

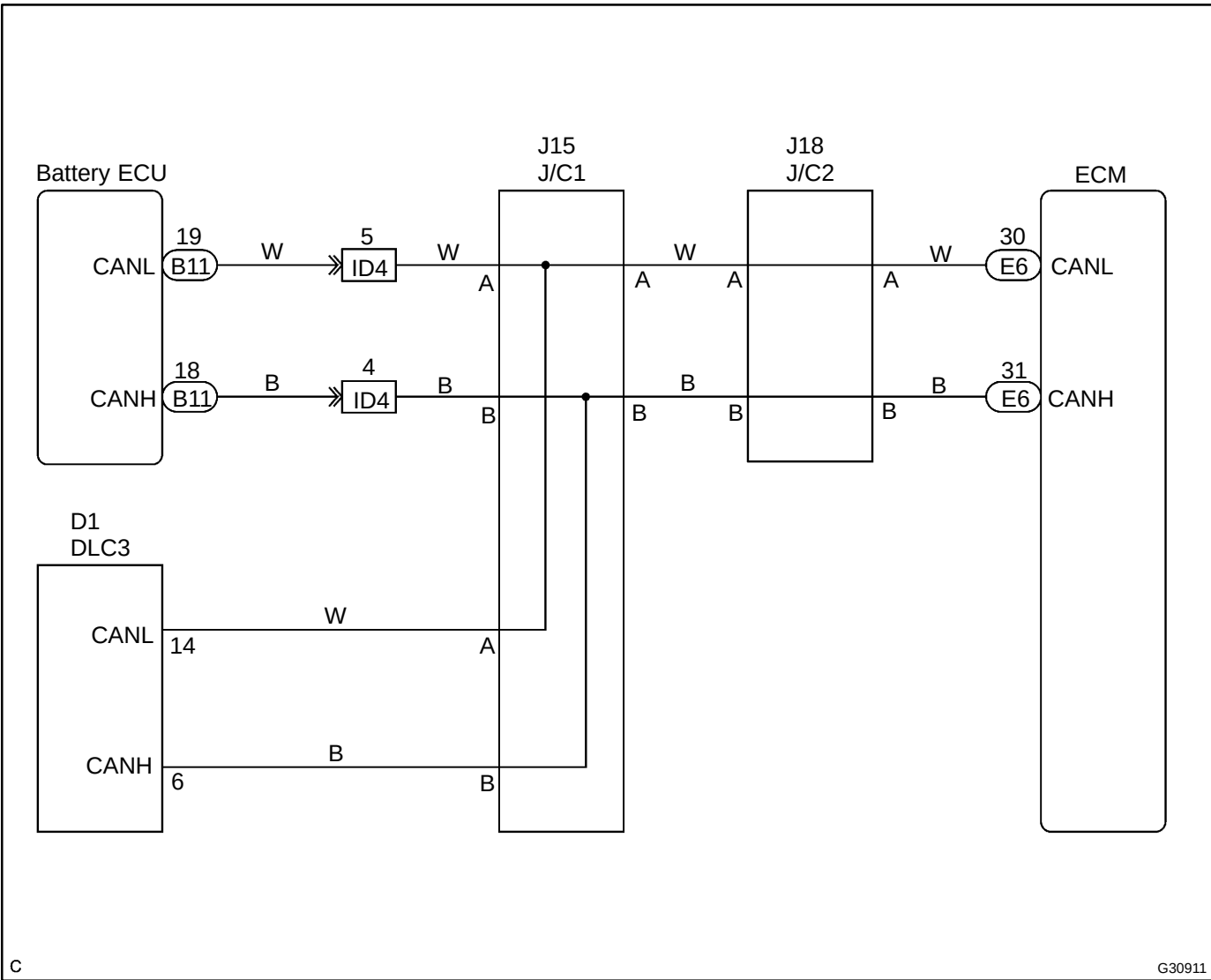
CHECK CAN MAIN BUS LINE FOR DISCONNECTION

CIRCUIT DESCRIPTION

There may be an open circuit in the CAN bus main line and/or the DLC3 sub bus line when the resistance between terminals 6 (CANH) and 14 (CANL) of the DLC3 is 69 Ω or more.

| Symptom                                                                          | Trouble Area                                                                                                                                                                                                                          |
|----------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Resistance between terminals 6 (CANH) and 14 (CANL) of the DLC3 is 69 Ω or more. | <ul style="list-style-type: none"><li>• CAN main bus line or connector</li><li>• Junction connector (J/C1)</li><li>• Junction connector (J/C2)</li><li>• DLC3 sub bus line or connector</li><li>• ECM</li><li>• Battery ECU</li></ul> |

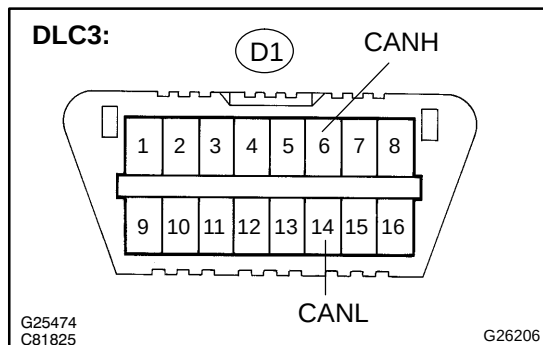
WIRING DIAGRAM



C

G30911

## INSPECTION PROCEDURE

**1 CHECK DLC3**

- (a) Turn the power switch off.  
 (b) Measure the resistance according to the value(s) in the table below.

**Result:**

| Tester connection          | Condition        | Specified value      | Result |
|----------------------------|------------------|----------------------|--------|
| D1-6 (CANH) – D1-14 (CANL) | Power Switch OFF | 108 to 132 $\Omega$  | A      |
| D1-6 (CANH) – D1-14 (CANL) | Power Switch OFF | 132 $\Omega$ or more | B      |

**NOTICE:**

When the measured value is 132  $\Omega$  or more and the CAN communication system diagnostic code is output, there may be a fault besides disconnection of the DLC3 sub bus line. For that reason, troubleshooting should be performed again from "HOW TO PROCEED WITH TROUBLESHOOTING" (see page 05-2602) after repairing the trouble area.

**B**

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

**A****2 CHECK CAN MAIN BUS LINE FOR DISCONNECTION(BUS CHECK)**

- (a) Perform "BUS CHECK" using the hand-held tester via CAN VIM (see page 05-2616).

**Result:**

| Specified Value                    | Result |
|------------------------------------|--------|
| Only "ENGINE" is not displayed     | A      |
| Only "HV BATTERY" is not displayed | B      |
| Other                              | C      |

**B**

**Go to step 4**

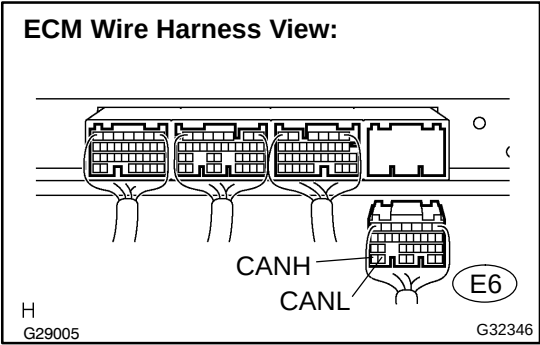
**C**

**Go to step 5**

**A**

3

CHECK CAN MAIN BUS LINE FOR DISCONNECTION(ECM – J/C2)



- (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 |
|-----------------------------|------------------|-----------------|
| E6-31 (CANH) – E6-30 (CANL) | Power Switch OFF | 108 to 132 Ω    |

NG

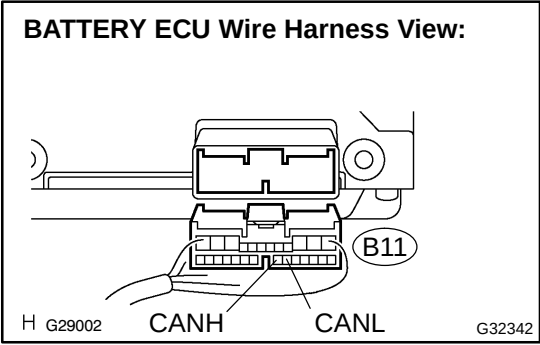
REPLACE CAN MAIN BUS LINE OR CONNECTOR (ECM – J/C2)

OK

REPLACE ECM (SEE PAGE 10-24)

4

CHECK CAN MAIN BUS LINE FOR DISCONNECTION(BATTERY ECU – J/C1)



- (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 |
|-------------------------------|------------------|-----------------|
| B11-18 (CANH) – B11-19 (CANL) | Power Switch OFF | 108 to 132 Ω    |

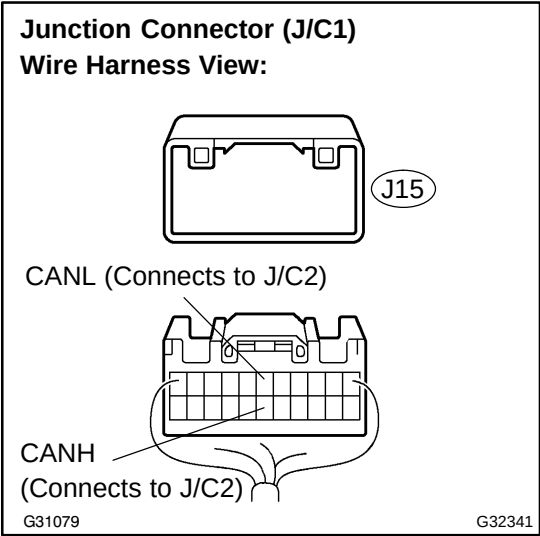
NG

REPLACE CAN MAIN BUS LINE OR CONNECTOR (BATTERY ECU – J/C1)

OK

REPLACE BATTERY ECU ASSY (SEE PAGE 21-98)

**5 | CHECK CAN MAIN BUS LINE FOR DISCONNECTION(J/C1 – ECM)**



- (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 | 108 to 132 Ω    |

**NG** → **Go to step 8**

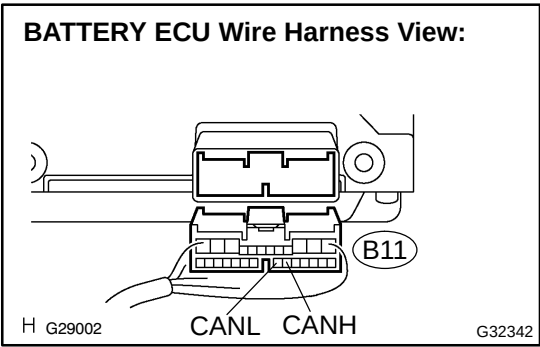
**OK**

**6 | CONNECT CONNECTOR**

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



**7 | CHECK CAN MAIN BUS LINE FOR DISCONNECTION(BATTERY ECU – J/C1)**



- (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 |
|-------------------------------|------------------|-----------------|
| B11-18 (CANH) – B11-19 (CANL) | Power Switch OFF | 108 to 132 Ω    |

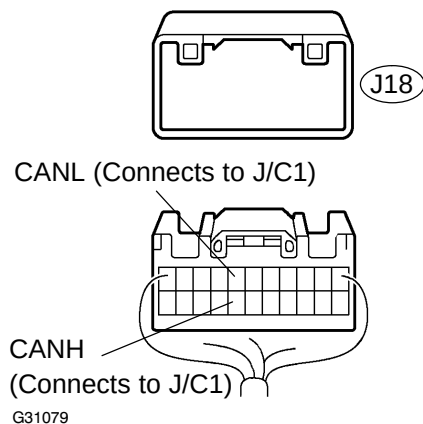
**NG** → **REPLACE CAN MAIN BUS LINE OR CONNECTOR (BATTERY ECU – J/C1)**

**OK**

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

**8 CONNECT CONNECTOR**

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

**9 CHECK CAN MAIN BUS LINE FOR DISCONNECTION(J/C2 – J/C1)****Junction Connector (J/C2)  
Wire Harness View:**

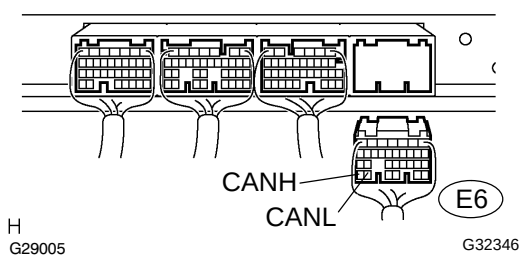
- (a) Disconnect the J/C2 connector (J18).  
 (b) Measure the resistance according to the value(s) in the table below.

**Standard:**

| Tester connection            | Condition        | Specified value |
|------------------------------|------------------|-----------------|
| J18-18 (CANH) – J18-7 (CANL) | Power Switch OFF | 108 to 132 Ω    |

**NG****REPLACE CAN MAIN BUS LINE OR CONNECTOR (J/C2 – J/C1)****OK****10 CONNECT CONNECTOR**

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

**11 CHECK CAN MAIN BUS LINE FOR DISCONNECTION(ECM – J/C2)****ECM Wire Harness View:**

- (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 |
|-----------------------------|------------------|-----------------|
| E6-31 (CANH) – E6-30 (CANL) | Power Switch OFF | 108 to 132 Ω    |

**NG****REPLACE CAN MAIN BUS LINE OR CONNECTOR****OK****REPLACE ECM (SEE PAGE 10-24)**

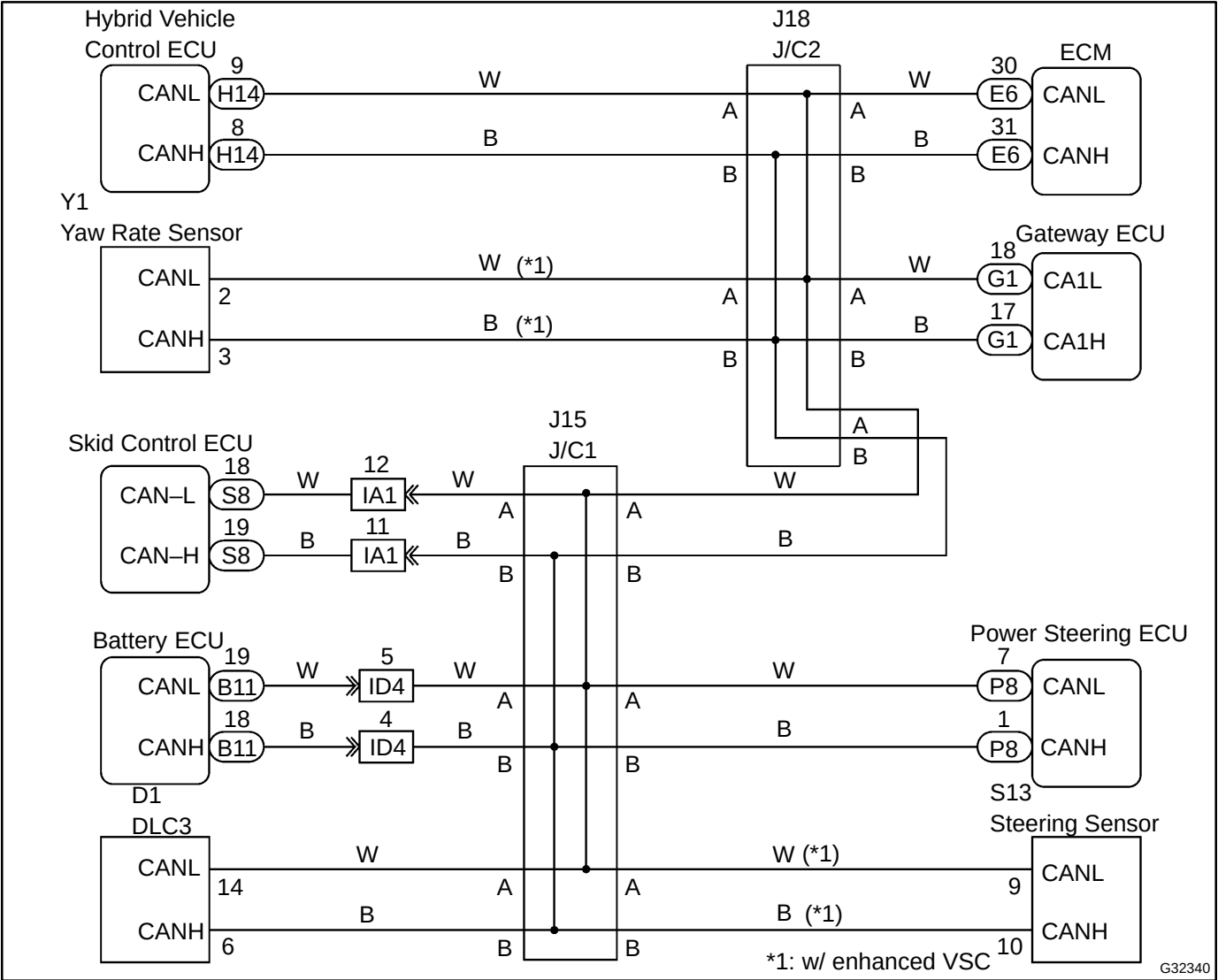
CHECK CAN BUS LINES FOR SHORT CIRCUIT

CIRCUIT DESCRIPTION

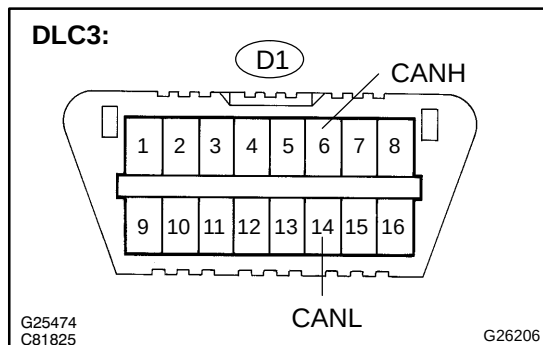
There may be a short circuit between the CAN bus lines when the resistance between terminals 6 (CANH) and 14 (CANL) of the DLC3 is below 54 Ω.

| Symptom                                                                        | Trouble Area                                                                                                                                                                                                                                                                                                                                                     |
|--------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Resistance between terminals 6 (CANH) and 14 (CANL) of the DLC3 is below 54 Ω. | <ul style="list-style-type: none"><li>• Short between CAN bus lines</li><li>• Hybrid vehicle control ECU</li><li>• Battery ECU</li><li>• ECM</li><li>• Skid control ECU</li><li>• Steering sensor</li><li>• Yaw rate sensor</li><li>• Power steering ECU</li><li>• Gateway ECU</li><li>• Junction connector (J/C1)</li><li>• Junction connector (J/C2)</li></ul> |

WIRING DIAGRAM



## INSPECTION PROCEDURE

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

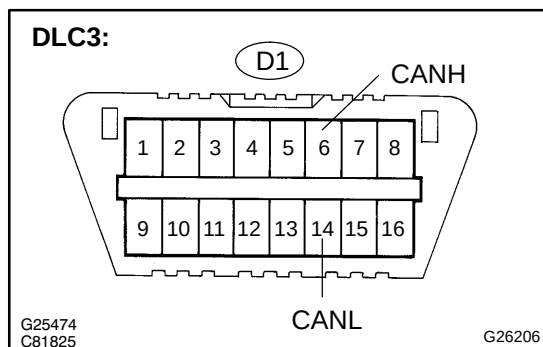
- (a) Turn the power switch off.  
 (b) Disconnect the J/C1 connector (J15).  
 (c) Measure the resistance according to the value(s) in the table below.

**Standard:**

| Tester connection             | Condition        | Specified value |
|-------------------------------|------------------|-----------------|
| D1-6 (CANH) –<br>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).

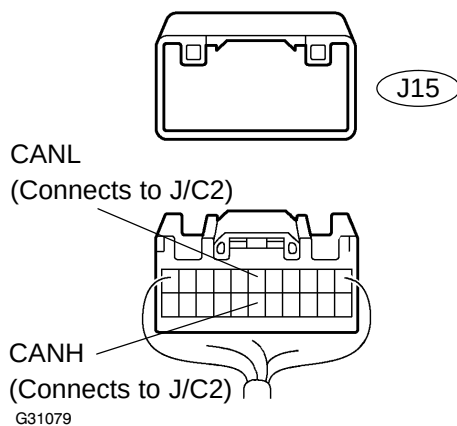
**3 CHECK CAN BUS LINES FOR SHORT CIRCUIT(CAN BUSES TO J/C2)**

- (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) –<br>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:**

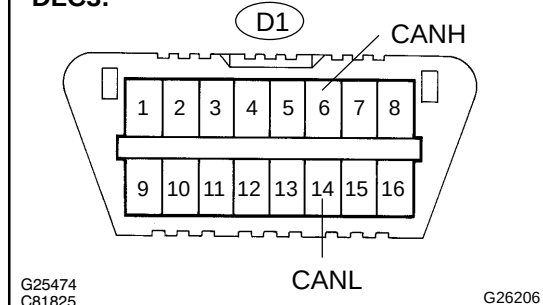
Measure the resistance with the J/C2 connector (J18) disconnected.

**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    |

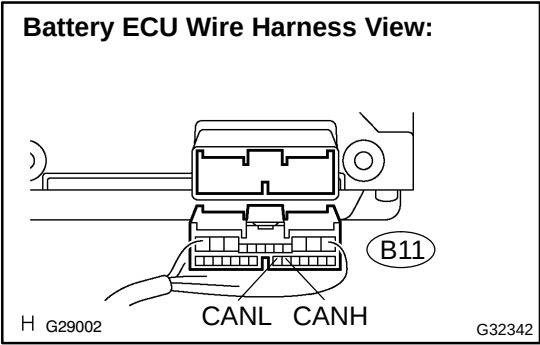
**OK**

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

**NG**

7

CHECK CAN BUS LINES FOR SHORT CIRCUIT(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) – B11-19 (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

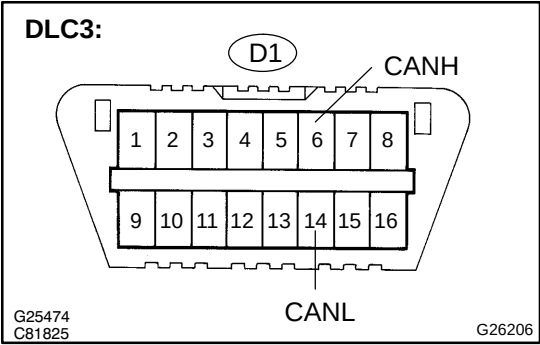
8

CONNECT CONNECTOR

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

9

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



- (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) – D1-14 (CANL) | Power Switch OFF | 54 to 69 Ω      |

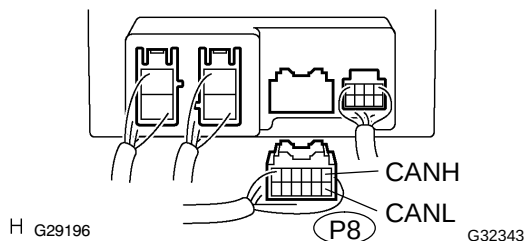
OK

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

NG

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

## Power Steering ECU Wire Harness View:



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

### Standard:

| Tester connection            | Condition        | Specified value |
|------------------------------|------------------|-----------------|
| P8-1 (CANH) –<br>P8-7 (CANL) | 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)**

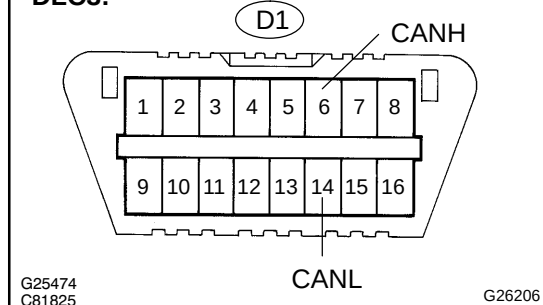
OK

# 11 CONNECT CONNECTOR

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

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

## DLC3:



### NOTICE:

**For vehicles without enhanced VSC, go to step 15.**

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

### Standard:

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

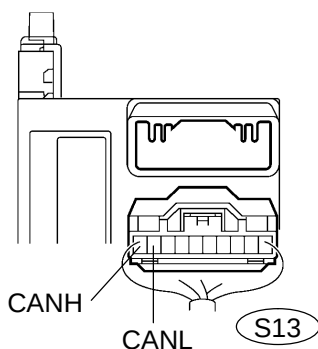
OK

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

NG

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

## Steering Sensor Wire Harness View:



G30155

- Disconnect the J/C1 connector (J15).
- 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)**

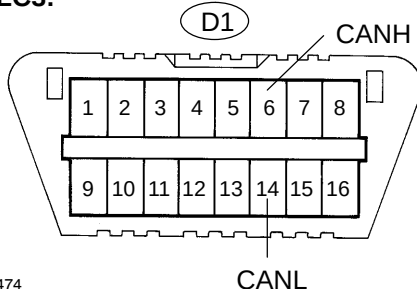
OK

# 14 CONNECT CONNECTOR

- 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

- Disconnect the skid control ECU connector (S8).
- 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      |

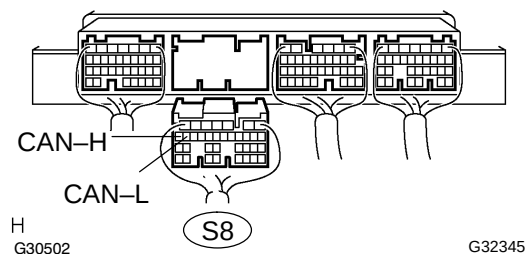
OK

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

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) –<br>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

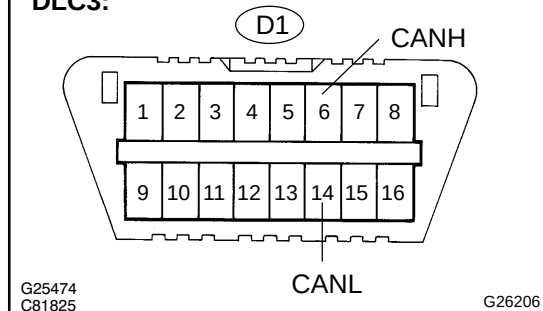
## REPLACE JUNCTION CONNECTOR (J/C1)

# 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.

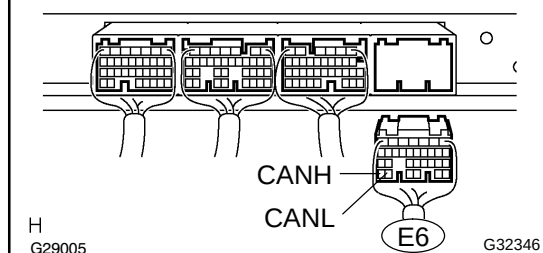
### Standard:

| Tester connection             | Condition        | Specified value |
|-------------------------------|------------------|-----------------|
| D1-6 (CANH) –<br>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:**

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

**Standard:**

| Tester connection              | Condition        | Specified value |
|--------------------------------|------------------|-----------------|
| E6-31 (CANH) –<br>E6-30 (CANL) | Power Switch OFF | 1 MΩ or more    |

**HINT:**

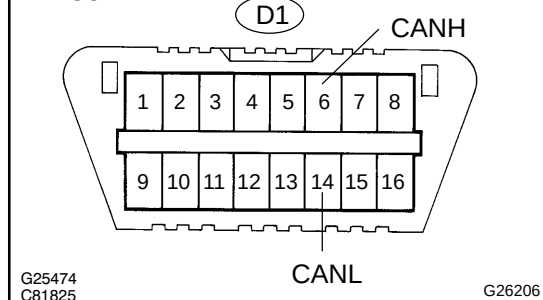
Measure the resistance with the ECM connector (E6) disconnected.

**NG**

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

**OK****20 CONNECT CONNECTOR**

- 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 enhanced VSC, go to step 24.**

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

**Standard:**

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

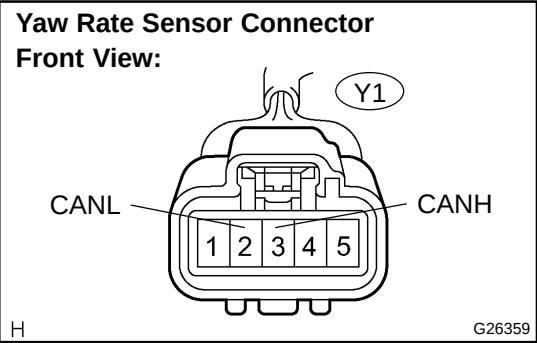
**OK**

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

**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) –<br>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

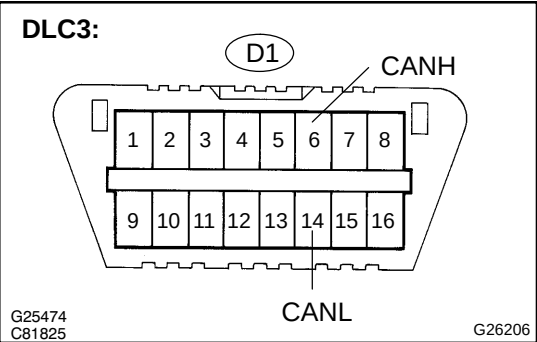
23

CONNECT CONNECTOR

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

24

CHECK CAN BUS LINES FOR SHORT CIRCUIT(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) –<br>D1-14 (CANL) | Power Switch OFF | 54 to 69 Ω      |

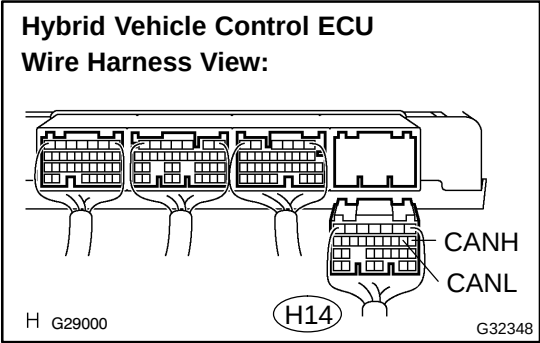
OK

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

NG

25

CHECK CAN BUS LINES FOR SHORT CIRCUIT(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) –<br>H14-9 (CANL) | 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

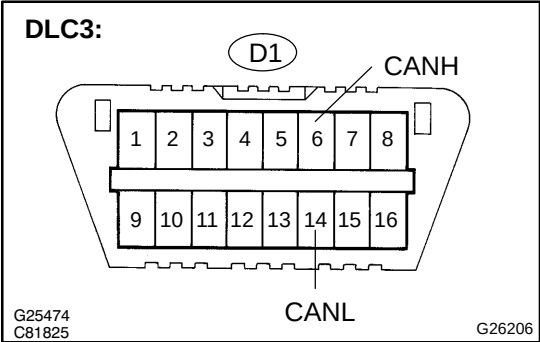
26

CONNECT CONNECTOR

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

27

CHECK CAN BUS LINES FOR SHORT CIRCUIT(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) –<br>D1-14 (CANL) | Power Switch OFF | 54 to 69 Ω      |

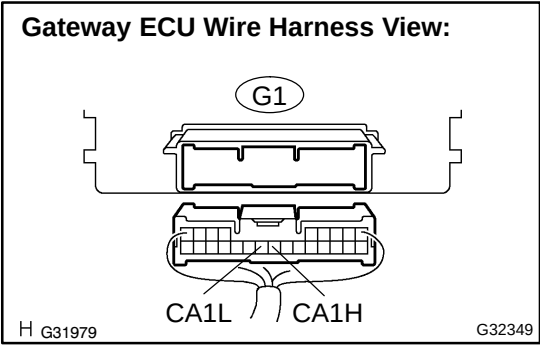
OK

REPLACE GATEWAY ECU (SEE PAGE 67-26)

NG

28

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



- (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 (CAN-H, CAN-L)

OK

REPLACE JUNCTION CONNECTOR (J/C2)

## CHECK CAN BUS LINE

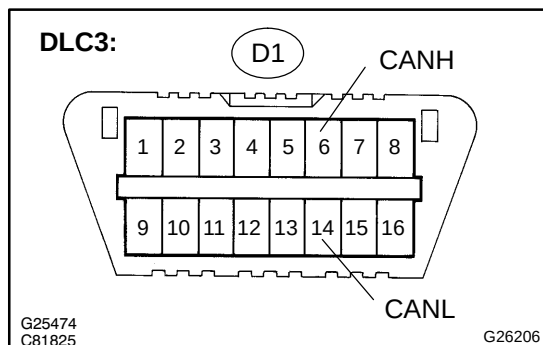
### CIRCUIT DESCRIPTION

When any DTC for the CAN communication system is output, first measure the resistance between the terminals of DLC3 to specify the trouble area, and check that there is no short in the CAN main bus line, between the CAN bus lines, to +B, or to GND.



## INSPECTION PROCEDURE

|          |                                                                                         |
|----------|-----------------------------------------------------------------------------------------|
| <b>1</b> | <b>CHECK CAN BUS LINE(MAIN BUS LINE FOR DISCONNECTION, BUS LINES FOR SHORT CIRCUIT)</b> |
|----------|-----------------------------------------------------------------------------------------|



- (a) Turn the power switch off.  
 (b) Measure the resistance according to the value(s) in the table below.

**Standard:**

| Tester connection          | Condition        | Specified value     | Result |
|----------------------------|------------------|---------------------|--------|
| D1-6 (CANH) – D1-14 (CANL) | Power Switch OFF | 54 to 69 $\Omega$   | OK     |
| D1-6 (CANH) – D1-14 (CANL) | Power Switch OFF | 69 $\Omega$ or more | NG-A   |
| D1-6 (CANH) – D1-14 (CANL) | Power Switch OFF | 54 $\Omega$ or less | NG-B   |

NG-A

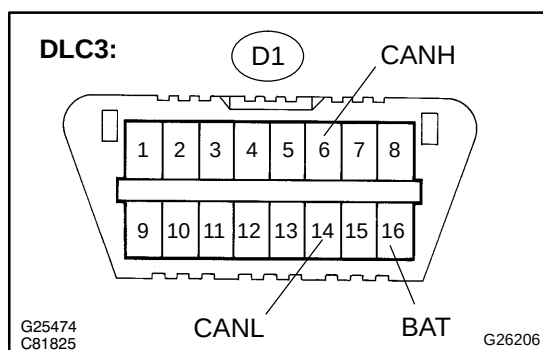
**CHECK CAN MAIN BUS LINE FOR DISCONNECTION (SEE PAGE 05-2640)**

NG-B

**CHECK CAN BUS LINES FOR SHORT CIRCUIT (SEE PAGE 05-2645)**

OK

|          |                                           |
|----------|-------------------------------------------|
| <b>2</b> | <b>CHECK CAN BUS LINE FOR SHORT TO +B</b> |
|----------|-------------------------------------------|



- (a) Measure the resistance according to the value(s) in the table below.

**Standard:**

| Tester connection          | Condition        | Specified value      |
|----------------------------|------------------|----------------------|
| D1-6 (CANH) – D1-16 (BAT)  | Power Switch OFF | 1 M $\Omega$ or more |
| D1-14 (CANL) – D1-16 (BAT) | Power Switch OFF | 1 M $\Omega$ or more |

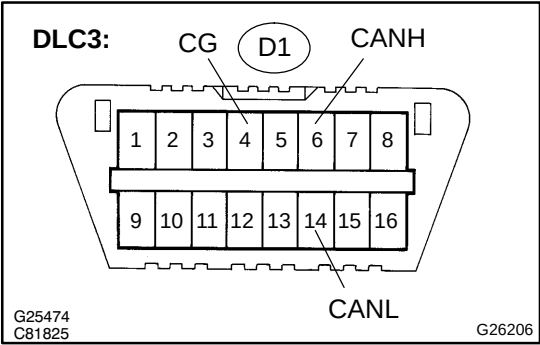
NG

**CHECK CAN BUS LINE FOR SHORT TO +B (SEE PAGE 05-2656)**

OK

3

CHECK CAN BUS LINE FOR SHORT TO GND



(a) Measure the resistance according to the value(s) in the table below.

Standard:

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

NG

CHECK CAN BUS LINE FOR SHORT TO GND  
(SEE PAGE 05-2668)

OK

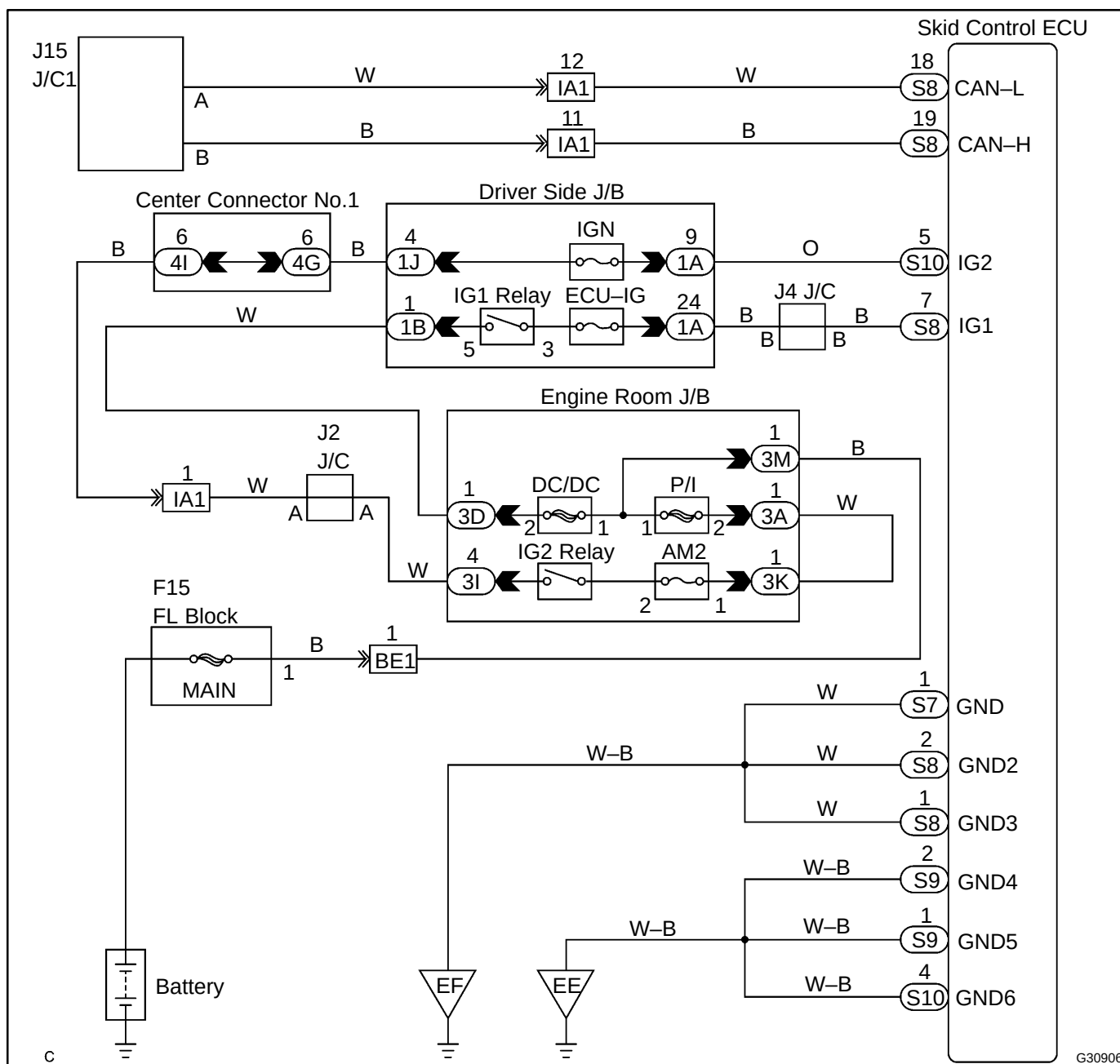
HOW TO PROCEED WITH TROUBLESHOOTING (SEE PAGE 05-2602)

# SKID CONTROL ECU COMMUNICATION STOP MODE

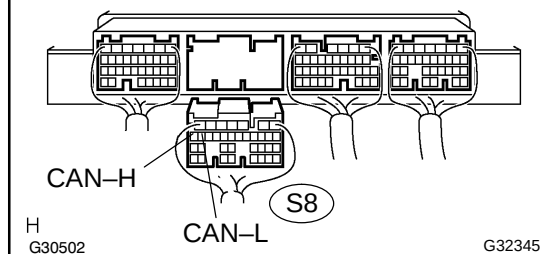
## MODE DESCRIPTION

| Detection Item                           | Symptom                                                                                                                                                                                                                                                            | Trouble Area                                                                                                                                      |
|------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|
| SKID CONTROL ECU COMMUNICATION STOP MODE | <ul style="list-style-type: none"> <li>"ABS &amp; VSC &amp; TRAC" is not displayed on the "BUS CHECK" screen of the hand-held tester.</li> <li>Applies to "SKID CONTROL ECU COMMUNICATION STOP MODE" in the "DTC COMBINATION TABLE" (see page 05-2605).</li> </ul> | <ul style="list-style-type: none"> <li>Power source or inside the skid control ECU</li> <li>Skid control ECU sub bus line or connector</li> </ul> |

## WIRING DIAGRAM



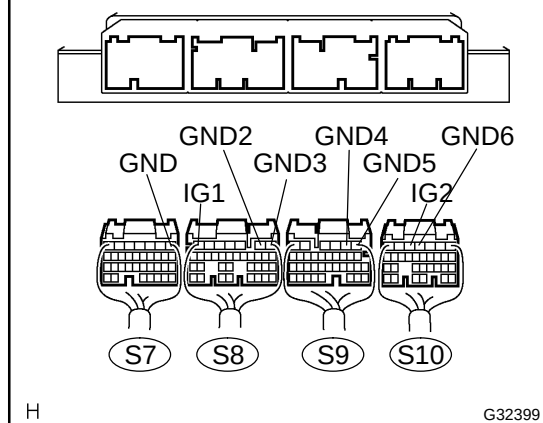
## INSPECTION PROCEDURE

**1 CHECK CAN BUS LINE FOR DISCONNECTION(SKID CONTROL ECU SUB BUS LINE)****Skid Control ECU  
Wire Harness View:**

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

**Standard:**

| Tester connection                | Condition        | Specified value |
|----------------------------------|------------------|-----------------|
| S8-19 (CAN-H) –<br>S8-18 (CAN-L) | Power Switch OFF | 54 to 69 Ω      |

**NG****REPLACE SKID CONTROL ECU SUB BUS LINE  
OR CONNECTOR (CAN-H, CAN-L)****OK****2 CHECK WIRE HARNESS(IG1,IG2,GND,GND2,GND3,GND4,GND5,GND6)****Skid Control ECU Wire Harness View:**

- (a) Disconnect the skid control ECU connectors (S7), (S9), and (S10).
- (b) Measure the resistance according to the value(s) in the table below.
- (c) Measure the voltage according to the value(s) in the table below.

**Standard:**

| Tester connection             | Condition            | Specified value |
|-------------------------------|----------------------|-----------------|
| S7-1 (GND) –<br>Body ground   | Always               | Below 1 Ω       |
| S8-1 (GND3) –<br>Body ground  | Always               | Below 1 Ω       |
| S8-2 (GND2) –<br>Body ground  | Always               | Below 1 Ω       |
| S9-1 (GND5) –<br>Body ground  | Always               | Below 1 Ω       |
| S9-2 (GND4) –<br>Body ground  | Always               | Below 1 Ω       |
| S10-4 (GND6) –<br>Body ground | Always               | Below 1 Ω       |
| S8-7 (IG1) –<br>Body ground   | Power Switch ON (IG) | 10 to 14 V      |
| S10-5 (IG2) –<br>Body ground  | Power Switch ON (IG) | 10 to 14 V      |

**NG****REPAIR OR REPLACE WIRE HARNESS OR  
CONNECTOR****OK****REPLACE SKID CONTROL ECU ASSY (SEE PAGE 32-68)**

# STEERING SENSOR COMMUNICATION STOP MODE

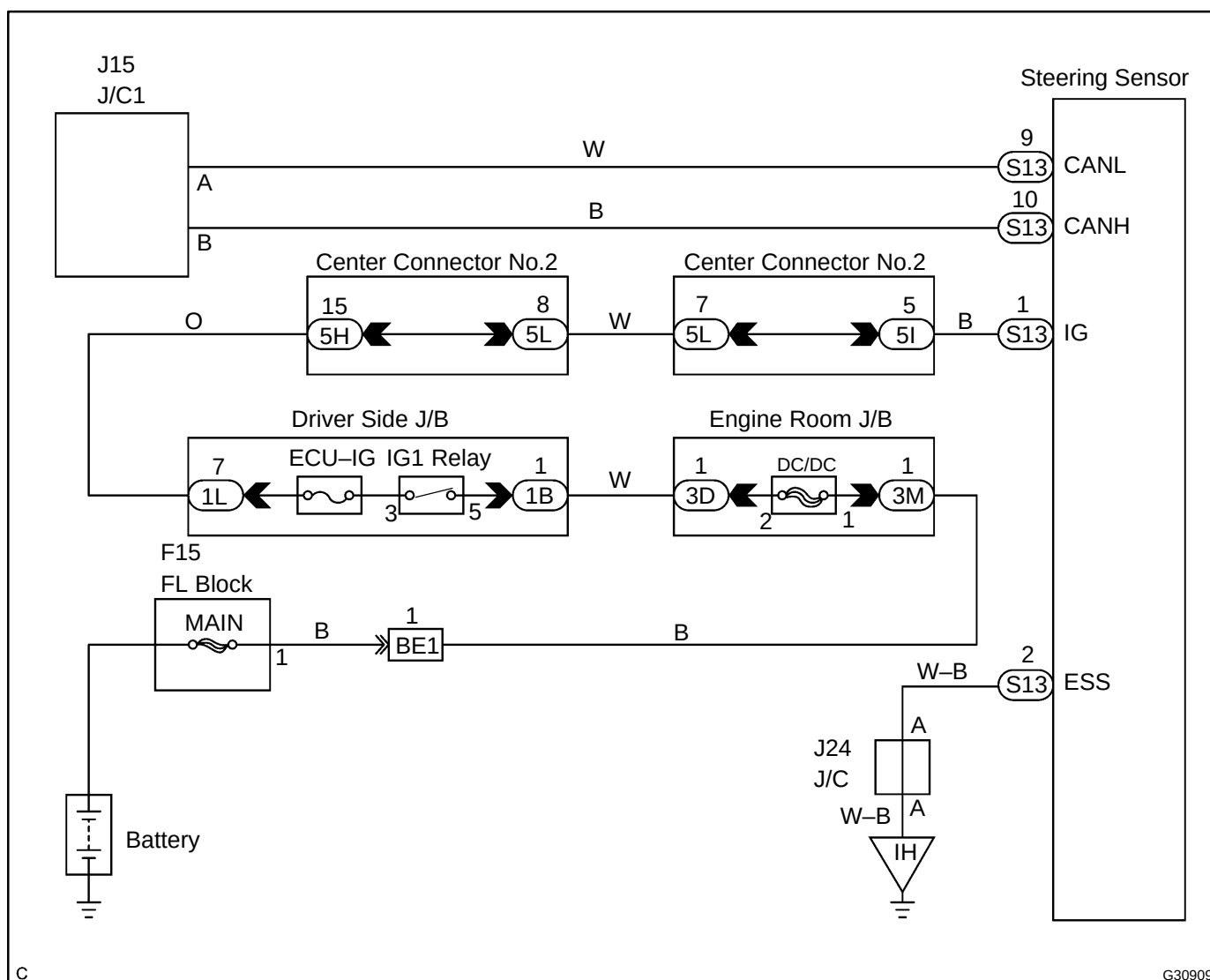
## MODE DESCRIPTION

| Detection Item                          | Symptom                                                                                                                                                                                                                                                      | Trouble Area                                                                                                                                        |
|-----------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|
| STEERING SENSOR COMMUNICATION STOP MODE | <ul style="list-style-type: none"> <li>• "STEERING SENSOR" is not displayed on the "BUS CHECK" screen of the hand-held tester.</li> <li>• Applies to "STEERING SENSOR COMMUNICATION STOP MODE" in the "DTC COMBINATION TABLE" (see page 05-2605).</li> </ul> | <ul style="list-style-type: none"> <li>• Power source or inside the steering sensor</li> <li>• Steering sensor sub bus line or connector</li> </ul> |

### NOTICE:

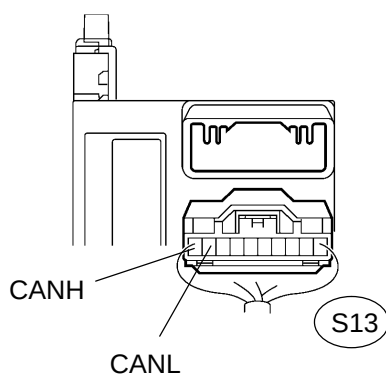
This is not applicable to a vehicle without enhanced VSC.

## WIRING DIAGRAM



## INSPECTION PROCEDURE

|          |                                                                           |
|----------|---------------------------------------------------------------------------|
| <b>1</b> | <b>CHECK CAN BUS LINE FOR DISCONNECTION(STEERING SENSOR SUB BUS LINE)</b> |
|----------|---------------------------------------------------------------------------|

**Steering Sensor  
Wire Harness View:**


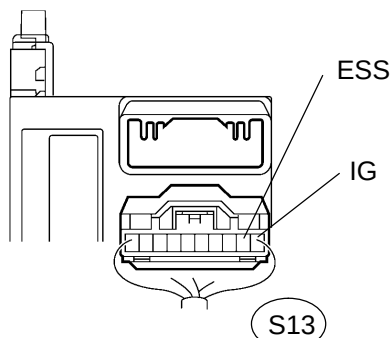
- (a) Turn the power switch off.
- (b) Disconnect the steering sensor connector (S13).
- (c) Measure the resistance according to the value(s) in the table below.

**Standard:**

| Tester connection               | Condition        | Specified value   |
|---------------------------------|------------------|-------------------|
| S13-10 (CANH) –<br>S13-9 (CANL) | Power Switch OFF | 54 to 69 $\Omega$ |

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

|          |                                    |
|----------|------------------------------------|
| <b>2</b> | <b>CHECK WIRE HARNESS(IG1,ESS)</b> |
|----------|------------------------------------|

**Steering Sensor  
Wire Harness View:**


- (a) Measure the resistance according to the value(s) in the table below.
- (b) Measure the voltage according to the value(s) in the table below.

**Standard:**

| Tester connection            | Condition            | Specified condition |
|------------------------------|----------------------|---------------------|
| S13-2 (ESS) –<br>Body ground | Always               | Below 1 $\Omega$    |
| S13-1 (IG) –<br>Body ground  | Power Switch ON (IG) | 10 to 14 V          |

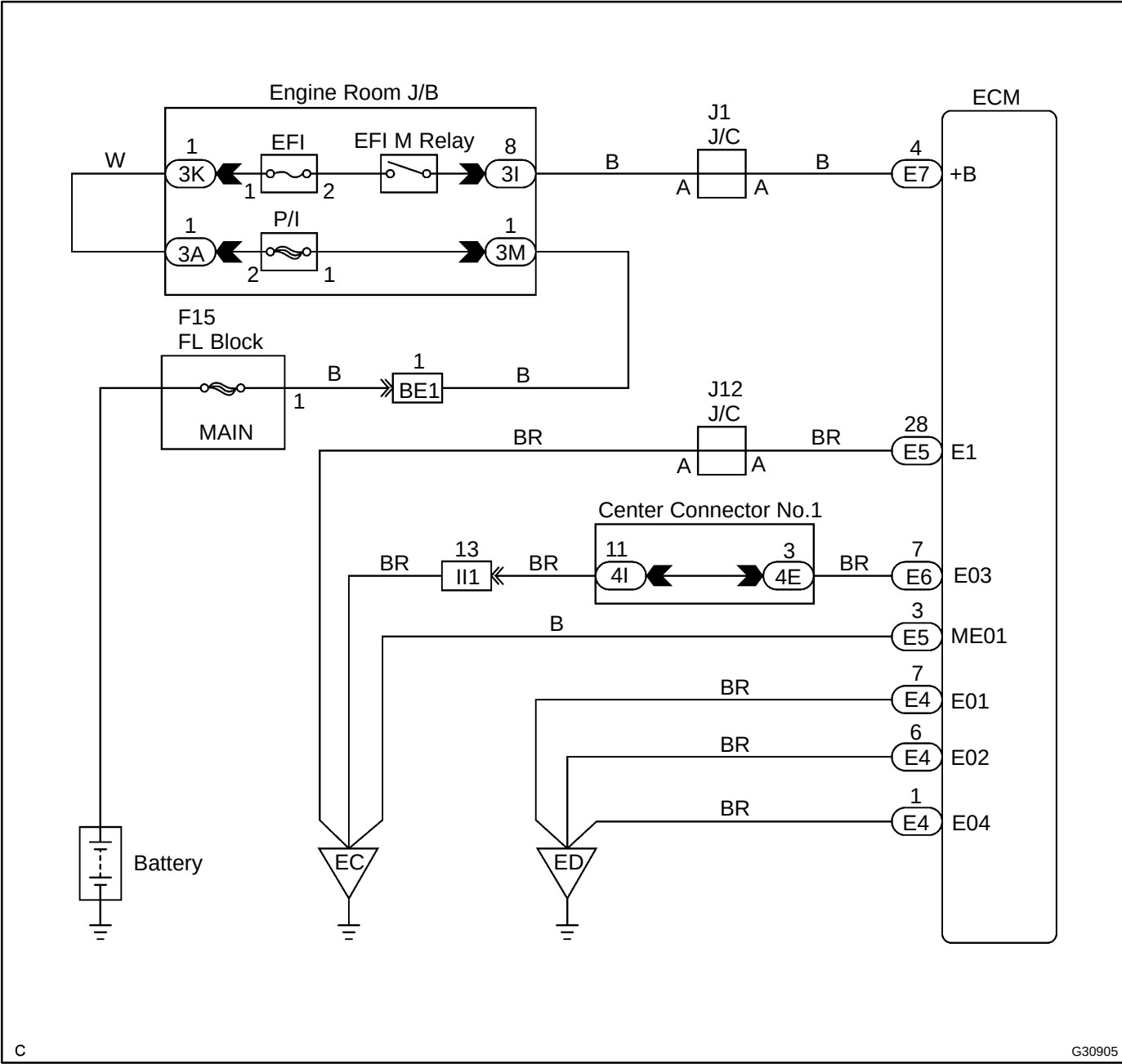
**NG**
**REPAIR OR REPLACE WIRE HARNESS OR  
CONNECTOR**
**OK**
**REPLACE STEERING SENSOR (SEE PAGE 32-71)**

ECM COMMUNICATION STOP MODE

MODE DESCRIPTION

| Detection Item              | Symptom                                                                                                                                                                                                                              | Trouble Area                   |
|-----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|
| ECM COMMUNICATION STOP MODE | <ul style="list-style-type: none"><li>• "ENGINE" is not displayed on the "BUS CHECK" screen of the hand-held tester.</li><li>• Applies to "ECM COMMUNICATION STOP MODE" in the "DTC COMBINATION TABLE" (see page 05-2605).</li></ul> | Power source or inside the ECM |

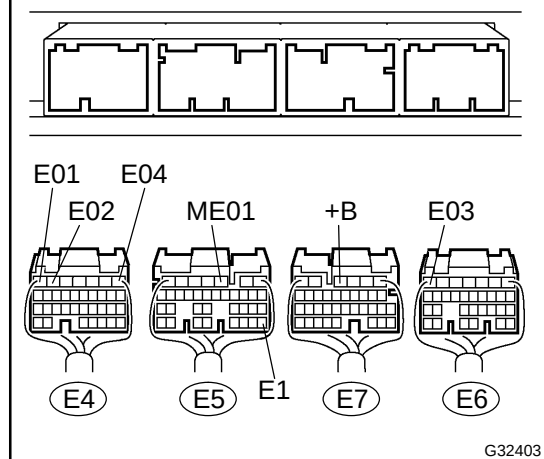
WIRING DIAGRAM



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G30905

## INSPECTION PROCEDURE

**1 CHECK WIRE HARNESS(+B,E1,E03,ME01,E01,E02,E04)****ECM Wire Harness View:**

- Turn the power switch off.
- Disconnect the ECM connectors (E4), (E5), (E6), and (E7).
- Measure the resistance according to the value(s) in the table below.
- Measure the voltage according to the value(s) in the table below.

**Standard:**

| Tester connection         | Condition            | Specified condition |
|---------------------------|----------------------|---------------------|
| E4-1 (E04) – Body ground  | Always               | Below 1 $\Omega$    |
| E4-6 (E02) – Body ground  | Always               | Below 1 $\Omega$    |
| E4-7 (E01) – Body ground  | Always               | Below 1 $\Omega$    |
| E5-3 (ME01) – Body ground | Always               | Below 1 $\Omega$    |
| E5-28 (E1) – Body ground  | Always               | Below 1 $\Omega$    |
| E6-7 (E03) – Body ground  | Always               | Below 1 $\Omega$    |
| E7-4 (+B) – Body ground   | Power Switch ON (IG) | 10 to 14 V          |

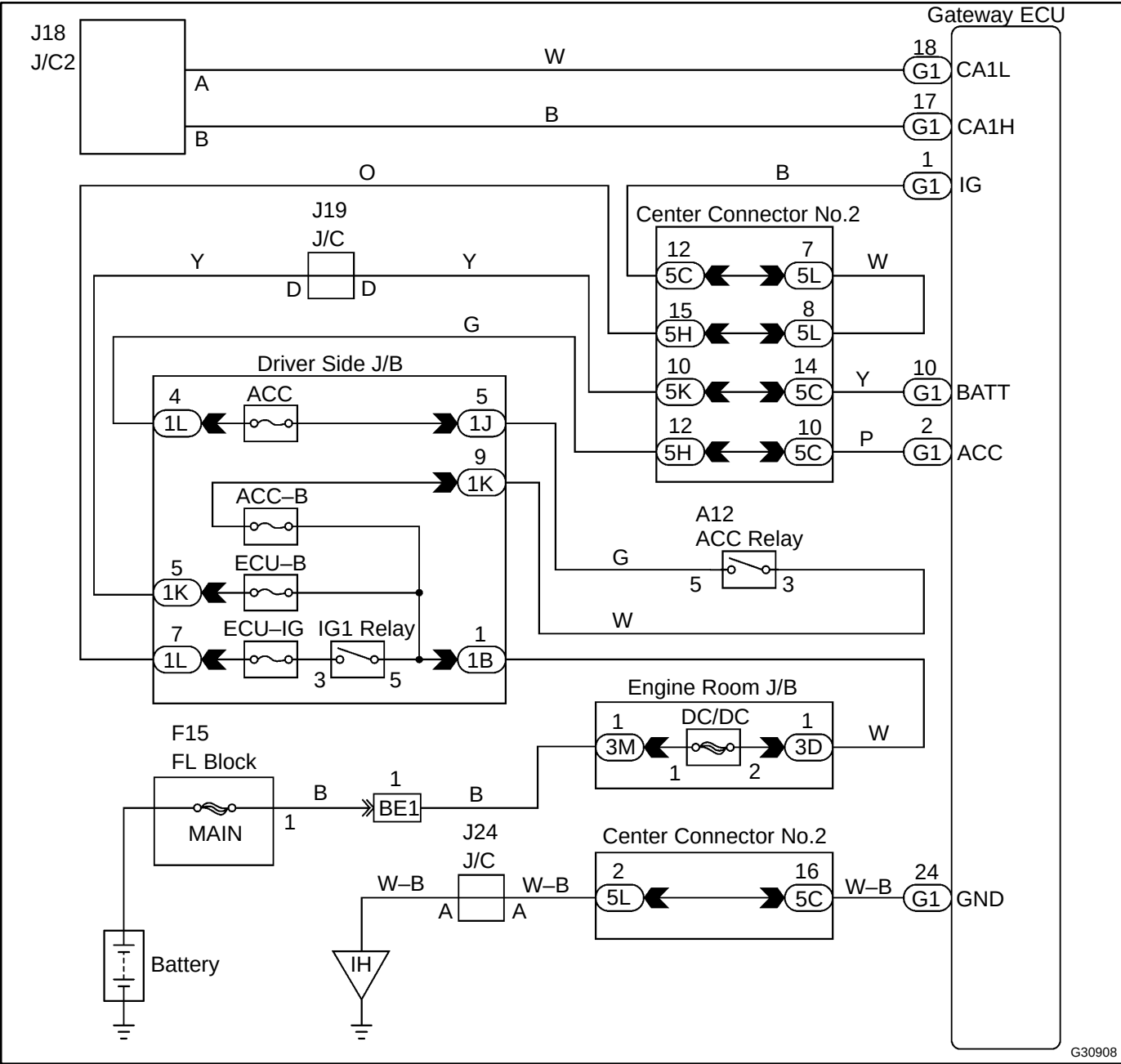
**NG****REPAIR OR REPLACE WIRE HARNESS OR CONNECTOR****OK****REPLACE ECM (SEE PAGE 10-24)**

GATEWAY ECU COMMUNICATION STOP MODE

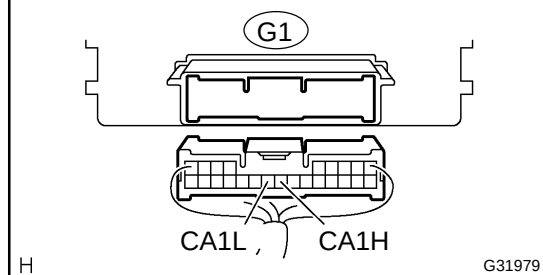
MODE DESCRIPTION

| Detection Item                      | Symptom                                                                                                                                                                                                                                            | Trouble Area                                                                                                                             |
|-------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|
| GATEWAY ECU COMMUNICATION STOP MODE | <ul style="list-style-type: none"><li>• "BODY/GATEWAY" is not displayed on the "BUS CHECK" screen of the hand-held tester.</li><li>• Applies to "GATEWAY ECU COMMUNICATION STOP MODE" in the "DTC COMBINATION TABLE" (see page 05-2605).</li></ul> | <ul style="list-style-type: none"><li>• Power source or inside the gateway ECU</li><li>• Gateway ECU sub bus line or connector</li></ul> |

WIRING DIAGRAM



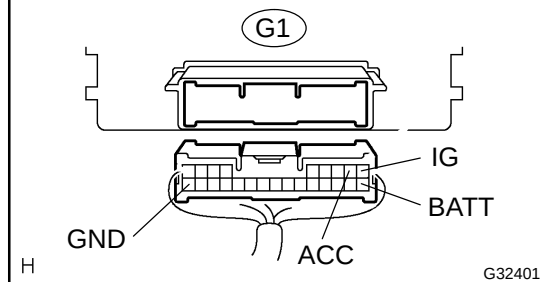
## INSPECTION PROCEDURE

**1 CHECK CAN BUS LINE FOR DISCONNECTION(GATEWAY ECU SUB BUS LINE)****Gateway ECU Wire Harness View:**

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

**Standard:**

| Tester connection              | Condition        | Specified value |
|--------------------------------|------------------|-----------------|
| G1-17 (CA1H) –<br>G1-18 (CA1L) | Power Switch OFF | 54 to 69 Ω      |

**NG****REPLACE GATEWAY ECU SUB BUS LINE OR CONNECTOR (CAN-H, CAN-L)****OK****2 CHECK WIRE HARNESS(BATT,ACC,IG,GND)****Gateway ECU Wire Harness View:**

- (a) Measure the resistance according to the value(s) in the table below.
- (b) Measure the voltage according to the value(s) in the table below.

**Standard:**

| Tester connection             | Condition             | Specified condition |
|-------------------------------|-----------------------|---------------------|
| G1-24 (GND) –<br>Body ground  | Always                | Below 1 Ω           |
| G1-10 (BATT) –<br>Body ground | Always                | 10 to 14 V          |
| G1-2 (ACC) –<br>Body ground   | Power Switch ON (ACC) | 10 to 14 V          |
| G1-1 (IG) –<br>Body ground    | Power Switch ON (IG)  | 10 to 14 V          |

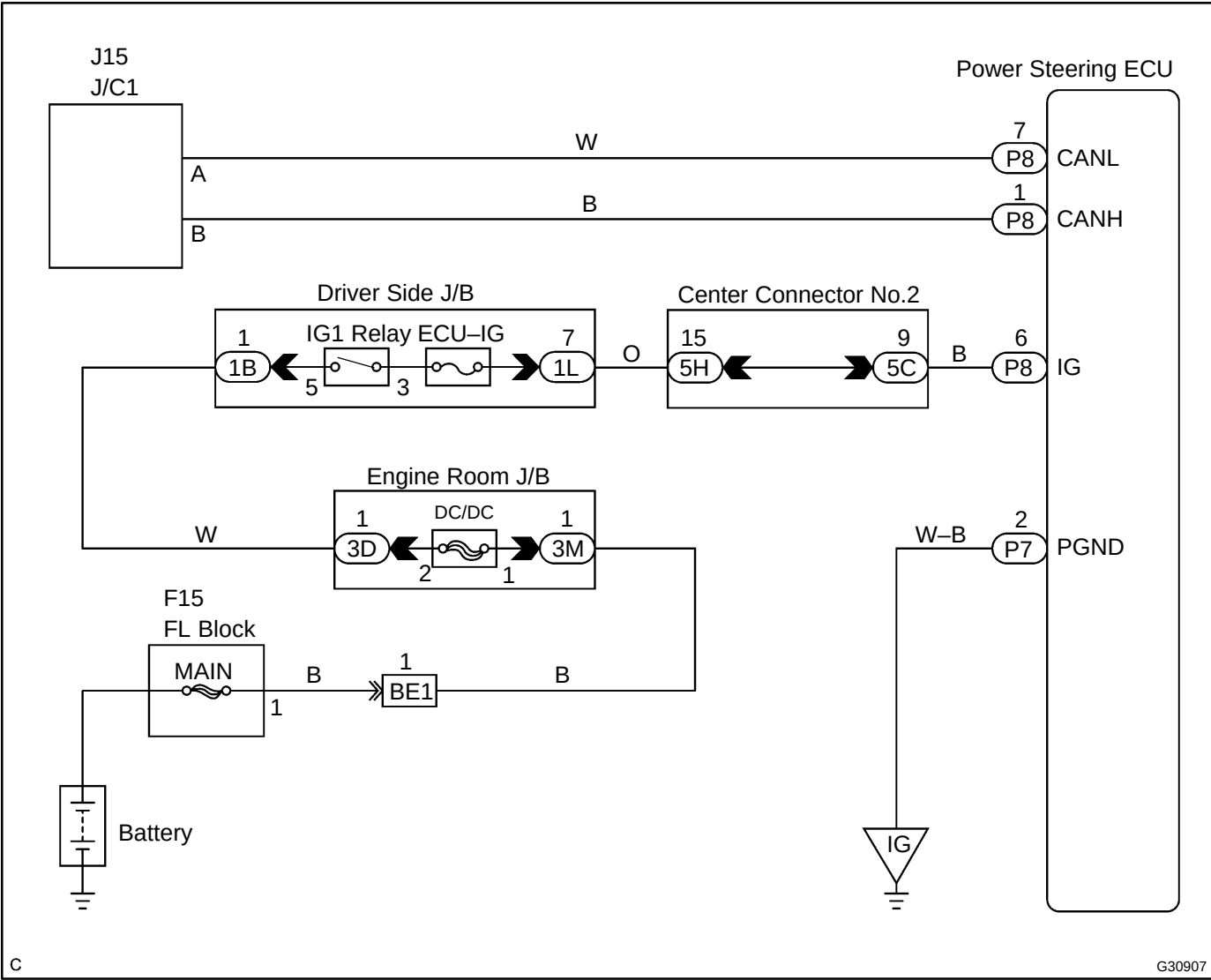
**NG****REPAIR OR REPLACE WIRE HARNESS OR CONNECTOR****OK****REPLACE GATEWAY ECU (SEE PAGE 67-26)**

POWER STEERING ECU COMMUNICATION STOP MODE

MODE DESCRIPTION

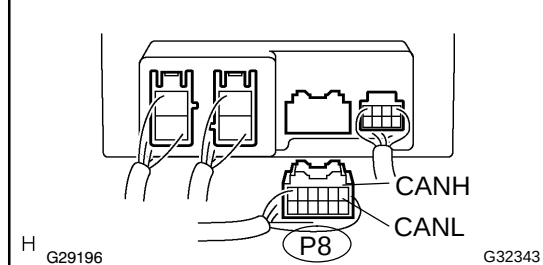
| Detection Item                             | Symptom                                                                                                                                                                                                                                          | Trouble Area                                                                                                                                           |
|--------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|
| POWER STEERING ECU COMMUNICATION STOP MODE | <ul style="list-style-type: none"><li>• "EPS" is not displayed on the "BUS CHECK" screen of the hand-held tester.</li><li>• Applies to "POWER STEERING ECU COMMUNICATION STOP MODE" in the "DTC COMBINATION TABLE" (see page 05-2605).</li></ul> | <ul style="list-style-type: none"><li>• Power source or inside the power steering ECU</li><li>• Power steering ECU sub bus line or connector</li></ul> |

WIRING DIAGRAM



## INSPECTION PROCEDURE

|          |                                                                              |
|----------|------------------------------------------------------------------------------|
| <b>1</b> | <b>CHECK CAN BUS LINE FOR DISCONNECTION(POWER STEERING ECU SUB BUS LINE)</b> |
|----------|------------------------------------------------------------------------------|

**Power Steering ECU  
Wire Harness View:**


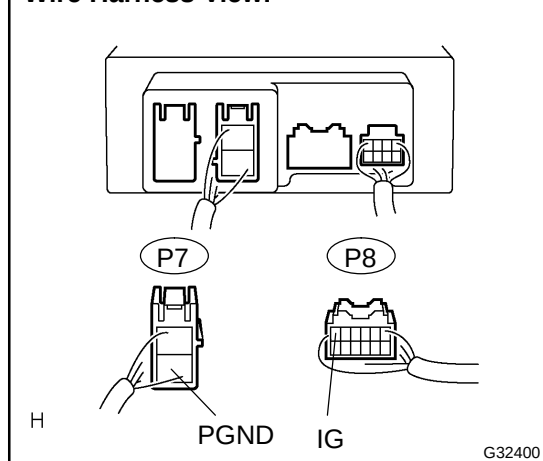
- (a) Turn the power switch off.
- (b) Disconnect the power steering ECU connector (P8).
- (c) Measure the resistance according to the value(s) in the table below.

**Standard:**

| Tester connection            | Condition        | Specified value   |
|------------------------------|------------------|-------------------|
| P8-1 (CANH) –<br>P8-7 (CANL) | Power Switch OFF | 54 to 69 $\Omega$ |

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

|          |                                    |
|----------|------------------------------------|
| <b>2</b> | <b>CHECK WIRE HARNESS(IG,PGND)</b> |
|----------|------------------------------------|

**Power Steering ECU  
Wire Harness View:**


- (a) Disconnect the power steering ECU connector (P7).
- (b) Measure the resistance according to the value(s) in the table below.
- (c) Measure the voltage according to the value(s) in the table below.

**Standard:**

| Tester connection            | Condition            | Specified condition |
|------------------------------|----------------------|---------------------|
| P7-2 (PGND) –<br>Body ground | Always               | Below 1 $\Omega$    |
| P8-6 (IG) –<br>Body ground   | Power Switch ON (IG) | 10 to 14 V          |

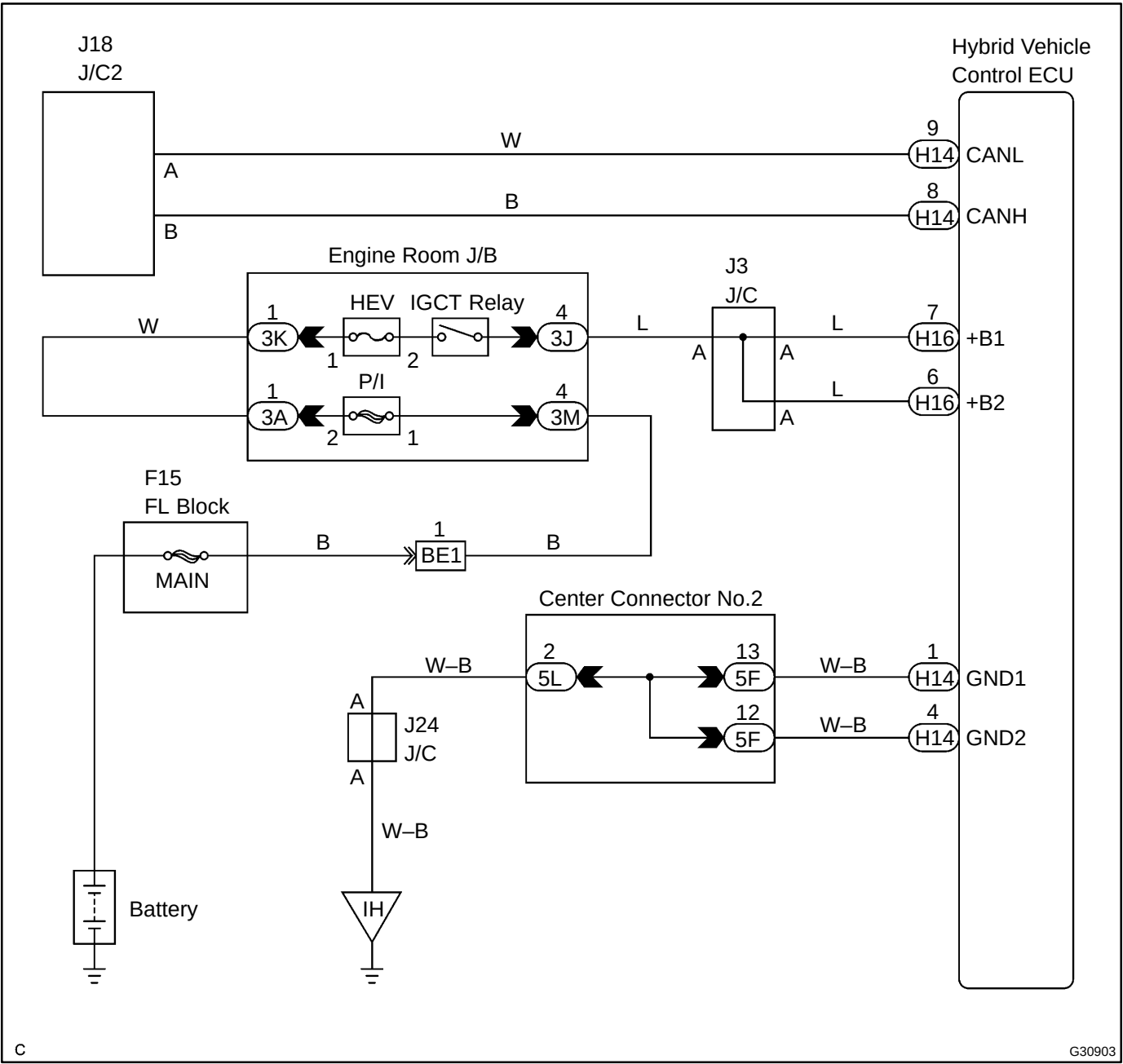
**NG**
**REPAIR OR REPLACE WIRE HARNESS OR  
CONNECTOR**
**OK**
**REPLACE POWER STEERING ECU ASSY (SEE PAGE 50-16)**

HYBRID VEHICLE CONTROL ECU COMMUNICATION STOP MODE

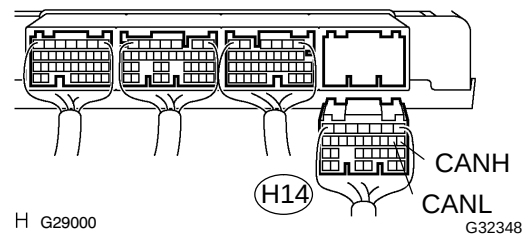
MODE DESCRIPTION

| Detection Item                                     | Symptom                                                                                                                                                                                                                                                             | Trouble Area                                                                                                                                                           |
|----------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| HYBRID VEHICLE CONTROL ECU COMMUNICATION STOP MODE | <ul style="list-style-type: none"><li>• "HYBRID CONTROL" is not displayed on the "BUS CHECK" screen of the hand-held tester.</li><li>• Applies to "HYBRID VEHICLE CONTROL ECU COMMUNICATION STOP MODE" in the "DTC COMBINATION TABLE" (see page 05-2605).</li></ul> | <ul style="list-style-type: none"><li>• Power source or inside the hybrid vehicle control ECU</li><li>• Hybrid vehicle control ECU sub bus line or connector</li></ul> |

WIRING DIAGRAM



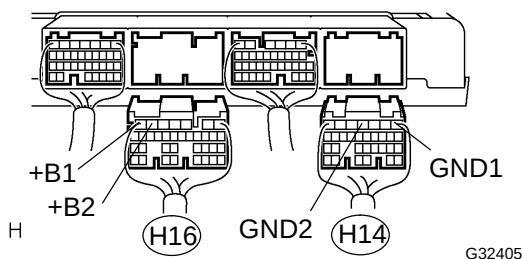
## INSPECTION PROCEDURE

**1 CHECK CAN BUS LINE FOR DISCONNECTION(HYBRID VEHICLE CONTROL ECU SUB BUS LINE)**
**Hybrid Vehicle Control ECU**
**Wire Harness View:**


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

**Standard:**

| Tester connection              | Condition        | Specified value   |
|--------------------------------|------------------|-------------------|
| H14-8 (CANH) –<br>H14-9 (CANL) | Power Switch OFF | 54 to 69 $\Omega$ |

**NG**
**REPLACE HYBRID VEHICLE CONTROL ECU SUB BUS LINE OR CONNECTOR (CAN-H, CAN-L)**
**OK**
**2 CHECK WIRE HARNESS (+B1, +B2, GND1, GND2)**
**Hybrid Vehicle Control ECU**
**Wire Harness View:**


- (a) Disconnect the hybrid vehicle control ECU connector (H16).
- (b) Measure the resistance according to the value(s) in the table below.
- (c) Measure the voltage according to the value(s) in the table below.

**Standard:**

| Tester connection             | Condition            | Specified value  |
|-------------------------------|----------------------|------------------|
| H14-1 (GND1) –<br>Body ground | Always               | Below 1 $\Omega$ |
| H14-4 (GND2) –<br>Body ground | Always               | Below 1 $\Omega$ |
| H16-7 (+B1) –<br>Body ground  | Power Switch ON (IG) | 10 to 14 V       |
| H16-6 (+B2) –<br>Body ground  | Power Switch ON (IG) | 10 to 14 V       |

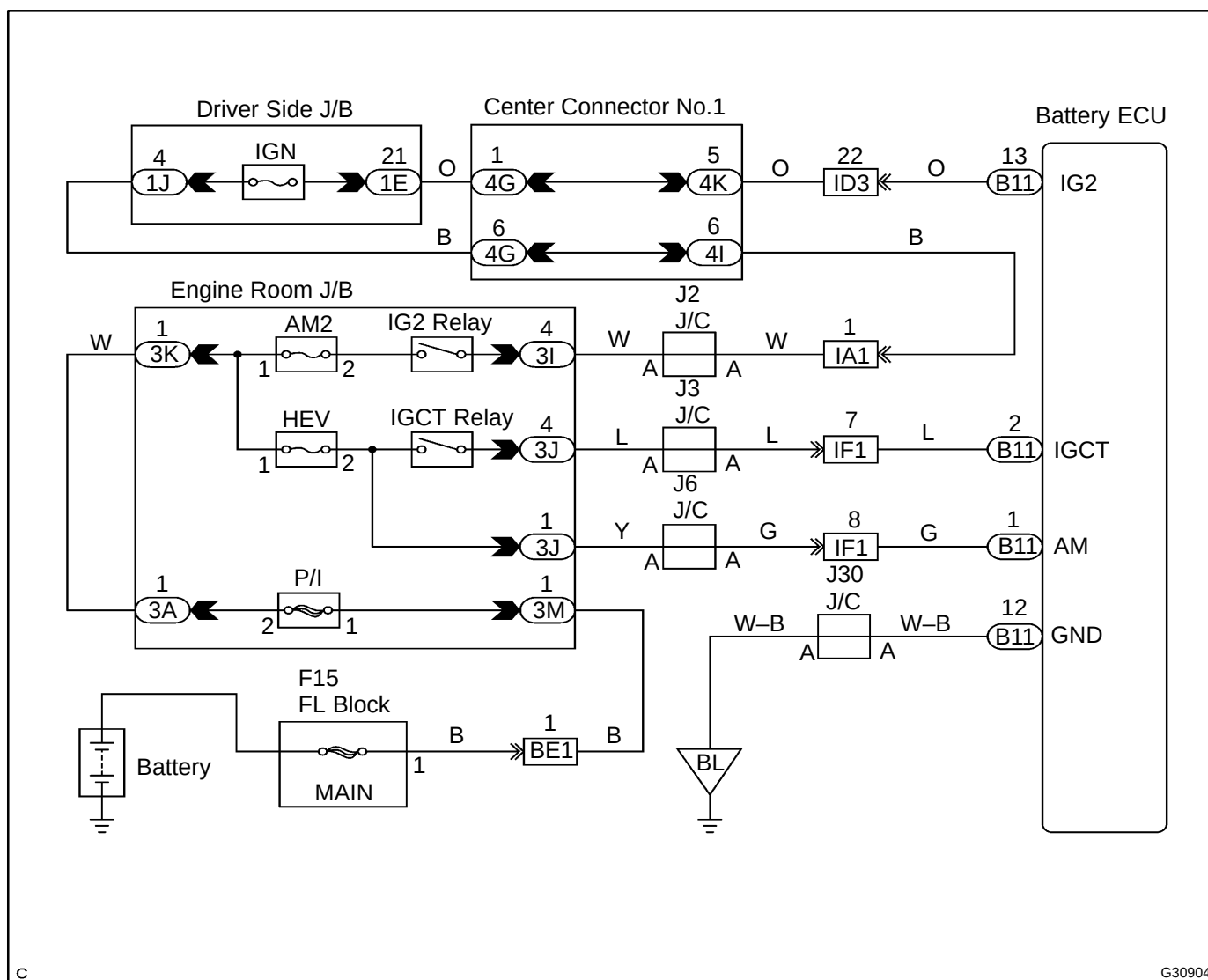
**NG**
**REPAIR OR REPLACE WIRE HARNESS OR CONNECTOR**
**OK**
**REPLACE HYBRID VEHICLE CONTROL ECU (SEE PAGE 21-124)**

## BATTERY ECU COMMUNICATION STOP MODE

### MODE DESCRIPTION

| Detection Item                      | Symptom                                                                                                                                                                                                                                         | Trouble Area                           |
|-------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|
| BATTERY ECU COMMUNICATION STOP MODE | <ul style="list-style-type: none"> <li>"HV BATTERY" is not displayed on the "BUS CHECK" screen of the hand-held tester.</li> <li>Applies to "BATTERY ECU COMMUNICATION STOP MODE" in the "DTC COMBINATION TABLE" (see page 05-2605).</li> </ul> | Power source or inside the battery ECU |

### WIRING DIAGRAM

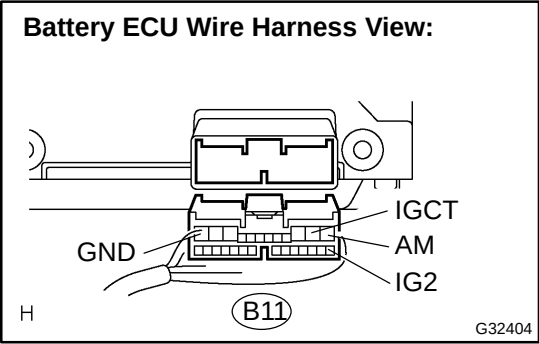


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G30904

INSPECTION PROCEDURE

1 CHECK WIRE HARNESS(AM,IGCT,IG2,GND)



- (a) Turn the power switch off.
- (b) Measure the resistance according to the value(s) in the table below.
- (c) Measure the voltage according to the value(s) in the table below.

Standard:

| Tester connection          | Condition            | Specified condition |
|----------------------------|----------------------|---------------------|
| B11-12 (GND) – Body ground | Always               | Below 1 Ω           |
| B11-1 (AM) – Body ground   | Always               | 10 to 14 V          |
| B11-2 (IGCT) – Body ground | Power Switch ON (IG) | 10 to 14 V          |
| B11-13 (IG2) – Body ground | Power Switch ON (IG) | 10 to 14 V          |

NG

REPAIR OR REPLACE WIRE HARNESS OR CONNECTOR

OK

REPLACE BATTERY ECU ASSY (SEE PAGE 21-98)

# YAW RATE SENSOR COMMUNICATION STOP MODE

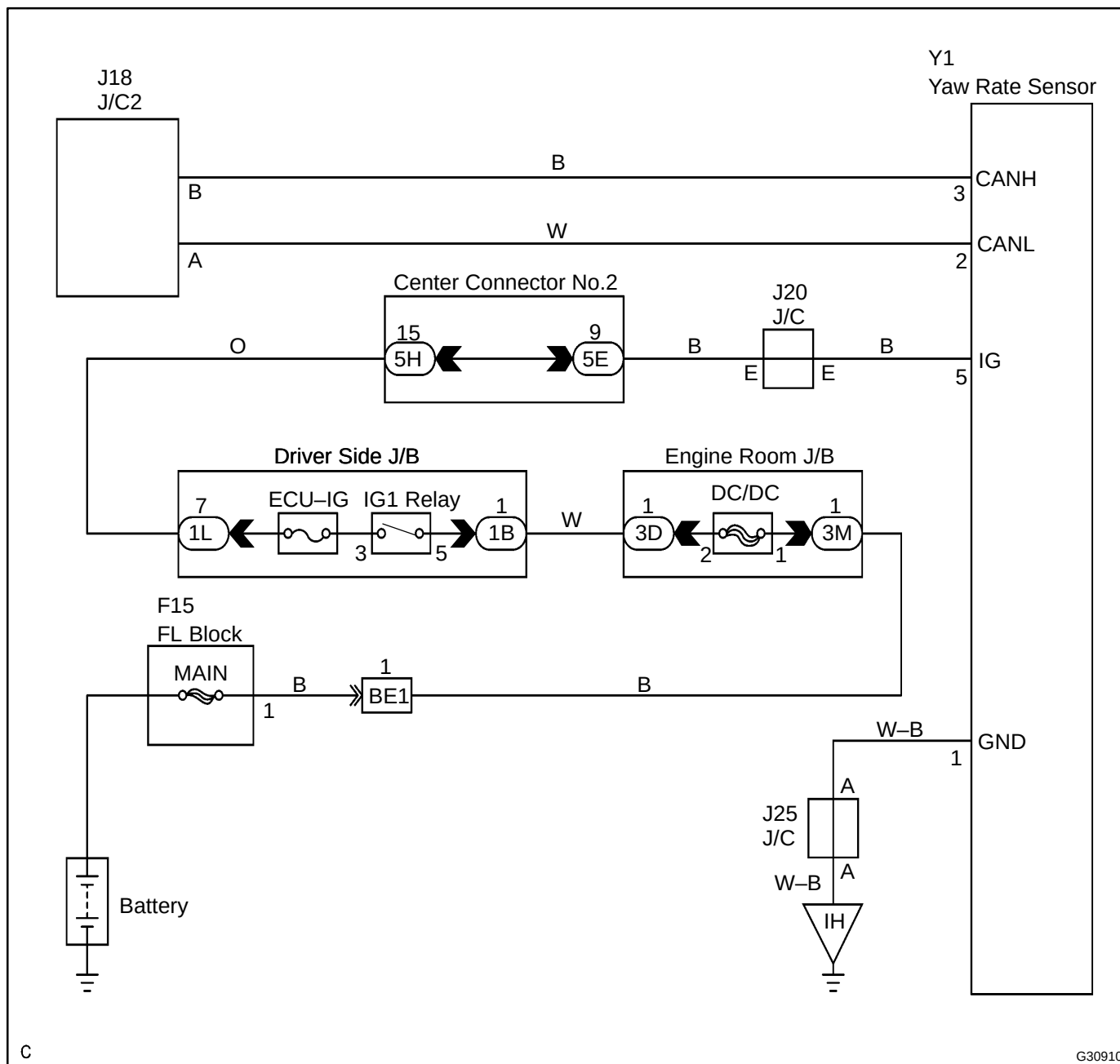
## MODE DESCRIPTION

| Detection Item                          | Symptom                                                                                                                                                                                                                                                    | Trouble Area                                                                                                                                        |
|-----------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|
| YAW RATE SENSOR COMMUNICATION STOP MODE | <ul style="list-style-type: none"> <li>• "YAW/DECELERAT" is not displayed on the "BUS CHECK" screen of the hand-held tester.</li> <li>• Applies to "YAW RATE SENSOR COMMUNICATION STOP MODE" in the "DTC COMBINATION TABLE" (see page 05-2605).</li> </ul> | <ul style="list-style-type: none"> <li>• Power source or inside the yaw rate sensor</li> <li>• Yaw rate sensor sub bus line or connector</li> </ul> |

### NOTICE:

This is not applicable to a vehicle without enhanced VSC.

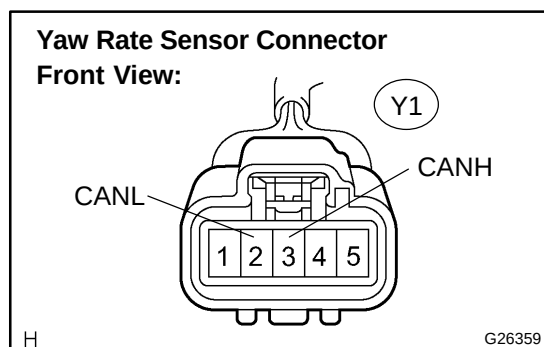
## WIRING DIAGRAM



C

G30910

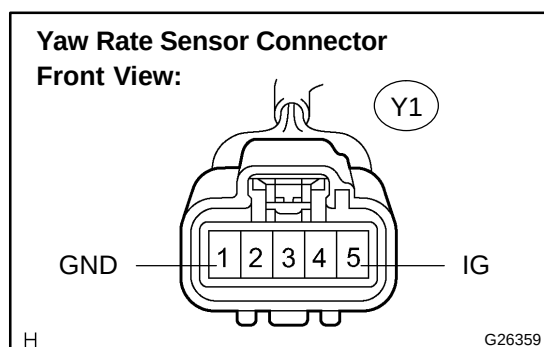
## INSPECTION PROCEDURE

**1 CHECK CAN BUS LINE FOR DISCONNECTION(YAW RATE SENSOR SUB BUS LINE)**


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

**Standard:**

| Tester connection            | Condition        | Specified value   |
|------------------------------|------------------|-------------------|
| Y1-2 (CANL) –<br>Y1-3 (CANH) | Power Switch OFF | 54 to 69 $\Omega$ |

**NG****REPLACE YAW RATE SENSOR SUB BUS LINE OR CONNECTOR (CAN-H, CAN-L)****OK**
**2 CHECK WIRE HARNESS(IG,GND)**


- (a) Measure the resistance according to the value(s) in the table below.
- (b) Measure the voltage according to the value(s) in the table below.

**Standard:**

| Tester connection           | Condition            | Specified condition |
|-----------------------------|----------------------|---------------------|
| Y1-1 (GND) –<br>Body ground | Always               | Below 1 $\Omega$    |
| Y1-5 (IG) – Body ground     | Power Switch ON (IG) | 10 to 14 V          |

**NG****REPAIR OR REPLACE WIRE HARNESS OR CONNECTOR****OK****REPLACE YAW RATE SENSOR (SEE PAGE 32-70)**

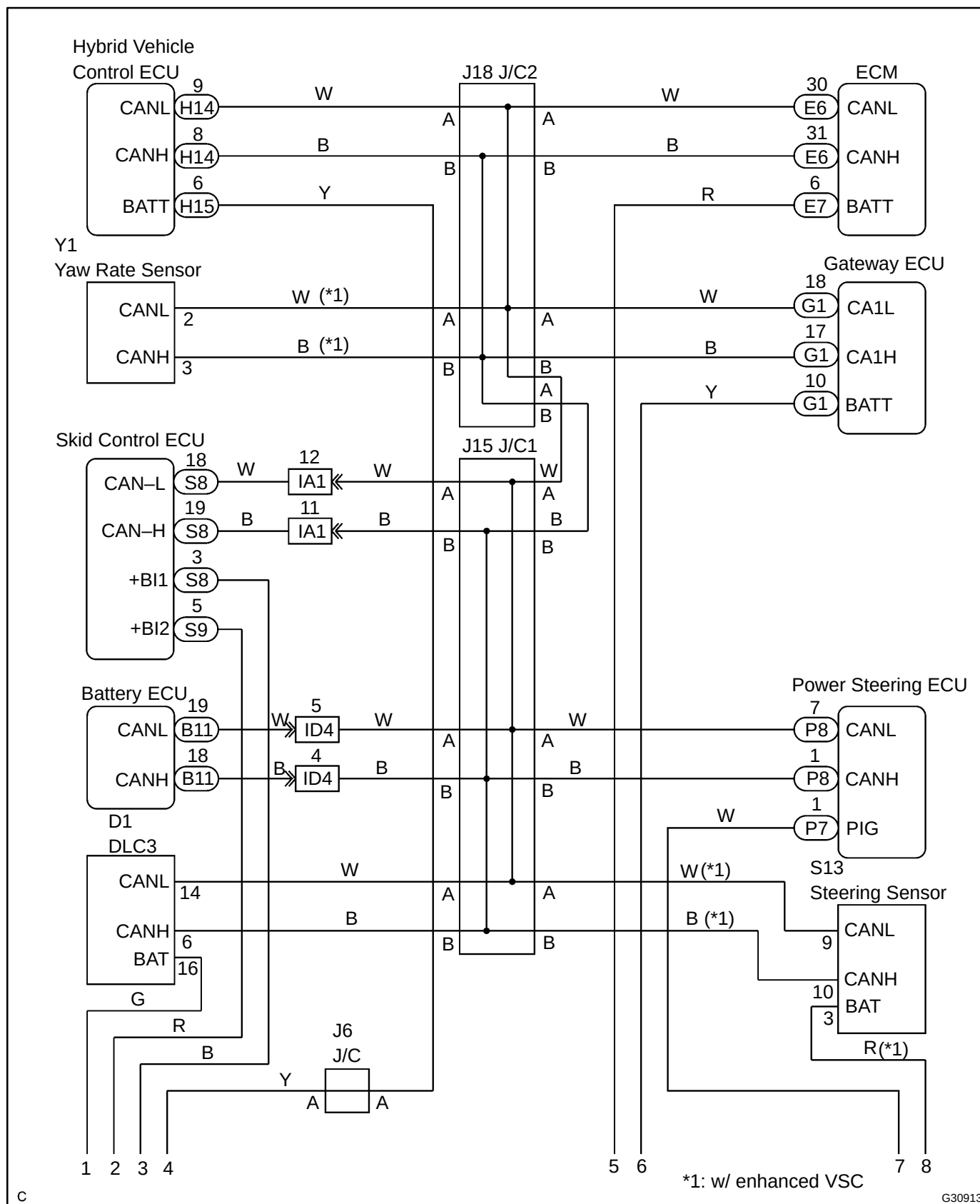
CHECK CAN BUS LINE FOR SHORT TO +B

CIRCUIT DESCRIPTION

There may be a short circuit between the CAN bus line and +B when there is resistance between terminals 6 (CANH) and 16 (BAT) or terminals 14 (CANL) and 16 (BAT) of the DLC3.

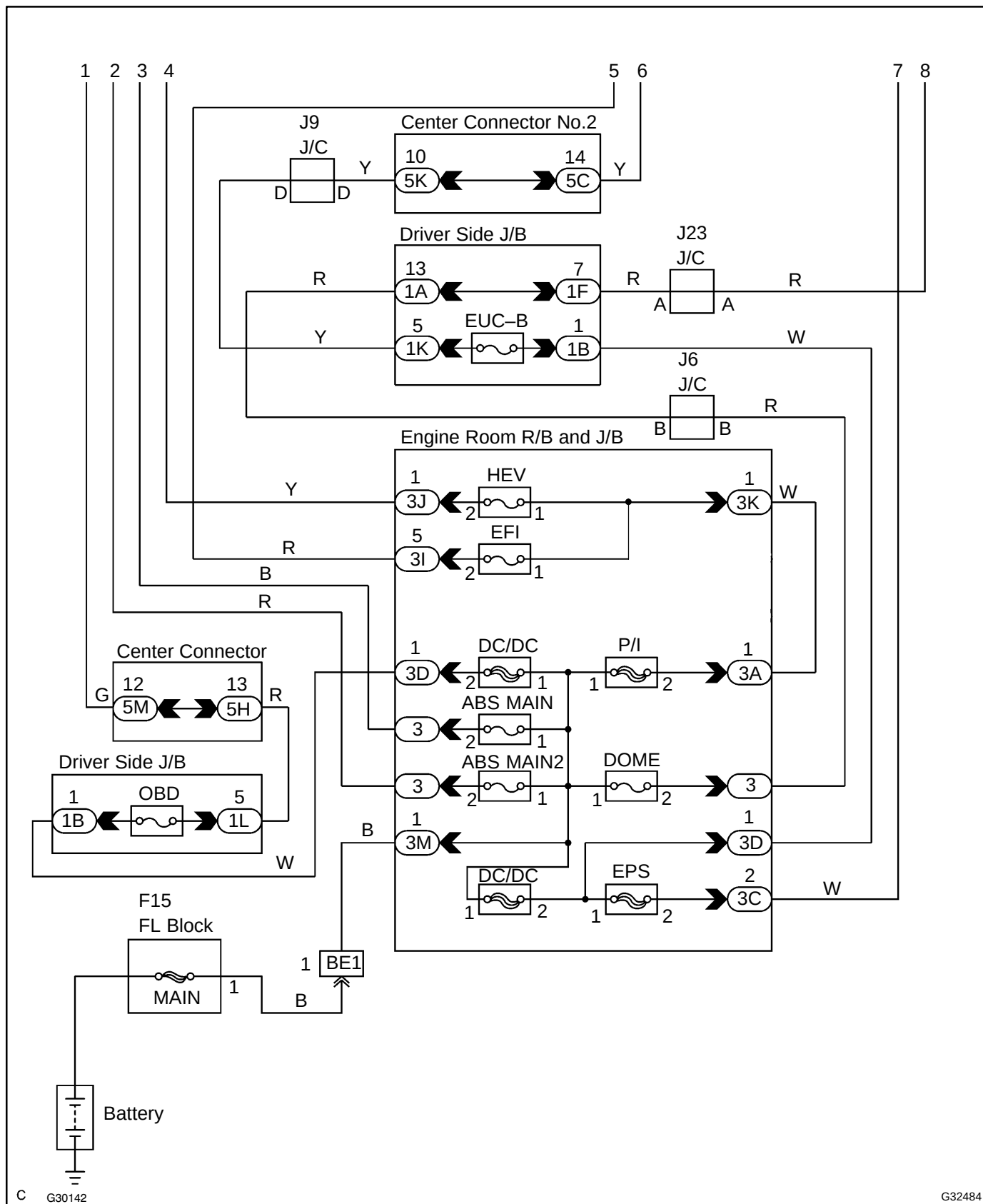
| Symptom                                                                                                      | Trouble Area                                                                                                                                                                                                                                       |
|--------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| There is resistance between terminals 6 (CANH) and 16 (BAT) or terminals 14 (CANL) and 16 (BAT) of the DLC3. | <ul style="list-style-type: none"><li>• Short to +B</li><li>• Hybrid vehicle control ECU</li><li>• Battery ECU</li><li>• ECM</li><li>• Skid control ECU</li><li>• Steering sensor</li><li>• Yaw rate sensor</li><li>• Power steering ECU</li></ul> |

## WIRING DIAGRAM

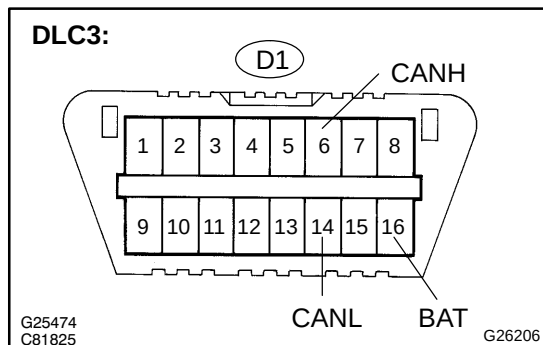


C

G30913



## INSPECTION PROCEDURE

**1 CHECK CAN BUS LINE FOR SHORT TO +B(DLC3 SUB BUS LINE)**

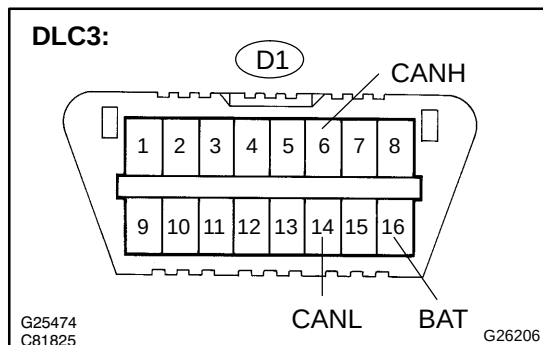
- (a) Turn the power switch off.
- (b) Disconnect the J/C1 connector (J15).
- (c) Measure the resistance according to the value(s) in the table below.

**Standard:**

| Tester connection             | Condition        | Specified value |
|-------------------------------|------------------|-----------------|
| D1-6 (CANH) –<br>D1-16 (BAT)  | Power Switch OFF | 1 MΩ or more    |
| D1-14 (CANL) –<br>D1-16 (BAT) | 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).

**3 CHECK CAN BUS LINE FOR SHORT TO +B(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.

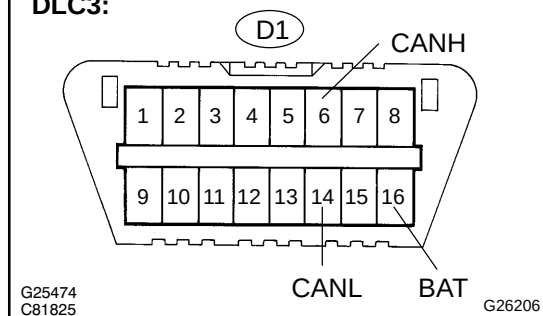
**Standard:**

| Tester connection             | Condition        | Specified value |
|-------------------------------|------------------|-----------------|
| D1-6 (CANH) –<br>D1-16 (BAT)  | Power Switch OFF | 1 MΩ or more    |
| D1-14 (CANL) –<br>D1-16 (BAT) | Power Switch OFF | 1 MΩ or more    |

**OK****Go to step 16****NG****4 CONNECT CONNECTOR**

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

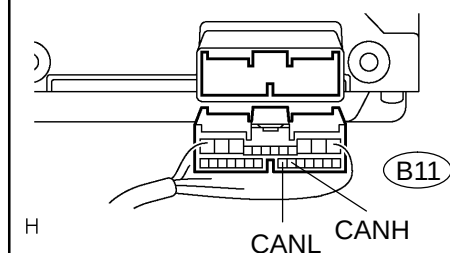
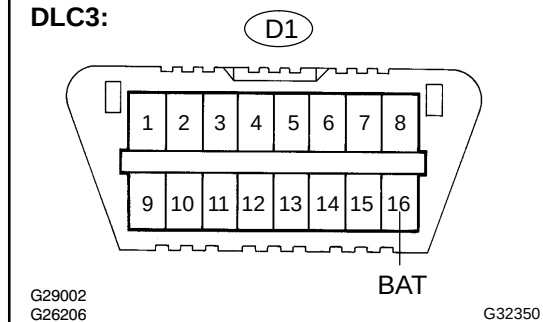


**5 CHECK CAN BUS LINE FOR SHORT TO +B(BATTERY ECU)****DLC3:**

- (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) –<br>D1-16 (BAT)  | Power Switch OFF | 1 MΩ or more    |
| D1-14 (CANL) –<br>D1-16 (BAT) | Power Switch OFF | 1 MΩ or more    |

**OK****REPLACE BATTERY ECU ASSY (SEE PAGE 21-98)****NG****6 CHECK CAN BUS LINE FOR SHORT TO +B(BATTERY ECU – J/C1)****Battery ECU Wire Harness View:****DLC3:**

- (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) –<br>D1-16 (BAT) | Power Switch OFF | 1 MΩ or more    |
| B11-19 (CANL) –<br>D1-16 (BAT) | Power Switch OFF | 1 MΩ or more    |

**HINT:**

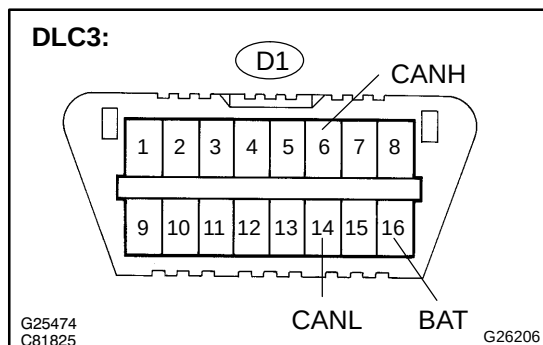
Measure the resistance with the battery ECU connector (B11) disconnected.

**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).





**11 CHECK CAN BUS LINE FOR SHORT TO +B(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:**

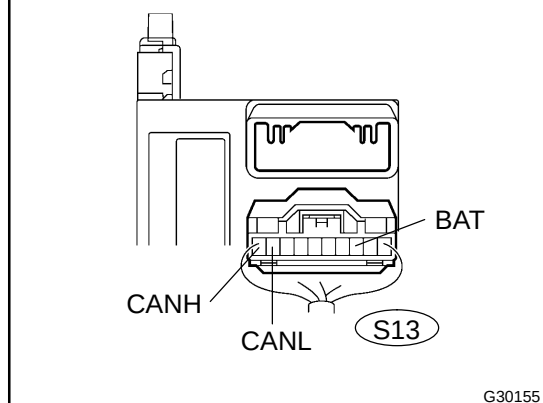
| Tester connection             | Condition        | Specified value |
|-------------------------------|------------------|-----------------|
| D1-6 (CANH) –<br>D1-16 (BAT)  | Power Switch OFF | 1 MΩ or more    |
| D1-14 (CANL) –<br>D1-16 (BAT) | Power Switch OFF | 1 MΩ or more    |

**OK**

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

**NG****12 CHECK CAN BUS LINE FOR SHORT TO +B(STEERING SENSOR SUB BUS LINE)**

**Steering Sensor  
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 |
|--------------------------------|------------------|-----------------|
| S13-10 (CANH) –<br>S13-3 (BAT) | Power Switch OFF | 1 MΩ or more    |
| S13-9 (CANL) –<br>S13-3 (BAT)  | Power Switch OFF | 1 MΩ or more    |

**HINT:**

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

**NG**

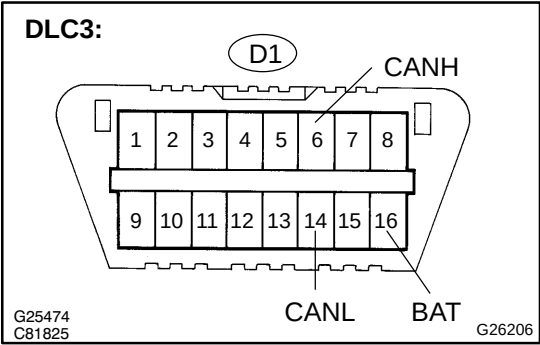
**REPLACE STEERING SENSOR SUB BUS LINE OR CONNECTOR (CAN-H, CAN-L)**

**OK****13 CONNECT CONNECTOR**

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



**14 CHECK CAN BUS LINE FOR SHORT TO +B(SKID CONTROL ECU)**



- (a) Disconnect the skid control ECU connector (A8).
- (b) Measure the resistance according to the value(s) in the table below.

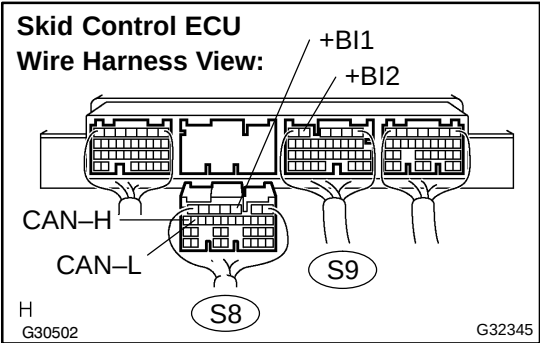
**Standard:**

| Tester connection             | Condition        | Specified value |
|-------------------------------|------------------|-----------------|
| D1-6 (CANH) –<br>D1-16 (BAT)  | Power Switch OFF | 1 MΩ or more    |
| D1-14 (CANL) –<br>D1-16 (BAT) | Power Switch OFF | 1 MΩ or more    |

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

**NG**

**15 CHECK CAN BUS LINE FOR SHORT TO +B(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) –<br>S8-3 (+BI1), S9-5 (+BI2) | Power Switch OFF | 1 MΩ or more    |
| S8-18 (CAN-L) –<br>S8-3 (+BI1), S9-5 (+BI2) | Power Switch OFF | 1 MΩ or more    |

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

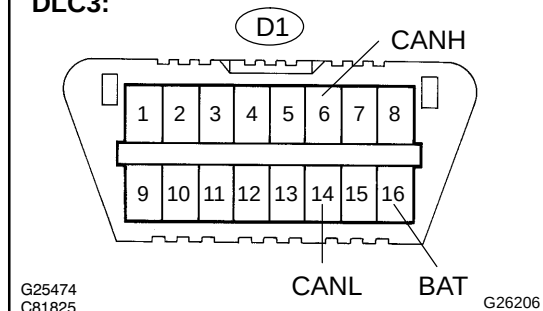
**NG** **REPLACE SKID CONTROL ECU SUB BUS LINE OR CONNECTOR (CAN-H, CAN-L)**

**OK**

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

**16 CONNECT CONNECTOR**

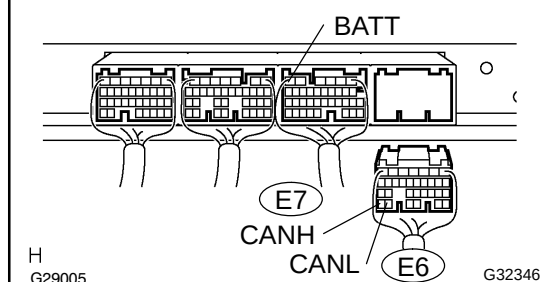
- (a) Reconnect the J/C2 connector (J18).

**17 CHECK CAN BUS LINE FOR SHORT TO +B(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) – D1-16 (BAT)  | Power Switch OFF | 1 MΩ or more    |
| D1-14 (CANL) – D1-16 (BAT) | Power Switch OFF | 1 MΩ or more    |

**OK****REPLACE ECM (SEE PAGE 10-24)****NG****18 CHECK CAN BUS LINE FOR SHORT TO +B(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) – E7-6 (BATT) | Power Switch OFF | 1 MΩ or more    |
| E6-30 (CANL) – E7-6 (BATT) | 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 +B(YAW RATE SENSOR)****NOTICE:**

For vehicles without enhanced VSC, go to step 23.

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

**Standard:**

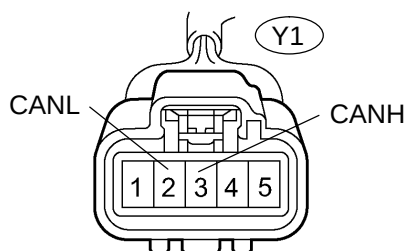
| Tester connection             | Condition        | Specified value |
|-------------------------------|------------------|-----------------|
| D1-6 (CANH) –<br>D1-16 (BAT)  | Power Switch OFF | 1 MΩ or more    |
| D1-14 (CANL) –<br>D1-16 (BAT) | Power Switch OFF | 1 MΩ or more    |

**OK**

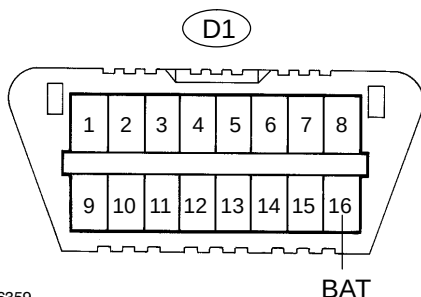
**REPLACE YAW RATE SENSOR (SEE PAGE 32-70)**

**NG****21 CHECK CAN BUS LINE FOR SHORT TO +B(YAW RATE SENSOR SUB BUS LINE)**

**Yaw Rate Sensor Connector  
Front View:**



H  
**DLC3:**



G26359  
G26206

G32351

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

**Standard:**

| Tester connection            | Condition        | Specified value |
|------------------------------|------------------|-----------------|
| Y1-3 (CANH) –<br>D1-16 (BAT) | Power Switch OFF | 1 MΩ or more    |
| Y1-2 (CANL) –<br>D1-16 (BAT) | Power Switch OFF | 1 MΩ or more    |

**HINT:**

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

**NG**

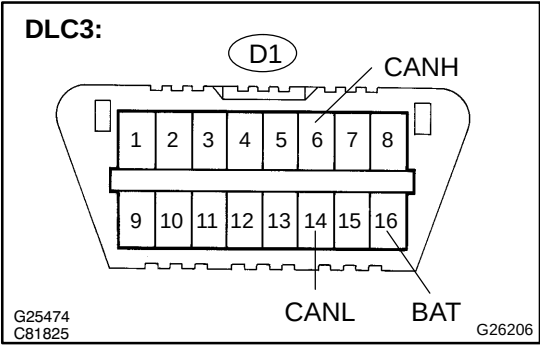
**REPLACE YAW RATE SENSOR SUB BUS LINE OR CONNECTOR (CAN-H, CAN-L)**

**OK****22 CONNECT CONNECTOR**

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

23

CHECK CAN BUS LINE FOR SHORT TO +B(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) – D1-16 (BAT)  | Power Switch OFF | 1 MΩ or more    |
| D1-14 (CANL) – D1-16 (BAT) | Power Switch OFF | 1 MΩ or more    |

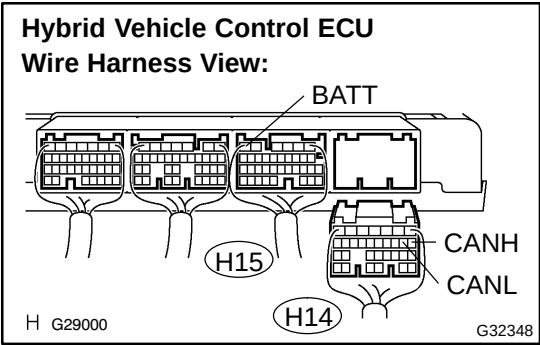
OK

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

NG

24

CHECK CAN BUS LINE FOR SHORT TO +B(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) – H15-6 (BATT) | Power Switch OFF | 1 MΩ or more    |
| H14-9 (CANL) – H15-6 (BATT) | Power Switch OFF | 1 MΩ or more    |

**HINT:**

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

NG

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

OK

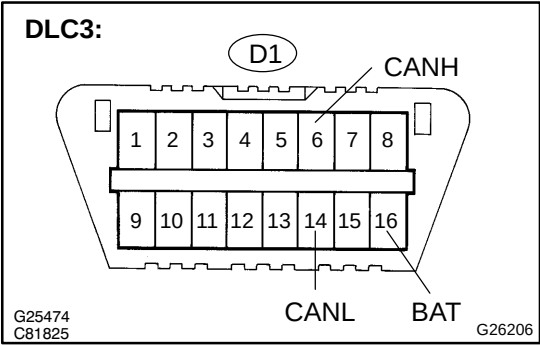
25

CONNECT CONNECTOR

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



26 CHECK CAN BUS LINE FOR SHORT TO +B(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) –<br>D1-16 (BAT)  | Power Switch OFF | 1 MΩ or more    |
| D1-14 (CANL) –<br>D1-16 (BAT) | Power Switch OFF | 1 MΩ or more    |

OK REPLACE GATEWAY ECU (SEE PAGE 67-26)

NG

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

CHECK CAN BUS LINE FOR SHORT TO GND

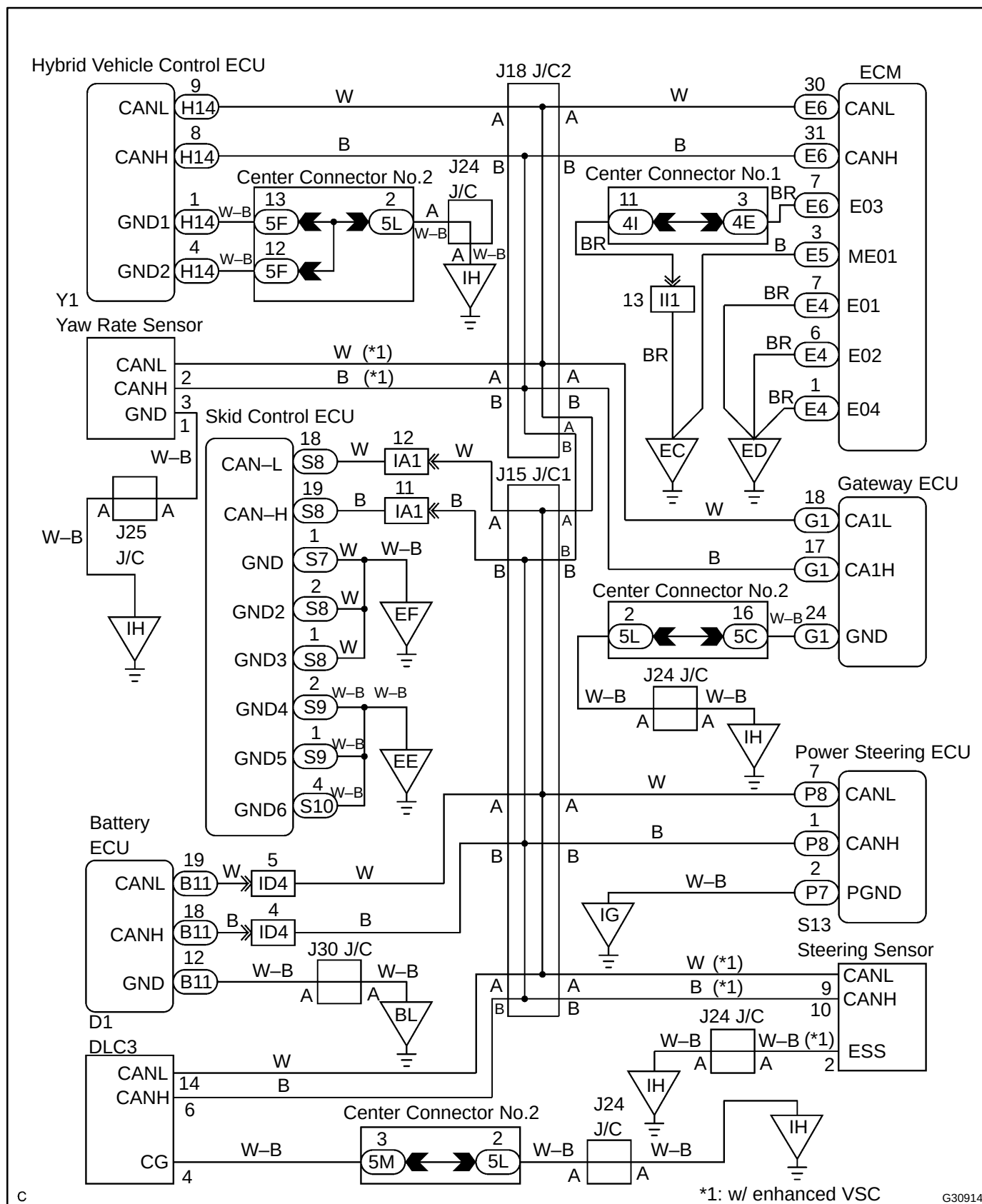
CIRCUIT DESCRIPTION

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"><li>• Short to GND</li><li>• Hybrid vehicle control ECU</li><li>• Battery ECU</li><li>• ECM</li><li>• Skid control ECU</li><li>• Steering sensor</li><li>• Yaw rate sensor</li><li>• Power steering ECU</li></ul> |

cardiagn.com

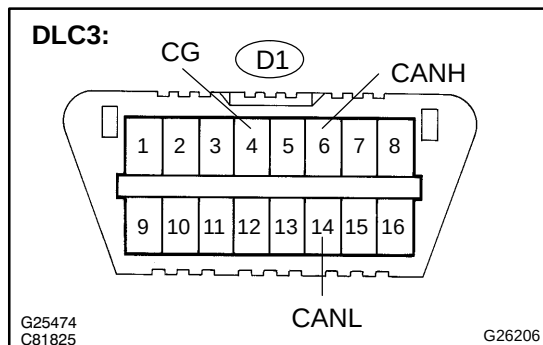
## WIRING DIAGRAM



C

G30914

## INSPECTION PROCEDURE

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

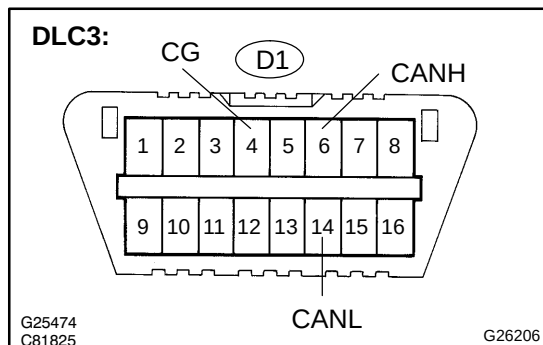
- (a) Turn the power switch off.
- (b) Disconnect the J/C1 connector (J15).
- (c) Measure the resistance according to the value(s) in the table below.

**Standard:**

| Tester connection           | Condition        | Specified value |
|-----------------------------|------------------|-----------------|
| D1-6 (CANH) –<br>D1-4 (CG)  | Power Switch OFF | 1 MΩ or more    |
| D1-14 (CANL) –<br>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).

**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.

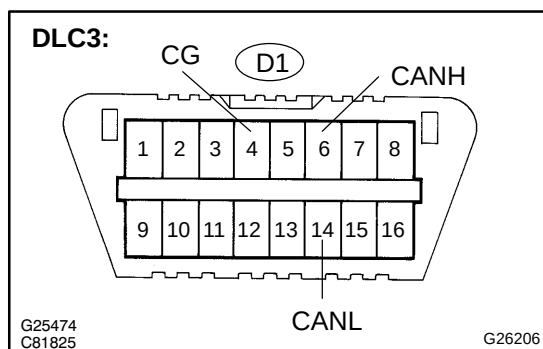
**Standard:**

| Tester connection           | Condition        | Specified value |
|-----------------------------|------------------|-----------------|
| D1-6 (CANH) –<br>D1-4 (CG)  | Power Switch OFF | 1 kΩ or more    |
| D1-14 (CANL) –<br>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).

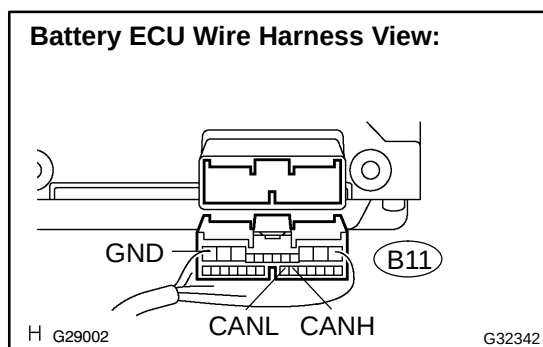


**5 CHECK CAN BUS LINE FOR SHORT TO GND(BATTERY ECU)**

- (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) –<br>D1-4 (CG)  | Power Switch OFF | 1 kΩ or more    |
| D1-14 (CANL) –<br>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) –<br>B11-12 (GND) | Power Switch OFF | 1 MΩ or more    |
| B11-19 (CANL) –<br>B11-12 (GND) | Power Switch OFF | 1 MΩ or more    |

**HINT:**

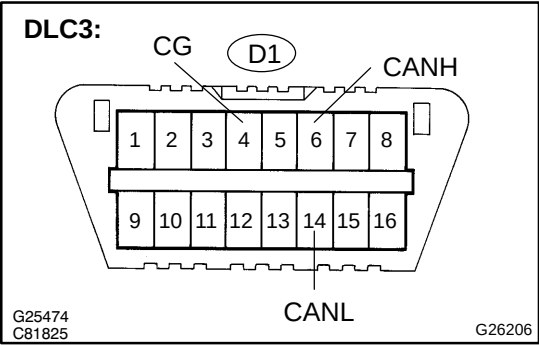
Measure the resistance with the battery ECU connector (B11) disconnected.

**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).



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.

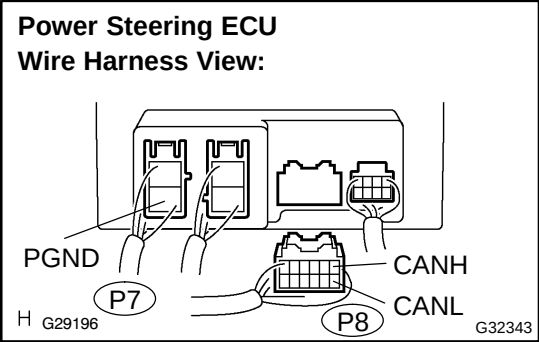
Standard:

| Tester connection           | Condition        | Specified value |
|-----------------------------|------------------|-----------------|
| D1-6 (CANH) –<br>D1-4 (CG)  | Power Switch OFF | 1 kΩ or more    |
| D1-14 (CANL) –<br>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) –<br>P7-2 (PGND) | Power Switch OFF | 1 MΩ or more    |
| P8-7 (CANL) –<br>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).

**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:**

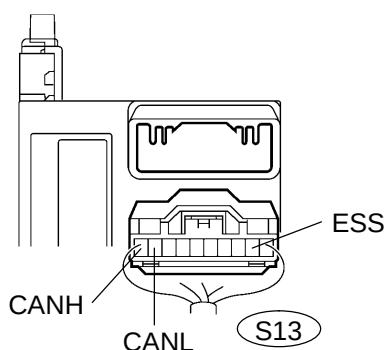
| Tester connection           | Condition        | Specified value      |
|-----------------------------|------------------|----------------------|
| D1-6 (CANH) –<br>D1-4 (CG)  | Power Switch OFF | 1 k $\Omega$ or more |
| D1-14 (CANL) –<br>D1-4 (CG) | Power Switch OFF | 1 k $\Omega$ or more |

**OK**

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

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

**Steering Sensor  
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      |
|--------------------------------|------------------|----------------------|
| S13-10 (CANH) –<br>S13-2 (ESS) | Power Switch OFF | 1 M $\Omega$ or more |
| S13-9 (CANL) –<br>S13-2 (ESS)  | Power Switch OFF | 1 M $\Omega$ or more |

**HINT:**

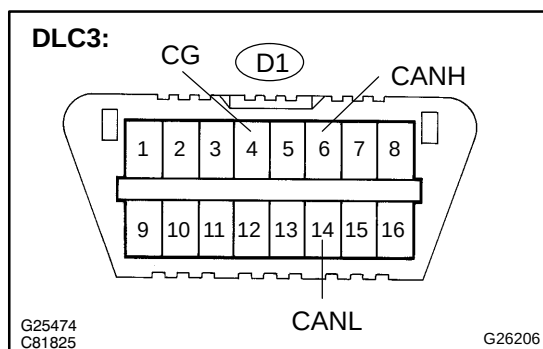
Measure the resistance with the steering sensor connector (S13) disconnected.

**NG**

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

**OK****13 CONNECT CONNECTOR**

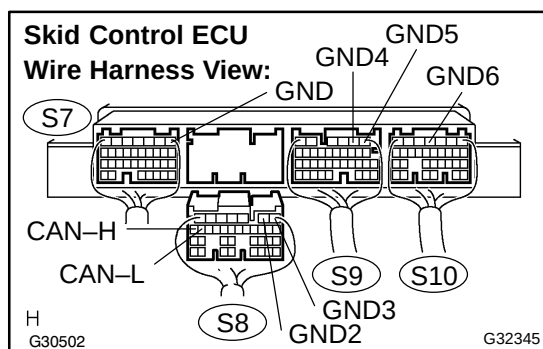
- (a) Reconnect the steering sensor connector (S13) and J/C1 connector (J15).

**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) –<br>D1-4 (CG)  | Power Switch OFF | 1 kΩ or more    |
| D1-14 (CANL) –<br>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) –<br>S7-1 (GND),<br>S8-2 (GND2)<br>S8-1 (GND3),<br>S9-2 (GND4)<br>S9-1 (GND5),<br>S10-4 (GND6) | Power Switch OFF | 1 MΩ or more    |
| S8-18 (CAN-L) –<br>S7-1 (GND),<br>S8-2 (GND2)<br>S8-1 (GND3),<br>S9-2 (GND4)<br>S9-1 (GND5),<br>S10-4 (GND6) | Power Switch OFF | 1 MΩ or more    |

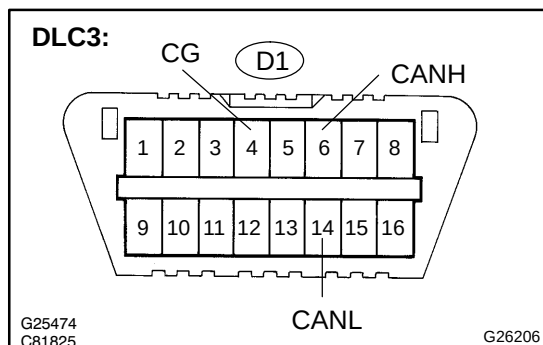
**HINT:**

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**

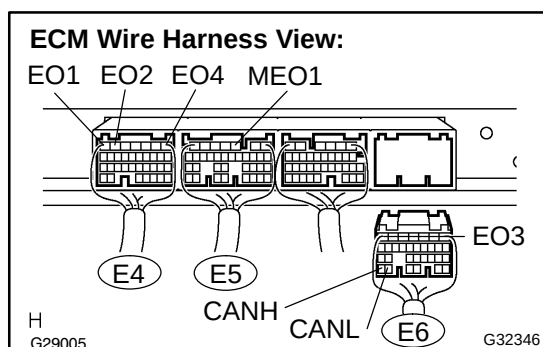
- (a) Reconnect the J/C2 connector (J18).

**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) –<br>D1-4 (CG)  | Power Switch OFF | 1 kΩ or more    |
| D1-14 (CANL) –<br>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) –<br>E4-7 (EO1), E4-6 (EO2)<br>E6-7 (EO3), E4-1 (EO4)<br>E5-3 (MEO1) | Power Switch OFF | 1 MΩ or more    |
| E6-30 (CANL) –<br>E4-7 (EO1), E4-6 (EO2)<br>E6-7 (EO3), E4-1 (EO4)<br>E5-3 (MEO1) | Power Switch OFF | 1 MΩ or more    |

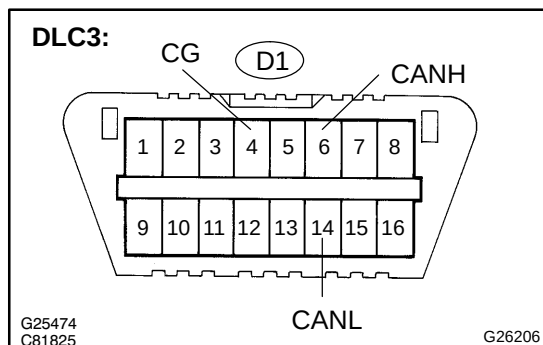
**HINT:**

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.**

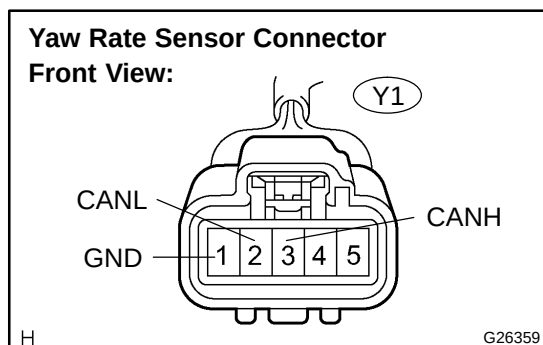
- Disconnect the yaw rate sensor connector (Y1).
- Measure the resistance according to the value(s) in the table below.

**Standard:**

| Tester connection           | Condition        | Specified value |
|-----------------------------|------------------|-----------------|
| D1-6 (CANH) –<br>D1-4 (CG)  | Power Switch OFF | 1 kΩ or more    |
| D1-14 (CANL) –<br>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)**

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

**Standard:**

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

**HINT:**

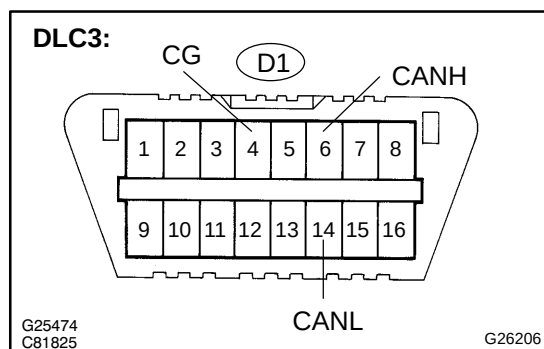
Measure the resistance with the yaw rate sensor connector (Y1) disconnected.

**NG**

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

**OK****22 CONNECT CONNECTOR**

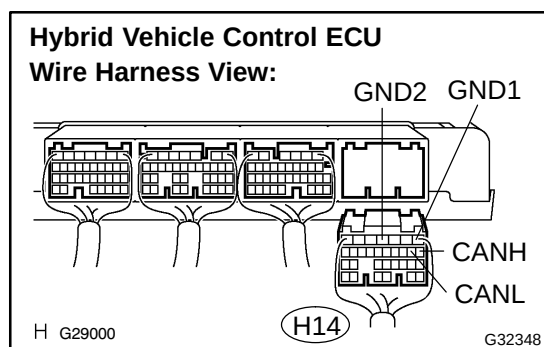
- Reconnect the yaw rate sensor connector (Y1) and J/C2 connector (J18).

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

- Disconnect the hybrid vehicle control ECU connector (H14).
- 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)**

- Disconnect the J/C2 connector (J18).
- 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    |

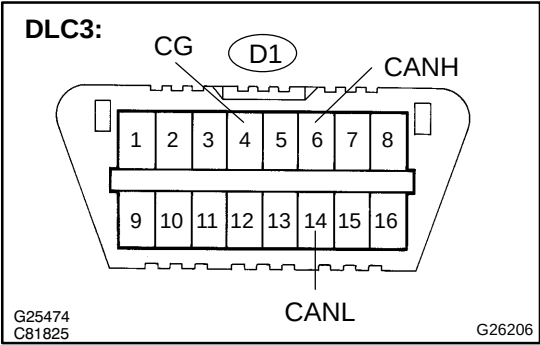
**HINT:**

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**

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

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:

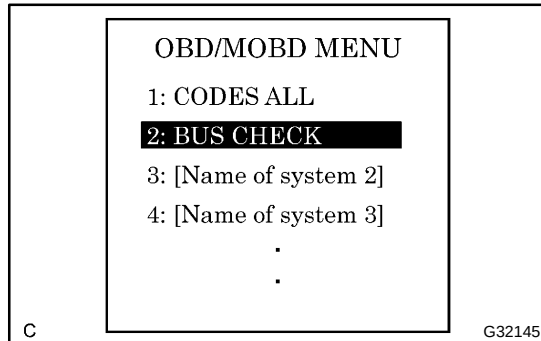
| Tester connection           | Condition        | Specified value |
|-----------------------------|------------------|-----------------|
| D1-6 (CANH) –<br>D1-4 (CG)  | Power Switch OFF | 1 kΩ or more    |
| D1-14 (CANL) –<br>D1-4 (CG) | Power Switch OFF | 1 kΩ or more    |

OK REPLACE GATEWAY ECU (SEE PAGE 67-26)

NG

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

## DIAGNOSIS SYSTEM

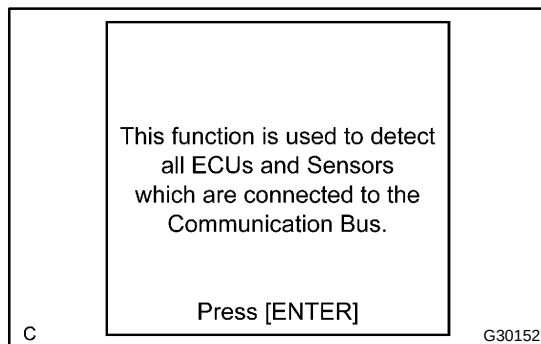


### 1. BUS CHECK

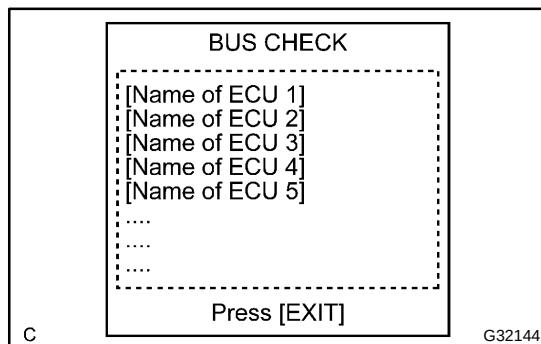
#### HINT:

The ECUs and sensors that are properly connected to the CAN communication system can be displayed using the hand-held tester via CAN VIM.

- (a) Select "BUS CHECK" from the "OBD/MOBD MENU" screen.



- (b) Press "ENTER" on the hand-held tester via CAN VIM.



- (c) The screen displays the ECUs and sensors that are properly connected to the CAN communication system.

#### HINT:

There is a communication stop in the system of any properly connected ECUs or sensors that are not displayed (see page [05-2605](#)).

**2. CHECK FOR INSTALLED SYSTEMS (ECUS & SENSORS) THAT ADOPT CAN COMMUNICATION**

- (a) The systems (ECUs, sensors) that adopt CAN communication vary depending on the vehicle's optional settings. Check which systems (ECUs, sensors) are installed on the vehicle.

| ECU/Sensor name            | Check method                                                                       |
|----------------------------|------------------------------------------------------------------------------------|
| Hybrid Vehicle Control ECU | Installed on all vehicles                                                          |
| Battery ECU                | Installed on all vehicles                                                          |
| ECM                        | Installed on all vehicles                                                          |
| Skid Control ECU           | Installed on all vehicles                                                          |
| Power Steering ECU         | Installed on all vehicles                                                          |
| Gateway ECU                | Installed on all vehicles                                                          |
| Steering Sensor *1         | Vehicle with enhanced VSC (VSC warning lamp is installed in the combination meter) |
| Yaw Rate Sensor *1         | Vehicle with enhanced VSC (VSC warning lamp is installed in the combination meter) |

**HINT:**

\*1: If enhanced VSC is not installed, neither the yaw rate sensor nor the steering sensor is adopted.

## FAIL-SAFE CHART

### 1. FAIL-SAFE FUNCTION

- (a) The fail-safe function starts if any bus (communication line) fails due to a short or other type of circuit failure. The fail-safe function differs in each system and ensures the minimum required function for each system.
- (b) Effects on each system when communication is impossible. (For further details, see the pages for each system.)

| Function                                                                                                                                                   | Hybrid Vehicle Control ECU | ECM | Battery ECU | Skid Control ECU | Steering Sensor | Yaw Rate Sensor | Power Steering ECU | Gateway ECU | Action when unable to communicate                                             | DTC detection (Driver detectable)      |
|------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|-----|-------------|------------------|-----------------|-----------------|--------------------|-------------|-------------------------------------------------------------------------------|----------------------------------------|
| TOYOTA hybrid system control (Optimum mix of the electric motor and gas engine)                                                                            | ●                          | ○   | ○           |                  |                 |                 |                    |             | Restricted driving                                                            | Detectable (Lamp comes on)             |
| Regenerative braking (Drives the motor as a generator using the electricity produced by the wheel's rotation. The electricity is stored in the HV battery) | ○                          |     |             | ●                |                 |                 |                    |             | Prohibits regeneration                                                        | Detectable (Lamp comes on)             |
| Enhanced VSC control (Controls braking force when enhanced VSC is in operation)                                                                            | ○                          |     |             | ●                | ○               | ○               |                    |             | Stops enhanced VSC                                                            | Detectable (Lamp comes on)             |
| Electric power steering (Calculates assist current according to the torque sensor value and vehicle speed, then sends the data to the motor)               | ○                          |     |             | ○                |                 |                 | ●                  |             | Maintains control through power assist, as during regular driving at 70 km/h. | Detectable (Lamp comes on)             |
| Display (Operating condition, shift position, DTC)                                                                                                         | ○                          | ○   |             | ○                |                 |                 | ○                  | ●<br>Meter  | Lamp does not come on or remains on                                           | Detectable by illumination malfunction |
| A/C control                                                                                                                                                | ○                          | ○   |             |                  |                 |                 |                    | ●<br>A/C    | Control of A/C to level set not possible                                      | Detectable (Lamp does not come on)     |

#### HINT:

- : Control master
- : System related

## SYSTEM DESCRIPTION

### 1. BRIEF DESCRIPTION

- (a) The CAN (Controller Area Network) is a serial data communication system for real time application. It is a multiplex communication system equipped for a vehicle and has a high communication speed (500 kbps) and the function to detect malfunctions.
- (b) By pairing the CANH and CANL bus lines, the CAN performs communication based on differential voltage.
- (c) The many ECUs (sensors) installed on the vehicle operate by sharing information and communicating with each other.
- (d) The CAN has two resistors of 120  $\Omega$  which are necessary to communicate with the main bus line.

### 2. DEFINITION OF TERMS

- (a) Main bus line
  - (1) The main bus line is the wire harness between the two terminus circuits on the bus (communication line). This is the main bus in the CAN communication system.
- (b) Sub bus line
  - (1) The sub bus line is the wire harness which diverges from the main bus line to the ECU or sensor.
- (c) Terminus circuit
  - (1) The terminus circuit is a circuit which is placed to convert communication current of the CAN communication into bus voltage. It consists of a resistor and condenser. Two terminus circuits are necessary on a bus.

### 3. ECUs OR SENSORS WHICH COMMUNICATE THROUGH CAN COMMUNICATION SYSTEM

- (a) Hybrid Vehicle Control ECU
- (b) Battery ECU
- (c) ECM
- (d) Skid Control ECU
- (e) Steering Sensor
- (f) Yaw Rate Sensor
- (g) Power Steering ECU
- (h) Gateway ECU

### 4. DIAGNOSTIC CODE FOR CAN COMMUNICATION SYSTEM

- (a) DTCs for the CAN communication system are as follows:  
U0123, U0124, U0126, U0293, U0100, U0073, U0111, U0129, U0131, U0146, P3108-594

#### NOTICE:

**If U0146 or P3108-594 is output, the multiplex communication system may be malfunctioning.**

### 5. REMARK FOR TROUBLESHOOTING

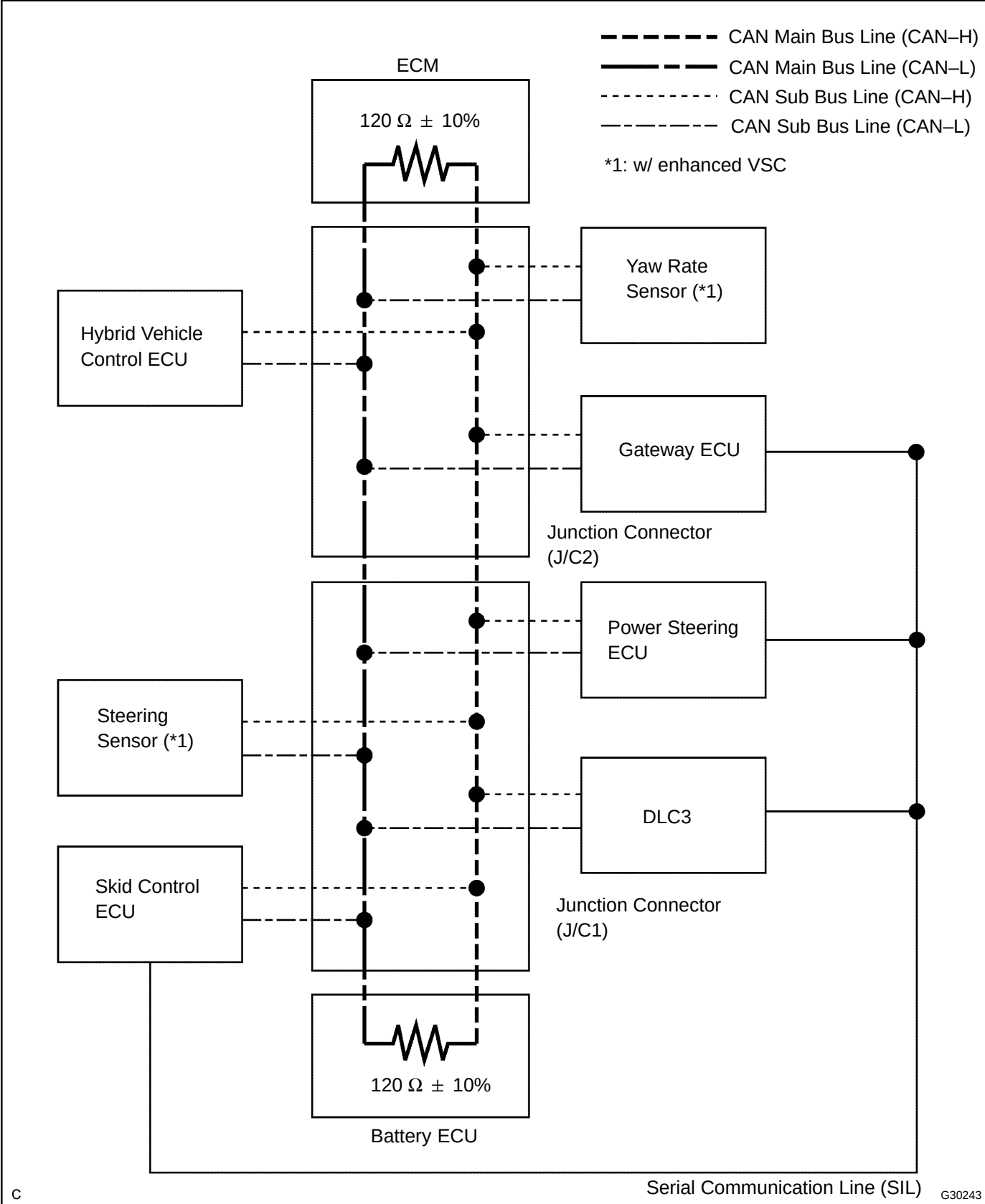
- (a) Trouble in the CAN bus (communication line) can be checked from the DLC3 (except when there is a wire break other than in the sub bus line of the DLC3).

#### NOTICE:

**Do not insert the tester directly into the DLC3 connector. Be sure to use a service wire.**

- (b) DTCs regarding the CAN communication system can be checked using the hand-held tester via the CAN VIM.
- (c) The CAN communication system cannot detect trouble in the sub bus line of the DLC3 even though the DLC3 is also connected to the CAN communication system.

SYSTEM DIAGRAM



C

## HINT:

- The skid control ECU detects and stores steering sensor and yaw rate sensor DTCs and performs DTC communication by receiving information from the steering sensor and yaw rate sensor.
- The ECM, hybrid vehicle control ECU, and battery ECU use the CAN communication system to perform DTC communication instead of the conventional communication line (SIL).

# CUSTOMER PROBLEM ANALYSIS CHECK

## CAN Communication System Check Sheet

 Inspector's  
Name : \_\_\_\_\_

|                         |     |                   |             |
|-------------------------|-----|-------------------|-------------|
| Customer's Name         |     | VIN               |             |
|                         |     | Production Date   | / /         |
|                         |     | Licence Plate No. |             |
| Date Vehicle Brought In | / / | Odometer Reading  | km<br>miles |

|                             |                                                                                             |
|-----------------------------|---------------------------------------------------------------------------------------------|
| Date Problem First Occurred | / /                                                                                         |
| Frequency Problem Occurs    | <input type="checkbox"/> Continuous <input type="checkbox"/> Intermittent (    times a day) |

|           |          |                                                                                              |
|-----------|----------|----------------------------------------------------------------------------------------------|
| DTC Check | 1st Time | <input type="checkbox"/> Normal System Code <input type="checkbox"/> Trouble Code (Code    ) |
|           | 2nd Time | <input type="checkbox"/> Normal System Code <input type="checkbox"/> Trouble Code (Code    ) |

## DIAGNOSTIC TROUBLE CODE CHART

### 1. DTC TABLE BY ECU

HINT:

- If CAN communication system DTCs are output, trouble cannot be determined only by the DTCs. Perform troubleshooting according to "HOW TO PROCEED WITH TROUBLESHOOTING" (see page 05-2602).

#### (a) HYBRID VEHICLE CONTROL ECU

HINT:

DTC communication uses the CAN communication system.

| DTC No. | INF Code           | Detection Item                                            |
|---------|--------------------|-----------------------------------------------------------|
| U0100   | 211, 212, 530      | Lost Communication With ECM/PCM "A"                       |
| U0111   | 208, 531           | Lost Communication With Battery Energy Control Module "A" |
| U0129   | 220, 222, 528, 529 | Lost Communication With Brake System Control Module       |
| U0131   | 433, 434           | Lost Communication With Power Steering Control Module     |
| U0146   | 435                | Lost Communication With Gateway "A"                       |
| P3108   | 594                | Lost Communication With A/C System Control Module         |

#### (b) BATTERY ECU

HINT:

DTC communication uses the CAN communication system.

| DTC No. | Detection Item                                        |
|---------|-------------------------------------------------------|
| U0100   | Lost Communication With ECM/PCM "A"                   |
| U0293   | Lost Communication With Hybrid Vehicle Control System |

#### (c) ECM

HINT:

DTC communication uses the CAN communication system.

| DTC No. | Detection Item                                        |
|---------|-------------------------------------------------------|
| U0293   | Lost Communication With Hybrid Vehicle Control System |

#### (d) SKID CONTROL ECU

HINT:

DTC communication uses the SIL line.

| DTC No.  | INF Code      | Detection Item                                             |
|----------|---------------|------------------------------------------------------------|
| U0293    | 152, 153, 154 | Lost Communication With Hybrid Vehicle Control System      |
| U0073    | 360           | Control Module Communication Bus Off                       |
| U0123 *1 | —             | Lost Communication With Yaw Rate Sensor Module             |
| U0124 *1 | —             | Lost Communication With Lateral Acceleration Sensor Module |
| U0126 *1 | —             | Lost Communication With Steering Angle Sensor Module       |

\*1: w/ enhanced VSC

#### (e) GATEWAY ECU

HINT:

The gateway ECU is connected to the CAN communication system but CAN communication system DTCs are not output.

#### (f) POWER STEERING ECU

HINT:

DTC communication uses the SIL line.

| DTC No. | Detection Item                                                      |
|---------|---------------------------------------------------------------------|
| U0073   | Control Module Communication Bus Off                                |
| U0121   | Lost Communication With Anti-Lock Brake System (ABS) Control Module |

## HOW TO PROCEED WITH TROUBLESHOOTING

**NOTICE:**

- Refer to troubleshooting of each system if DTCs regarding the CAN communication system are not output.
- If U0100-211 or U0111-208 is output separately by the hybrid vehicle control ECU, refer to "HYBRID CONTROL SYSTEM" (see page [05-859](#)).

|   |                      |
|---|----------------------|
| 1 | CHECK AND CLEAR DTCs |
|---|----------------------|



|   |                                                                            |
|---|----------------------------------------------------------------------------|
| 2 | CHECK FOR INSTALLED SYSTEMS (ECUS & SENSORS) THAT ADOPT CAN COMMUNICATION) |
|---|----------------------------------------------------------------------------|

- (a) Check if enhanced VSC is installed (see page [05-2616](#)).



|   |                                                        |
|---|--------------------------------------------------------|
| 3 | CHECK CAN BUS LINE (SEE PAGE <a href="#">05-2620</a> ) |
|---|--------------------------------------------------------|



|   |                                    |
|---|------------------------------------|
| 4 | CHECK HAND-HELD TESTER VIA CAN VIM |
|---|------------------------------------|

- (a) Select "BUS CHECK" (see page [05-2616](#)).

**Standard:** All ECUs and sensors connected to the CAN communication system are displayed.

**NOTICE:**

- See "MULTIPLEX COMMUNICATION SYSTEM" (page [05-2549](#)) if U0146 (Lost Communication with Gateway "A") and P3108-594 (Lost Communication with A/C System Control Module) are output and "BODY/GATEWAY" appears on the "BUS CHECK" screen of the hand-held tester via CAN VIM.
- The systems (ECUs, sensors) that adopt CAN communication vary depending on the vehicle and option settings. Check which systems (ECUs, sensors) are installed on the vehicle (see page [05-2616](#)).
- Non-installed ECUs or sensors are not displayed. Do not mistake them for being in the communication stop mode.

|    |
|----|
| NO |
|----|

|                                                                      |
|----------------------------------------------------------------------|
| COMMUNICATION STOP MODE TABLE<br>(SEE PAGE <a href="#">05-2605</a> ) |
|----------------------------------------------------------------------|

|     |
|-----|
| YES |
|-----|

|          |                                                 |
|----------|-------------------------------------------------|
| <b>5</b> | <b>DTC COMBINATION TABLE (SEE PAGE 05-2605)</b> |
|----------|-------------------------------------------------|

- (a) Confirm trouble according to the combination of output DTCs regarding the CAN communication system.

HINT:

Previous CAN communication system DTCs may be the cause if CAN communication system DTCs are output and all ECUs and sensors connected to the CAN communication system are displayed on the hand-held tester's "BUS CHECK" screen via the CAN VIM.



|          |                           |
|----------|---------------------------|
| <b>6</b> | <b>CIRCUIT INSPECTION</b> |
|----------|---------------------------|



|          |                                  |
|----------|----------------------------------|
| <b>7</b> | <b>IDENTIFICATION OF PROBLEM</b> |
|----------|----------------------------------|



|          |                          |
|----------|--------------------------|
| <b>8</b> | <b>REPAIR OR REPLACE</b> |
|----------|--------------------------|

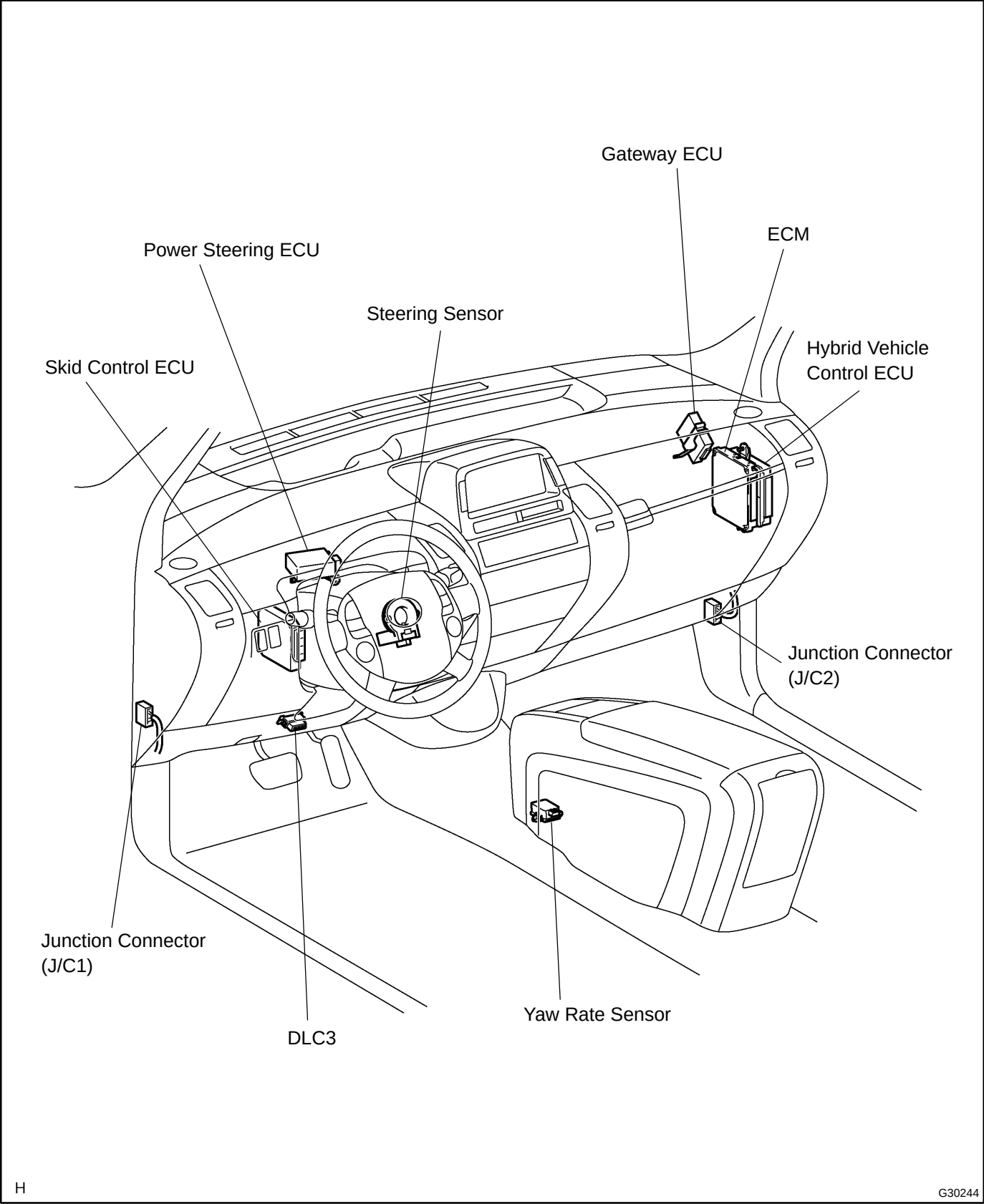


|          |                          |
|----------|--------------------------|
| <b>9</b> | <b>CONFIRMATION TEST</b> |
|----------|--------------------------|



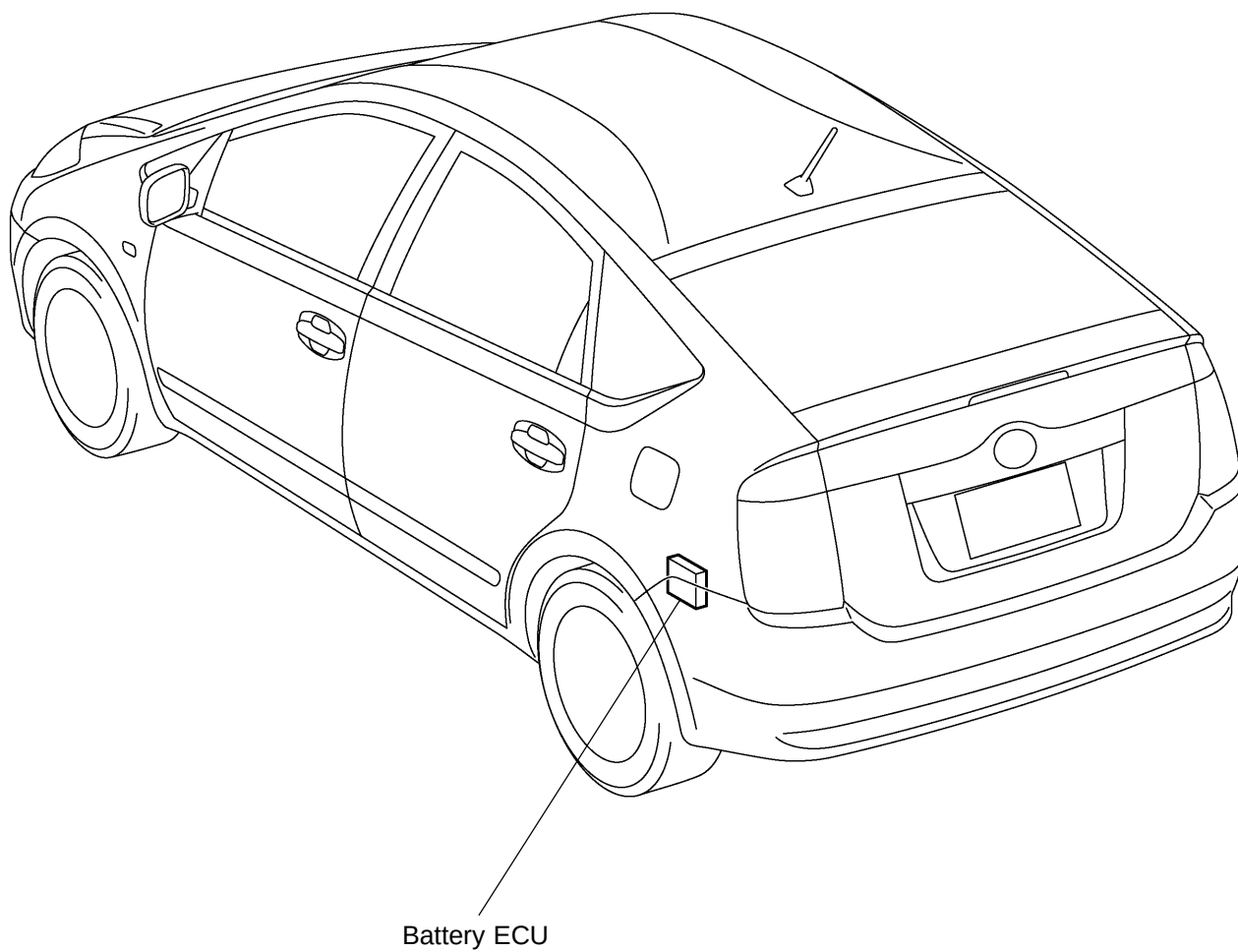
|            |
|------------|
| <b>END</b> |
|------------|

LOCATION



H

G30244



H

G30140

cardiagn.com

# CAN COMMUNICATION SYSTEM

05IET-01

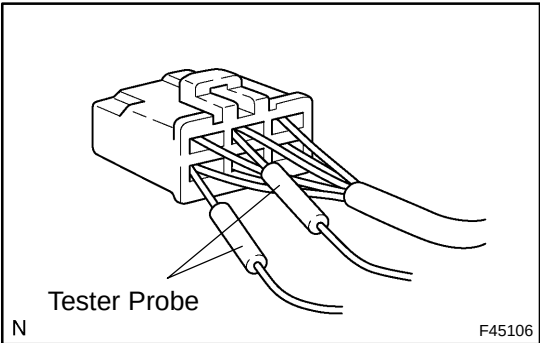
## PRECAUTION

### 1. STEERING SYSTEM HANDLING PRECAUTIONS

- (a) Care must be taken when replacing parts. Incorrect replacement could affect the performance of the steering system and result in a driving hazard.

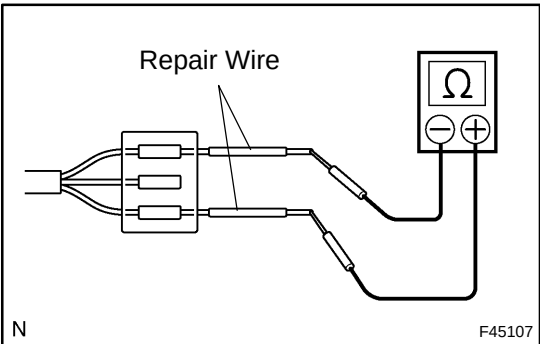
### 2. SRS AIRBAG SYSTEM HANDLING PRECAUTIONS

- (a) The PRIUS is equipped with an SRS (Supplemental Restraint System) such as the driver's airbag and front passenger airbag. Failure to carry out service operations in correct sequence could cause unexpected SRS deployment during servicing and may lead to a serious accident. Before servicing (including removal or installation of parts, inspection or replacement), be sure to read the precautionary notice for the supplemental restraint system (see page 60-1).



### 3. CONNECTOR HANDLING

- (a) When inserting tester probes into a connector, insert them from the rear of the connector.



- (b) Use a repair wire to check the connector if it is impossible to check continuity from the rear of the connector.

### 4. PRECAUTION FOR DISCONNECTING THE BATTERY CABLE

#### NOTICE:

When disconnecting the negative (-) battery terminal, initialize the following system after the terminal is reconnected.

| System Name                 | See page |
|-----------------------------|----------|
| Power Window Control System | 01-28    |

## PROBLEM SYMPTOMS TABLE

### 1. COMMUNICATION STOP MODE TABLE

- Check that there is no open circuit in the CAN main bus line, short between the lines, or short to +B in the "CHECK CAN BUS LINE" (see page [05-2620](#)). Select "BUS CHECK" on the hand-held tester via the CAN VIM (see page [05-2616](#)).
- Check the communication stop mode of the ECUs or sensors not displayed among the following: "ENGINE", "ABS/VSC/TRAC", "STEERING SENSOR", "YAW/DECELERAT", "EPS", "BODY/GATEWAY", "HYBRID CONTROL" OR "HV BATTERY".

#### NOTICE:

- Systems using the CAN communication system differ according to optional settings. Check which ECUs or sensors are installed on the vehicle.
- Non-installed ECUs or sensors are not displayed. Be careful not to consider that they are in communication stop mode.
- If 2 or more ECUs or sensors are not displayed on the hand-held tester via the CAN VIM, perform troubleshooting for communication stop mode for each undisplayed ECU or sensor. (Either side of the CAN bus lines may be open.)

| Symptom                                                                 | Inspection Item                                    | Customization                                                                      | See Page                |
|-------------------------------------------------------------------------|----------------------------------------------------|------------------------------------------------------------------------------------|-------------------------|
| "HYBRID CONTROL" is not displayed on the hand-held tester via CAN VIM.  | HYBRID VEHICLE CONTROL ECU COMMUNICATION STOP MODE | Applicable to all vehicles                                                         | <a href="#">05-2624</a> |
| "ABS/VSC/TRAC" is not displayed on the hand-held tester via CAN VIM.    | SKID CONTROL ECU COMMUNICATION STOP MODE           | Applicable to all vehicles                                                         | <a href="#">05-2626</a> |
| "STEERING SENSOR" is not displayed on the hand-held tester via CAN VIM. | STEERING SENSOR COMMUNICATION STOP MODE            | Vehicle with enhanced VSC (VSC warning lamp is installed in the combination meter) | <a href="#">05-2632</a> |
| "YAW/DECELERAT" is not displayed on the hand-held tester via CAN VIM.   | YAW RATE SENSOR COMMUNICATION STOP MODE            | Vehicle with enhanced VSC (VSC warning lamp is installed in the combination meter) | <a href="#">05-2634</a> |
| "EPS" is not displayed on the hand-held tester via CAN VIM.             | POWER STEERING ECU COMMUNICATION STOP MODE         | Applicable to all vehicles                                                         | <a href="#">05-2628</a> |
| "BODY/GATEWAY" is not displayed on the hand-held tester via CAN VIM.    | GATEWAY ECU COMMUNICATION STOP MODE                | Applicable to all vehicles                                                         | <a href="#">05-2630</a> |
| "ENGINE" is not displayed on the hand-held tester via CAN VIM.          | ECM ECU COMMUNICATION STOP MODE                    | Applicable to all vehicles                                                         | <a href="#">05-2636</a> |
| "HV BATTERY" is not displayed on the hand-held tester via CAN VIM.      | BATTERY ECU COMMUNICATION STOP MODE                | Applicable to all vehicles                                                         | <a href="#">05-2638</a> |

## 2. DTC COMBINATION TABLE

(a) Perform troubleshooting according to the combination of DTCs output.

| DTC                           |               | Trouble Mode                                                |                                   |                                           |                                                   |                                                  |                                                  |                                                     |                                           |
|-------------------------------|---------------|-------------------------------------------------------------|-----------------------------------|-------------------------------------------|---------------------------------------------------|--------------------------------------------------|--------------------------------------------------|-----------------------------------------------------|-------------------------------------------|
| Output from                   | Output DTC    | HYBRID VEHICLE<br>CONTROL ECU<br>COMMUNICATION<br>STOP MODE | ECM<br>COMMUNICATION<br>STOP MODE | BATTERY ECU<br>COMMUNICATION<br>STOP MODE | SKID CONTROL<br>ECU<br>COMMUNICATION<br>STOP MODE | STEERING<br>SENSOR<br>COMMUNICATION<br>STOP MODE | YAW RATE<br>SENSOR<br>COMMUNICATION<br>STOP MODE | POWER<br>STEERING ECU<br>COMMUNICATION<br>STOP MODE | GATEWAY ECU<br>COMMUNICATION<br>STOP MODE |
| Hybrid Vehicle<br>Control ECU | U0100         | —                                                           | ○                                 | ×                                         | ×                                                 | ×                                                | ×                                                | ×                                                   | ×                                         |
|                               | U0111         | —                                                           | ×                                 | ○                                         | ×                                                 | ×                                                | ×                                                | ×                                                   | ×                                         |
|                               | U0129         | —                                                           | ×                                 | ×                                         | ○                                                 | ×                                                | ×                                                | ×                                                   | ×                                         |
|                               | U0146         | —                                                           | ×                                 | ×                                         | ×                                                 | ×                                                | ×                                                | ×                                                   | ○                                         |
|                               | U3108<br>–594 | —                                                           | ×                                 | ×                                         | ×                                                 | ×                                                | ×                                                | ×                                                   | ○                                         |
| ECM                           | U0293         | ○                                                           | —                                 | ×                                         | ×                                                 | ×                                                | ×                                                | ×                                                   | ×                                         |
| Battery<br>ECU                | U0100         | ×                                                           | ○                                 | —                                         | ×                                                 | ×                                                | ×                                                | ×                                                   | ×                                         |
|                               | U0293         | ○                                                           | ×                                 | —                                         | ×                                                 | ×                                                | ×                                                | ×                                                   | ×                                         |
| Skid Control<br>ECU           | U0123         | ×                                                           | ×                                 | ×                                         | —                                                 | ×                                                | ○                                                | ×                                                   | ×                                         |
|                               | U0124         | ×                                                           | ×                                 | ×                                         | —                                                 | ×                                                | ○                                                | ×                                                   | ×                                         |
|                               | U0126         | ×                                                           | ×                                 | ×                                         | —                                                 | ○                                                | ×                                                | ×                                                   | ×                                         |
|                               | U0293         | ○                                                           | ×                                 | ×                                         | —                                                 | ×                                                | ×                                                | ×                                                   | ×                                         |
| Power Steering<br>ECU         | U0121         | ×                                                           | ×                                 | ×                                         | ○                                                 | ×                                                | ×                                                | —                                                   | ×                                         |

○ : Outputs  
 × : Not output  
 — : Undetectable

**NOTICE:**

- If U0146 or P3108–594 is output, check the "MULTIPLEX COMMUNICATION SYSTEM" (see page [05-2549](#)) before proceeding to "GATEWAY ECU COMMUNICATION STOP MODE".
- If U0100–211 or U0111–208 is output separately by the hybrid control ECU, refer to "HYBRID CONTROL SYSTEM" (see page [05-859](#)).

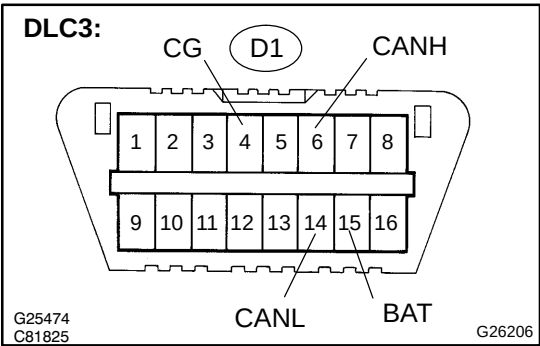
**HINT:**

- HYBRID VEHICLE CONTROL ECU COMMUNICATION STOP MODE: see page [05-2624](#).
- ECM COMMUNICATION STOP MODE: see page [05-2636](#).
- BATTERY ECU COMMUNICATION STOP MODE: see page [05-2638](#).
- SKID CONTROL ECU COMMUNICATION STOP MODE: see page [05-2626](#).
- STEERING SENSOR COMMUNICATION STOP MODE: see page [05-2632](#).
- YAW RATE SENSOR COMMUNICATION STOP MODE: see page [05-2634](#).
- POWER STEERING ECU COMMUNICATION STOP MODE: see page [05-2628](#).
- GATEWAY ECU COMMUNICATION STOP MODE: see page [05-2630](#).

TERMINALS OF ECU

HINT:

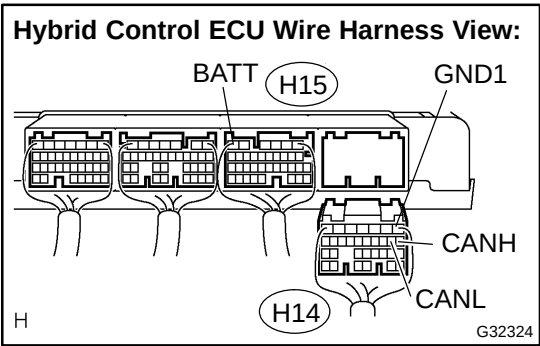
This section describes the standard CAN values for all CAN related components.



- 1. DLC3**
- (a) Measure the resistance according to the value(s) in the table below.

Standard:

| Terminals                  | Wiring Color | Condition        | Specified Condition |
|----------------------------|--------------|------------------|---------------------|
| D1-6 (CANH) – D1-4 (CANL)  | B – W        | Power Switch OFF | 54 to 69 Ω          |
| D1-6 (CANH) – D1-4 (CG)    | B – W-B      | Power Switch OFF | 1 kΩ or more        |
| D1-14 (CANL) – D1-4 (CG)   | W – W-B      | Power Switch OFF | 1 kΩ or more        |
| D1-6 (CANH) – D1-16 (BAT)  | B – G        | Power Switch OFF | 1 MΩ or more        |
| D1-14 (CANL) – D1-16 (BAT) | W – G        | Power Switch OFF | 1 MΩ or more        |



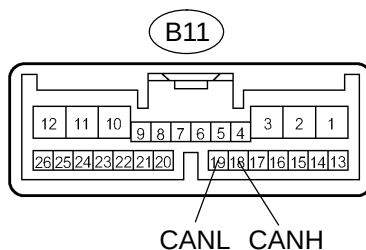
- 2. HYBRID VEHICLE CONTROL ECU**
- (a) Measure the resistance according to the value(s) in the table below.

Standard:

| Terminals                   | Wiring Color | Condition        | Specified Condition |
|-----------------------------|--------------|------------------|---------------------|
| H14-8 (CANH) – H10-9 (CANL) | B – W        | Power Switch OFF | 54 to 69 Ω          |
| H14-8 (CANH) – H10-1 (GND1) | B – W-B      | Power Switch OFF | 1 kΩ or more        |
| H14-9 (CANL) – H10-1 (GND1) | W – W-B      | Power Switch OFF | 1 kΩ or more        |
| H14-8 (CANH) – H11-6 (BATT) | B – Y        | Power Switch OFF | 1 MΩ or more        |
| H14-9 (CANL) – H11-6 (BATT) | W – Y        | Power Switch OFF | 1 MΩ or more        |

**3. BATTERY ECU**

- (a) Measure the resistance according to the value(s) in the table below.

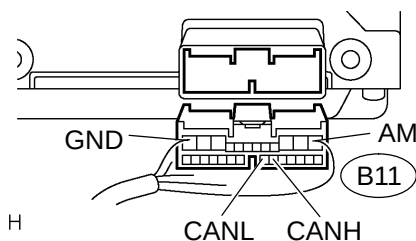
**Battery ECU:**

H G29001

G32325

**Standard:**

| Terminals                     | Condition        | Specified Condition |
|-------------------------------|------------------|---------------------|
| B11-18 (CANH) – B11-19 (CANL) | Power Switch OFF | 108 to 132 $\Omega$ |

**Battery ECU Wire Harness View:**

H

G32326

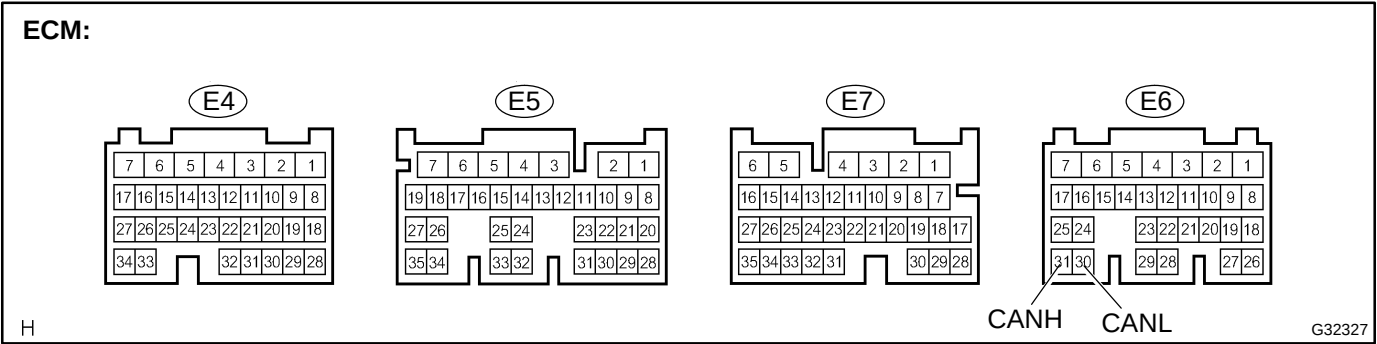
- (b) Measure the resistance according to the value(s) in the table below.

**Standard:**

| Terminals                     | Wiring Color | Condition        | Specified Condition  |
|-------------------------------|--------------|------------------|----------------------|
| B11-18 (CANH) – B11-19 (CANL) | B – W        | Power Switch OFF | 108 to 132 $\Omega$  |
| B11-18 (CANH) – B11-12 (GND)  | B – W-B      | Power Switch OFF | 1 k $\Omega$ or more |
| B11-19 (CANL) – B11-12 (GND)  | W – W-B      | Power Switch OFF | 1 k $\Omega$ or more |
| B11-18 (CANH) – B11-1 (AM)    | B – G        | Power Switch OFF | 1 M $\Omega$ or more |
| B11-19 (CANL) – B11-1 (AM)    | W – G        | Power Switch OFF | 1 M $\Omega$ or more |

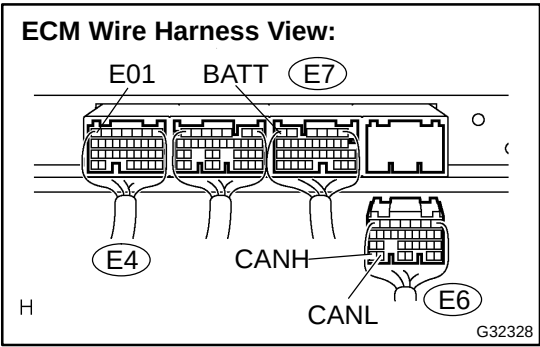
4. ECM

- (a) Measure the resistance according to the value(s) in the table below.



Standard:

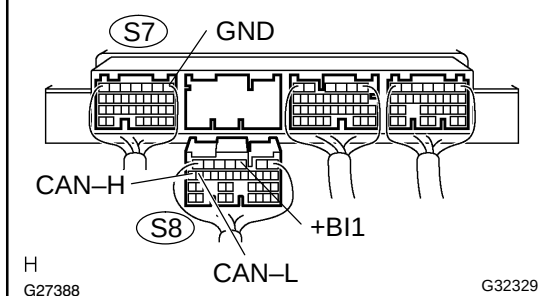
| Terminals                   | Condition        | Specified Condition |
|-----------------------------|------------------|---------------------|
| E6-31 (CANH) – E6-30 (CANL) | Power Switch OFF | 108 to 132 Ω        |



- (b) Measure the resistance according to the value(s) in the table below.

Standard:

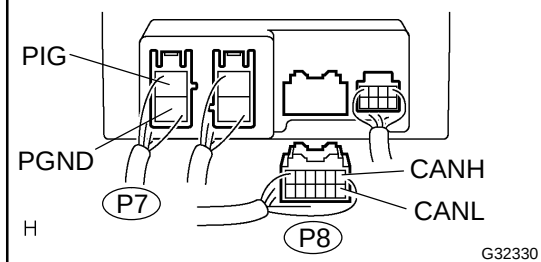
| Terminals                   | Wiring Color | Condition        | Specified Condition |
|-----------------------------|--------------|------------------|---------------------|
| E6-31 (CANH) – E6-30 (CANL) | B – W        | Power Switch OFF | 108 to 132 Ω        |
| E6-31 (CANH) – E4-7 (E01)   | B – BR       | Power Switch OFF | 1 kΩ or more        |
| E6-30 (CANL) – E4-7 (E01)   | W – BR       | Power Switch OFF | 1 kΩ or more        |
| E6-31 (CANH) – E7-6 (BATT)  | B – R        | Power Switch OFF | 1 MΩ or more        |
| E6-30 (CANL) – E7-6 (BATT)  | W – R        | Power Switch OFF | 1 MΩ or more        |

**Skid Control ECU Wire Harness View:****5. SKID CONTROL ECU**

- (a) Measure the resistance according to the value(s) in the table below.

**Standard:**

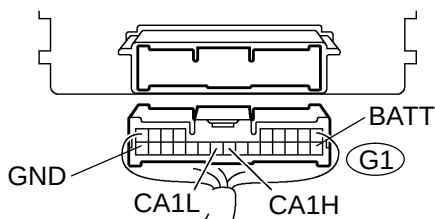
| Terminals                     | Wiring Color | Condition        | Specified Condition  |
|-------------------------------|--------------|------------------|----------------------|
| S8-19 (CAN-H) – S8-18 (CAN-L) | B – W        | Power Switch OFF | 54 to 69 $\Omega$    |
| S8-19 (CAN-H) – S7-1 (GND)    | B – W        | Power Switch OFF | 1 k $\Omega$ or more |
| S8-18 (CAN-L) – S7-1 (GND)    | W – W        | Power Switch OFF | 1 k $\Omega$ or more |
| S8-19 (CAN-H) – S8-3 (+BI1)   | B – B        | Power Switch OFF | 1 M $\Omega$ or more |
| S8-18 (CAN-L) – S8-3 (+BI1)   | W – B        | Power Switch OFF | 1 M $\Omega$ or more |

**Power Steering ECU Wire Harness View:****6. POWER STEERING ECU**

- (a) Measure the resistance according to the value(s) in the table below.

**Standard:**

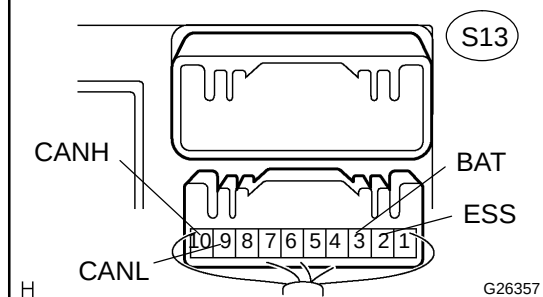
| Terminals                 | Wiring Color | Condition        | Specified Condition  |
|---------------------------|--------------|------------------|----------------------|
| P8-1 (CANH) – P8-7 (CANL) | B – W        | Power Switch OFF | 54 to 69 $\Omega$    |
| P8-1 (CANH) – P7-2 (PGND) | B – W-B      | Power Switch OFF | 1 k $\Omega$ or more |
| P8-7 (CANL) – P7-2 (PGND) | W – W-B      | Power Switch OFF | 1 k $\Omega$ or more |
| P8-1 (CANH) – P7-1 (PIG)  | B – W        | Power Switch OFF | 1 M $\Omega$ or more |
| P8-7 (CANL) – P7-1 (PIG)  | W – W        | Power Switch OFF | 1 M $\Omega$ or more |

**Gateway ECU Wire Harness View:****7. GATEWAY ECU**

- (a) Measure the resistance according to the value(s) in the table below.

**Standard:**

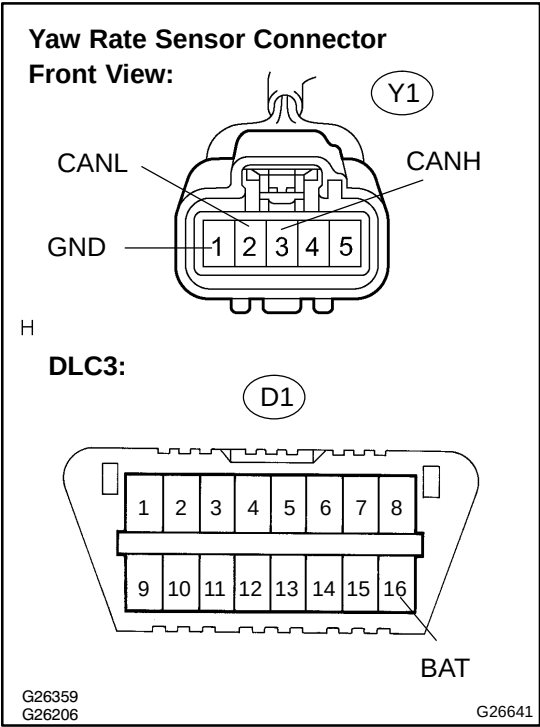
| Terminals                   | Wiring Color | Condition        | Specified Condition |
|-----------------------------|--------------|------------------|---------------------|
| G1-17 (CA1H) – G1-18 (CA1L) | B – W        | Power Switch OFF | 54 to 69 Ω          |
| G1-17 (CA1H) – G1-24 (GND)  | B – W-B      | Power Switch OFF | 1 kΩ or more        |
| G1-18 (CA1L) – G1-24 (GND)  | W – W-B      | Power Switch OFF | 1 kΩ or more        |
| G1-17 (CA1H) – G1-10 (BATT) | B – Y        | Power Switch OFF | 1 MΩ or more        |
| G1-18 (CA1L) – G1-10 (BATT) | W – Y        | Power Switch OFF | 1 MΩ or more        |

**Steering Sensor Wire Harness View:****8. STEERING SENSOR**

- (a) Measure the resistance according to the value(s) in the table below.

**Standard:**

| Terminals                    | Wiring Color | Condition        | Specified Condition |
|------------------------------|--------------|------------------|---------------------|
| S13-10 (CANH) – S13-9 (CANL) | B – W        | Power Switch OFF | 54 to 69 Ω          |
| S13-10 (CANH) – S13-2 (ESS)  | B – W-B      | Power Switch OFF | 1 kΩ or more        |
| S13-9 (CANL) – S13-2 (ESS)   | W – W-B      | Power Switch OFF | 1 kΩ or more        |
| S13-10 (CANH) – S13-3 (BAT)  | B – R        | Power Switch OFF | 1 MΩ or more        |
| S13-9 (CANL) – S13-3 (BAT)   | W – R        | Power Switch OFF | 1 MΩ or more        |



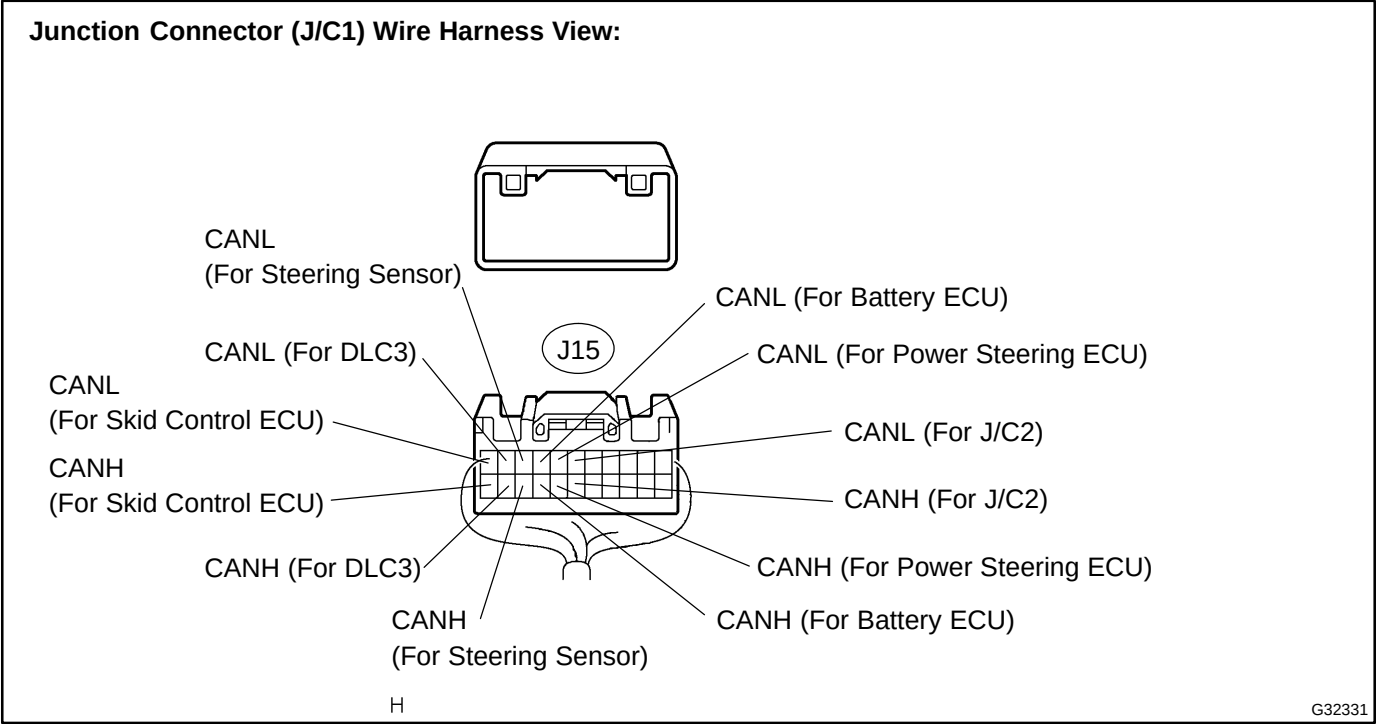
**9. YAW RATE SENSOR**

- (a) Measure the resistance according to the value(s) in the table below.

**Standard:**

| Terminals                 | Wiring Color | Condition        | Specified Condition  |
|---------------------------|--------------|------------------|----------------------|
| Y1-3 (CANH) – Y1-2 (CANL) | B – W        | Power Switch OFF | 54 to 69 $\Omega$    |
| Y1-3 (CANH) – Y1-1 (GND)  | B – W-B      | Power Switch OFF | 1 k $\Omega$ or more |
| Y1-2 (CANL) – Y1-1 (GND)  | W – W-B      | Power Switch OFF | 1 k $\Omega$ or more |
| Y1-3 (CANH) – D1-16 (BAT) | B – G        | Power Switch OFF | 1 M $\Omega$ or more |
| Y1-2 (CANL) – D1-16 (BAT) | W – G        | Power Switch OFF | 1 M $\Omega$ or more |

10. JUNCTION CONNECTOR (J/C1)

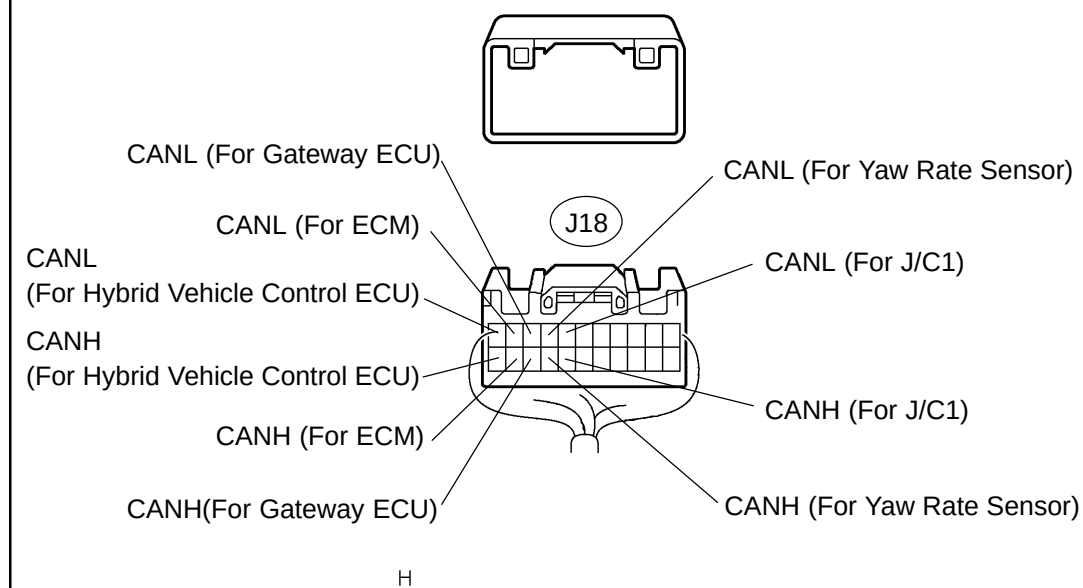


(a) Terminal arrangement and connection

| Terminals     | Connects to               |
|---------------|---------------------------|
| J15-6 (CANL)  | J/C2 (CANL)               |
| J15-17 (CANH) | J/C2 (CANH)               |
| J15-7 (CANL)  | Power Steering ECU (CANL) |
| J15-18 (CANH) | Power Steering ECU (CANH) |
| J15-8 (CANL)  | Battery ECU (CANL)        |
| J15-19 (CANH) | Battery ECU (CANH)        |
| J15-9 (CANL)  | Steering Sensor (CANL)    |
| J15-20 (CANH) | Steering Sensor (CANH)    |
| J15-10 (CANL) | DLC3 (CANL)               |
| J15-21 (CANH) | DLC3 (CANH)               |
| J15-11 (CANL) | Skid Control ECU (CANL)   |
| J15-22 (CANH) | Skid Control ECU (CANH)   |

## 11. JUNCTION CONNECTOR (J/C2)

### Junction Connector (J/C2) Wire Harness View:



(a) Terminal arrangement and connection

| Terminals     | Connects to                       |
|---------------|-----------------------------------|
| J18-7 (CANL)  | J/C1 (CANL)                       |
| J18-18 (CANH) | J/C1 (CANH)                       |
| J18-8 (CANL)  | Yaw Rate Sensor (CANL)            |
| J18-19 (CANH) | Yaw Rate Sensor (CANH)            |
| J18-9 (CANL)  | Gateway ECU (CANL)                |
| J18-20 (CANH) | Gateway ECU (CANH)                |
| J18-10 (CANL) | ECM (CANL)                        |
| J18-21 (CANH) | ECM (CANH)                        |
| J18-11 (CANL) | Hybrid Vehicle Control ECU (CANL) |
| J18-22 (CANH) | Hybrid Vehicle Control ECU (CANH) |