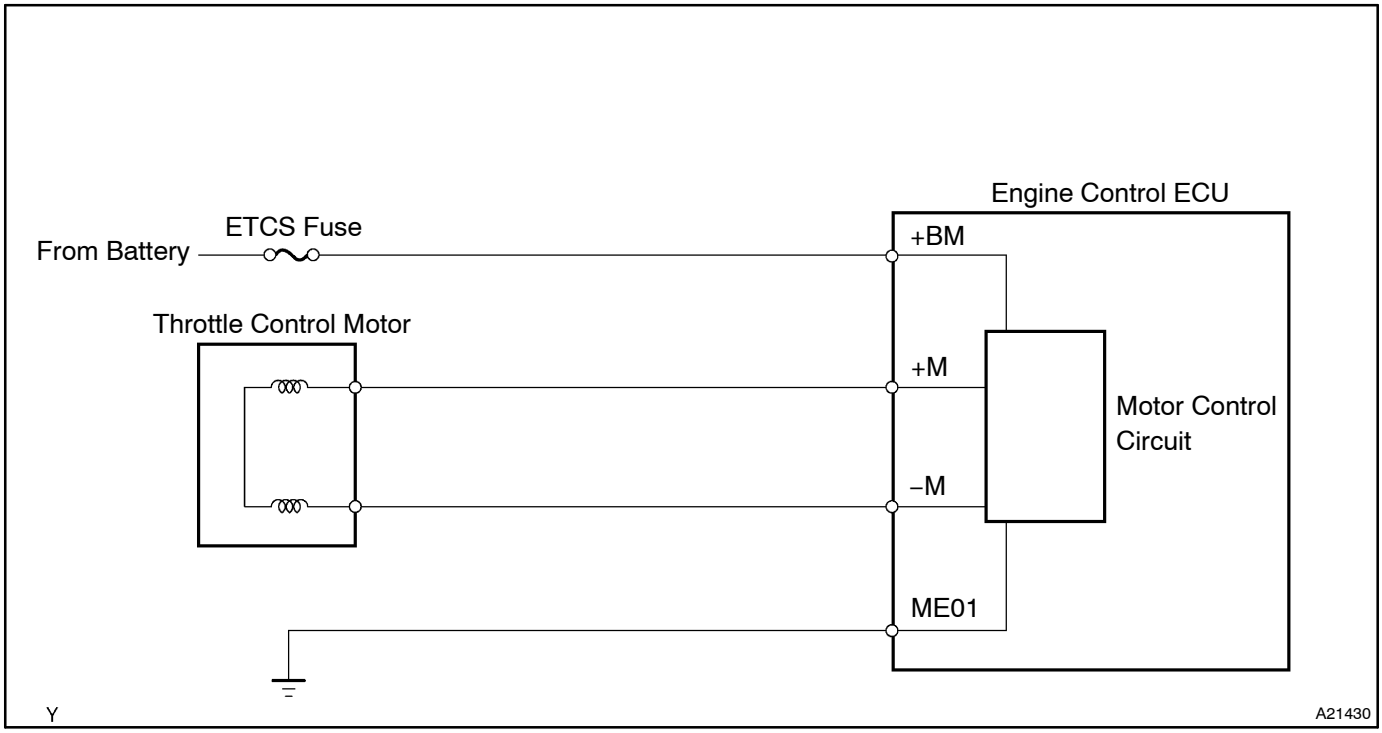
DIC2Q–03

DTC	P2118/89*	Throttle Actuator Control Motor Current Range/Performance

*: ETCS trouble code No. is 13.

CIRCUIT DESCRIPTION

The Electronic Throttle Control System (ETCS) has a dedicated power supply circuit. The voltage (+BM) is monitored and when the voltage is low (less than 4V), the engine control ECU concludes that the ETCS has a fault and current to the throttle control motor is cut.
When the voltage becomes unstable, the ETCS itself becomes unstable. For this reason, when the voltage is low, the current to the motor is cut. If repairs are made and the system has returned to normal, turn the ignition switch to OFF. The engine control ECU then allows current to flow to the motor and the motor can be restarted.
HINT:
This Electrical Throttle Control System (ETCS) does not use a throttle cable.



DTC No.	DTC Detection Condition	Trouble Area
P2118/89	Open in ETCS power source (+BM) circuit (1 trip detection logic)	• Open in ETCS power source circuit • ETCS fuse • Engine control ECU

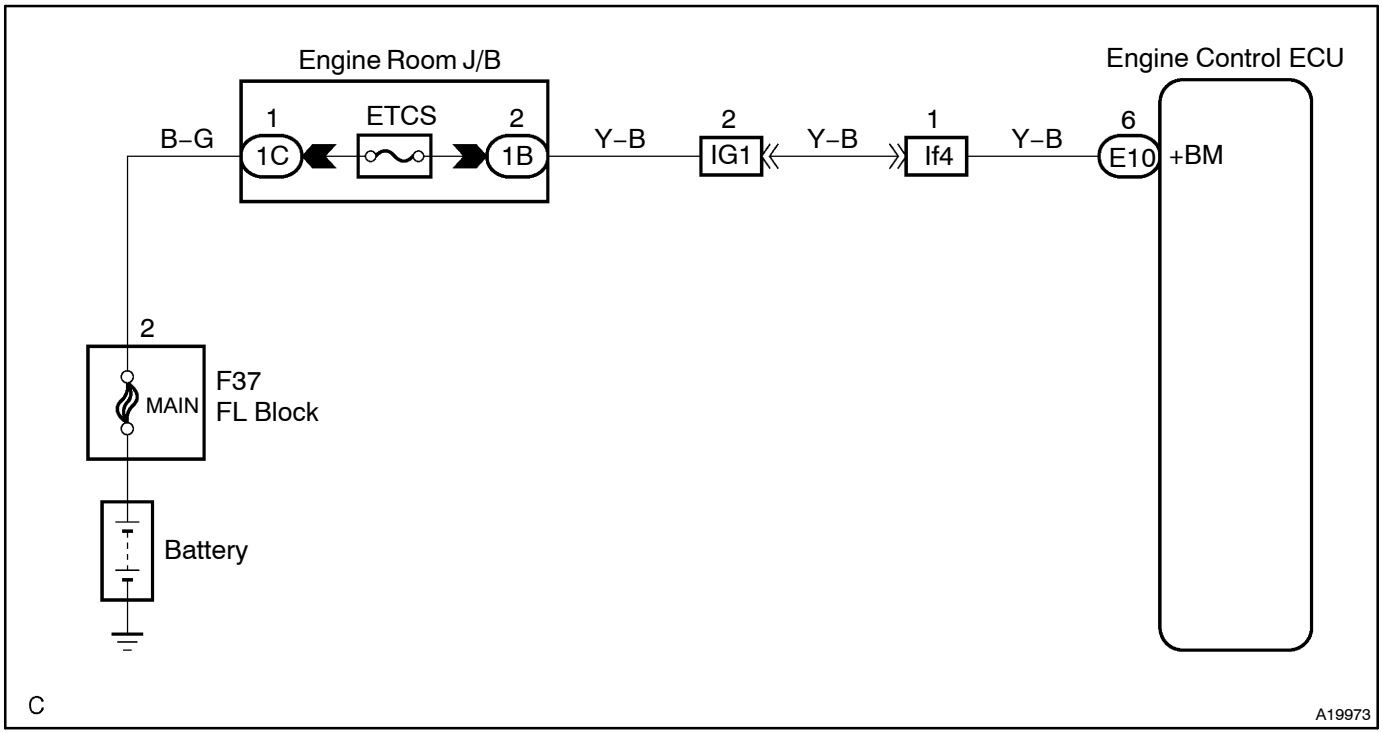
MONITOR DESCRIPTION

The engine control ECU monitors the battery supply voltage applied to the electronic throttle motor. When the power supply voltage drops below the threshold, the engine control ECU concludes that the power supply has an open circuit. A DTC is set and the MIL is turned on.

FAIL SAFE

If the ETCS (Electronic Throttle Control System) has a malfunction, the engine control ECU 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 engine control ECU then adjusts the engine output by controlling the fuel infection (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.

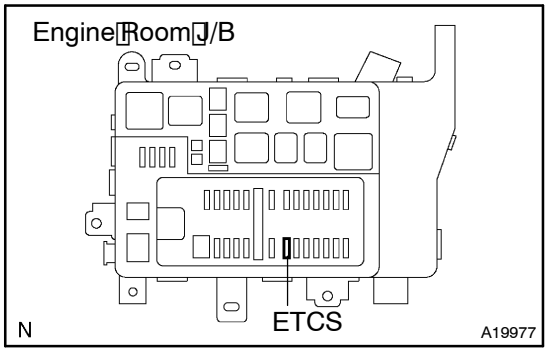
WIRING DIAGRAM



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, as well as other data from the time when a malfunction occurred.

1	Check ETCS fuse.



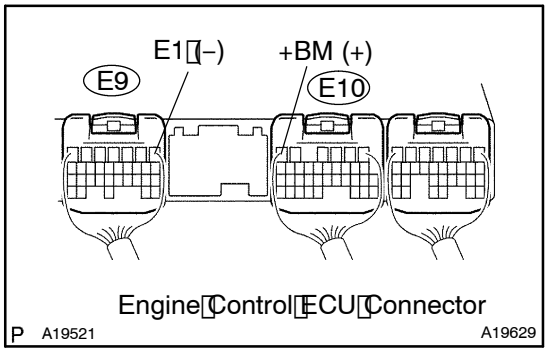
PREPARATION:
Remove the ETCS fuse from the engine room J/B.
CHECK:
Check the continuity of the ETCS fuse.
OK:

Continuity

NG → **Check for short in all harness and components connected to ETCS fuse.**

OK

2	Check voltage between terminal +BM and E1 of engine control ECU connector.



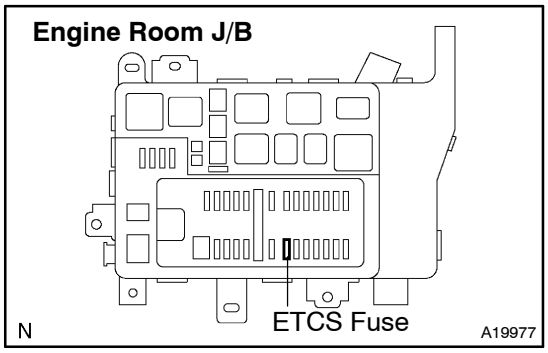
CHECK:
Measure the voltage between the specified terminals of the E9 and E10 engine control ECU connector.
OK:

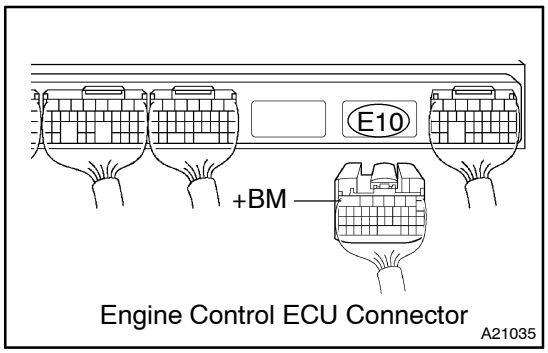
Tester Connection	Specified Condition
+BM (E10–6) – E7 (E9–1)	9 to 14 V

OK → **Check for intermittent problems (See page DI–3).**

NG

3	Check for open or short in harness or connector between battery and ETCS fuse, ETCS fuse and engine control ECU.





Check the harness and the connector between the ETCS fuse and the engine control ECU:

PREPARATION:

(a) Remove the ETCS fuse from the engine room J/B.

(b) Disconnect the E10 engine control ECU connector.

CHECK:

Measure the resistance between the wire harness side connector.

OK:

Tester Connection	Specified Condition
Engine Room J/B (ETCS fuse terminal 2) – +BM (E10–6)	Below 1 Ω
Engine Room J/B (ETCS fuse terminal 2) or +BM (E10–6) – Body ground	10 kΩ or higher

Check the harness and connector between the ETCS fuse and the battery:

PREPARATION:

(a) Remove the ETCS fuse from the engine room J/B.

(b) Disconnect the battery positive terminal.

CHECK:

Measure the resistance between the wire harness side connector.

OK:

Tester Connection	Specified Condition
Engine Room J/B (ETCS fuse terminal 1) – Battery positive terminal	Below 1 Ω
Engine Room J/B (ETCS fuse terminal 1) or Battery positive terminal – Body ground	10 kΩ or higher

NG → **Repair or replace harness or connector.**

OK

Check engine room J/B.