

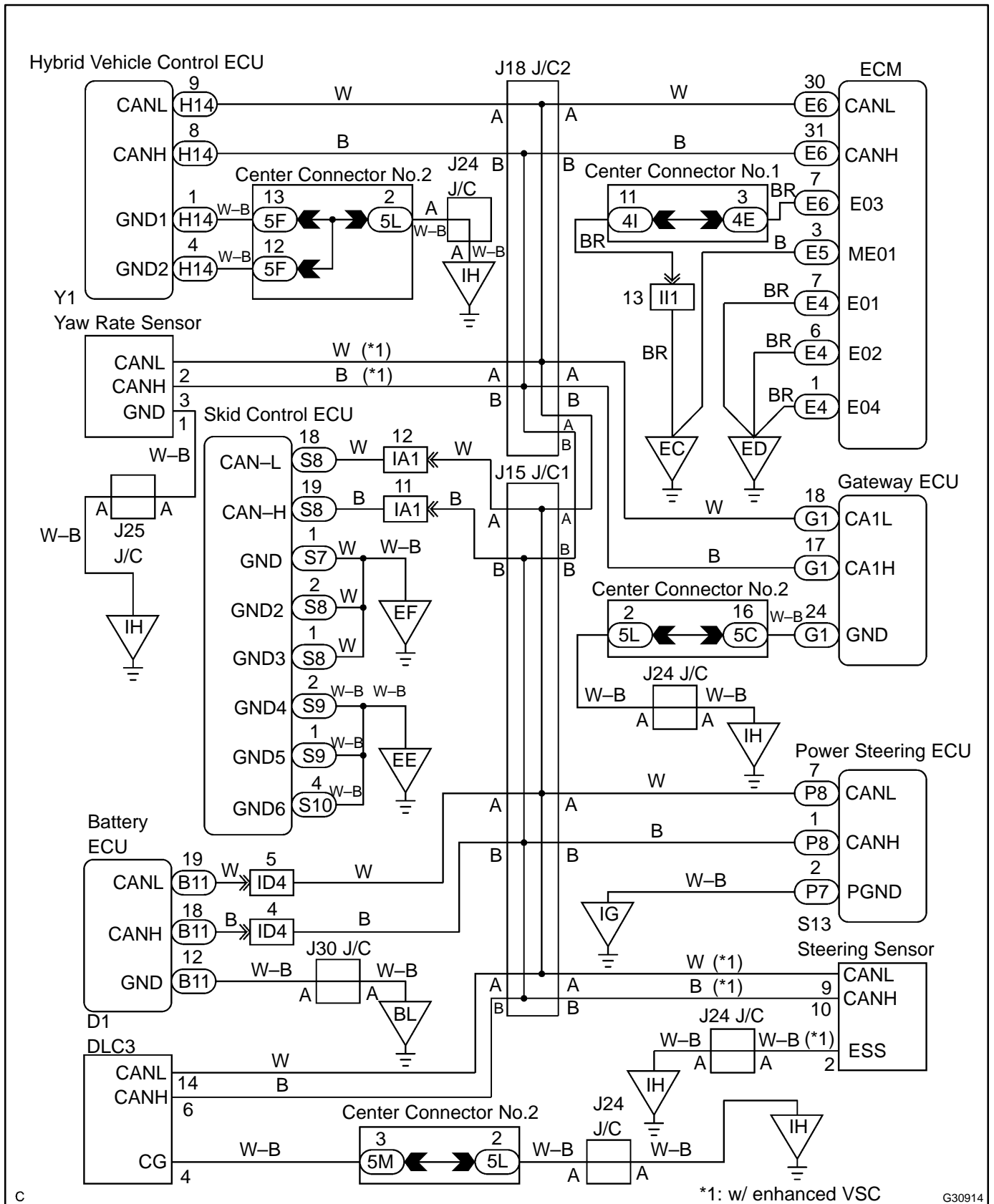
CHECK CAN BUS LINE FOR SHORT TO GND

CIRCUIT DESCRIPTION

There may be a short circuit between the CAN bus line and GND when there is resistance between terminals 6 (CANH) and 4 (CG) or terminals 14 (CANL) and 4 (CG) of the DLC3.

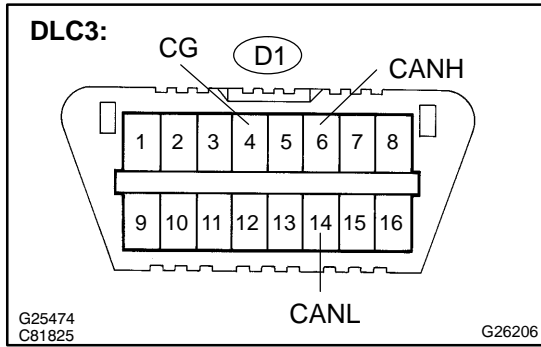
Symptom	Trouble Area
There is resistance between terminals 6 (CANH) and 4 (CG) or terminals 14 (CANL) and 4 (CG) of the DLC3.	<ul style="list-style-type: none"> • Short to GND • Hybrid vehicle control ECU • Battery ECU • ECM • Skid control ECU • Steering sensor • Yaw rate sensor • Power steering ECU

WIRING DIAGRAM



INSPECTION PROCEDURE

1 CHECK CAN BUS LINE FOR SHORT TO GND(DLC3 SUB BUS LINE)



- (a) Turn the power switch off.
- (b) Disconnect the J/C1 connector (J15).
- (c) Measure the resistance according to the value(s) in the table below.

Standard:

Tester connection	Condition	Specified value
D1-6 (CANH) - D1-4 (CG)	Power Switch OFF	1 MΩ or more
D1-14 (CANL) - D1-4 (CG)	Power Switch OFF	1 MΩ or more

NG → **REPLACE DLC3 SUB BUS LINE OR CONNECTOR (CAN-H, CAN-L)**

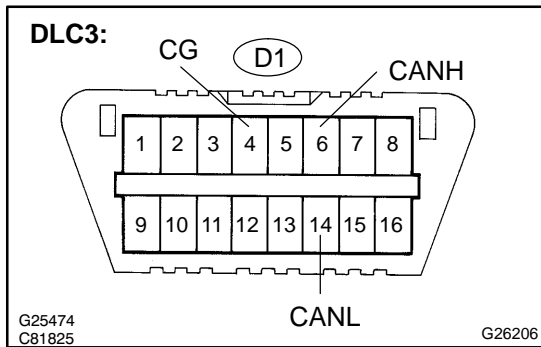
OK

2 CONNECT CONNECTOR

- (a) Reconnect the J/C1 connector (J15).

OK

3 CHECK CAN BUS LINE FOR SHORT TO GND(CAN BUSES TO J/C2)



- (a) Disconnect the J/C2 connector (J18).
- (b) Measure the resistance according to the value(s) in the table below.

Standard:

Tester connection	Condition	Specified value
D1-6 (CANH) - D1-4 (CG)	Power Switch OFF	1 kΩ or more
D1-14 (CANL) - D1-4 (CG)	Power Switch OFF	1 kΩ or more

OK → **Go to step 16**

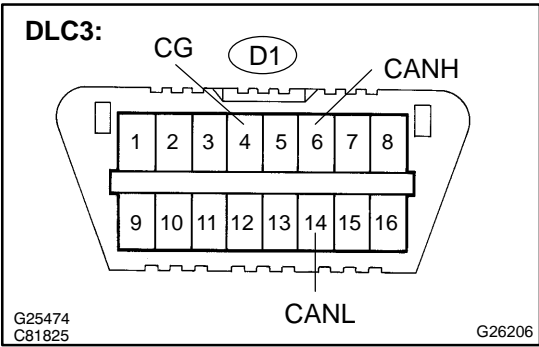
NG

4 CONNECT CONNECTOR

- (a) Reconnect the J/C2 connector (J18).

OK

5 CHECK CAN BUS LINE FOR SHORT TO GND(BATTERY ECU)



- (a) Disconnect the battery ECU connector (B11).
- (b) Measure the resistance according to the value(s) in the table below.

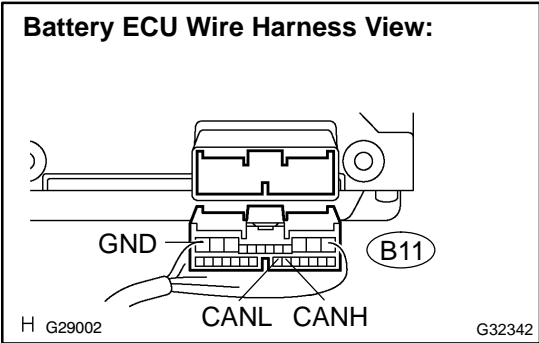
Standard:

Tester connection	Condition	Specified value
D1-6 (CANH) - D1-4 (CG)	Power Switch OFF	1 kΩ or more
D1-14 (CANL) - D1-4 (CG)	Power Switch OFF	1 kΩ or more

OK → **REPLACE BATTERY ECU ASSY (SEE PAGE 21-98)**

NG

6 CHECK CAN BUS LINE FOR SHORT TO GND(BATTERY ECU - J/C1)



- (a) Disconnect the J/C1 connector (J15).
- (b) Measure the resistance according to the value(s) in the table below.

Standard:

Tester connection	Condition	Specified value
B11-18 (CANH) - B11-12 (GND)	Power Switch OFF	1 MΩ or more
B11-19 (CANL) - B11-12 (GND)	Power Switch OFF	1 MΩ or more

HINT:
Measure the resistance with the battery ECU connector (B11) disconnected.

NG → **REPLACE CAN MAIN BUS LINE OR CONNECTOR (BATTERY ECU - J/C1)**

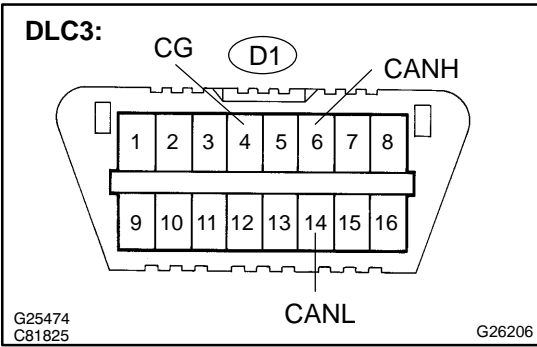
OK

7 CONNECT CONNECTOR

- (a) Reconnect the battery ECU connector (B11) and J/C1 connector (J15).

OK

8 CHECK CAN BUS LINE FOR SHORT TO GND(POWER STEERING ECU)



- (a) Disconnect the power steering ECU connector (P8).
- (b) Measure the resistance according to the value(s) in the table below.

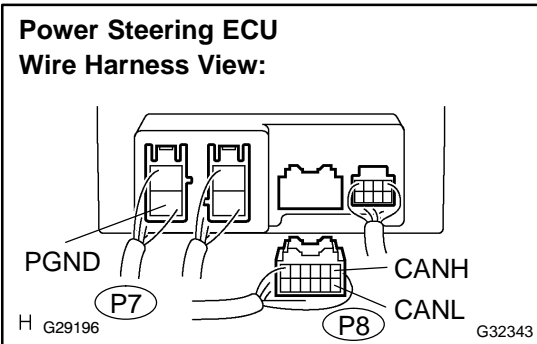
Standard:

Tester connection	Condition	Specified value
D1-6 (CANH) - D1-4 (CG)	Power Switch OFF	1 kΩ or more
D1-14 (CANL) - D1-4 (CG)	Power Switch OFF	1 kΩ or more

OK → **REPLACE POWER STEERING ECU ASSY (SEE PAGE 50-16)**

NG

9 CHECK CAN BUS LINE FOR SHORT TO GND(POWER STEERING ECU SUB BUS LINE)



- (a) Disconnect the J/C1 connector (J15).
- (b) Measure the resistance according to the value(s) in the table below.

Standard:

Tester connection	Condition	Specified value
P8-1 (CANH) - P7-2 (PGND)	Power Switch OFF	1 MΩ or more
P8-7 (CANL) - P7-2 (PGND)	Power Switch OFF	1 MΩ or more

HINT:

Measure the resistance with the power steering ECU connector (P8) disconnected.

NG → **REPLACE POWER STEERING ECU SUB BUS LINE OR CONNECTOR (CAN-H, CAN-L)**

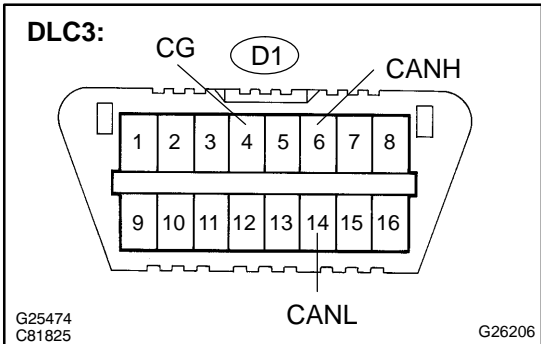
OK

10 CONNECT CONNECTOR

- (a) Reconnect the power steering ECU connector (P8) and J/C1 connector (J15).

OK

11 CHECK CAN BUS LINE FOR SHORT TO GND(STEERING SENSOR)



NOTICE:

For vehicles without enhanced VSC, go to step 14.

- (a) Disconnect the steering sensor connector (S13).
- (b) Measure the resistance according to the value(s) in the table below.

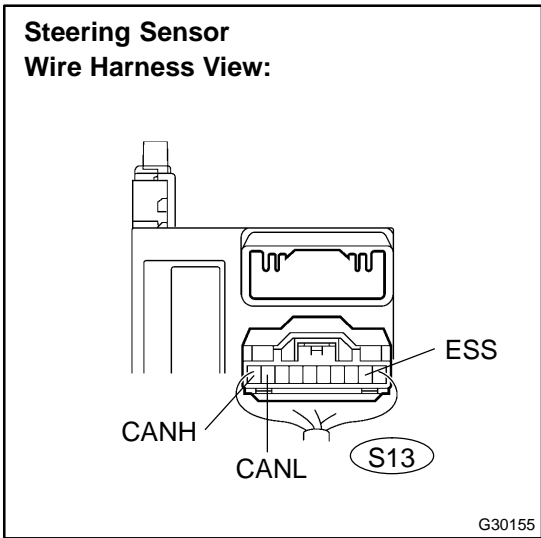
Standard:

Tester connection	Condition	Specified value
D1-6 (CANH) - D1-4 (CG)	Power Switch OFF	1 kΩ or more
D1-14 (CANL) - D1-4 (CG)	Power Switch OFF	1 kΩ or more

OK → **REPLACE STEERING SENSOR (SEE PAGE 32-71)**

NG

12 CHECK CAN BUS LINE FOR SHORT TO GND(STEERING SENSOR SUB BUS LINE)



- (a) Disconnect the J/C1 connector (J15).
- (b) Measure the resistance according to the value(s) in the table below.

Standard:

Tester connection	Condition	Specified value
S13-10 (CANH) - S13-2 (ESS)	Power Switch OFF	1 MΩ or more
S13-9 (CANL) - S13-2 (ESS)	Power Switch OFF	1 MΩ or more

HINT:

Measure the resistance with the steering sensor connector (S13) disconnected.

NG → **REPLACE STEERING SENSOR SUB BUS LINE OR CONNECTOR (CAN-H, CAN-L)**

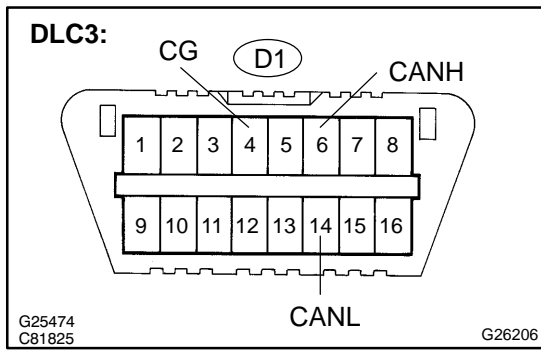
OK

13 CONNECT CONNECTOR

- (a) Reconnect the steering sensor connector (S13) and J/C1 connector (J15).

OK

14 CHECK CAN BUS LINE FOR SHORT TO GND(SKID CONTROL ECU)



- (a) Disconnect the skid control ECU connector (S8).
- (b) Measure the resistance according to the value(s) in the table below.

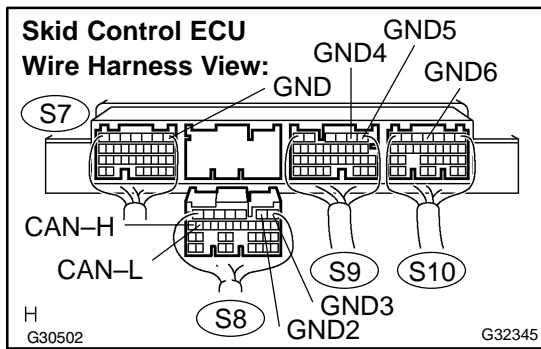
Standard:

Tester connection	Condition	Specified value
D1-6 (CANH) - D1-4 (CG)	Power Switch OFF	1 kΩ or more
D1-14 (CANL) - D1-4 (CG)	Power Switch OFF	1 kΩ or more

OK → **REPLACE SKID CONTROL ECU ASSY (SEE PAGE 32-68)**

NG

15 CHECK CAN BUS LINE FOR SHORT TO GND(SKID CONTROL ECU SUB BUS LINE)



- (a) Disconnect the J/C1 connector (J15).
- (b) Measure the resistance according to the value(s) in the table below.

Standard:

Tester connection	Condition	Specified value
S8-19 (CAN-H) - S7-1 (GND), S8-2 (GND2) S8-1 (GND3), S9-2 (GND4) S9-1 (GND5), S10-4 (GND6)	Power Switch OFF	1 MΩ or more
S8-18 (CAN-L) - S7-1 (GND), S8-2 (GND2) S8-1 (GND3), S9-2 (GND4) S9-1 (GND5), S10-4 (GND6)	Power Switch OFF	1 MΩ or more

HINT:

Measure the resistance with the skid control ECU connector (S8) disconnected.

NG → **REPLACE SKID CONTROL ECU SUB BUS LINE OR CONNECTOR (CAN-H, CAN-L)**

OK

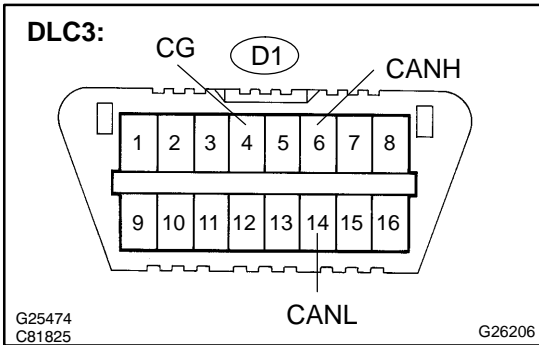
REPLACE CAN MAIN BUS LINE OR CONNECTOR (J/C1 - J/C2)

16 CONNECT CONNECTOR

(a) Reconnect the J/C2 connector (J18).



17 CHECK CAN BUS LINE FOR SHORT TO GND(ECM)



- (a) Disconnect the ECM connector (E6).
- (b) Measure the resistance according to the value(s) in the table below.

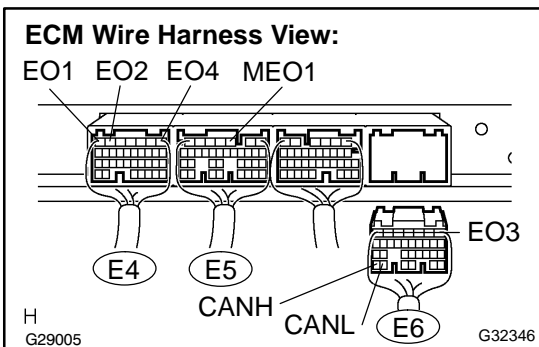
Standard:

Tester connection	Condition	Specified value
D1-6 (CANH) - D1-4 (CG)	Power Switch OFF	1 kΩ or more
D1-14 (CANL) - D1-4 (CG)	Power Switch OFF	1 kΩ or more

OK → **REPLACE ECM (SEE PAGE 10-24)**

NG

18 CHECK CAN BUS LINE FOR SHORT TO GND(ECM - J/C2)



- (a) Disconnect the J/C2 connector (J18).
- (b) Measure the resistance according to the value(s) in the table below.

Standard:

Tester connection	Condition	Specified value
E6-31 (CANH) - E4-7 (EO1), E4-6 (EO2) E6-7 (EO3), E4-1 (EO4) E5-3 (MEO1)	Power Switch OFF	1 MΩ or more
E6-30 (CANL) - E4-7 (EO1), E4-6 (EO2) E6-7 (EO3), E4-1 (EO4) E5-3 (MEO1)	Power Switch OFF	1 MΩ or more

HINT:

Measure the resistance with the ECM connector (E6) disconnected.

NG → **REPLACE CAN MAIN BUS LINE OR CONNECTOR (ECM - J/C2)**

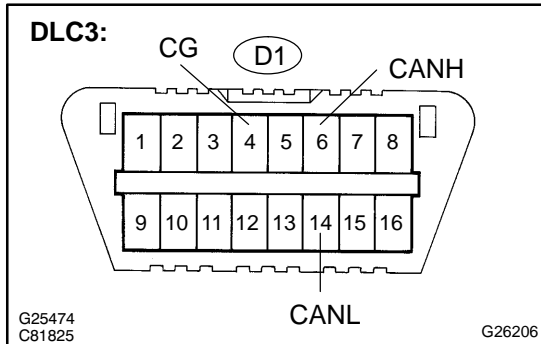
OK

19 CONNECT CONNECTOR

(a) Reconnect the ECM connector (E6) and J/C2 connector (J18).



20 CHECK CAN BUS LINE FOR SHORT TO GND(YAW RATE SENSOR)



NOTICE:

For vehicles without enhanced VSC, go to step 23.

- (a) Disconnect the yaw rate sensor connector (Y1).
- (b) Measure the resistance according to the value(s) in the table below.

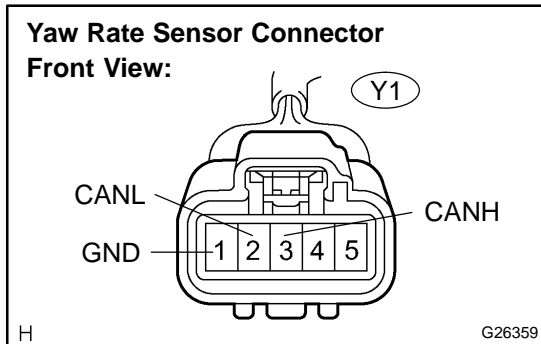
Standard:

Tester connection	Condition	Specified value
D1-6 (CANH) - D1-4 (CG)	Power Switch OFF	1 kΩ or more
D1-14 (CANL) - D1-4 (CG)	Power Switch OFF	1 kΩ or more

OK → **REPLACE YAW RATE SENSOR (SEE PAGE 32-70)**

NG

21 CHECK CAN BUS LINE FOR SHORT TO GND(YAW RATE SENSOR SUB BUS LINE)



- (a) Disconnect the J/C2 connector (J18).
- (b) Measure the resistance according to the value(s) in the table below.

Standard:

Tester connection	Condition	Specified value
Y1-3 (CANH) - Y1-1 (GND)	Power Switch OFF	1 MΩ or more
Y1-2 (CANL) - Y1-1 (GND)	Power Switch OFF	1 MΩ or more

HINT:

Measure the resistance with the yaw rate sensor connector (Y1) disconnected.

NG → **REPLACE YAW RATE SENSOR SUB BUS LINE OR CONNECTOR (CAN-H, CAN-L)**

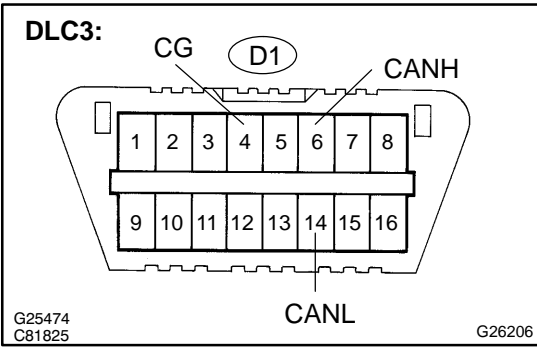
OK

22 CONNECT CONNECTOR

- (a) Reconnect the yaw rate sensor connector (Y1) and J/C2 connector (J18).

OK

23 CHECK CAN BUS LINE FOR SHORT TO GND(HYBRID VEHICLE CONTROL ECU)



- (a) Disconnect the hybrid vehicle control ECU connector (H14).
- (b) Measure the resistance according to the value(s) in the table below.

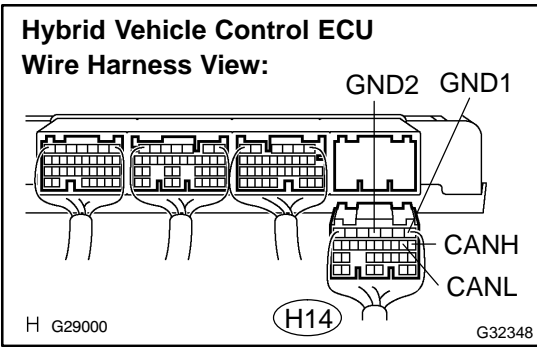
Standard:

Tester connection	Condition	Specified value
D1-6 (CANH) - D1-4 (CG)	Power Switch OFF	1 kΩ or more
D1-14 (CANL) - D1-4 (CG)	Power Switch OFF	1 kΩ or more

OK → **REPLACE HYBRID VEHICLE CONTROL ECU (SEE PAGE 21-124)**

NG

24 CHECK CAN BUS LINE FOR SHORT TO GND(HYBRID VEHICLE CONTROL ECU SUB BUS LINE)



- (a) Disconnect the J/C2 connector (J18).
- (b) Measure the resistance according to the value(s) in the table below.

Standard:

Tester connection	Condition	Specified value
H14-8 (CANH) - H14-1 (GND1), H14-4 (GND2)	Power Switch OFF	1 MΩ or more
H14-9 (CANL) - H14-1 (GND1), H14-4 (GND2)	Power Switch OFF	1 MΩ or more

HINT:

Measure the resistance with the hybrid vehicle control ECU (H14) disconnected.

NG → **REPLACE HYBRID VEHICLE CONTROL ECU SUB BUS LINE OR CONNECTOR (CAN-H, CAN-L)**

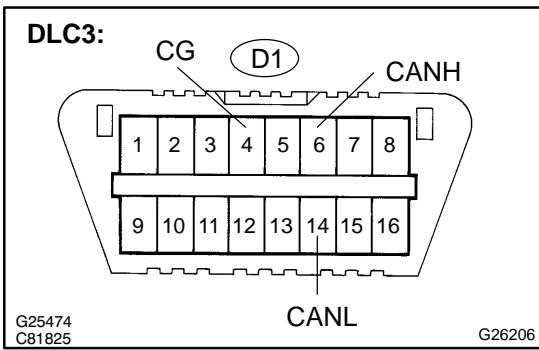
OK

25 CONNECT CONNECTOR

- (a) Reconnect the hybrid vehicle control ECU connector (H14) and J/C2 connector (J18).

OK

26 CHECK CAN BUS LINE FOR SHORT TO GND(GATEWAY ECU)



- (a) Disconnect the gateway ECU connector (G1).
- (b) Measure the resistance according to the value(s) in the table below.

Standard:

Tester connection	Condition	Specified value
D1-6 (CANH) - D1-4 (CG)	Power Switch OFF	1 kΩ or more
D1-14 (CANL) - D1-4 (CG)	Power Switch OFF	1 kΩ or more

OK → **REPLACE GATEWAY ECU (SEE PAGE 67-26)**

NG

REPLACE GATEWAY ECU SUB BUS LINE OR CONNECTOR (CAN-H, CAN-L)