DTC	P2121/19	THROTTLE/PEDAL POSITION SENSOR/SWITCH ”D” CIRCUIT RANGE/PERFORMANCE

HINT:
This is repair procedure for the accelerator pedal position sensor.

CIRCUIT DESCRIPTION

Refer to DTC P2120/19 on page 05–617.

DTC No.	DTC Detection Condition	Trouble Area
P2121/19	Condition (a) continues for 0.5 seconds: (a) Difference between VPA and VPA2 exceeds the threshold (1 trip detection logic)	• Accelerator pedal position sensor circuit • Accelerator pedal position sensor • ECM

WIRING DIAGRAM

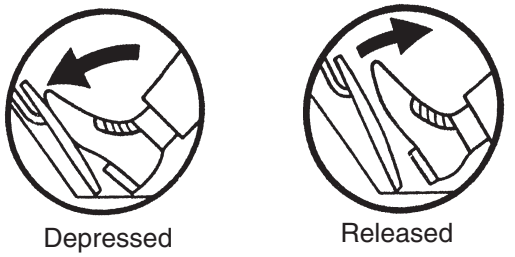
Refer to DTC P2120/19 on page 05–617.

INSPECTION PROCEDURE

HINT:
Read freeze frame data using the intelligent tester II. 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.

When using intelligent tester II:

1	READ DATA LIST (ACCELERATOR POSITION NO. 1, ACCELERATOR POSITION NO. 2)



(a) Connect the intelligent tester II to the DLC3.
(b) Turn the ignition switch ON and turn the intelligent tester II ON.
(c) Enter the following menus: Powertrain / Engine / Data List / Accelerator Position No. 1 and Accelerator Position NO. 2.
(d) Read the values.

Standard:

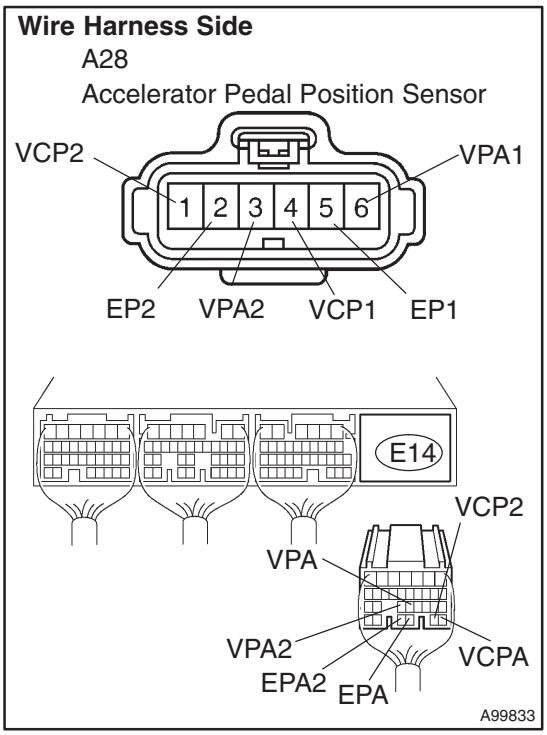
Accelerator Pedal	Accelerator Position No. 1	Accelerator Position No. 2
Released	0.6 to 1.0 V	1.4 to 1.8 V
Depressed	2.9 to 4.2 V	3.7 to 5.0 V

OK → **REPLACE ECM (See Pub. No. RM990E, page 10–34)**

NOTICE:
After replacing the ECM, allow for ECM learning start the engine and idle it until it is fully warmed up.

NG

2	CHECK WIRE HARNESS (ACCELERATOR PEDAL POSITION SENSOR – ECM)



(a) Disconnect the A28 sensor connector.
(b) Disconnect the E14 ECM connector.
(c) Measure the resistance of the wire harness side connectors.

Standard:

Tester Connection	Specified Condition
A28–1 (VCP2) – E14–27 (VCP2) A28–2 (EP2) – E14–29 (EPA2) A28–3 (VPA2) – E14–23 (VPA2) A28–4 (VCP1) – E14–26 (VCPA) A28–5 (EP1) – E14–28 (EPA) A28–6 (VPA1) – E14–22 (VPA)	Below 1 Ω
A28–1 (VCP2) or E14–27 (VCP2) – Body ground A28–2 (EP2) or E14–29 (EPA2) – Body ground A28–3 (VPA2) or E14–23 (VPA2) – Body ground A28–4 (VCP1) or E14–26 (VCPA) – Body ground A28–5 (EP1) or E14–28 (EPA) – Body ground A28–6 (VPA1) or E14–22 (VPA) – Body ground	10 kΩ or higher

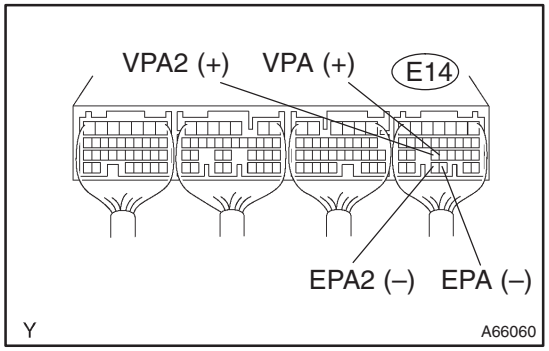
NG → **REPAIR OR REPLACE HARNESS AND CONNECTOR**

OK

REPLACE ACCELERATOR PEDAL ROD ASSY (See Pub. No. RM990E, page 10–33)

When not using intelligent tester II:

1 INSPECT ECM (VPA, VPA2 VOLTAGE)



(a) Turn the ignition switch ON.
(b) Measure the voltage of the ECM connector.

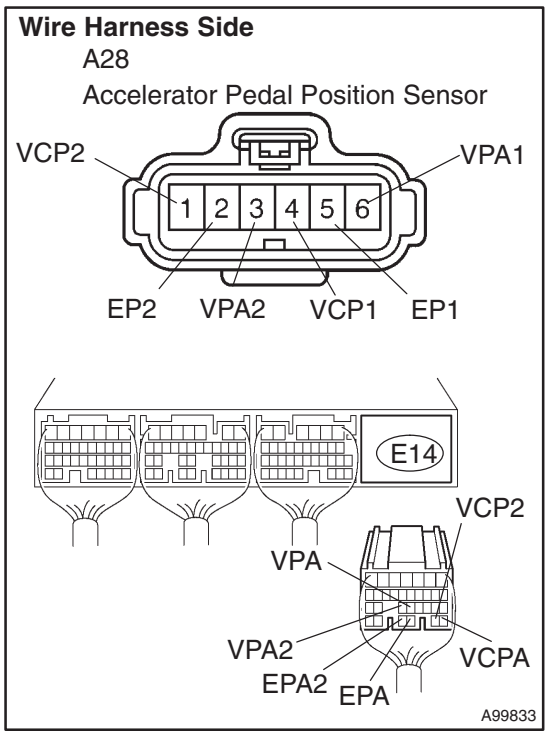
Tester Connection	Accelerator Pedal Condition	Specified Condition
E14–22 (VPA) – E14–28 (EPA)	Released	0.6 to 1.0 V
E14–22 (VPA) – E14–28 (EPA)	Depressed	2.9 to 4.2 V
E14–23 (VPA2) – E14–29 (EPA2)	Released	1.4 to 1.8 V
E14–23 (VPA2) – E14–29 (EPA2)	Depressed	3.7 to 5.0 V

OK → **REPLACE ECM (See Pub. No. RM990E, page 10–34)**

NOTICE:
After replacing the ECM, allow for ECM learning start the engine and idle it until it is fully warmed up.

NG

2 CHECK WIRE HARNESS (ACCELERATOR PEDAL POSITION SENSOR – ECM)



(a) Disconnect the A28 sensor connector.
(b) Disconnect the E14 ECM connector.
(c) Measure the resistance of the wire harness side connectors.

Standard:

Tester Connection	Specified Condition
A28–1 (VCP2) – E14–27 (VCP2) A28–2 (EP2) – E14–29 (EPA2) A28–3 (VPA2) – E14–23 (VPA2) A28–4 (VCP1) – E14–26 (VCPA) A28–5 (EP1) – E14–28 (EPA) A28–6 (VPA1) – E14–22 (VPA)	Below 1 Ω
A28–1 (VCP2) or E14–27 (VCP2) – Body ground A28–2 (EP2) or E14–29 (EPA2) – Body ground A28–3 (VPA2) or E14–23 (VPA2) – Body ground A28–4 (VCP1) or E14–26 (VCPA) – Body ground A28–5 (EP1) or E14–28 (EPA) – Body ground A28–6 (VPA1) or E14–22 (VPA) – Body ground	10 kΩ or higher

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

OK

REPLACE ACCELERATOR PEDAL ROD ASSY (See Pub. No. RM990E, page 10–33)