DTC	P2111	Throttle Actuator Control System - Stuck Open

DTC	P2112	Throttle Actuator Control System - Stuck Closed

SYSTEM DESCRIPTION

The throttle actuator 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 actuator and set the throttle valve angle in response to driver inputs.

HINT:

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

DTC No.	DTC Detection Condition	Trouble Area
P2111	Throttle actuator locked during ECM order to close	• Throttle actuator circuit • Throttle actuator • Throttle body • Throttle valve
P2112	Throttle actuator locked during ECM order to open	• Throttle actuator circuit • Throttle actuator • Throttle body • Throttle valve

MONITOR DESCRIPTION

The ECM concludes that there is a malfunction of the ETCS 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 will be set.

FAIL-SAFE

If the ETCS has a malfunction, the ECM cuts off current to the throttle actuator. 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 minimal 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.

MONITOR STRATEGY

Related DTCs	P2111: Throttle actuator stuck open P2112: Throttle actuator stuck closed
Required sensors / components (Main)	Throttle actuator
Required sensors / components (Related)	-
Frequency of operation	Continuous
Duration	0.5 seconds
MIL operation	Immediate
Sequence operation	None

TYPICAL ENABLING CONDITIONS

All:

The monitor will run whenever these DTCs are not present	None

P2111:

All of the following conditions are met	-
System guard*	ON
Throttle actuator current	2 A or more
Duty cycle to close throttle	80% or more
*: System guard is ON when the following conditions are met	-
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 or more
Throttle actuator	Fail determined

ES

P2112:

All of the following conditions are met	-
System guard*	ON
Throttle actuator current	2 A or more
Duty cycle to open throttle	80% or more
*: System guard is ON when the following conditions are met	-
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 or more
Throttle actuator	Fail determined

TYPICAL MALFUNCTION THRESHOLDS

TP sensor voltage change	Less than 0.1 V

WIRING DIAGRAM

Refer to DTC P2102 (See page ES-247).

HINT:
Read freeze frame data using the intelligent tester or the OBD II scan tool. The ECM records vehicle and driving condition information as freeze frame data the moment a DTC is stored. 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**

Result

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

B → **GO TO RELEVANT DTC CHART**

A

2	INSPECT THROTTLE BODY ASSEMBLY (VISUALLY CHECK THROTTLE VALVE)

Check for contamination between the throttle valve and the housing. If necessary, clean the throttle body.
And check that the throttle valve moves smoothly.
OK:
The throttle valve is not contaminated by foreign objects and can move smoothly.

NG → **REPLACE THROTTLE BODY ASSEMBLY**

ES

OK

3	CHECK DTC OUTPUT

(a) Clear the DTC (See page ES-28).
(b) Start the engine, and depress and release the accelerator pedal quickly (fully open and fully close).
(c) Read DTC.
Result

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

B → **REPLACE ECM**

A

CHECK FOR INTERMITTENT PROBLEMS