

DTC	P2121	Throttle/Pedal Position Sensor/Switch "D" Circuit Range/Performance
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HINT:

This is repair procedure for the "accelerator pedal position sensor".

CIRCUIT DESCRIPTION

Refer to DTC P2120 on page [DI-318](#).

DTC No.	DTC Detecting Condition	Trouble Area
P2121	Conditions (a) and (b) continue for 0.5 seconds: (a) Difference between VPA and VPA2 exceeds the threshold (b) IDL is OFF	• Accelerator pedal position sensor circuit • Accelerator pedal position sensor • ECM

MONITOR DESCRIPTION

When the difference between the voltage outputs of VPA1 and VPA2 deviates from the standard range, the ECM determines that there is a malfunction in the APP sensor. The ECM then illuminate the MIL and sets the DTC.

If the malfunction has not been repaired successfully, the DTC is set 1 second after the engine is started.

FAIL SAFE

When any of DTCs P2120, P2121, P2122, P2123, P2125, P2127, P2128 and P2138 are set, the ECM enters fail-safe mode. If either of the 2 sensor circuits malfunction, the ECM uses the remaining circuit to calculate the accelerator pedal position to allow the vehicle to continue driving. If both of the circuits malfunction, the ECM regards the accelerator pedal as being released. As a result, the throttle valve is closed and the engine idles.

Fail-safe mode continues until a pass condition is detected, and the ignition switch is turned OFF.

MONITOR STRATEGY

Related DTCs	P2121: Accelerator pedal position (APP) sensor rationality
Required Sensors/Components (Main)	APP sensor
Required Sensors/Components (Related)	–
Frequency of Operation	Continuous
Duration	0.5 seconds
MIL Operation	Immediate
Sequence of Operation	None

TYPICAL ENABLING CONDITIONS

Monitor runs whenever following DTCs not present	None
Either of the following conditions is met:	Condition 1 or 2
1. Ignition switch	ON
2. Throttle actuator power	ON

TYPICAL MALFUNCTION THRESHOLDS

Difference between VPA1 voltage (learned value) and VPA2 voltage (learned value)	Less than 0.4 V, or more than 1.2 V
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WIRING DIAGRAM

Refer to DTC P2120 on page [DI-318](#).

INSPECTION PROCEDURE

HINT:

Read freeze frame data using the hand-held tester or the OBD II scan tool. 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, if the air-fuel ratio was lean or rich, as well as other data from the time when a malfunction occurred.

1	Check any other DTCs output (In addition to DTC P2121)
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PREPARATION:

- Connect the hand-held tester to the CAN VIM. Then connect the CAN VIM to the DLC3.
- Turn the ignition switch ON.
- Turn the tester ON.
- Enter the following menus: DIAGNOSIS / ENHANCED OBD II / DTC INFO / CURRENT CODES.

CHECK:

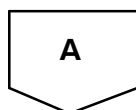
Read DTCs.

Result:

Display (DTC Output)	Proceed to
P2121	A
P2121 and other DTCs	B

HINT:

If any DTCs other than P2121 are output, troubleshoot those DTCs first.



2	Replace accelerator pedal assembly
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- Replace accelerator pedal assembly (see page [SF-58](#)).



3	Check whether DTC output recurs (DTC P2121)
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PREPARATION:

- (a) Connect the hand-held tester to the CAN VIM. Then connect the CAN VIM to the DLC3.
- (b) Turn the ignition switch ON.
- (c) Turn the tester.
- (d) Clear DTCs (see page [DI-3](#)).
- (e) Allow the engine to idle for a minute.
- (f) Rev up the engine several times.
- (g) Enter the following menus: DIAGNOSIS / ENHANCED OBD II / DTC INFO / CURRENT CODES.

CHECK:

Read DTCs.

Result:

Display (DTC Output)	Proceed to
P2121	A
No output	B

B

Check for intermittent problems

A

Replace ECM (See page [SF-60](#))

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