

DTC	P2111	THROTTLE ACTUATOR CONTROL SYSTEM - STUCK OPEN
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DTC	P2112	THROTTLE ACTUATOR CONTROL SYSTEM - STUCK CLOSED
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CIRCUIT DESCRIPTION

The throttle motor is operated by the ECM and it opens and closes the throttle valve using gears. The opening angle of the throttle valve is detected by the throttle position sensor, which is mounted on the throttle body. The throttle position sensor provides to ECM with feedback to control the throttle motor and set the throttle valve angle in response to driver input.

HINT:

This Electrical Throttle Control System (ETCS) does not use a throttle cable.

DTC No.	DTC Detection Condition	Trouble Area
P2111	Throttle motor locked during ECM orders to open	<ul style="list-style-type: none"> • Throttle control motor circuit • Throttle control motor • Throttle body • Throttle valve
P2112	Throttle motor locked during ECM orders to close	<ul style="list-style-type: none"> • Throttle control motor circuit • Throttle control motor • Throttle body • Throttle valve

MONITOR DESCRIPTION

The ECM concludes that there is malfunction of the ETCS when the throttle valve remains at a fixed angle despite high drive current supplying from the ECM. The ECM will turn on the MIL and a DTC is set.

FAIL SAFE

If the Electronic Throttle Control System (ETCS) has malfunction, the ECM cuts off current to the throttle control motor. The throttle control valve returns to a predetermined opening angle (approximately 16°) by the force of the return spring. The ECM then adjusts the engine output by controlling the fuel injection (intermittent fuel-cut) and ignition timing in accordance with the accelerator pedal opening angle to enable the vehicle to continue to drive.

If the accelerator pedal is depressed firmly and slowly, the vehicle can be driven slowly.

If a "pass" condition is detected and then the power switch is turned OFF, the fail-safe operation will stop and the system will return to normal condition.

MONITOR STRATEGY

Related DTCs	P2111: Throttle motor actuator lock (open) P2112: Throttle motor actuator lock (closed)
Main sensors/components	Throttle actuator motor
Frequency of operation	Continuous
Duration	0.5 second
MIL operation	Immediately
Sequence of operation	None

TYPICAL ENABLING CONDITIONS

P2111:

The monitor will run whenever the following DTCs are not present	See page 05-20
Throttle motor current	2 A or more
Throttle motor duty to open	80 % or more

P2112:

The monitor will run whenever the following DTCs are not present	See page 05-20
Throttle motor current	2 A or more
Throttle motor duty to close	80 % or more

TYPICAL MALFUNCTION THRESHOLDS

Difference between throttle position sensor output voltage of present and 16 milliseconds ago	Less than 0.1 V
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WIRING DIAGRAM

Refer to DTC P2102 on page [05-301](#) .

INSPECTION PROCEDURE

HINT:

Read freeze frame data using the hand-held tester or the OBD II scan tool. Freeze frame data records the engine condition when 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, and other data from the time the malfunction occurred.

1	CHECK OTHER DTC OUTPUT(IN ADDITION TO DTC P2111 AND/OR P2112)
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- (a) Connect the hand-held tester or the OBD II scan tool to the DLC3.
- (b) Turn the power switch ON (IG).
- (c) Turn the hand-held tester or the OBD II scan tool ON.
- (d) On the hand-held tester, select the item: DIAGNOSIS / ENHANCED OBD II / DTC INFO / CURRENT CODES.
- (e) Read DTCs using the hand-held tester or the OBD II scan tool.

Result:

Display (DTC Output)	Proceed to
P2111 or P2112	A
P2111 or P2112, and other DTCs	B

HINT:

If any other codes besides P2111 and/or P2112 are output, perform troubleshooting for those DTCs first.

B

GO TO RELEVANT DTC CHART
(See page [05-55](#))

A

2 INSPECT THROTTLE W/MOTOR BODY ASSY (VISUALLY CHECK THROTTLE VALVE)

- (a) Check for contamination between the throttle valve and the housing. If necessary, clean the throttle body. And check that the throttle valve moves smoothly.

NG

REPLACE THROTTLE W/MOTOR BODY ASSY

OK

3 CHECK IF DTC OUTPUT RECURS (DTC P2111 AND/OR P2112)

- Connect the hand-held tester or the OBD II scan tool to the DLC3.
- Turn the power switch ON (IG).
- Turn the hand-held tester or the OBD II scan tool ON.
- Clear the DTC.
- Put the engine in inspection mode (see page 01-27).
- Start the engine, and depress and release the accelerator pedal quickly (fully open and fully close).
- On the hand-held tester, select the item: DIAGNOSIS / ENHANCED OBD II / DTC INFO / CURRENT CODES.
- Start the engine, and depress and release the accelerator pedal quickly (fully open and fully close).
- Read DTCs using the hand-held tester or the OBD II scan tool.

Result:

Display (DTC Output)	Proceed to
No output	A
P2111 and/or P2112	B

B

REPLACE ECM (See page 10-24)

A

CHECK FOR INTERMITTENT PROBLEMS (See page 05-17)