# SECTION HRN
# HORN

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# PRECAUTION

## PRECAUTIONS

### Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"

INFOID:0000000013550525

#### Risk of injury

There is a risk of injury caused by parts becoming projectiles if uncontrolled deployment of air bag or seat belt pre-tensioner occurs, or by storing air bag with the deployment side facing downwards. When scrapping air bag or seat belt pre-tensioner by means of controlled deployment, there is also a danger present if a sufficiently safe distance is not maintained, or if opening using cutting torches or other cutting tools, or due to smelting or if parts that are not yet triggered are exposed to a blaze or a smoldering fire at landfills.

#### Safety instructions/precautions

- Removed air bag must always be stored with deployment side facing up.
- Acquisition, transportation, storage, testing and assembly work should only be performed or supervised by properly trained personnel.
- Install air bag or seat belt pre-tensioner immediately following retrieval from storage.
- Air bag and seat belt pre-tensioner must be protected from flying sparks, open fires and temperature exceeding 100°C (212°F).
- Never transport air bag and seat belt pre-tensioner in the passenger compartment. Store them securely in the luggage room of the vehicle in their original replacement part packaging and secure them so that they cannot slip around.
- Never allow air bag and seat belt pre-tensioner to come into contact with grease, oil, or cleaning agents.
- Perform system tests using approved testing equipment only, and only when the units are properly installed and the vehicle is unoccupied.
- Before the initial hookup of the battery or an external power supply, the ignition must be switched on and the vehicle unoccupied.
- Air bag and seat belt pre-tensioner that fall from a height of more than 0.5 m must be replaced.
- When scrapping by means of controlled deployment of air bag and seat belt pre-tensioner, a safe distance of at least 10 m must be maintained.
- Before starting work on air bag and seat belt pre-tensioner and work on components that are connected to air bag and seat belt pre-tensioner or require and intervention in their electric circuit (e.g. when removing the steering wheel):

- Disconnect any external power sources (e.g. charger).
- Disconnect and insulate ground line of battery

- Before starting bodywork in combination with welding or retrofitting, during which work is performed on uninsulated, current-carrying lines or require an intervention in their electric circuit (e.g. when removing the steering wheel):

- Disconnect any external power sources (e.g. charger).
- Disconnect and insulate ground line of battery.
- During welding, disconnect plug connection and from control unit of air bag.

- When the air bag deploys, the pyrofuse activates and the power source from the battery is disconnected. This prevents possible fires caused by electric leakage after an accident occurs.

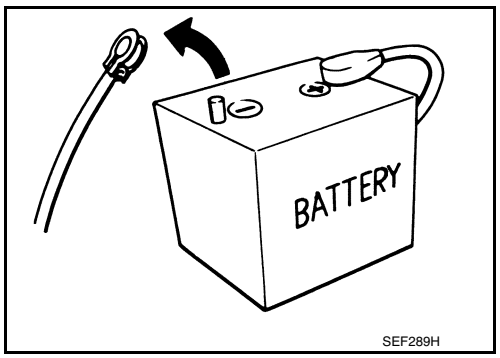
### Precautions for Removing Battery Terminal

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When disconnecting the battery terminal, pay attention to the following.

- Always use a 12V battery as power source.
- Never disconnect battery terminal while engine is running.

- When removing the 12V battery terminal, turn OFF the ignition switch and wait at least 30 seconds.
- For vehicles with the engine listed below, remove the battery terminal after a lapse of the specified time:




| | | | |
|---|---|---|---|
| BR08DE | : 4 minutes | YD25DDTi | : 2 minutes |
| D4D engine | : 20 minutes | YS23DDT | : 4 minutes |
| HRA2DDT | : 12 minutes | YS23DDTT | : 4 minutes |
| K9K engine | : 4 minutes | ZD30DDTi | : 60 seconds |
| M9R engine | : 4 minutes | ZD30DDTT | : 60 seconds |
| R9M engine | : 4 minutes | | |
| V9X engine | : 4 minutes | | |

**NOTE:**
ECU may be active for several tens of seconds after the ignition switch is turned OFF. If the battery terminal is removed before ECU stops, then a DTC detection error or ECU data corruption may occur.

- After high-load driving, if the vehicle is equipped with the V9X engine, turn the ignition switch OFF and wait for at least 15 minutes to remove the battery terminal.

**NOTE:**
- Turbocharger cooling pump may operate in a few minutes after the ignition switch is turned OFF.
- Example of high-load driving
  - Driving for 30 minutes or more at 140 km/h (86 MPH) or more.
  - Driving for 30 minutes or more on a steep slope.

- For vehicles with the 2-batteries, be sure to connect the main battery and the sub battery before turning ON the ignition switch.

**NOTE:**
If the ignition switch is turned ON with any one of the terminals of main battery and sub battery disconnected, then DTC may be detected.

- After installing the 12V battery, always check "Self Diagnosis Result" of all ECUs and erase DTC.

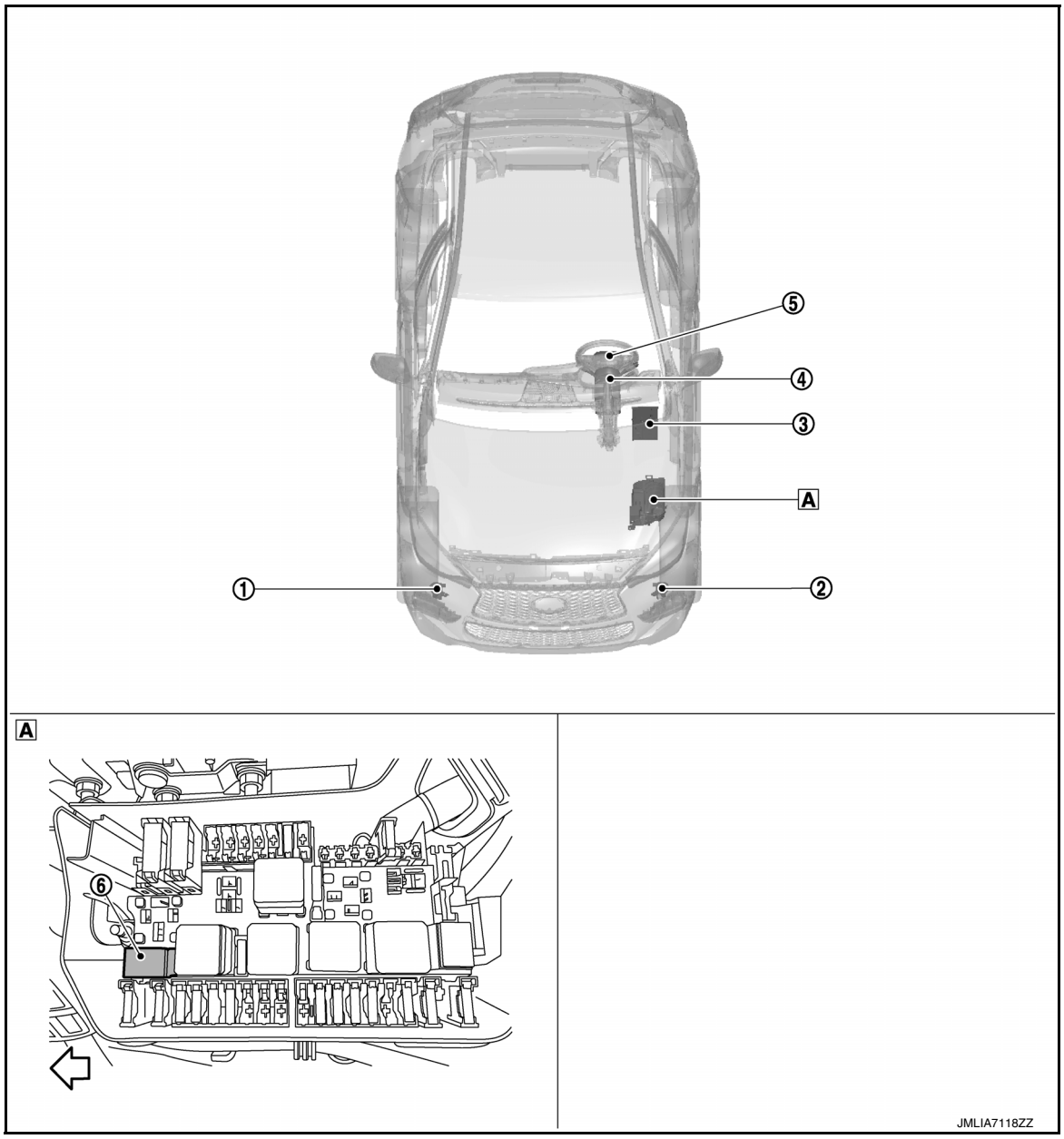
**NOTE:**
The removal of 12V battery may cause a DTC detection error.

# SYSTEM DESCRIPTION

## COMPONENT PARTS

### Component Parts Location

INFOID:0000000013564903




A Fuse and fusible link block 1

⇦ : Vehicle front

| No. | Component | Function |
|---|---|---|
| ① | Horn (Hi) | Horn operate when push horn button. |
| ② | Horn (Lo) | Horn operate when push horn button. |
| ③ | BCM | BCM controls fanfare relay.<br>Refer to BCS-8, "BODY CONTROL SYSTEM : Component Parts Location" for detailed installation location. |

| No. | Component | Function |
|---|---|---|
| ④ | Steering column control module | Steering column contorl unit sends fanfare relay operation signal to BCM. Refer to STC-5, "Component Parts Location" for detailed installation location. |
| ⑤ | Steering wheel assembly (Horn button) | Horn switch built in to the steering wheel assembly. |
| ⑥ | fanfare relay | It supplies power to horn. |

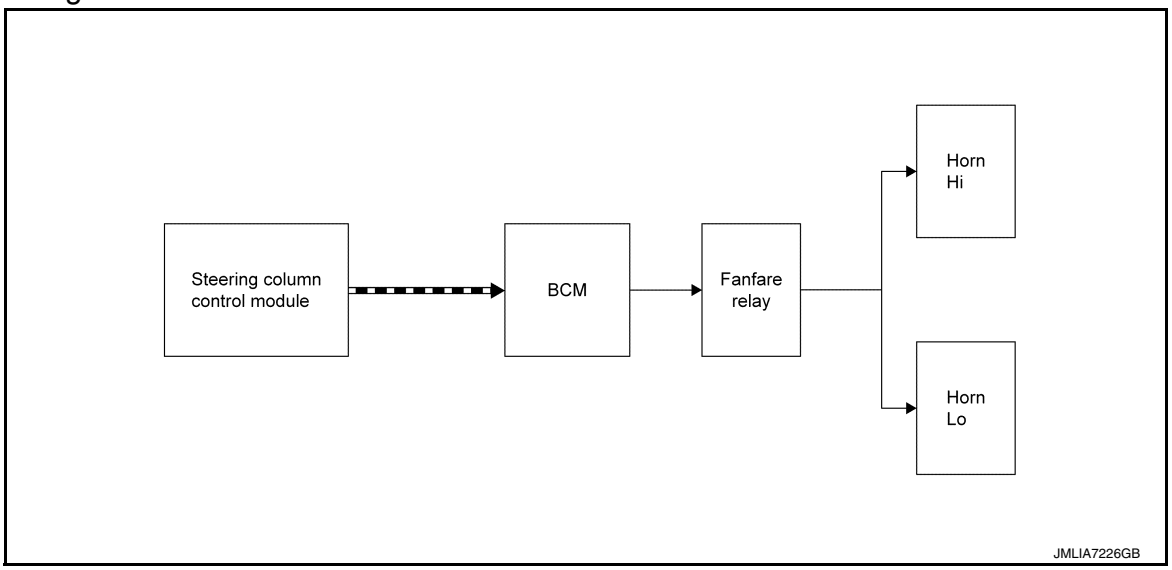
# SYSTEM

## HORN SYSTEM

### HORN SYSTEM : System Description

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System Diagram

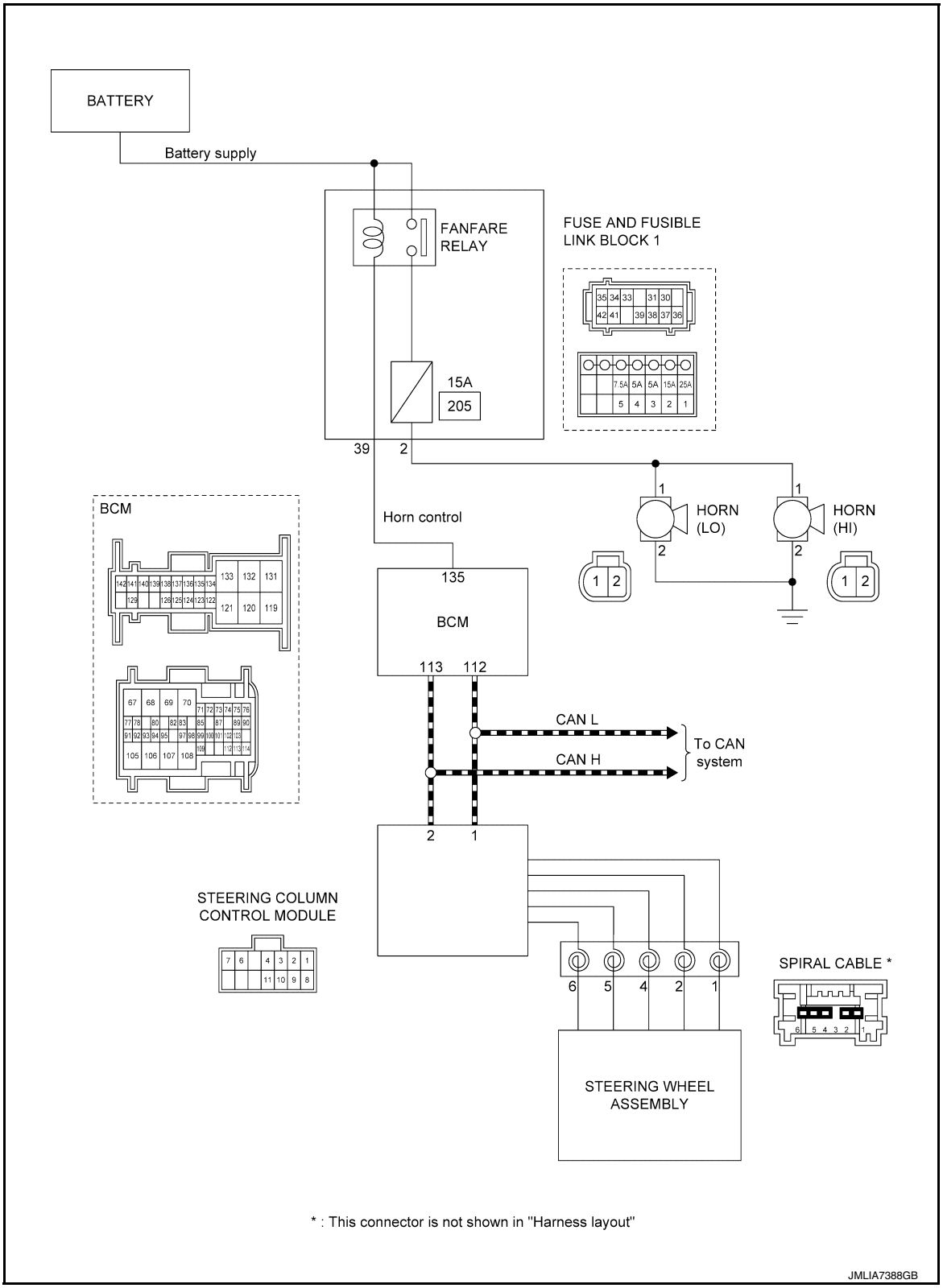



System Discription

- Steering column control module transmits fanfare relay operate signal to BCM via CAN communication.
- BCM turns fanfare relay ON by fanfare relay control signal.

# HORN SYSTEM : Circuit Diagram

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# ECU DIAGNOSIS INFORMATION

## BCM

### List of ECU Reference

INFOID:0000000013564906

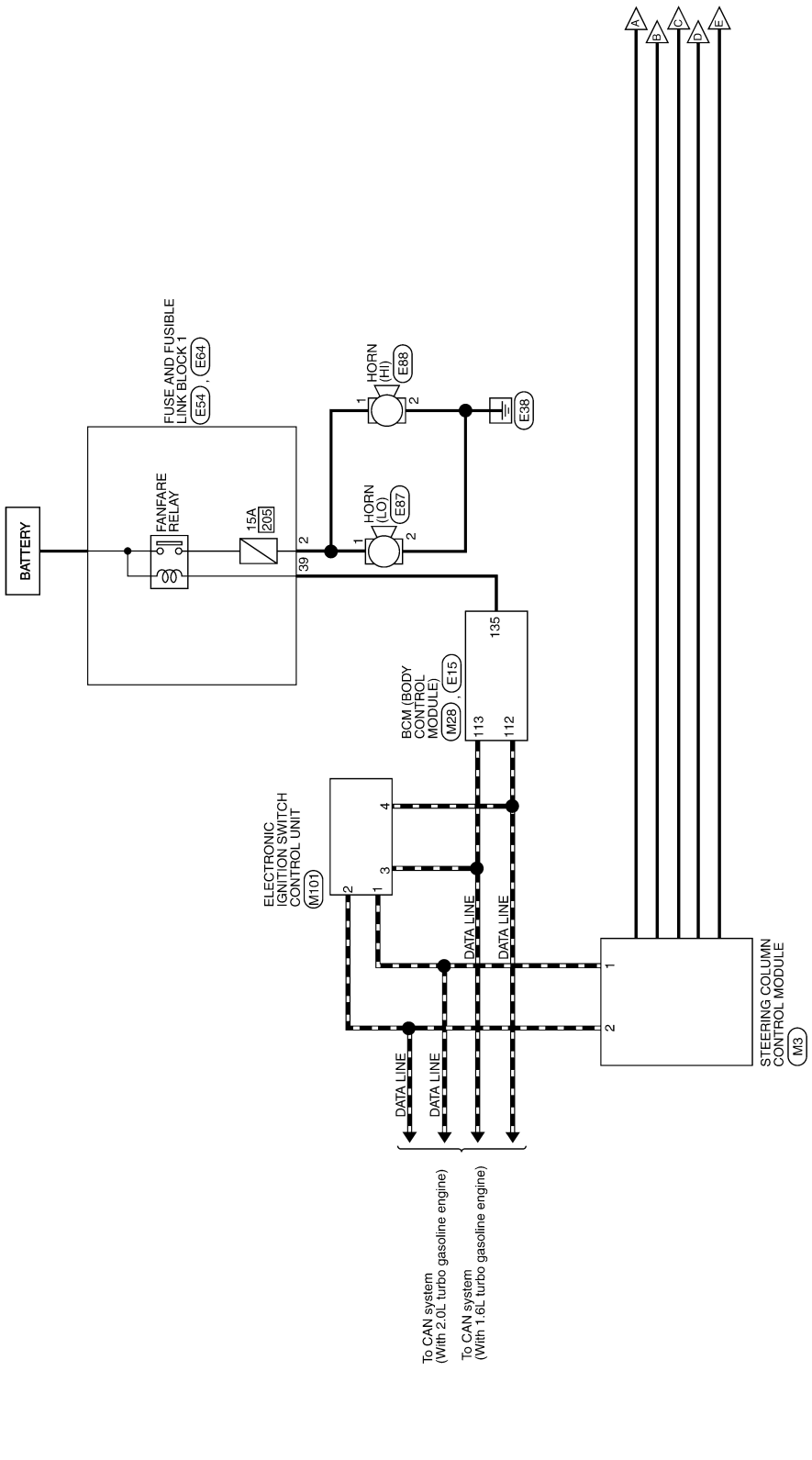
| ECU | Reference |
|---|---|
| BCM | BCS-32, "Reference Value" |
| | BCS-51, "DTC Index" |

# WIRING DIAGRAM

## HORN

### Wiring Diagram

INFOID:0000000013564907

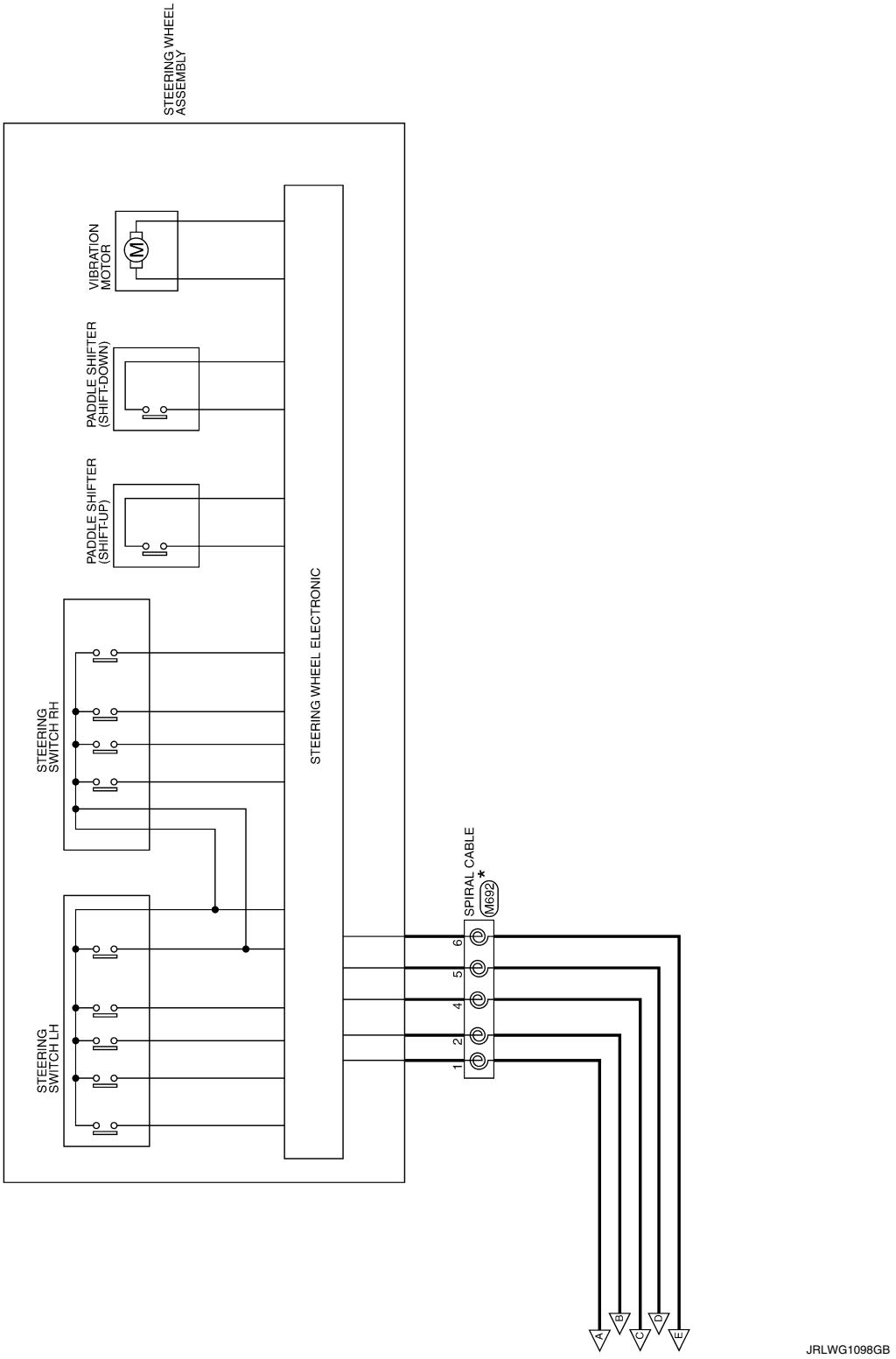



★ : This connector is not shown in "Harness Layout".

2016/02/08

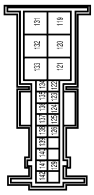
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HORN


STEERING WHEEL ASSEMBLY
VIBRATION MOTOR
PADDLE SHIFTER (SHIFT-DOWN)
PADDLE SHIFTER (SHIFT-UP)
STEERING SWITCH RH
STEERING SWITCH LH
STEERING WHEEL ELECTRONIC
SPIRAL CABLE
M632
6
5
4
2
1
A
B
C
D
E
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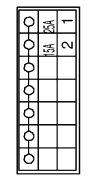
HORN

| Connector No. | E15 |
|---|---|
| Connector Name | BCM (BODY CONTROL MODULE) |
| Connector Type | MB_A1665400081 |



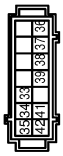
| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 119 | V | RR WASHER CONT |
| 120 | GR | FR WASHER CONT |
| 121 | W | BRAKE PEDAL |
| 122 | Y | SPARY NOZZLE HOSE HEATER POWER SUPPLY |
| 123 | G | INJECTION RELAY CONT |
| 124 | BR | HOOD SWITCH STATUS 1 |
| 125 | B | KI.15 MOTORST |
| 126 | GR | PARKING LAMP LH |
| 129 | G | FRONT WIPER STOP POSITION |
| 131 | Y | FRONT FOG LAMP LH |
| 132 | O | HIGH BEAM LH |
| 133 | L | LOW BEAM RH [With halogen lamp] |
| 133 | Y | LOW BEAM RH [With LED lamp] |
| 134 | BR | WASHER LEVEL SW GND |
| 135 | P | HORN CONT |
| 136 | R | FR WIPER RELAY CONT |
| 137 | V | FR WIPER HI/LO RELAY CONT |
| 138 | G | BRAKE FLUID LEVEL SW SIG |
| 139 | L | WASHER LEVEL SW SIG |
| 140 | Y | HOOD SWITCH STATUS 2 |
| 141 | R | WARM START |
| 142 | V | FRONT TURN SIGNAL LH |

| Connector No. | E54 |
|---|---|
| Connector Name | FUSE AND FUSIBLE LINK BLOCK 1 |
| Connector Type | MB_A0055459701 |



| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 1 | P | - |
| 2 | B | - |

| Connector No. | E64 |
|---|---|
| Connector Name | FUSE AND FUSIBLE LINK BLOCK 1 |
| Connector Type | MB_A0315459626 |



| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 33 | BR | - |
| 34 | G | - |
| 35 | V | - |
| 36 | P | - |
| 37 | R | - |
| 38 | V | - |
| 39 | P | - |
| 41 | W | - |
| 42 | R | - |

| Connector No. | E87 |
|---|---|
| Connector Name | HORN (LO) |
| Connector Type | MB_A0525453826 |



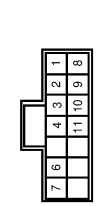
| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 1 | B | - |
| 2 | BR | - |

| Connector No. | E88 |
|---|---|
| Connector Name | HORN (HI) |
| Connector Type | MB_A0525453826 |



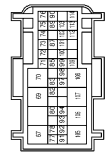
| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 1 | B | - |
| 2 | BR | - |

| Connector No. | M3 |
|---|---|
| Connector Name | STEERING COLUMN CONTROL MODULE |
| Connector Type | MB_A2045401281 |



| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 1 | G | CAN-L (CHASIS) |
| 2 | W | CAN-H (CHASIS) |
| 3 | BR | GND |
| 4 | R | KI.30G |
| 6 | R | KI.30 |
| 7 | BR | GND |
| 8 | L | AB1+ |
| 9 | Y | AB1- |
| 10 | V | AB2+ |
| 11 | G | AB2- |

| Connector No. | M28 |
|---|---|
| Connector Name | BCM (BODY CONTROL MODULE) |
| Connector Type | MB_A1665400481 |



| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 67 | V | BACK DOOR UNLOCK |
| 69 | GR | STOP LAMP [BODY RH] |
| 70 | B | REAR TURN SIGNAL LH |
| 71 | GR | BACK-UP LAMP RH |
| 72 | Y | LICENSE PLATE LAMP RH |
| 73 | L | RR POWER WINDOW SW RH UP |
| 74 | B | RR POWER WINDOW SW RH DOWN |
| 75 | L | RR POWER WINDOW SW RH GND |
| 76 | GR | HALL SENSOR RH POWER SUPPLY |

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HORN

| | | |
|---|---|---|
| 77 | R | SUB BAT- |
| 78 | B | TERMINAL RELAY 15R1 CONT |
| 80 | B | REAR WIPER RELAY CONT |
| 82 | GR | TAIL LAMP (BODY LH) |
| 83 | P | TERMINAL RELAY 15R2 CONT |
| 85 | B | TAIL LAMP (BK LH) |
| 87 | R | BAT (VIA LATCHING TERMINAL RELAY 30G) |
| 89 | O | HALL SENSOR RH GND |
| 90 | V | HALL SENSOR RH SIGNAL |
| 91 | P | FUEL LEVEL SENSOR GND |
| 92 | L | FUEL LEVEL SENSOR |
| 93 | GR | FUEL LEVEL SENSOR |
| 94 | Y | FUEL FILLER LID STATUS |
| 97 | G | LATCHING TERMINAL RELAY 30G CONT 1 |
| 98 | B | LATCHING TERMINAL RELAY 30G GND 1 |
| 99 | W | LATCHING TERMINAL RELAY 30G GND 2 |
| 100 | V | LATCHING TERMINAL RELAY 30G CONT 2 |
| 101 | Y | REAR DOOR INSIDE HANDLE LAMP CONT |
| 102 | GR | AMBIENT LAMP CONT |
| 103 | V | SUB BAT RELAY CONT |
| 105 | G | RR DOOR LH UNLOCK |
| 106 | W | FUEL FILLER LID UNLOCK |
| 107 | L | RR DOOR LH LOCK |
| 108 | R | SUB BAT+ |
| 109 | O | LIN (ROOF) |
| 112 | BR | CAN-L (BODY 1) |
| 113 | R | CAN-H (BODY 1) |
| 114 | B | INJECTION RELAY CONT |

| | |
|---|---|
| Connector No. | M101 |
| Connector Name | ELECTRONIC IGNITION SWITCH CONTROL UNIT |
| Connector Type | MB_A0265458426 |

H.S.

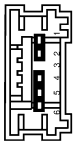



| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 1 | G | CHASSIS CAN-L |
| 2 | W | CHASSIS CAN-H |
| 3 | R | BODY CAN 1-H |
| 4 | BR | BODY CAN 1-L |
| 6 | W | STEERING LOCK OPERATION |
| 9 | GR | REMOTE KEYLESS |

| | | |
|---|---|---|
| 10 | W | POWER SUPPLY |
| 11 | BR | DIAGNOSTIC CAN-L |
| 12 | L | DIAGNOSTIC CAN-H |

| | |
|---|---|
| Connector No. | M692 |
| Connector Name | SPIRAL CABLE |
| Connector Type | A2040041699BLATT2 |

H.S.




| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 1 | - | - |
| 2 | - | - |
| 3 | - | - |
| 4 | - | - |
| 5 | - | - |
| 6 | - | - |

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# DTC/CIRCUIT DIAGNOSIS

## B2335 HORN RERAY

### DTC Description

INFOID:0000000013564908

#### DTC DETECTION LOGIC

| DTC | | CONSULT screen items (Trouble diagnosis content) | CONSULT screen items [Malfunction type] | DTC detecting condition | |
|---|---|---|---|---|---|
| B2335 | 11 | fanfare relay | [CIRC SHORT TO GRND] | Diagnosis condition | All time |
| | | | | Signal (terminal) | Relay signal |
| | | | | Threshold | Harness to the BCM circuit has a malfunction |
| | | | | Diagnosis delay time | — |
| | 15 | | [CIRC SHORT TO BATTERY OR OPEN] | Diagnosis condition | All time |
| | | | | Signal (terminal) | Relay signal |
| | | | | Threshold | Harness to the BCM circuit has a malfunction |
| | | | | Diagnosis delay time | — |

#### POSSIBLE CAUSE

- Harness or connector
- fanfare relay
- BCM

#### FAIL-SAFE

—

#### DTC CONFIRMATION PROCEDURE

##### 1.CHECK SELF-DIAG RESULT

With CONSULT

1. Turn ignition switch ON.
2. Perform “Self Diagnostic Result” mode of “BCM” using CONSULT.

Is malfunctioning part detected?

YES >> Refer to HRN-13, "Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-56, "Intermittent Incident".
NO-2 >> Confirmation after repair: INSPECTION END

### Diagnosis Procedure

INFOID:0000000013564909

##### 1.CHECK RELAY CONTROL SIGNAL

1. Turn ignition switch OFF.
2. Disconnect BCM connector.
3. Check voltage between BCM harness connector and ground.

| (+) BCM Connector | (+) BCM Terminal | (–) | Voltage (Approx.) |
|---|---|---|---|
| E15 | 135 | Ground | 12 V |

Is the inspection result normal?

YES >> Replace BCM. Refer to BCS-248, "Removal and Installation".
NO >> GO TO 2.

## 2.CHECK RELAY CONTROL SIGNAL CIRCUIT

1. Disconnect fuse and fusible link block 1 connector.
2. Check continuity between BCM harness connector and fuse and fusible link block 1 harness connector.

| BCM | | Fuse and fusible link block 1 | | Continuity |
|---|---|---|---|---|
| Connector | Terminal | Connector | Terminal | |
| E15 | 135 | E64 | 39 | Existed |

3. Check continuity between BCM harness connector and ground.

| BCM | | Ground | Continuity |
|---|---|---|---|
| Connector | Terminal | | |
| E15 | 135 | | Not existed |

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair or replace harness.

## 3.CHECK RELAY POWER SUPPLY CIRCUIT

Check relay and coil upstream side battery power supply circuit.

Is the inspection result normal?

YES >> Replace BCM. Refer to BCS-248, "Removal and Installation".
NO >> Repair or replace malfunction part.

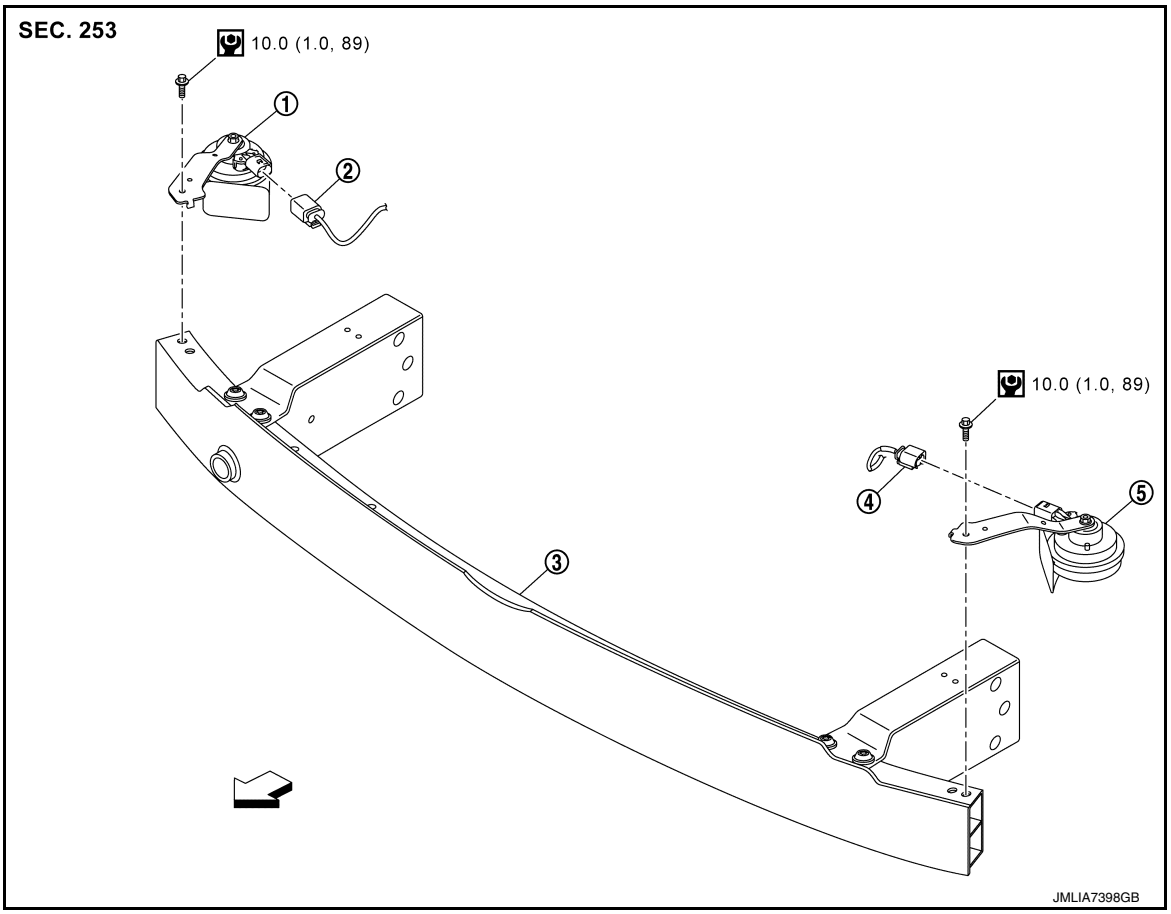
# REMOVAL AND INSTALLATION

## HORN

### Exploded View

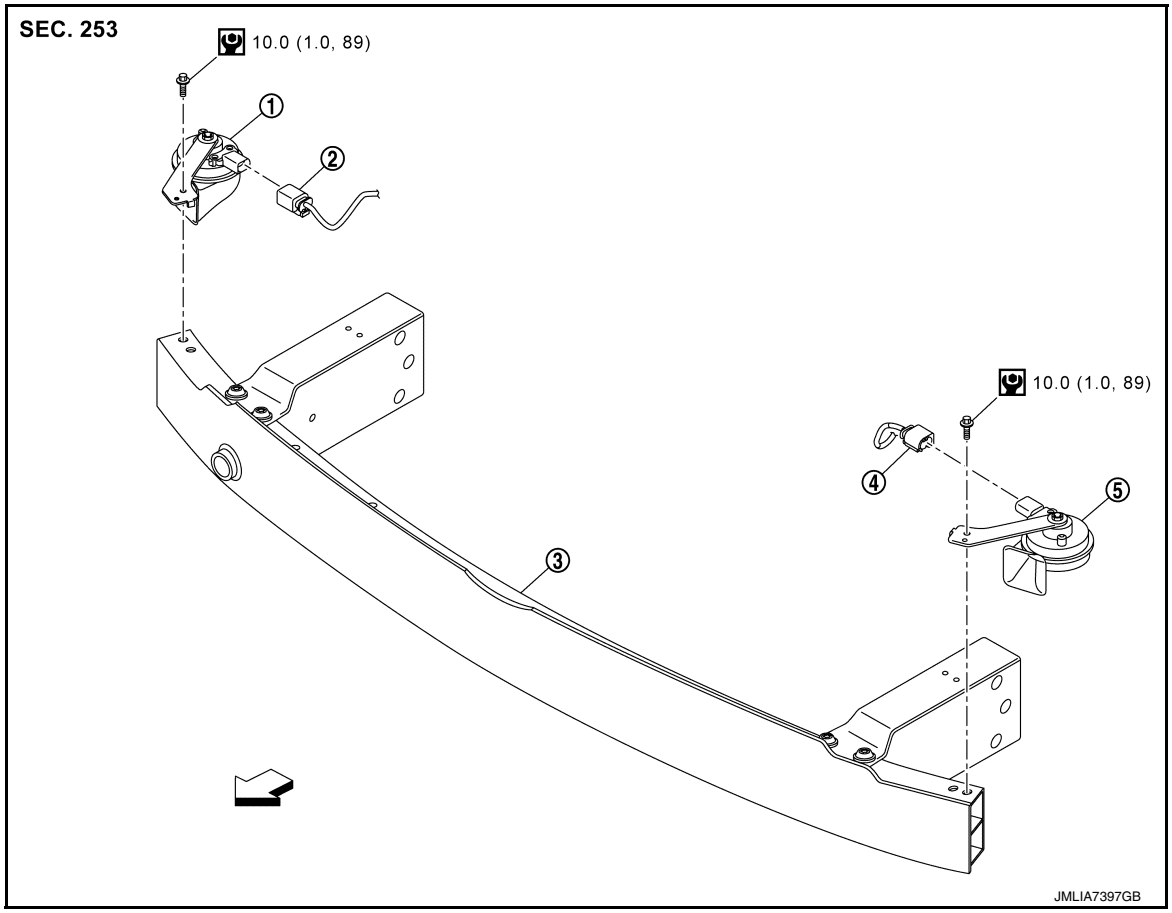
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FOR USA, CANADA




① Horn (Hi)
② Horn (Hi) connector
③ Front bumper reinforcement
④ Horn (Lo) connector
⑤ Horn (Lo)
⇦ : Vehicle front
: N·m (kg-m, in-lb)

EXCEPT FOR USA, CANADA




① Horn (Hi) ② Horn (Hi) connector ③ Front bumper reinforcement
④ Horn (Lo) connector ⑤ Horn (Lo)
⇦ : Vehicle front
: N·m (kg-m, in-lb)

## Removal and Installation

INFOID:0000000013564911

### REMOVAL

1. Remove fender protector. Refer to EXT-41, "FENDER PROTECTOR : Removal and Installation".
2. Remove washer tank (RH side). Refer to WW-75, "WASHER TANK : Removal and Installation".
3. Remove horn mountiong bolt.
4. Disconnect horn connector, and then remove horn.

### INSTALLATION

Install in the reverse order of removal.