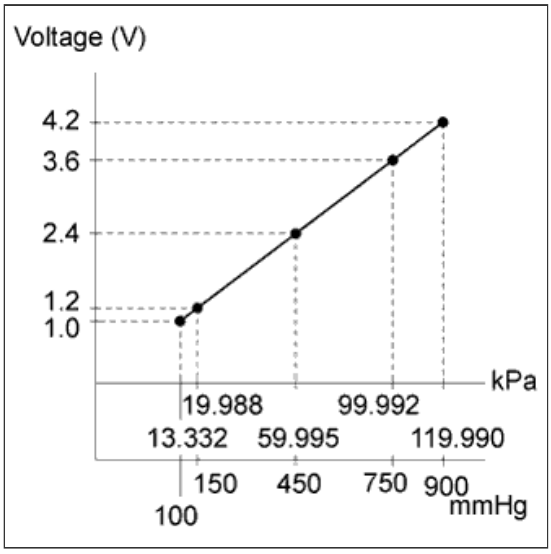
DTC P0107 Manifold Absolute Pressure / Barometric Pressure Circuit Low Input

DTC P0108 Manifold Absolute Pressure / Barometric Pressure Circuit High Input

for Preparation Click here

DESCRIPTION

The manifold absolute pressure sensor detects the intake manifold pressure as a voltage using a built-in sensor unit.



DTC No.	DTC Detection Condition	Trouble Area
P0107	The manifold absolute pressure sensor voltage is below 0.5 V for 0.5 seconds (1 trip detection logic).	• Open or short in manifold absolute pressure sensor circuit • Manifold absolute pressure sensor • ECM
P0108	The manifold absolute pressure sensor voltage is higher than 4.5 V for 0.5 seconds (1 trip detection logic).	• Open or short in manifold absolute pressure sensor circuit • Manifold absolute pressure sensor • ECM

HINT:

When either of these DTCs is output, check the manifold absolute pressure using the intelligent tester. Enter the following menus: Powertrain / Engine and ECT / Data List / All Data / MAP.

MAP	Malfunction
Approximately 0 kPa	• Short in PIM circuit to ground • Short in PIM circuit to E2 circuit

130 kPa or higher	• Open in VC circuit or short in VC circuit to PIM circuit • Open in PIM circuit • Open in E2 circuit

MONITOR DESCRIPTION

The ECM monitors the sensor voltage and uses this value to calculate the manifold absolute pressure. When the sensor output voltage deviates from the normal operating range, the ECM interprets this as a malfunction in the manifold pressure sensor and stores a DTC.
Example:
When the sensor output voltage remains below 0.5 V, or higher than 4.5 V for more than 0.5 seconds, the ECM stores a DTC.
If the malfunction is not repaired successfully, a DTC is stored 0.5 seconds after the engine is next started.

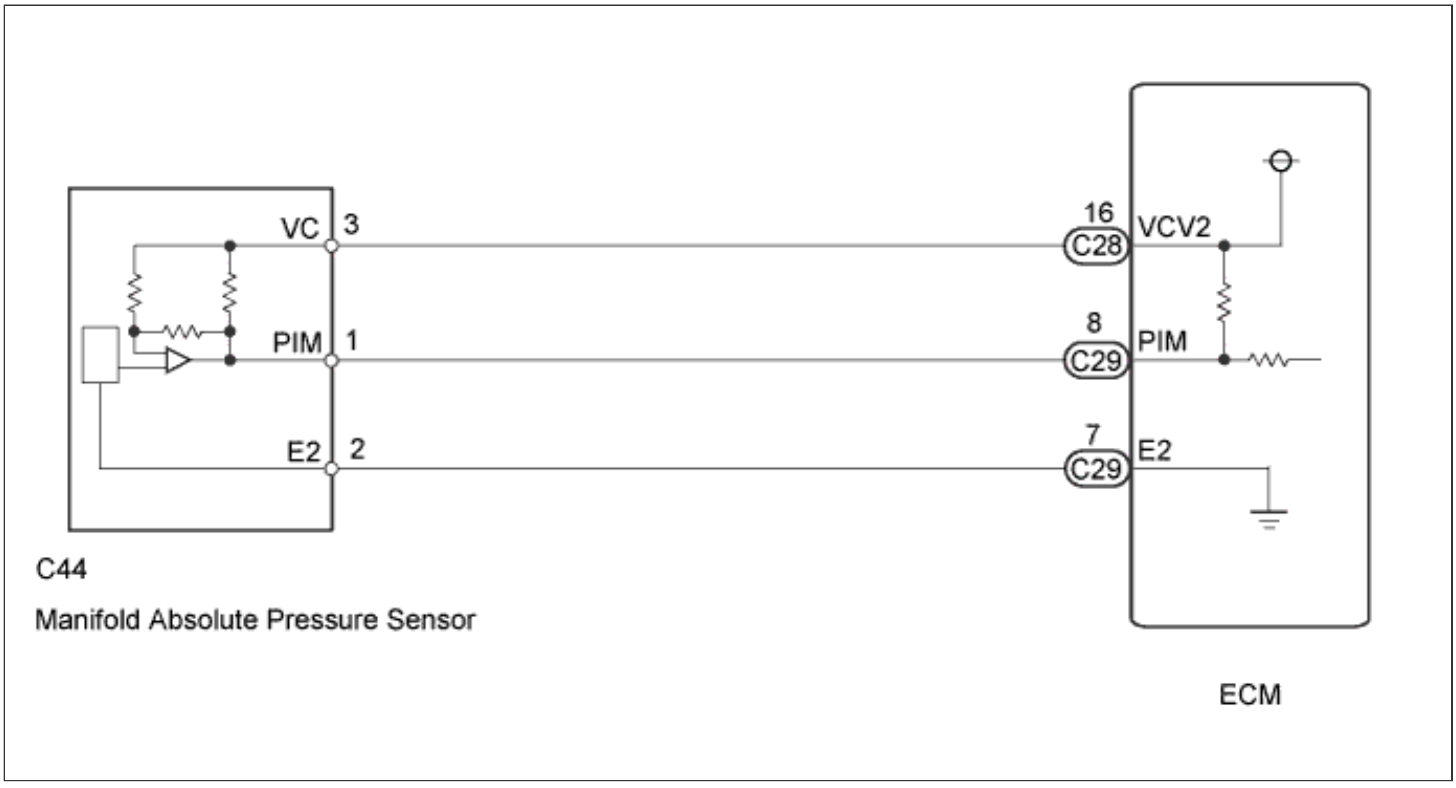
MONITOR STRATEGY

Frequency of Operation	Continuous

CONFIRMATION DRIVING PATTERN

1. Turn the engine switch on (IG) and wait for 5 seconds or more.

WIRING DIAGRAM



INSPECTION PROCEDURE

HINT:

- **If other DTCs related to different systems that have terminal E2 as the ground terminal are stored simultaneously, there may be an open circuit between terminal E2 and body ground.**
- **Read freeze frame data using the intelligent tester. The ECM records vehicle and driving condition information as freeze frame data the moment a DTC is stored. When troubleshooting, freeze frame data can help determine if the vehicle was moving or stationary, 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.**

1.READ VALUE USING INTELLIGENT TESTER (MAP)

a. Connect the intelligent tester to the DLC3.

b. Turn the engine switch on (IG).

c. Turn the tester on.

d. Enter the following menus: Powertrain / Engine and ECT / Data List / MAP.

e. Read the MAP value.

OK:
Same value as the actual atmospheric pressure.

HINT:

- **Standard atmospheric pressure is 101 kPa. For every 100 m increase in elevation, pressure drops by 1 kPa. This varies by weather (high atmospheric pressure, low atmospheric pressure).**
- **Also, check "Atmosphere Pressure" in the Data List.**

NG → **Go to step 2**

OK

CHECK FOR INTERMITTENT PROBLEMS (Click here)

2.CHECK MANIFOLD ABSOLUTE PRESSURE SENSOR (TERMINAL VOLTAGE)

a. Disconnect the manifold absolute pressure sensor connector.

b. Turn the engine switch on (IG).

c. Measure the voltage according to the value(s) in the table below.

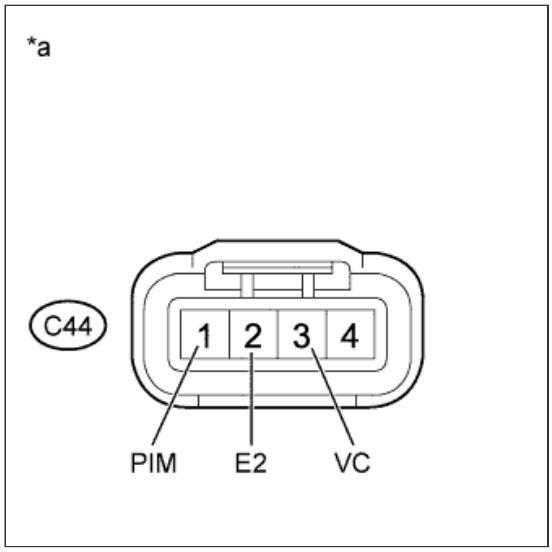
Standard Voltage:

Tester Connection	Switch Condition	Specified Condition
C44-3 (VC) - C44-2 (E2)	Engine switch on (IG)	4.5 to 5.5 V
C44-1 (PIM) - C44-2 (E2)	Engine switch on	4.0 to 5.0 V

	(IG)	

Text in Illustration

*a	Front view of wire harness connector (to Manifold Absolute Pressure Sensor)



NG → Go to step 5

OK

3.REPLACE MANIFOLD ABSOLUTE PRESSURE SENSOR

a. Replace the manifold absolute pressure sensor (Click here).

NEXT

4.CHECK WHETHER DTC OUTPUT RECURS

a. Connect the intelligent tester to the DLC3.

b. Turn the engine switch on (IG) and turn the tester on.

c. Clear the DTCs (Click here).

d. Turn the engine switch off and wait for at least 30 seconds.

e. Turn the engine switch on (IG) and wait for 5 seconds.

f. Turn the tester on.

g. Enter the following menus: Powertrain / Engine and ECT / DTC.

h. Read the DTCs.

Result

Display (DTC output)	Proceed to
No DTC output	A
DTC P0107 and/or P0108 output	B

B → REPLACE ECM (Click here)

A

END

5.CHECK HARNESS AND CONNECTOR (MANIFOLD ABSOLUTE PRESSURE SENSOR - ECM)

a. Disconnect the manifold absolute pressure sensor connector.

b. Disconnect the ECM connector.

c. Measure the resistance according to the value(s) in the table below.

Standard Resistance (Check for open):

Tester Connection	Condition	Specified Condition
C44-1 (PIM) - C29-8 (PIM)	Always	Below 1 Ω
C44-3 (VC) - C28-16 (VCV2)	Always	Below 1 Ω
C44-2 (E2) - C29-7 (E2)	Always	Below 1 Ω

Standard Resistance (Check for short):

Tester Connection	Condition	Specified Condition
C44-1 (PIM) or C29-8 (PIM) - Body ground	Always	10 kΩ or higher
C44-3 (VC) or C28-16 (VCV2) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE ECM (Click here)