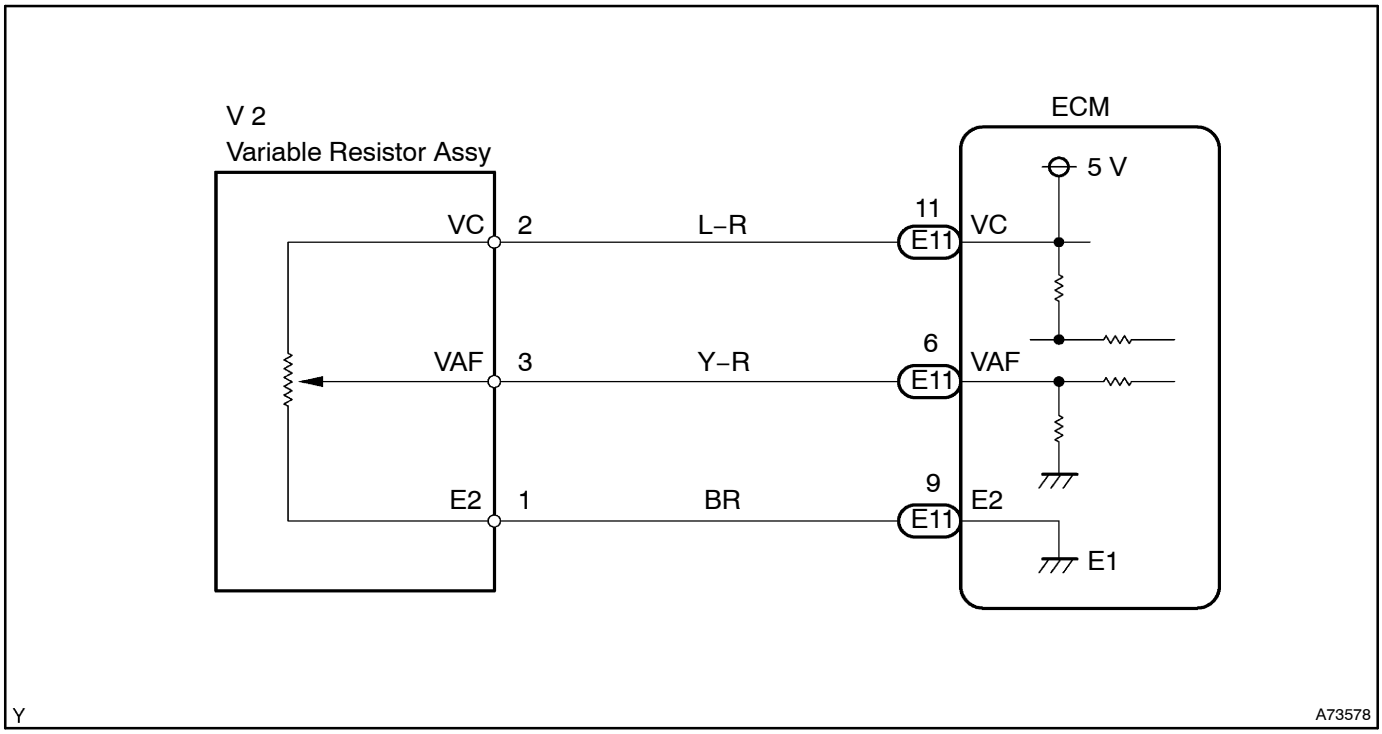
VARIABLE RESISTOR CIRCUIT

CIRCUIT DESCRIPTION

This resistor is used 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

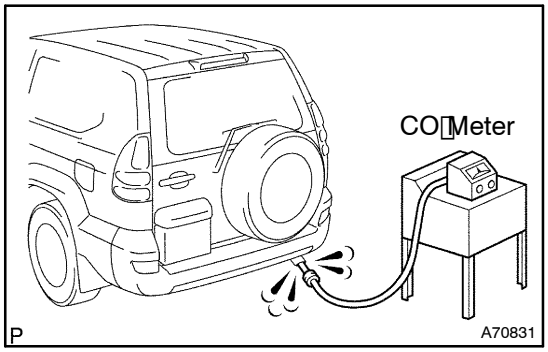


INSPECTION PROCEDURE

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



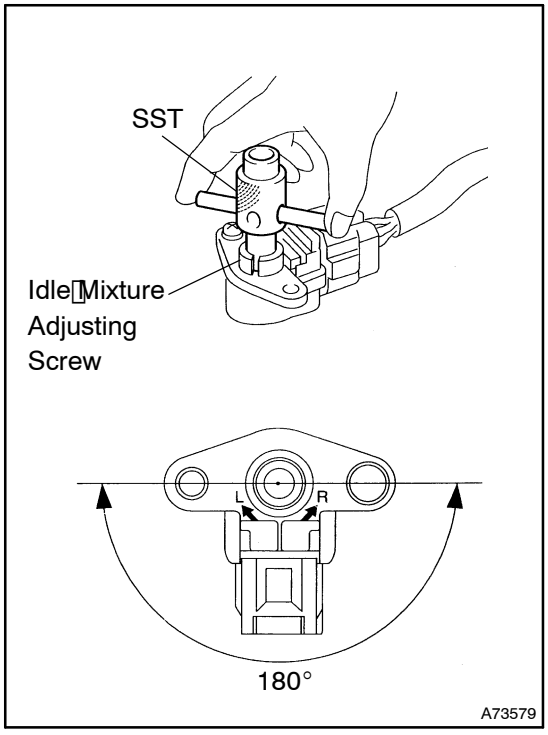
(a) Warm up the engine to normal operating temperature.
(b) All accessories switched OFF.
(c) All vacuum lines properly connected.
(d) Connect the tachometer.
(e) Ignition timing check correctly.
(f) Idle speed check correctly.
(g) Check that the CO meter is properly calibrated.
(h) Race the engine at 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 05–15)**

NG

2 ADJUST CO CONCENTRATION

SST 09243–00020



(a) Same condition as step 1 this chart.
(b) Using SST, adjusting 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.
- Adjustable range of the idle mixture adjust to turn this screw is 180 degrees. Do not turn this screw more than it.

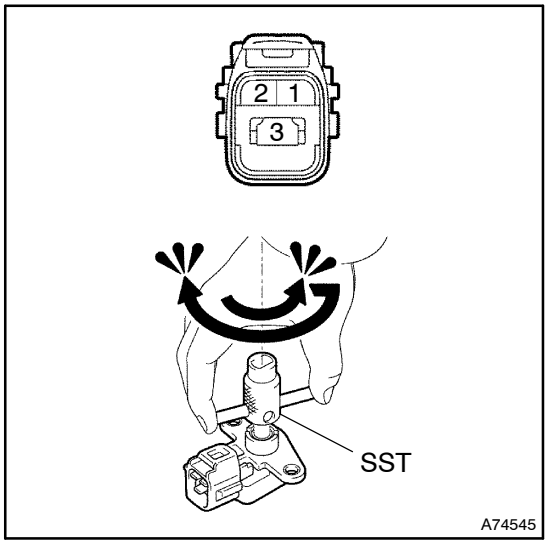
B → **ADJUSTMENT COMPLETE**

C → **CHECK CO/HC (See page 14–1)**

A

3 INSPECT VARIABLE RESISTOR

SST 09243–00020



(a) Measure the resistance between the terminals.

Resistance:

Symbols (Terminal No.)	Specified condition
1 ⇔ 2	3.5 – 6.5 Ω

(b) Measure the resistance between the terminals 2 and 3 when turning the idle mixture adjusting screw fully clockwise and counterclockwise using SST.

Resistance:

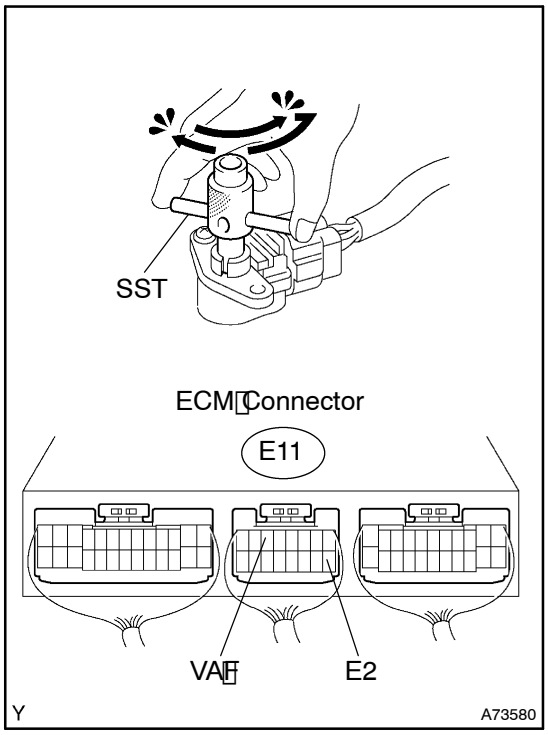
Symbols (Terminal No.)	Specified condition
2 ⇔ 3	Change from about 5 kΩ to 0 kΩ accordingly

NG → **REPLACE VARIABLE RESISTOR**

OK

4 CHECK ECM (VAF VOLTAGE)

SST 09243–00020



(a) Turn the ignition switch ON.

(b) Measure the voltage between the terminals of the E11 ECM connector while slowly turning the idle mixture adjusting screw first fully counterclockwise and then fully clockwise, using SST.

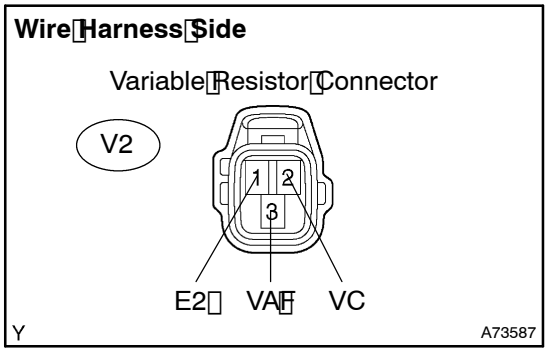
Voltage:

Symbols (Terminal No.)	Specified condition
VAF (E11–6) ⇔ E2 (E11–9)	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 → **CHECK AND REPLACE ECM**
(See page 01–36)

NG

5 CHECK HARNESS AND CONNECTOR (VARIABLE RESISTER ⇔ ECM)



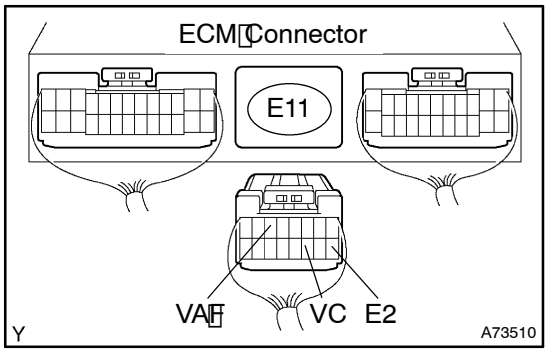
(a) Disconnect the V2 variable resistor connector.
(b) Disconnect the E11 ECM connector.
(c) Check the continuity between the wire harness side connectors.

Standard (Check for open):

Symbols (Terminal No.)	Specified condition
VC (V2–2) ⇔ VC (E11–11)	Continuity
VAF (V2–3) ⇔ VAF (E11–6)	
E2 (V2–1) ⇔ E2 (E11–9)	

Standard (Check for short):

Symbols (Terminal No.)	Specified condition
VC (V2–2) or VC (E11–11) ⇔ Other terminals and body ground	No continuity
VAF (V2–3) or VAF (E11–6) ⇔ Other terminals and body ground	



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

OK →

CHECK AND REPLACE ECM (See page 01–36)