DTC	P2102/41	THROTTLE ACTUATOR CONTROL MOTOR CIRCUIT LOW

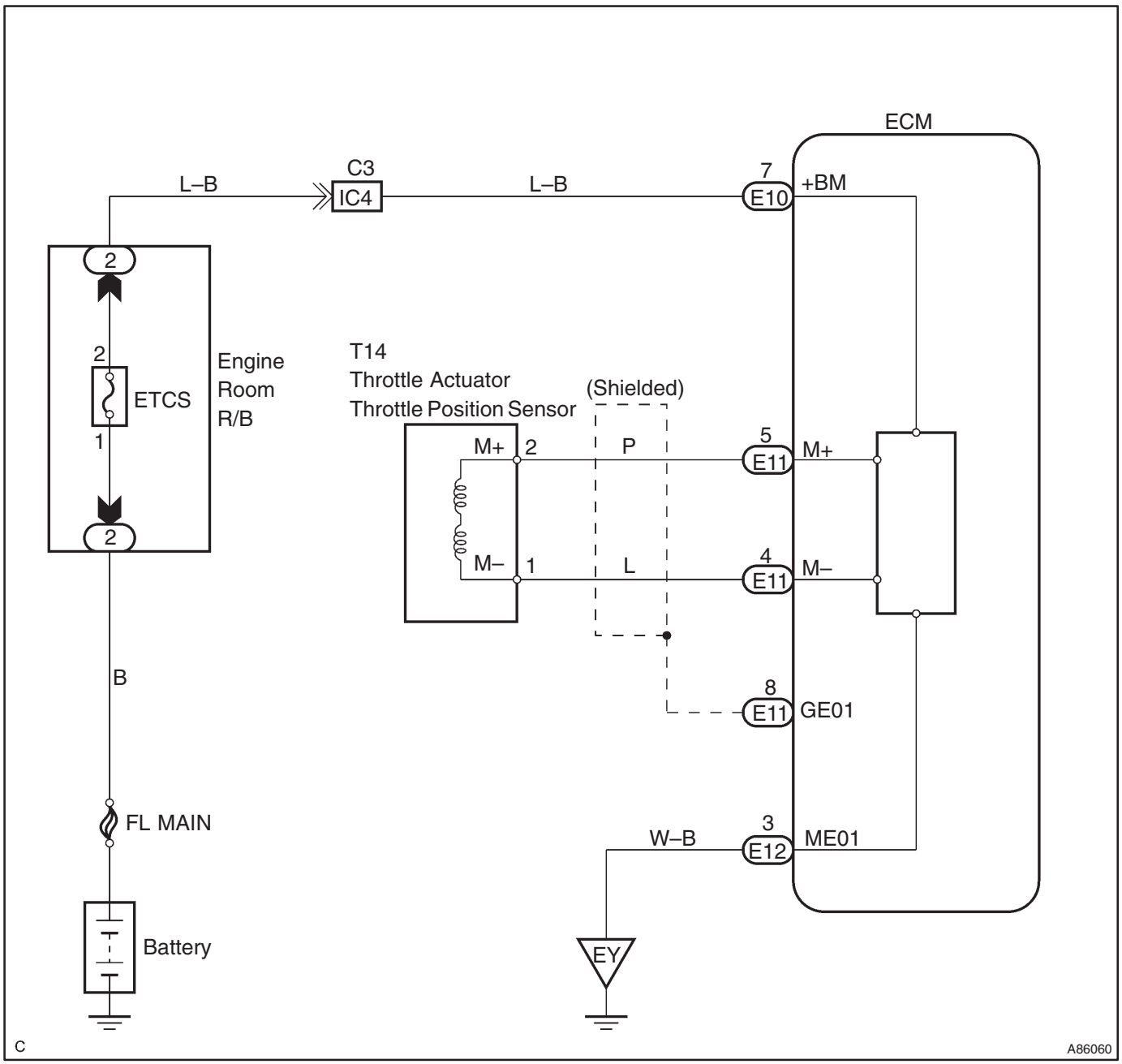
DTC	P2103/41	THROTTLE ACTUATOR CONTROL MOTOR CIRCUIT HIGH

CIRCUIT 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. It provides feedback to the ECM to control the throttle actuator in order to control the throttle valve opening angle properly in response to the driving condition.
If these malfunctions are detected, the ECM shuts down the power for the throttle actuator, and the throttle valve is locked at a certain angle by the return spring. Also, the whole electronically controlled throttle operation is cancelled until the system returns to normal and the ignition switch is turned to OFF.
HINT:
This ETCS (Electronic Throttle Control System) does not use a throttle cable.

DTC No.	DTC Detection Condition	Trouble Area
P2102/41	Conditions (a) and (b) continue for 2.0 seconds (1 trip detection logic): (a) Throttle actuator output duty ratio is 80% or more (b) Throttle actuator current is 0.5 A or less	• Open in throttle actuator circuit • Throttle actuator • ECM
P2103/41	Either of following conditions is met (1 trip detection logic): • Throttle actuator current is 10 A or more for 0.1 seconds • Throttle actuator current is 7A or more for 0.6 seconds	• Short in throttle actuator circuit • Throttle actuator • Throttle valve • Throttle body assembly • ECM

WIRING DIAGRAM

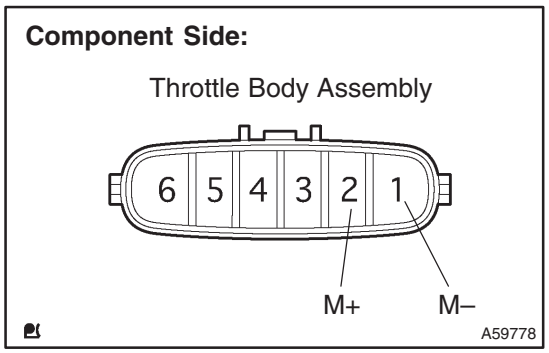


INSPECTION PROCEDURE

HINT:

Read freeze frame data using the intelligent tester II. Freeze frame data record the engine condition when malfunctions are detected. When troubleshooting, freeze frame data can help determine if the vehicle was moving or stationary, 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 W/MOTOR BODY ASSY(RESISTANCE OF THROTTLE ACTUATOR)



(a) Disconnect the T14 throttle body connector.
(b) Measure the resistance according to the value(s) in the table below.

Standard:

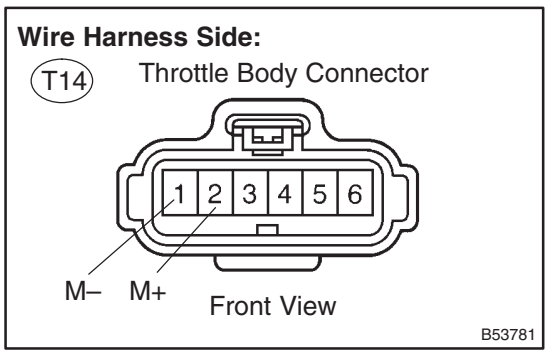
Tester Connection	Specified Condition
M+ (T14–2) – M– (T14–1)	0.3 to 100 Ω at 20°C (68°F)

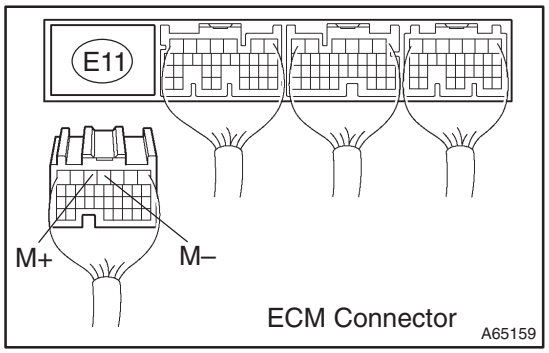
(c) Reconnect the throttle body connector.

NG → **REPLACE THROTTLE W/MOTOR BODY ASSY (See page 10–7)**

OK

2 CHECK HARNESS AND CONNECTOR(THROTTLE ACTUATOR – ECM)





(a) Disconnect the T14 throttle body connector.
(b) Disconnect the E11 ECM connector.
(c) Measure the resistance according to the value(s) in the table below.

Standard (Check for open):

Tester Connection	Specified Condition
M+ (T14–2) – M+ (E11–5)	Below 1 Ω
M– (T14–1) – M– (E11–4)	Below 1 Ω

Standard (Check for short):

Tester Connection	Specified Condition
M+ (T14–2) or M+ (E11–5) – Body ground	10 kΩ or higher
M– (T14–1) or M– (E11–4) – Body ground	10 kΩ or higher

(d) Reconnect the throttle body connector.
(e) Reconnect the ECM connector.

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

OK

3 INSPECT THROTTLE W/MOTOR BODY ASSY

(a) Visually check for foreign objects between the throttle valve and the housing.
Also, check if the valve can open and close smoothly.
OK: The throttle valve is not contaminated with foreign objects and can move smoothly.

NG → **REMOVE FOREIGN OBJECT AND CLEAN THROTTLE BODY**

OK

REPLACE ECM (See page 10–12)