

DTC	P0234	TURBO/SUPER CHARGER OVERBOOST CONDITION
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DTC	P0299	TURBO/SUPER CHARGER UNDERBOOST
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DTC	P1251	TURBO/SUPER CHARGER OVERBOOST CONDITION (TOO HIGH)
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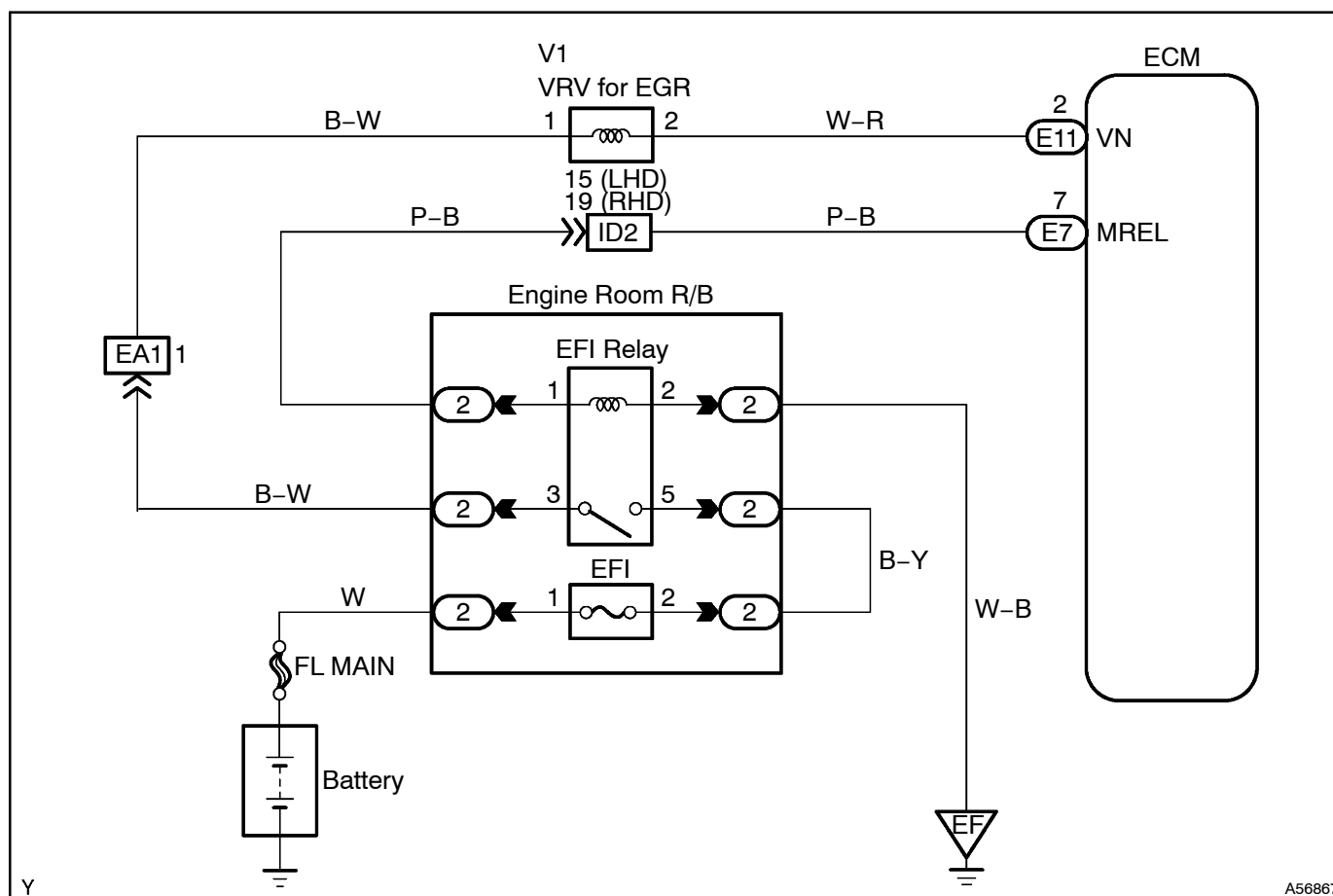
CIRCUIT DESCRIPTION

DTC No.	DTC Detection Condition	Trouble Area
P0234	When the condition that the turbocharger pressure exceeds the standard value for 0.5 seconds or more (1 trip detection logic)	<ul style="list-style-type: none">•VRV•Open or short in VRV circuit•Turbocharger•Vacuum hose•EGR valve•ECM
P0299	Actual turbocharger pressure is deviated 20 kPa (150 mmHg, 5.9 in.Hg) or more from the simulated target pressure for 60 seconds (1 trip detection logic)	
P1251		

HINT:

P0299 is detected by 2 trip detection logic.

WIRING DIAGRAM



INSPECTION PROCEDURE

HINT:

Read freeze frame data using the intelligent tester. 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 CHECK OTHER DTC OUTPUT (IN ADDITION TO DTC P0234, P0299 AND/OR P1251)

- (a) Connect the intelligent tester to the DLC3.
- (b) Turn the ignition switch to ON and turn the intelligent tester ON.
- (c) Select the following menu items: Powertrain / Engine and ECT / DTC.
- (d) Read DTCs.

Result:

Display (DTC Output)	Proceed To
P0234, P0299 and/or P1251	A
P0234, P0299 and/or P1251 and other DTCs	B

B

GO TO RELEVANT DTC CHART
(See page 05-458)

A

2 CHECK CONNECTION OF VACUUM HOSES

HINT:

Check the vacuum hose connection of turbocharger system.

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REPAIR OR REPLACE VACUUM HOSES

OK

3 CHECK VACUUM HOSES (CHECK VACUUM BETWEEN TURBOCHARGER – VRV FOR TURBO CHARGER)

- (a) Using a three-way connector, connect a vacuum gauge to the hoses between the E–VRV and turbo-charger.
- (b) Warm up the engine coolant temperature to above 75°C (167°F).
- (c) Check the vacuum at the engine speed of 900 rpm.

Result:

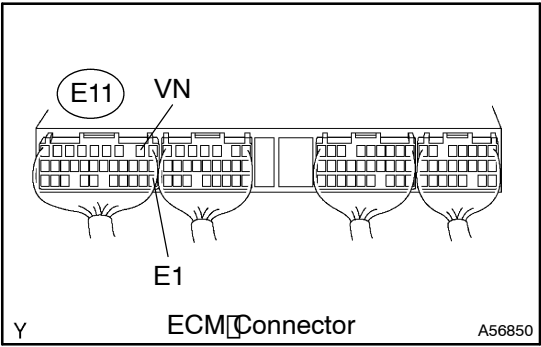
Proceed To	Vacuum
A	0 kPa (0 mmHg, 0 in.Hg) to 50 kPa (375 mmHg, 14.8 in.Hg)
B	Above 50 kPa (375 mmHg, 14.8 in.Hg)

B

Go to step 8

A

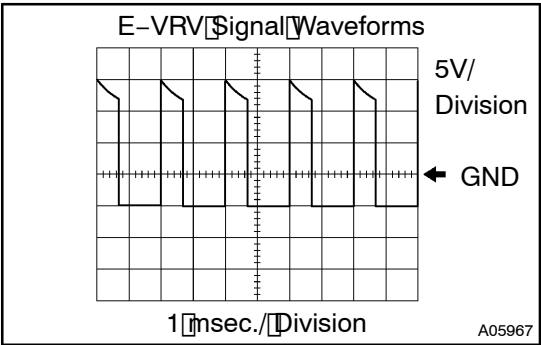
4 INSPECT ECM(VN VOLTAGE)



- (a) Inspect using the oscilloscope.
(b) During idling, check the waveform between the specified terminals of the E11 connector.

Standard:

Tester Connection	Specified Condition
VN(E11-2) - E1(E11-22)	Correct waveform is as shown



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REPLACE ECM (See page 10-30)

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5 INSPECT VACUUM REGULATING VALVE ASSY(OPERATION)
(See page 12-7 of Pub. No. RM864E AVENSIS VERSO/ PICNIC REPAIR MANUAL)

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REPLACE VACUUM REGULATING VALVE ASSY

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6 INSPECT VACUUM REGULATING VALVE ASSY(RESISTANCE)
(See page 12-7 of Pub. No. RM864E AVENSIS VERSO/ PICNIC REPAIR MANUAL)

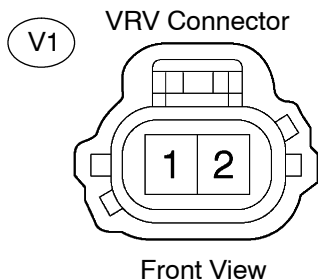
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REPLACE VACUUM REGULATING VALVE ASSY

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7 CHECK HARNESS AND CONNECTOR(VRV - ECM AND VRV - EFI RELAY)

Wire Harness Side:



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- Disconnect the V1 VRV connector.
- Disconnect the E11 ECM connector.
- Remove the EFI relay from the engine room R/B.
- Check the resistance.

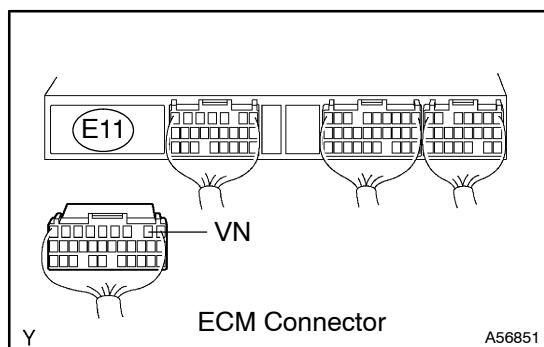
Standard (Check for open):

Tester Connection	Specified Condition
VN (E11-2) - (V1-2)	Below 1 Ω
EFI relay (3) - (V1-1)	

Standard (Check for short):

Tester Connection	Specified Condition
VN (E11-10) or (V1-2) - Body ground	10 k Ω or higher
EFI relay (3) or (V1-1) - Body ground	10 k Ω or higher

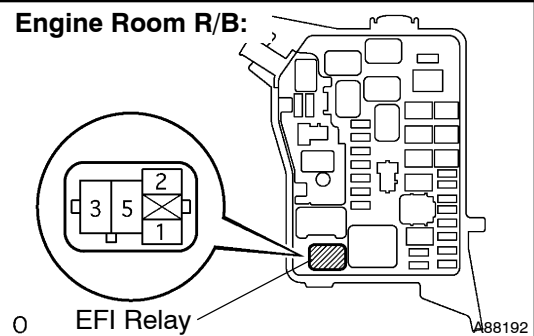
- Reconnect the VRV connector.
- Reconnect the ECM connector.
- Reinstall the EFI relay.



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Engine Room R/B:



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REPAIR OR REPLACE HARNESS AND CONNECTOR

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8 INSPECT TURBOCHARGER SUB-ASSY (See page 13-3 of Pub. No. RM864E AVENSIS VERSO/ PICNIC REPAIR MANUAL)

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REPLACE TURBOCHARGER SUB-ASSY
(See page 13-6 of Pub. No. RM864E AVENSIS VERSO/ PICNIC REPAIR MANUAL)

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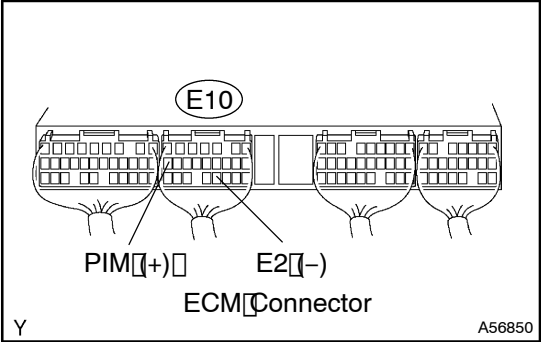
9 **INSPECT EGR VALVE ASSY**
(See page 12-6 of Pub. No. RM864E AVENSIS/VERSO/PICNIC REPAIR MANUAL)

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REPLACE EGR VALVE ASSY
(See page 14-91 of Pub. No. RM864E AVENSIS/VERSO/PICNIC REPAIR MANUAL)

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10 **CHECK AND REPLACE MANIFOLD ABSOLUTE SENSOR**



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

Standard:

Tester Connection	Condition	Specified Condition
PIM(E10-18) - E2(E10-20)	Applied negative pressure of 40 kPa (300 mmHg, 11.8 in.Hg)	1.4 to 2.0 V
PIM(E10-18) - E2(E10-20)	Same as atmospheric pressure	2.0 to 2.6 V
PIM(E10-18) - E2(E10-20)	Applied positive pressure of 69 kPa (518 mmHg, 20.4 in.Hg)	3.0 to 3.6 V

HINT:

Even if the voltage output from the manifold absolute sensor is within the standard level, there may be a problem in the sensor by age deterioration.

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REPLACE MANIFOLD ABSOLUTE PRESSURE SENSOR

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REPLACE ECM (See page 10-30)