

CHECK CAN BUS LINES FOR SHORT CIRCUIT (RHD, w/o LEXUS Navigation System)

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 • Cruise control ECU • Skid control ECU with actuator • Steering sensor • Yaw rate sensor • Suspension control ECU • ECM • Gateway ECU • Junction connector (P-CAN J/C) • Junction connector (D-CAN J/C)

RHD: Cruise Control ECU

- CANH: D29 (8) → LG → IC5 (16) → LG → J45 (1) → P-CAN J/C → J46 (1) → LG → D1 DLC3 (6)
- CANL: D29 (9) → L → IC5 (15) → L → J45 (2) → P-CAN J/C → J46 (2) → L → D1 DLC3 (14)

ECM

- CANH: E4 (25) → R → IC6 (6) → R → J47 (1) → P-CAN J/C → J42 (1) → BR → A24 (7)
- CANL: E4 (24) → W → IC6 (17) → W → J47 (2) → P-CAN J/C → J42 (2) → Y → A24 (8)

Y1 Yaw Rate Sensor

- CANH: 3 → BR → J35 (1) → D-CAN J/C → J34 (1) → B → Gateway ECU (17)
- CANL: 2 → Y → J35 (2) → D-CAN J/C → J34 (2) → W → Gateway ECU (18)

S18 Steering Sensor

- CANH: 10 → LG → J37 (1) → D-CAN J/C → J39 (1) → L → Gateway ECU (G1)
- CANL: 9 → L → J37 (2) → D-CAN J/C → J39 (2) → L → Gateway ECU (G1)

Skid Control ECU with Actuator

- CANH: S48 (11) → BR → IH5 (7) → BR → J40 (1) → D-CAN J/C → J43 (1) → B → Gateway ECU (W-B)
- CANL: S48 (25) → Y → IH5 (16) → Y → J40 (2) → D-CAN J/C → J43 (2) → W → Gateway ECU (B)

D1 DLC3

- BAT: 4 → Suspension Control ECU (A24)
- CG: 16 → Suspension Control ECU (A24)

Suspension Control ECU

- CANH: A24 (7)
- CANL: A24 (8)

Gateway ECU

- CA1H: G1 (17)
- CA1L: G1 (18)

Powertrain Components

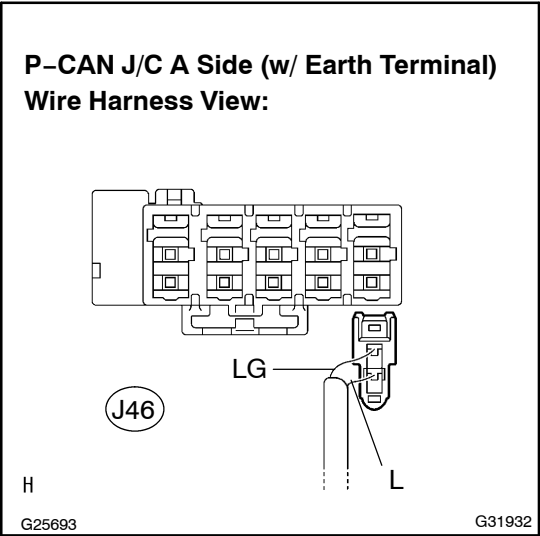
- OBD: DA (1) → OBD → DF (12) → B-W → Battery
- D-J/B: 4C (1) → D-J/B → ALT → 4A (1) → B-L → Battery

Battery

IH

INSPECTION PROCEDURE

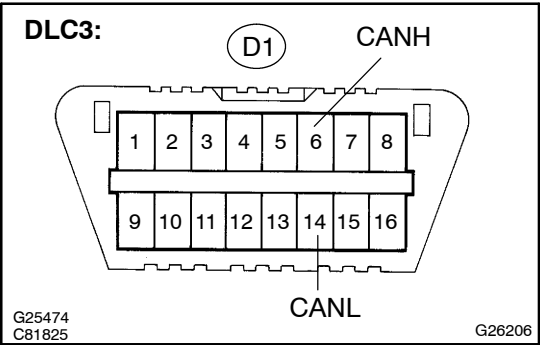
1 CHECK CAN BUS LINES FOR SHORT CIRCUIT(DLC3 SUB BUS LINE)



- (a) Turn the ignition switch to the LOCK position.
- (b) Disconnect the DLC3 sub bus line connector (J46) 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.**



- (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)	Ignition Switch OFF	1 MΩ or more

NG

REPAIR OR REPLACE DLC3 SUB BUS LINE OR CONNECTOR (CAN-H, CAN-L)

OK

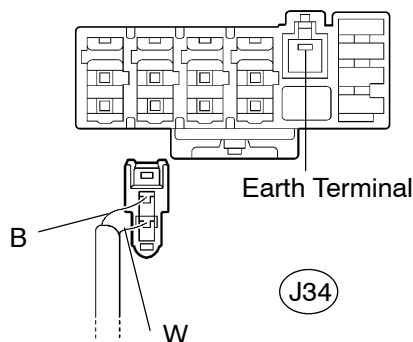
2 CONNECT CONNECTOR

- (a) Reconnect the DLC3 sub bus line connector (J46) to the P-CAN J/C A side (w/ earth terminal).



3 CHECK CAN BUS LINES FOR SHORT CIRCUIT(CAN BUSES TO P-CAN J/C)

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



G25695

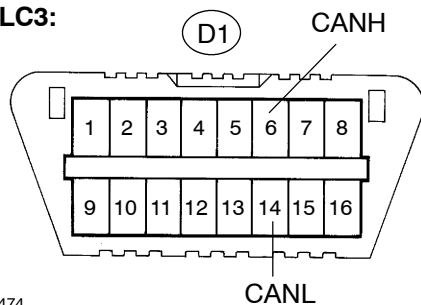
G31933

- (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:

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) - D1-14 (CANL)	Ignition Switch OFF	108 to 132 Ω

OK

Go to step 18

NG

4 CONNECT CONNECTOR

- (a) Reconnect the CAN main bus line connector (J34) to the D-CAN J/C A side (w/ earth terminal).

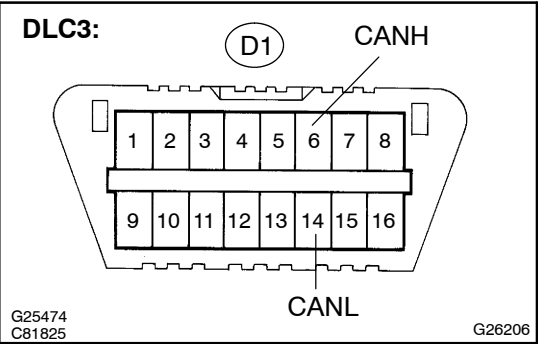
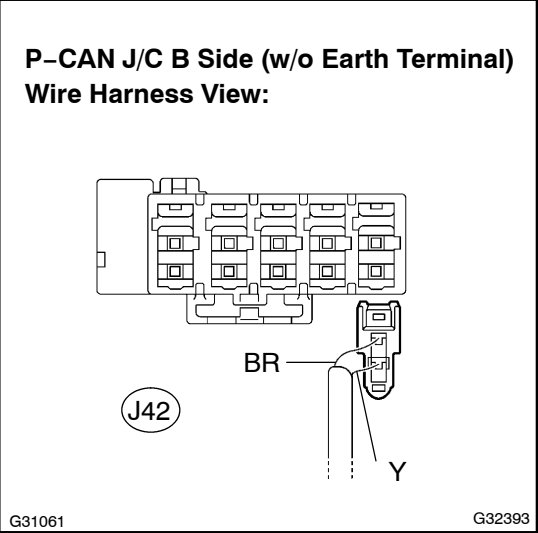


5 CHECK CAN BUS LINES FOR SHORT CIRCUIT(SUSPENSION CONTROL SUB BUS LINE)

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

- (a) Disconnect the suspension control ECU sub bus line connector (J42) from the P-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) - D1-14 (CANL)	Ignition Switch OFF	54 to 69 Ω

OK

Go to step 12

NG

6 CONNECT CONNECTOR

- (a) Reconnect the suspension control ECU sub bus line connector (J42) to the P-CAN J/C B side (w/o earth terminal).

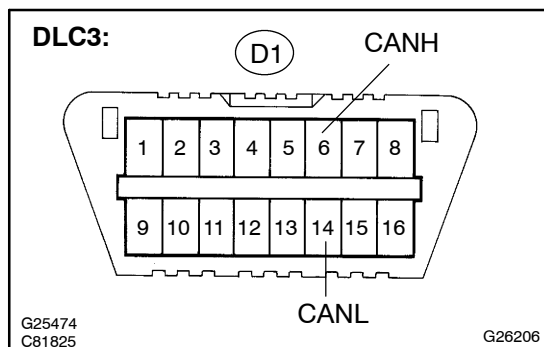
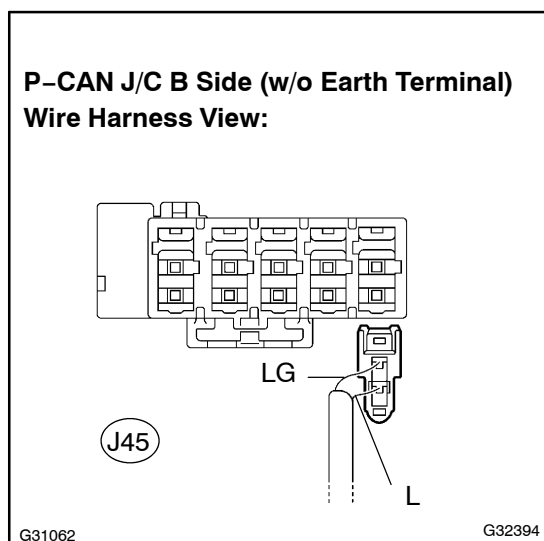
**7 CHECK CAN BUS LINES FOR SHORT CIRCUIT(CRUISE CONTROL ECU SUB BUS LINE)****NOTICE:**

For vehicles without dynamic laser cruise control, go to step 9.

- (a) Disconnect the cruise control ECU sub bus line connector (J45) from the P-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) - D1-14 (CANL)	Ignition Switch OFF	54 to 69 Ω

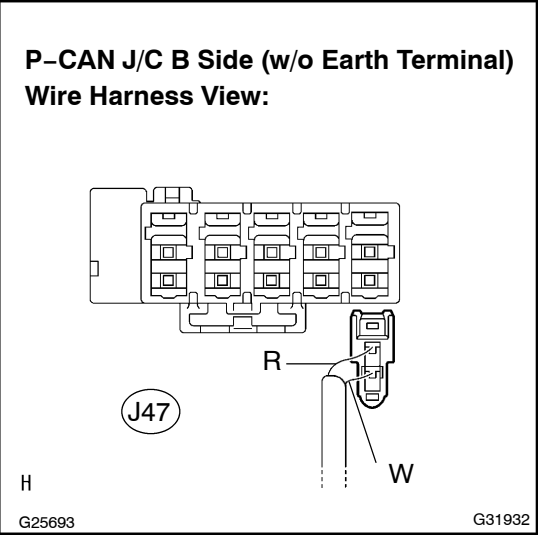
OK**Go to step 14****NG**

8 CONNECT CONNECTOR

- (a) Reconnect the cruise control ECU sub bus line connector (J45) to the P-CAN J/C B side (w/o earth terminal).



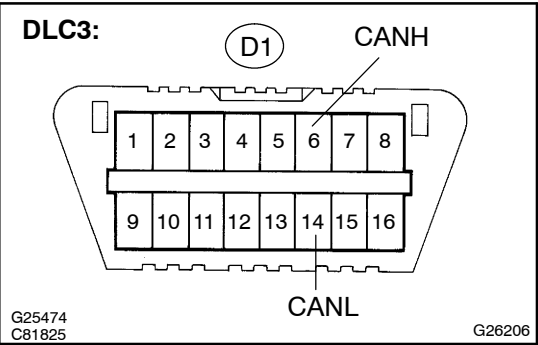
9 CHECK CAN BUS LINES FOR SHORT CIRCUIT(ECM SUB BUS LINE)



- (a) Disconnect the ECM sub bus line connector (J47) from the P-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) - D1-14 (CANL)	Ignition Switch OFF	54 to 69 Ω

OK

Go to step 16

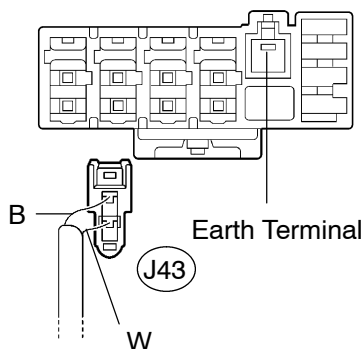
NG

10 CONNECT CONNECTOR

- (a) Reconnect the ECM sub bus line connector (J47) to the P-CAN J/C B side (w/o earth terminal).

**11 CHECK CAN BUS LINES FOR SHORT CIRCUIT(D-CAN J/C)**

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



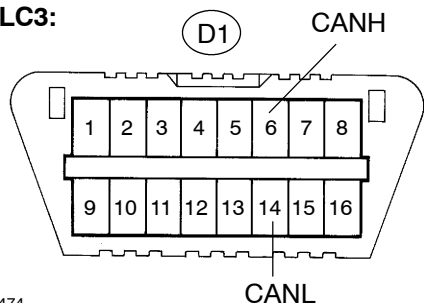
G25695

G31934

- (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.**

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) – D1-14 (CANL)	Ignition Switch OFF	108 to 132 Ω

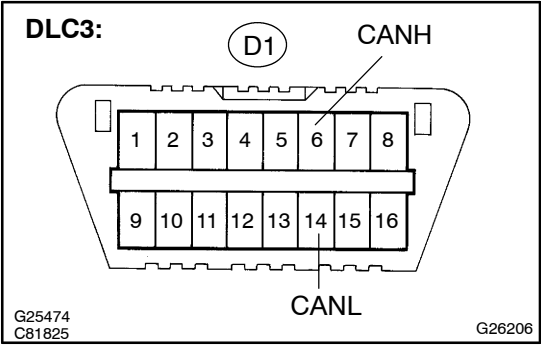
NG**REPLACE JUNCTION CONNECTOR (P-CAN J/C)****OK****REPAIR OR REPLACE CAN MAIN BUS LINE OR CONNECTOR (D-CAN J/C – P-CAN J/C)**

12 CONNECT CONNECTOR

- (a) Reconnect the suspension control ECU sub bus line connector (J42) to the P-CAN J/C B side (w/o earth terminal).



13 CHECK CAN BUS LINES FOR SHORT CIRCUIT(SUSPENSION CONTROL ECU 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) – D1-14 (CANL)	Ignition Switch OFF	54 to 69 Ω

OK

REPLACE SUSPENSION CONTROL ECU (SEE PAGE 25-20)

NG

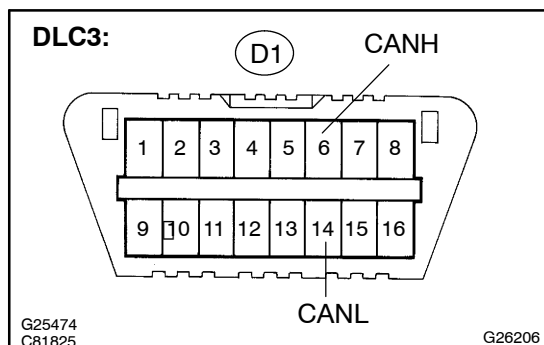
REPAIR OR REPLACE SUSPENSION CONTROL ECU SUB BUS LINE OR CONNECTOR (CAN-H, CAN-L)

14 CONNECT CONNECTOR

- (a) Reconnect the cruise control ECU sub bus line connector (J45) to the P-CAN J/C B side (w/o earth terminal).



15 CHECK CAN BUS LINES FOR SHORT CIRCUIT (CRUISE CONTROL ECU SUB BUS LINE)



- (a) Disconnect the cruise control ECU connector (D29).
 (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)	Ignition Switch OFF	54 to 69 Ω

NG

CHECK CRUISE CONTROL ECU ASSY (SEE PAGE 32-2)

OK

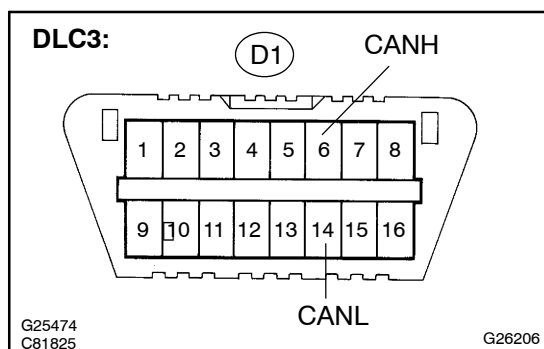
REPAIR OR REPLACE CRUISE CONTROL ECU SUB BUS LINE OR CONNECTOR (CAN-H, CAN-L)

16 CONNECT CONNECTOR

- (a) Reconnect the ECM sub bus line connector (J47) to the P-CAN J/C B side (w/o earth terminal).



17 CHECK CAN BUS LINES FOR SHORT CIRCUIT (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) - D1-14 (CANL)	Ignition Switch OFF	54 to 69 Ω

OK

REPLACE ECM (SEE PAGE 10-21)

NG

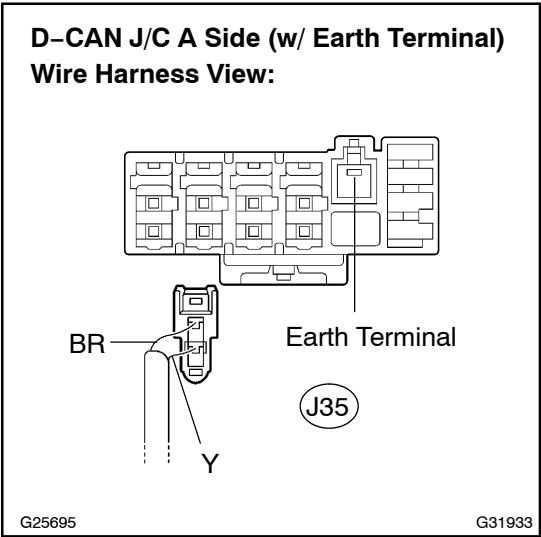
REPAIR OR REPLACE ECM SUB BUS LINE OR CONNECTOR (CAN-H, CAN-L)

18 CONNECT CONNECTOR

- (a) Reconnect the CAN main bus line connector (J34) to the D-CAN J/C A side (w/ earth terminal).



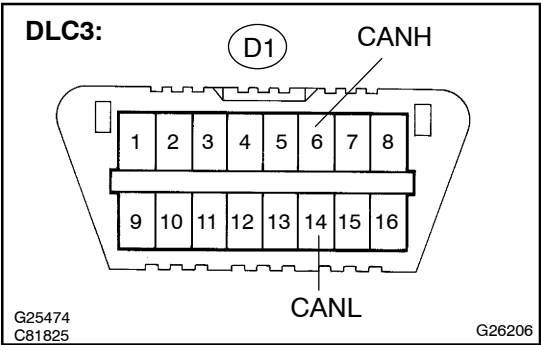
19 CHECK CAN BUS LINES FOR SHORT CIRCUIT(YAW RATE SENSOR SUB BUS LINE)



- (a) Disconnect the yaw rate sensor 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.**



- (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)	Ignition Switch OFF	54 to 69 Ω

OK **Go to step 26**

NG

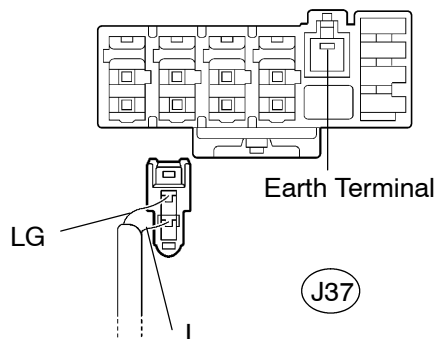
20 CONNECT CONNECTOR

- (a) Reconnect the yaw rate sensor sub bus line connector (J35) to the D-CAN J/C A side (w/ earth terminal).



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

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



G31065

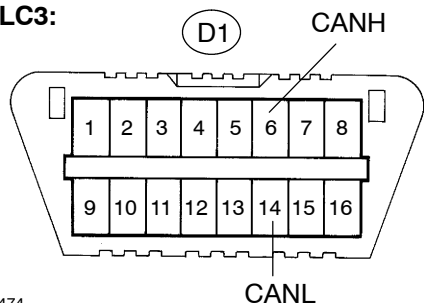
G32395

- (a) Disconnect the steering sensor sub bus line connector (J37) from the D-CAN J/C B 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) - D1-14 (CANL)	Ignition Switch OFF	54 to 69 Ω

OK

Go to step 30

NG

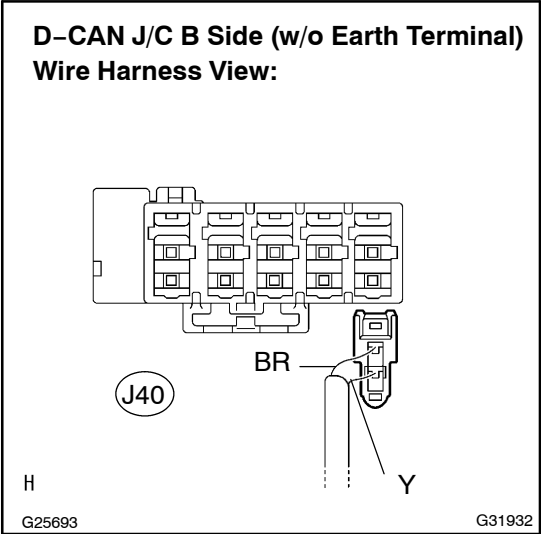
22 CONNECT CONNECTOR

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



23

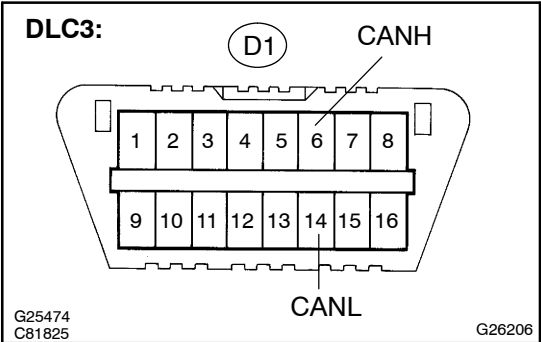
CHECK CAN BUS LINES FOR SHORT CIRCUIT(SKID CONTROL ECU SUB BUS LINE)



- (a) Disconnect the skid control ECU sub bus line connector (J40) 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) - D1-14 (CANL)	Ignition Switch OFF	54 to 69 Ω

OK

Go to step 28

NG

24

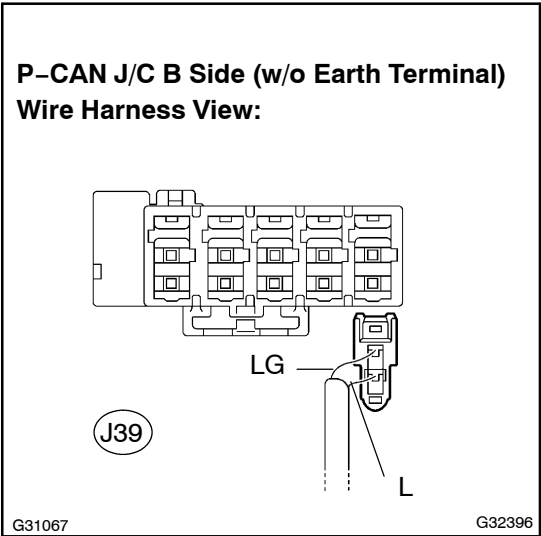
CONNECT CONNECTOR

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

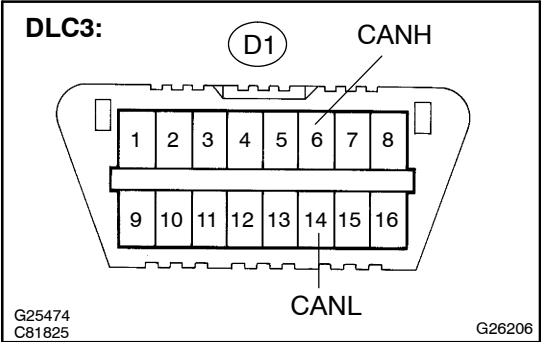


25

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



- (a) Disconnect the gateway ECU sub bus line connector (J39) 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) –
D1-14 (CANL) | Ignition Switch OFF | 54 to 69 Ω |

OK

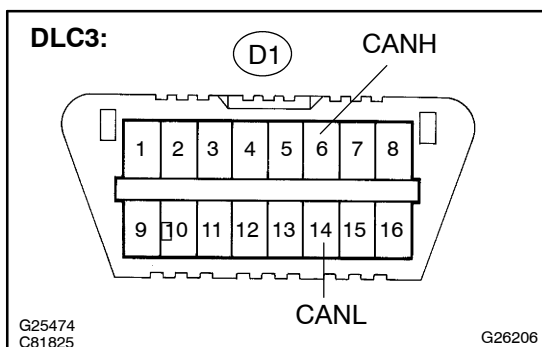
Go to step 32

NG

REPLACE JUNCTION CONNECTOR (D-CAN J/C)

26 CONNECT CONNECTOR

- (a) Reconnect the yaw rate sensor sub bus line connector (J35) to the D-CAN/C side (w/earth terminal).

**27 CHECK CAN BUS LINES FOR SHORT CIRCUIT (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) – D1-14 (CANL)	Ignition Switch OFF	54 to 69 Ω

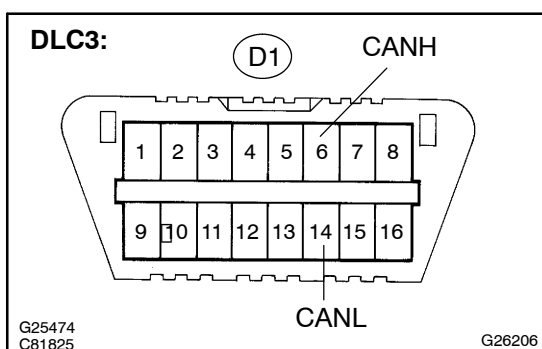
OK

REPLACE YAW RATE SENSOR (SEE PAGE 32-63)

NG

REPAIR OR REPLACE YAW RATE SENSOR SUB BUS LINE OR CONNECTOR (CAN-H, CAN-L)**28 CONNECT CONNECTOR**

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

**29 CHECK CAN BUS LINES FOR SHORT CIRCUIT (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) – D1-14 (CANL)	Ignition Switch OFF	54 to 69 Ω

OK

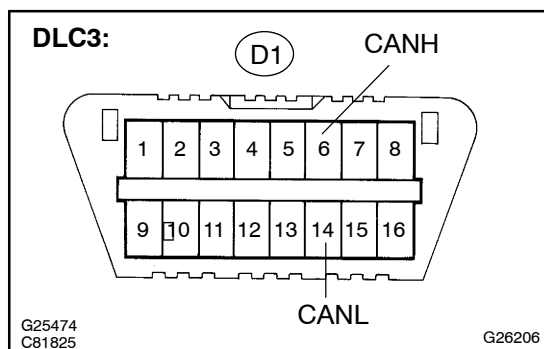
REPLACE SKID CONTROL ECU WITH ACTUATOR (SEE PAGE 32-53)

NG

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

30 CONNECT CONNECTOR

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

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

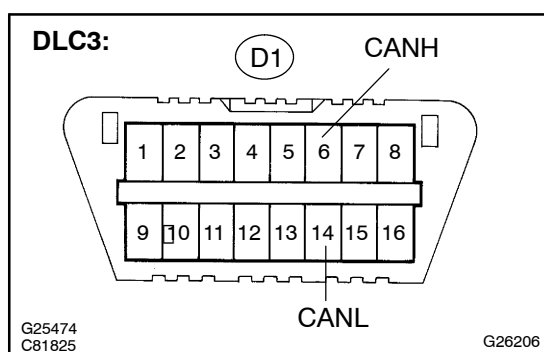
- (a) Disconnect the steering sensor connector (S18).
 (b) Measure the resistance according to the value(s) in the table below.

Standard:

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

OK**REPLACE STEERING SENSOR (SEE PAGE 32-65)****NG****REPAIR OR REPLACE STEERING SENSOR SUB BUS LINE OR CONNECTOR (CAN-H, CAN-L)****32 CONNECT CONNECTOR**

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

**33 CHECK CAN BUS LINES FOR SHORT CIRCUIT (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) – D1-14 (CANL)	Ignition Switch OFF	54 to 69 Ω

OK**REPLACE GATEWAY ECU****NG****REPAIR OR REPLACE GATEWAY ECU SUB BUS LINE OR CONNECTOR (CAN-H, CAN-L)**