

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 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.	• Throttle control motor and sensor circuit • Throttle control motor and sensor • Throttle body • Throttle valve
P2112	Throttle motor locked during ECM order to open.	

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 the following DTCs are not present	See "List of disable a monitor" (on page DI-3)	
P2111:		
Throttle motor current	2 A	–
Throttle motor duty to close side	80%	–
P2112:		
Throttle motor current	2 A	–
Throttle motor duty to open side	80%	–

TYPICAL MALFUNCTION THRESHOLDS

Detection Criteria	Threshold
Current throttle position sensor voltage at this time – throttle position sensor voltage 0.016 sec. earlier	Less than 0.1 V when throttle motor open (or close) duty 80% or more

WIRING DIAGRAM

Refer to DTC P0120 on page [DI-84](#).

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	Visually check throttle valve.
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PREPARATION:

Remove the intake air connector.

CHECK:

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

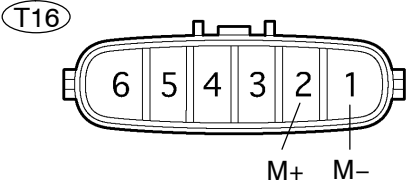
NG

Remove foreign matter and clean throttle body.

OK

2	Check throttle control motor.
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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:

Tester Connection	Specified Condition
M+ (T16-2) - M- (T16-1)	0.3 to100 Ω (20°C (68°F))

NG

Replace throttle body (See page [SF-36](#)).

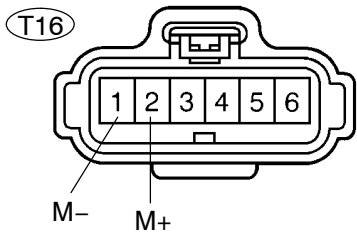
OK

3

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:

- (a) Disconnect the T16 throttle control motor and sensor connector.
- (b) Disconnect the E7 ECM connector.

CHECK:

Measure the resistance between the wire harness side connectors.

OK:

Tester Connection	Specified Condition
M+ (T16-2) - M+ (E7-3)	Below 1 Ω
M- (T16-1) - M- (E7-2)	Below 1 Ω
M+ (T16-2) or M+ (E7-3) - Body ground	10 k Ω or higher
M- (T16-1) or M- (E7-2) - Body ground	10 k Ω or higher

NG

Repair or replace harness or connector.

OK

Check for intermittent problems
(See page [DI-3](#)).