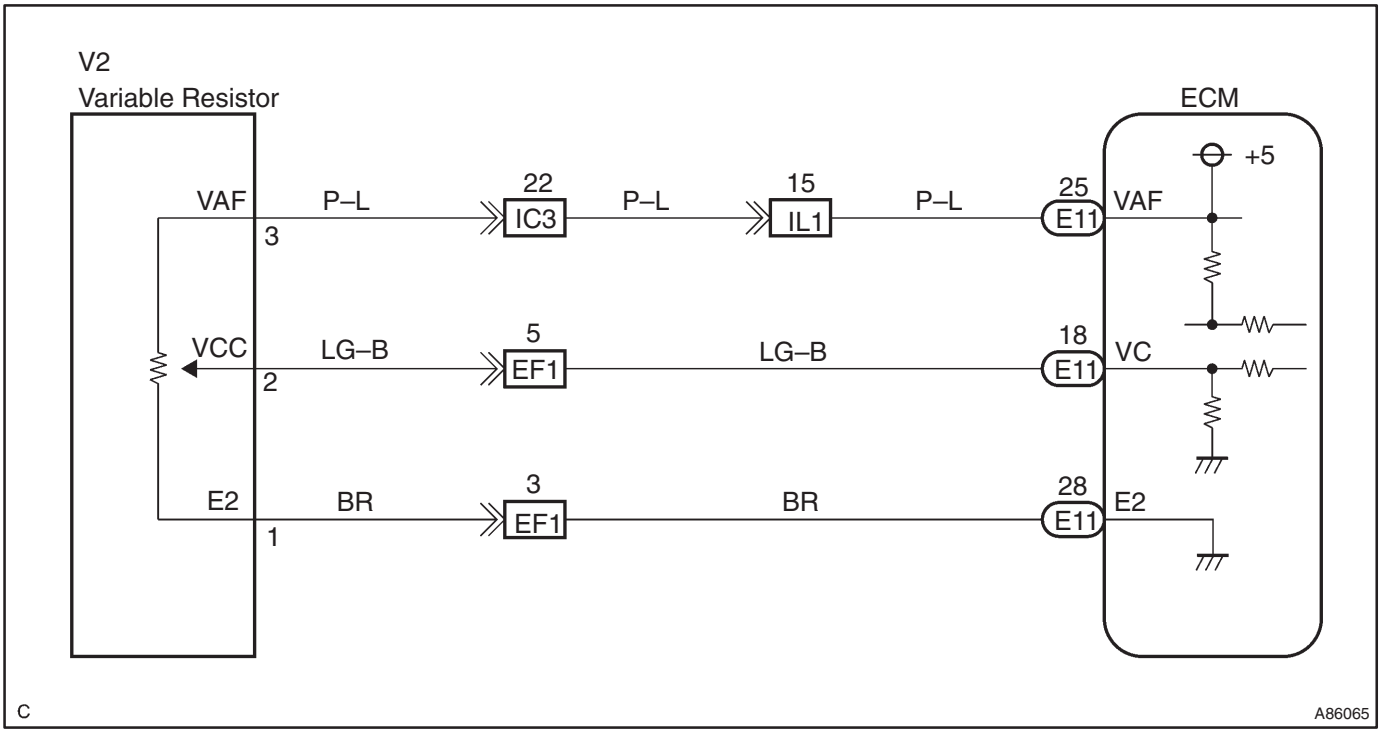
VARIABLE RESISTOR CIRCUIT

CIRCUIT DESCRIPTION

This resistor is used to change the air–fuel ratio of the air–fuel mixture.
The idle mixture is adjusted using this resistor.
Turning the idle mixture adjusting screw clockwise moves the contacts inside the resistor, raising the terminal VAF voltage. Conversely, turning the screw counterclockwise lowers the terminal VAF voltage.
When the terminal VAF voltage rises, the ECM increases the injection volume slightly, marking the air–fuel mixture a little richer.

WIRING DIAGRAM

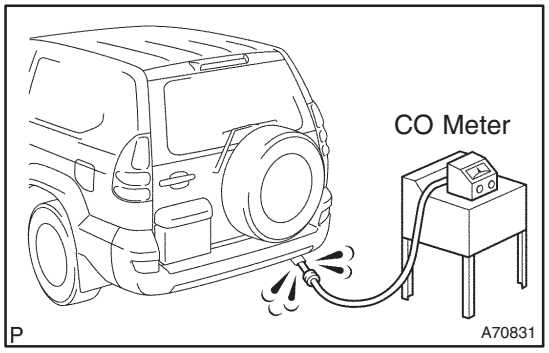


INSPECTION PROCEDURE

NOTICE:

Always use a CO meter when adjusting the idle mixture. If a CO meter is not available, DO NOT ATTEMPT TO ADJUST IDLE MIXTURE.

1	CHECK CO/HC



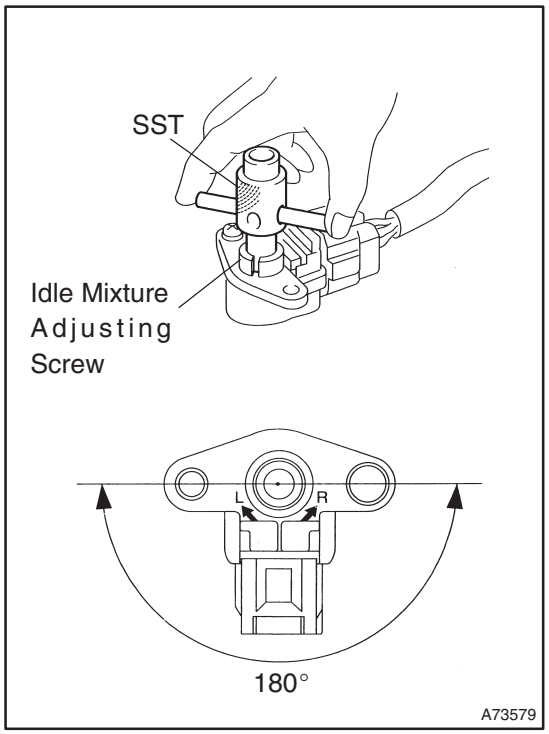
(a) Warm up the engine to normal operating temperature.
(b) Switch all accessories OFF.
(c) Connect all vacuum lines properly.
(d) Connect the tachometer.
(e) Check ignition timing correctly.
(f) Check idle speed correctly.
(g) Check that the CO meter is properly calibrated.
(h) Race the engine at 2,500 rpm about 2 minutes.
(i) Insert a tester probe at least 40 cm (1.3 ft) into the tailpipe.
(j) Measure the concentration with 1 – 3 minutes after racing the engine to allow the concentration to stabilize.
Idle CO concentration: 1.5 ± 0.5%

OK	CHECK FOR PROBLEM SYMPTOMS TABLE (See page 05–8)

NG

2	ADJUST CO CONCENTRATION

SST 09243–00020



(a) Put the vehicle in the same condition as step 1 this chart.
(b) Using SST, adjust the idle mixture by turning the idle mixture adjusting screw in the variable resistor.
Result:

Result	Proceed
Connection: 1.5 ± 0.5%	B
Change in CO connection	C
No change in CO connection	A

HINT:

- Always check idle speed after turning the idle mixture adjusting screw. If it is incorrect, readjust idle speed.
- The idle mixture adjusting screw can be turned within 180 degrees. Do not turn this screw more than the specified.

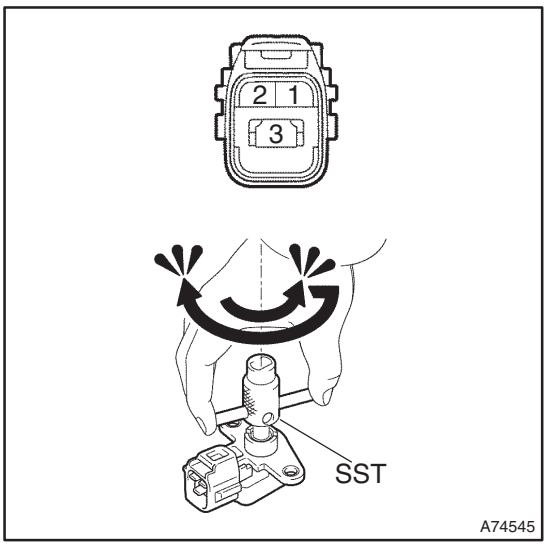
B	ADJUSTMENT COMPLETE

C	CHECK CO/HC (See page 14–1)

A

3 INSPECT VARIABLE RESISTOR

SST 09243–00020



(a) Measure the resistance according to the value(s) in the table below.

Resistance:

Tester Connection	Specified condition
1 – 2	3.5 to 6.5 Ω

(b) Measure the resistance according to the value(s) in the table below, when turning the idle mixture adjusting screw fully clockwise and counterclockwise using SST.

Resistance:

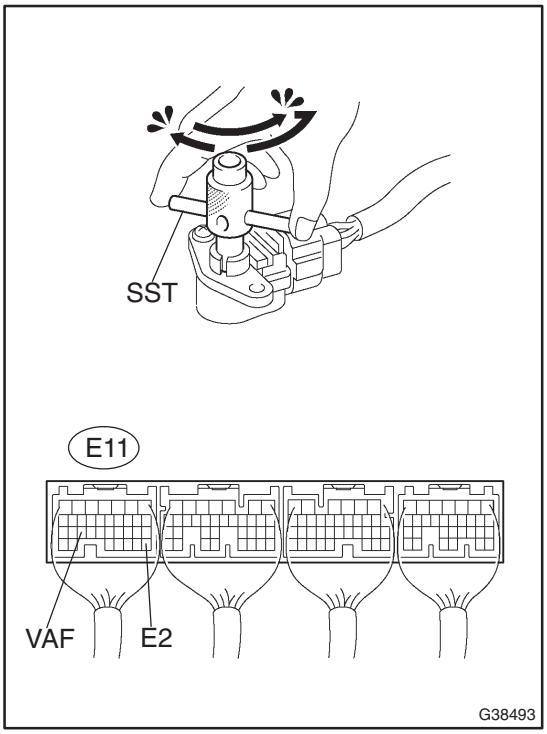
Tester Connection	Specified condition
2 – 3	Change from about 5 kΩ to 0 kΩ accordingly

NG → **REPLACE VARIABLE RESISTOR**

OK

4 CHECK ECM(VAF VOLTAGE)

SST 09243–00020



(a) Turn the ignition switch ON.

(b) Measure the voltage according to the value(s) in the table below ECM connector while slowly turning the idle mixture adjusting screw first fully counterclockwise and then fully clockwise, using SST.

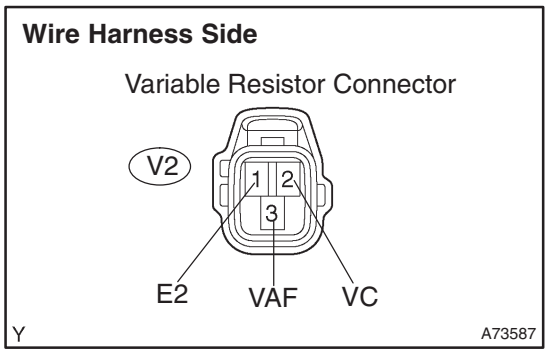
Voltage:

Tester Connection	Specified condition
VAF (E11–25) – E2 (E11–28)	Voltage changes smoothly from 0 V to about 5 V, i.e. does not suddenly jump up to 5 V down to 0 V

OK → **REPLACE ECM (See page 10–12)**

NG

5 CHECK HARNESS AND CONNECTOR(VARIABLE RESISTOR – ECM)



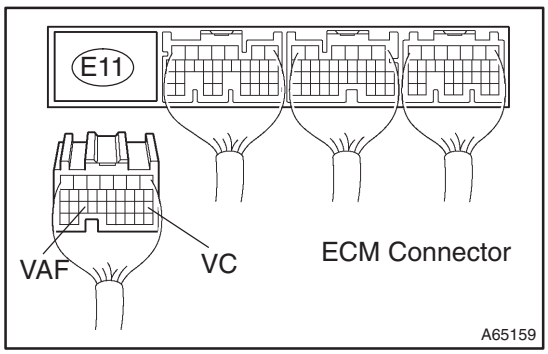
(a) Disconnect the V2 variable resistor connector.
(b) Disconnect the E11 ECM connector.
(c) Measure the resistance according to the value(s) in the table below.

Standard(check for open):

Tester connection	Specified condition
VC (V2–2) – VC (E11–18)	Below 1 Ω
VAF (V2–3) – VAF (E11–25)	Below 1 Ω
E2 (V2–1) – E2 (E11–28)	Below 1 Ω

Standard(check for short):

Tester connection	Specified condition
VC (V2–2) or VC (E11–18) – Body ground	10 kΩ or higher
VAF (V2–3) or VAF (E11–25) – Body ground	10 kΩ or higher



NG → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK

REPLACE ECM (See page 10–12)