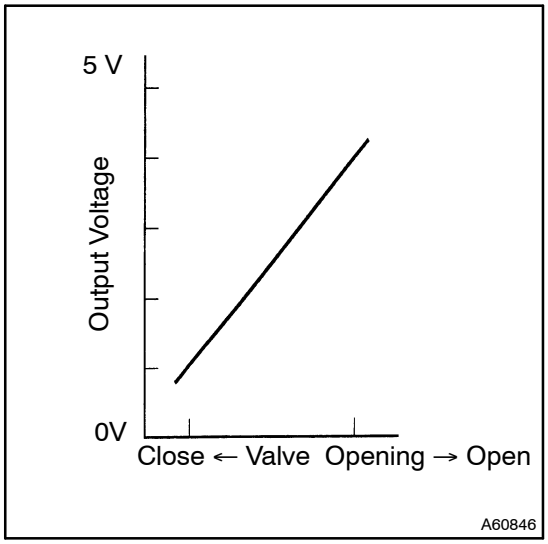
DTC	P1410/96	EGR VALVE POSITION SENSOR CIRCUIT MALFUNCTION

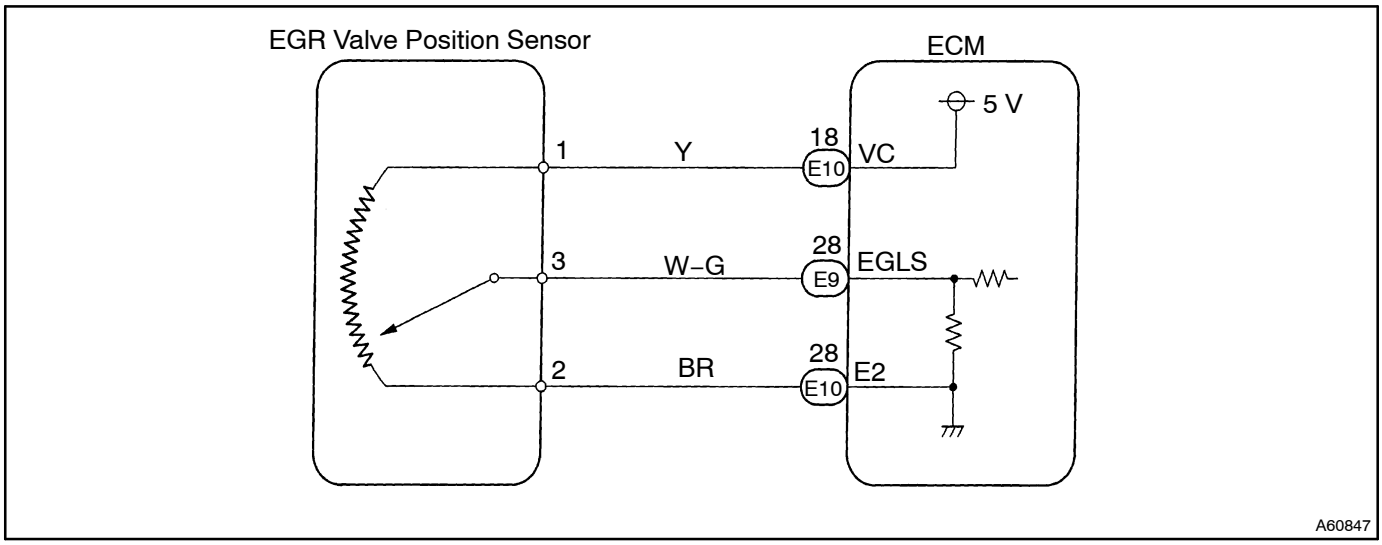
CIRCUIT DESCRIPTION



The EGR valve position sensor is mounted on the EGR valve and detects the lift amount of EGR valve. The lift amount of EGR valve which is detected by the EGR valve position sensor provides feedback to the ECM to control the lift amount of EGR valve in response to engine operating conditions.

DTC No.	DTC Detecting Condition	Trouble Area
P1410/96	Open or short in EGR valve position sensor circuit (2 trip detection logic)	• Open or short in EGR valve position sensor circuit • EGR valve position sensor • ECM

WIRING DIAGRAM

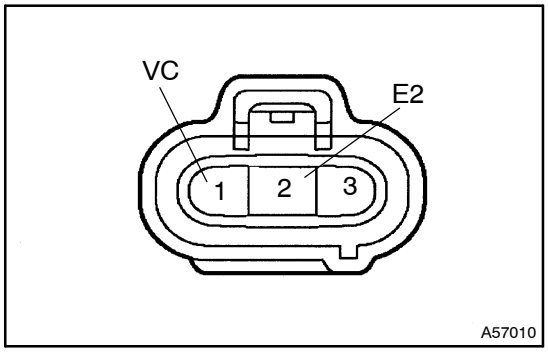


INSPECTION PROCEDURE

HINT:

- If DTCs P0110, P0115, P0120 and P1410 are output simultaneously, E2 (sensor ground) may be open.
- Read freeze frame data using hand–held tester. Because freeze frame records the engine conditions when the malfunction is detected. When troubleshooting, it is useful for determining whether the vehicle was running or stopped, the engine was warmed up or not, the air–fuel ratio was lean or rich, etc. at the time of the malfunction.

1 CHECK HARNESS AND CONNECTOR

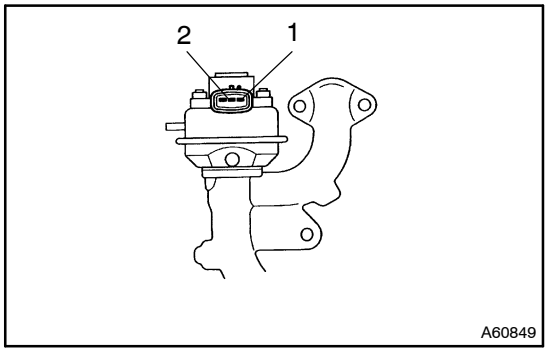


(a) Disconnect the vacuum hose from the EGR valve.
(b) Disconnect the EGR valve position sensor connector.
(c) Turn the ignition switch ON.
(d) Measure the voltage between terminal 1 (VC) and 2 (E2) of the wire harness side connector.
Voltage: 4.5 – 5.5 V

NG → **Go to step 5**

OK

2 INSPECT EGR VALVE POSITION SENSOR

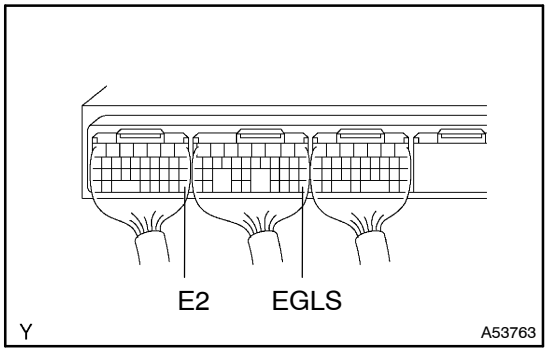


(a) Disconnect the EGR valve position sensor connector.
(b) Measure the resistance between terminals 1 (VC) and 2 (E2) of EGR valve position sensor.
Resistance: 1.5 – 4.3 kΩ

NG → **REPLACE EGR VALVE POSITION SENSOR**

OK

3 INSPECT ECM



(a) Disconnect the vacuum hose from the EGR valve.
(b) Connect the hand–held vacuum pump to the EGR valve.
(c) Turn the ignition switch ON.
(d) Measure the voltage between terminals EGLS and E2 of the ECM connectors.

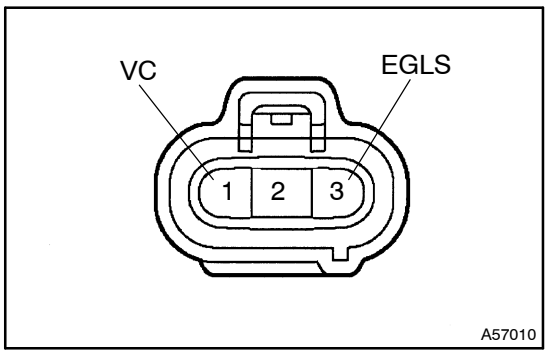
Voltage:

Condition		Voltage
EGR Valve	Vacuum	
Fully closed	0 kPa (0 mmHg, 0 in.Hg)	0.4 – 1.6 V
Fully open	17.3 kPa (130 mmHg, 5.12 in.Hg)	3.2 – 5.1 V

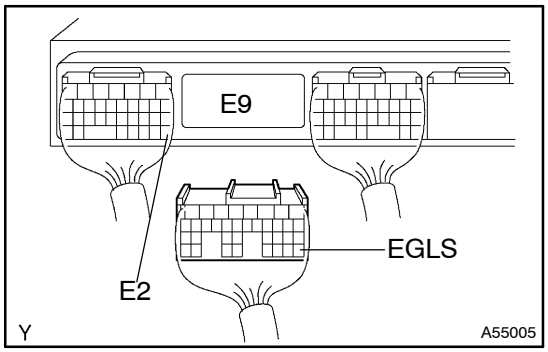
OK → **CHECK AND REPLACE ECM**

NG

4 CHECK HARNESS AND CONNECTOR(ECM – EGR VALVE POSITION SENSOR)



(a) Disconnect the EGR valve position sensor connector.
(b) Disconnect the ECM E9 connector.
(c) Check for open between the terminals EGLS of the ECM connector and EGLS of the EGR valve position sensor connector.
Resistance: 1 Ω or less
(d) Check for open between the terminals E2 of the ECM connector and E2 of the EGR valve position sensor connector.
Resistance: 1 Ω or less
(e) Check for short between the terminals EGLS and E2 of the ECM connector.
Resistance: 1 MΩ or more

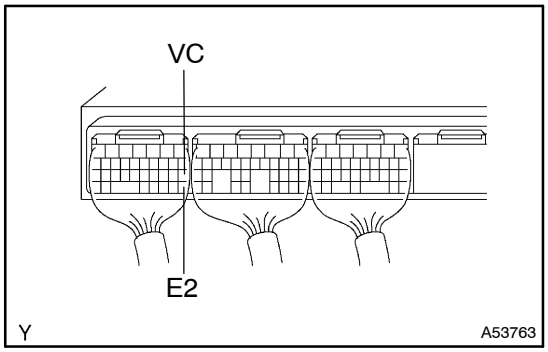


NG → **REPAIR OR REPLACE HARNESS AND CONNECTOR**

OK

CHECK AND REPLACE ECM

5 INSPECT ECM



(a) Turn the ignition switch ON.
(b) Measure the voltage between terminals VC and E2 of the ECM connector.
Voltage: 4.5 – 5.5 V

NG → **CHECK AND REPLACE ECM**

OK

6 CHECK HARNESS AND CONNECTOR(ECM – EGR VALVE POSITION SENSOR)

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

OK

CHECK AND REPLACE ECM