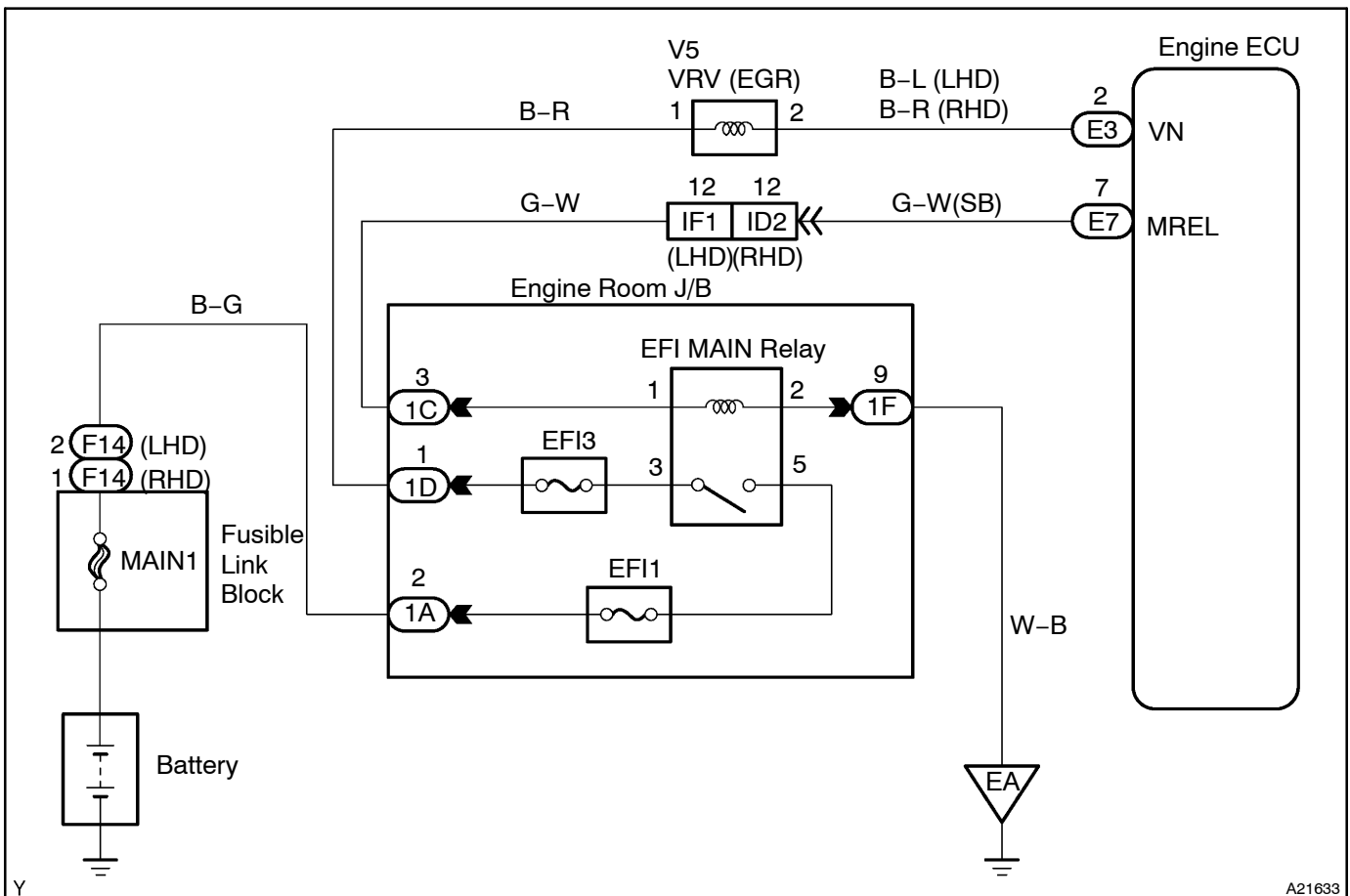


DTC	P0234	Turbo/Super Charger Overboost Condition
DTC	P0299	Turbo/Super Charger Underboost
DTC	P1251	Turbo/Super Charger Overboost Condition (Too High)

CIRCUIT DESCRIPTION

DTC No.	DTC Detection Condition	Trouble Area
P0234 P0299 P1251	When turbocharger pressure exceeds the standard value for 0.5 second or more (1 trip detection logic) Actual turbocharger pressure is deviated 20 kPa (0.2 kgf/cm ² , 2.9 psi) or more from the simulated target pressure for 60 seconds	<ul style="list-style-type: none"> • VRV • Open or short in VRV circuit • Turbocharger • Vacuum hose • EGR valve • Engine ECU

WIRING DIAGRAM



INSPECTION PROCEDURE

HINT:

Read freeze frame data using the hand-held tester. Freeze frame data records the engine conditions when a malfunction is detected. When troubleshooting, freeze frame data can help determine if the vehicle was running or stopped, if the engine was warmed up or not, and other data from the time the malfunction occurred.

1 Check other DTCs output (in addition to DTC P0234, P0299 and/or P1251).

(a) Read the DTCs using the hand-held tester.

Result:

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

HINT:

If any other codes besides "P0234, P0299 and/or P1251" are output, perform troubleshooting for those DTCs first.

B Go to relevant DTC chart (See page DI-9).

A

2 Check connection of vacuum hose.

NG Repair or replace.

OK

3 Check vacuum between turbocharger and VRV for intake pressure change at 900 rpm.

PREPARATION:

- Using a three-way connector, connect a vacuum gauge to the hose between the VRV and turbocharger.
- Warm up the engine coolant temperature to more than 30°C (116°F).

CHECK:

Check the vacuum at 900 rpm.

RESULT:

Type	Vacuum
I	0 kPa (0 mmHg, in. Hg) to 50 kPa (375 mmHg, 4.8 in. Hg)
II	Above 50 kPa (375 mmHg, 4.8 in. Hg)

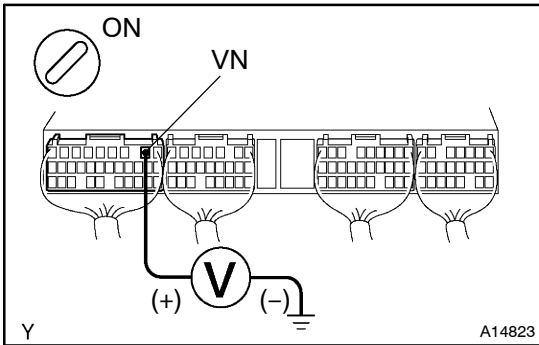
Type II

Go to step 8.

Type I

4

Check voltage between terminal VN of engine ECU connector and body ground.



PREPARATION:

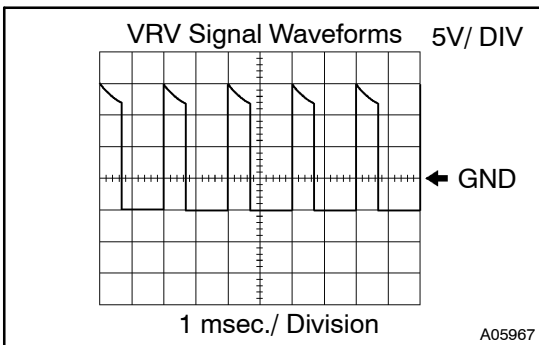
- (a) Remove the glove compartment door.
- (b) Turn the ignition switch to ON.

CHECK:

Measure the voltage between terminal VN of the engine ECU connector and body ground.

OK:

Voltage: 9 to 14 V



Reference: INSPECTION USING OSCILLOSCOPE

During idling, check the waveform between terminals VN and E1 of engine ECU connector.

HINT:

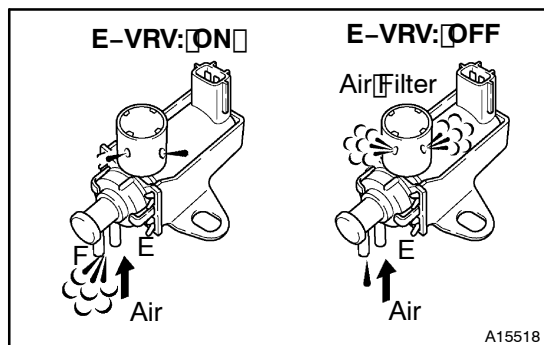
The correct waveform is as shown.

OK

Go to step 6.

NG

5 Check operation of E-VRV for intake pressure change.



PREPARATION:

- Disconnect the vacuum hoses from the E-VRV.
- Connect the hand-held tester to the DLC3.
- Turn the ignition switch to ON and the turn hand-held tester ON.
- Select the ACTIVE TEST mode on the hand-held tester.

CHECK:

Check the operation of the E-VRV when it is operated using the hand-held tester.

OK:

E-VRV ON:

Air from port E flows out through port F.

E-VRV OFF:

Air from port E flows out through air filter.

NG

Replace VRV.

OK

6 Check VRV (See page ED-8 of Pub. No. RM856E 1CD-FTV ENGINE).

NG

Replace VRV.

OK

7 Check for open and short in harness and connector between VRV and engine ECU, and VRV and EFI main relay (Marked: EFI) (See page IN-20).

NG

Repair or replace harness or connector.

OK

8	Check turbocharger assy (See page TC-4 of Pub. No. RM856E 1CD-FTV ENGINE).
---	--

NG

Replace turbocharger (See page TC-5 of Pub. No. RM856E 1CD-FTV ENGINE).

OK

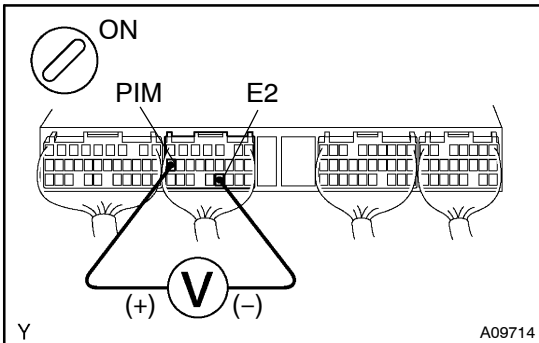
9	Check EGR valve (See page EC-4 of Pub. No. RM856E 1CD-FTV ENGINE).
---	---

NG

Replace EGR valve (See page EC-3 of Pub. No. RM856E 1CD-FTV ENGINE).

OK

10	Check voltage between terminals PIM and E2 of engine ECU connector.
----	--



PREPARATION:

- (a) Remove the glove compartment door.
- (b) Turn the ignition switch to ON.

CHECK:

Measure the voltage between terminals PIM and E2 of the engine ECU connector.

OK:

Applied negative pressure of 40 kPa

(300 mmHg, 11.8 in.Hg):

1.4 to 2.0 V

Same as atmospheric pressure:

2.0 to 2.6V

Applied positive pressure of 69 kPa

(518 mmHg, 20.4 in.Hg):

3.0 to 3.6V

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.

NG

Replace turbo pressure sensor (See page TC-14 of Pub. No. RM856E 1CD-FTV ENGINE).

OK

Replace engine ECU (See page ED-12 of Pub. No. RM856E 1CD-FTV ENGINE).