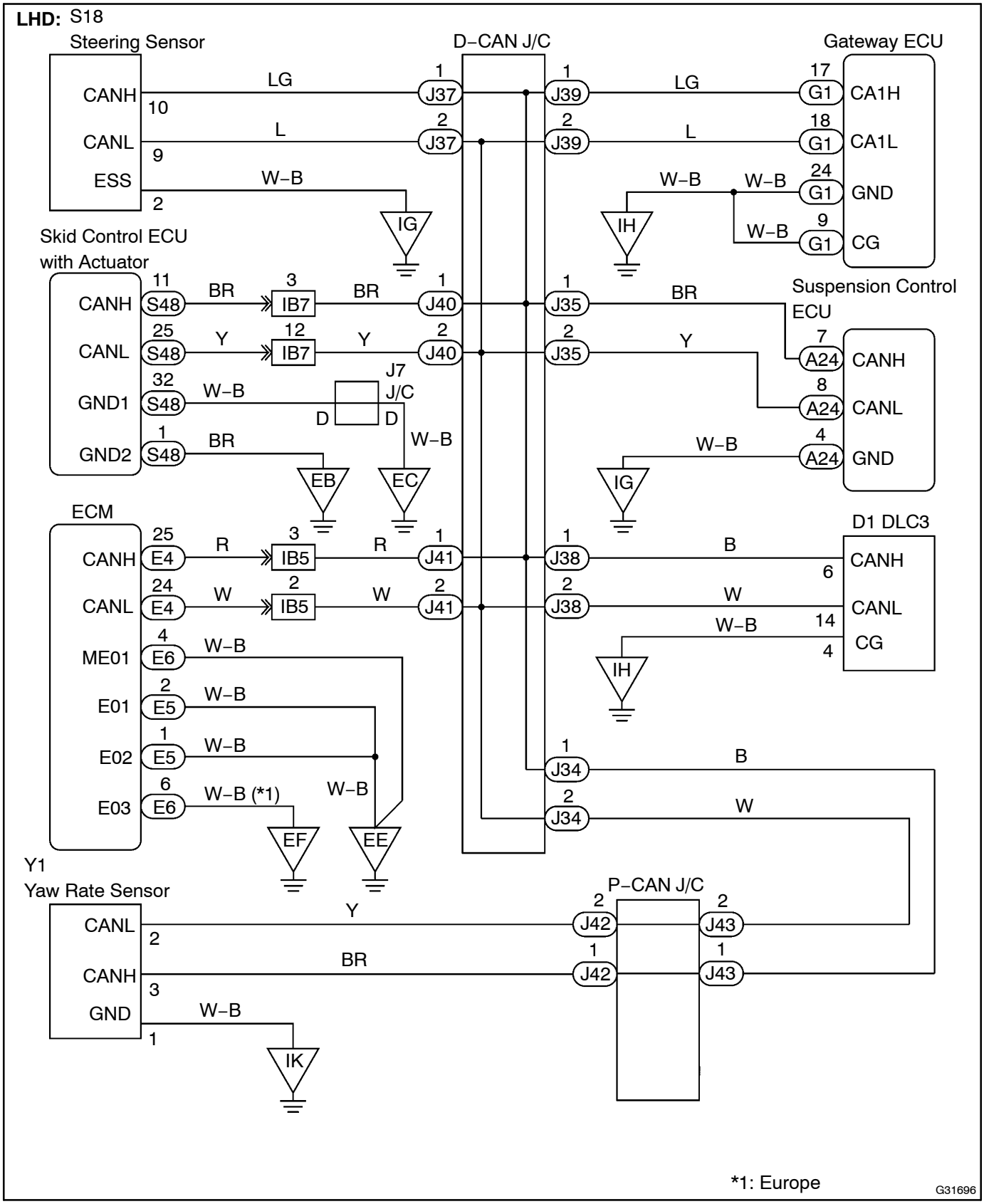
CHECK CAN BUS LINE FOR SHORT TO GND (LHD, w/o LEXUS Navigation System)

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.	• Short to GND • Skid control ECU with actuator • Steering sensor • Yaw rate sensor • Suspension control ECU • ECM • Gateway ECU • Junction connector (D–CAN J/C) • Junction connector (P–CAN J/C)

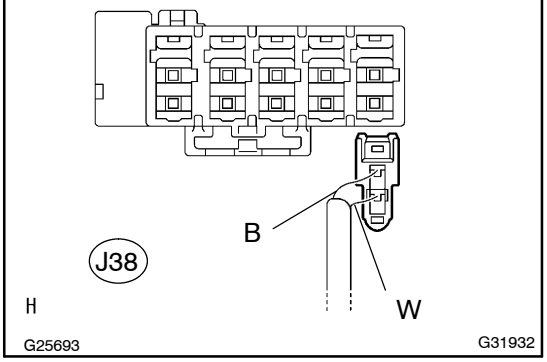
WIRING DIAGRAM



INSPECTION PROCEDURE

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

D–CAN J/C B Side (w/o Earth Terminal) Wire Harness View:

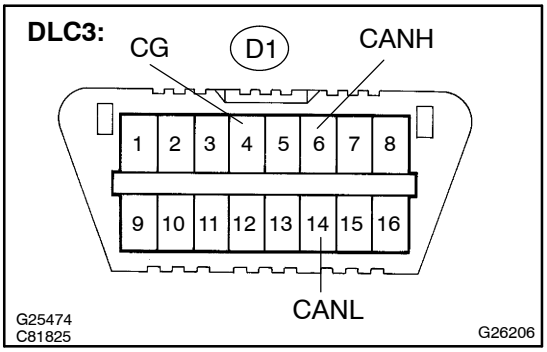


(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the DLC3 sub bus line connector (J38) from the D–CAN J/C B side (w/o earth terminal).

NOTICE:

- **Before disconnecting the connector, make a note of where it is connected.**
- **Reconnect the connector to its original position.**

DLC3:



(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)	Ignition Switch OFF	1 MΩ or more
D1–14 (CANL) – D1–4 (CG)	Ignition Switch OFF	1 MΩ or more

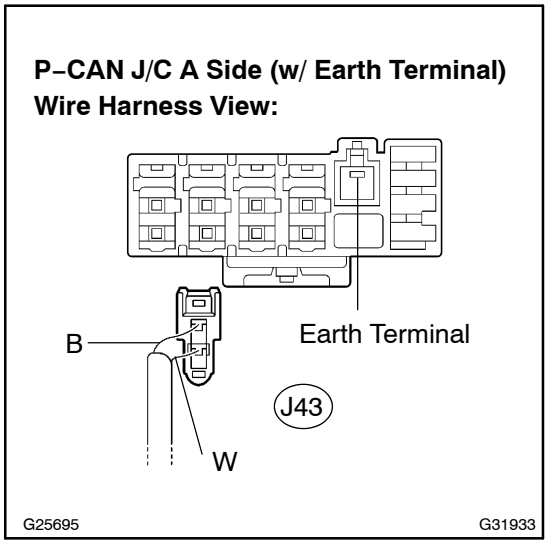
NG → **REPAIR OR REPLACE DLC3 SUB BUS LINE OR CONNECTOR (CAN–H, CAN–L)**

OK

2	CONNECT CONNECTOR

(a) Reconnect the DLC3 sub bus line connector (J38) to the D–CAN J/C B side (w/o earth terminal).

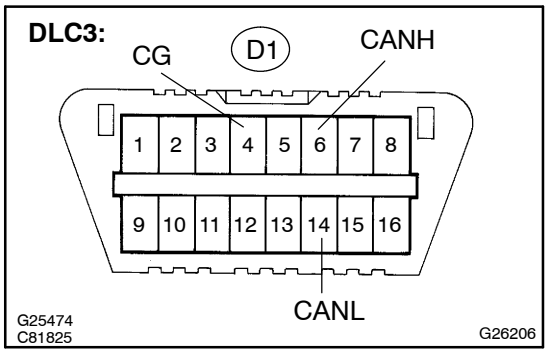
3 CHECK CAN BUS LINE FOR SHORT TO GND(CAN BUSES TO P–CAN J/C)



(a) Disconnect the CAN main bus line connector (J43) from the P–CAN J/C A side (w/ earth terminal).

NOTICE:

- **Before disconnecting the connector, make a note of where it is connected.**
- **Reconnect the connector to its original position.**



(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)	Ignition Switch OFF	1 kΩ or more
D1–14 (CANL) – D1–4 (CG)	Ignition Switch OFF	1 kΩ or more

OK → **Go to step 26**

NG

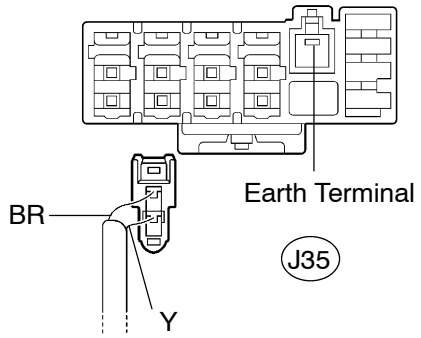
4 CONNECT CONNECTOR

(a) Reconnect the CAN main bus line connector (J43) to the P–CAN J/C A side (w/ earth terminal).

5	CHECK CAN BUS LINE FOR SHORT TO GND(SUSPENSION CONTROL ECU SUB BUS LINE)

NOTICE:
For vehicles without electronic modulated air suspension, go to step 7.

D–CAN J/C A Side (w/ Earth Terminal) Wire Harness View:

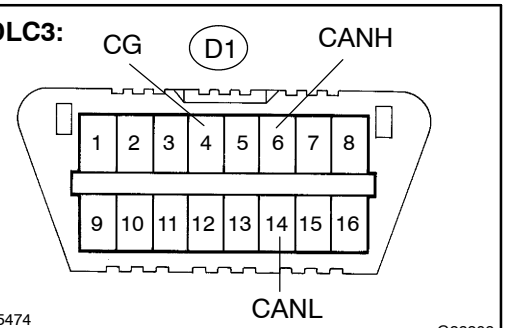


G25695 G31934

(a) Disconnect the suspension control ECU sub bus line connector (J35) from the D–CAN J/C A side (w/ earth terminal).

NOTICE:
- **Before disconnecting the connector, make a note of where it is connected.**
- **Reconnect the connector to its original position.**

DLC3:



G25474 C81825 G26206

(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)	Ignition Switch OFF	1 kΩ or more
D1–14 (CANL) – D1–4 (CG)	Ignition Switch OFF	1 kΩ or more

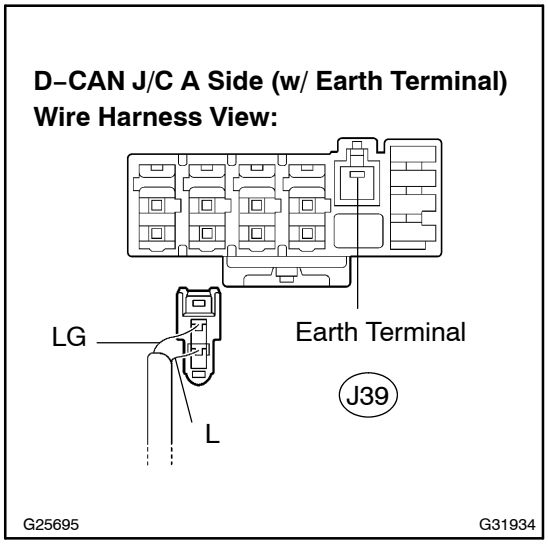
OK	Go to step 16

NG

6	CONNECT CONNECTOR

(a) Reconnect the suspension control ECU sub bus line connector (J35) to the D–CAN J/C A side (w/ earth terminal).

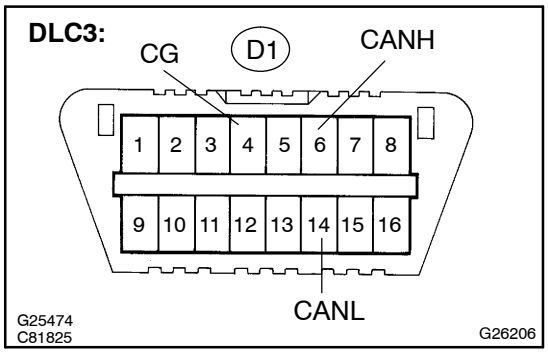
7 CHECK CAN BUS LINE FOR SHORT TO GND(GATEWAY ECU SUB BUS LINE)



(a) Disconnect the gateway ECU sub bus line connector (J39) from the D–CAN J/C A side (w/ earth terminal).

NOTICE:

- **Before disconnecting the connector, make a note of where it is connected.**
- **Reconnect the connector to its original position.**



(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)	Ignition Switch OFF	1 kΩ or more
D1–14 (CANL) – D1–4 (CG)	Ignition Switch OFF	1 kΩ or more

OK	**Go to step 18**

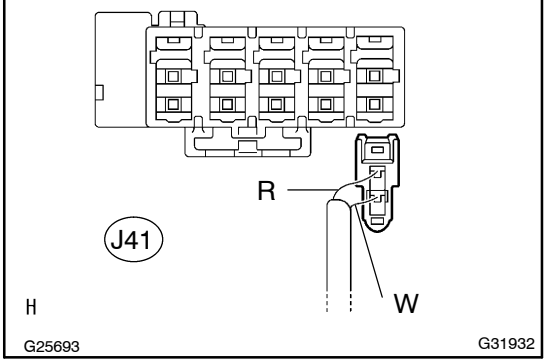
NG

8 CONNECT CONNECTOR

(a) Reconnect the gateway ECU sub bus line connector (J39) to the D–CAN J/C A side (w/ earth terminal).

9 CHECK CAN BUS LINE FOR SHORT TO GND(ECM SUB BUS LINE)

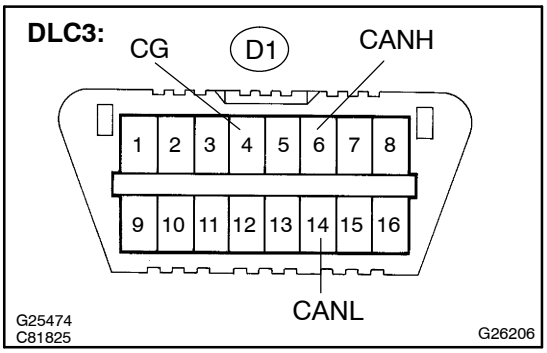
D–CAN J/C B Side (w/o Earth Terminal) Wire Harness View:



(a) Disconnect the ECM sub bus line connector (J41) from the D–CAN J/C B side (w/o earth terminal).

NOTICE:

- **Before disconnecting the connector, make a note of where it is connected.**
- **Reconnect the connector to its original position.**



(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)	Ignition Switch OFF	1 kΩ or more
D1–14 (CANL) – D1–4 (CG)	Ignition Switch OFF	1 kΩ or more

OK → **Go to step 20**

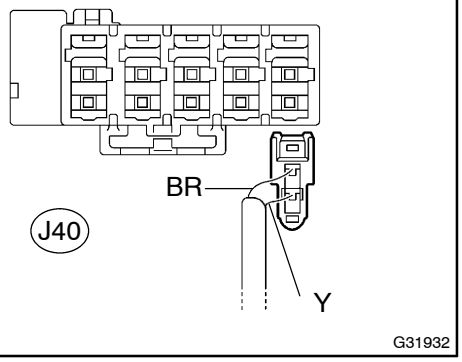
NG

10 CONNECT CONNECTOR

(a) Reconnect the ECM sub bus line connector (J41) to the D–CAN J/C B side (w/o earth terminal).

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

D–CAN J/C B Side (w/o Earth Terminal) Wire Harness View:

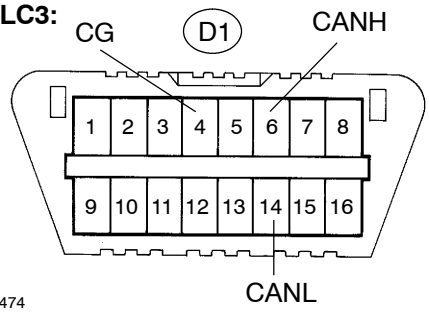


(a) Disconnect the skid control ECU sub bus line connector (J40) from the D–CAN J/C (w/o earth terminal).

NOTICE:

- **Before disconnecting the connector, make a note of where it is connected.**
- **Reconnect the connector to its original position.**

DLC3:



(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)	Ignition Switch OFF	1 kΩ or more
D1–14 (CANL) – D1–4 (CG)	Ignition Switch OFF	1 kΩ or more

OK	Go to step 22

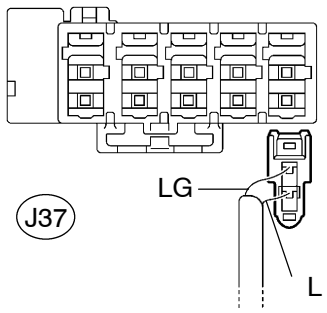
NG

12	CONNECT CONNECTOR

(a) Reconnect the skid control ECU sub bus line connector (J40) to the D–CAN J/C B side (w/o earth terminal).

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

D–CAN J/C B Side (w/o Earth Terminal) Wire Harness View:

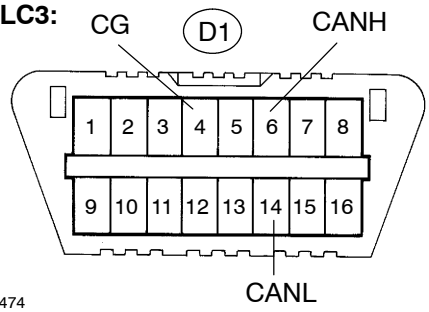


(a) Disconnect the steering sensor sub bus line connector (J37) from the D–CAN J/C B side (w/o earth terminal).

NOTICE:

- **Before disconnecting the connector, make a note of where it is connected.**
- **Reconnect the connector to its original position.**

DLC3:



(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)	Ignition Switch OFF	1 kΩ or more
D1–14 (CANL) – D1–4 (CG)	Ignition Switch OFF	1 kΩ or more

OK	Go to step 24

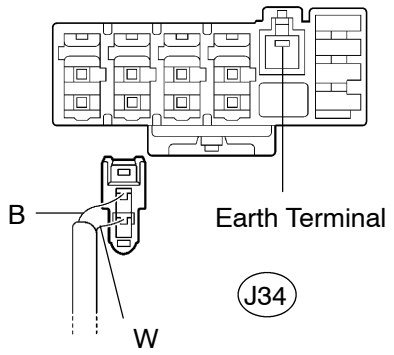
NG

14	CONNECT CONNECTOR

(a) Reconnect the steering sensor sub bus line connector (J37) to the D–CAN J/C B side (w/o earth terminal).

15	CHECK CAN BUS LINE FOR SHORT TO GND(D–CAN J/C)

D–CAN J/C A Side (w/ Earth Terminal) Wire Harness View:



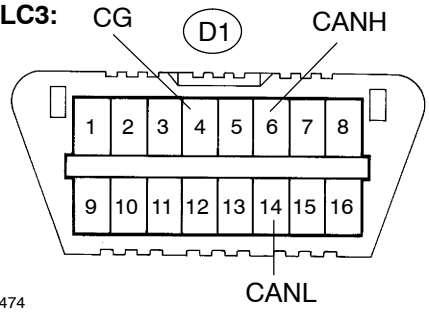
G25695 G31934

(a) Disconnect the CAN main bus line connector (J34) from the D–CAN J/C A side (w/ earth terminal).

NOTICE:

- **Before disconnecting the connector, make a note of where it is connected.**
- **Reconnect the connector to its original position.**

DLC3:



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(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)	Ignition Switch OFF	1 kΩ or more
D1–14 (CANL) – D1–4 (CG)	Ignition Switch OFF	1 kΩ or more

NG → **REPLACE JUNCTION CONNECTOR (D–CAN J/C)**

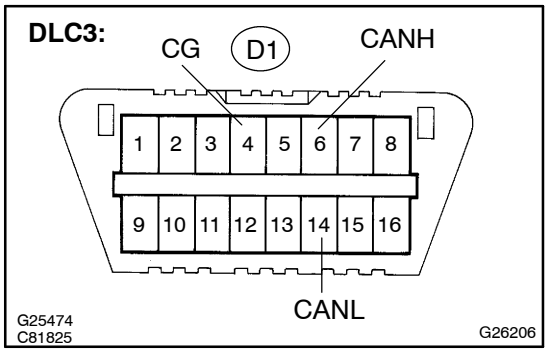
OK

REPAIR OR REPLACE CAN MAIN BUS LINE OR CONNECTOR (D–CAN J/C – P–CAN J/C)

16	CONNECT CONNECTOR

(a) Reconnect the suspension control ECU sub bus line connector (J35) to the D–CAN J/C A side (w/ earth terminal).

17	CHECK CAN BUS LINE FOR SHORT TO GND(SUSPENSION CONTROL EUC SUB BUS LINE)



(a) Disconnect the suspension control ECU connector (A24).
(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)	Ignition Switch OFF	1 kΩ or more
D1–14 (CANL) – D1–4 (CG)	Ignition Switch OFF	1 kΩ or more

OK	REPLACE SUSPENSION CONTROL ECU (SEE PAGE 25–20)

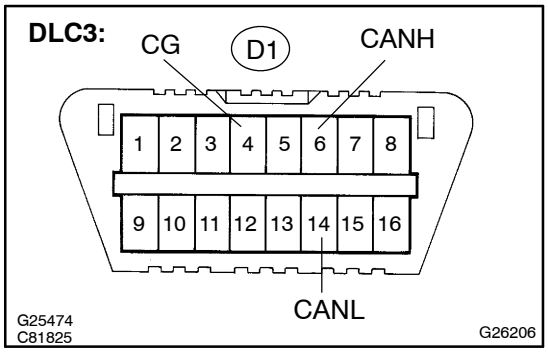
NG

REPAIR OR REPLACE SUSPENSION CONTROL ECU SUB BUS LINE OR CONNECTOR (CAN–H, CAN–L)

18	CONNECT CONNECTOR

(a) Reconnect the gateway ECU sub bus line connector (J39) to the D–CAN J/C A side (w/ earth terminal).

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



(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)	Ignition Switch OFF	1 kΩ or more
D1–14 (CANL) – D1–4 (CG)	Ignition Switch OFF	1 kΩ or more

OK	REPLACE GATEWAY ECU

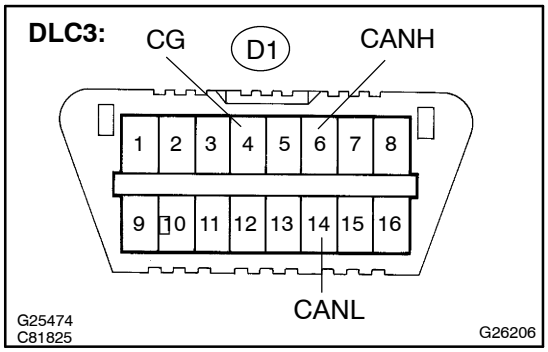
NG

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

20	CONNECT CONNECTOR

(a) Reconnect the ECM sub bus line connector (J41) to the D–CAN J/C B side (w/o earth terminal).

21	CHECK CAN BUS LINE FOR SHORT TO GND (ECM SUB BUS LINE)



(a) Disconnect the ECM connector (E4).
(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)	Ignition Switch OFF	1 kΩ or more
D1–14 (CANL) – D1–4 (CG)	Ignition Switch OFF	1 kΩ or more

OK	REPLACE ECM (SEE PAGE 10–21)

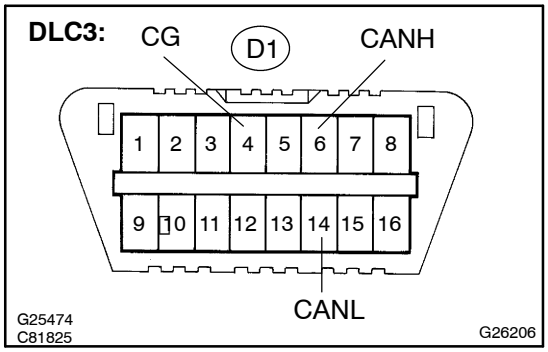
NG

REPAIR OR REPLACE ECM SUB BUS LINE OR CONNECTOR (CAN–H, CAN–L)

22	CONNECT CONNECTOR

(a) Reconnect the skid control ECU sub bus line connector (J40) to the D–CAN J/C B side (w/o earth terminal).

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



(a) Disconnect the skid control ECU connector (S48).
(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)	Ignition Switch OFF	1 kΩ or more
D1–14 (CANL) – D1–4 (CG)	Ignition Switch OFF	1 kΩ or more

OK	REPLACE SKID CONTROL ECU WITH ACTUATOR (SEE PAGE 32–53)

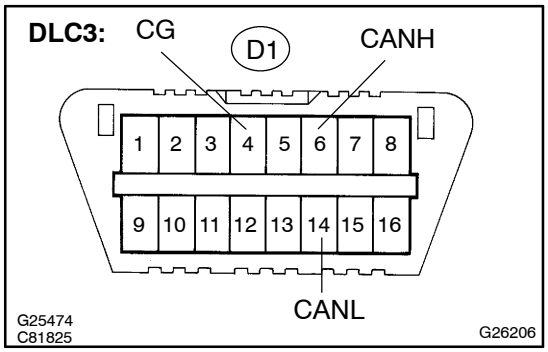
NG

REPAIR OR REPLACE SKID CONTROL ECU SUB BUS LINE OR CONNECTOR (CAN–H, CAN–L)

24	CONNECT CONNECTOR

(a) Reconnect the steering sensor sub bus line connector (J37) to the D–CAN J/C B side (w/o earth terminal).

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



(a) Disconnect the steering sensor connector (S18).
(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)	Ignition Switch OFF	1 kΩ or more
D1–14 (CANL) – D1–4 (CG)	Ignition Switch OFF	1 kΩ or more

OK → **REPLACE STEERING SENSOR**

NG

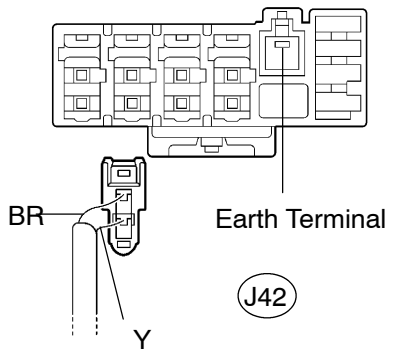
REPAIR OR REPLACE STEERING SENSOR SUB BUS LINE OR CONNECTOR

26	CONNECT CONNECTOR

(a) Reconnect the CAN main bus line connector (J43) to the P–CAN J/C A side (w/ earth terminal).

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

P–CAN J/C A Side (w/ Earth Terminal) Wire Harness View:



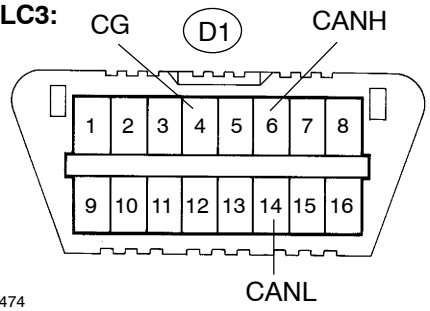
G25695 G31934

(a) Disconnect the yaw rate sensor sub bus line connector (J42) from the P–CAN J/C A side (w/ earth terminal).

NOTICE:

- **Before disconnecting the connector, make a note of where it is connected.**
- **Reconnect the connector to its original position.**

DLC3:



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(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)	Ignition Switch OFF	1 kΩ or more
D1–14 (CANL) – D1–4 (CG)	Ignition Switch OFF	1 kΩ or more

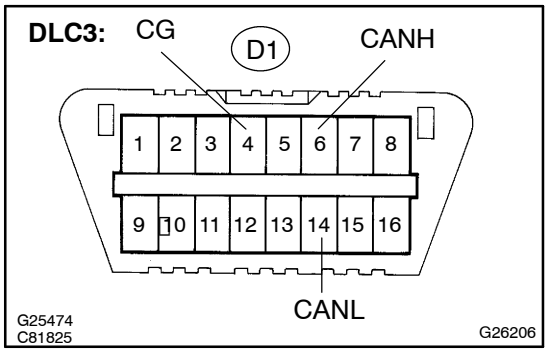
NG	REPLACE JUNCTION CONNECTOR (P–CAN J/C)

OK

28	CONNECT CONNECTOR

(a) Reconnect the yaw rate sensor sub bus line connector (J42) to the P–CAN J/C A side (w/ earth terminal).

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



(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)	Ignition Switch OFF	1 kΩ or more
D1–14 (CANL) – D1–4 (CG)	Ignition Switch OFF	1 kΩ or more

OK: REPLACE YAW RATE SENSOR (SEE PAGE 32–63)

NG

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