DTC	P2102	THROTTLE ACTUATOR CONTROL MOTOR CIRCUIT LOW

DTC	P2103	THROTTLE ACTUATOR CONTROL MOTOR CIRCUIT HIGH

CIRCUIT DESCRIPTION

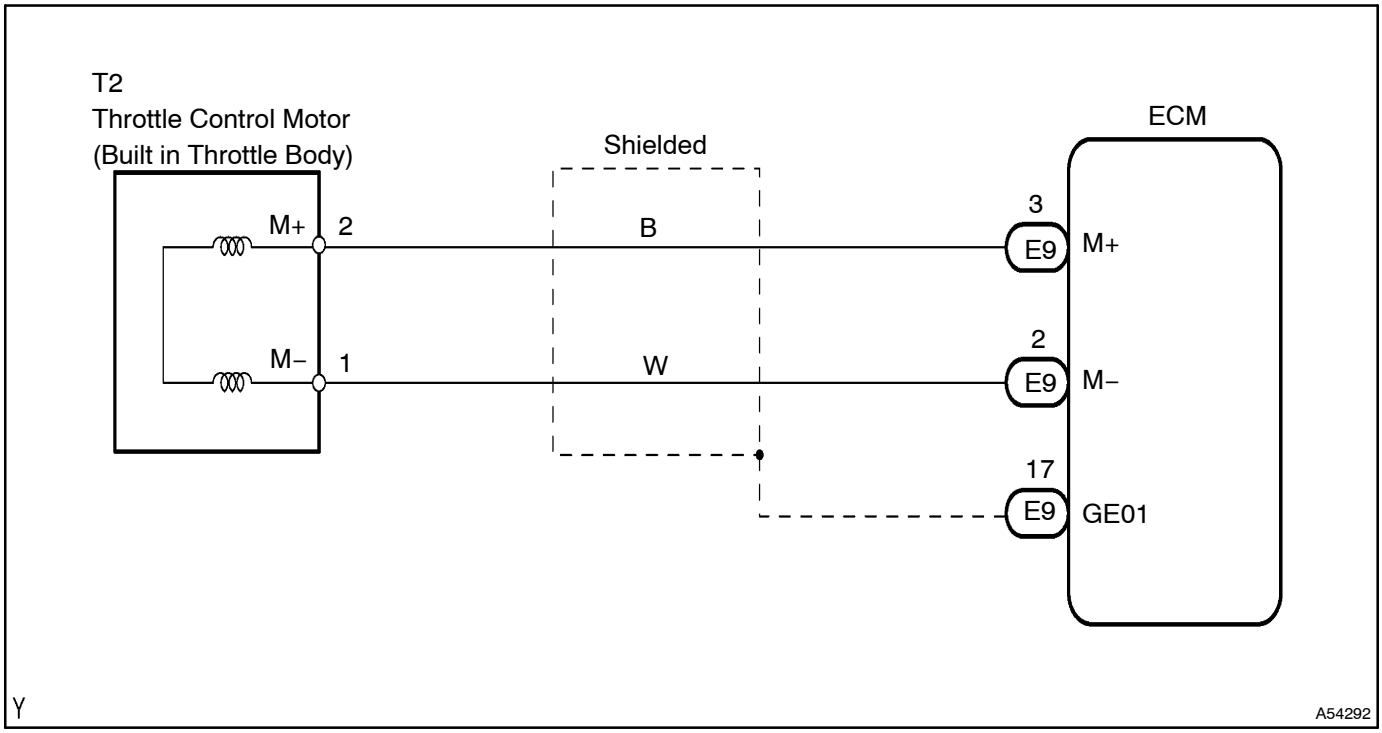
The throttle motor is operated by the ECM and it opens and closes the throttle valve.
The opening angle of the throttle valve is detected by the throttle position sensor which is mounted on the throttle body. The throttle position sensor provides feedback to the ECM. This feedback allows the ECM to control the throttle motor and monitor the throttle opening angle as the ECM responds to driver inputs.
HINT:
This Electronic Throttle Control System (ETCS) does not use a throttle cable.

DTC No.	DTC Detection Condition	Trouble Area
P2102	Conditions (a) and (b) continue for 2.0 seconds: (a) Throttle control motor output duty 80 % or more (b) Throttle control motor current 0.5 A or less	• Open in throttle control motor circuit • Throttle control motor • ECM
P2103	Either of following conditions is met: • Throttle control motor current 10 A or more (0.1 seconds) • Throttle control motor current 7 A or more (0.6 seconds)	• Short in throttle control motor circuit • Throttle control motor • Throttle valve • Throttle body Assy • ECM

FAIL SAFE

If the ETCS, 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 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.

WIRING DIAGRAM

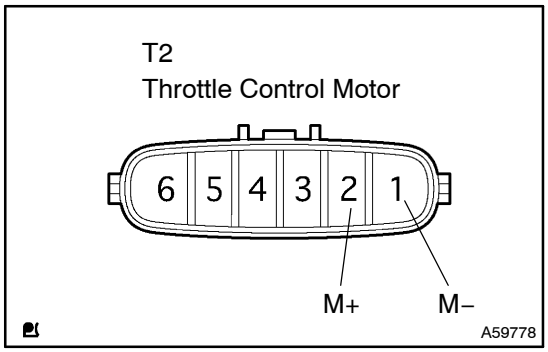


INSPECTION PROCEDURE

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, and other data from the time the malfunction occurred.

1	INSPECT THROTTLE BODY ASSY (RESISTANCE OF THROTTLE CONTROL MOTOR)



(a) Disconnect the T2 throttle control motor connector.

(b) Check the resistance of the throttle control motor terminals.

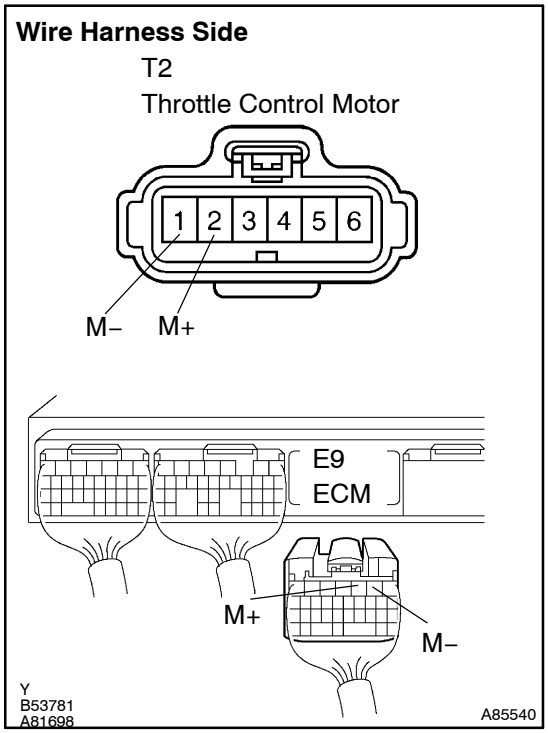
Standard:

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

NG → **REPLACE THROTTLE BODY ASSY**

OK

2 CHECK WIRE HARNESS (THROTTLE CONTROL MOTOR – ECM)



(a) Disconnect the T2 throttle control motor connector.
(b) Disconnect the E9 ECM connector.
(c) Check the resistance of the wire harness side connectors.

Standard:

Tester Connection	Specified Condition
T2–2 (M+) – E9–3 (M+) T2–1 (M–) – E9–2 (M–)	Below 1 Ω
T2–2 (M+) or E9–3 (M+) – Body ground T2–1 (M–) or E9–2 (M–) – Body ground	10 kΩ or higher

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

OK

3 INSPECT THROTTLE BODY ASSY

(a) Visually check between the throttle valve and the housing for foreign objects.
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 OBJECT AND CLEAN THROTTLE BODY**

OK

REPLACE ECM