

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. 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 feedback to the ECM 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 order to close. (1 trip detection logic)	<ul style="list-style-type: none"> • Throttle control motor and sensor circuit • Throttle control motor and sensor • Throttle body • Throttle valve
P2112	Throttle motor locked during ECM order to open. (1 trip detection logic)	

MONITOR DESCRIPTION

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

FAIL SAFE

If the ETCS (Electronic Throttle Control System) has a 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 at a minimum speed.

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

If a "pass" condition is detected and then the ignition 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)
Required sensors/components	Main sensors/components	Throttle actuator motor
	Related sensors/components	Throttle position sensor
Frequency of operation	Continuous	
Duration	0.5 sec.	
MIL operation	Immediate	
Sequence of operation	None	

TYPICAL ENABLING CONDITIONS

Item	Specification	
	Minimum	Maximum
The monitor will run whenever these DTCs are not present	See page DI-437	
P2111:		
System guard*	ON	
Throttle motor current	2 A	–
Throttle motor duty to close side	80%	–
P2112:		
System guard*	ON	
Throttle motor current	2 A	–
Throttle motor duty to open side	80%	–
*System guard is ON when the following conditions are set:	–	
Throttle actuator	ON	
Throttle actuator duty calculation	Executing	
Throttle position sensor	Fail determined	
Throttle actuator current–cut operation	Not executing	
Throttle actuator power supply	4 V	–
Throttle actuator	Fail determined	

TYPICAL MALFUNCTION THRESHOLDS

Detection Criteria	Threshold
TP sensor voltage change	No change

WIRING DIAGRAM

Refer to DTC P0120 on page [DI-548](#).

INSPECTION PROCEDURE

HINT:

Read freeze frame data using the hand–held tester. 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 DTC output (in addition to DTC P2111 or P2112).
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PREPARATION:

- (a) Connect a hand-held tester to the DLC3.
- (b) Turn the ignition switch to ON and turn the tester ON.
- (c) Select the following menu items: DIAGNOSIS / ENHANCED OBD II / DTC INFO / CURRENT CODES.

CHECK:

- (a) Read DTCs.

Result:

Display (DTC Output)	Proceed To
P2111 and/or P2112	A
P2111 and/or P2112 and other DTCs	B

HINT:

If any DTCs other than P2111 and/or P2112 are output, troubleshoot those DTCs first.

B**Go to relevant DTC chart (See page [DI-477](#)).****A**

2	Visually check throttle valve.
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PREPARATION:

Remove the intake air connector.

CHECK:

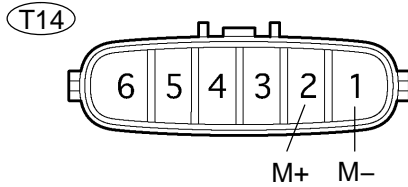
Check whether or not a foreign body is caught between the throttle valve and housing. Also, check if the valve can open and close smoothly.

OK: The throttle valve is not contaminated by foreign objects and can move smoothly.

NG**Remove foreign body and clean throttle body.****OK**

3 Check throttle control motor.**Component Side:**

Throttle Control Motor and Sensor



A21034

PREPARATION:

Disconnect the throttle control motor and sensor connector.

CHECK:

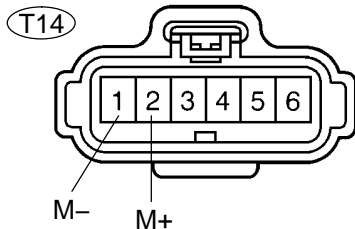
Measure the resistance between terminals of the throttle control motor.

OK:**Standard:**

Tester Connection	Specified Condition
M+ (T14-2) – M- (T14-1)	0.3 to 100 Ω (20°C (68°F))

NG**Replace throttle body (See page SF-44).****OK****4 Check for open and short in harness and connector between ECM and throttle control motor.****Wire Harness Side:**

Throttle Control Motor and Sensor



A21022

PREPARATION:

- Disconnect the T14 throttle control motor and sensor connector.
- Disconnect the E7 ECM connector.

CHECK:

Measure the resistance between the wire harness side connectors.

OK:**Standard:**

Tester Connection	Specified Condition
M+ (T14-2) – M+ (E7-5)	Below 1 Ω
M- (T14-1) – M- (E7-4)	Below 1 Ω
M+ (T14-2) or M+ (E7-5) – Body ground	10 k Ω or higher
M- (T14-1) or M- (E7-4) – Body ground	10 k Ω or higher

NG**Repair or replace harness or connector.****OK**

Check for intermittent problems
(See page DI-430).