHECK FOR INTERMITTENT PROBLEMS (See page 05–10)**

A

2	CHECK ECM (VC VOLTAGE)



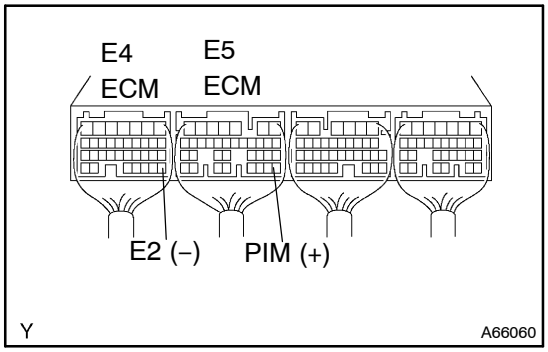
(a) Turn the ignition switch ON.
(b) Measure the voltage of the ECM connector.
Standard:

Tester Connection	Specified Condition
E4–18 (VC) – E4–28 (E2)	4.5 to 5.5 V

NG → **REPLACE ECM (See page 10–10)**

OK

3 CHECK ECM (PIM VOLTAGE)



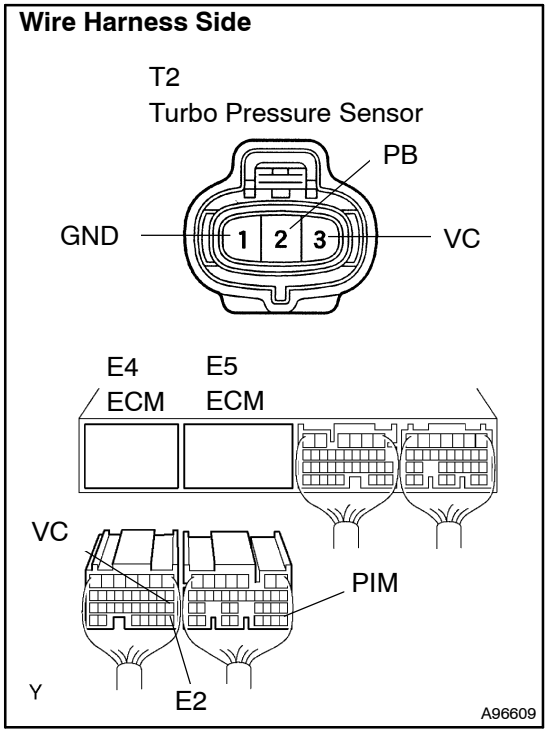
(a) Turn the ignition switch ON.
(b) Measure the voltage of the ECM connectors.
Standard:

Tester Connection	Condition	Specified Condition
E5–28 (PIM) – E4–28 (E2)	Negative pressure of 93 kPa (675 mmHg, 27.5 in.Hg) applied	0.25 to 0.4 V
E5–28 (PIM) – E4–28 (E2)	Positive pressure of 150 kPa (1,125 mmHg, 44 in.Hg) applied	1.0 to 1.4 V

NG → **REPLACE ECM (See page 10–10)**

OK

4 CHECK WIRE HARNESS (TURBO PRESSURE SENSOR – ECM)



(a) Disconnect the T2 turbo pressure sensor connector.
(b) Disconnect the E4 and E5 ECM connectors.
(c) Measure the resistance of the wire harness side connectors.
Standard:

Tester Connection	Specified Condition
T2–2 (PB) – E5–28 (PIM) T2–3 (VC) – E4–18 (VC) T2–1 (GND) – E4–28 (E2)	Below 1 Ω
T2–2 (PB) or E5–28 (PIM) – Body ground T2–3 (VC) or E4–18 (VC) – Body ground T2–1 (GND) or E4–28 (E2) – Body ground	10 kΩ or higher

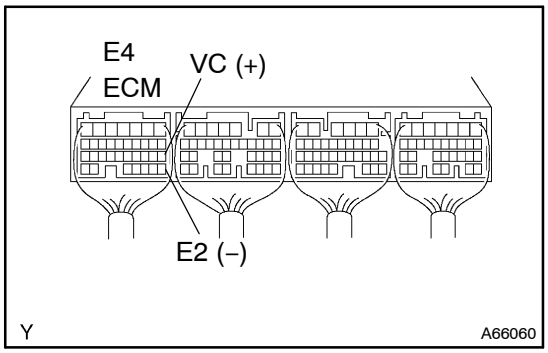
NG → **REPAIR OR REPLACE HARNESS AND CONNECTOR**

OK

REPLACE TURBO PRESSURE SENSOR

When not using hand–held tester:

1	CHECK ECM (VC VOLTAGE)



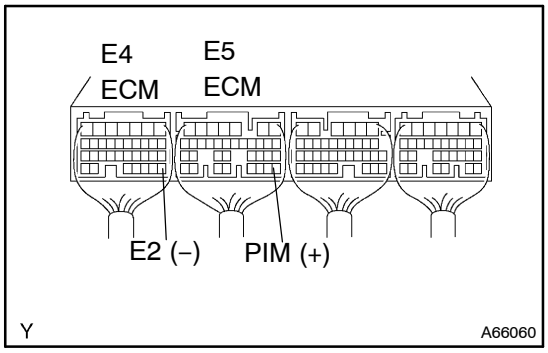
(a) Turn the ignition switch ON.
(b) Measure the voltage of the ECM connector.
Standard:

Tester Connection	Specified Condition
E4–18 (VC) – E4–28 (E2)	4.5 to 5.5 V

NG → **REPLACE ECM (See page 10–10)**

OK

2	CHECK ECM (PIM VOLTAGE)



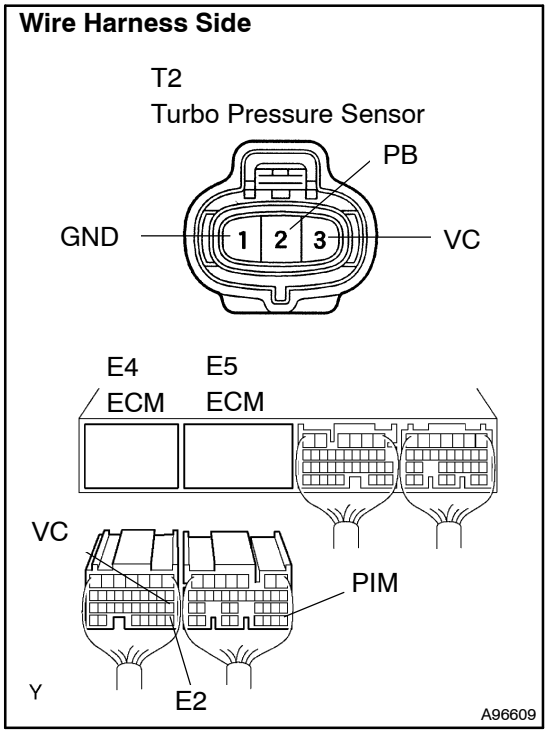
(a) Turn the ignition switch ON.
(b) Measure the voltage of the ECM connectors.
Standard:

Tester Connection	Condition	Specified Condition
E5–28 (PIM) – E4–28 (E2)	Negative pressure of 93 kPa (675 mmHg, 27.5 in.Hg) applied	0.25 to 0.4 V
E5–28 (PIM) – E4–28 (E2)	Positive pressure of 150 kPa (1,125 mmHg, 44 in.Hg) applied	1.0 to 1.4 V

NG → **REPLACE ECM (See page 10–10)**

OK

3 CHECK WIRE HARNESS (TURBO PRESSURE SENSOR – ECM)



(a) Disconnect the T2 turbo pressure sensor connector.
(b) Disconnect the E4 and E5 ECM connectors.
(c) Measure the resistance of the wire harness side connectors.

Standard:

Tester Connection	Specified Condition
T2–2 (PB) – E5–28 (PIM) T2–3 (VC) – E4–18 (VC) T2–1 (GND) – E4–28 (E2)	Below 1 Ω
T2–2 (PB) or E5–28 (PIM) – Body ground T2–3 (VC) or E4–18 (VC) – Body ground T2–1 (GND) or E4–28 (E2) – Body ground	10 kΩ or higher

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

OK

REPLACE TURBO PRESSURE SENSOR