**HINT:**
This DTC relates to the Accelerator Pedal Position (APP) sensor.

**DESCRIPTION**
Refer to DTC P2120 (See page ES-296).

**MONITOR DESCRIPTION**
The accelerator pedal position sensor is mounted on the accelerator pedal bracket. The accelerator pedal position sensor has 2 sensor elements and 2 signal outputs: VPA and VPA2. VPA is used to detect the actual accelerator pedal angle (used for engine control) and VPA2 is used to detect malfunctions in VPA. When the difference between the voltage outputs of VPA and VPA2 deviates from the standard, the ECM determines that the accelerator pedal position sensor is a malfunctioning. The ECM turns on the MIL and the DTC is set.

**MONITOR STRATEGY**

**TYPICAL ENABLING CONDITIONS**
- Monitor runs whenever following DTCs not present: None
- Either of following conditions 1 or 2 met:
  1. Ignition switch ON
  2. Throttle actuator power ON

**TYPICAL MALFUNCTION THRESHOLDS**
- Difference between VPA voltage (learned value) and VPA2 voltage (learned value) Less than 0.4 V, or more than 1.2 V

**FAIL-SAFE**
The accelerator pedal position sensor has two (main and sub) sensor circuits. If a malfunction occurs in either of the sensor circuits, the ECM detects the abnormal signal voltage difference between the two sensor circuits and switches to limp mode. In limp mode, the functioning circuit is used to calculate the accelerator pedal opening angle to allow the vehicle to continue driving. If both circuits malfunction, the ECM regards the opening angle of the accelerator pedal as being fully closed. In this case, the throttle valve remains closed as if the engine is idling.

If a pass condition is detected and then the ignition switch is turned OFF, the fail-safe operation stops and the system returns to a normal condition.
INSPECTION PROCEDURE

HINT:
Read freeze frame data using an intelligent tester. Freeze frame data record the engine condition when malfunctions are detected. When troubleshooting, freeze frame data can help determine if the vehicle was moving or stationary, if the engine was warmed up or not, if the air-fuel ratio was lean or rich, and other data, from the time the malfunction occurred.

1. READ VALUE USING INTELLIGENT TESTER (ACCEL POS #1 AND ACCEL POS #2)

(a) Connect an intelligent tester to the DLC3.
(b) Turn the ignition switch ON and turn the tester ON.
(c) Select the following menu items: DIAGNOSIS / ENHANCED OBD II / DATA LIST / ETCS / ACCEL POS #1 and ACCEL POS #2.
(d) Read the values displayed on the tester.

<table>
<thead>
<tr>
<th>Accelerator Pedal Operations</th>
<th>ACCEL POS #1</th>
<th>ACCEL POS #2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Released</td>
<td>0.5 to 1.1 V</td>
<td>1.2 to 2.0 V</td>
</tr>
<tr>
<td>Depressed</td>
<td>2.6 to 4.5 V</td>
<td>3.4 to 5.0 V</td>
</tr>
</tbody>
</table>

OK → Go to step 3

NG

2. CHECK HARNESS AND CONNECTOR (ACCELERATOR PEDAL POSITION SENSOR - ECM) (See page ES-306)

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

3. REPLACE ACCELERATOR PEDAL ROD ASSEMBLY

Replace the accelerator pedal rod assembly (See page ES-449).

NEXT

4. CHECK WHETHER DTC OUTPUT RECURS (DTC P2121)

(a) Connect an intelligent tester to the DLC3.
(b) Turn the ignition switch ON and turn the tester ON.
(c) Clear DTCs (See page ES-38).
(d) Start the engine.
(e) Allow the engine to idle for 15 seconds.
(f) Select the following menu items: DIAGNOSIS / ENHANCED OBD II / DTC INFO / CURRENT CODES.

(g) Read DTCs.

Result

<table>
<thead>
<tr>
<th>Display (DTC Output)</th>
<th>Proceed To</th>
</tr>
</thead>
<tbody>
<tr>
<td>P2121</td>
<td>A</td>
</tr>
<tr>
<td>No output</td>
<td>B</td>
</tr>
</tbody>
</table>

B ➔ SYSTEM OK

A

REPLACE ECM (See page ES-446)