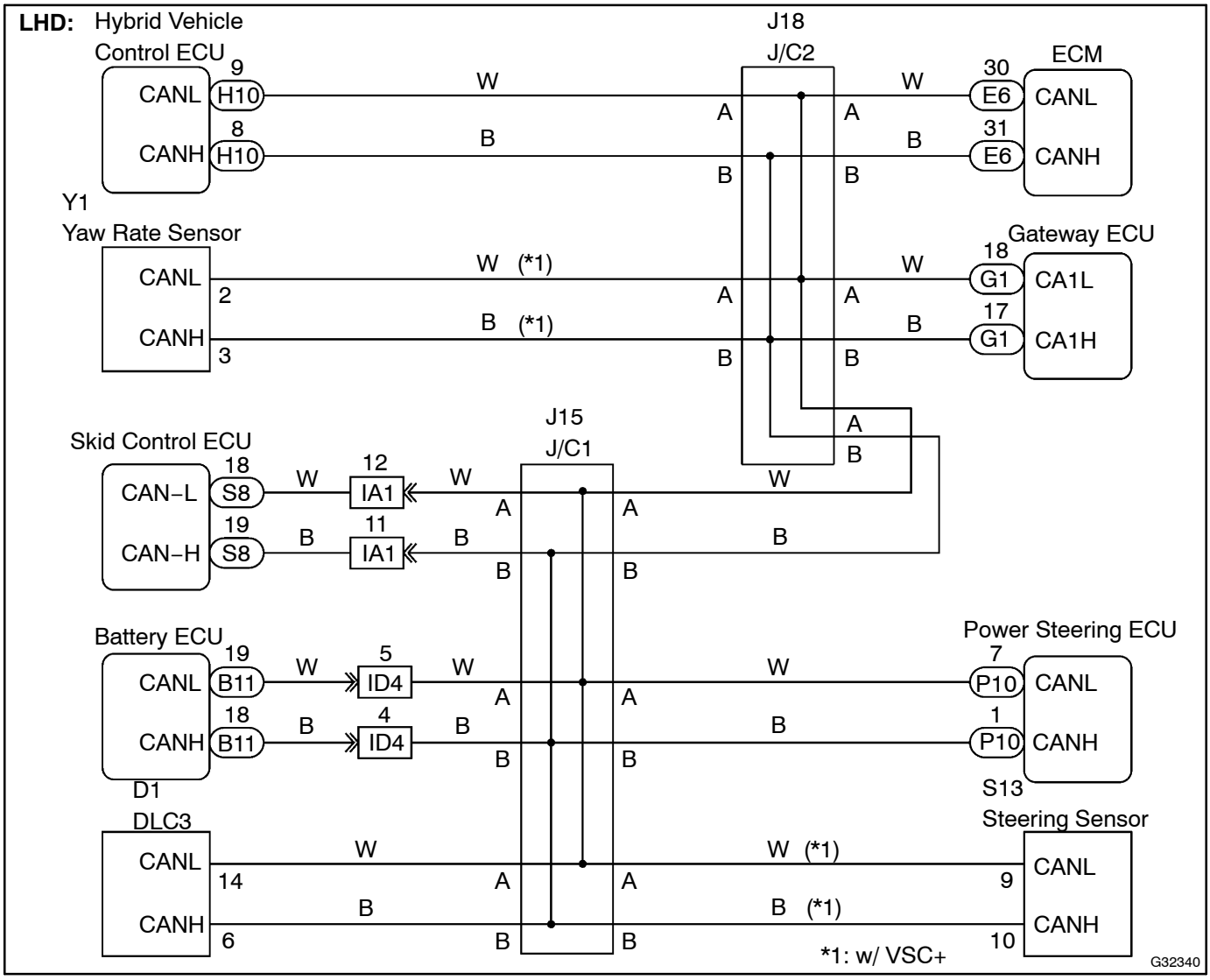
CHECK CAN BUS LINES FOR SHORT CIRCUIT (LHD)

CIRCUIT DESCRIPTION

There may be a short circuit between the CAN bus lines when the resistance between terminals 6 (CANH) and 14 (CANL) of the DLC3 is below 54 Ω.

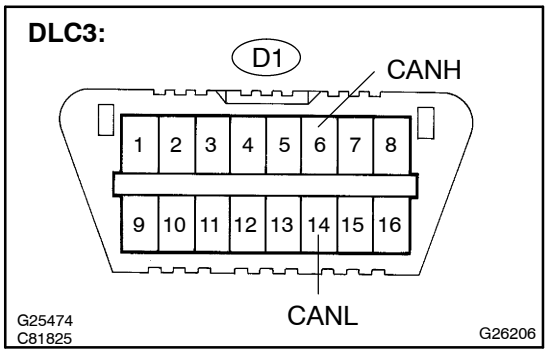
Symptom	Trouble Area
Resistance between terminals 6 (CANH) and 14 (CANL) of the DLC3 is below 54 Ω.	• Short between CAN bus lines • Hybrid vehicle control ECU • Battery ECU • ECM • Skid control ECU • Steering sensor • Yaw rate sensor • Power steering ECU • Gateway ECU • Junction connector (J/C1) • Junction connector (J/C2)

WIRING DIAGRAM



INSPECTION PROCEDURE

1 CHECK CAN BUS LINES FOR SHORT CIRCUIT(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) – D1–14 (CANL)	Power Switch OFF	1 MΩ or more

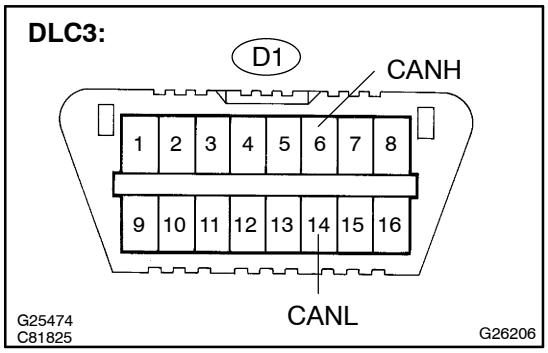
NG → **REPLACE DLC3 SUB BUS LINE OR CONNECTOR (CAN–H, CAN–L)**

OK

2 CONNECT CONNECTOR

(a) Reconnect the J/C 1 connector (J15).

3 CHECK CAN BUS LINES FOR SHORT CIRCUIT(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:

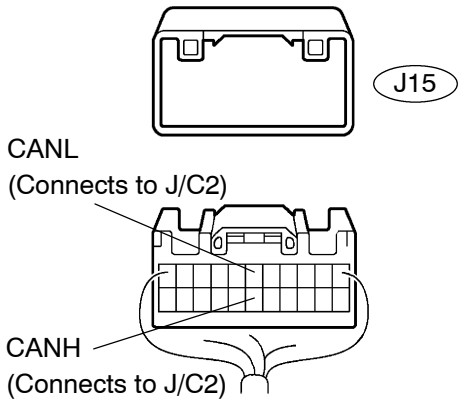
Tester connection	Condition	Specified value
D1–6 (CANH) – D1–14 (CANL)	Power Switch OFF	108 to 132 Ω

OK → **Go to step 17**

NG

4 CHECK CAN BUS LINES FOR SHORT CIRCUIT(J/C1 – J/C2)

Junction Connector (J/C1)
Wire Harness View:



(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
J15–17 (CANH) – J15–6 (CANL)	Power Switch OFF	1 MΩ or more

HINT:
Measure the resistance with the J/C2 connector (J18) disconnected.

NG → **REPLACE CAN MAIN BUS LINE OR CONNECTOR (J/C1 – J/C2)**

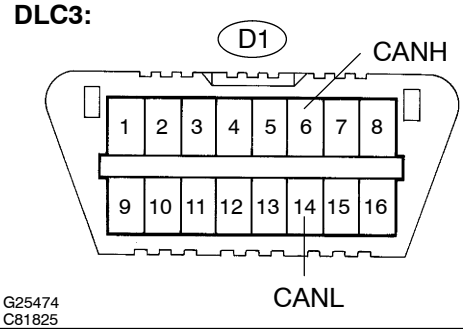
OK

5 CONNECT CONNECTOR

(a) Reconnect the J/C1 connector (J15) and J/C2 connector (J18).

6 CHECK CAN BUS LINES FOR SHORT CIRCUIT(BATTERY ECU)

DLC3:



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

Standard:

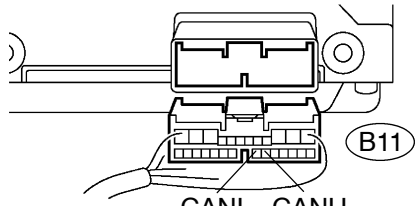
Tester connection	Condition	Specified value
D1–6 (CANH) – D1–14 (CANL)	Power Switch OFF	108 to 132 Ω

OK → **REPLACE BATTERY ECU ASSY (SEE PAGE 21–100)**

NG

7 CHECK CAN BUS LINES FOR SHORT CIRCUIT(BATTERY ECU – J/C1)

Battery ECU Wire Harness View:



(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) – B11–19 (CANL)	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)**

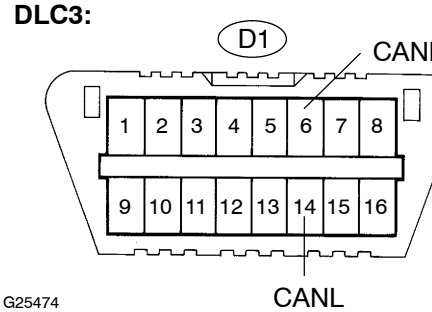
OK

8 CONNECT CONNECTOR

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

9 CHECK CAN BUS LINES FOR SHORT CIRCUIT(POWER STEERING ECU)

DLC3:



(a) Disconnect the power steering ECU connector (P10).
(b) Measure the resistance according to the value(s) in the table below.

Standard:

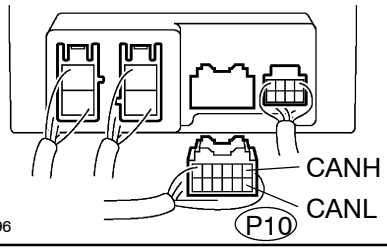
Tester connection	Condition	Specified value
D1–6 (CANH) – D1–14 (CANL)	Power Switch OFF	54 to 69 Ω

OK → **REPLACE POWER STEERING ECU ASSY (SEE PAGE 50–17)**

NG

10 CHECK CAN BUS LINES FOR SHORT CIRCUIT(POWER STEERING ECU SUB BUS LINE)

Power Steering ECU
Wire Harness View:



H G29196 G32343

(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
P10–1 (CANH) – P10–7 (CANL)	Power Switch OFF	1 MΩ or more

HINT:
Measure the resistance with the power steering ECU connector (P10) disconnected.

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

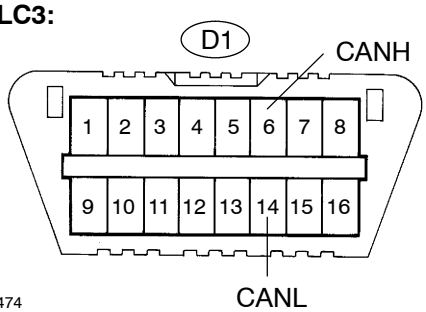
OK

11 CONNECT CONNECTOR

(a) Reconnect the power steering ECU connector (P10) and J/C1 connector (J15).

12 CHECK CAN BUS LINES FOR SHORT CIRCUIT(STEERING SENSOR)

DLC3:



G25474
C81825 G26206

NOTICE:
For vehicles without VSC+, go to step 15.
(a) Disconnect the steering sensor connector (S13).
(b) Measure the resistance according to the value(s) in the table below.
Standard:

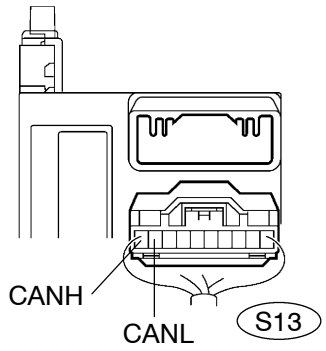
Tester connection	Condition	Specified value
D1–6 (CANH) – D1–14 (CANL)	Power Switch OFF	54 to 69 Ω

OK → **REPLACE STEERING SENSOR (SEE PAGE 32–85)**

NG

13 CHECK CAN BUS LINES FOR SHORT CIRCUIT(STEERING SENSOR SUB BUS LINE)

Steering Sensor
Wire Harness View:



G30155

(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) – S13–9 (CANL)	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)**

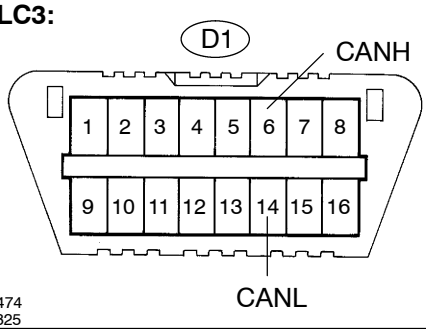
OK

14 CONNECT CONNECTOR

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

15 CHECK CAN BUS LINES FOR SHORT CIRCUIT(SKID CONTROL ECU)

DLC3:



G25474
C81825
G26206

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

Standard:

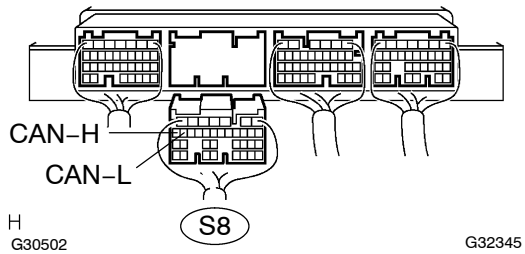
Tester connection	Condition	Specified value
D1–6 (CANH) – D1–14 (CANL)	Power Switch OFF	54 to 69 Ω

OK → **REPLACE SKID CONTROL ECU ASSY (SEE PAGE 32–81 OR 32–82)**

NG

16	CHECK CAN BUS LINES FOR SHORT CIRCUIT(SKID CONTROL ECU SUB BUS LINE)

Skid Control ECU
Wire Harness View:



(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) – S8–18 (CAN–L)	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

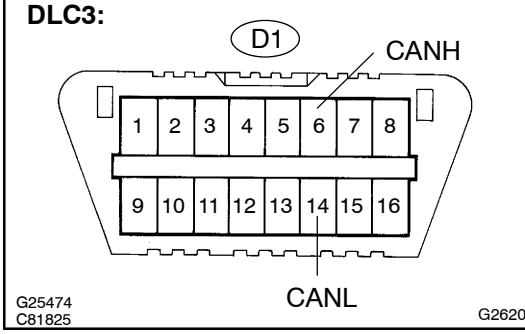
REPLACE JUNCTION CONNECTOR (J/C1)

17	CONNECT CONNECTOR

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

18	CHECK CAN BUS LINES FOR SHORT CIRCUIT(ECM)

DLC3:



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

Standard:

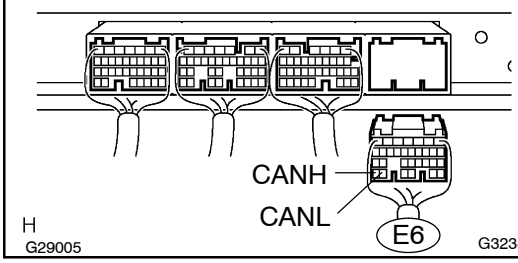
Tester connection	Condition	Specified value
D1–6 (CANH) – D1–14 (CANL)	Power Switch OFF	108 to 132 Ω

OK → **REPLACE ECM (SEE PAGE 10–24)**

NG

19 CHECK CAN BUS LINES FOR SHORT CIRCUIT(ECM – J/C2)

ECM Wire Harness View:



(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) – E6–30 (CANL)	Power Switch OFF	1 MΩ or more

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

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

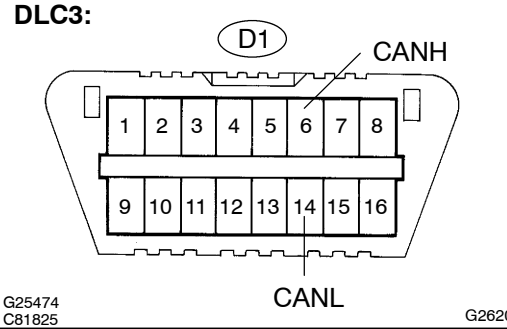
OK

20 CONNECT CONNECTOR

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

21 CHECK CAN BUS LINES FOR SHORT CIRCUIT(YAW RATE SENSOR)

DLC3:



NOTICE:
For vehicles without VSC+, go to step 24.

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

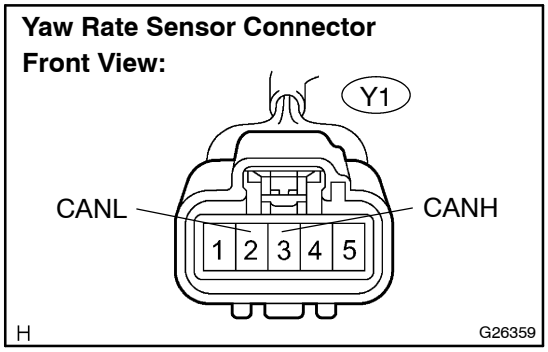
Standard:

Tester connection	Condition	Specified value
D1–6 (CANH) – D1–14 (CANL)	Power Switch OFF	54 to 69 Ω

OK → **REPLACE YAW RATE SENSOR (SEE PAGE 32–84)**

NG

22	CHECK CAN BUS LINES FOR SHORT CIRCUIT(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) – Y1–2 (CANL)	Power Switch OFF	1 MΩ or more

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

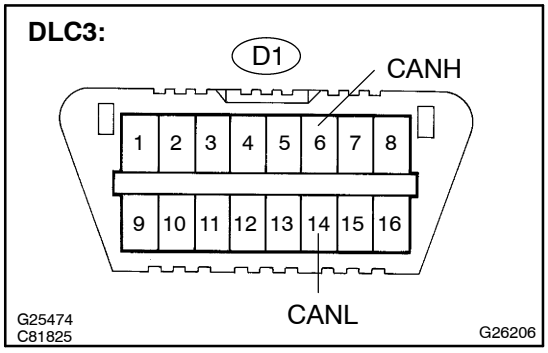
NG	REPLACE YAW RATE SENSOR SUB BUS LINE OR CONNECTOR (CAN–H, CAN–L)

OK

23	CONNECT CONNECTOR

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

24	CHECK CAN BUS LINES FOR SHORT CIRCUIT(HYBRID VEHICLE CONTROL ECU)



(a) Disconnect the hybrid vehicle control ECU connector (H10).
(b) Measure the resistance according to the value(s) in the table below.

Standard:

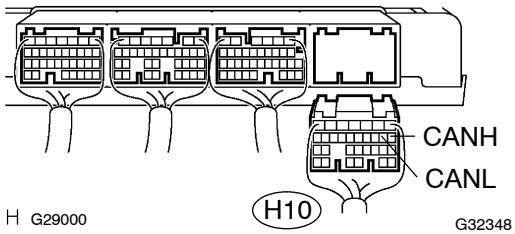
Tester connection	Condition	Specified value
D1–6 (CANH) – D1–14 (CANL)	Power Switch OFF	54 to 69 Ω

OK	REPLACE HYBRID VEHICLE CONTROL ECU (SEE PAGE 21–128)

NG

25	CHECK CAN BUS LINES FOR SHORT CIRCUIT(HYBRID VEHICLE CONTROL ECU SUB BUS LINE)

Hybrid Vehicle Control ECU Wire Harness View:



(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
H10–8 (CANH) – H10–9 (CANL)	Power Switch OFF	1 MΩ or more

HINT:
Measure the resistance with the hybrid vehicle control ECU (H10) disconnected.

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

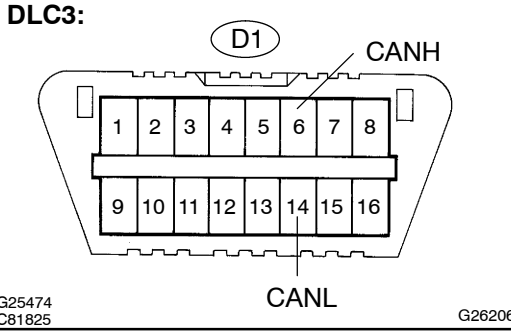
OK

26	CONNECT CONNECTOR

(a) Reconnect the hybrid vehicle control ECU connector (H10) and J/C2 connector (J18).

27	CHECK CAN BUS LINES FOR SHORT CIRCUIT(GATEWAY ECU)

DLC3:



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

Standard:

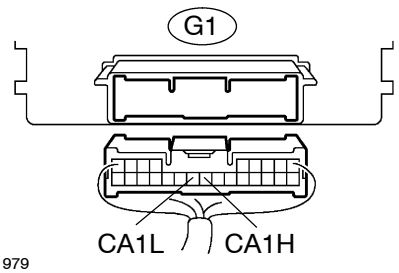
Tester connection	Condition	Specified value
D1–6 (CANH) – D1–14 (CANL)	Power Switch OFF	54 to 69 Ω

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

NG

28 CHECK CAN BUS LINES FOR SHORT CIRCUIT(GATEWAY ECU SUB BUS LINE)

Gateway ECU Wire Harness View:



(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
G1–17 (CA1H) – G1–18 (CA1L)	Power Switch OFF	1 MΩ or more

HINT:
Measure the resistance with the gateway ECU connector (G1) disconnected.

NG → **REPLACE GATEWAY ECU SUB BUS LINE OR CONNECTOR**

OK

REPLACE JUNCTION CONNECTOR (J/C2)