DTC	P2102	Throttle Actuator Control Motor Circuit Low

DTC	P2103	Throttle Actuator Control Motor Circuit High

DESCRIPTION

The throttle actuator is operated by the ECM and it opens and closes the throttle valve.
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. This feedback allows the ECM to control the throttle actuator and monitor the throttle opening angle in response to driver inputs.
HINT:
This Electronic Throttle Control System (ETCS) does not use a throttle cable.

ES

DTC No.	DTC Detection Condition	Trouble Area
P2102	Conditions (a) and (b) continue for 2.0 seconds: (a) Throttle actuator output duty 80 % or more (b) Throttle actuator current less than 0.5 A	• Open in throttle control motor circuit • Throttle control motor • ECM
P2103	Throttle actuator current 7 A or more (0.6 seconds)	• Short in throttle control motor circuit • Throttle control motor • ECM

MONITOR DESCRIPTION

The ECM monitors the flow of electrical current through the electronic throttle actuator, and detects malfunctions or open circuits in the throttle actuator based on the value of the electrical current. When the current deviates from the standard values, the ECM concludes that there is a fault in the throttle actuator. Or, if the throttle valve is not functioning properly (for example, stuck ON), the ECM concludes that there is a fault and turns on the MIL and a DTC is set.
Example:
When the current is more than 10 A, or the current is less than 0.5 A when the actuator driving duty ratio is exceeding 80%, the ECM concludes that the current is deviated from the standard values, turns on the MIL and a DTC is 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 condition.

MONITOR STRATEGY

Related DTCs	P2102: Throttle Actuator Current (Low current) P2103: Throttle Actuator Current (High current)
Required sensors / components (Main)	Throttle actuator
Required sensors / components (Related)	-
Frequency of operation	Continuous
Duration	P2102: 2 seconds P2103: 0.6 seconds
MIL operation	Immediate
Sequence operation	None

TYPICAL ENABLING CONDITIONS

All:

The monitor will run whenever these DTCs are not present	None

P2102:

Throttle actuator duty ratio	80 % or more
Throttle actuator power supply	8 V or more

P2103:

Throttle actuator power supply	8 V or more

TYPICAL MALFUNCTION THRESHOLDS

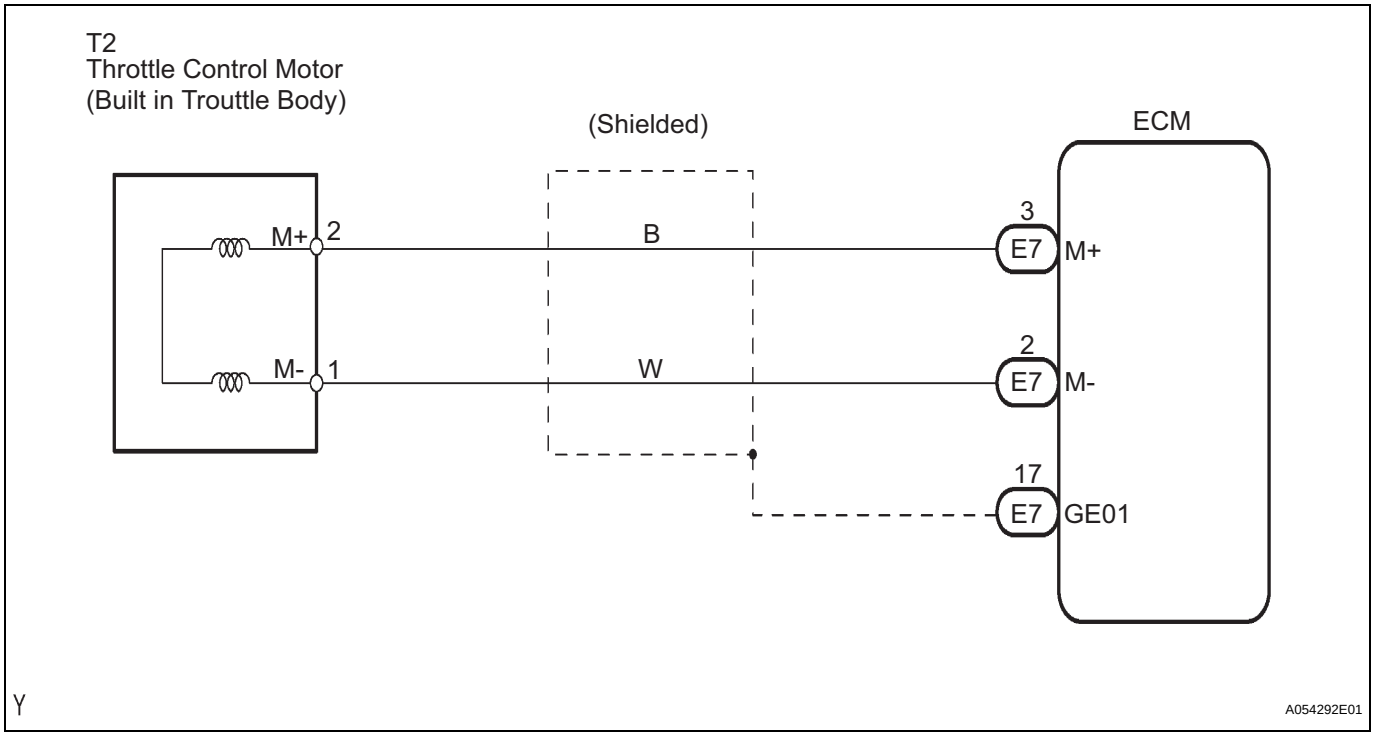
P2102:

Throttle actuator current	Less than 0.5 A

P2103:

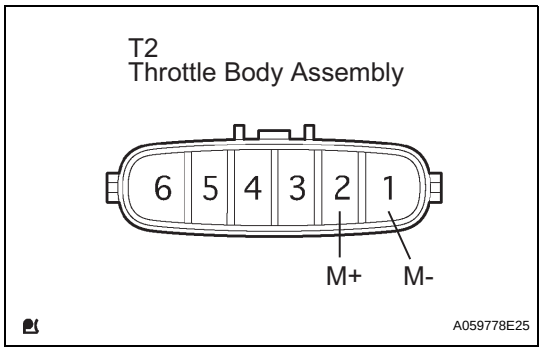
Either of the following conditions is met:	Condition 1 or 2
1. Hybrid IC diagnosis signal	Fail (for 0.1 seconds)
2. Hybrid IC current limiter port	Fail (for 0.6 seconds)

WIRING DIAGRAM



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	INSPECT THROTTLE BODY ASSEMBLY (RESISTANCE OF THROTTLE CONTROL MOTOR)



(a) Disconnect the T2 throttle body connector.
(b) Measure the resistance of the throttle control motor terminals.

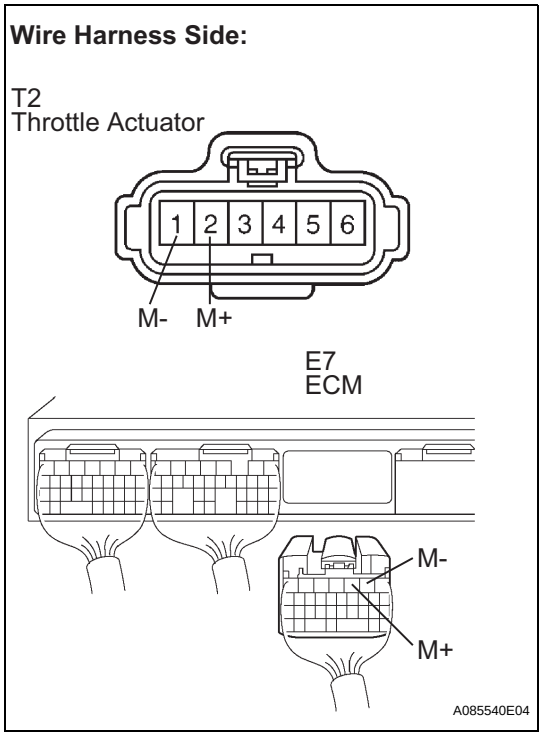
Standard resistance

Tester Connection	Specified Condition
T2-2 (M+) - T2-1 (M-)	0.3 to 100 Ω (20°C (68°F))

NG → **REPLACE THROTTLE BODY ASSEMBLY**

OK

2	CHECK HARNESS AND CONNECTOR (THROTTLE CONTROL MOTOR - ECM)



(a) Disconnect the T2 throttle body connector.
(b) Disconnect the E7 ECM connector.
(c) Measure the resistance of the wire harness side connectors.

Standard resistance

Tester Connection	Specified Condition
T2-2 (M+) - E7-3 (M+) T2-1 (M-) - E7-2 (M-)	Below 1 Ω
T2-2 (M+) or E7-3 (M+) - Body ground T2-1 (M-) or E7-2 (M-) - Body ground	10 kΩ or higher

NG → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK

REPLACE ECM