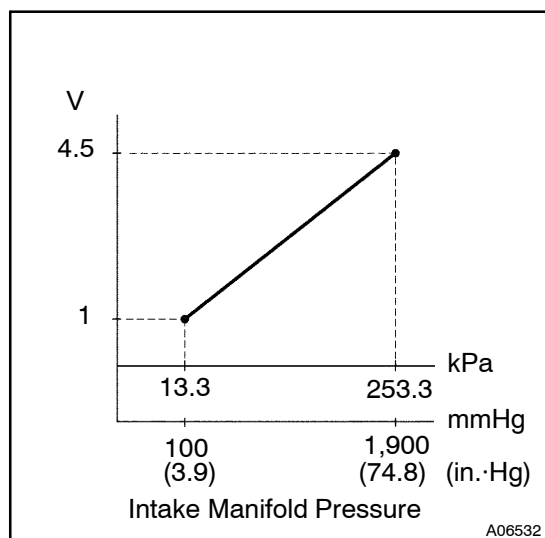


DTC	35	TURBO PRESSURE SENSOR CIRCUIT MALFUNCTION
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CIRCUIT DESCRIPTION



The turbo 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 turbo pressure sensor switches the atmosphere applied to the turbo pressure sensor to the intake manifold pressure. The turbo 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.

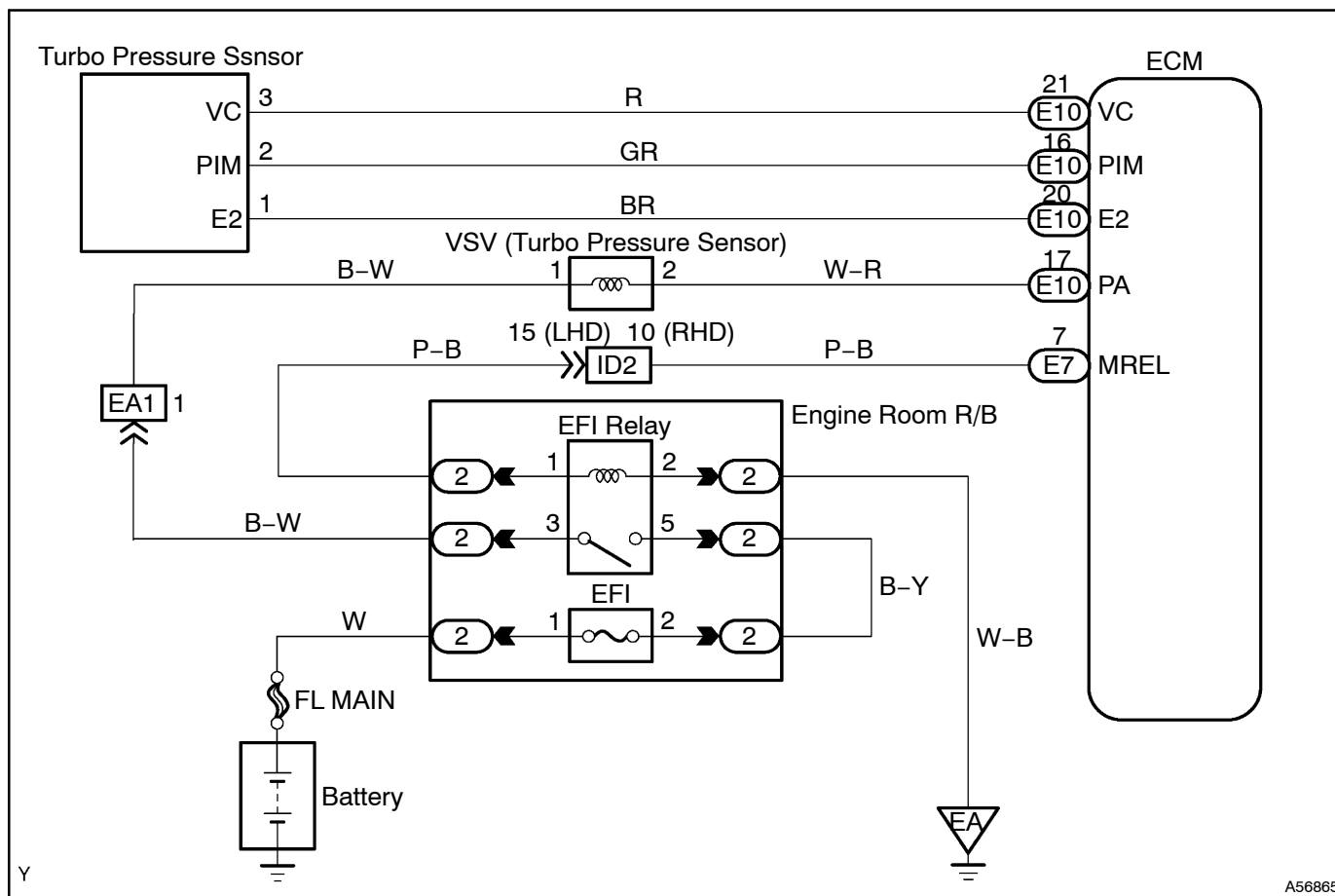
DTC No.	DTC Detection Condition	Trouble Area
35	Open or short in turbo pressure sensor circuit for 2 sec. or more	<ul style="list-style-type: none"> • Open or short in turbo pressure sensor circuit • Turbo pressure sensor • Open or short in VSV for turbo pressure sensor circuit • VSV for turbo pressure sensor • Vacuum hose disconnected or blocked • ECM

HINT:

After confirming DTC 35, use the hand-held tester to confirm the intake manifold pressure from the CURRENT DATA.

Intake Manifold Pressure (kPa)	Malfunction
Approx. 0	<ul style="list-style-type: none"> • PIM circuit short
130 or more	<ul style="list-style-type: none"> • VC circuit open or short • PIM circuit open • E2 circuit open

WIRING DIAGRAM



INSPECTION PROCEDURE

HINT:

- If DTC 22, 24, 35 and 39 are output simultaneously, E2 (sensor ground) may be open.
- Read freeze frame data using 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) Read the value of intake manifold pressure on the hand-held tester.

Pressure: The same as atmospheric pressure.

OK

Go to step 6

NG

2 INSPECT DIESEL TURBO TURBO PRESSURE SENSOR (See page 13-3)

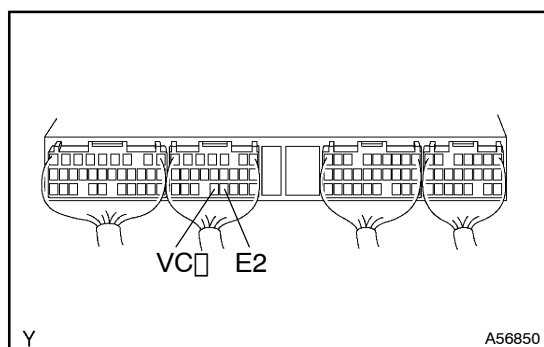
SST 09992-00242

NG

**REPLACE
DIESEL TURBO TURBO PRESSURE SENSOR**

OK

3 INSPECT ECM



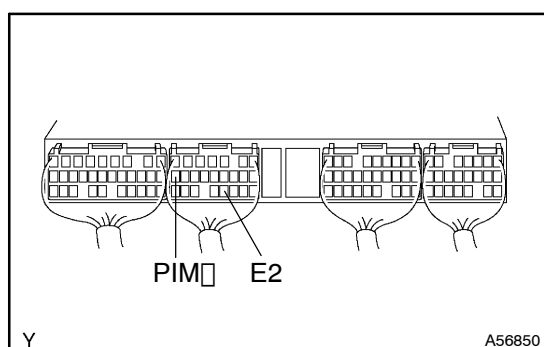
- (a) Turn the ignition switch ON.
 (b) Measure the voltage between terminals VC and E2 of the ECM connector.
Voltage: 4.5 - 5.5 V

NG

CHECK AND REPLACE ECM

OK

4 INSPECT ECM



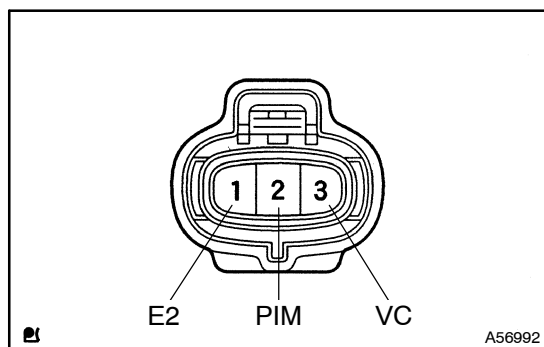
- (a) Turn the ignition switch ON.
 (b) Measure the voltage between terminals PIM and E2 of the ECM connector.
Voltage: 1.7 - 2.9 V

OK

CHECK AND REPLACE ECM

NG

5 CHECK HARNESS AND CONNECTOR (ECM-TURBO PRESSURE SENSOR)



- (a) Disconnect the turbo pressure sensor connector.
- (b) Disconnect the ECM E10 connector.
- (c) Check for open between the terminals VC of the turbo pressure sensor harness side connector and VC of the ECM E10 connector.

Resistance: 1 Ω or less

- (d) Check for open between the terminals PIM of the turbo pressure sensor harness side connector and PIM of the ECM E10 connector.

Resistance: 1 Ω or less

- (e) Check for open between the terminals E2 of the air turbo pressure sensor harness side connector and E2 of the ECM E10 connector.

Resistance: 1 Ω or less

- (f) Check for short between the terminals VC and PIM of the ECM E10 connector.

Resistance: 1 MΩ or more

- (g) Check for short between the terminals VC, PIM and E2 of the ECM E10 connector.

Resistance: 1 MΩ or more

NG

REPAIR OR REPLACE HARNESS AND CONNECTOR

OK

CHECK AND REPLACE ECM

6 CHECK THE CONNECTION OF VACUUM HOSE (TURBO PRESSURE SENSOR-VSV FOR TURBO PRESSURE SENSOR, AND VSV FOR TURBO PRESSURE SENSOR-INTAKE MANIFOLD)

NG

REPAIR OR REPLACE VACUUM HOSE

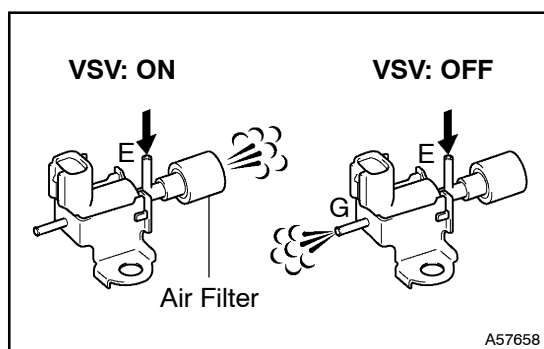
OK

7 INSPECT VACUUM SWITCHING VALVE ASSY NO.1 (See page 13-5)

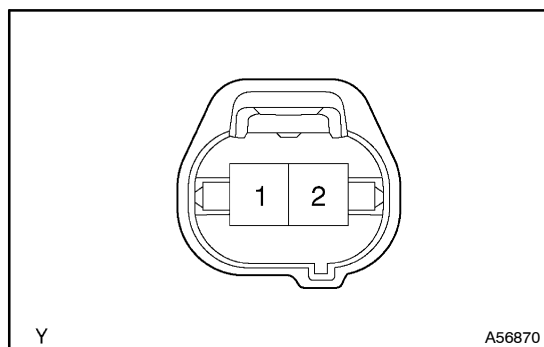
NG

REPLACE VACUUM SWITCHING VALVE ASSY NO.1

OK

8 CHECK OPERATION OF VSV(PURGE FLOW)

- Disconnect the vacuum hoses from the VSV.
- Turn the ignition switch ON.
- Check the operation of the VSV when it is operated by the hand-held tester.

VSV is ON:**Air from port E flows out through the air filter.****VSV is OFF:****Air from port E flows out through port G.****OK****CHECK AND REPLACE ECM****NG****9 CHECK HARNESS AND CONNECTOR(ECM-VSV FOR TURBO PRESSURE SENSOR,AND VSV FOR TURBO PRESSURE SENSOR EFI RELAY)**

- Disconnect the VSV connector.
- Disconnect the ECM E10 connector.
- Remove the EFI relay.
- Check for open between the terminals 2 of the VSV harness side connector and PA of the ECM E10 connector.

Resistance: 1 Ω or less

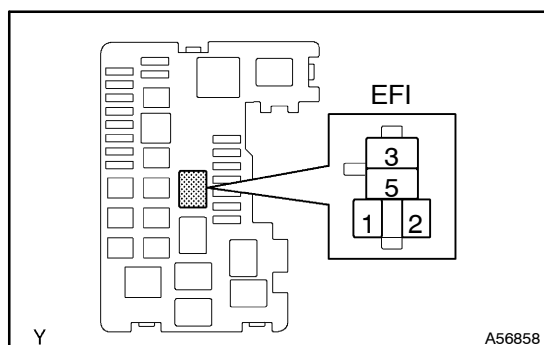
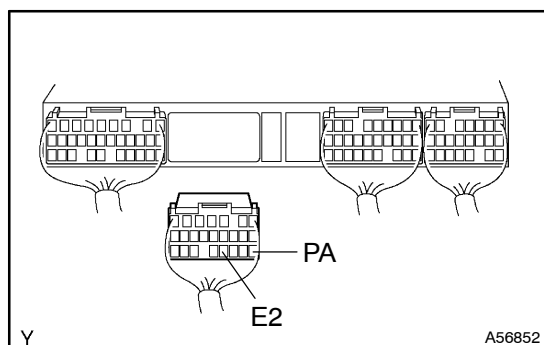
- Check for open between the terminals 1 of the VSV harness side connector and 3 of the EFI relay in the engine room R/B connector.

Resistance: 1 Ω or less

- Check for short between the terminals PA and E2 of the ECM E10 connector.

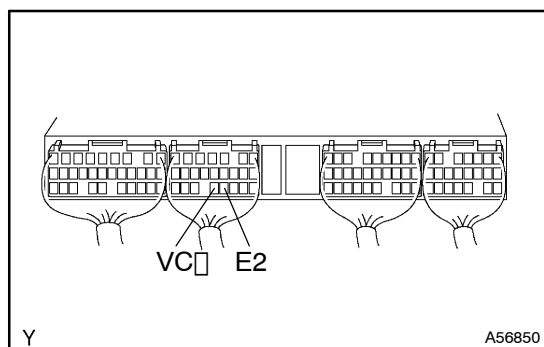
Resistance: 1 M Ω or more

- Check for short between the terminals 1 of the VSV and E2 of the ECM E10 connector.

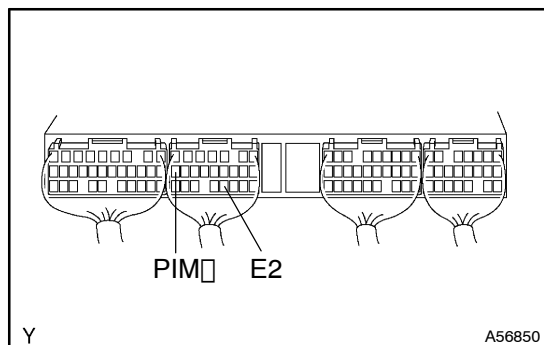
Resistance: 1 M Ω or more**NG****REPAIR OR REPLACE HARNESS AND CONNECTOR****OK****REPLACE VACUUM SWITCHING VALVE ASSY NO.1**

When not using hand-held tester:**1 INSPECT DIESEL TURBO TURBO PRESSURE SENSOR (See page 13-3)**

SST 09992-00242

NG**REPLACE
DIESEL TURBO TURBO PRESSURE SENSOR****OK****2 INSPECT ECM**

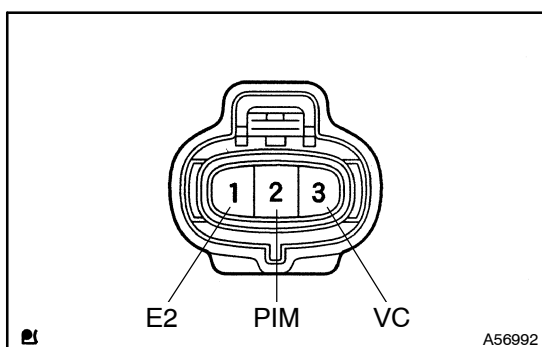
- (a) Turn the ignition switch ON.
 (b) Measure the voltage between terminals VC and E2 of the ECM connector.
Voltage: 4.5 – 5.5 V

NG**CHECK AND REPLACE ECM****OK****3 INSPECT ECM**

- (a) Turn the ignition switch ON.
 (b) Measure the voltage between terminals PIM and E2 of the ECM connector.
Voltage: 1.7 – 2.9 V

OK**CHECK AND REPLACE ECM****NG**

4 CHECK HARNESS AND CONNECTOR (ECM-TURBO PRESSURE SENSOR)



- (a) Disconnect the turbo pressure sensor connector.
- (b) Disconnect the ECM E10 connector.
- (c) Check for open between the terminals VC of the turbo pressure sensor harness side connector and VC of the ECM E10 connector.

Resistance: 1 Ω or less

- (d) Check for open between the terminals PIM of the turbo pressure sensor harness side connector and PIM of the ECM E10 connector.

Resistance: 1 Ω or less

- (e) Check for open between the terminals E2 of the air turbo pressure sensor harness side connector and E2 of the ECM E10 connector.

Resistance: 1 Ω or less

- (f) Check for short between the terminals VC and PIM of the ECM E10 connector.

Resistance: 1 M Ω or more

- (g) Check for short between the terminals VC, PIM and E2 of the ECM E10 connector.

Resistance: 1 M Ω or more

NG

REPAIR OR REPLACE HARNESS AND CONNECTOR

OK

5 CHECK THE CONNECTION OF VACUUM HOSE (TURBO PRESSURE SENSOR-VSV FOR TURBO PRESSURE SENSOR, AND VSV FOR TURBO PRESSURE SENSOR-INTAKE MANIFOLD)

NG

REPAIR OR REPLACE VACUUM HOSE

OK

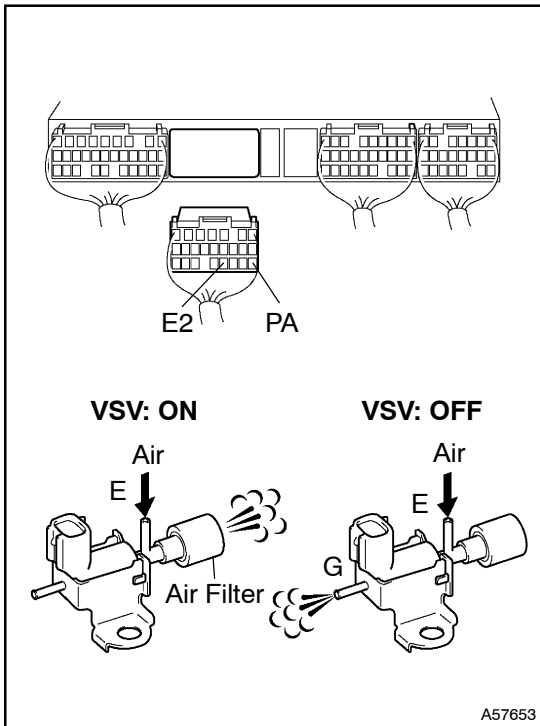
6 INSPECT VACUUM SWITCHING VALVE ASSY NO.1 (See Page 13-5)

NG

REPLACE VACUUM SWITCHING VALVE ASSY NO.1

OK

7 CHECK OPERATION OF VSV(PURGE FLOW)



- (a) Disconnect the ECM E10 connector.
- (b) Turn the ignition switch ON.
- (c) Check the VSV function.
 - (1) Connect between terminal PA and E2 of the ECM connector. (VSV is ON)

VSV is ON:

Air from port E flows out through the air filter.

- (2) Disconnect between terminal PA and E2 of the ECM connector. (VSV is OFF)

VSV is OFF:

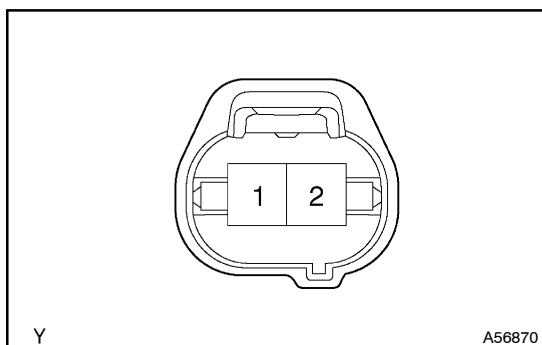
Air from port E flows out through port G.

OK

CHECK AND REPLACE ECM

NG

8 CHECK HARNESS AND CONNECTOR(ECM-VSV FOR TURBO PRESSURE SENSOR,AND FOR TURBO PRESSURE SENSOR-EFI RELAY)



- (a) Disconnect the VSV connector.
- (b) Disconnect the ECM E10 connector.
- (c) Remove the EFI relay.
- (d) Check for open between the terminals 2 of the VSV harness side connector and PA of the ECM E10 connector.

Resistance: 1 Ω or less

- (e) Check for open between the terminals 1 of the VSV harness side connector and 3 of the EFI relay in the engine room R/B connector.

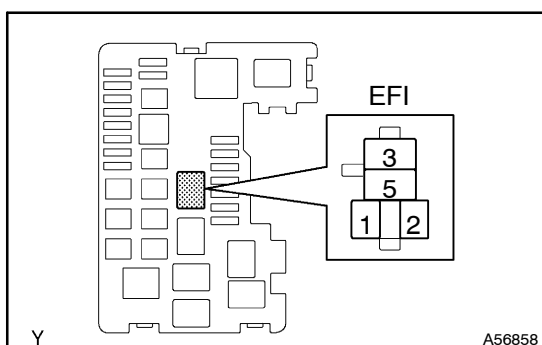
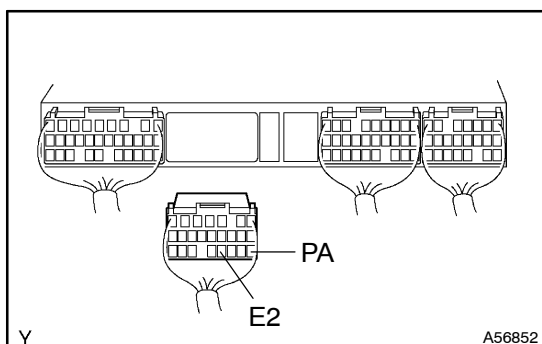
Resistance: 1 Ω or less

- (f) Check for short between the terminals PA and E2 of the ECM E10 connector.

Resistance: 1 M Ω or more

- (g) Check for short between the terminals 1 of the VSV and E2 of the ECM E10 connector.

Resistance: 1 M Ω or more



NG

REPAIR OR REPLACE HARNESS AND CONNECTOR

OK

REPLACE VACUUM SWITCHING VALVE ASSY NO.1