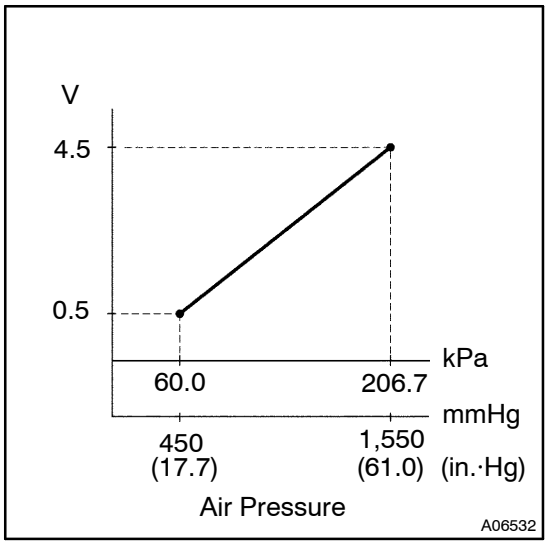
| DTC | 35 | MANIFOLD ABSOLUTE PRESSURE/BAROMETRIC PRESSURE CIRCUIT MALFUNCTION |
|---|---|---|

## CIRCUIT DESCRIPTION




The manifold absolute pressure sensor is connected to the intake manifold. The ECM detects the intake manifold pressure as a voltage by the sensor. The ECM uses the intake manifold pressure signal for correction of injection volume control and injection timing control.

The VSV for manifold absolute pressure sensor switches the atmosphere applied to the manifold absolute pressure sensor to the intake manifold pressure. The manifold absolute pressure sensor monitors both the atmospheric pressure and intake manifold pressure and transmits the output voltage to the ECM, and the ECM uses this atmospheric pressure value for correcting the injection volume.

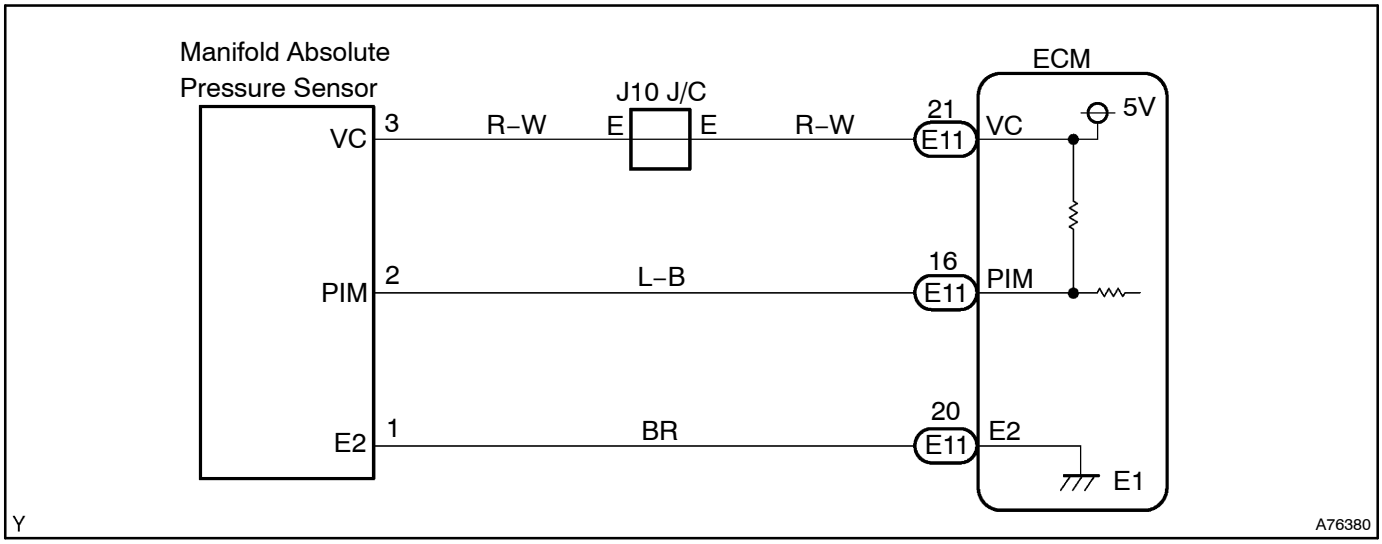
| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| 35 | Open or short in manifold absolute pressure sensor circuit for 2 sec. or more | • Open or short in manifold absolute pressure sensor circuit<br>• Manifold absolute pressure sensor<br>• ECM |

HINT:

After confirming DTC 35, use the hand–held tester to confirm the air cleaner pressure from the CURRENT DATA.

| Intake Manifold Pressure (kPa) | Malfunction |
|---|---|
| Approx. 0 | • PIM circuit short |
| 206.7 or more | • VC circuit open or short<br>• PIM circuit open<br>• E2 circuit open |

## WIRING DIAGRAM




## INSPECTION PROCEDURE

HINT:

- If different DTCs that are related to different systems are output simultaneously while terminal E2 is used as a ground terminal, terminal E2 may be open.
- Read freeze frame data using the hand–held tester, as freeze frame data records the engine conditions when a malfunction is detected. When troubleshooting, it is useful for determining whether the vehicle was running or stopped, the engine was warmed up or not, etc. at the time of the malfunction.

### When using Hand–held Tester:

| 1 | READ VALUE OF HAND–HELD TESTER(INTAKE MANIFOLD PRESSURE) |
|---|---|

(a) Connect the hand–held tester to the DLC3.
(b) Read the value of intake manifold pressure on the hand–held tester.
**Pressure: The same as atmospheric pressure.**

**OK** → **REPAIR OR REPLACE VACUUM HOSE**

**NG**

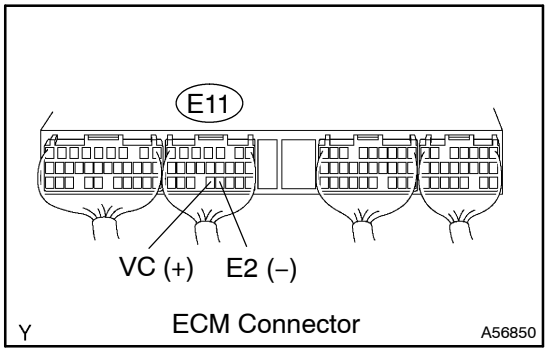
| 2 | INSPECT MANIFOLD ABSOLUTE PRESSURE SENSOR(See page 13–4) |
|---|---|

SST 09992–00242

**NG** → **REPLACE MANIFOLD ABSOLUTE PRESSURE SENSOR**

**OK**

## 3 INSPECT ECM(CHECK VOLTAGE)




(a) Turn the ignition switch ON.
(b) Measure the voltage between the terminals of the ECM connector.

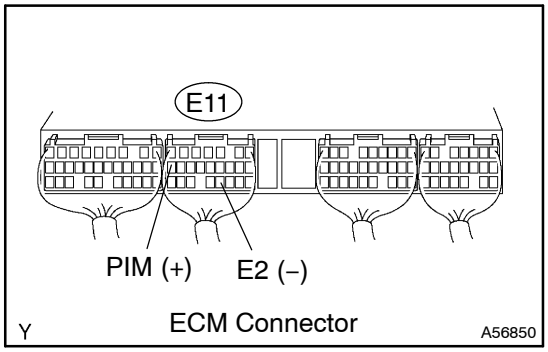
**Voltage:**

| Symbols (Terminal No.) | Specified condition |
|---|---|
| VC (E11 – 21) ⇔ E2 (E11 – 20) | 4.5 – 5.5 V |

**NG** → **CHECK AND REPLACE ECM**

**OK**

## 4 INSPECT ECM(CHECK VOLTAGE)




(a) Turn the ignition switch ON.
(b) Measure the voltage between the terminals of the ECM connector.

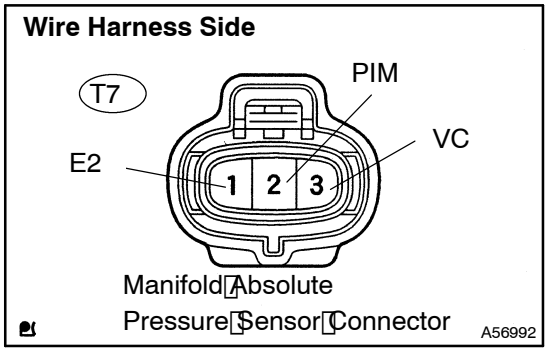
**Voltage:**

| Symbols (Terminal No.) | Specified condition |
|---|---|
| PIM (E11 – 16) ⇔ E2 (E11 – 20) | 1.0 – 2.2 V |

**OK** → **CHECK AND REPLACE ECM**

**NG**

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



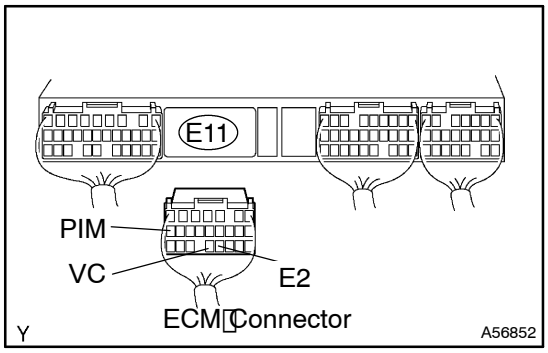

(a) Disconnect the manifold absolute pressure sensor connector.
(b) Disconnect the ECM E11 connector.
(c) Check the continuity between the wire harness side connector.

**Standard (Check for open):**

| Symbols (Terminal No.) | Specified condition |
|---|---|
| VC (T7 – 3) ⇔ VC (E11 – 21) | Continuity |
| PIM (T7 – 2) ⇔ PIM (E11 – 16) | |
| E (T7 – 1) ⇔ E2 (E11 – 20) | |

**Standard (Check for short):**

| Symbols (Terminal No.) | Specified condition |
|---|---|
| VC (E11 – 21) ⇔ PIM (E11 – 16) | No continuity |
| VC (E11 – 21) ⇔ E2 (E11 – 20) | |
| PIM (E11 – 16) ⇔ E2 (E11 – 20) | |




NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

**REPLACE MANIFOLD ABSOLUTE PRESSURE SENSOR**

## When not using Hand–held Tester:

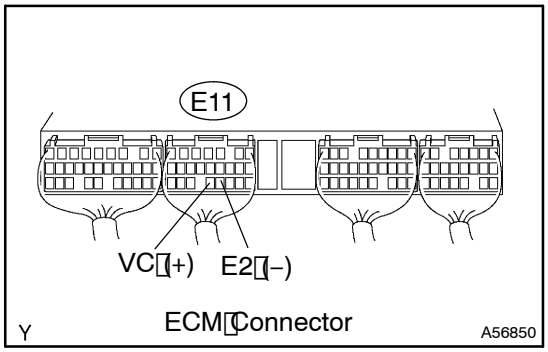
| 1 | INSPECT MANIFOLD ABSOLUTE PRESSURE SENSOR(See page 13–4) |
|---|---|

SST 09992–00242

NG → REPLACE MANIFOLD ABSOLUTE PRESSURE SENSOR

OK

| 2 | INSPECT ECM(CHECK VOLTAGE) |
|---|---|




(a) Turn the ignition switch ON.
(b) Measure the voltage between the terminals of the ECM connector.

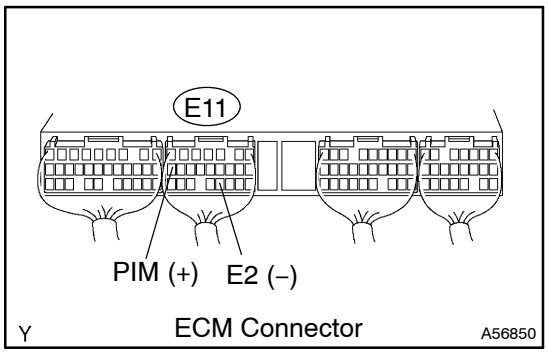
**Voltage:**

| Symbols (Terminal No.) | Specified condition |
|---|---|
| VC (E11 – 21) ⇔ E2 (E11 – 20) | 4.5 – 5.5 V |

NG → CHECK AND REPLACE ECM

OK

## 3 INSPECT ECM(CHECK VOLTAGE)




(a) Turn the ignition switch ON.
(b) Measure the voltage between the terminals of the ECM connector.

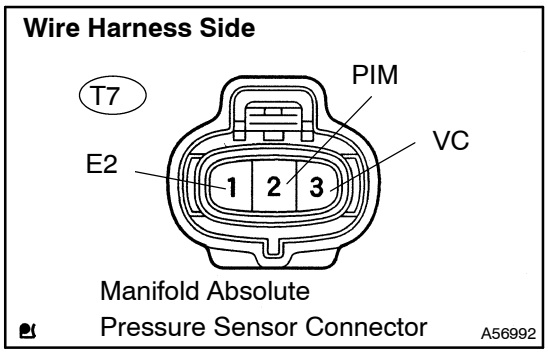
**Voltage:**

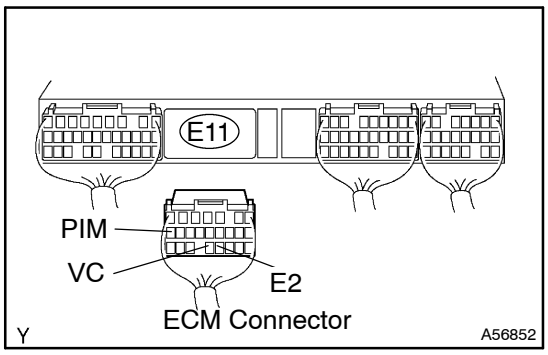
| Symbols (Terminal No.) | Specified condition |
|---|---|
| PIM (E11 – 16) ⇔ E2 (E11 – 20) | 1.0 – 2.2 V |

OK → CHECK AND REPLACE ECM

NG

## 4 CHECK HARNESS AND CONNECTOR(ECM – MANIFOLD ABSOLUTE PRESSURE SENSOR)




(a) Disconnect the manifold absolute pressure sensor connector.
(b) Disconnect the ECM E11 connector.
(c) Check the continuity between the wire harness side connector.

**Standard (Check for open):**

| Symbols (Terminal No.) | Specified condition |
|---|---|
| VC (T7 – 3) ⇔ VC (E11 – 21) | Continuity |
| PIM (T7 – 2) ⇔ PIM (E11 – 16) | |
| E (T7 – 1) ⇔ E2 (E11 – 20) | |

**Standard (Check for short):**

| Symbols (Terminal No.) | Specified condition |
|---|---|
| VC (E11 – 21) ⇔ PIM (E11 – 16) | No continuity |
| VC (E11 – 21) ⇔ E2 (E11 – 20) | |
| PIM (E11 – 16) ⇔ E2 (E11 – 20) | |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE MANIFOLD ABSOLUTE PRESSURE SENSOR