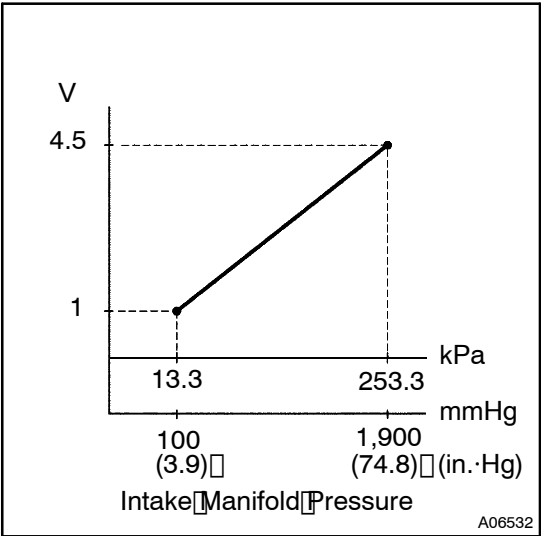


DTC	P0105	MANIFOLD ABSOLUTE PRESSURE/BAROMETRIC PRESSURE CIRCUIT
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DTC	P2226	BAROMETRIC PRESSURE CIRCUIT
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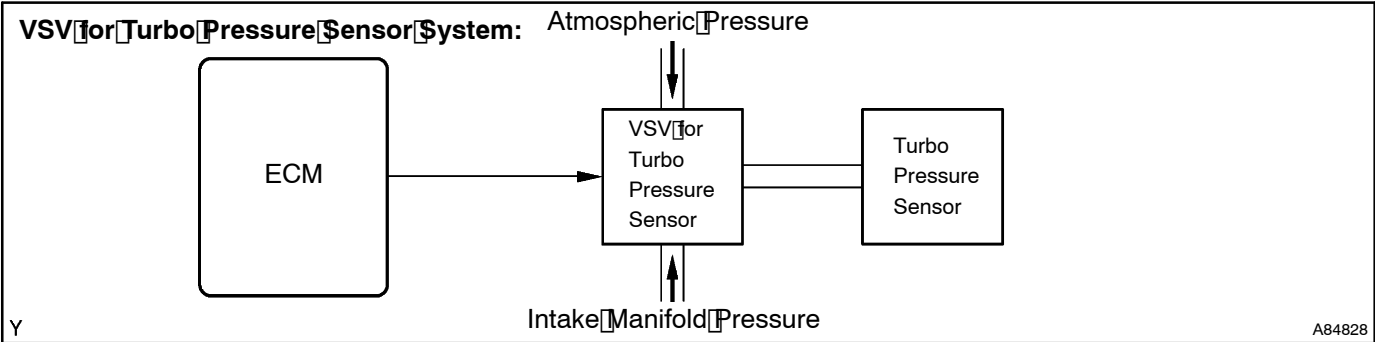
HINT:
For more information on the turbo pressure sensor, see page 05-432.

CIRCUIT DESCRIPTION



The turbo pressure sensor is connected to the intake manifold. The ECM calculates the intake manifold pressure from the voltage that it detects from the sensor. The ECM uses the intake manifold pressure signal for correction of injection volume control and injection timing control. Atmospheric and intake manifold pressures can be monitored by operating the VSV for turbo pressure sensor. The turbo pressure sensor monitors both atmospheric pressure and intake manifold pressure and transmits the output voltage to the ECM. The ECM uses this atmospheric pressure value for correcting the injection volume.

HINT:
The ECM measures the atmospheric pressure by turning the VSV for turbo pressure sensor ON before and after the engine is started. While the VSV for turbo pressure sensor is off, the ECM monitors the intake manifold pressure.



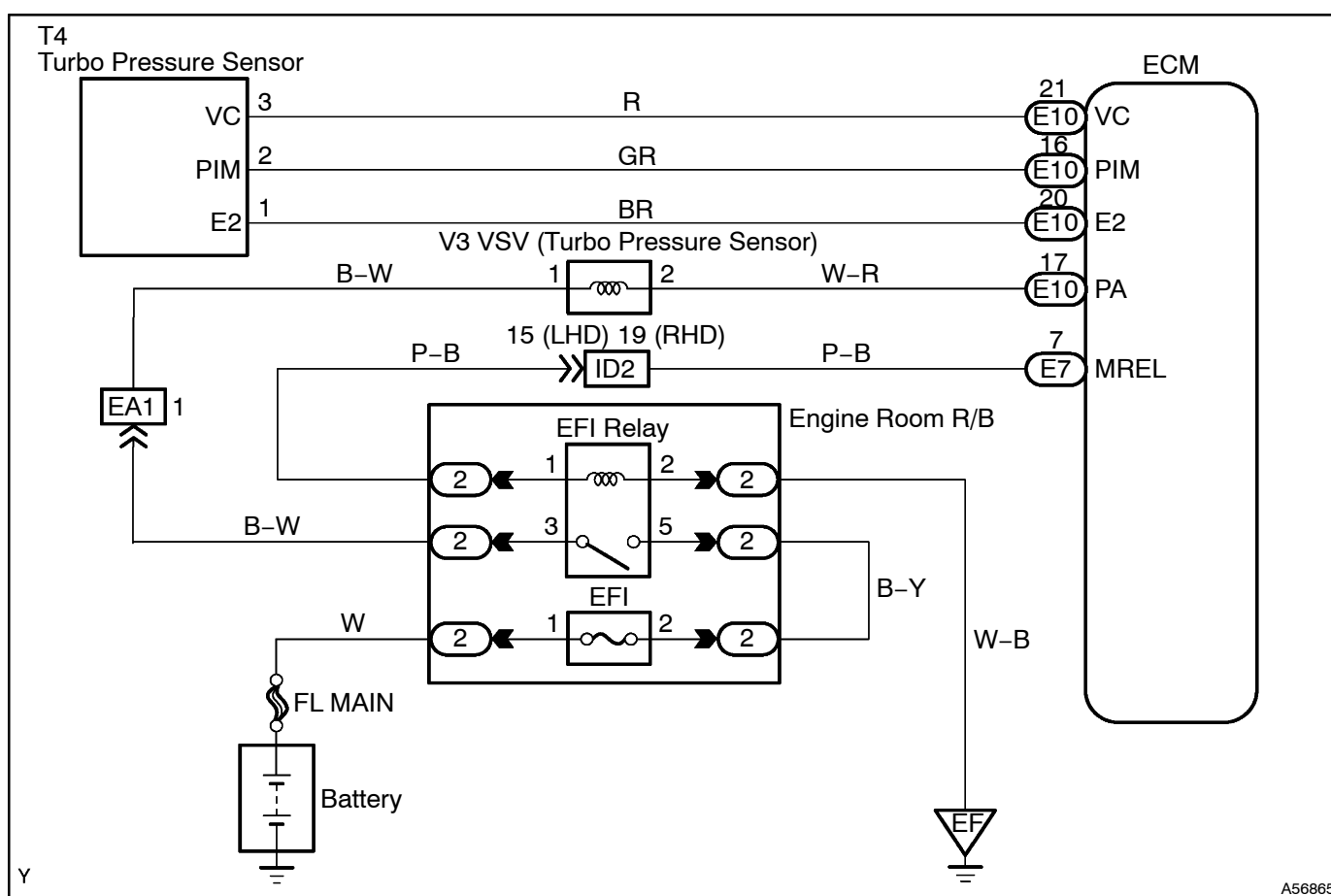
DTC No.	DTC Detection Condition	Trouble Area
P0105	Open or short in turbo pressure sensor circuit for 2 seconds or more	<ul style="list-style-type: none"> • Open or short in turbo pressure sensor circuit • Turbo pressure sensor • Open or short in VSV for turbo pressure sensor circuit • VSV for turbo pressure sensor • Vacuum hose is disconnected or blocked • ECM
	Turbo pressure sensor output voltage is 0.2 V or less, or 4.5 V or more (1 trip detection logic)	
P2226	Pressure detected by VSV for turbo pressure sensor does not vary when switching VSV for turbo pressure sensor (2 trip detection logic)	<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 is disconnected or blocked • ECM

HINT:

When DTC P0105 is detected, check the intake air temperature by selecting Powertrain / Engine and ECT / Data List / PIM on the intelligent tester II.

Reference:

Intake Manifold Pressure (kPa)	Malfunction
Approximately 0	<ul style="list-style-type: none"> • Short in PIM circuit
250 or more	<ul style="list-style-type: none"> • Open or short in VC circuit • Open in PIM circuit • Open in E2 circuit

WIRING DIAGRAM

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INSPECTION PROCEDURE

HINT:

- If different DTCs related to different systems that have terminal E2 as the ground terminal are output simultaneously, terminal E2 may have an open circuit.
- Read freeze frame data using the intelligent tester II. Freeze frame data record the engine condition when malfunctions are detected. When troubleshooting, freeze frame data can help determine if the vehicle was moving or stationary, if the engine was warmed up or not, and other data from the time the malfunction occurred.

1 READ OUTPUT DTC

- Connect the intelligent tester II to the DLC3.
- Turn the ignition switch to ON and turn the intelligent tester II ON.
- Select the following menu items: Powertrain / Engine and ECT / DTC.
- Read DTCs.

Result:

Display (DTC Output)	Proceed To
P0105, or P0105 and P2226	A
P2226	B

B

Go to step 6

A

2 READ VALUE OF INTELLIGENT TESTER II(INTAKE MANIFOLD PRESSURE)

- Connect the intelligent tester II to the DLC3.
- Turn the ignition switch to ON and turn the intelligent tester II ON.
- Select the following menu items: Powertrain / Engine and ECT / Data List / PIM.
- Read the value.

Standard: Same value as the actual atmospheric pressure.

OK

Go to step 6

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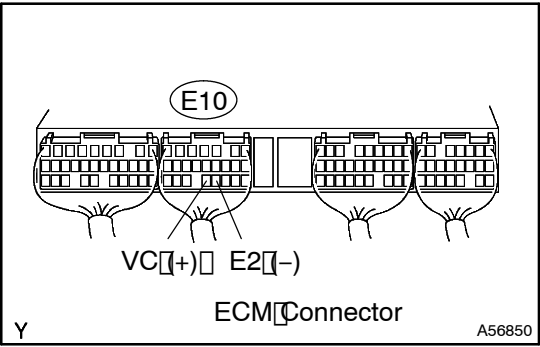
3 INSPECT DIESEL TURBO TURBO PRESSURE SENSOR (See page 13-3 of Pub. No. RM864E AVENSIS VERSO/ PICNIC REPAIR MANUAL)

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REPLACE DIESEL TURBO TURBO PRESSURE SENSOR

OK

4 INSPECT ECM (VC VOLTAGE)



- (a) Turn the ignition switch to ON.
(b) Measure the voltage between the specified terminals of the E10 ECM connector.

Standard:

Tester Connection	Specified Condition
VC (E10-21) - E2 (E10-20)	4.5 to 5.5 V

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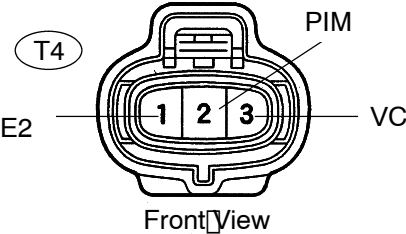
REPLACE ECM (See page 10-30)

OK

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

Wire Harness Side:

Turbo Pressure Sensor Connector



- (a) Disconnect the T4 turbo pressure sensor connector.
(b) Disconnect the E10 ECM connector.
(c) Check the resistance.

Standard (Check for open):

Tester Connection	Specified Condition
PIM (T4-2) - PIM (E10-16)	Below 1 Ω
VC (T4-3) - VC (E10-21)	
E2 (T4-1) - E2 (E10-20)	

Standard (Check for short):

Tester Connection	Specified Condition
PIM (T4-2) or PIM (E10-16) - Body ground	10 k Ω or higher
VC (T4-3) or VC (E10-21) - Body ground	
E2 (T4-1) or E2 (E10-20) - Body ground	

- (d) Reconnect the ECM connector.
(e) Reconnect the turbo pressure sensor connector.

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REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE DIESEL TURBO TURBO PRESSURE SENSOR

6 CHECK CONNECTION OF VACUUM HOSE (TURBO PRESSURE SENSOR - INTAKE MANIFOLD)

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REPAIR OR REPLACE VACUUM HOSE

OK

7 INSPECT VSV FOR TURBO PRESSURE SENSOR (See page 13-3 of Pub. No. RM864E AVENSIS VERSO/ PICNIC REPAIR MANUAL)

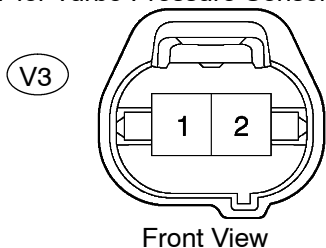
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REPLACE VSV FOR TURBO PRESSURE SENSOR

OK

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

Wire Harness Side:
VSV for Turbo Pressure Sensor Connector



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- Disconnect the V3 VSV for turbo pressure sensor connector.
- Disconnect the E10 ECM connector.
- Remove the EFI relay from the engine room R/B.
- Check the resistance.

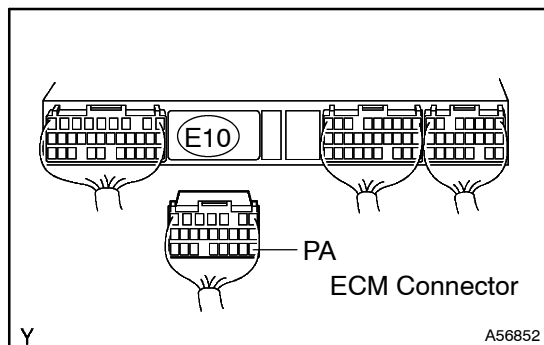
Standard (Check for open):

Tester Connection	Specified Condition
VSV for turbo pressure sensor (V3-1) - EFI relay (3)	Below 1 Ω
VSV for turbo pressure sensor (V3-2) - PA (E10-17)	

Standard (Check for short):

Tester Connection	Specified Condition
VSV for turbo pressure sensor (V3-1) or EFI relay (3) - Body ground	10 k Ω or higher
VSV for turbo pressure sensor (V3-2) or PA (E10-17) - Body ground	

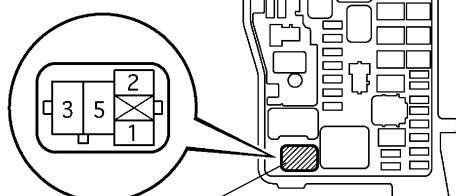
- Reconnect the ECM connector.
- Reconnect the VSV for turbo pressure sensor connector.
- Reinstall the EFI relay.



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Engine Room R/B:



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REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE VSV FOR TURBO PRESSURE SENSOR