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# EXL

## SECTION EXL

### EXTERIOR LIGHTING SYSTEM

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# PRECAUTIONS

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## PRECAUTION

### PRECAUTIONS

#### Precaution for Technicians Using Medical Electric

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##### OPERATION PROHIBITION

###### **WARNING:**

- Parts with strong magnet is used in this vehicle.
- Technicians using a medical electric device such as pacemaker must never perform operation on the vehicle, as magnetic field can affect the device function by approaching to such parts.

##### NORMAL CHARGE PRECAUTION

###### **WARNING:**

- If a technician uses a medical electric device such as an implantable cardiac pacemaker or an implantable cardioverter defibrillator, the possible effects on the devices must be checked with the device manufacturer before starting the charge operation.
- As radiated electromagnetic wave generated by on board charger at normal charge operation may effect medical electric devices, a technician using a medical electric device such as implantable cardiac pacemaker or an implantable cardioverter defibrillator must not enter the vehicle compartment (including luggage room) during normal charge operation.

##### PRECAUTION AT TELEMATICS SYSTEM OPERATION

###### **WARNING:**

- If a technician uses implantable cardiac pacemaker or implantable cardioverter defibrillator (ICD), avoid the device implanted part from approaching within approximately 220 mm (8.66 in) from interior/exterior antenna.
- The electromagnetic wave of TCU might affect the function of the implantable cardiac pacemaker or the implantable cardioverter defibrillator (ICD), when using the service, etc.
- If a technician uses other medical electric devices than implantable cardiac pacemaker or implantable cardioverter defibrillator (ICD), the electromagnetic wave of TCU might affect the function of the device. The possible effects on the devices must be checked with the device manufacturer before TCU use.

##### PRECAUTION AT INTELLIGENT KEY SYSTEM OPERATION

###### **WARNING:**

- If a technician uses implantable cardiac pacemaker or implantable cardioverter defibrillator (ICD), avoid the device implanted part from approaching within approximately 220 mm (8.66 in) from interior/exterior antenna.
- The electromagnetic wave of Intelligent Key might affect the function of the implantable cardiac pacemaker or the implantable cardioverter defibrillator (ICD), at door operation, at each request switch operation, or at engine starting.
- If a technician uses other medical electric devices than implantable cardiac pacemaker or implantable cardioverter defibrillator (ICD), the electromagnetic wave of Intelligent Key might affect the function of the device. The possible effects on the devices must be checked with the device manufacturer before Intelligent Key use.

#### Point to Be Checked Before Starting Maintenance Work

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The high voltage system may starts automatically. It is required to check that the timer air conditioner and timer charge (during EVSE connection) are not set before starting maintenance work.

###### **NOTE:**

If the timer air conditioner or timer charge (during EVSE connection) is set, the high voltage system starts automatically even when the power switch is in OFF state.

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

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The Supplemental Restraint System such as "AIR BAG" and "SEAT BELT PRE-TENSIONER", used along with a front seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. This system includes seat belt switch inputs and dual stage front air bag modules. The SRS

# PRECAUTIONS

## < PRECAUTION >

system uses the seat belt switches to determine the front air bag deployment, and may only deploy one front air bag, depending on the severity of a collision and whether the front occupants are belted or unbelted. Information necessary to service the system safely is included in the "SRS AIR BAG" and "SEAT BELT" of this Service Manual.

### **WARNING:**

Always observe the following items for preventing accidental activation.

- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision that would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.
- Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see "SRS AIR BAG".
- Never use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.

## PRECAUTIONS WHEN USING POWER TOOLS (AIR OR ELECTRIC) AND HAMMERS

### **WARNING:**

Always observe the following items for preventing accidental activation.

- When working near the Air Bag Diagnosis Sensor Unit or other Air Bag System sensors with the power switch ON, never use air or electric power tools or strike near the sensor(s) with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing serious injury.
- When using air or electric power tools or hammers, always switch the power switch OFF, disconnect the 12V battery, and wait at least 3 minutes before performing any service.

## Precautions for Removing Battery Terminal

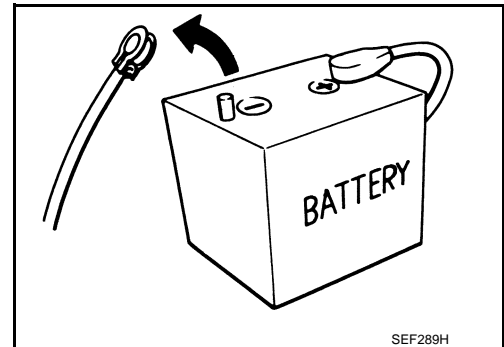
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- When removing the 12V battery terminal, turn OFF the power switch and wait at least 5 minutes.

### **NOTE:**

ECU may be active for several minutes after the power switch is turned OFF. If the battery terminal is removed before ECU stops, then a DTC detection error or ECU data corruption may occur.

- Always disconnect the battery terminal within 60 minutes after turning OFF the power switch. Even when the power switch is OFF, the 12V battery automatic charge control may automatically start after a lapse of 60 minutes from power switch OFF.
- Disconnect 12V battery terminal according to the following steps.



## WORK PROCEDURE

1. Check that EVSE is not connected.

### **NOTE:**

If EVSE is connected, the air conditioning system may be automatically activated by the timer A/C function.

2. Turn the power switch OFF → ON → OFF. Get out of the vehicle. Close all doors (including back door).
3. Check that the charge status indicator lamp does not blink and wait for 5 minutes or more.

### **NOTE:**

If the battery is removed within 5 minutes after the power switch is turned OFF, plural DTCs may be detected.

4. Remove 12V battery terminal within 60 minutes after turning the power switch OFF → ON → OFF.

### **CAUTION:**

- After all doors (including back door) are closed, if a door (including back door) is opened before battery terminals are disconnected, start over from Step 1.
- After turning the power switch OFF, if "Remote A/C" is activated by user operation, stop the air conditioner and start over from Step 1.

### **NOTE:**

Once the power switch is turned ON → OFF, the 12V battery automatic charge control does not start for approximately 1 hour.

## PRECAUTIONS

### < PRECAUTION >

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- For vehicles with the 2-batteries, be sure to connect the main battery and the sub battery before turning ON the power switch.  
**NOTE:**  
If the power 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.

# COMPONENT PARTS

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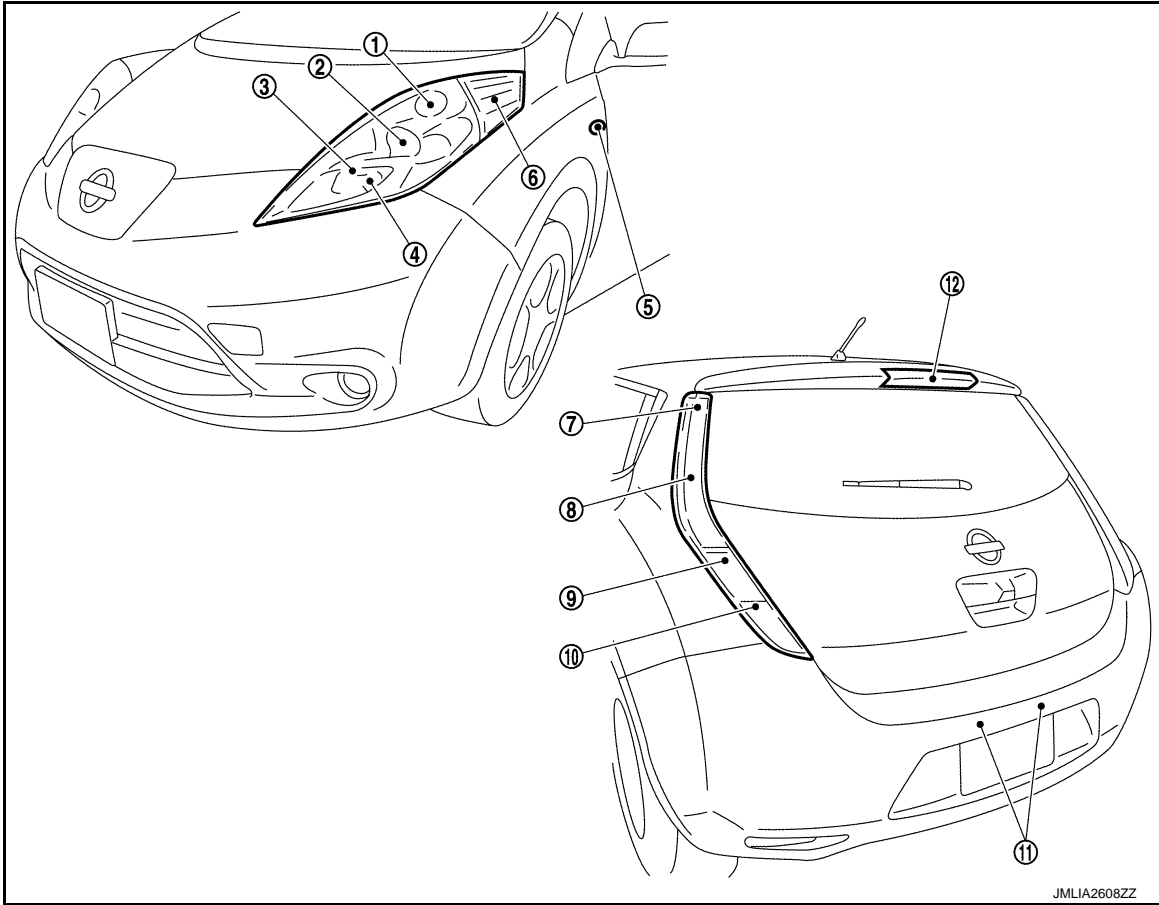
## SYSTEM DESCRIPTION

### COMPONENT PARTS

#### Exterior Lamp Appearance and Bulb Specification

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#### Exterior Lamp Appearance



- |                           |                          |                            |
|---------------------------|--------------------------|----------------------------|
| 1. Front turn signal lamp | 2. Headlamp (low beam)   | 3. Clearance lamp          |
| 4. Headlamp (High beam)   | 5. Side turn signal lamp | 6. Front side marker lamp  |
| 7. Rear side marker lamp  | 8. Stop/Tail lamp        | 9. Rear turn signal lamp   |
| 10. Reverse lamp          | 11. License plate        | 12. High-mounted stop lamp |

#### Bulb Specification

Item	Type	Wattage (W)
Front combination lamp	Headlamp (HI)	H9 (Halogen) 65
	Headlamp (LO)	LED —
	Front turn signal lamp	3457NAK (Amber) 21
	Parking lamp	W5W 5
Front side maker lamp	W5W	5
Front fog lamp	H11	55
Side turn signal lamp	WY5W (Amber)	5

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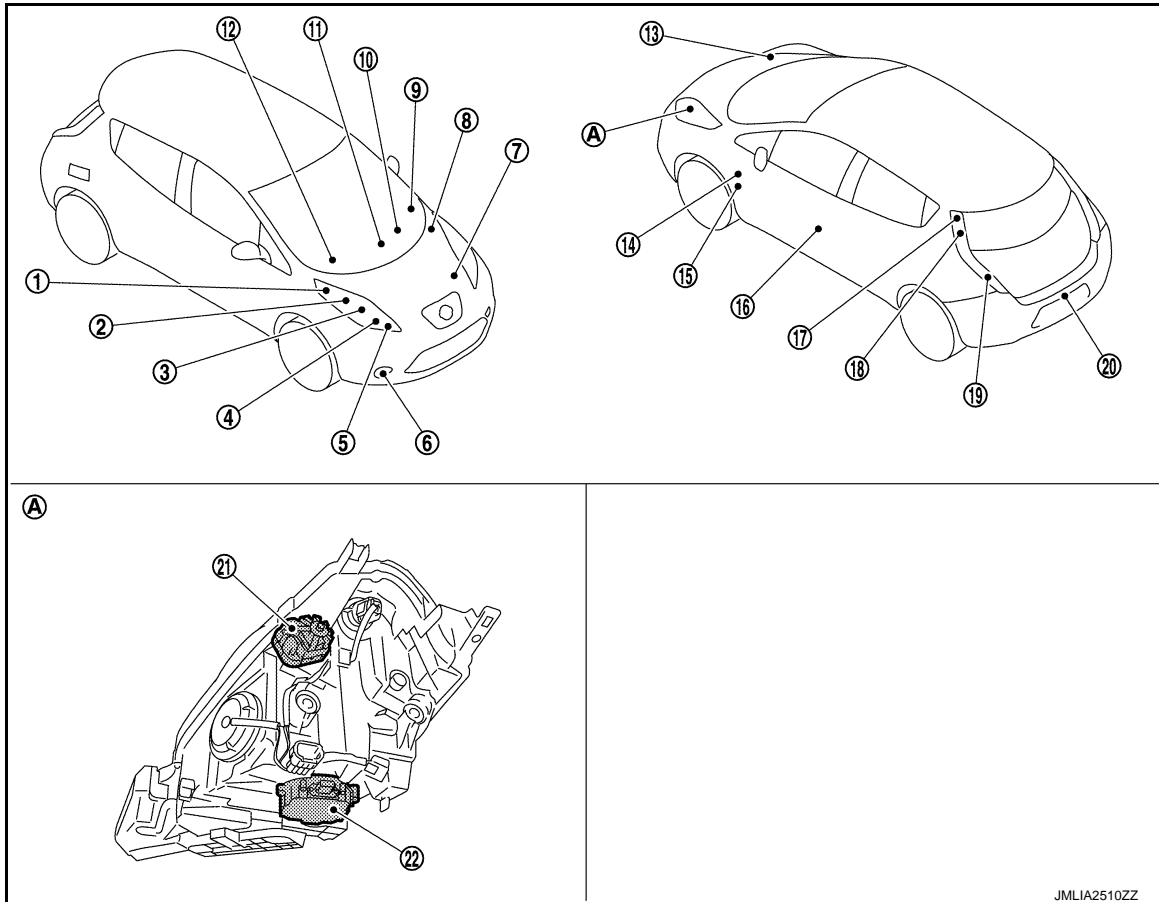
# COMPONENT PARTS

## < SYSTEM DESCRIPTION >

Item	Type	Wattage (W)
Rear combination lamp	Stop lamp/Tail lamp	LED
	Rear turn signal lamp	WY21W (Amber)
	Back-up lamp	W16W
	Rear side maker lamp	LED
License plate lamp	W5W	5
High-mounted stop lamp	LED	—

## Component Parts Location

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A. Front combination lamp (back)

No.	Part	Function
1.	Front side marker lamp	Refer to <a href="#">EXL-7, "Exterior Lamp Appearance and Bulb Specification"</a> .
2.	Front turn signal lamp	Refer to <a href="#">EXL-7, "Exterior Lamp Appearance and Bulb Specification"</a> .
3.	Headlamp LO (LED headlamp)	Refer to <a href="#">EXL-9, "LED Headlamp"</a> .
4.	Headlamp HI	Refer to <a href="#">EXL-7, "Exterior Lamp Appearance and Bulb Specification"</a> .
5.	Parking lamp	Refer to <a href="#">EXL-7, "Exterior Lamp Appearance and Bulb Specification"</a> .
6.	Front fog lamp	Refer to <a href="#">EXL-7, "Exterior Lamp Appearance and Bulb Specification"</a> .
7.	IPDM E/R	<ul style="list-style-type: none"> <li>Controls the integrated relay, and supplies voltage to the load according to the request from BCM (via CAN communication).</li> <li>Refer to <a href="#">PCS-7, "Component Parts Location"</a> for detailed installation location.</li> </ul>



# COMPONENT PARTS

## < SYSTEM DESCRIPTION >

No.	Part	Function
8.	BCM	<ul style="list-style-type: none"> <li>• Detects each switch condition by the combination switch reading function</li> <li>• Judges that the exterior lamps are turned ON according to the vehicle condition</li> <li>• Requests the headlamp relay (HI/LO), tail lamp relay and front fog lamp relay ON to IPDM E/R (via CAN communication)</li> <li>• Requests the high beam indicator lamp, tail lamp indicator lamp and front fog lamp indicator lamp ON to the combination meter (via CAN communication)</li> <li>• Judges the outside brightness from the optical sensor signal.</li> <li>• Judges the ON/OFF timing according to the vehicle condition.</li> <li>• Judges the ON/OFF status of the exterior lamp according to the outside brightness and the vehicle condition.</li> <li>• Refer to <a href="#">BCS-6. "BODY CONTROL SYSTEM : Component Parts Location"</a> for detailed installation location.</li> </ul>
9.	Combination switch (Lighting & turn signal switch)	Refer to <a href="#">BCS-9. "COMBINATION SWITCH READING SYSTEM : System Description"</a> .
10.	Combination meter	<ul style="list-style-type: none"> <li>• Blinks the turn signal indicator lamp and outputs the turn signal operating sound with integrated buzzer according to the request from BCM (via CAN communication).</li> <li>• Turns the tail lamp indicator lamp, high beam indicator lamp, front fog lamp indicator lamp and rear fog lamp indicator lamp ON according to the request from BCM (via CAN communication).</li> <li>• Inputs headlamp warning lamp signal from LED headlamp control module and turns headlamp warning lamp ON.</li> </ul>
11.	Hazard switch	Refer to <a href="#">EXL-11. "Hazard Switch"</a> .
12.	Optical sensor	Refer to <a href="#">EXL-11. "Optical Sensor"</a> .
13.	Daytime running light relay*	Headlamp HI ground circuit is switched according to request from IPDM E/R.
14.	Headlamp aiming switch	Refer to <a href="#">EXL-11. "Headlamp Aiming Switch"</a> .
15.	Side turn signal lamp	Refer to <a href="#">EXL-7. "Exterior Lamp Appearance and Bulb Specification"</a> .
16.	Front door switch (driver side)	Refer to <a href="#">DLK-18. "Door Switch"</a> .
17.	Rear side marker lamp	Refer to <a href="#">EXL-7. "Exterior Lamp Appearance and Bulb Specification"</a> .
18.	Tail lamp	Refer to <a href="#">EXL-7. "Exterior Lamp Appearance and Bulb Specification"</a> .
19.	Rear turn signal lamp	Refer to <a href="#">EXL-7. "Exterior Lamp Appearance and Bulb Specification"</a> .
20.	License plate lamp	Refer to <a href="#">EXL-7. "Exterior Lamp Appearance and Bulb Specification"</a> .
21.	Headlamp aiming motor	Refer to <a href="#">EXL-11. "Headlamp Aiming Motor"</a> .
22.	LED headlamp control module	Refer to <a href="#">EXL-10. "LED Headlamp Control Module"</a> .

\*: With daytime running light system

## LED Headlamp

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### OUTLINE

- Semiconductor device (Light emitting diode: LED), which is illuminated when forward bias electric voltage is applied, is adopted as the source of light instead of halogen bulb or xenon bulb.
- Comparing to halogen headlamp or xenon headlamp, LED headlamp is electrically power saving, durable, and is illuminated in the similar color to the sunlight. Bright, natural, and eye-friendly visibility can be obtained.

### ILLUMINATION PRINCIPLE

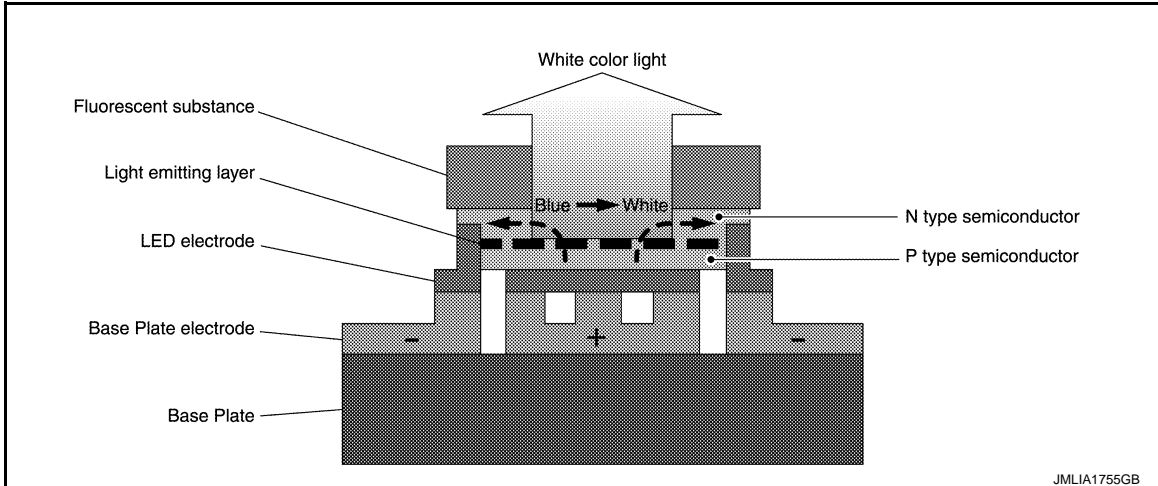
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# COMPONENT PARTS

## < SYSTEM DESCRIPTION >

White LED emits the white light through fluorescent substance on luminescent surface of blue LED using semiconductor (joint construction of P type and N type).



1. When forward bias electric voltage is applied to LED, hole (positive characteristics) and electron (negative characteristics) move toward each electrode, and electric current flows.
2. Hole and electron move inside of semiconductor crystal and are connected (re-connection) again at connecting portion. A part of energies that is produced at this moment is emitted as the light.

## PRECAUTIONS FOR TROUBLE DIAGNOSIS

Representative malfunction examples are; "Light does not turn ON", "Light blinks", and "Brightness is inadequate." Such malfunctions, however, occasionally by occur LED control module malfunction or lamp case malfunction. Specify the malfunctioning part with diagnosis procedure.

### CAUTION:

- Never touch the harness, LED headlamp control module, the inside and metal part of lamp when turning the headlamp ON or operating the lighting switch, for preventing electrical shock.
- Never work with wet hands, for preventing electrical shock.
- Never perform LED headlamp control module circuit diagnosis with a circuit tester or an equivalent.
- Temporarily install the headlamps on the vehicle. Always connect power supply to the connector (vehicle side) when checking ON/OFF status.
- Disconnect the 12V battery negative terminal before disconnecting the lamp socket connector or the harness connector. Refer to [EXL-5, "Precautions for Removing Battery Terminal"](#).
- Check for fusing of the fusible link(s), open around connector, short, disconnection if the symptom is caused by electric error.
- Always check for deformation or hole of headlamp housing and engagement of bulb cover. Otherwise, water may enter into headlamp because of damage of headlamp housing and contact to LED headlamp control module connector. The normal operation may be inhibited when short circuit to power supply is detected.

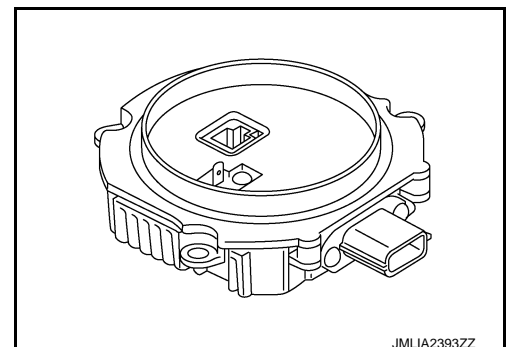
### NOTE:

Turn the switch OFF once before turning ON, if the ON/OFF is inoperative.

## LED Headlamp Control Module

INFOID:000000007635274

- Headlamp (LO) circuit is connected to LED headlamp control module integrated in the front combination lamp.
- Headlamp (LO) circuit turns LED headlamp ON.
- Outputs the headlamp warning lamp signal to the combination meter.



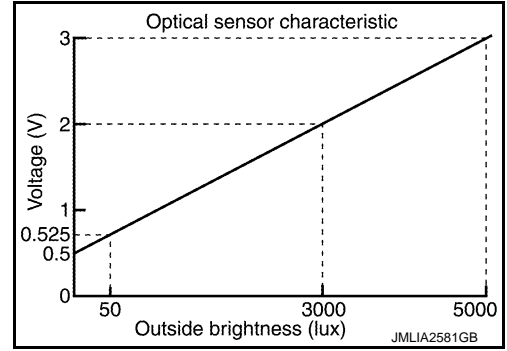
# COMPONENT PARTS

## < SYSTEM DESCRIPTION >

### Optical Sensor

INFOID:000000007823462

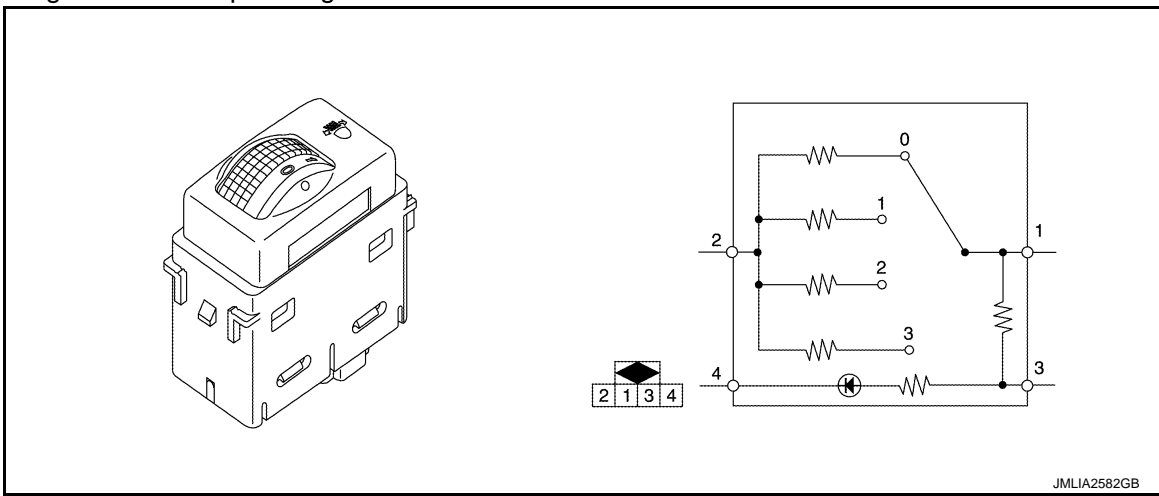
Optical sensor converts the outside brightness (lux) to voltage and transmits the optical sensor signal to BCM.



### Headlamp Aiming Switch

INFOID:000000007823463

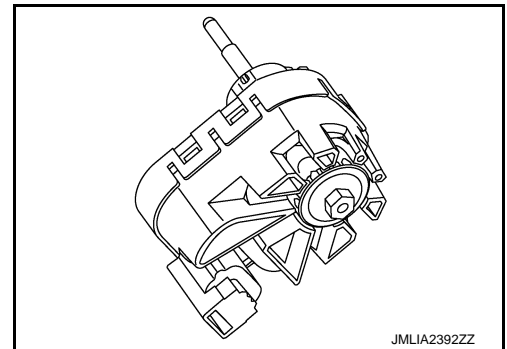
Adjusts height of headlamp aiming.



### Headlamp Aiming Motor

INFOID:000000007835273

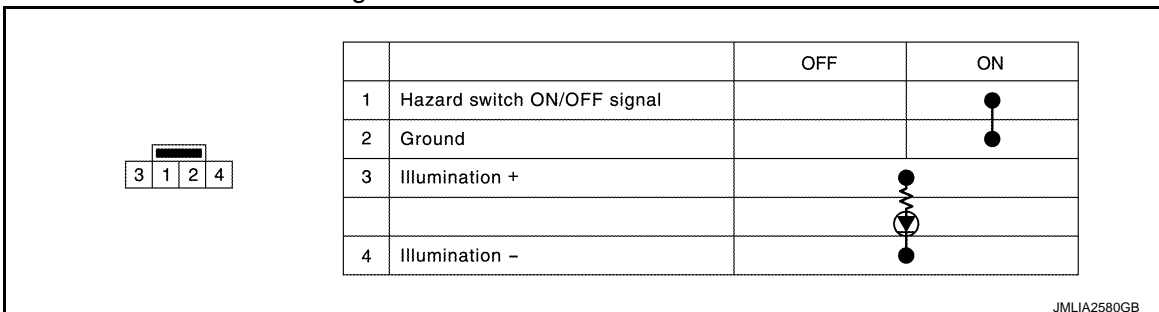
- Headlamp aiming motor is integrated in the front combination lamp.
- Headlamp aiming motor adjusts the headlamp light axis upward and downward according to input drive signal from headlamp aiming switch.



### Hazard Switch

INFOID:000000007823461

Inputs the hazard switch ON/OFF signal to BCM.



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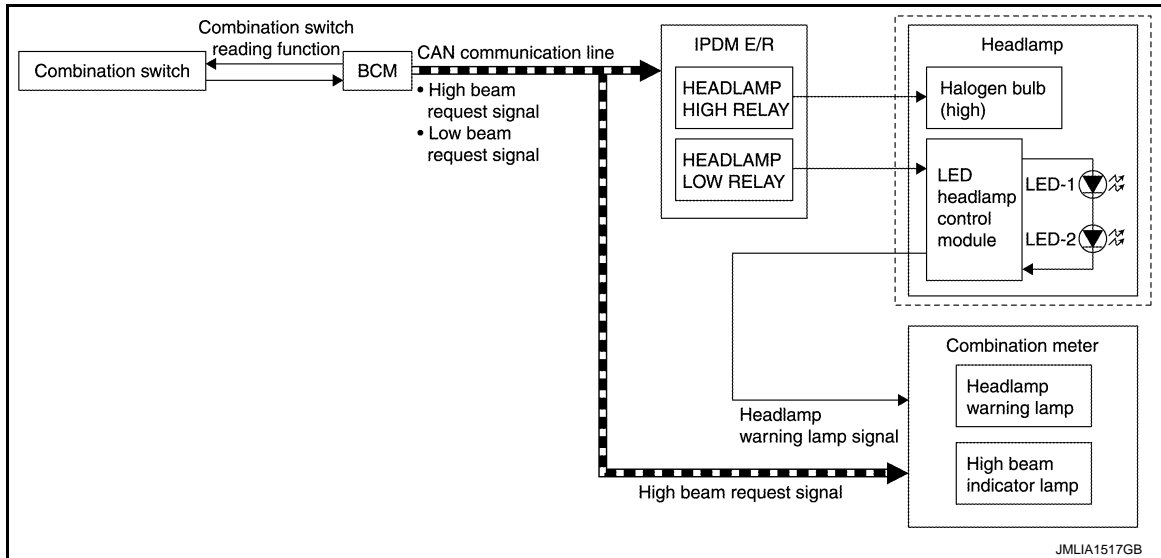
## SYSTEM

### HEADLAMP SYSTEM

#### HEADLAMP SYSTEM : System Description

INFOID:000000007635276

#### SYSTEM DIAGRAM



#### OUTLINE

Headlamp is controlled by combination switch reading function and headlamp control function of BCM, and relay control function of IPDM E/R.

#### HEADLAMP (LO) OPERATION

- BCM detects the combination switch condition with the combination switch reading function.
- BCM transmits the low beam request signal to IPDM E/R with CAN communication according to the headlamp (LO) ON condition.

Headlamp (LO) ON condition

- Lighting switch 2ND
- Lighting switch AUTO (auto light function ON judgment)
- Lighting switch AUTO, with the front fog lamp switch ON and the power switch ON
- Lighting switch PASS
- IPDM E/R turns integrated headlamp low relay ON according to low beam request signal and supplies power supply to LED headlamp control module.
- LED headlamp control module turns the headlamp (LO) ON according to the power supply from IPDM E/R.

#### HEADLAMP (HI) OPERATION

- BCM transmits the high beam request signal to IPDM E/R and the combination meter with CAN communication according to the headlamp (HI) ON condition.

Headlamp (HI) ON condition

- Lighting switch HI with the lighting switch 2ND or AUTO (auto light function ON judgment)
- Lighting switch PASS
- Lighting switch AUTO, with the front fog lamp switch ON, the power switch ON and lighting switch HI
- Combination meter turns the high beam indicator lamp ON according to the high beam request signal.
- IPDM E/R turns the integrated headlamp high relay ON, and turns the headlamp ON according to the high beam request signal.

#### HEADLAMP WARNING LAMP OPERATION

- LED headlamp control module outputs the headlamp warning lamp signal to combination meter when the following malfunction is detected.
  - LED
  - LED headlamp control module
  - Circuit between LED headlamp control module and LED.
  - Circuit between LED headlamp control module and combination meter.

# SYSTEM

## < SYSTEM DESCRIPTION >

- Combination meter turns the headlamp warning lamp ON according to the headlamp warning lamp signal inputs.

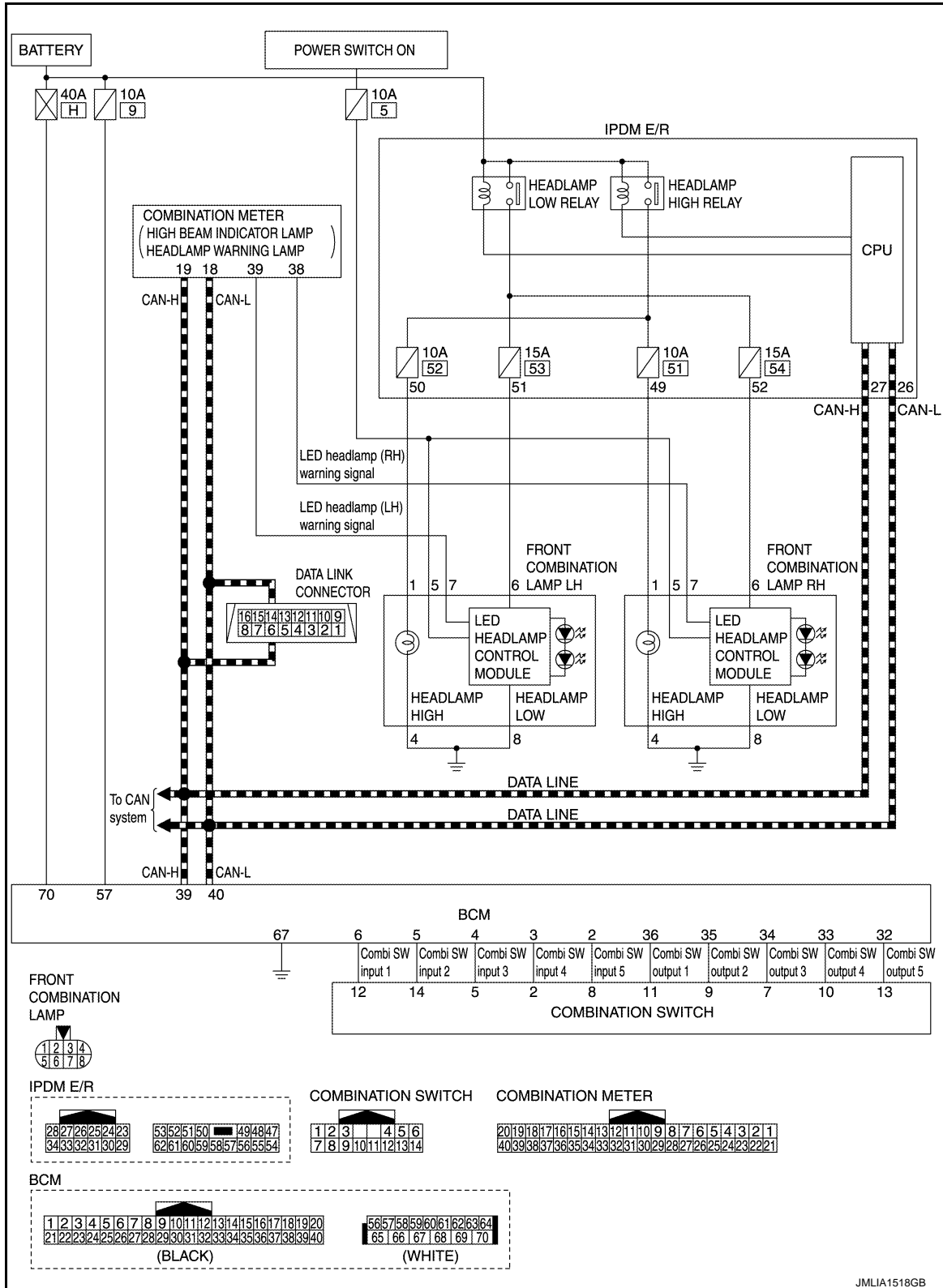
### NOTE:

Headlamp LO may turn ON while headlamp warning lamp is turned ON, because 2 pieces of LED are used so that headlamp may continuously turn ON even if one of LED is not operative.

## HEADLAMP SYSTEM : Circuit Diagram

INFOID:000000007635277

### EXCEPT FOR CANADA

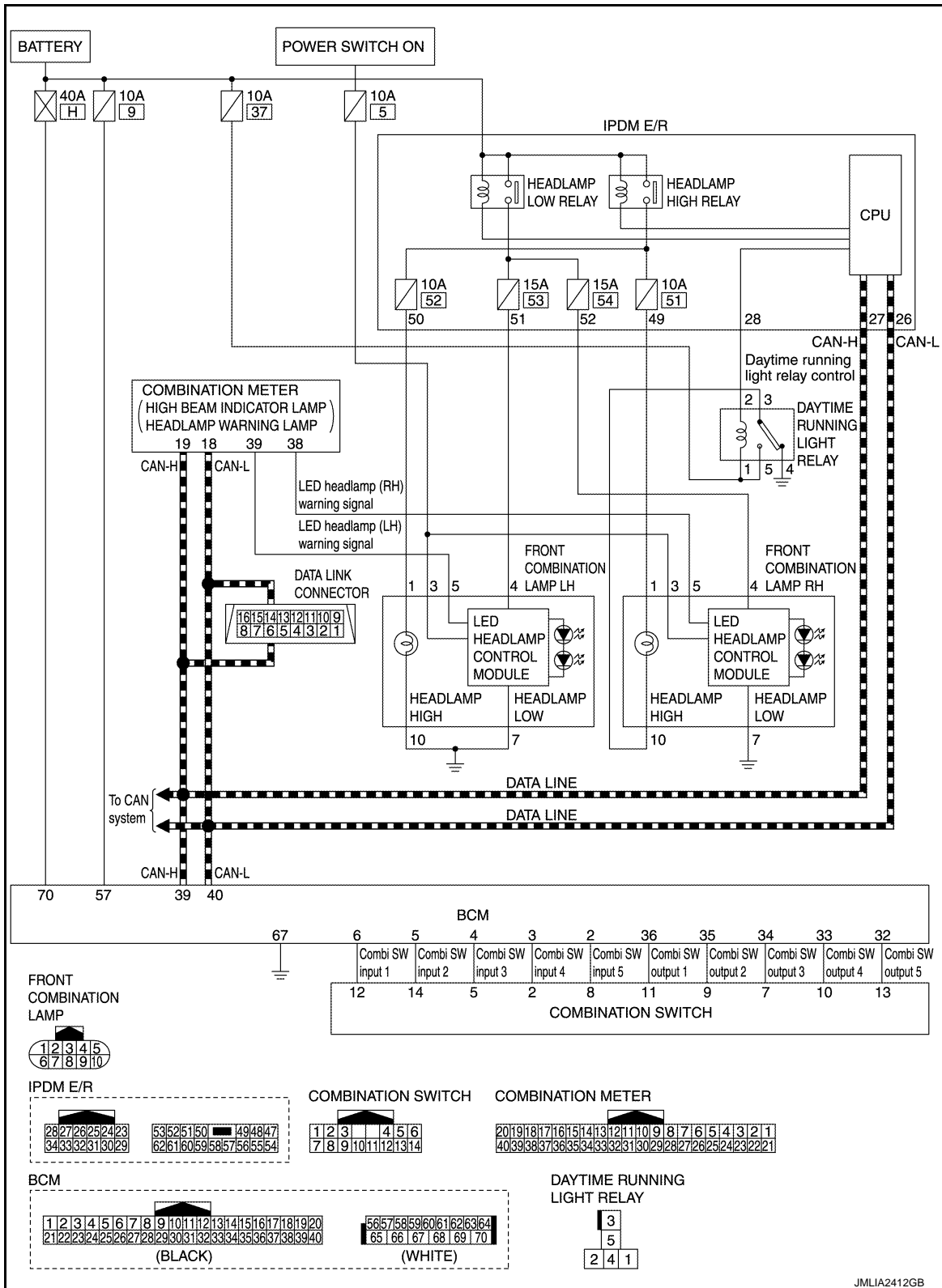


JMLIA1518GB

# SYSTEM

< SYSTEM DESCRIPTION >

FOR CANADA



## HEADLAMP SYSTEM : Fail-Safe

INFOID:000000007635278

### CAN COMMUNICATION CONTROL

When CAN communication with BCM is impossible, IPDM E/R performs fail-safe control. After CAN communication recovers normally, it also returns to normal control.

If No CAN Communication Is Available With BCM

# SYSTEM

## < SYSTEM DESCRIPTION >

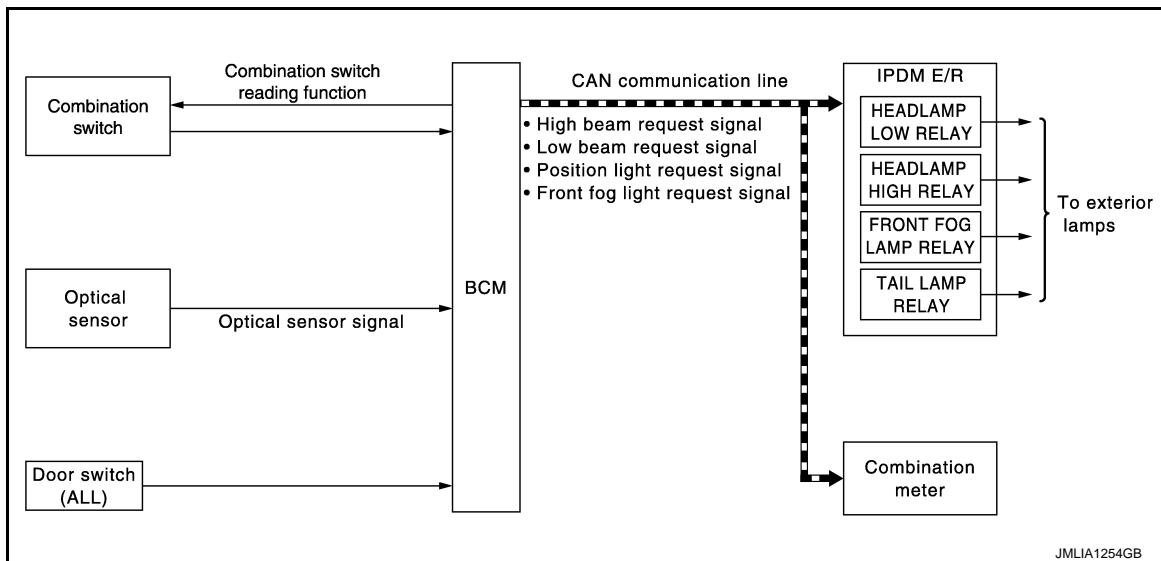
Control part	Fail-safe operation
Headlamp	<ul style="list-style-type: none"> <li>• Turns ON the headlamp low relay when the power switch is turned ON</li> <li>• Turns OFF the headlamp low relay when the power switch is turned OFF</li> <li>• Headlamp high relay OFF</li> </ul>

## AUTO LIGHT SYSTEM (EXCEPT FOR CANADA)

### AUTO LIGHT SYSTEM (EXCEPT FOR CANADA) : System Description

INFOID:000000007635279

#### SYSTEM DIAGRAM



#### OUTLINE

- Auto light system is controlled by each function of BCM and IPDM E/R.

##### Control by BCM

- Combination switch reading function
- Headlamp control function
- Auto light function
- Delay timer function
- Wiper linked auto lighting function
- Auto light adjustment system

##### Control by IPDM E/R

- Relay control function
- Auto light system has the auto light function (with twilight lighting function), wiper linked auto lighting function and delay timer function.
- Auto light function automatically turns ON/OFF the exterior lamps\* and each illumination automatically, depending on the outside brightness.
- Wiper linked auto lighting function automatically turns ON/OFF the exterior lamps\* and each illumination when the light switch is in the AUTO position, according to a front wiper operation.
- When auto light system turns the exterior lamps ON with the power switch OFF, delay timer function turns the exterior lamps OFF, depending on the vehicle condition with the auto light function after a certain period of time.

\*: Headlamp (LO/HI), parking lamp, tail lamp, front fog lamp and side marker lamp (Headlamp HI and front fog lamp depend on the combination switch condition.)

##### NOTE:

The settings of the twilight lighting function and the wiper linked auto lighting function can be changed with CONSULT. Refer to [EXL-35, "HEADLAMP : CONSULT Function \(BCM - HEAD LAMP\)"](#).

#### AUTO LIGHT FUNCTION (WITH TWILIGHT LIGHTING FUNCTION)

##### Description

- BCM detects the combination switch condition with the combination switch reading function.
- BCM supplies voltage to the optical sensor when the power switch is turned ON or ACC.

# SYSTEM

## < SYSTEM DESCRIPTION >

---

- Optical sensor converts outside brightness (lux) to voltage and transmits the optical sensor signal to BCM.
- BCM filters outside brightness based on the optical sensor signal and judges outside brightness.
- BCM detects change status of outside brightness according to outside brightness from the optical sensor signal and filtered outside brightness. Based on the change status, BCM judges ON/OFF condition of the exterior lamp.
- BCM transmits each request signal to IPDM E/R and combination meter via CAN communication, according to ON/OFF condition by the auto light function.

**NOTE:**

As to ON/OFF timing, the sensitivity depends on settings. The settings can be changed with CONSULT. Refer to [EXL-35, "HEADLAMP : CONSULT Function \(BCM - HEAD LAMP\)"](#).

### WIPER LINKED AUTO LIGHTING FUNCTION

BCM turns the exterior lamps ON when detecting 4 operations of the front wiper work the light switch in AUTO position.

**NOTE:**

BCM turns OFF the headlamps 3 seconds after the front wiper switch is turned from ON⇒OFF.

### AUTO LIGHT ADJUSTMENT SYSTEM

The auto light adjustment system automatically, dims/brightens the display and combination meter, according to brightness outside the vehicle, when lighting switch 1ST, lighting switch 2ND or lighting switch AUTO is operated. Refer to [INL-15, "AUTO LIGHT ADJUSTMENT SYSTEM : System Description"](#).

### DELAY TIMER FUNCTION

BCM turns the exterior lamps OFF depending on the vehicle condition with the auto light function when the power switch is turned OFF.

- Turns the exterior lamps OFF 5 minutes after detecting that any door opens. (Door switch ON).
- Turns the exterior lamps OFF a certain period of time\* after closing all doors. (Door switch ON→OFF).
- Turns the exterior lamps OFF with the power switch ACC or the light switch OFF.

\*: The preset time is 45 seconds. The timer operating time can be set by CONSULT. Refer to [EXL-35, "HEAD-LAMP : CONSULT Function \(BCM - HEAD LAMP\)"](#).

**NOTE:**

When any position other than the light switch AUTO is set, the auto light system function switches to the exterior lamp battery saver function.

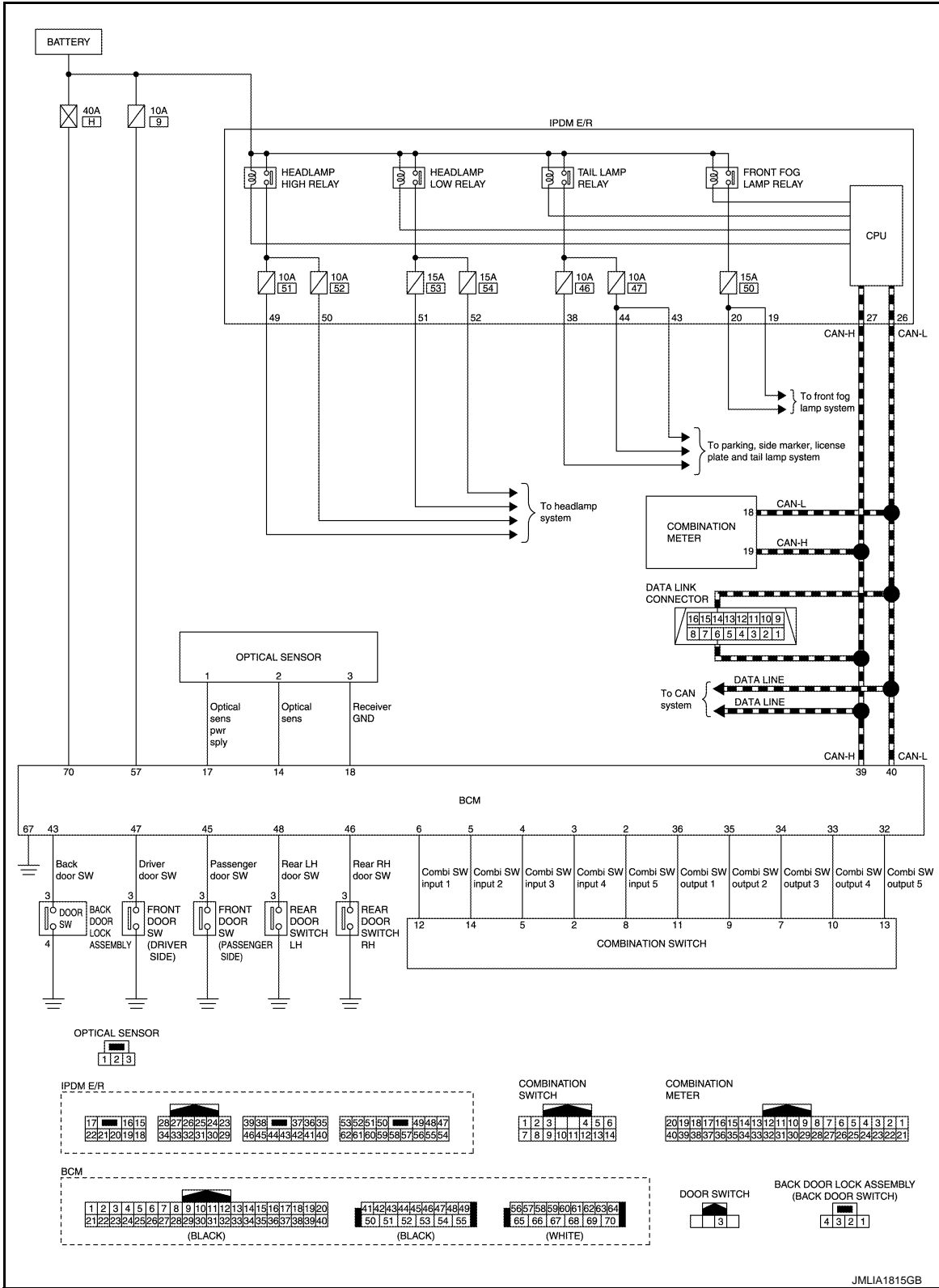


# SYSTEM

< SYSTEM DESCRIPTION >

## AUTO LIGHT SYSTEM (EXCEPT FOR CANADA) : Circuit Diagram

INFOID:000000007635280



## AUTO LIGHT SYSTEM (FOR CANADA)

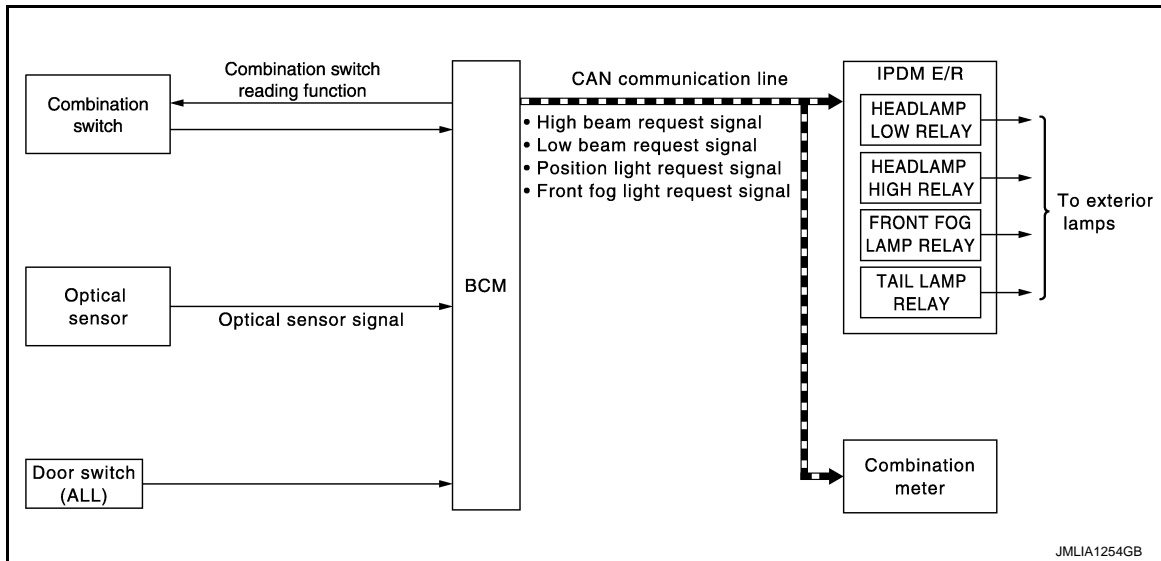
# SYSTEM

< SYSTEM DESCRIPTION >

## AUTO LIGHT SYSTEM (FOR CANADA) : System Description

INFOID:000000007635281

### SYSTEM DIAGRAM



### OUTLINE

- Auto light system is controlled by each function of BCM and IPDM E/R.

#### Control by BCM

- Combination switch reading function
- Headlamp control function
- Auto light function
- Delay timer function
- Auto light adjustment system

#### Control by IPDM E/R

- Relay control function
- Auto light system has the auto light function and delay timer function.
- Auto light function automatically turns ON/OFF the exterior lamps\* and each illumination automatically, depending on the outside brightness.
- When auto light system turns the exterior lamps ON with the power switch OFF, delay timer function turns the exterior lamps OFF, depending on the vehicle condition with the auto light function after a certain period of time.

\*: Headlamp (LO/HI), parking lamp, side marker lamp, tail lamp and front fog lamp (Headlamp HI and front fog lamp depend on the combination switch condition.)

### AUTO LIGHT FUNCTION

- BCM detects the combination switch condition with the combination switch reading function.
- BCM supplies voltage to optical sensor when the power switch is turned ON or ACC.
- Optical sensor converts outside brightness (lux) to voltage and transmits the optical sensor signal to BCM.
- BCM judges outside brightness from the optical sensor signal and judges ON/OFF condition of the exterior lamp and each illumination according to the outside brightness.
- BCM transmits each request signal to IPDM E/R and combination meter via CAN communication according to ON/OFF condition by the auto light function.

#### NOTE:

ON/OFF timing differs based on the sensitivity from the setting. The setting can be set by CONSULT. Refer to [EXL-35. "HEADLAMP : CONSULT Function \(BCM - HEAD LAMP\)".](#)

### AUTO LIGHT ADJUSTMENT SYSTEM

The auto light adjustment system automatically, dims/brightens the display, according to brightness outside the vehicle, when lighting switch 1ST, lighting switch 2ND or lighting switch AUTO is operated. Refer to [INL-15. "AUTO LIGHT ADJUSTMENT SYSTEM : System Description".](#)

### DELAY TIMER FUNCTION

# SYSTEM

## < SYSTEM DESCRIPTION >

BCM turns the exterior lamp OFF depending on the vehicle condition with the auto light function when the power switch is turned OFF.

- Turns the exterior lamp OFF 5 minutes after detecting that any door opens. (Door switch ON).
- Turns the exterior lamp OFF a certain period of time\* after closing all doors. (Door switch ON→OFF).
- Turns the exterior lamp OFF with the power switch ACC or the light switch OFF.

\*: The preset time is 45 seconds. The timer operating time can be set by CONSULT. Refer to [EXL-35, "HEAD-LAMP : CONSULT Function \(BCM - HEAD LAMP\)"](#).

### NOTE:

When any position other than the light switch AUTO is set, the auto light system function switches to the exterior lamp battery saver function.

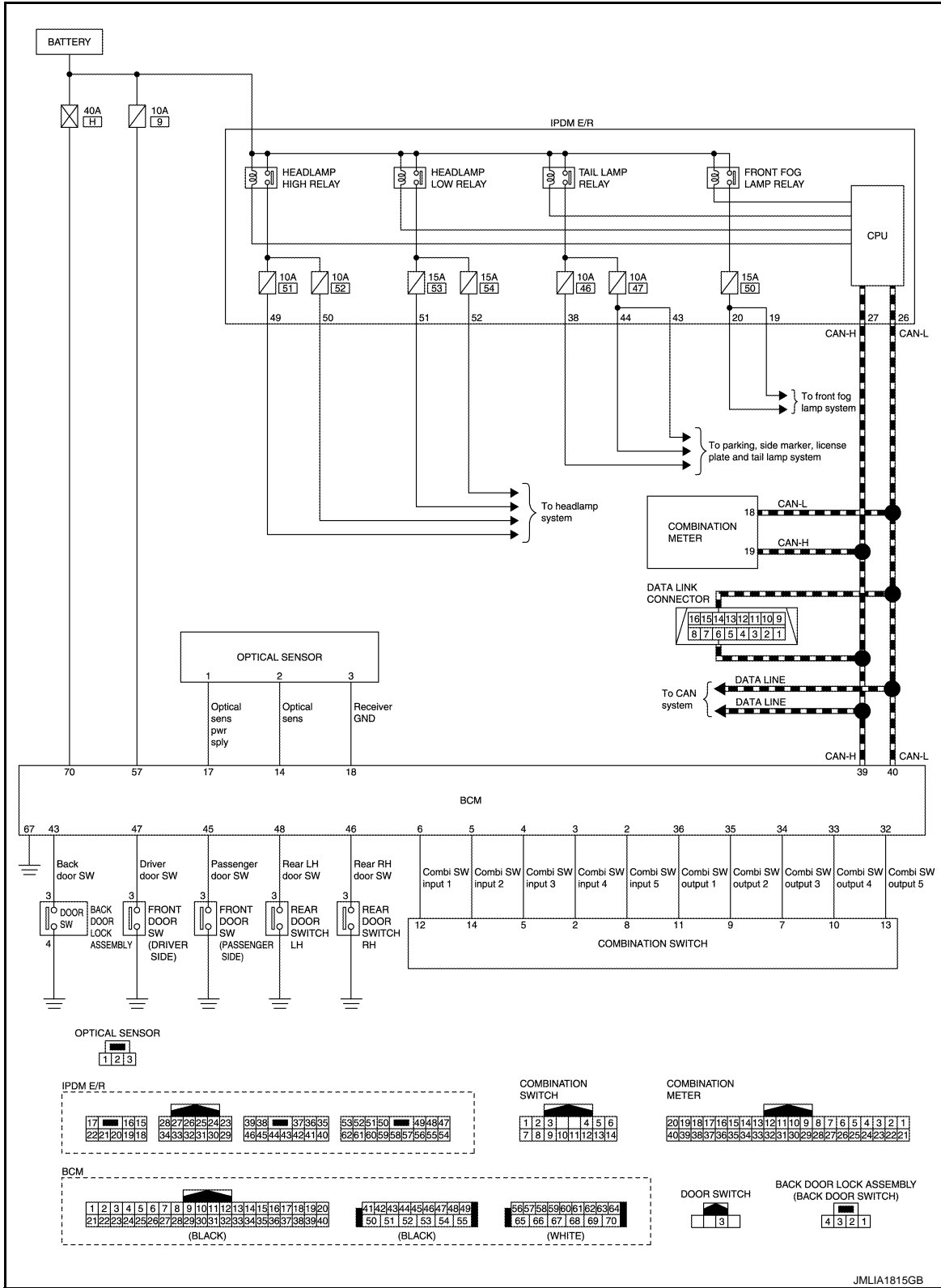
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# SYSTEM

< SYSTEM DESCRIPTION >

## AUTO LIGHT SYSTEM (FOR CANADA) : Circuit Diagram

INFOID:000000007635282



## DAYTIME RUNNING LIGHT SYSTEM

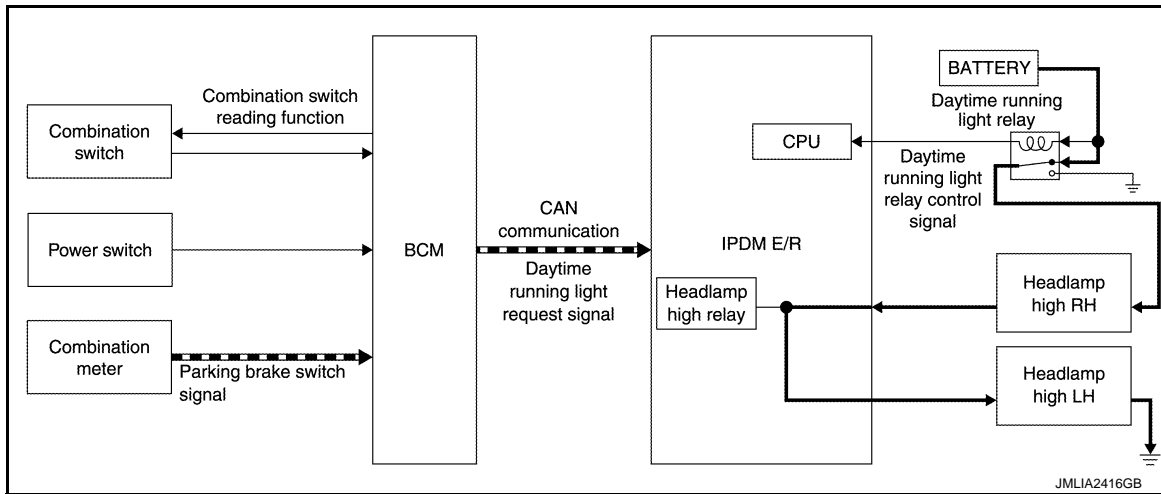
# SYSTEM

< SYSTEM DESCRIPTION >

## DAYTIME RUNNING LIGHT SYSTEM : System Description

INFOID:000000007635283

### SYSTEM DIAGRAM



### OUTLINE

- Turns the headlamp high ON (high beam at approximately half illumination) as the daytime running light.
- Daytime running light is controlled by daytime running light control function and combination switch reading function of BCM, and relay control function of IPDM E/R.

### DAYTIME RUNNING LIGHT OPERATION

- BCM detects the combination switch condition by the combination switch reading function.
- BCM detects the vehicle condition according to power switch
- BCM detects the parking brake condition by the parking brake switch signal received from combination meter using CAN communication.
- BCM transmits the daytime running light request signal to IPDM E/R using CAN communication according to the daytime running light ON condition.

#### Daytime running light ON condition

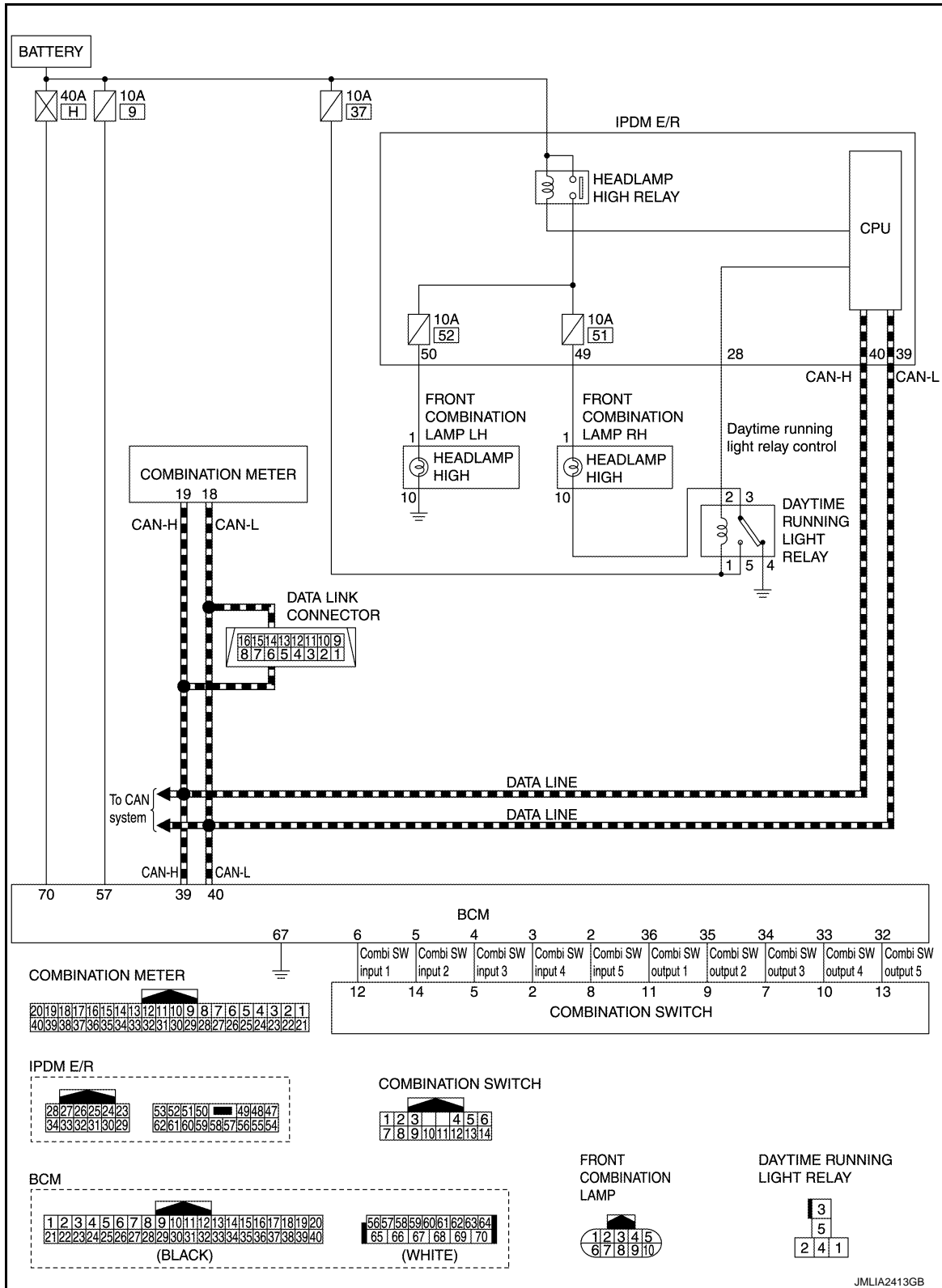
- Vehicle condition READY
- Lighting switch OFF or 1ST
- Lighting switch AUTO, and the auto light function OFF judgment
- Parking brake switch OFF
- IPDM E/R controls the daytime running light relay (ground-side) to turn ON according to the daytime running light request signal.
- Power is supplied from the daytime running light relay through headlamp high RH and IPDM E/R to headlamp high LH. And high beam headlamps are illuminated (approximately half illumination) as the daytime running light.

# SYSTEM

< SYSTEM DESCRIPTION >

## DAYTIME RUNNING LIGHT SYSTEM : Circuit Diagram

INFOID:000000007635284



## HEADLAMP AIMING CONTROL (MANUAL)

### HEADLAMP AIMING CONTROL (MANUAL) : System Description

INFOID:000000007635285

The headlamp levelizer adjusts the headlamp light axis upward and downward with the aiming motor integrated in the front combination lamp.

## TURN SIGNAL AND HAZARD WARNING LAMP SYSTEM

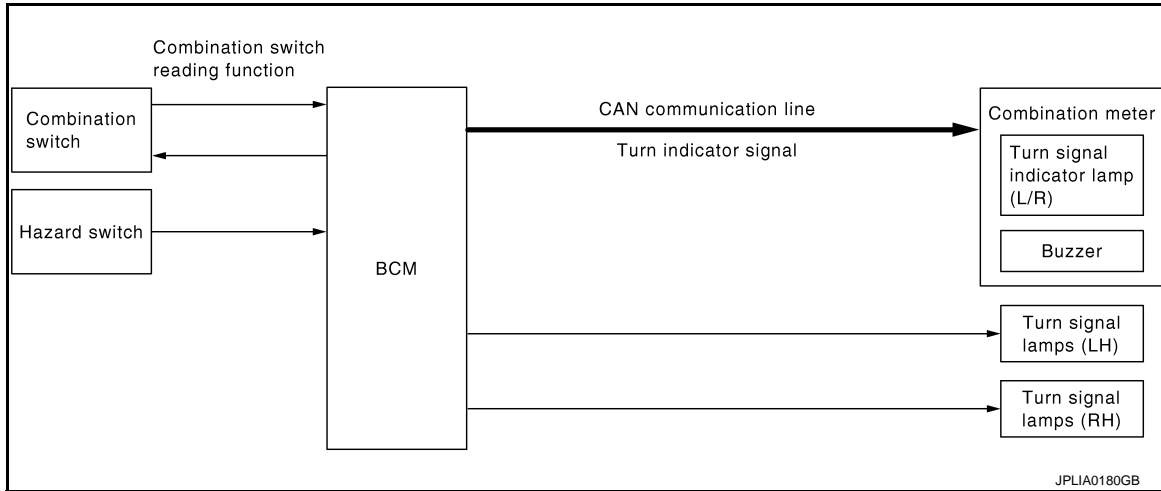
# SYSTEM

< SYSTEM DESCRIPTION >

## TURN SIGNAL AND HAZARD WARNING LAMP SYSTEM : System Description

INFOID:000000007635286

### SYSTEM DIAGRAM



### OUTLINE

Turn signal lamp and the hazard warning lamp is controlled by combination switch reading function and the flasher control function of BCM.

### TURN SIGNAL LAMP OPERATION

- BCM detects the combination switch condition by the combination switch reading function.
- BCM supplies voltage to the right (left) turn signal lamp circuit when the power switch is ON and the turn signal switch is in the right (left) position. BCM blinks the turn signal lamp.

### HAZARD WARNING LAMP OPERATION

BCM supplies voltage to both turn signal lamp circuit when the hazard switch is ON. BCM blinks the hazard warning lamp.

### TURN SIGNAL INDICATOR LAMP AND TURN SIGNAL OPERATION

- BCM transmits the turn signal indicator lamp signal to the combination meter using CAN communication while the turn signal lamp and the hazard warning lamp are operating.
- Combination meter outputs the turn signal sound with the integrated buzzer while blinking the turn signal indicator lamp according to the turn signal indicator lamp signal.

### HIGH FLASHER OPERATION

- BCM detects the turn signal lamp circuit status from the current value.
- BCM increases the turn signal lamp blinking speed if the bulb or harness open is detected with the turn signal lamp operating.

#### NOTE:

The blinking speed is normal while operating the hazard warning lamp.

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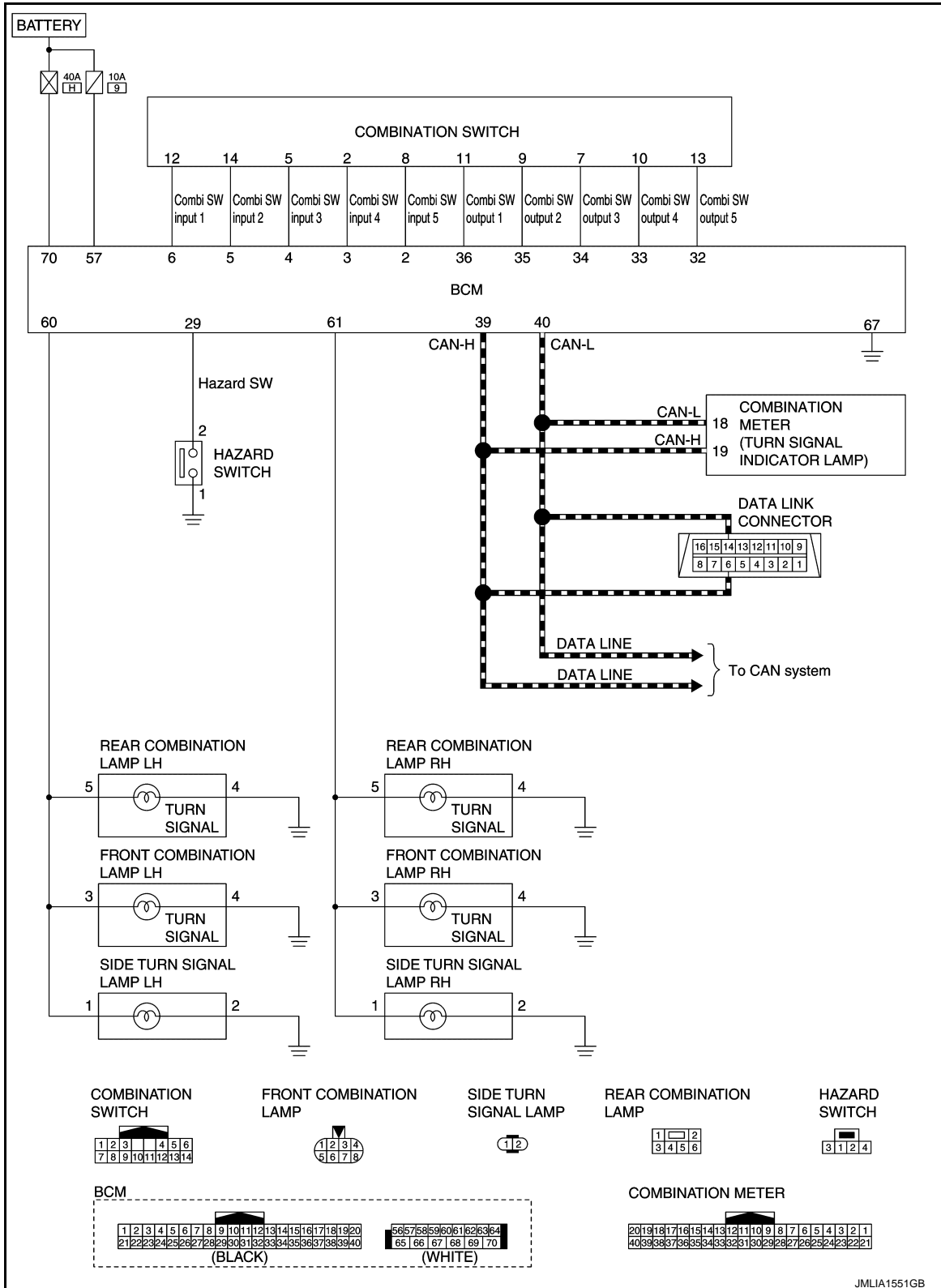
# SYSTEM

< SYSTEM DESCRIPTION >

## TURN SIGNAL AND HAZARD WARNING LAMP SYSTEM : Circuit Diagram

INFOID:000000007635287

EXCEPT FOR CANADA

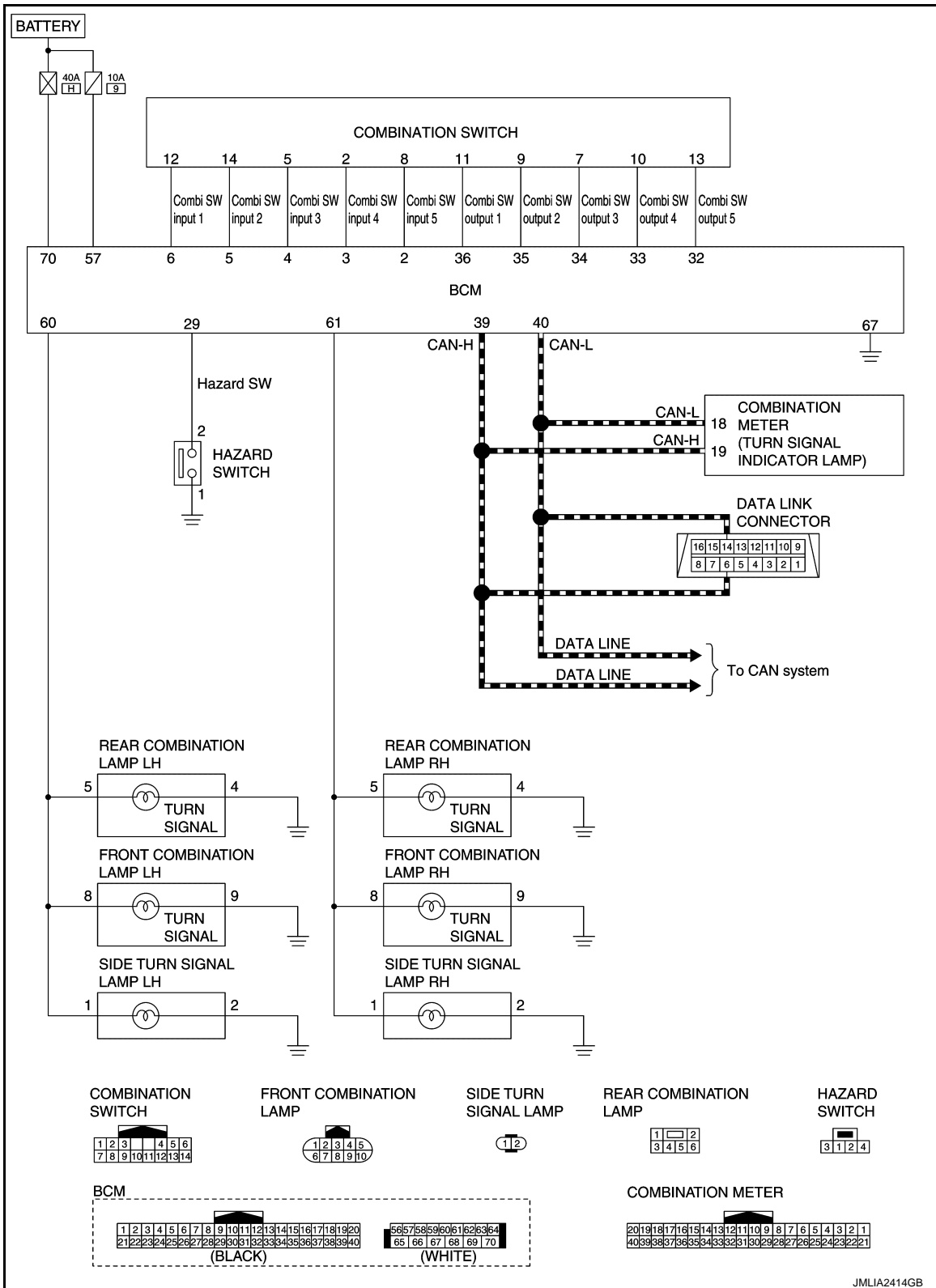




# SYSTEM

< SYSTEM DESCRIPTION >

FOR CANADA



PARKING, LICENSE PLATE, SIDE MARKER AND TAIL LAMP SYSTEM

PARKING, LICENSE PLATE, SIDE MARKER AND TAIL LAMP SYSTEM : System De-

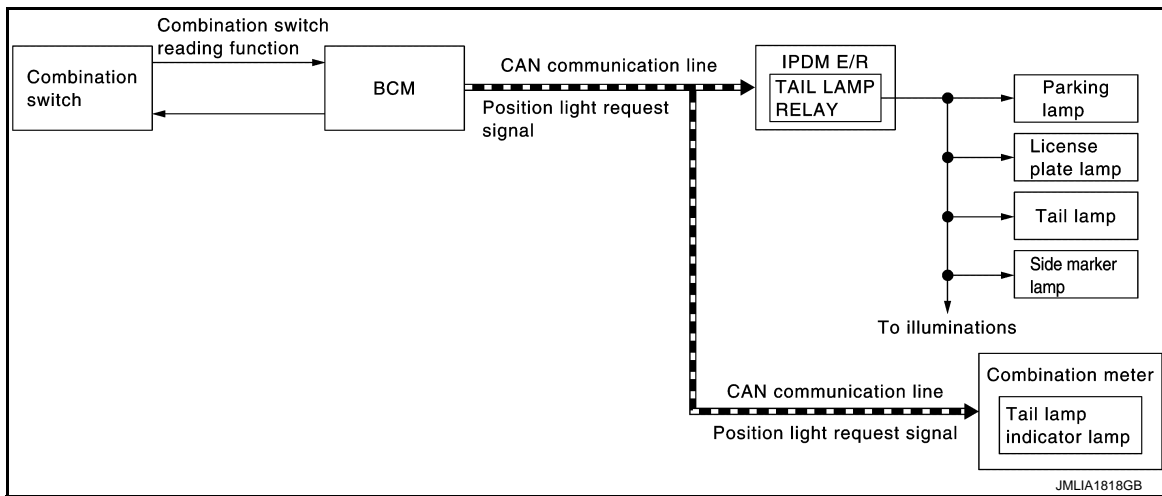
# SYSTEM

< SYSTEM DESCRIPTION >

scription

INFOID:000000007635288

## SYSTEM DIAGRAM



## OUTLINE

Parking, license plate, side marker and tail lamps are controlled by combination switch reading function and headlamp control function of BCM, and relay control function of IPDM E/R.

## PARKING, LICENSE PLATE, SIDE MARKER AND TAIL LAMPS OPERATION

- BCM detects the combination switch condition by the combination switch reading function.
- BCM transmits the position light request signal to IPDM E/R and the combination meter via CAN communication according to the ON/OFF condition of the parking, license plate, side marker and tail lamps.

Parking, license plate, side marker and tail lamps ON condition

- Lighting switch 1ST
- Lighting switch 2ND
- Lighting switch AUTO, and the auto light function ON judgment
- Lighting switch AUTO, with the front fog lamp switch ON and the power switch ON
- IPDM E/R turns the integrated tail lamp relay ON and turns the parking, license plate, side marker and tail lamps ON according to the position light request signal.
- Combination meter turns the tail lamp indicator lamp ON according to the position light request signal.

PARKING, LICENSE PLATE, SIDE MARKER AND TAIL LAMP SYSTEM : Circuit Dia-

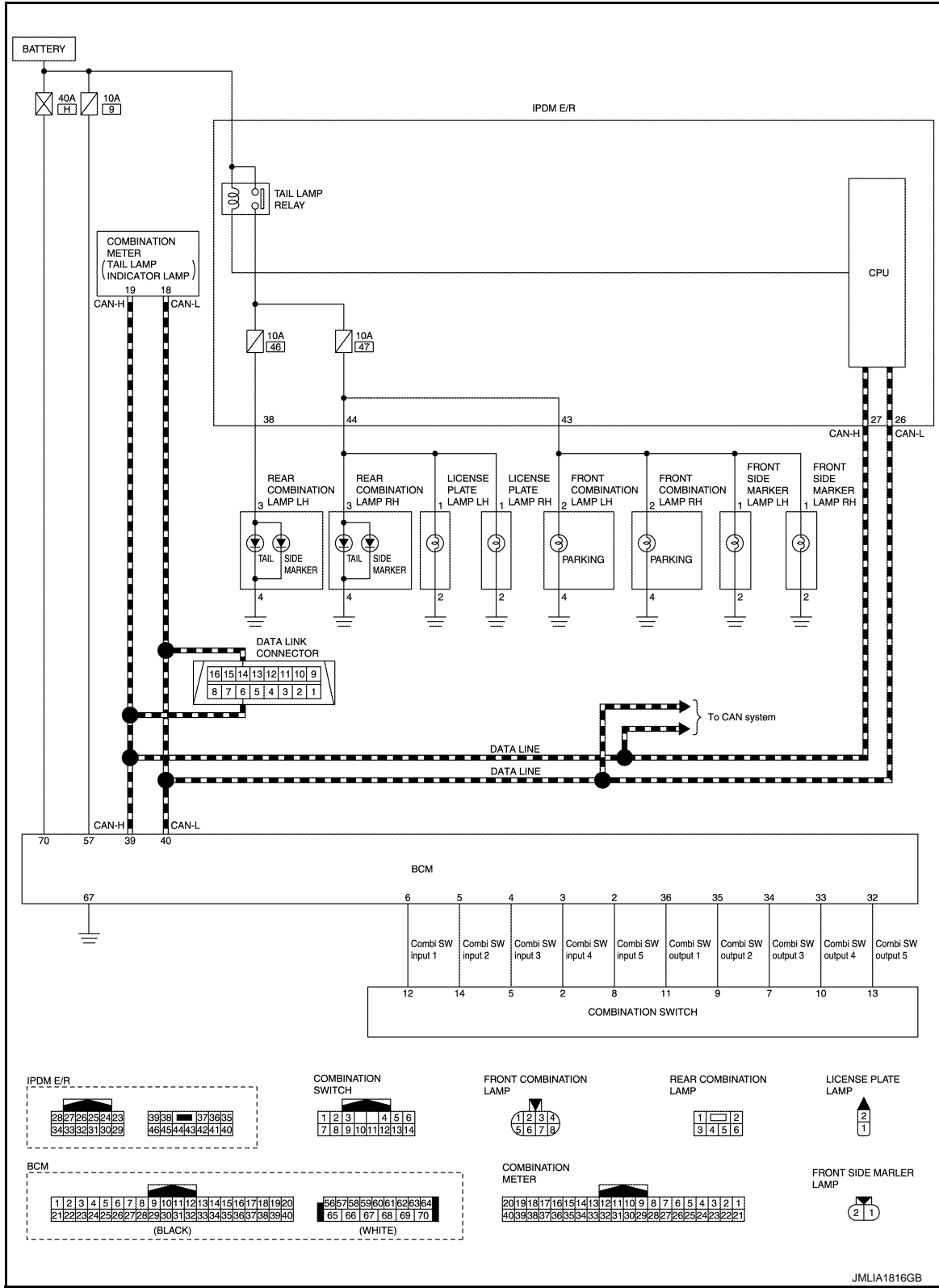
# SYSTEM

< SYSTEM DESCRIPTION >

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INFOID:000000007635289

EXCEPT FOR CANADA

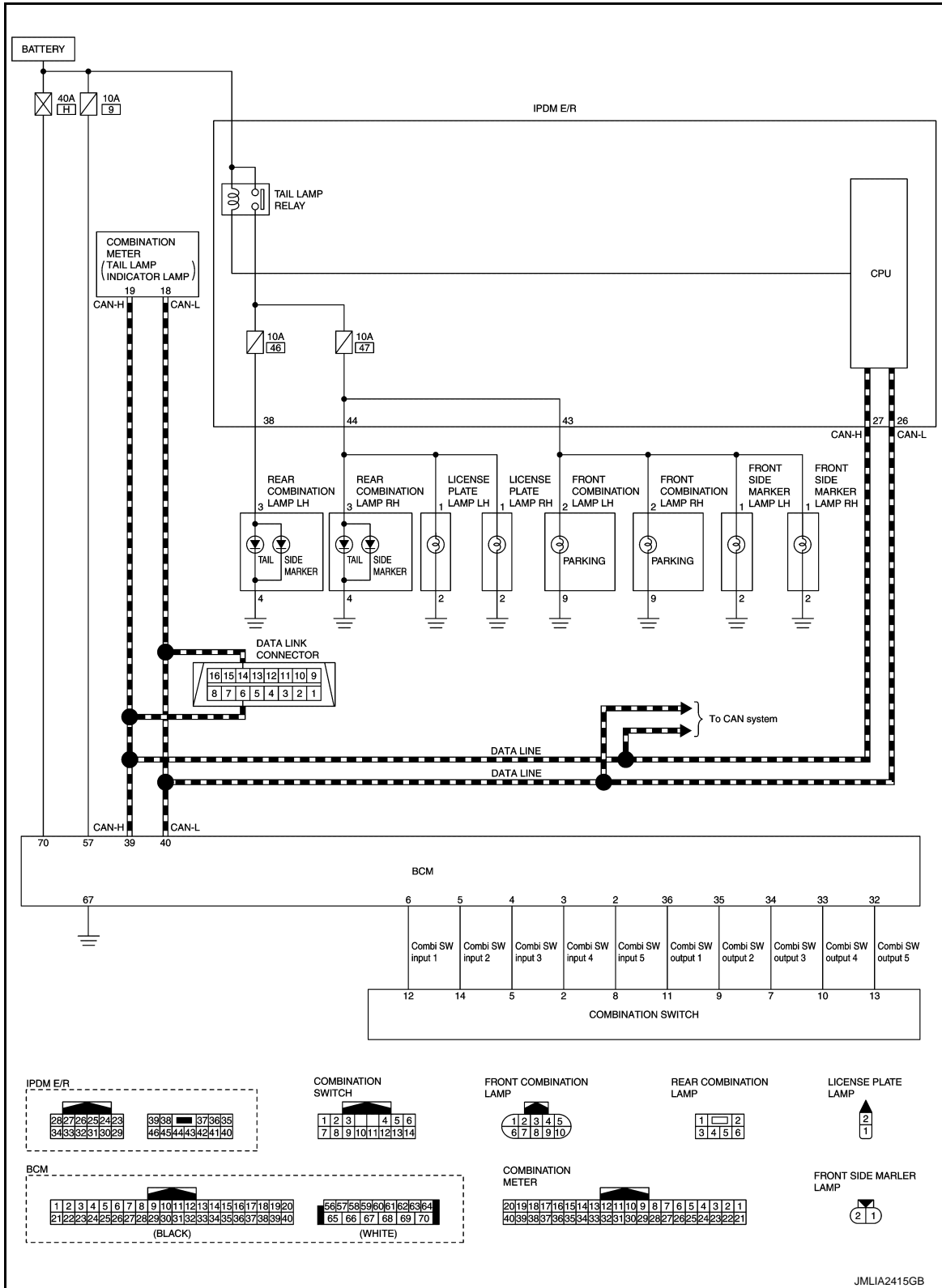


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# SYSTEM

< SYSTEM DESCRIPTION >

FOR CANADA



## PARKING, LICENSE PLATE, SIDE MARKER AND TAIL LAMP SYSTEM : Fail-Safe

INFOID:000000007635290

### CAN COMMUNICATION CONTROL

When CAN communication with BCM is impossible, IPDM E/R performs fail-safe control. After CAN communication recovers normally, it also returns to normal control.

If No CAN Communication Is Available With BCM

# SYSTEM

## < SYSTEM DESCRIPTION >

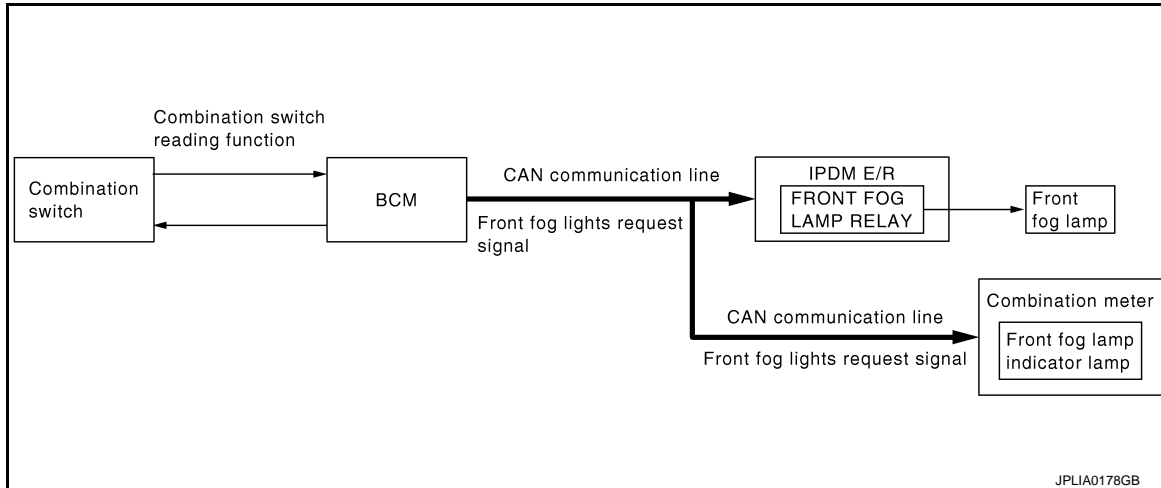
Control part	Fail-safe operation
<ul style="list-style-type: none"> <li>• Parking lamp</li> <li>• License plate lamp</li> <li>• Illumination</li> <li>• Tail lamp</li> <li>• Side marker lamp</li> </ul>	<ul style="list-style-type: none"> <li>• Turns ON the tail lamp relay when the power switch is turned ON</li> <li>• Turns OFF the tail lamp relay when the power switch is turned OFF</li> </ul>

## FRONT FOG LAMP SYSTEM

### FRONT FOG LAMP SYSTEM : System Description

INFOID:000000007635291

### SYSTEM DIAGRAM



### OUTLINE

Front fog lamp is controlled by combination switch reading function, front fog lamp control function of BCM, and relay control function of IPDM E/R.

### FRONT FOG LAMP OPERATION

- BCM detects the combination switch condition by the combination switch reading function.
- BCM transmits the front fog lights request signal to IPDM E/R and the combination meter via CAN communication according to the front fog lamp ON condition.

#### Front fog lamp ON condition

- Front fog lamp switch ON, and any of the following condition is satisfied.(except for the high beam ON)

- Lighting switch 2ND
- Lighting switch AUTO and the power switch ON

IPDM E/R turns the integrated front fog lamp relay ON, and turns the front fog lamp ON according to the front fog lights request signal.

Combination meter turns the front fog lamp indicator lamp ON according to the front fog lights request signal.



# SYSTEM

## < SYSTEM DESCRIPTION >

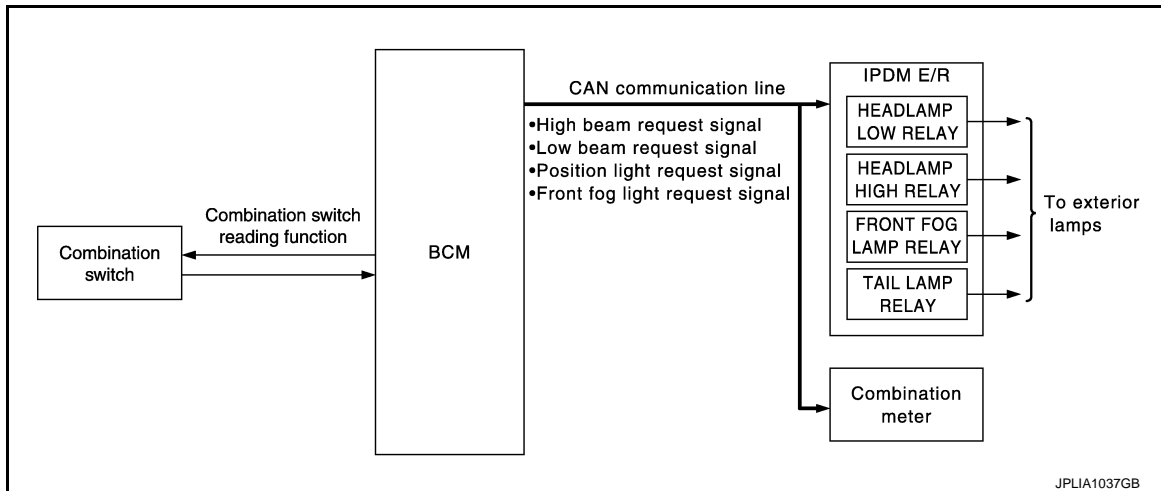
Control part	Fail-safe operation
Front fog lamp	Front fog lamp relay OFF

## EXTERIOR LAMP BATTERY SAVER SYSTEM

### EXTERIOR LAMP BATTERY SAVER SYSTEM : System Description

INFOID:000000007635294

#### SYSTEM DIAGRAM



#### OUTLINE

- Exterior lamp battery saver system is controlled by each function of BCM and IPDM E/R.

##### Control by BCM

- Combination switch reading function
- Headlamp control function
- Exterior lamp battery saver function

##### Control by IPDM E/R

- Relay control function
  - BCM turns the exterior lamps\* OFF after a period of time to prevent the battery from over-discharge when the power switch is turned OFF with the exterior lamps ON.
- \*: Headlamp (LO/Hi), parking lamp, tail lamp, side marker lamp, license plate lamp and front fog lamp

#### EXTERIOR LAMP BATTERY SAVER ACTIVATION

BCM activates the timer and turns the exterior lamp OFF 5 minutes after the power switch is turned from ON → OFF with the exterior lamps ON.

##### NOTE:

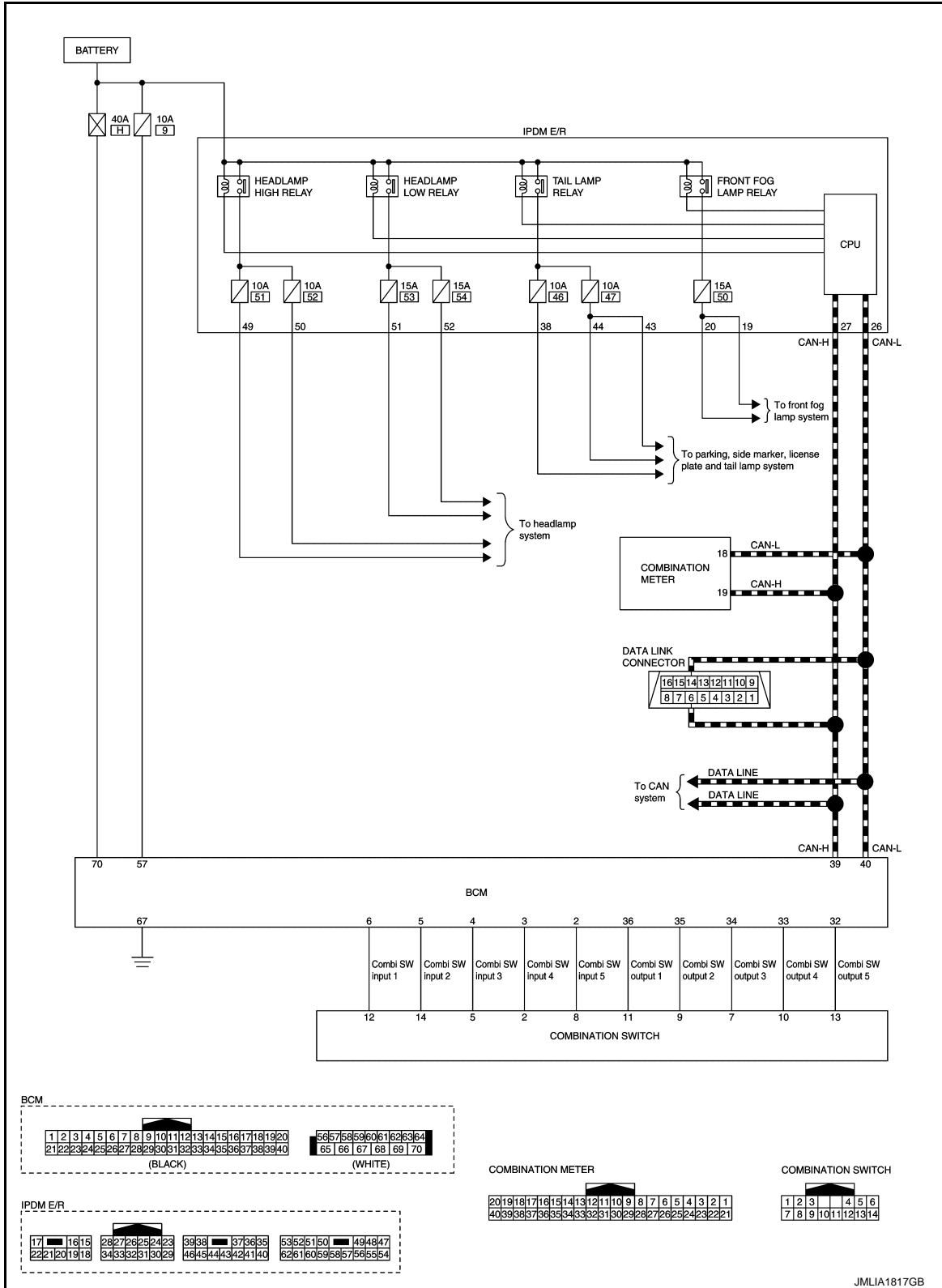
- Headlamp control function turns the exterior lamps ON normally when the power switch is turned ACC or set the vehicle to READY (both before and after the exterior lamp battery saver is turned OFF).
- The timer starts at the time that the lighting switch is turned from OFF → 1ST or 2ND with the exterior lamps OFF.

# SYSTEM

< SYSTEM DESCRIPTION >

## EXTERIOR LAMP BATTERY SAVER SYSTEM : Circuit Diagram

INFOID:000000007635295





# DIAGNOSIS SYSTEM (BCM)

< SYSTEM DESCRIPTION >

## DIAGNOSIS SYSTEM (BCM) COMMON ITEM

COMMON ITEM : CONSULT Function (BCM - COMMON ITEM)

INFOID:0000000007821265

### APPLICATION ITEM

CONSULT performs the following functions via CAN communication with BCM.

Diagnosis mode	Function Description
Work Support	Changes the setting for each system function.
Self Diagnostic Result	Displays the diagnosis results judged by BCM.
CAN Diag Support Monitor	Monitors the reception status of CAN communication viewed from BCM.
Data Monitor	The BCM input/output signals are displayed.
Active Test	The signals used to activate each device are forcibly supplied from BCM.
Ecu Identification	The BCM part number is displayed.
Configuration	<ul style="list-style-type: none"> <li>Read and save the vehicle specification.</li> <li>Write the vehicle specification when replacing BCM.</li> </ul>

### SYSTEM APPLICATION

BCM can perform the following functions for each system.

#### NOTE:

It can perform the diagnosis modes except the following for all sub system selection items.

×: Applicable item

System	Sub system selection item	Diagnosis mode		
		Work Support	Data Monitor	Active Test
Door lock	DOOR LOCK	×	×	×
Rear window defogger	REAR DEFOGGER		×	×
Warning chime	BUZZER		×	×
Interior room lamp timer	INT LAMP	×	×	×
Exterior lamp	HEAD LAMP	×	×	×
Wiper and washer	WIPER	×	×	×
Turn signal and hazard warning lamps	FLASHER	×	×	×
—	AIR CONDITONER*		×	×
Intelligent Key system	INTELLIGENT KEY	×	×	×
Combination switch	COMB SW		×	
Body control system	BCM	×		
NVIS - NATS	IMMU	×	×	×
Interior room lamp battery saver	BATTERY SAVER	×	×	×
Back door open	TRUNK		×	
Theft warning alarm	THEFT ALM	×	×	×
RAP system	RETAINED PWR		×	
Signal buffer system	SIGNAL BUFFER		×	×
TPMS	AIR PRESSURE MONITOR	×	×	×

\*: This item is displayed, but not used.

### FREEZE FRAME DATA (FFD)

The BCM records the following vehicle condition at the time a particular DTC is detected, and displays on CONSULT.

# DIAGNOSIS SYSTEM (BCM)

## < SYSTEM DESCRIPTION >

CONSULT screen item	Indication/Unit	Description	
Vehicle Speed	km/h	Vehicle speed of the moment a particular DTC is detected	
Odo/Trip Meter	km	Total mileage (Odometer value) of the moment a particular DTC is detected	
Vehicle Condition	SLEEP>LOCK	Power supply position status of the moment a particular DTC is detected*	While turning BCM status from low power consumption mode to normal mode [Power supply position is OFF (LOCK)]
	SLEEP>OFF		While turning BCM status from low power consumption mode to normal mode [Power supply position is OFF (OFF)]
	LOCK>ACC		While turning power supply position from OFF (LOCK) to ACC
	ACC>ON		While turning power supply position from ACC to ON
	RUN>ACC		While turning power supply position from READY (RUN) to ACC (Except emergency stop operation)
	CRANK>RUN		While turning power supply position from READY (CRANK) to READY (RUN)
	RUN>URGENT		While turning power supply position from READY (RUN) to ACC (Emergency stop operation)
	ACC>OFF		While turning power supply position from ACC to OFF (OFF)
	OFF>LOCK		While turning power supply position from OFF (OFF) to OFF (LOCK)
	OFF>ACC		While turning power supply position from OFF (OFF) to ACC
	ON>CRANK		While turning power supply position from ON to READY (CRANK)
	OFF>SLEEP		While turning BCM status from normal mode [Power supply position is OFF (OFF)] to low power consumption mode
	LOCK>SLEEP		While turning BCM status from normal mode [Power supply position is OFF (LOCK)] to low power consumption mode
	LOCK		Power supply position is OFF (LOCK)
	OFF		Power supply position is OFF (OFF)
	ACC		Power supply position is ACC
	ON		Power supply position is ON
	ENGINE RUN		Power supply position is READY (RUN)
CRANKING	Power supply position is READY (CRANK)		
IGN Counter	0 - 39	<p>The number of times that power switch is turned ON after DTC is detected</p> <ul style="list-style-type: none"> <li>• The number is 0 when a malfunction is detected now.</li> <li>• The number increases like 1 → 2 → 3...38 → 39 after returning to the normal condition whenever power switch OFF → ON.</li> <li>• The number is fixed to 39 until the self-diagnosis results are erased if it is over 39.</li> </ul>	

### NOTE:

\*: Refer to the following for details of the power supply position.

- OFF (OFF, LOCK): Power switch OFF
- ACC: Power switch ACC
- ON: Power switch ON
- READY (CRANK): Shifting to vehicle condition READY (Transmitting the READY signal from BCM to VCM)
- READY (RUN): Vehicle condition READY

Power supply position shifts to "OFF (LOCK)" from "OFF (OFF)", when power switch is in the OFF position, shift position is in the P position, and any of the following conditions are met.

- Closing door
- Opening door
- Door is locked using door request switch
- Door is locked using Intelligent Key

The power supply position shifts to "ACC" when the power switch (push switch) is pushed at "OFF (LOCK)".

## HEADLAMP

# DIAGNOSIS SYSTEM (BCM)

< SYSTEM DESCRIPTION >

## HEADLAMP : CONSULT Function (BCM - HEAD LAMP)

INFOID:000000007635297

### WORK SUPPORT

Service item	Setting item	Setting
CUSTOM A/LIGHT SETTING*1	MODE 1*3	Normal
	MODE 2	More sensitive setting than normal setting (Turns ON earlier than normal operation)
	MODE 3	More sensitive setting than MODE 2 (Turns ON earlier than MODE 2)
	MODE 4	Less sensitive setting than normal setting (Turns ON later than normal operation)
BATTERY SAVER SET	On*3	With the exterior lamp battery saver function
	Off	Without the exterior lamp battery saver function
ILL DELAY SET*1	MODE 1*3	45 sec.
	MODE 2	Without the function
	MODE 3	30 sec.
	MODE 4	60 sec.
	MODE 5	90 sec.
	MODE 6	120 sec.
	MODE 7	150 sec.
	MODE 8	180 sec.
AUTO LIGHT LOGIC SET*2	MODE 1*3	With twilight ON custom & with wiper INT, LO and HI
	MODE 2	With twilight ON custom & with wiper LO and HI
	MODE 3	With twilight ON custom & without
	MODE 4	Without twilight ON custom & with wiper INT, LO and HI
	MODE 5	Without twilight ON custom & with wiper LO and HI
	MODE 6	Without twilight ON custom & without

\*1: For models without auto light system, this item is displayed but is not operated.

\*2: For models without auto light system and all models for Canada, this item is displayed but is not operated.

\*3: Factory setting

### DATA MONITOR

Monitor item [Unit]	Description
PUSH SW [On/Off]	The switch status input from power switch
ENGINE STATE [Stop/Stall/Crank/Run]	The traction motor status received from VCM via CAN communication
VEH SPEED 1 [km/h]	The value of the vehicle speed received from combination meter via CAN communication

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EXL

# DIAGNOSIS SYSTEM (BCM)

## < SYSTEM DESCRIPTION >

Monitor item [Unit]	Description
TURN SIGNAL R [On/Off]	Each switch status that BCM judges from the combination switch reading function
TURN SIGNAL L [On/Off]	
TAIL LAMP SW [On/Off]	
HI BEAM SW [On/Off]	
HEAD LAMP SW1 [On/Off]	
HEAD LAMP SW2 [On/Off]	
PASSING SW [On/Off]	
AUTO LIGHT SW*1 [On/Off]	
FR FOG SW*2 [On/Off]	
DOOR SW-DR [On/Off]	The switch status input from front door switch (driver side)
DOOR SW-AS [On/Off]	The switch status input from front door switch (passenger side)
DOOR SW-RR [On/Off]	The switch status input from rear door switch RH
DOOR SW- RL [On/Off]	The switch status input from rear door switch LH
DOOR SW-BK [On/Off]	The switch status input from back door switch
OPTICAL SENSOR [On/Off/NG]	<b>NOTE:</b> This item is indicated, but can not monitored
OPTI SEN (DTCT)*1 [V]	The value of outside brightness voltage input from the optical sensor
OPTI SEN (FILT)*1 [V]	The value of outside brightness voltage filtered by BCM

\*1: For models without auto light system, this item is not displayed.

\*2: For models without front fog lamp, this item is displayed but is not monitored.

## ACTIVE TEST

Test item	Operation	Description
TAIL LAMP	On	Transmits the position light request signal to IPDM E/R via CAN communication to turn the tail lamp ON
	Off	Stops the tail lamp request signal transmission
HEAD LAMP	Hi	Transmits the high beam request signal via CAN communication to turn the headlamp (HI)
	Lo	Transmits the low beam request signal via CAN communication to turn the headlamp (LO)
	Off	Stops the high & low beam request signal transmission
FR FOG LAMP*1	On	Transmits the front fog lights request signal to IPDM E/R via CAN communication to turn the front fog lamp ON
	Off	Stops the front light request signal transmission

# DIAGNOSIS SYSTEM (BCM)

## < SYSTEM DESCRIPTION >

Test item	Operation	Description
DAYTIME RUNNING LIGHT*2	On	Transmits the daytime running light request signal via CAN communication to IPDM E/R
	Off	Stop the daytime running light request signal transmission
ILL DIM SIGNAL	On	<ul style="list-style-type: none"> <li>Transmits the dimmer signal to combination meter via CAN communication and dims combination meter</li> <li>Transmits the dimmer signal to AV control unit and dims display</li> </ul>
	Off	Stops the dimmer signal transmission

\*1: For models without front fog lamp, this item is displayed but is not tested.

\*2: For models without daytime running light system, this item is not displayed.

## FLASHER

### FLASHER : CONSULT Function (BCM - FLASHER)

INFOID:000000007635298

## WORK SUPPORT

Service item	Setting item	Setting
HAZARD ANSWER BACK	Lock Only	With locking only
	Unlk Only	With unlocking only
	Lock&Unlk*	With locking/unlocking
	Off	Without the function
		Sets the hazard warning lamp answer back function when the door is lock/unlock with the request switch or the Intelligent Key.

\*: Factory setting

## DATA MONITOR

Monitor item [Unit]	Description
REQ SW-DR [On/Off]	The switch status input from the request switch (driver side)
REQ SW-AS [On/Off]	The switch status input from the request switch (passenger side)
PUSH SW [On/Off]	The switch status input from the power switch
TURN SIGNAL R [On/Off]	Each switch status that BCM detects from the combination switch reading function
TURN SIGNAL L [On/Off]	
HAZARD SW [On/Off]	The switch status input from the hazard switch
RKE-LOCK [On/Off]	Lock signal status received from the remote keyless entry receiver
RKE-UNLOCK [On/Off]	Unlock signal status received from the remote keyless entry receiver
RKE-PANIC [On/Off]	Panic alarm signal status received from the remote keyless entry receiver

## ACTIVE TEST

Test item	Operation	Description
FLASHER	RH	Outputs the voltage to blink the right side turn signal lamps
	LH	Outputs the voltage to blink the left side turn signal lamps
	Off	Stops the voltage to turn the turn signal lamps OFF

# DIAGNOSIS SYSTEM (IPDM E/R)

< SYSTEM DESCRIPTION >

## DIAGNOSIS SYSTEM (IPDM E/R)

### Diagnosis Description

INFOID:000000007635299

#### AUTO ACTIVE TEST

##### Description

In auto active test mode, the IPDM E/R sends a drive signal to the following systems to check their operation.

- Rear window defogger
- Front wiper motor
- Parking lamp
- License plate lamp
- Tail lamp
- Front fog lamp
- Side marker lamp
- Headlamp (LO, HI)

##### Operation Procedure

###### NOTE:

Never perform auto active test in the following conditions.

- CONSULT is connected.
  - Passenger door is open.
1. Turn the power switch OFF.
  2. Turn the power switch ON, and within 20 seconds, press the driver door switch 10 times. Then turn the power switch OFF.
  3. Turn the power switch ON within 10 seconds. After that the horn sounds once and the auto active test starts.

###### NOTE:

Never depress brake pedal while operating power switch so that auto active test is not activated.

4. After a series of the following operations is repeated 3 times, auto active test is completed.

###### NOTE:

- When auto active test mode has to be cancelled halfway through test, turn the power switch OFF.
- When auto active test is not activated, door switch may be the cause. Check door switch. Refer to [DLK-87, "Component Function Check"](#).

##### Inspection in Auto Active Test Mode

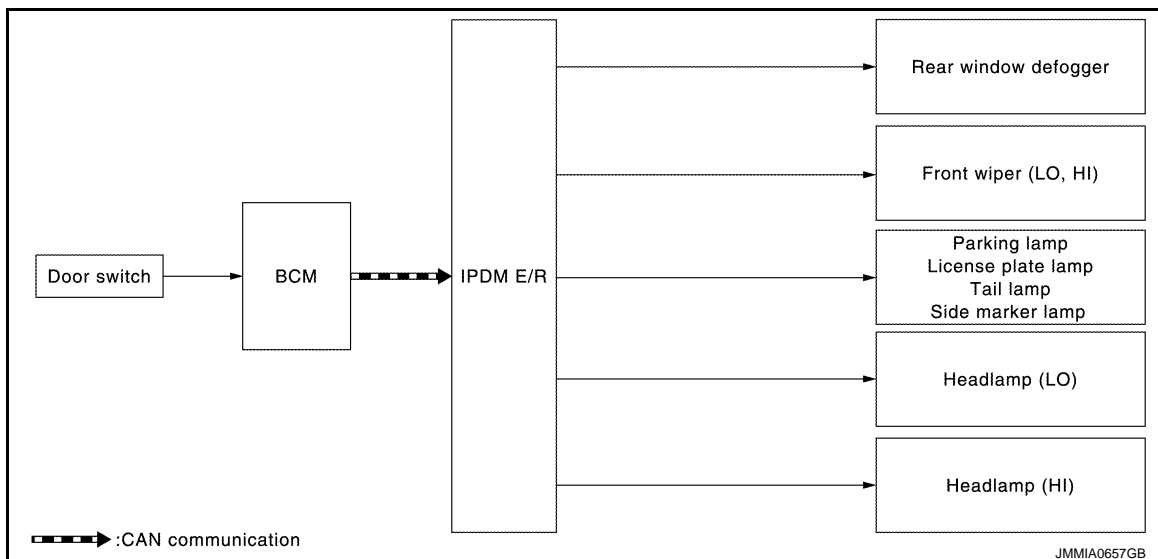
When auto active test mode is actuated, the following operation sequence is repeated 3 times.

Operation sequence	Inspection location	Operation
1	Rear window defogger	10 seconds
2	Front wiper motor	LO for 5 seconds → HI for 5 seconds
3	<ul style="list-style-type: none"><li>• Parking lamp</li><li>• License plate lamp</li><li>• Tail lamp</li><li>• Front fog lamp</li><li>• Side marker lamp</li></ul>	10 seconds
4	Headlamp	LO for 10 seconds → HI ON ⇔ OFF 5 times

# DIAGNOSIS SYSTEM (IPDM E/R)

## < SYSTEM DESCRIPTION >

Concept of auto active test



- IPDM E/R starts the auto active test with the door switch signals transmitted by BCM via CAN communication. Therefore, the CAN communication line between IPDM E/R and BCM is considered normal if the auto active test starts successfully.
- The auto active test facilitates troubleshooting if any systems controlled by IPDM E/R cannot be operated.

Diagnosis chart in auto active test mode

Symptom	Inspection contents	Possible cause
Rear window defogger does not operate	Perform auto active test. Does the rear window defogger operate?	YES BCM signal input circuit
		NO <ul style="list-style-type: none"> <li>• Rear window defogger</li> <li>• Rear window defogger ground circuit</li> <li>• Harness or connector between IPDM E/R and rear window defogger</li> <li>• IPDM E/R</li> </ul>
Any of the following components do not operate <ul style="list-style-type: none"> <li>• Parking lamp</li> <li>• License plate lamp</li> <li>• Tail lamp</li> <li>• Front fog lamp</li> <li>• Headlamp (HI, LO)</li> <li>• Side marker lamp</li> <li>• Front wiper motor</li> </ul>	Perform auto active test. Does the applicable system operate?	YES BCM signal input circuit
		NO <ul style="list-style-type: none"> <li>• Lamp or motor</li> <li>• Lamp or motor ground circuit</li> <li>• Harness or connector between IPDM E/R and applicable system</li> <li>• IPDM E/R</li> </ul>

## CONSULT Function (IPDM E/R)

INFOID:000000007635300

### APPLICATION ITEM

CONSULT performs the following functions via CAN communication with IPDM E/R.

Diagnosis mode	Description
Ecu Identification	Allows confirmation of IPDM E/R part number.
Self Diagnostic Result	Displays the diagnosis results judged by IPDM E/R.
Data Monitor	Displays the real-time input/output data from IPDM E/R input/output data.
Active Test	IPDM E/R can provide a drive signal to electronic components to check their operations.
CAN Diag Support Monitor	The results of transmit/receive diagnosis of CAN communication can be read.

### SELF DIAGNOSTIC RESULT

Refer to [PCS-21, "DTC Index"](#).

### DATA MONITOR

## DIAGNOSIS SYSTEM (IPDM E/R)

### < SYSTEM DESCRIPTION >

#### Monitor item

Monitor Item [Unit]	MAIN SIGNALS	Description
AC COMP REQ [Off/On]	×	<b>NOTE:</b> The item is indicated, but not monitored.
TAIL&CLR REQ [Off/On]	×	Displays the status of the position light request signal received from BCM via CAN communication.
HL LO REQ [Off/On]	×	Displays the status of the low beam request signal received from BCM via CAN communication.
HL HI REQ [Off/On]	×	Displays the status of the high beam request signal received from BCM via CAN communication.
FR FOG REQ [Off/On]	×	Displays the status of the front fog light request signal received from BCM via CAN communication.
FR WIP REQ [Stop/1LOW/Low/Hi]	×	Displays the status of the front wiper request signal received from BCM via CAN communication.
WIP AUTO STOP [STOP P/ACT P]	×	Displays the status of the front wiper auto stop signal judged by IPDM E/R.
WIP PROT [Off/BLOCK]	×	Displays the status of the front wiper fail-safe operation judged by IPDM E/R.
IGN RLY1 -REQ [Off/On]		Displays the status of the power switch ON signal received from BCM via CAN communication.
IGN RLY [Off/On]	×	Displays the status of the ignition relay judged by IPDM E/R.
PUSH SW [Off/On]		Displays the status of the power switch judged by IPDM E/R.
INTER/NP SW [Off/On]		<b>NOTE:</b> The item is indicated, but not monitored.
ST RLY CONT [Off/On]		<b>NOTE:</b> The item is indicated, but not monitored.
IHBT RLY -REQ [Off/On]		<b>NOTE:</b> The item is indicated, but not monitored.
ST/INHI RLY [Off/ ST ON/INHI ON/UNKWN]		<b>NOTE:</b> The item is indicated, but not monitored.
DETENT SW [Off/On]		Displays the status of the P position signal judged by IPDM E/R.
S/L RLY -REQ [Off/On]		<b>NOTE:</b> The item is indicated, but not monitored.
S/L STATE [LOCK/UNLK/UNKWN]		<b>NOTE:</b> The item is indicated, but not monitored.
DTRL REQ [Off/On]		Displays the status of the daytime running light request signal received from BCM via CAN communication. <b>NOTE:</b> This item is monitored only for vehicle with the daytime running light system.
OIL P SW [Open/Close]		<b>NOTE:</b> The item is indicated, but not monitored.
HOOD SW [Off/On]		Displays the status of the hood switch judged by IPDM E/R. <b>NOTE:</b> This item is monitored only for vehicle with the vehicle security system.
HL WASHER REQ [Off/On]		<b>NOTE:</b> The item is indicated, but not monitored.
THFT HRN REQ [Off/On]		Displays the status of the theft warning horn request signal received from BCM via CAN communication.
HORN CHIRP [Off/On]		Displays the status of the horn reminder signal received from BCM via CAN communication.



# DIAGNOSIS SYSTEM (IPDM E/R)

< SYSTEM DESCRIPTION >

## ACTIVE TEST

Test item

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Test item	Operation	Description
HORN	On	Operates horn relay for 20 ms.
REAR DEFOGGER	Off	OFF
	On	Operates the rear window defogger relay.
FRONT WIPER	Off	OFF
	Lo	Operates the front wiper relay.
	Hi	Operates the front wiper relay and front wiper high relay.
MOTOR FAN	1	<b>NOTE:</b> This item is indicated, but cannot be tested.
	2	
	3	
	4	
HEAD LAMP WASHER	On	<b>NOTE:</b> This item is indicated, but cannot be tested.
EXTERNAL LAMPS	Off	OFF
	TAIL	Operates the tail lamp relay.
	Lo	Operates the headlamp low relay.
	Hi	Operates the headlamp low relay and ON/OFF the headlamp high relay at 1 second intervals.
	Fog	Operates the front fog lamp relay.

# BCM, IPDM E/R

< ECU DIAGNOSIS INFORMATION >

## ECU DIAGNOSIS INFORMATION

BCM, IPDM E/R

List of ECU Reference

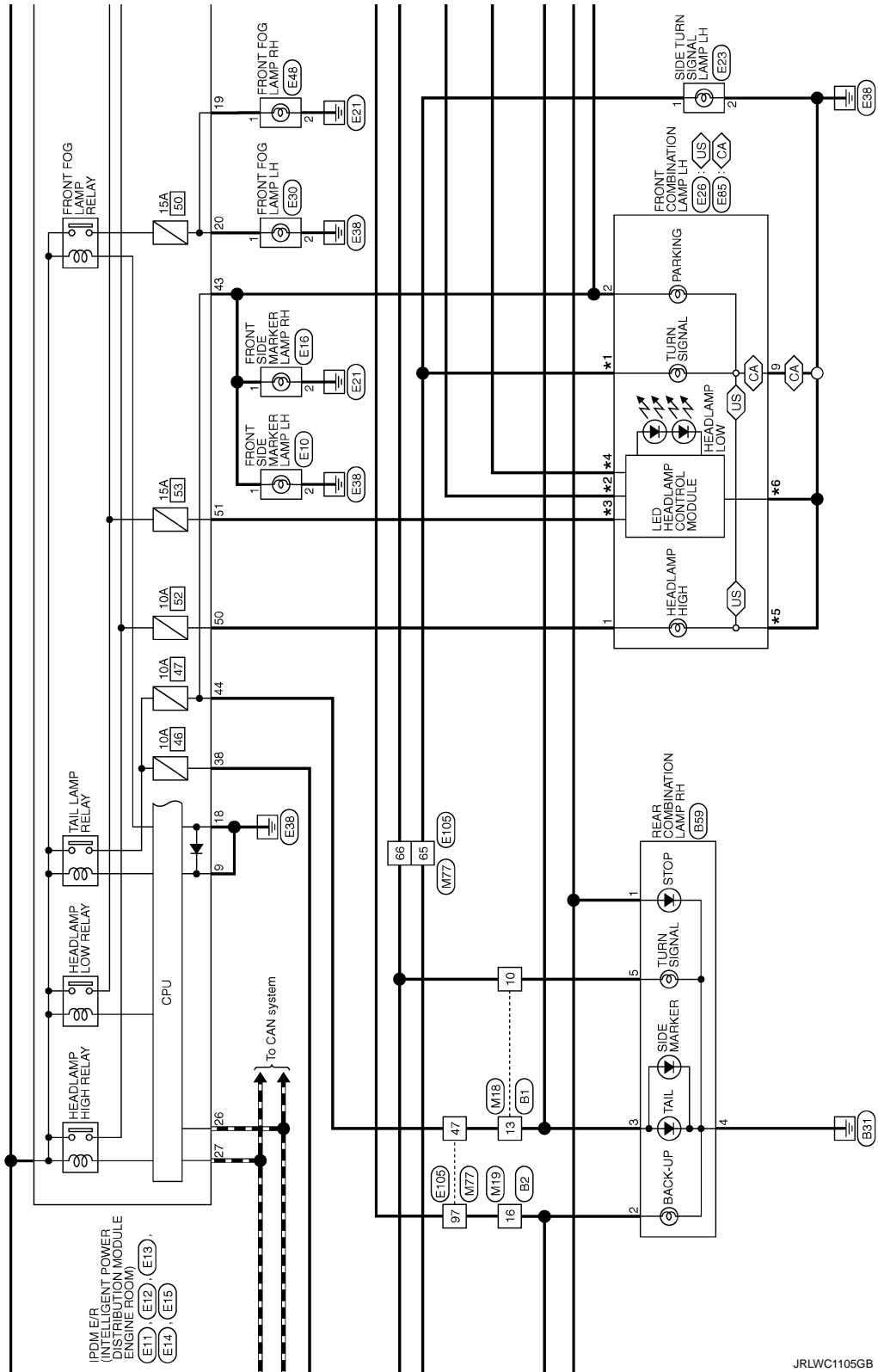
INFOID:000000007635301

ECU	Reference
BCM	<a href="#">BCS-34, "Reference Value"</a>
	<a href="#">BCS-54, "Fail-safe"</a>
	<a href="#">BCS-55, "DTC Inspection Priority Chart"</a>
	<a href="#">BCS-56, "DTC Index"</a>
IPDM E/R	<a href="#">PCS-16, "Reference Value"</a>
	<a href="#">PCS-20, "Fail-Safe"</a>
	<a href="#">PCS-21, "DTC Index"</a>



# EXTERIOR LIGHTING SYSTEM

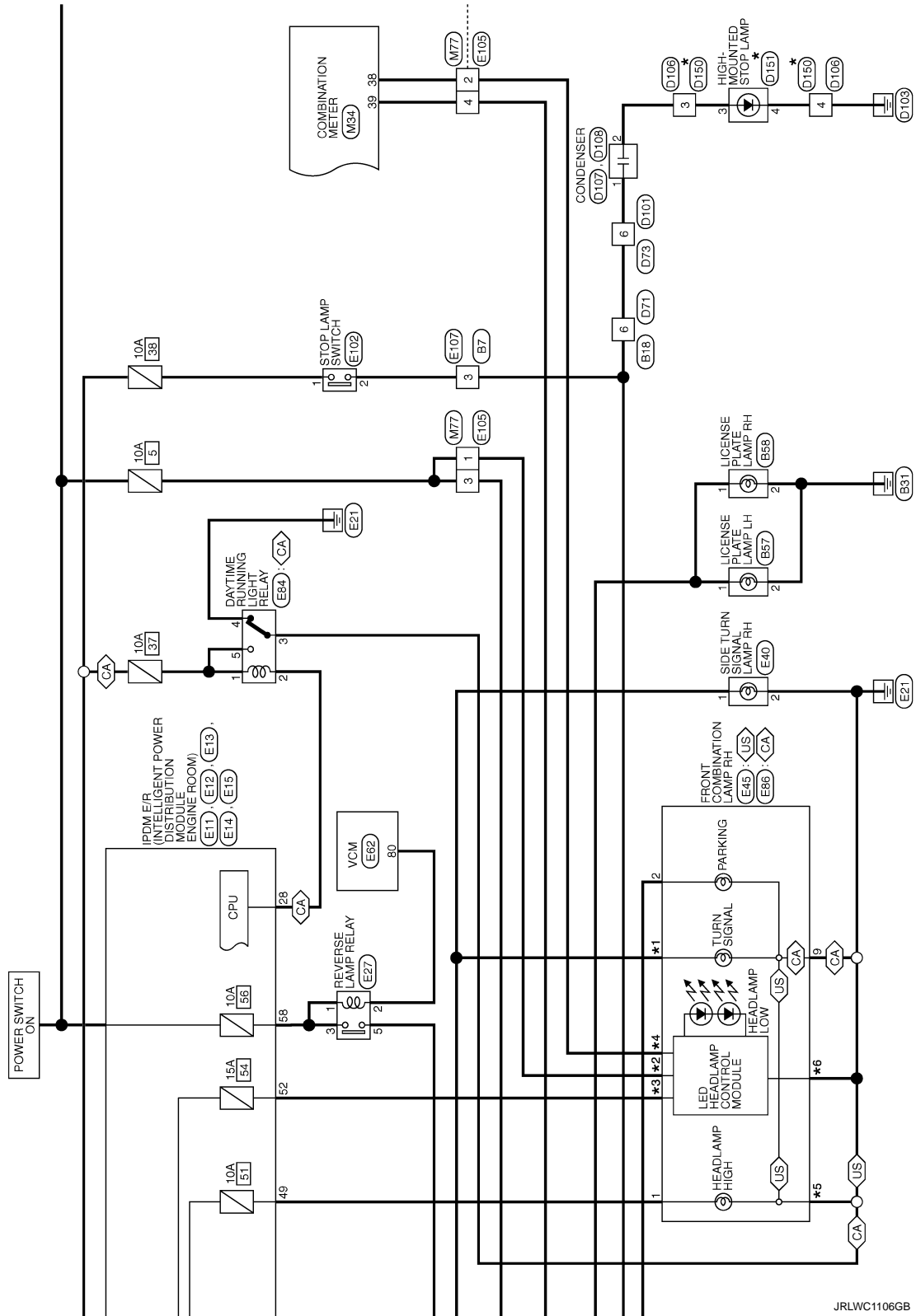
< WIRING DIAGRAM >



JRLWC1105GB

# EXTERIOR LIGHTING SYSTEM

< WIRING DIAGRAM >

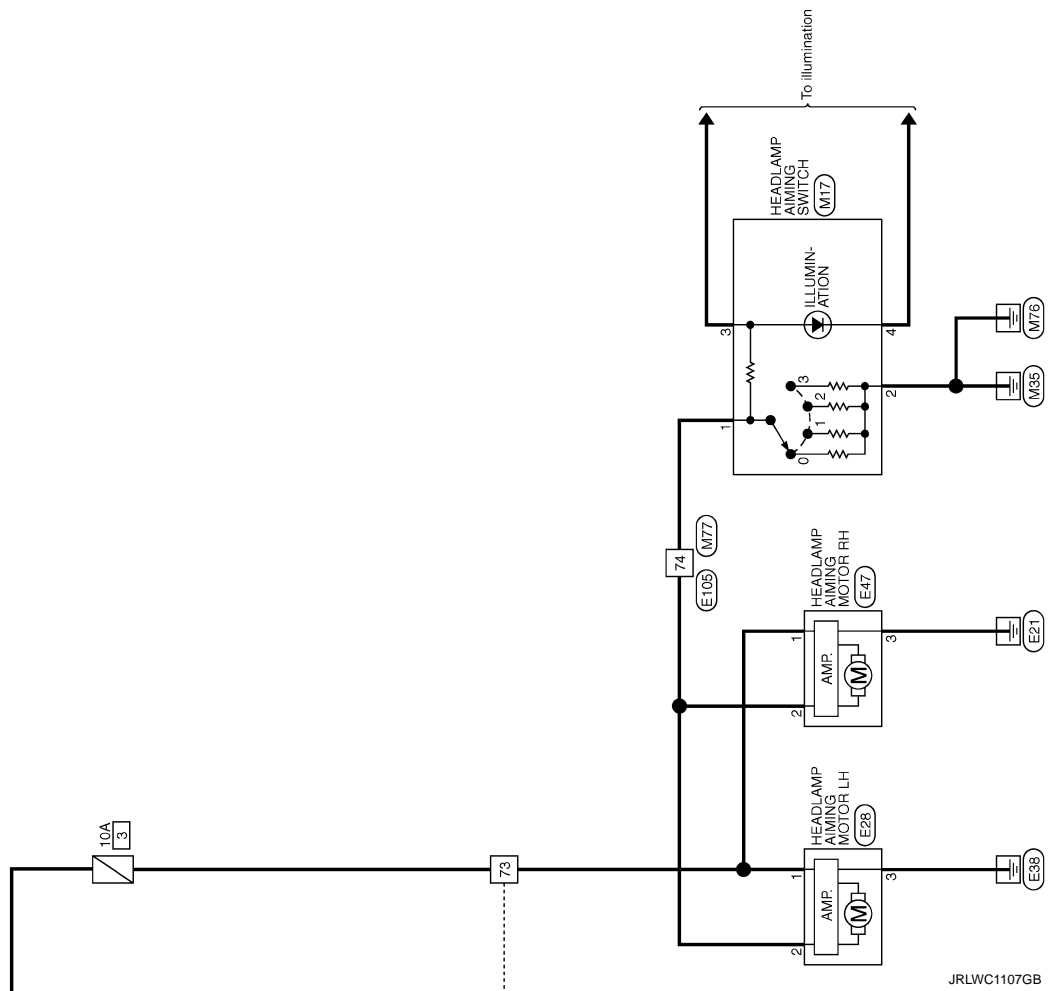


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# EXTERIOR LIGHTING SYSTEM

< WIRING DIAGRAM >



# DIAGNOSIS AND REPAIR WORKFLOW

< BASIC INSPECTION >

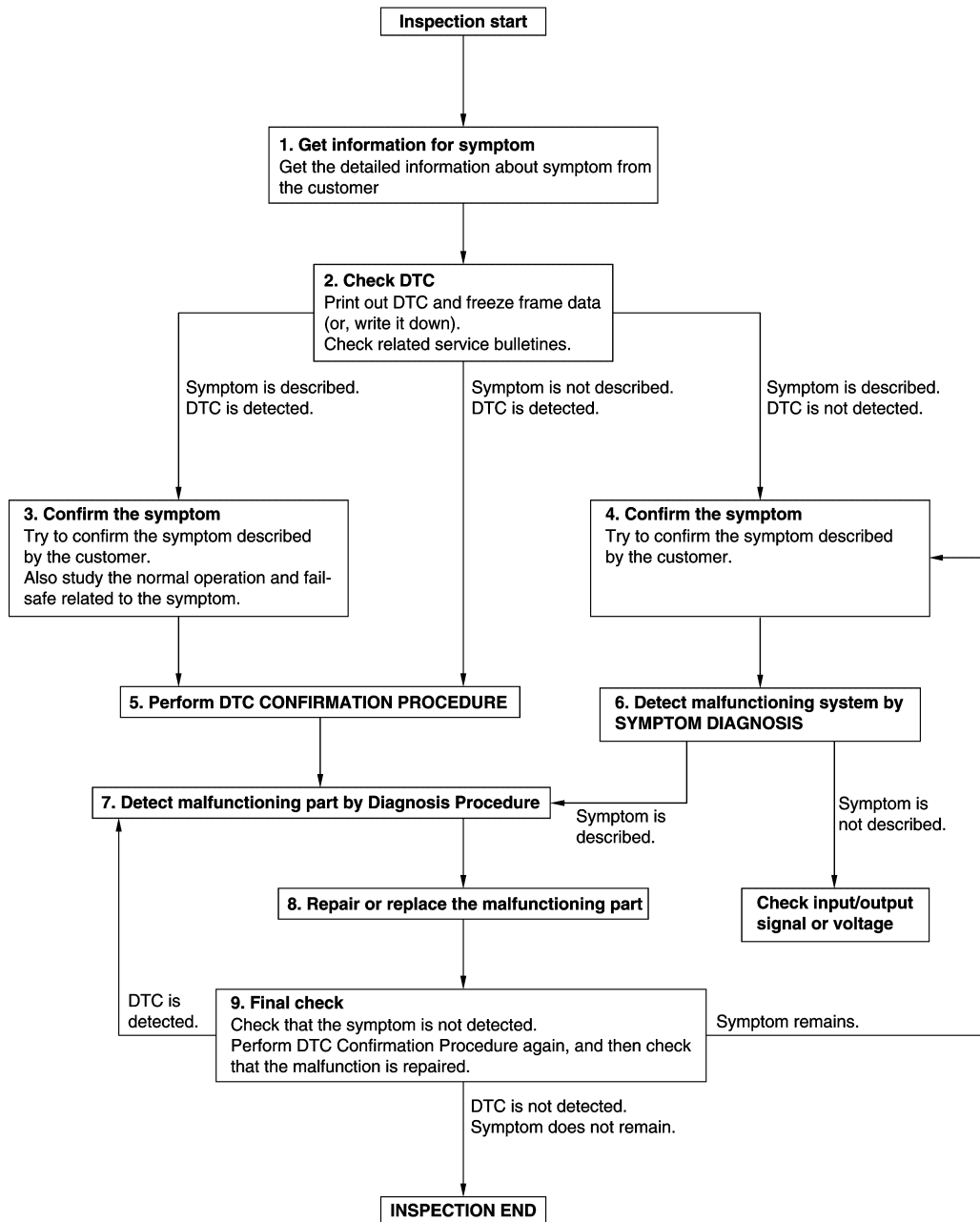
## BASIC INSPECTION

### DIAGNOSIS AND REPAIR WORKFLOW

Work Flow

INFOID:000000007635303

OVERALL SEQUENCE



DETAILED FLOW

JMKIA8652GB

# DIAGNOSIS AND REPAIR WORKFLOW

## < BASIC INSPECTION >

---

### 1. GET INFORMATION FOR SYMPTOM

---

1. Get detailed information from the customer about the symptom (the condition and the environment when the incident/malfunction occurs).
2. Check operation condition of the function that is malfunctioning.

>> GO TO 2.

### 2. CHECK DTC

---

1. Check DTC.
2. Perform the following procedure if DTC is detected.
  - Record DTC and freeze frame data (Print them out using CONSULT.)
  - Erase DTC.
  - Study the relationship between the cause detected by DTC and the symptom described by the customer.
3. Check related service bulletins for information.

#### Are any symptoms described and any DTC detected?

Symptom is described, DTC is detected>>GO TO 3.

Symptom is described, DTC is not detected>>GO TO 4.

Symptom is not described, DTC is detected>>GO TO 5.

### 3. CONFIRM THE SYMPTOM

---

Try to confirm the symptom described by the customer.

Also study the normal operation and fail-safe related to the symptom.

Verify relation between the symptom and the condition when the symptom is detected.

>> GO TO 5.

### 4. CONFIRM THE SYMPTOM

---

Try to confirm the symptom described by the customer.

Verify relation between the symptom and the condition when the symptom is detected.

>> GO TO 6.

### 5. PERFORM DTC CONFIRMATION PROCEDURE

---

Perform DTC CONFIRMATION PROCEDURE for the detected DTC, and then check that DTC is detected again. At this time, always connect CONSULT to the vehicle, and check self diagnostic results in real time.

If two or more DTCs are detected, refer to [BCS-55. "DTC Inspection Priority Chart"](#) (BCM) or [PCS-21. "DTC Index"](#) (IPDM E/R), and determine trouble diagnosis order.

#### **NOTE:**

- Freeze frame data is useful if the DTC is not detected.
- Perform Component Function Check if DTC CONFIRMATION PROCEDURE is not included on Service Manual. This simplified check procedure is an effective alternative though DTC cannot be detected during this check.  
If the result of Component Function Check is NG, it is the same as the detection of DTC by DTC CONFIRMATION PROCEDURE.

#### Is DTC detected?

YES >> GO TO 7.

NO >> Check according to [GI-51. "Intermittent Incident"](#).

### 6. DETECT MALFUNCTIONING SYSTEM BY SYMPTOM DIAGNOSIS

---

Detect malfunctioning system according to SYMPTOM DIAGNOSIS based on the confirmed symptom in step 4, and determine the trouble diagnosis order based on possible causes and symptom.

#### Is the symptom described?

YES >> GO TO 7.

NO >> Monitor input data from related sensors or check voltage of related module terminals using CONSULT.

### 7. DETECT MALFUNCTIONING PART BY DIAGNOSTIC PROCEDURE

---



# DIAGNOSIS AND REPAIR WORKFLOW

## < BASIC INSPECTION >

---

Inspect according to Diagnostic Procedure of the system.

Is malfunctioning part detected?

YES >> GO TO 8.

NO >> Check according to [GI-51. "Intermittent Incident"](#).

## 8. REPAIR OR REPLACE THE MALFUNCTIONING PART

---

1. Repair or replace the malfunctioning part.
2. Reconnect parts or connectors disconnected during Diagnostic Procedure again after repair and replacement.
3. Check DTC. If DTC is detected, erase it.

>> GO TO 9.

## 9. FINAL CHECK

---

When DTC is detected in step 2, perform DTC CONFIRMATION PROCEDURE again, and then check that the malfunction is repaired securely.

When symptom is described by the customer, refer to confirmed symptom in step 3 or 4, and check that the symptom is not detected.

Is DTC detected and does symptom remain?

YES-1 >> DTC is detected: GO TO 7.

YES-2 >> Symptom remains: GO TO 4.

NO >> Before returning the vehicle to the customer, always erase DTC.

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# LED HEADLAMP OPERATION INSPECTION

< BASIC INSPECTION >

---

## LED HEADLAMP OPERATION INSPECTION

### Diagnosis Procedure

INFOID:000000007635304

#### 1. CHECK START

- 
1. In the cool LED status (wait for more than 10 minutes after turning headlamp OFF), turn ON and turn OFF headlamp for the several times. Check that headlamp operates normally each time.
  2. In the cool LED status, turn headlamp ON, wait until headlamp enters to the stable status (approximately 5 minutes after turning headlamp ON), and then check that headlamp operates normally without blinking or flickering.
  3. In the warm LED status (turn headlamp ON for more than 15 minutes and wait for 1 minute after turning OFF), turn ON and turn OFF headlamp for the several times. Check that headlamp operates normally each time.
  4. Turn headlamp ON for approximately 30 minutes, and then check that headlamp operates normally without difference in brightness between LH and RH, blinking or flickering.

Is the inspection result normal?

YES >> INSPECTION END

NO >> Refer to [EXL-79, "WITHOUT DAYTIME RUNNING LIGHT SYSTEM : Symptom Table"](#).

# HEADLAMP (HI) CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

## DTC/CIRCUIT DIAGNOSIS

### HEADLAMP (HI) CIRCUIT

#### WITHOUT DAYTIME RUNNING LIGHT SYSTEM

#### WITHOUT DAYTIME RUNNING LIGHT SYSTEM : Component Function Check

INFOID:000000007635305

### 1. CHECK HEADLAMP (HI) OPERATION

#### CONSULT ACTIVE TEST

1. Select "EXTERNAL LAMPS" of IPDM E/R active test item.
2. With operating the test items, check that the headlamp (HI) is turned ON.

**Hi** : Headlamp (HI) ON  
**Off** : Headlamp (HI) OFF

#### NOTE:

ON/OFF is repeated 1 second each.

Is the inspection result normal?

YES >> Headlamp (HI) circuit is normal.

NO >> Refer to [EXL-51, "WITHOUT DAYTIME RUNNING LIGHT SYSTEM : Diagnosis Procedure"](#).

### WITHOUT DAYTIME RUNNING LIGHT SYSTEM : Diagnosis Procedure

INFOID:000000007635306

### 1. CHECK HEADLAMP (HI) OUTPUT VOLTAGE

#### CONSULT ACTIVE TEST

1. Turn power switch OFF.
2. Disconnect front combination lamp connector.
3. Turn power switch ON.
4. Select "EXTERNAL LAMPS" of IPDM E/R active test item.
5. With operating the test items, check voltage between IPDM E/R harness connector and ground.

(+)			(-)	Test item	Voltage (Approx.)	
IPDM E/R						
Connector		Terminal				
RH	E15	49	Ground	EXTERNAL LAMPS	Hi	Battery voltage
					Off	0 V
LH		50		Hi	Battery voltage	
				Off	0 V	

Is the inspection result normal?

YES >> GO TO 2.

NO >> GO TO 3.

### 2. CHECK HEADLAMP (HI) OPEN CIRCUIT

1. Turn power switch OFF.
2. Disconnect IPDM E/R connector.
3. Check continuity between IPDM E/R harness connector and front combination lamp harness connector.

IPDM E/R			Front combination lamp		Continuity
Connector		Terminal	Connector	Terminal	
RH	E15	49	E45	1	Existed
LH			50		

Is the inspection result normal?

YES >> GO TO 5.

# HEADLAMP (HI) CIRCUIT

## < DTC/CIRCUIT DIAGNOSIS >

NO >> Repair or replace harness.

### 3.CHECK HEADLAMP (HI) FUSE

1. Turn power switch OFF.
2. Check that the following fuses are not fusing.

Unit	Location	Fuse No.	Capacity
Headlamp HI (RH)	IPDM E/R	#51	10 A
Headlamp HI (LH)		#52	

Is the inspection result normal?

YES >> Replace IPDM E/R.  
NO >> GO TO 4.

### 4.CHECK HEADLAMP HIGH (HI) SHORT CIRCUIT

1. Disconnect IPDM E/R connector.
2. Check continuity between IPDM E/R harness connector and ground.

IPDM E/R		Ground	Continuity
Connector	Terminal		
RH	E15		
LH			49
		50	

Is the inspection result normal?

YES >> Replace fuse. (Replace IPDM E/R if the fuse is fusing again.)  
NO >> Repair or replace harness. And then replace the fuse.

### 5.CHECK HEADLAMP (HI) GROUND OPEN CIRCUIT

1. Turn power switch OFF.
2. Disconnect front combination lamp connector.
3. Check continuity between front combination lamp harness connector and ground.

Front combination lamp		Ground	Continuity
Connector	Terminal		
RH	E45		
LH			E26

Is the inspection result normal?

YES >> Replace headlamp (HI) bulb.  
NO >> Repair or replace harness.

## WITH DAYTIME RUNNING LIGHT SYSTEM

## WITH DAYTIME RUNNING LIGHT SYSTEM : Component Function Check INFOID:0000000007635307

### 1.CHECK HEADLAMP (HI) OPERATION

#### ⓅCONSULT ACTIVE TEST

1. Select "EXTERNAL LAMPS" of IPDM E/R active test item.
2. With operating the test items, check that the headlamp (HI) is turned ON.

**Hi** : Headlamp (HI) ON  
**Off** : Headlamp (HI) OFF

#### NOTE:

ON/OFF is repeated 1 second each.

Is the inspection result normal?

YES >> Headlamp (HI) circuit is normal.  
NO >> Refer to [EXL-53. "WITH DAYTIME RUNNING LIGHT SYSTEM : Diagnosis Procedure"](#).

# HEADLAMP (HI) CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

## WITH DAYTIME RUNNING LIGHT SYSTEM : Diagnosis Procedure

INFOID:000000007635308

### 1. CHECK HEADLAMP (HI) OUTPUT VOLTAGE

#### CONSULT ACTIVE TEST

1. Turn power switch OFF.
2. Disconnect headlamp high connector.
3. Turn power switch ON.
4. Select "EXTERNAL LAMPS" of IPDM E/R active test item.
5. With operating the test items, check voltage between IPDM E/R harness connector and ground.

(+)		Terminal	(-)	Test item	Voltage (Approx.)	
IPDM E/R						
Connector						
RH	E15	49	Ground	EXTERNAL LAMPS	Hi	Battery voltage
					Off	0 V
LH		50		EXTERNAL LAMPS	Hi	Battery voltage
					Off	0 V

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> GO TO 3.

### 2. CHECK HEADLAMP (HI) OPEN CIRCUIT

1. Turn power switch OFF.
2. Disconnect IPDM E/R connector.
3. Check continuity between IPDM E/R harness connector and front combination lamp harness connector.

IPDM E/R		Front combination lamp		Continuity
Connector	Terminal	Connector	Terminal	
RH	E15	49	E86	Existed
LH		50	E85	

Is the inspection result normal?

- YES >> GO TO 5.  
NO >> Repair or replace harness.

### 3. CHECK HEADLAMP (HI) FUSE

1. Turn power switch OFF.
2. Check that the following fuses are not fusing.

Unit	Location	Fuse No.	Capacity
Headlamp HI (RH)	IPDM E/R	#51	10 A
Headlamp HI (LH)		#52	

Is the inspection result normal?

- YES >> Replace IPDM E/R.  
NO >> GO TO 4.

### 4. CHECK HEADLAMP (HI) SHORT CIRCUIT

1. Disconnect IPDM E/R connector.
2. Check continuity between IPDM E/R harness connector and ground.

IPDM E/R		Terminal	Ground	Continuity
Connector				
RH	E15	49	Ground	Not existed
LH		50		

# HEADLAMP (HI) CIRCUIT

## < DTC/CIRCUIT DIAGNOSIS >

### Is the inspection result normal?

YES >> Replace fuse. (Replace IPDM E/R if the fuse is fusing again.)

NO >> Repair or replace harness. And then replace the fuse.

## 5.CHECK ILLUMINATION STATUS OF HEADLAMPS

Check illumination status of headlamps.

### Which headlamp does not turn ON?

RH >> GO TO 6.

LH >> GO TO 8.

## 6.CHECK HEADLAMP HI (RH) GROUND OPEN CIRCUIT-1

1. Remove daytime running light relay.
2. Check continuity between daytime running light relay harness connector and front combination lamp RH harness connector.

Daytime running light relay		Front combination lamp RH		Continuity
Connector	Terminal	Connector	Terminal	
E84	3	E86	10	Existed

### Is the inspection result normal?

YES >> GO TO 7.

NO >> Repair or replace harness.

## 7.CHECK HEADLAMP HI (RH) GROUND OPEN CIRCUIT-2

Check continuity between daytime running light relay harness connector and ground.

Daytime running light relay		Ground	Continuity
Connector	Terminal		
E84	4		Existed

### Is the inspection result normal?

YES >> Replace headlamp (HI) bulb. (Bulb socket is abnormal.)

NO >> Repair or replace harness.

## 8.CHECK HEADLAMP HI (LH) GROUND OPEN CIRCUIT

Check continuity between front combination lamp LH harness connector and ground.

Front combination lamp LH		Ground	Continuity
Connector	Terminal		
E85	10		Existed

### Is the inspection result normal?

YES >> Replace headlamp (HI) bulb. (Bulb socket is abnormal.)

NO >> Repair or replace harness.

# HEADLAMP (LO) CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

## HEADLAMP (LO) CIRCUIT

### Component Function Check

INFOID:000000007635309

#### 1. CHECK HEADLAMP (LO) OPERATION

##### CONSULT ACTIVE TEST

1. Select "EXTERNAL LAMPS" of IPDM E/R active test item.
2. With operating the test items, check that the headlamp (LO) is turned ON.

**Lo** : Headlamp (LO) ON

**Off** : Headlamp (LO) OFF

Is the inspection result normal?

- YES >> Headlamp (LO) circuit is normal.  
 NO >> Refer to [EXL-55, "Diagnosis Procedure"](#).

### Diagnosis Procedure

INFOID:000000007635310

#### 1. CHECK HEADLAMP (LO) OUTPUT VOLTAGE

##### CONSULT ACTIVE TEST

1. Turn power switch OFF.
2. Disconnect front combination lamp connector.
3. Turn power switch ON.
4. Select "EXTERNAL LAMPS" of IPDM E/R active test item.
5. With operating the test items, check voltage between IPDM E/R harness connector and ground.

(+)		Terminal	(-)	Test item	Voltage (Approx.)
IPDM E/R					
Connector					
RH	E15	52	Ground	Lo	Battery voltage
					Off
LH		51		Lo	Battery voltage
				Off	0 V

Is the inspection result normal?

- YES >> GO TO 2.  
 NO >> GO TO 3.

#### 2. CHECK HEADLAMP (LO) OPEN CIRCUIT

1. Turn power switch OFF.
2. Disconnect IPDM E/R connector.
3. Check continuity between IPDM E/R harness connector and front combination lamp harness connector.

Except for Canada

IPDM E/R		Front combination lamp		Continuity
Connector	Terminal	Connector	Terminal	
RH	E15	52	E45	Existed
LH		51	E26	

For Canada

IPDM E/R		Front combination lamp		Continuity
Connector	Terminal	Connector	Terminal	
RH	E15	52	E86	Existed
LH		51	E85	

Is the inspection result normal?

- YES >> Perform the LED headlamp diagnosis. Refer to [EXL-59, "Diagnosis Procedure"](#).

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EXL

# HEADLAMP (LO) CIRCUIT

## < DTC/CIRCUIT DIAGNOSIS >

NO >> Repair or replace harness.

### 3.CHECK HEADLAMP (LO) FUSE

1. Turn power switch OFF.
2. Check that the following fuses are not fusing.

Unit	Location	Fuse No.	Capacity
Headlamp LO (RH)	IPDM E/R	#54	15 A
Headlamp LO (LH)		#53	

Is the inspection result normal?

YES >> Replace IPDM E/R.  
NO >> GO TO 4.

### 4.CHECK HEADLAMP (LO) SHORT CIRCUIT-1

1. Disconnect IPDM E/R connector.
2. Check continuity between IPDM E/R harness connector and ground.

IPDM E/R		Ground	Continuity
Connector	Terminal		
RH	E15	52	Not existed
LH		51	

Is the inspection result normal?

YES >> GO TO 5.  
NO >> Repair or replace harness. And then replace the fuse.

### 5.CHECK HEADLAMP (LO) SHORT CIRCUIT-2

#### ⓅCONSULT ACTIVE TEST

1. Replace fuse.
2. Connect IPDM E/R connector.
3. Turn power switch ON.
4. Select "EXTERNAL LAMPS" of IPDM E/R active test item.
5. Check that fuse is not fusing when Lo button is operated.

Is the inspection result normal?

YES >> GO TO 6.  
NO >> Replace IPDM E/R.

### 6.CHECK HEADLAMP (LO) SHORT CIRCUIT-3

1. Turn power switch OFF.
2. Connect front combination lamp connector.
3. Check that headlamp turns ON when lighting switch is in the 2ND position.

Is the inspection result normal?

YES >> Refer to [GI-51, "Intermittent Incident"](#).  
NO >> Replace LED headlamp control module.



# DAYTIME RUNNING LIGHT RELAY CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

## DAYTIME RUNNING LIGHT RELAY CIRCUIT

### Component Function Check

INFOID:000000007635311

#### 1. CHECK DAYTIME RUNNING LIGHT OPERATION

##### CONSULT ACTIVE TEST

1. Select "DAYTIME RUNNING LIGHT" of BCM (HEADLAMP) active test item.
2. With operating the test items, check that daytime running light operation.

**On** : Daytime running light ON  
**Off** : Daytime running light OFF

Is the inspection result normal?

- YES >> Daytime running light relay circuit is normal.  
NO >> Refer to [EXL-57, "Diagnosis Procedure"](#).

### Diagnosis Procedure

INFOID:000000007635312

#### 1. CHECK DAYTIME RUNNING LIGHT RELAY FUSE

1. Turn power switch OFF.
2. Check that the following fuse is not fusing.

Unit	Fuse No.	Capacity
Daytime running light relay	#37	10 A

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Replace the fuse after repairing the applicable circuit.

#### 2. CHECK DAYTIME RUNNING LIGHT RELAY POWER SUPPLY

1. Remove daytime running light relay.
2. Check voltage between daytime running light relay harness connector and ground.

(+)		(-)	Voltage (Approx.)
Daytime running light relay			
Connector	Terminal	Ground	Battery voltage
E84	1		
	5		

Is the inspection result normal?

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

#### 3. CHECK DAYTIME RUNNING LIGHT RELAY

Check daytime running light relay. Refer to [EXL-58, "Component Inspection"](#).

Is the inspection result normal?

- YES >> GO TO 4.  
NO >> Replace daytime running light relay.

#### 4. CHECK DAYTIME RUNNING LIGHT RELAY CONTROL SIGNAL OUTPUT

##### CONSULT ACTIVE TEST

1. Install daytime running light relay.
2. Turn power switch ON.
3. Select "DAYTIME RUNNING LIGHT" of BCM (HEADLAMP) active test item.
4. With operating the test item, check voltage between IPDM E/R harness connector and ground.

# DAYTIME RUNNING LIGHT RELAY CIRCUIT

## < DTC/CIRCUIT DIAGNOSIS >

(+)		(-)	Test item	Voltage (Approx.)	
IPDM E/R					
Connector	Terminal				
E13	28	Ground	DAYTIME RUNNING LIGHT	On	0 V
				Off	Battery voltage

Is the inspection result normal?

YES >> Daytime running light relay circuit is OK.

NO-1 (Fixed at 0 V)>>GO TO 5.

NO-2 (Fixed at battery voltage) >>Replace IPDM E/R.

### 5.CHECK DAYTIME RUNNING LIGHT RELAY CONTROL SIGNAL OPEN CIRCUIT

1. Turn power switch OFF.
2. Remove daytime running light relay.
3. Disconnect IPDM E/R harness connector.
4. Check continuity between IPDM E/R harness connector and daytime running light relay harness connector.

IPDM E/R		Daytime running light relay		Continuity
Connector	Terminal	Connector	Terminal	
E13	28	E84	2	Existed

Is the inspection result normal?

YES >> GO TO 6.

NO >> Repair or replace harness.

### 6.CHECK DAYTIME RUNNING LIGHT RELAY CONTROL SIGNAL SHORT CIRCUIT

Check continuity between IPDM E/R harness connector and ground.

IPDM E/R		Ground	Continuity
Connector	Terminal		
E13	28		Not existed

Is the inspection result normal?

YES >> Replace IPDM E/R.

NO >> Repair or replace harness.

## Component Inspection

INFOID:000000007635313

### 1.CHECK DAYTIME RUNNING LIGHT RELAY

1. Turn the power switch OFF.
2. Remove daytime running light relay.
3. Apply battery voltage to daytime running light relay- between terminals 1 and 2.
4. Check continuity between daytime running light relay terminals.

Daytime running light relay			Condition	Continuity
Terminal				
E84	5	3	Apply	Existed
			Not Apply	Not existed
	4		Apply	Not existed
			Not Apply	Existed

Is the inspection result normal?

YES >> Daytime running light relay is normal.

NO >> Replace daytime running light relay.

# LED HEADLAMP

< DTC/CIRCUIT DIAGNOSIS >

## LED HEADLAMP

### Diagnosis Procedure

INFOID:000000007635314

#### 1. CHECK HEADLAMP (LO) GROUND OPEN CIRCUIT

1. Turn power switch OFF.
2. Disconnect front combination lamp connector.
3. Check continuity between front combination lamp harness connector and ground.

Except for Canada

Front combination lamp		Terminal	Ground	Continuity
Connector				Existed
RH	E45	8		Existed
LH	E26			

For Canada

Front combination lamp		Terminal	Ground	Continuity
Connector				Existed
RH	E86	7		Existed
LH	E85			

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair or replace harness.

#### 2. CHECK LED HEAD LAMP CONTROL MODULE

Install the normal LED headlamp control module to the applicable headlamp. Check that the lighting switch is turned ON. Refer to [EXL-50. "Diagnosis Procedure"](#).

Is the headlamp turned ON?

- YES >> Replace LED headlamp control module.  
NO >> GO TO 3.

#### 3. CHECK HEADLAMP

Install the normal headlamp to the applicable headlamp. Check that the headlamp is turned ON. Refer to [EXL-50. "Diagnosis Procedure"](#).

Is the headlamp turned ON?

- YES >> Replace headlamp.  
NO >> LED headlamp is normal. Check headlamp control system.

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EXL

# HEADLAMP WARNING LAMP

< DTC/CIRCUIT DIAGNOSIS >

## HEADLAMP WARNING LAMP

### Component Function Check

INFOID:000000007635315

#### 1. CHECK HEADLAMP WARNING LAMP OPERATION

1. Turn power switch OFF.
2. Disconnect front combination lamp connector.
3. Check that headlamp warning lamp on combination meter turns ON when power switch is turned ON.

Is the inspection result normal?

- YES >> Headlamp warning lamp is normal.  
NO >> Refer to [EXL-60, "Diagnosis Procedure"](#).

### Diagnosis Procedure

INFOID:000000007635316

#### 1. LED HEADLAMP CONTROL MODULE FUSE

1. Turn power switch OFF.
2. Check that the following fuse is not fusing.

Unit	Fuse No.	Capacity
LED headlamp control module	#5	10 A

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the applicable circuit. And then replace the fuse.

#### 2. CHECK POWER SUPPLY CIRCUIT

1. Disconnect front combination lamp connector.
2. Turn power switch ON.
3. Check voltage between front combination lamp harness connector and ground.

Except for Canada

(+)		Terminal	(-)	Voltage (Approx.)
Front combination lamp				
Connector			Ground	Battery voltage
RH	E45	5		
LH	E26			

For Canada

(+)		Terminal	(-)	Voltage (Approx.)
Front combination lamp				
Connector			Ground	Battery voltage
RH	E86	3		
LH	E85			

Is the inspection result normal?

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

#### 3. CHECK HEADLAMP WARNING LAMP SIGNAL CIRCUIT

Check voltage between front combination lamp harness connector and ground.

Except for Canada

(+)		Terminal	(-)	Voltage (Approx.)
Front combination lamp				
Connector			Ground	Less than 0.5 V
RH	E45	7		
LH	E26			

# HEADLAMP WARNING LAMP

## < DTC/CIRCUIT DIAGNOSIS >

For Canada

(+)		Terminal	(-)	Voltage (Approx.)
Front combination lamp				
Connector		5	Ground	Less than 0.5 V
RH	E86			
LH	E85			

Is the inspection result normal?

YES >> GO TO 4.

NO >> Replace LED head lamp control module

### 4. CHECK HEADLAMP WRNING LAMP SIGNAL SHORT CIRCUIT

1. Turn power switch OFF.
2. Disconnect combination meter connector.
3. Check continuity between combination meter harness connector and ground.

Combination meter		Terminal	Ground	Continuity
Connector				
RH	M34	38		Not existed
LH		39		

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair or replace harness.

### 5. CHECK COMBINATION METER

Check combination meter. Refer to [MWI-73, "Work flow"](#).

Is the inspection result normal?

YES >> Refer to [EXL-87, "Diagnosis Procedure"](#).

NO >> Repair or replace malfunctioning part.

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EXL

# HEADLAMP AIMING SYSTEM (MANUAL)

< DTC/CIRCUIT DIAGNOSIS >

## HEADLAMP AIMING SYSTEM (MANUAL)

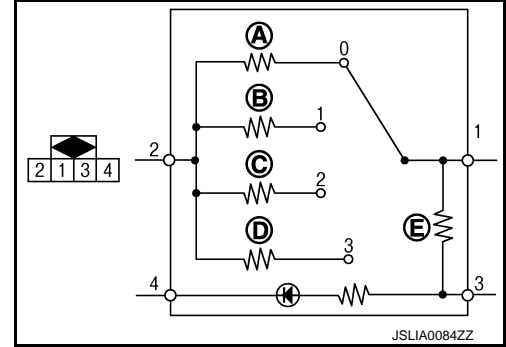
### Component Inspection

INFOID:000000007635317

#### 1. CHECK HEADLAMP AIMING SWITCH

1. Remove headlamp aiming switch.
2. Check resistance among each headlamp aiming switch terminal.

Headlamp aiming switch		Condition		Resistance (Approx.)
Connector	Terminal	Switch position		
M17	1	2	0	A: 160 Ω
			1	B: 240 Ω
			2	C: 330 Ω
			3	D: 470 Ω
		3	—	E: 390 Ω



Is the inspection result normal?

- YES >> Headlamp aiming switch is normal.  
 NO >> Replace the headlamp aiming switch.

# PARKING LAMP CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

## PARKING LAMP CIRCUIT

### Component Function Check

INFOID:000000007635318

#### 1.CHECK PARKING LAMP OPERATION

##### CONSULT ACTIVE TEST

1. Select "EXTERNAL LAMPS" of IPDM E/R active test item.
2. With operating the test items, check that the parking lamp is turned ON.

**TAIL : Parking lamp ON**  
**Off : Parking lamp OFF**

Is the inspection result normal?

- YES >> Parking lamp circuit is normal.  
NO >> Refer to [EXL-63, "Diagnosis Procedure"](#).

### Diagnosis Procedure

INFOID:000000007635319

#### 1.CHECK PARKING LAMP FUSE

1. Turn power switch OFF.
2. Check that the following fuse is not fusing.

Unit	Location	Fuse No.	Capacity
<ul style="list-style-type: none"><li>• Parking lamp</li><li>• Front side marker lamp</li><li>• Tail lamp (RH)</li><li>• License plate lamp</li></ul>	IPDM E/R	#47	10 A

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> GO TO 2.

#### 2.CHECK PARKING LAMP SHORT CIRCUIT

1. Disconnect the following connectors.
  - IPDM E/R
  - Front combination lamp
  - Front side marker lamp
  - Rear combination lamp (RH)
  - License plate lamp
2. Check continuity between IPDM E/R harness connector and ground.

IPDM E/R		Ground	Continuity
Connector	Terminal		
E14	43		Not existed
	44		

Is the inspection result normal?

- YES >> Replace fuse. (Replace IPDM E/R if fusing is found again.)  
NO >> Repair or replace harness. And then replace the fuse.

#### 3.CHECK PARKING LAMP BULB

Check applicable lamp bulb.

Is the inspection result normal?

- YES >> GO TO 4.  
NO >> Replace bulb.

#### 4.CHECK PARKING LAMP OUTPUT VOLTAGE

##### CONSULT ACTIVE TEST

# PARKING LAMP CIRCUIT

## < DTC/CIRCUIT DIAGNOSIS >

1. Disconnect front combination lamp connector.
2. Turn power switch ON.
3. Select "EXTERNAL LAMPS" of IPDM E/R active test item.
4. With operating the test items, check voltage between IPDM E/R harness connector and ground.

(+)		(-)	Test item		Voltage (Approx.)
IPDM E/R					
Connector	Terminal				
E14	43	Ground	EXTERNAL LAMPS	TAIL	Battery voltage
				Off	0 V

### Is the inspection result normal?

YES >> GO TO 5.

NO >> Replace IPDM E/R.

## 5. CHECK PARKING LAMP OPEN CIRCUIT

1. Turn power switch OFF.
2. Disconnect IPDM E/R connector.
3. Check continuity between IPDM E/R harness connector and front combination lamp harness connector.

Except for Canada

IPDM E/R		Front combination lamp		Continuity	
Connector	Terminal	Connector	Terminal		
RH	E14	43	E45	2	Existed
LH			E26		

For Canada

IPDM E/R		Front combination lamp		Continuity	
Connector	Terminal	Connector	Terminal		
RH	E14	43	E86	2	Existed
LH			E85		

### Is the inspection result normal?

YES >> GO TO 6.

NO >> Repair or replace harness.

## 6. CHECK PARKING LAMP GROUND OPEN CIRCUIT

Check continuity between front combination lamp harness connector and ground.

Except for Canada

Front combination lamp		Ground	Continuity
Connector	Terminal		
RH	E45	4	Existed
LH	E26		

For Canada

Front combination lamp		Ground	Continuity
Connector	Terminal		
RH	E86	9	Existed
LH	E85		

### Is the inspection result normal?

YES >> Check corresponding bulb socket and harness. Repair or replace if necessary.

NO >> Repair or replace harness.



# FRONT SIDE MARKER LAMP CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

## FRONT SIDE MARKER LAMP CIRCUIT

### Component Function Check

INFOID:000000007635320

#### 1. CHECK PARKING LAMP OPERATION

Check that the parking lamp is turned ON.

Is the inspection result normal?

YES >> GO TO 2.

NO >> Check parking lamp circuit. Refer to [EXL-63, "Component Function Check"](#).

#### 2. CHECK FRONT SIDE MARKER LAMP OPERATION

##### Ⓜ CONSULT ACTIVE TEST

1. Select "EXTERNAL LAMPS" of IPDM E/R active test item.
2. With operating the test items, check that the front side marker lamp is turned ON.

**TAIL : Front side marker lamp ON**

**Off : Front side marker lamp OFF**

Is the inspection result normal?

YES >> Front side marker lamp circuit is normal.

NO >> Refer to [EXL-65, "Diagnosis Procedure"](#).

### Diagnosis Procedure

INFOID:000000007635321

#### 1. CHECK FRONT SIDE MARKER LAMP BULB

Check applicable lamp bulb.

Is the inspection result normal?

YES >> GO TO 2.

NO >> Replace bulb.

#### 2. CHECK FRONT SIDE MARKER LAMP OPEN CIRCUIT

1. Turn power switch OFF.
2. Disconnect IPDM E/R connector and front side marker lamp connector.
3. Check continuity between IPDM E/R harness connector and front side marker lamp harness connector.

IPDM E/R		Front side marker lamp		Continuity
Connector	Terminal	Connector	Terminal	
RH	E14	E16	1	Existed
LH		E10		

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace harness.

#### 3. CHECK FRONT SIDE MARKER LAMP GROUND OPEN CIRCUIT

Check continuity between front side marker lamp harness connector and ground.

Front side marker lamp		Ground	Continuity
Connector	Terminal		
RH	E16	2	Existed
LH	E10		

Is the inspection result normal?

YES >> Check corresponding bulb socket and harness. Repair or replace if necessary.

NO >> Repair or replace harness.

# TAIL LAMP CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

## TAIL LAMP CIRCUIT

### Component Function Check

INFOID:000000007635322

#### 1. CHECK TAIL LAMP OPERATION

##### CONSULT ACTIVE TEST

1. Select "EXTERNAL LAMPS" of IPDM E/R active test item.
2. With operating the test items, check that the tail lamp is turned ON.

**TAIL** : Tail Lamp ON  
**Off** : Tail lamp OFF

Is the inspection result normal?

- YES >> Tail lamp circuit is normal.  
NO >> Refer to [EXL-66, "Diagnosis Procedure"](#).

### Diagnosis Procedure

INFOID:000000007635323

#### 1. CHECK PARKING LAMP OPERATION

Check that the parking lamp is turned ON.

Is the inspection result normal?

- YES-1 [When tail lamp (RH) does not turn ON.]>>GO TO 5.  
YES-2 [When tail lamp (LH) does not turn ON.]>>GO TO 2.  
NO >> Check parking lamp circuit. Refer to [EXL-63, "Component Function Check"](#).

#### 2. CHECK TAIL LAMP (LH) FUSE

1. Turn power switch OFF.
2. Check that the following fuse is not fusing.

Unit	Location	Fuse No.	Capacity
Tail lamp (LH)	IPDM E/R	#46	10 A

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> GO TO 4.

#### 3. CHECK TAIL LAMP (LH) OUTPUT VOLTAGE

##### CONSULT ACTIVE TEST

1. Disconnect rear combination lamp (LH) connector.
2. Turn power switch ON.
3. Select "EXTERNAL LAMPS" of IPDM E/R active test item.
4. With operating the test items, check voltage between IPDM E/R harness connector and ground.

(+)		(-)	Test item	Voltage (Approx.)	
IPDM E/R					
Connector	Terminal				
E14	38	Ground	EXTERNAL LAMPS	TAIL	Battery voltage
				Off	0 V

Is the inspection result normal?

- YES >> GO TO 5.  
NO >> Replace IPDM E/R.

#### 4. CHECK TAIL LAMP (LH) SHORT CIRCUIT

1. Disconnect IPDM E/R connector and rear combination lamp (LH) connector.
2. Check continuity between IPDM E/R harness connector and ground.

# TAIL LAMP CIRCUIT

## < DTC/CIRCUIT DIAGNOSIS >

IPDM E/R		Ground	Continuity
Connector	Terminal		
E14	38		Not existed

Is the inspection result normal?

YES >> Replace fuse. (Replace IPDM E/R if fusing is found again.)

NO >> Repair or replace harness. And then replace the fuse.

### 5. CHECK TAIL LAMP OPEN CIRCUIT

1. Turn power switch OFF.
2. Disconnect IPDM E/R connector and rear combination lamp connector.
3. Check continuity between IPDM E/R harness connector and rear combination lamp harness connector.

IPDM E/R		Rear combination lamp		Continuity
Connector	Terminal	Connector	Terminal	
RH	E14	44	B59	Existed
LH		38	B80	

Is the inspection result normal?

YES >> GO TO 6.

NO >> Repair or replace harness.

### 6. CHECK TAIL LAMP GROUND OPEN CIRCUIT

Check continuity between rear combination lamp harness connector and ground.

Rear combination lamp		Ground	Continuity
Connector	Terminal		
RH	B59	4	Existed
LH	B80		

Is the inspection result normal?

YES >> Replace rear combination lamp.

NO >> Repair or replace harness.

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EXL

# LICENSE PLATE LAMP CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

## LICENSE PLATE LAMP CIRCUIT

### Component Function Check

INFOID:000000007635324

#### 1. CHECK TAIL LAMP (RH) OPERATION

Check that the tail lamp (RH) is turned ON.

Is the inspection result normal?

YES >> GO TO 2.

NO >> Check tail lamp circuit. Refer to [EXL-66, "Component Function Check"](#).

#### 2. CHECK LICENSE PLATE LAMP OPERATION

##### ⓐ CONSULT ACTIVE TEST

1. Select "EXTERNAL LAMPS" of IPDM E/R active test item.

2. With operating the lighting switch, check that the license plate lamp is turned ON.

**TAIL : License plate lamp ON**

**Off : License plate lamp OFF**

Is the inspection result normal?

YES >> License plate lamp circuit is normal.

NO >> Refer to [EXL-68, "Diagnosis Procedure"](#).

### Diagnosis Procedure

INFOID:000000007635325

#### 1. CHECK LICENSE PLATE LAMP BULB

Check the applicable lamp bulb.

Is the inspection result normal?

YES >> GO TO 2.

NO >> Replace bulb.

#### 2. CHECK LICENSE PLATE LAMP OPEN CIRCUIT

1. Turn power switch OFF.

2. Disconnect IPDM E/R connector and license plate lamp connector.

3. Check continuity between IPDM E/R harness connector and license plate lamp harness connector.

IPDM E/R		License plate lamp		Continuity
Connector	Terminal	Connector	Terminal	
RH	E14	B58	1	Existed
LH		B57		

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace harness.

#### 3. CHECK LICENSE PLATE LAMP GROUND OPEN CIRCUIT

Check continuity between license plate lamp harness connector and ground.

License plate lamp		Ground	Continuity
Connector	Terminal		
RH	B58	2	Existed
LH	B57		

Is the inspection result normal?

YES >> Check corresponding bulb socket and harness. Repair or replace if necessary.

NO >> Repair or replace harness.

# FRONT FOG LAMP CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

## FRONT FOG LAMP CIRCUIT

### Component Function Check

INFOID:000000007635326

#### 1.CHECK FRONT FOG LAMP OPERATION

##### CONSULT ACTIVE TEST

1. Select "EXTERNAL LAMPS" of IPDM E/R active test item.
2. With operating the test items, check that the front fog lamp is turned ON.

**Fog** : Front fog lamp ON

**Off** : Front fog lamp OFF

##### Is the measurement normal?

- YES >> Front fog lamp circuit is normal.  
NO >> Refer to [EXL-69, "Diagnosis Procedure"](#).

### Diagnosis Procedure

INFOID:000000007635327

#### 1.CHECK FRONT FOG LAMP FUSE

1. Turn power switch OFF.
2. Check that the following fuse is not fusing.

Unit	Location	Fuse No.	Capacity
Front fog lamp	IPDM E/R	#50	15 A

##### Is the inspection result normal?

- YES >> GO TO 3.  
NO >> GO TO 2.

#### 2.CHECK FRONT FOG LAMP SHORT CIRCUIT

1. Disconnect front fog connector and IPDM E/R connector.
2. Check continuity between IPDM E/R harness connector and ground.

IPDM E/R		Ground	Continuity
Connector	Terminal		
RH	E12	19	Not existed
LH		20	

##### Is the inspection result normal?

- YES >> Replace fuse. (Replace IPDM E/R if the fuse is fusing again.)  
NO >> Repair or replace harness. And then replace the fuse.

#### 3.CHECK FRONT FOG LAMP BULB

Check the applicable lamp bulb.

##### Is the inspection result normal?

- YES >> GO TO 4.  
NO >> Replace bulb.

#### 4.CHECK FRONT FOG LAMP OUTPUT VOLTAGE

##### CONSULT ACTIVE TEST

1. Disconnect front fog lamp connector.
2. Turn power switch ON.
3. Select "EXTERNAL LAMPS" of IPDM E/R active test item.
4. With operating the test items, check the voltage between IPDM E/R harness connector and ground.

# FRONT FOG LAMP CIRCUIT

## < DTC/CIRCUIT DIAGNOSIS >

(+)		Terminal	(-)	Test item	Voltage (Approx.)	
IPDM E/R						
Connector						
RH	E12	19	Ground	EXTERNAL LAMPS	Fog	Battery voltage
						Off
LH	20				Fog	Battery voltage
					Off	0 V

Is the inspection result normal?

YES >> GO TO 5.

NO >> Replace IPDM E/R.

### 5. CHECK FRONT FOG LAMP OPEN CIRCUIT

1. Turn power switch OFF.
2. Disconnect IPDM E/R connector.
3. Check continuity between IPDM E/R harness connector and front fog lamp harness connector.

IPDM E/R		Front fog lamp		Continuity
Connector	Terminal	Connector	Terminal	
RH	E12	19	E48	Existed
LH		20	E30	

Is the inspection result normal?

YES >> GO TO 6.

NO >> Repair or replace harness.

### 6. CHECK FRONT FOG LAMP GROUND CIRCUIT OPEN CIRCUIT

Check continuity between front fog lamp harness connector and ground.

Front fog lamp		Terminal	Ground	Continuity
Connector				
RH	E48	2		Existed
LH	E30			

Is the inspection result normal?

YES >> Refer to [GI-51, "Intermittent Incident"](#).

NO >> Repair or replace harness.

# TURN SIGNAL LAMP CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

## TURN SIGNAL LAMP CIRCUIT

### Component Function Check

INFOID:000000007635328

#### 1. CHECK TURN SIGNAL LAMP

##### CONSULT ACTIVE TEST

1. Select "FLASHER" of BCM (FLASHER) active test item.
2. With operating the test items, check that the turn signal lamps is turned ON.

- LH** : Turn signal lamps (LH) ON
- RH** : Turn signal lamps (RH) ON
- Off** : Turn signal lamps OFF

Is the inspection result normal?

- YES >> Turn signal lamp circuit is normal.
- NO >> Refer to [EXL-71, "Diagnosis Procedure"](#).

### Diagnosis Procedure

INFOID:000000007635329

#### 1. CHECK TURN SIGNAL LAMP BULB

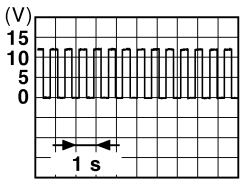
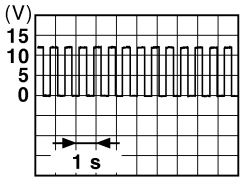
Check the applicable lamp bulb.

Is the inspection result normal?

- YES >> GO TO 2.
- NO >> Replace bulb.

#### 2. CHECK TURN SIGNAL LAMP OUTPUT VOLTAGE

1. Turn power switch OFF.
2. Disconnect front combination lamp connector, side turn signal lamp connector and rear combination lamp connector.
3. Turn power switch ON.
4. With operating the turn signal switch, check voltage between BCM harness connector and ground.

(+)		(-)	Condition	Voltage (Approx.)		
BCM						
Connector	Terminal					
LH	M69	60	Ground	Turn signal switch	LH	
					OFF	0 V
RH	M69	61	Ground	Turn signal switch	RH	
					OFF	0 V

Is the inspection result normal?

- YES >> GO TO 3.
- NO >> GO TO 4.

# TURN SIGNAL LAMP CIRCUIT

## < DTC/CIRCUIT DIAGNOSIS >

### 3. CHECK TURN SIGNAL LAMP OPEN CIRCUIT

1. Turn power switch OFF.
2. Disconnect BCM connector.
3. Check continuity between BCM harness connector and front combination lamp, side turn signal lamp or rear combination lamp harness connector.

Front turn signal lamp (Except for Canada)

BCM			Front combination lamp		Continuity
Connector		Terminal	Connector	Terminal	
RH	M69	61	E45	3	Existed
LH		60	E26		

Front turn signal lamp (For Canada)

BCM			Front combination lamp		Continuity
Connector		Terminal	Connector	Terminal	
RH	M69	61	E86	8	Existed
LH		60	E85		

Side turn signal lamp

BCM			Side turn signal lamp		Continuity
Connector		Terminal	Connector	Terminal	
RH	M69	61	E40	1	Existed
LH		60	E23		

Rear turn signal lamp

BCM			Rear combination lamp		Continuity
Connector		Terminal	Connector	Terminal	
RH	M69	61	B59	5	Existed
LH		60	B80		

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair or replace harness.

### 4. CHECK TURN SIGNAL LAMP SHORT CIRCUIT

Check continuity between BCM harness connector and ground.

BCM			Ground	Continuity
Connector		Terminal		
RH	M69	61		Not existed
LH		60		

Is the inspection result normal?

YES >> Check each bulb socket for internal short circuit, and if check result is normal, replace BCM. Refer to [BCS-77, "Removal and Installation"](#).

NO >> Repair or replace harness.

### 5. CHECK TURN SIGNAL LAMP GROUND OPEN CIRCUIT

Check continuity between BCM harness connector and front combination lamp, side turn signal lamp or rear combination lamp and ground.

Front turn signal lamp (Except for Canada)

Front combination lamp			Ground	Continuity
Connector		Terminal		
RH	E45	4		Existed
LH	E26			



# TURN SIGNAL LAMP CIRCUIT

## < DTC/CIRCUIT DIAGNOSIS >

### Front turn signal lamp (For Canada)

Front combination lamp			Ground	Continuity
Connector		Terminal		Existed
RH	E86	9		
LH	E85			

A

B

### Side turn signal lamp

Side turn signal lamp			Ground	Continuity
Connector		Terminal		Existed
RH	E40	2		
LH	E23			

C

D

### Rear turn signal lamp

Rear combination lamp			Ground	Continuity
Connector		Terminal		Existed
RH	B59	4		
LH	B80			

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F

### Is the inspection result normal?

- YES >> Check corresponding bulb socket and harness. Repair or replace if necessary.  
 NO >> Repair or replace harness.

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# OPTICAL SENSOR

< DTC/CIRCUIT DIAGNOSIS >

## OPTICAL SENSOR

### Component Function Check

INFOID:000000007635330

#### 1.CHECK OPTICAL SENSOR SIGNAL BY CONSULT

##### CONSULT DATA MONITOR

1. Turn power switch ON.
2. Select "OPTISEN (DTCT)" of BCM (HEADLAMP) data monitor item.
3. Turn lighting switch AUTO.
4. With the optical sensor illuminating, check the monitor status.

Monitor item	Condition		Voltage (Approx.)
OPTISEN (DTCT)	Optical sensor	When illuminating	3.1 V or more *
		When shutting off light	0.6 V or less

\*: Illuminates the optical sensor. The value may be less than the standard value if brightness is weak.

##### Is the inspection result normal?

- YES >> Optical sensor is normal.  
NO >> Refer to [EXL-74, "Diagnosis Procedure"](#).

### Diagnosis Procedure

INFOID:000000007635331

#### 1.CHECK OPTICAL SENSOR POWER SUPPLY INPUT

1. Turn power switch ON.
2. Turn lighting switch AUTO.
3. Check voltage between optical sensor harness connector and ground.

(+)		(-)	Voltage (Approx.)
Optical sensor			
Connector	Terminal	Ground	5 V
M16	1		

##### Is the inspection result normal?

- YES >> GO TO 2.  
NO >> GO TO 4.

#### 2.CHECK OPTICAL SENSOR GROUND INPUT

Check voltage between optical sensor harness connector and ground.

(+)		(-)	Voltage (Approx.)
Optical sensor			
Connector	Terminal	Ground	0 V
M16	3		

##### Is the inspection result normal?

- YES >> GO TO 3.  
NO >> GO TO 6.

#### 3.CHECK OPTICAL SENSOR SIGNAL OUTPUT

With illuminating the optical sensor, check voltage between optical sensor harness connector and ground.

# OPTICAL SENSOR

## < DTC/CIRCUIT DIAGNOSIS >

(+)		(-)	Condition	Voltage (Approx.)	
Optical sensor					
Connector	Terminal				
M16	2	Ground	Optical sensor	When illuminating	3.1 V or more *
				When shutting off light	0.6 V or less

\*: Illuminate the optical sensor. The value may be less than the standard if brightness is weak.

Is the inspection result normal?

YES >> GO TO 7.

NO >> Replace the optical sensor.

### 4.CHECK OPTICAL SENSOR OPEN CIRCUIT

1. Turn power switch OFF.
2. Disconnect optical sensor connector and BCM connector.
3. Check continuity between optical sensor harness connector and BCM harness connector.

Optical sensor		BCM		Continuity
Connector	Terminal	Connector	Terminal	
M16	1	M68	17	Existed

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair or replace harness.

### 5.CHECK OPTICAL SENSOR SHORT CIRCUIT

Check continuity between optical sensor harness connector and ground.

Optical sensor		Ground	Continuity
Connector	Terminal		
M16	1		Not existed

Is the inspection result normal?

YES >> Replace BCM. Refer to [BCS-77, "Removal and Installation"](#).

NO >> Repair or replace harness.

### 6.CHECK OPTICAL SENSOR GROUND OPEN CIRCUIT

1. Turn power switch OFF.
2. Disconnect optical sensor connector and BCM connector.
3. Check continuity between optical sensor harness connector and BCM harness connector.

Optical sensor		BCM		Continuity
Connector	Terminal	Connector	Terminal	
M16	3	M68	18	Existed

Is the inspection result normal?

YES >> Replace BCM. Refer to [BCS-77, "Removal and Installation"](#).

NO >> Repair or replace harness.

### 7.CHECK OPTICAL SENSOR SIGNAL OPEN CIRCUIT

1. Turn power switch OFF.
2. Disconnect optical sensor connector and BCM connector.
3. Check continuity between optical sensor harness connector and BCM harness connector.

# OPTICAL SENSOR

## < DTC/CIRCUIT DIAGNOSIS >

Optical sensor		BCM		Continuity
Connector	Terminal	Connector	Terminal	
M16	2	M68	14	Existed

Is the inspection result normal?

YES >> GO TO 8.

NO >> Repair or replace harness.

### 8.CHECK OPTICAL SENSOR SHORT CIRCUIT

Check continuity between optical sensor harness connector and ground.

Optical sensor		Ground	Continuity
Connector	Terminal		
M16	2		Not existed

Is the inspection result normal?

YES >> Replace BCM. Refer to [BCS-77, "Removal and Installation"](#).

NO >> Repair or replace harness.

# HAZARD SWITCH

< DTC/CIRCUIT DIAGNOSIS >

## HAZARD SWITCH

### Component Function Check

INFOID:000000007635332

#### 1.CHECK HAZARD SWITCH SIGNAL BY CONSULT

##### CONSULT DATA MONITOR

1. Turn power switch ON.
2. Select "HAZARD SW" of BCM (FLASHER) data monitor item.
3. With operating the hazard switch, check the monitor status.

Monitor item	Condition		Monitor status
HAZARD SW	Hazard switch	ON	On
		OFF	Off

Is the inspection result normal?

- YES >> Hazard switch circuit is normal.  
NO >> Refer to [EXL-77. "Diagnosis Procedure"](#).

### Diagnosis Procedure

INFOID:000000007635333

#### 1.CHECK HAZARD SWITCH SIGNAL INPUT

1. Turn power switch OFF.
2. Disconnect hazard switch connector.
3. Check voltage between hazard switch connector and ground.

(+)		(-)	Voltage (Approx.)
Hazard switch			
Connector	Terminal	Ground	12 V
M45	2		

Is the inspection result normal?

- YES >> GO TO 4.  
NO >> GO TO 2.

#### 2.CHECK HAZARD SWITCH SIGNAL OPEN CIRCUIT

1. Disconnect BCM connector.
2. Check continuity between hazard switch harness connector and BCM harness connector.

Hazard switch		BCM		Continuity
Connector	Terminal	Connector	Terminal	
M45	2	M68	29	Existed

Is the inspection result normal?

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

#### 3.CHECK HAZARD SWITCH SIGNAL SHORT CIRCUIT

Check continuity between hazard switch harness connector and ground.

Hazard switch		Ground	Continuity
Connector	Terminal		
M45	2		Not existed

Is the inspection result normal?

- YES >> Replace BCM. Refer to [BCS-77. "Removal and Installation"](#).  
NO >> Repair or replace harness.

# HAZARD SWITCH

< DTC/CIRCUIT DIAGNOSIS >

## 4. CHECK HAZARD SWITCH GROUND OPEN CIRCUIT

Check continuity between hazard switch harness connector and ground.

Hazard switch		Ground	Continuity
Connector	Terminal		
M45	1		Existed

Is the inspection result normal?

- YES >> Replace hazard switch.
- NO >> Repair or replace harness.

# EXTERIOR LIGHTING SYSTEM SYMPTOMS

< SYMPTOM DIAGNOSIS >

## SYMPTOM DIAGNOSIS

### EXTERIOR LIGHTING SYSTEM SYMPTOMS WITHOUT DAYTIME RUNNING LIGHT SYSTEM

#### WITHOUT DAYTIME RUNNING LIGHT SYSTEM : Symptom Table

INFOID:000000007635334

**CAUTION:**

Perform the self-diagnosis with CONSULT before the symptom diagnosis. Perform the trouble diagnosis if any DTC is detected.

Symptom		Possible cause	Inspection item
Headlamp (HI) is not turned ON.	One side	<ul style="list-style-type: none"> <li>• Fuse</li> <li>• Halogen bulb (HI)</li> <li>• Harness between IPDM E/R and front combination lamp</li> <li>• Harness between front combination lamp and ground</li> <li>• IPDM E/R</li> </ul>	Headlamp (HI) circuit Refer to <a href="#">EXL-51, "WITHOUT DAYTIME RUNNING LIGHT SYSTEM : Component Function Check"</a> .
	Both sides	<p><b>Symptom diagnosis</b> "BOTH SIDE HEADLAMPS (HI) ARE NOT TURNED ON" Refer to <a href="#">EXL-85, "WITHOUT DAYTIME RUNNING LIGHT SYSTEM : Diagnosis Procedure"</a>.</p>	
High beam indicator lamp is not turned ON. [Headlamp (HI) is turned ON.]		Combination meter	<ul style="list-style-type: none"> <li>• Combination meter</li> <li>• Data monitor "HI-BEAM IND"</li> <li>• BCM (HEAD LAMP)</li> <li>• Active test "HEADLAMP"</li> </ul>
Headlamp (LO) is not turned ON. [Headlamp warning lamp is not turned ON.]	One side	<ul style="list-style-type: none"> <li>• Fuse</li> <li>• Harness between IPDM E/R and front combination lamp</li> <li>• IPDM E/R</li> <li>• LED headlamp control module</li> </ul>	Headlamp (LO) circuit Refer to <a href="#">EXL-55, "Component Function Check"</a> .
	Both sides	<p><b>Symptom diagnosis</b> "BOTH SIDE HEADLAMPS (LO) ARE NOT TURNED ON" Refer to <a href="#">EXL-87, "Diagnosis Procedure"</a>.</p>	
Head lamp (LO) is not turned ON, or only 1 piece of LED is turned ON. [Headlamp warning lamp is turned ON.]		<ul style="list-style-type: none"> <li>• Front combination lamp</li> <li>• LED headlamp control module</li> <li>• Harness between front combination lamp and ground</li> </ul>	LED headlamp Refer to <a href="#">EXL-59, "Diagnosis Procedure"</a> .
Each lamp is not turned ON/OFF using lighting switch AUTO.		<ul style="list-style-type: none"> <li>• Combination switch</li> <li>• Harness between combination switch and BCM</li> <li>• BCM</li> </ul>	Combination switch Refer to <a href="#">BCS-76, "Symptom Table"</a> .
		<ul style="list-style-type: none"> <li>• Optical sensor</li> <li>• Harness between optical sensor and BCM</li> <li>• BCM</li> </ul>	Optical sensor Refer to <a href="#">EXL-74, "Component Function Check"</a> .
Parking lamp is not turned ON.		<ul style="list-style-type: none"> <li>• Fuse</li> <li>• Parking lamp bulb</li> <li>• Parking lamp bulb socket</li> <li>• Harness between IPDM E/R and front combination lamp</li> <li>• Harness between front combination lamp and ground</li> <li>• IPDM E/R</li> </ul>	Parking lamp circuit Refer to <a href="#">EXL-63, "Component Function Check"</a> .

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# EXTERIOR LIGHTING SYSTEM SYMPTOMS

## < SYMPTOM DIAGNOSIS >

Symptom	Possible cause	Inspection item	
Front side marker lamp is not turned ON.	<ul style="list-style-type: none"> <li>• Fuse</li> <li>• Front side marker lamp bulb</li> <li>• Front side marker lamp bulb socket</li> <li>• Harness between IPDM E/R and front side marker lamp</li> <li>• Harness between front side marker lamp and ground</li> </ul>	Front side marker lamp circuit Refer to <a href="#">EXL-65, "Component Function Check"</a> .	
Tail lamp and rear side marker lamp are not turned ON.	<ul style="list-style-type: none"> <li>• Fuse</li> <li>• Harness between IPDM E/R and rear combination lamp</li> <li>• Harness between rear combination lamp and ground</li> <li>• Rear combination lamp</li> </ul>	Tail lamp circuit Refer to <a href="#">EXL-66, "Component Function Check"</a> .	
License plate lamp is not turned ON.	<ul style="list-style-type: none"> <li>• License plate lamp bulb</li> <li>• License plate lamp bulb socket</li> <li>• Harness between IPDM E/R and license plate lamp</li> <li>• Harness between license plate lamp and ground</li> </ul>	License plate lamp circuit Refer to <a href="#">EXL-68, "Component Function Check"</a> .	
Parking lamp, side marker lamp, tail lamp and license plate lamp are not turned OFF.	<b>Symptom diagnosis</b> "PARKING, LICENSE PLATE, SIDE MARKER AND TAIL LAMPS ARE NOT TURNED ON" Refer to <a href="#">EXL-88, "Diagnosis Procedure"</a> .		
Tail lamp indicator lamp is not turned ON. (Parking lamp, side marker lamp, tail lamp and license plate lamp are turned ON.)	Combination meter	<ul style="list-style-type: none"> <li>• Combination meter Data monitor "LIGHT IND"</li> <li>• BCM (HEAD LAMP) Active test "TAIL LAMP"</li> </ul>	
Turn signal lamp does not blink.	Indicator lamp is normal. (Applicable side performs high flasher activation.)	<ul style="list-style-type: none"> <li>• Turn signal lamp bulb</li> <li>• Turn signal lamp bulb socket</li> <li>• Harness between BCM and each turn signal lamp</li> </ul>	Turn signal lamp circuit Refer to <a href="#">EXL-71, "Component Function Check"</a> .
	Indicator lamp is included.	<ul style="list-style-type: none"> <li>• Combination switch</li> <li>• Harness between combination switch and BCM</li> <li>• BCM</li> </ul>	Combination switch Refer to <a href="#">BCS-76, "Symptom Table"</a> .
Turn signal indicator lamp does not blink. (Turn signal lamp is normal.)	One side	Combination meter	—
	Both sides (Always)	<ul style="list-style-type: none"> <li>• Turn signal indicator lamp signal</li> <li>• BCM</li> <li>• Combination meter</li> </ul>	<ul style="list-style-type: none"> <li>• Combination meter Data monitor "TURN IND"</li> <li>• BCM (FLASHER) Active test "FLASHER"</li> </ul>
	Both sides (Only when activating hazard warning lamp with power switch OFF)	<ul style="list-style-type: none"> <li>• Combination meter power supply and ground circuit</li> <li>• Combination meter</li> </ul>	Combination meter Power supply and ground circuit Refer to <a href="#">MWI-83, "COMBINATION METER : Diagnosis Procedure"</a> .
<ul style="list-style-type: none"> <li>• Hazard warning lamp does not activate.</li> <li>• Hazard warning lamp continues activating. (Turn signal is normal.)</li> </ul>	<ul style="list-style-type: none"> <li>• Hazard switch</li> <li>• Harness between hazard switch and BCM</li> <li>• BCM</li> </ul>	Hazard switch Refer to <a href="#">EXL-77, "Component Function Check"</a> .	



# EXTERIOR LIGHTING SYSTEM SYMPTOMS

## < SYMPTOM DIAGNOSIS >

Symptom		Possible cause	Inspection item
Front fog lamp is not turned ON.	One side	<ul style="list-style-type: none"> <li>Front fog lamp bulb</li> <li>Harness between IPDM E/R and front fog lamp</li> <li>IPDM E/R</li> </ul>	Front fog lamp circuit Refer to <a href="#">EXL-69, "Component Function Check"</a> .
	Both sides	<b>Symptom diagnosis</b> "BOTH SIDE FRONT FOG LAMPS ARE NOT TURNED ON" Refer to <a href="#">EXL-89, "Diagnosis Procedure"</a> .	
Front fog lamp indicator is not turned ON. (Front fog lamp is turned ON.)		Combination meter	<ul style="list-style-type: none"> <li>Combination meter</li> <li>Data monitor "FR FOG IND"</li> <li>BCM (HEAD LAMP)</li> <li>Active test "FR FOG LAMP"</li> </ul>

## WITH DAYTIME RUNNING LIGHT SYSTEM

### WITH DAYTIME RUNNING LIGHT SYSTEM : Symptom Table

INFOID:000000007635335

#### **CAUTION:**

**Perform the self-diagnosis with CONSULT before the symptom diagnosis. Perform the trouble diagnosis if any DTC is detected.**

Symptom		Possible cause	Inspection item
Headlamp (HI) is not turned ON.	One side	<ul style="list-style-type: none"> <li>Fuse</li> <li>Halogen bulb (HI)</li> <li>Harness between IPDM E/R and headlamp (HI)</li> <li>Harness between headlamp (HI) and ground</li> <li>IPDM E/R</li> </ul>	Headlamp (HI) circuit Refer to <a href="#">EXL-52, "WITH DAYTIME RUNNING LIGHT SYSTEM : Component Function Check"</a> .
		<ul style="list-style-type: none"> <li>Harness between IPDM E/R and daytime running light relay</li> <li>Daytime running light relay</li> <li>IPDM E/R</li> </ul>	Daytime running light relay circuit Refer to <a href="#">EXL-57, "Component Function Check"</a> .
	Both sides	<b>Symptom diagnosis</b> "BOTH SIDE HEADLAMPS (HI) ARE NOT TURNED ON" Refer to <a href="#">EXL-85, "WITH DAYTIME RUNNING LIGHT SYSTEM : Diagnosis Procedure"</a> .	
High beam indicator lamp is not turned ON. [Headlamp (HI) is turned ON.]		Combination meter	<ul style="list-style-type: none"> <li>Combination meter</li> <li>Data monitor "HI-BEAM IND"</li> <li>BCM (HEAD LAMP)</li> <li>Active test "HEADLAMP"</li> </ul>
Headlamp (LO) is not turned ON.	One side	<ul style="list-style-type: none"> <li>Fuse</li> <li>Xenon bulb (LO)</li> <li>Harness between IPDM E/R and headlamp lamp (LO)</li> <li>Harness between headlamp (LO) and ground</li> <li>IPDM E/R</li> </ul>	Headlamp (LO) circuit Refer to <a href="#">EXL-55, "Component Function Check"</a> .
	Both sides	<b>Symptom diagnosis</b> "BOTH SIDE HEADLAMPS (LO) ARE NOT TURNED ON" Refer to <a href="#">EXL-87, "Diagnosis Procedure"</a> .	
Each lamp is not turned ON/OFF with lighting switch AUTO.		<ul style="list-style-type: none"> <li>Combination switch</li> <li>Harness between combination switch and BCM</li> <li>BCM</li> </ul>	Combination switch Refer to <a href="#">BCS-76, "Symptom Table"</a> .
		<ul style="list-style-type: none"> <li>Optical sensor</li> <li>Harness between optical sensor and BCM</li> <li>BCM</li> </ul>	Optical sensor Refer to <a href="#">EXL-74, "Component Function Check"</a> .

## EXTERIOR LIGHTING SYSTEM SYMPTOMS

### < SYMPTOM DIAGNOSIS >

Symptom	Possible cause	Inspection item	
Daytime running light is not turned ON. [Headlamp (HI) is turned ON.]	<ul style="list-style-type: none"> <li>• Fuse</li> <li>• Harness between IPDM E/R and daytime running light relay</li> <li>• Daytime running light relay</li> <li>• IPDM E/R</li> <li>• BCM</li> <li>• ECM</li> <li>• Combination meter</li> </ul>	<ul style="list-style-type: none"> <li>• Daytime running light relay circuit Refer to <a href="#">EXL-57, "Component Function Check"</a>.</li> <li>• BCM (HEADLAMP) Data monitor "ENGINE STATE"</li> <li>• Combination meter Data monitor "PKB SW"</li> <li>• BCM (HEADLAMP) Active test "DAYTIME RUNNING LIGHT"</li> </ul>	
Parking lamp is not turned ON.	<ul style="list-style-type: none"> <li>• Fuse</li> <li>• Parking lamp bulb</li> <li>• Harness between IPDM E/R and front combination lamp</li> <li>• IPDM E/R</li> </ul>	Parking lamp circuit Refer to <a href="#">EXL-63, "Component Function Check"</a> .	
Front side marker lamp is not turned ON.	<ul style="list-style-type: none"> <li>• Front side marker lamp bulb</li> <li>• Harness between IPDM E/R and front side marker lamp</li> <li>• Harness between front side marker lamp and ground</li> <li>• IPDM E/R</li> </ul>	Front side marker lamp circuit Refer to <a href="#">EXL-65, "Component Function Check"</a> .	
Tail lamp (Rear side marker lamp) is not turned ON.	<ul style="list-style-type: none"> <li>• Fuse</li> <li>• Tail lamp bulb</li> <li>• Harness between IPDM E/R and rear combination lamp</li> <li>• Harness between and rear combination lamp and ground</li> </ul>	Tail lamp circuit Refer to <a href="#">EXL-66, "Component Function Check"</a> .	
License plate lamp is not turned ON.	<ul style="list-style-type: none"> <li>• License plate lamp bulb</li> <li>• Harness between IPDM E/R and license plate lamp</li> <li>• Harness between license plate lamp and ground</li> </ul>	License plate lamp circuit Refer to <a href="#">EXL-68, "Component Function Check"</a> .	
Parking lamp, side marker lamp, tail lamp and license plate lamp are not turned ON.	<p><b>Symptom diagnosis</b> "PARKING, SIDE MARKER, LICENSE PLATE AND TAIL LAMPS ARE NOT TURNED ON" Refer to <a href="#">EXL-88, "Diagnosis Procedure"</a>.</p>		
Tail lamp indicator is not turned ON. (Exterior lamps are turned ON.)	Combination meter	<ul style="list-style-type: none"> <li>• Combination meter Data monitor "LIGHT IND"</li> <li>• BCM (HEADLAMP) Active test "TAIL LAMP"</li> </ul>	
Turn signal lamp does not blink.	Indicator lamp is normal. (Applicable side performs high flasher activation.)	<ul style="list-style-type: none"> <li>• Turn signal lamp bulb</li> <li>• Door mirror</li> <li>• Harness between BCM and each turn signal lamp</li> <li>• Harness between each turn signal lamp and ground</li> </ul>	Turn signal lamp circuit Refer to <a href="#">EXL-71, "Component Function Check"</a> .
	Indicator lamp is included.	<ul style="list-style-type: none"> <li>• Combination switch</li> <li>• Harness between combination switch and BCM</li> <li>• BCM</li> </ul>	Combination switch Refer to <a href="#">BCS-76, "Symptom Table"</a> .
Turn signal indicator lamp does not blink. (Turn signal lamp is normal.)	One side	Combination meter	—
	Both sides (Always)	<ul style="list-style-type: none"> <li>• Turn signal indicator lamp signal</li> <li>• BCM</li> <li>• Combination meter</li> </ul>	<ul style="list-style-type: none"> <li>• Combination meter Data monitor "TURN IND"</li> <li>• BCM (FLASHER) Active test "FLASHER"</li> </ul>
	Both sides (Only when activating hazard warning lamp with ignition switch OFF)	<ul style="list-style-type: none"> <li>• Combination meter power supply and ground circuit</li> <li>• Combination meter</li> </ul>	Combination meter Power supply and ground circuit Refer to <a href="#">MWI-83, "COMBINATION METER : Diagnosis Procedure"</a> .

# EXTERIOR LIGHTING SYSTEM SYMPTOMS

## < SYMPTOM DIAGNOSIS >

Symptom		Possible cause	Inspection item
<ul style="list-style-type: none"> <li>• Hazard warning lamp does not activate.</li> <li>• Hazard warning lamp continues activating. (Turn signal is normal.)</li> </ul>		<ul style="list-style-type: none"> <li>• Hazard switch</li> <li>• Harness between hazard switch and BCM</li> <li>• Harness between hazard switch and ground</li> <li>• BCM</li> </ul>	Hazard switch circuit Refer to <a href="#">EXL-77, "Component Function Check"</a> .
Front fog lamp is not turned ON.	One side	<ul style="list-style-type: none"> <li>• Front fog lamp bulb</li> <li>• Harness between IPDM E/R and front fog lamp</li> <li>• Harness between front fog lamp and ground</li> <li>• IPDM E/R</li> </ul>	Front fog lamp circuit Refer to <a href="#">EXL-69, "Component Function Check"</a> .
	Both sides	<b>Symptom diagnosis</b> "BOTH SIDE FRONT FOG LAMPS ARE NOT TURNED ON" Refer to <a href="#">EXL-89, "Diagnosis Procedure"</a> .	

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EXL

## NORMAL OPERATING CONDITION

< SYMPTOM DIAGNOSIS >

---

### NORMAL OPERATING CONDITION

#### Description

INFOID:000000007635336

#### LED HEADLAMP

- LED brightness and color may slightly change until the temperature becomes stable. This is not malfunction.
- Illumination time lag may occur between right and left. This is not malfunction.
- Brightness may be reduced due to aged deterioration of LED.
- Because of the dummy portion of connecting part of front combination lamp, water may be seemed as if it enters in headlamp after the vehicle is washed or after the rain. But, actually water is not entered in head lamp, and this is not malfunction.

#### AUTO LIGHT SYSTEM

The headlamp may not be turned ON/OFF immediately after passing dark area or bright area (short tunnel, sky bridge, shadowed area, etc.) while using the auto light system. This is caused by for the control difference. This is normal.

# BOTH SIDE HEADLAMPS (HI) ARE NOT TURNED ON

< SYMPTOM DIAGNOSIS >

## BOTH SIDE HEADLAMPS (HI) ARE NOT TURNED ON WITHOUT DAYTIME RUNNING LIGHT SYSTEM

### WITHOUT DAYTIME RUNNING LIGHT SYSTEM : Description

INFOID:000000007635337

Both side headlamps (HI) are not turned ON when setting to the lighting switch HI or PASS.

### WITHOUT DAYTIME RUNNING LIGHT SYSTEM : Diagnosis Procedure

INFOID:000000007635338

#### 1.COMBINATION SWITCH INSPECTION

Check combination switch. Refer to [BCS-76. "Symptom Table"](#).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace the malfunctioning part.

#### 2.CHECK HEADLAMP (HI) REQUEST SIGNAL INPUT

##### CONSULT DATA MONITOR

1. Select "HL HI REQ" of IPDM E/R data monitor item.
2. With operating the lighting switch, check the monitor status.

Monitor item	Condition	Monitor status
HL HI REQ	Lighting switch (2ND) HI or PASS	On
	LO	Off

Is the inspection result normal?

YES >> GO TO 3.

NO >> Replace BCM. Refer to [BCS-77. "Removal and Installation"](#).

#### 3.HEADLAMP (HI) CIRCUIT INSPECTION

Check headlamp (HI) circuit. Refer to [EXL-51. "WITHOUT DAYTIME RUNNING LIGHT SYSTEM : Component Function Check"](#).

Is the inspection result normal?

YES >> Refer to [GI-51. "Intermittent Incident"](#).

NO >> Repair or replace the malfunctioning part.

## WITH DAYTIME RUNNING LIGHT SYSTEM

### WITH DAYTIME RUNNING LIGHT SYSTEM : Description

INFOID:000000007635339

Both side headlamps (HI) are not turned ON when setting to the lighting switch HI or PASS.

### WITH DAYTIME RUNNING LIGHT SYSTEM : Diagnosis Procedure

INFOID:000000007635340

#### 1.COMBINATION SWITCH INSPECTION

Check combination switch. Refer to [BCS-76. "Symptom Table"](#).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace the malfunctioning part.

#### 2.CHECK HEADLAMP (HI) REQUEST SIGNAL INPUT

##### CONSULT DATA MONITOR

1. Select "HL HI REQ" of IPDM E/R data monitor item.
2. With operating the lighting switch, check the monitor status.

Monitor item	Condition	Monitor status
HL HI REQ	Lighting switch (2ND) HI or PASS	On
	LO	Off

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## BOTH SIDE HEADLAMPS (HI) ARE NOT TURNED ON

### < SYMPTOM DIAGNOSIS >

---

Is the inspection result normal?

YES >> GO TO 3.

NO >> Replace BCM. Refer to [BCS-77. "Removal and Installation"](#).

### 3. HEADLAMP (HI) CIRCUIT INSPECTION

---

Check headlamp (HI) circuit. Refer to [EXL-52. "WITH DAYTIME RUNNING LIGHT SYSTEM : Component Function Check"](#).

Is the inspection result normal?

YES >> Refer to [GI-51. "Intermittent Incident"](#).

NO >> Repair or replace the malfunctioning part.

# BOTH SIDE HEADLAMPS (LO) ARE NOT TURNED ON

< SYMPTOM DIAGNOSIS >

## BOTH SIDE HEADLAMPS (LO) ARE NOT TURNED ON

### Description

INFOID:000000007635341

Both side headlamps (LO) are not turned ON in any condition.

### Diagnosis Procedure

INFOID:000000007635342

#### 1. CHECK COMBINATION SWITCH

Check combination switch. Refer to [BCS-76, "Symptom Table"](#).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace the malfunctioning part.

#### 2. CHECK HEADLAMP (LO) REQUEST SIGNAL INPUT

 CONSULT DATA MONITOR

1. Select "HL LO REQ" of IPDM E/R data monitor item.

2. With operating the lighting switch, check the monitor status.

Monitor item	Condition		Monitor status
HL LO REQ	Lighting switch	2ND	On
		OFF	Off

Is the inspection result normal?

YES >> GO TO 3.

NO >> Replace BCM. Refer to [BCS-77, "Removal and Installation"](#).

#### 3. HEADLAMP (LO) CIRCUIT INSPECTION

Check headlamp (LO) circuit. Refer to [EXL-55, "Component Function Check"](#).

Is the inspection result normal?

YES >> Refer to [GI-51, "Intermittent Incident"](#).

NO >> Repair or replace the malfunctioning part.

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EXL

# PARKING, LICENSE PLATE, SIDE MARKER AND TAIL LAMPS ARE NOT TURNED ON

< SYMPTOM DIAGNOSIS >

## PARKING, LICENSE PLATE, SIDE MARKER AND TAIL LAMPS ARE NOT TURNED ON

### Description

INFOID:000000007635343

The parking, license plate, side marker, tail lamps and each illumination are not turned ON in any condition.

### Diagnosis Procedure

INFOID:000000007635344

#### 1.COMBINATION SWITCH INSPECTION

Check combination switch. Refer to [BCS-76. "Symptom Table"](#).

Is the combination switch normal?

YES >> GO TO 2.

NO >> Repair or replace the malfunctioning part.

#### 2.CHECK TAIL LAMP RELAY REQUEST SIGNAL INPUT

##### ⓈCONSULT DATA MONITOR

1. Select "TAIL & CLR REQ" of IPDM E/R data monitor item.
2. With operating the lighting switch, check the monitor status.

Monitor item	Condition		Monitor status
TAIL & CLR REQ	Lighting switch	1ST	On
		OFF	Off

Is the inspection result normal?

YES >> Replace IPDM E/R.

NO >> Replace BCM. Refer to [BCS-77. "Removal and Installation"](#).



# BOTH SIDE FRONT FOG LAMPS ARE NOT TURNED ON

< SYMPTOM DIAGNOSIS >

## BOTH SIDE FRONT FOG LAMPS ARE NOT TURNED ON

### Description

INFOID:000000007635345

The front fog lamps are not turned ON in any condition.

### Diagnosis Procedure

INFOID:000000007635346

#### 1.CHECK FUSE

Check that the following fuse is not fusing.

Unit	Location	Fuse No.	Capacity
Front fog lamp	IPDM E/R	#50	15 A

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the applicable circuit. And then replace the fuse.

#### 2.COMBINATION SWITCH INSPECTION

Check combination switch. Refer to [BCS-76. "Symptom Table"](#).

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace the malfunctioning part.

#### 3.CHECK FRONT FOG LAMP REQUEST SIGNAL INPUT

##### CONSULT DATA MONITOR

1. Select "FR FOG REQ" of IPDM E/R data monitor item.

2. With operating the front fog lamp switch, check the monitor status.

Monitor item	Condition	Monitor status	
FR FOG REQ	Front fog lamp switch (With lighting switch 2ND)	ON	On
		OFF	Off

Is the item status normal?

YES >> Replace IPDM E/R.

NO >> Replace BCM. Refer to [BCS-77. "Removal and Installation"](#).

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EXL

# HEADLAMP AIMING ADJUSTMENT

< PERIODIC MAINTENANCE >

## PERIODIC MAINTENANCE

### HEADLAMP AIMING ADJUSTMENT

#### Description

INFOID:000000007635347

#### PREPARATION BEFORE ADJUSTING

##### NOTE:

- For details, refer to the regulations in your own country.
- Perform aiming if the vehicle front body has been repaired and/or the headlamp assembly has been replaced.

Before performing aiming adjustment, check the following.

- Adjust the tire pressure to the specification.
- Fill with coolant and each oil.
- Maintain the unloaded vehicle condition. (Remove luggage from the passenger compartment and the trunk room.)

##### NOTE:

Do not remove the on-vehicle tool.

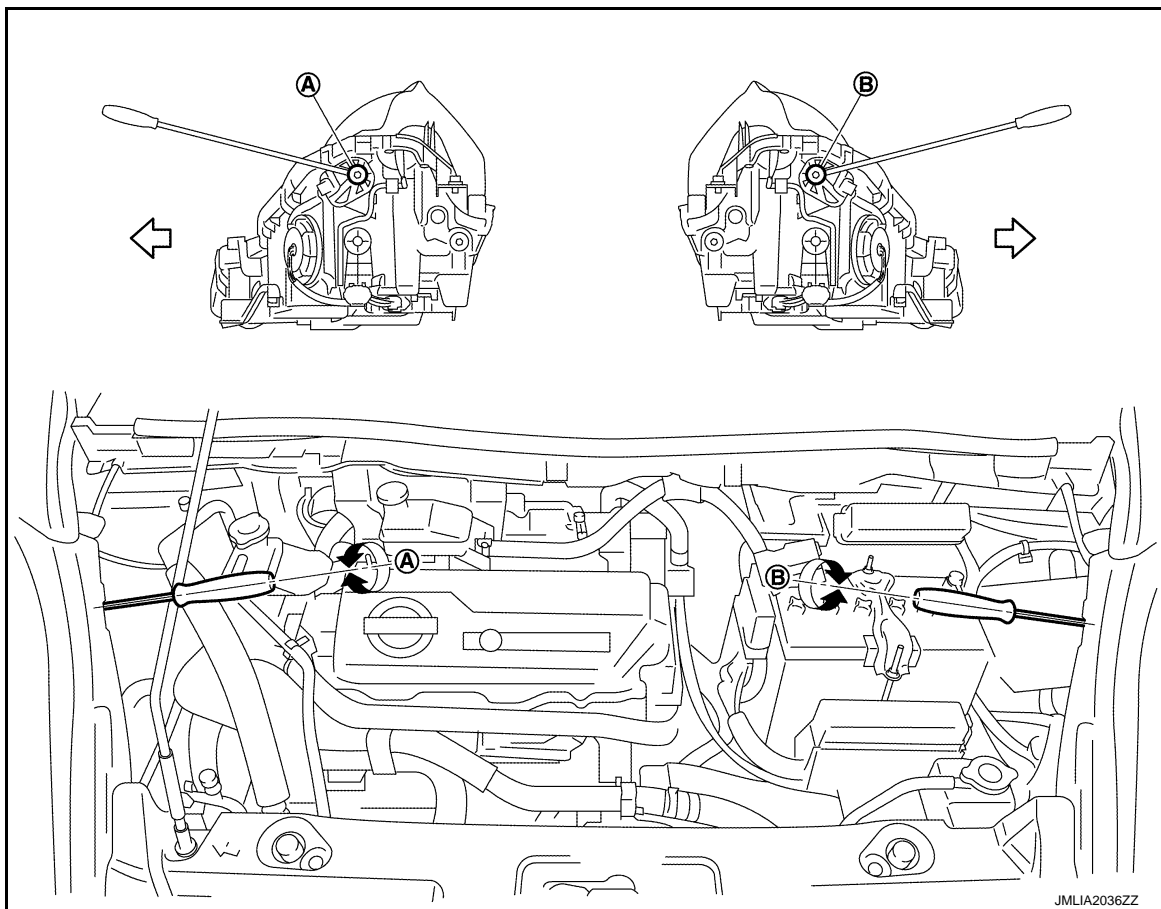
- Wipe out dirt on the headlamp.

##### CAUTION:

**Never use organic solvent (thinner, gasoline etc.)**

- Ride alone on the driver seat.

#### AIMING ADJUSTMENT SCREW



A Headlamp RH (UP/DOWN) adjustment screw B. Headlamp LH (UP/DOWN) adjustment screw

↔ : Vehicle center

# HEADLAMP AIMING ADJUSTMENT

< PERIODIC MAINTENANCE >

Adjustment screw		Screw driver rotation	Facing direction
A	Headlamp RH (UP/DOWN)	Clockwise	DOWN
		Counterclockwise	UP
B	Headlamp LH (UP/DOWN)	Clockwise	DOWN
		Counterclockwise	UP

## Aiming Adjustment Procedure

INFOID:000000007635348

- Place the screen.

**NOTE:**

- Stop the vehicle facing the wall.
- Place the board on a plain road vertically.

- Face the vehicle with the screen. Maintain 10 m (32.8 ft) between the headlamp center and the screen.
- Start the engine. Turn the headlamp (LO) ON.

**NOTE:**

Shut off the headlamp light with the board to prevent from illuminating the adjustment screen.

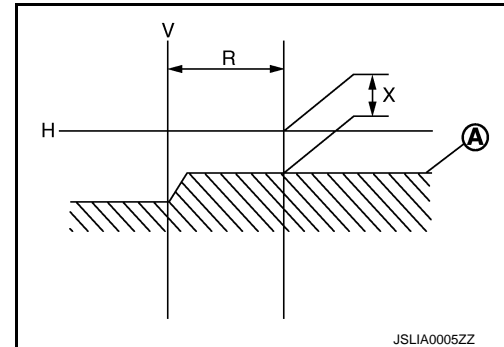
**CAUTION:**

**Never cover the lens surface with a tape etc. The lens is made of resin.**

- Measure the distance (X) between the horizontal center line of headlamp (H) and the cutoff line (A) within the light axis measurement range (R) from the vertical center line ahead of headlamp (V).

**Light axis measurement range (R) : 350 ± 175 mm (13.78 ± 6.89 in)**

Low beam distribution on the screen

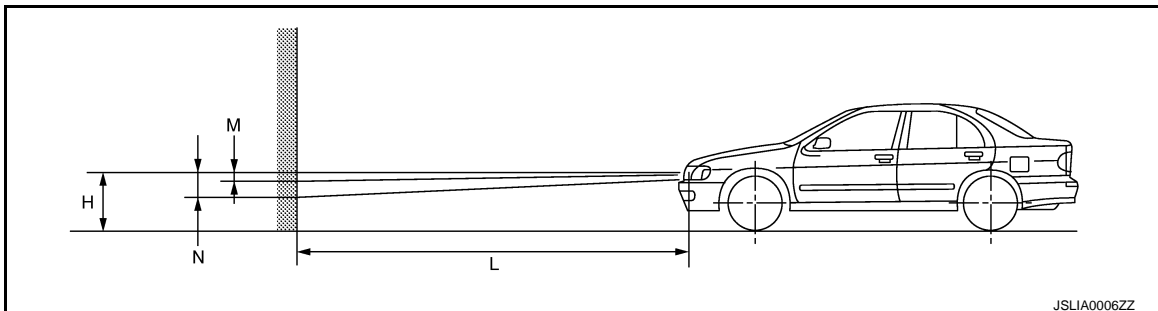


- Adjust the cutoff line height (X) with the aiming adjustment screw so as to enter in the adjustment range (M–N) according to the horizontal center line of headlamp (H).

unit: mm (in)

Horizontal center line of headlamp (H)	Highest cutoff line height (M)	Lowest cutoff line height (N)
700 (27.56) or less	4 (0.16)	30 (1.18)
701(27.60) – 800 (31.50)	4 (0.16)	30 (1.18)
801 (31.54) or more	17 (0.67)	44 (1.73)

Side view



**Distance between the headlamp center and the screen (L) : 10 m (32.8 ft)**

# FRONT FOG LAMP AIMING ADJUSTMENT

< PERIODIC MAINTENANCE >

## FRONT FOG LAMP AIMING ADJUSTMENT

### Description

INFOID:000000007635349

### PREPARATION BEFORE ADJUSTING

#### NOTE:

- For details, refer to the regulations in your own country.
- Perform aiming if the vehicle front body has been repaired and/or the fog lamp assembly has been replaced.

Before performing aiming adjustment, check the following.

- Adjust the tire pressure to the specification.
- Fill with coolant and each oil.
- Maintain the unloaded vehicle condition. (Remove luggage from the passenger compartment and the trunk room.)

#### NOTE:

Do not remove the temporary tire, jack and on-vehicle tool.

- Wipe out dirt on the fog lamp.

#### CAUTION:

**Never use organic solvent (thinner, gasoline etc.)**

- Ride alone on the driver seat.

### AIMING ADJUSTMENT SCREW

- Turn the aiming adjusting screw for adjustment.

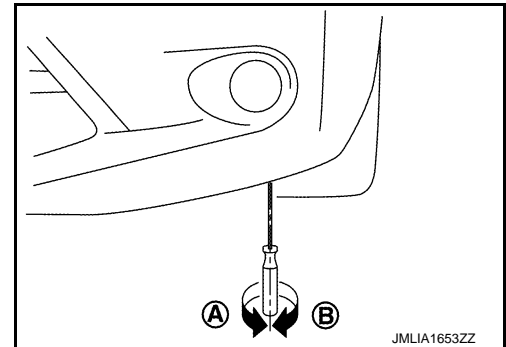
A: DOWN

B: UP

- For the position and direction of the adjusting screw, refer to the figure.

#### NOTE:

A screwdriver or hexagonal wrench [6 mm (0.24 in)] can be used for adjustment.



### Aiming Adjustment Procedure

INFOID:000000007635350

1. Place the screen.

#### NOTE:

- Stop the vehicle facing the wall.
- Place the board on a plain road vertically.

2. Face the vehicle with the screen. Maintain 10 m (32.8 ft) between the front fog lamp center and the screen.

3. Start the motor. Turn the front fog lamp ON.

#### NOTE:

Shut off the headlamp light with the board to prevent from illuminating the adjustment screen.

#### CAUTION:

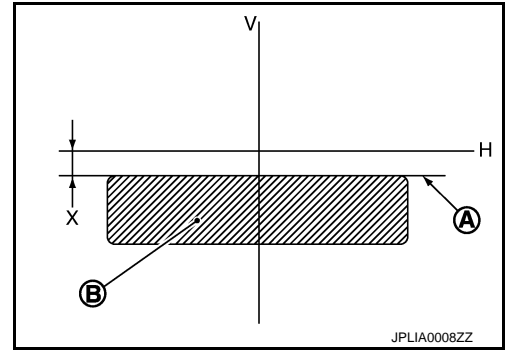
**Never cover the lens surface with a tape etc. The lens is made of resin.**

4. Adjust the cutoff line height (A) with the aiming adjustment screw so that the distance (X) between the horizontal center line of front fog lamp (H) and (A) becomes 150 mm (5.906 in).

# FRONT FOG LAMP AIMING ADJUSTMENT

< PERIODIC MAINTENANCE >

Front fog lamp light distribution on the screen



- A : Cutoff line
- B : High illuminance area
- H : Horizontal center line of front fog lamp
- V : Vertical center line of front fog lamp
- X : Cutoff line height

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EXL

# FRONT COMBINATION LAMP

< REMOVAL AND INSTALLATION >

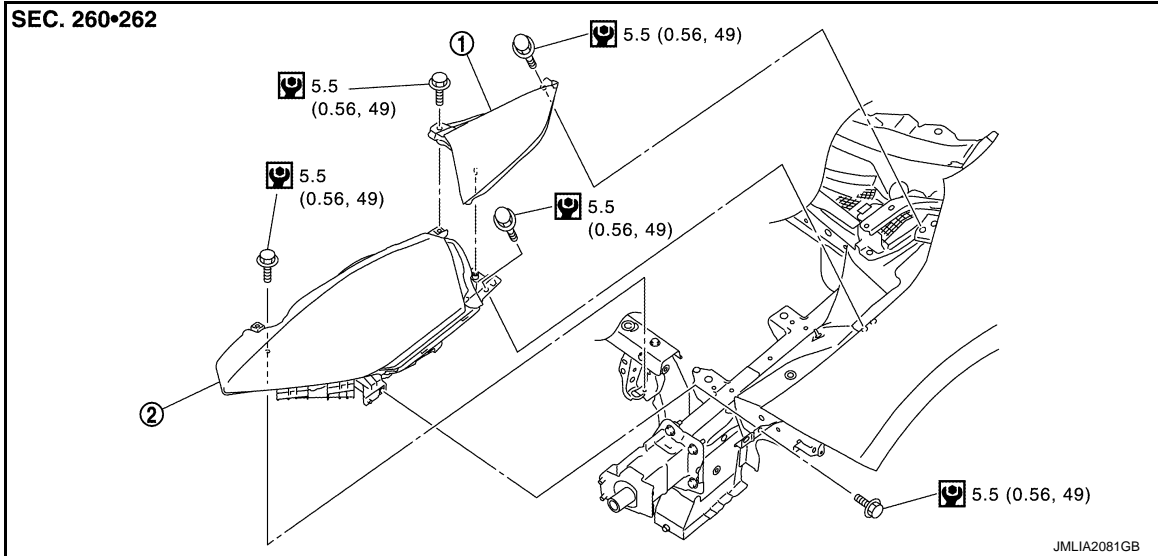
## REMOVAL AND INSTALLATION

### FRONT COMBINATION LAMP


Exploded View

INFOID:000000007635351

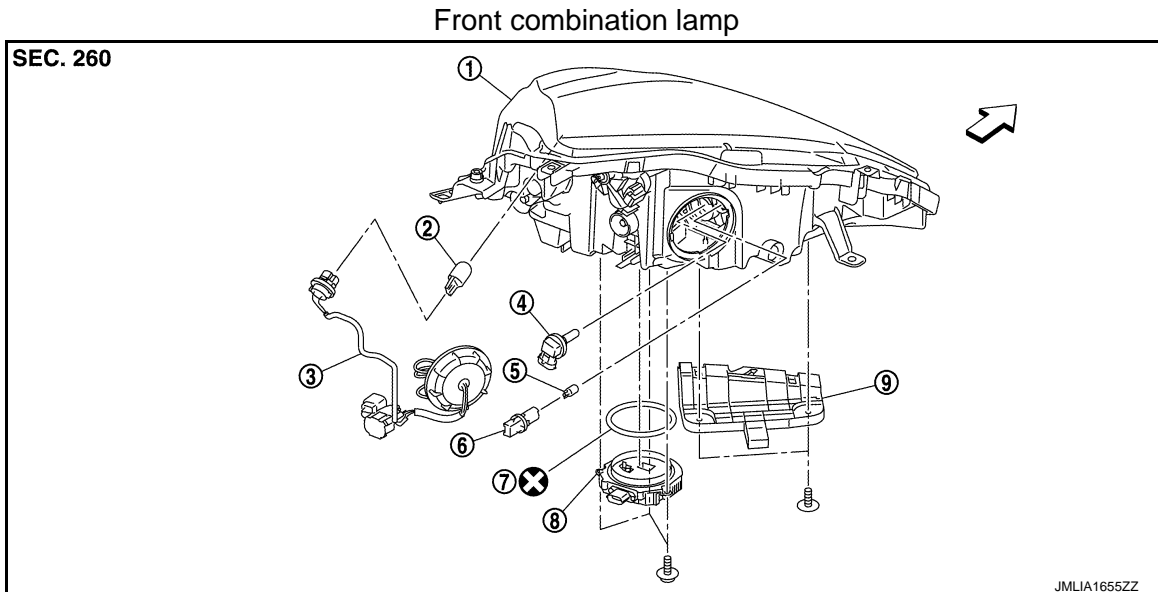
#### REMOVAL




1. Front side maker lamp                      2. Front combination lamp

 : N·m (kg-m, in-lb)

#### DISASSEMBLY



- |                      |                                |                             |
|----------------------|--------------------------------|-----------------------------|
| 1. Housing assembly  | 2. Front turn signal lamp bulb | 3. Harness                  |
| 4. Halogen bulb (HI) | 5. Parking lamp bulb           | 6. Parking lamp bulb socket |
| 7. Seal packing      | 8. LED headlamp control module | 9. Bumper bracket           |

 : Always replace after every disassembly.

 : Vehicle front

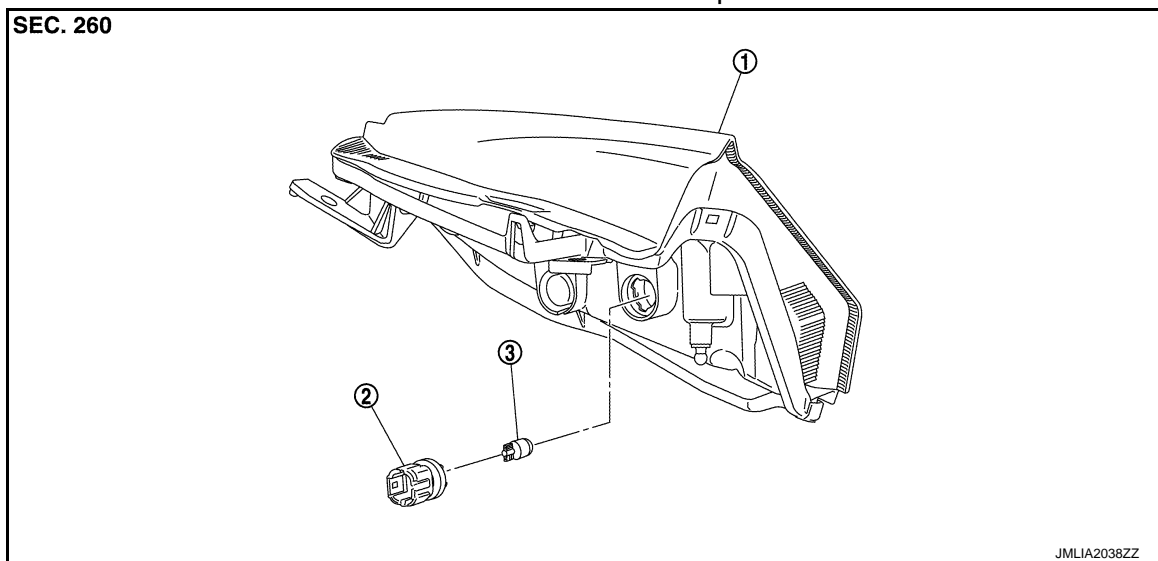
**CAUTION:**

# FRONT COMBINATION LAMP

## < REMOVAL AND INSTALLATION >

- Never disassemble LED headlamp (LO) unit assembly.
- Replace front combination lamp, when malfunction LED headlamp unit.

Front side maker lamp



1. Front side maker lamp housing      2. Front side maker lamp bulb socket      3. Front side maker lamp bulb

## Removal and Installation

INFOID:000000007635352

### REMOVAL

#### CAUTION:

Disconnect the 12V battery negative terminal or remove the fuse to electric leakage. Refer to [EXL-5, "Precautions for Removing Battery Terminal"](#).

1. Remove front bumper fascia. Refer to [EXT-13, "Removal and Installation"](#).
2. Remove front side maker lamp mounting bolts.
3. Pull up front side maker lamp, and then remove front side maker lamp.
4. Remove front combination lamp mounting bolts.
5. Pull out front combination lamp forward the vehicle, and then disconnect the connector before removing front combination lamp.

### INSTALLATION

Note the following item, and then install in the reverse order of removal.

#### NOTE:

After installation, perform aiming adjustment. Refer to [EXL-90, "Description"](#).

## Replacement

INFOID:000000007635353

#### CAUTION:

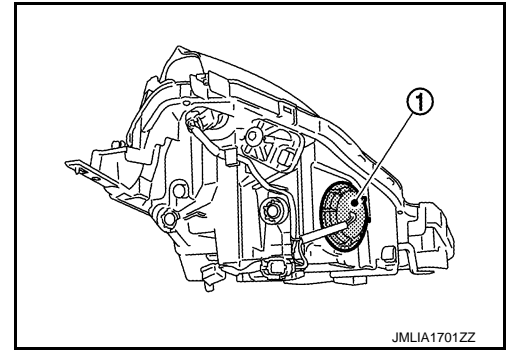
- Disconnect the 12V battery negative terminal or remove the fuse to electric leakage. Refer to [EXL-5, "Precautions for Removing Battery Terminal"](#).
- After installing the bulb, install the resin cap and the bulb socket securely for watertightness.
- Never touch the glass of bulb directly by hand. Keep grease and other oily matters away from it to prevent damage to the bulb.
- Never touch bulb by hand while it is lit or right after being turned off to prevent a burns.
- Never leave bulb out of lamp reflector for a long time because dust, moisture smoke, etc. may affect the performance of lamp. When replacing bulb, be sure to replace it with new one.

## PARKING LAMP BULB

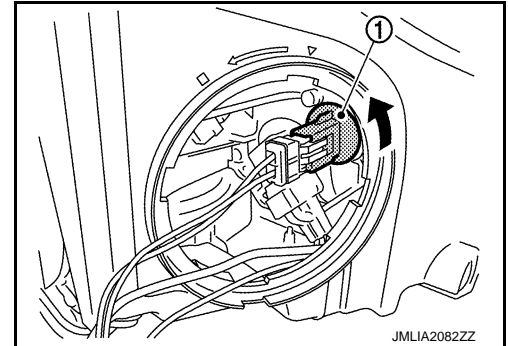
## FRONT COMBINATION LAMP

### < REMOVAL AND INSTALLATION >

1. Rotate resin cap (1) counterclockwise and unlock it.



2. Rotate parking lamp bulb socket (1) counterclockwise and unlock it.



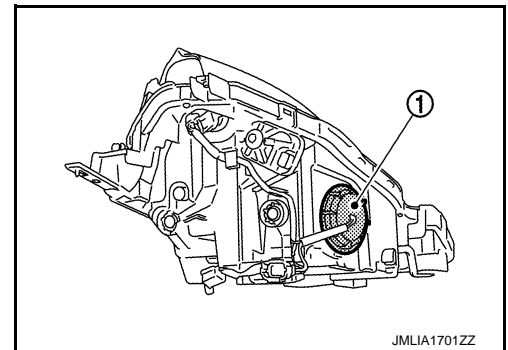
3. Remove parking lamp bulb from bulb socket.

### HEADLAMP BULB (LO)

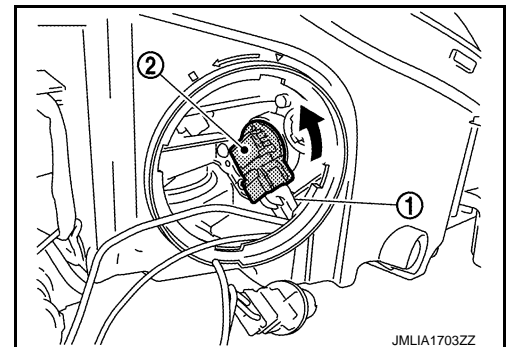
LED is used for headlamp bulb (LO). Always replace front combination lamp assembly as a unit, when bulb is to be replaced because of malfunction.

### HEADLAMP BULB (HI)

1. Rotate resin cap (1) counterclockwise and unlock it.



2. Remove parking lamp bulb and socket.
3. Rotate headlamp bulb (HI) (2) counterclockwise and unlock it.
4. Disconnect headlamp bulb (HI) harness connector (1).



5. Remove headlamp bulb (HI) from the headlamp housing assembly.

### FRONT TURN SIGNAL LAMP BULB

1. Rotate bulb socket counterclockwise and unlock it.



# FRONT COMBINATION LAMP

## < REMOVAL AND INSTALLATION >

2. Remove bulb from the bulb socket.

### FRONT SIDE MAKER LAMP BULB

1. Rotate bulb socket counterclockwise and unlock it.
2. Remove bulb from the bulb socket.

### Disassembly and Assembly

INFOID:000000007635354

#### DISASSEMBLY

1. Rotate resin cap counterclockwise and unlock it.
2. Rotate parking lamp bulb socket counterclockwise and unlock it.
3. Disconnect parking lamp harness connector.
4. Rotate headlamp bulb (HI) counterclockwise and unlock it.
5. Disconnect headlamp bulb (HI) harness connector.
6. Rotate turn signal lamp bulb socket counterclockwise and unlock it.
7. Remove turn signal lamp bulb from bulb socket.
8. Remove LED headlamp control module mounting screws.
9. Disconnect LED headlamp control module harness connector, and then remove LED headlamp control module.
10. Remove combination lamp harness connector.

#### ASSEMBLY

Note the following items, and then assemble in the reverse order of disassembly.

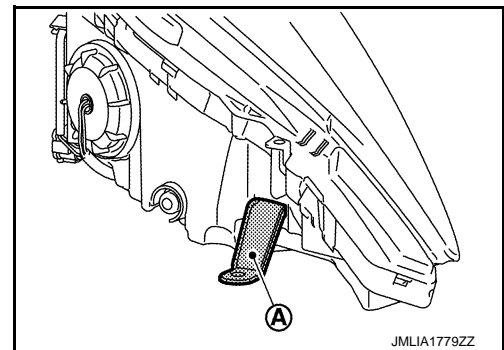
#### CAUTION:

- Install LED headlamp control module securely.
- Always replace seal packing, when remove/replace LED headlamp control module.
- After installing the bulb, install the resin cap and the bulb socket securely for watertightness.

#### Installing service bracket

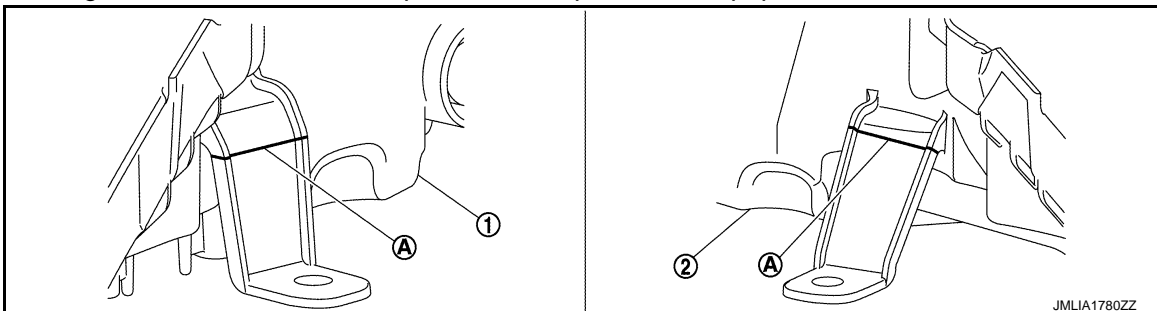
INFOID:000000007635355

If only installation part (A) as shown in the figure is damaged, and front combination lamp housing itself is not damaged, repair can be completed easily by installing service brackets.



#### Removal

1. Remove front combination lamp. Refer to [EXL-95, "Removal and Installation"](#).
2. Cut damaged section of installation part, then shape with sandpaper.



1. Front combination lamp RH
- A. Cut line (R end)

2. Front combination lamp LH

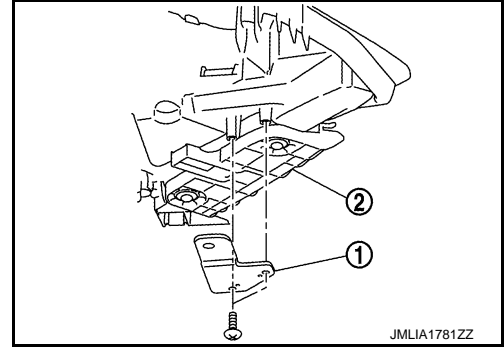
## FRONT COMBINATION LAMP

### < REMOVAL AND INSTALLATION >

---

#### Installation

1. Install service bracket (1) to headlamp housing (2) with screws.



2. Install front combination lamp to the vehicle.

**NOTE:**

After installation, perform aiming adjustment. Refer to [EXL-90. "Description"](#).

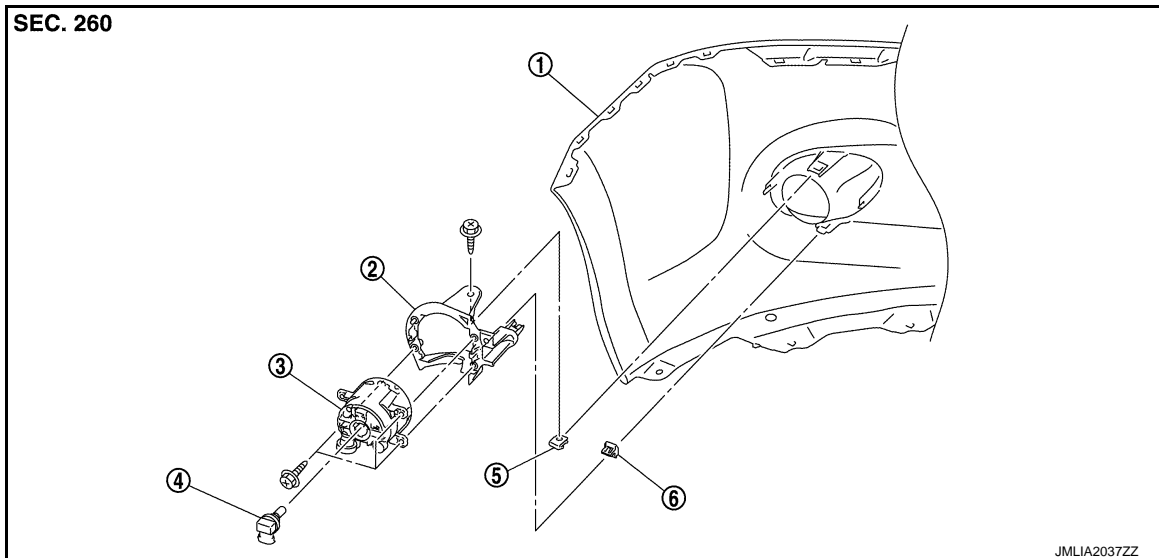
# FRONT FOG LAMP

< REMOVAL AND INSTALLATION >

## FRONT FOG LAMP

Exploded View

INFOID:000000007635356



- |                        |                           |                   |
|------------------------|---------------------------|-------------------|
| 1. Front bumper fascia | 2. Front fog lamp bracket | 3. Front fog lamp |
| 4. Front fog lamp bulb | 5. J nut                  | 6. Metal clip     |

### Removal and Installation

INFOID:000000007635357

#### CAUTION:

Disconnect the 12V battery negative terminal or remove the fuse to electric leakage. Refer to [EXL-5, "Precautions for Removing Battery Terminal"](#).

#### REMOVAL

1. Remove the front bumper fascia. Refer to [EXT-13, "Removal and Installation"](#).
2. Remove the front fog lamp fixing screws, and then remove front fog lamp.

#### INSTALLATION

Note the following item, and then install in the reverse order of removal.

#### NOTE:

After installation, perform aiming adjustment. Refer to [EXL-92, "Description"](#)

### Replacement

INFOID:000000007635358

#### CAUTION:

- Disconnect the 12V battery negative terminal or remove the fuse to electric leakage. Refer to [EXL-5, "Precautions for Removing Battery Terminal"](#).
- Never touch the glass of bulb directly by hand. Keep grease and other oily matters away from it to prevent damage to the bulb.
- Never touch bulb by hand while it is lit or right after being turned off to prevent a burns.
- Never leave bulb out of lamp reflector for a long time because dust, moisture smoke, etc. may affect the performance of lamp. When replacing bulb, be sure to replace it with new one.

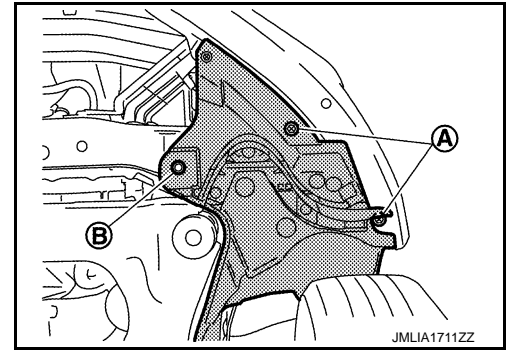
#### FRONT FOG LAMP BULB

1. Remove front under cover. Refer to [EXT-23, "FRONT UNDER COVER : Removal and Installation"](#).

## FRONT FOG LAMP

### < REMOVAL AND INSTALLATION >

2. Remove front fender protector mounting bolts (A) and clip (B).



3. Remove front fog lamp bulb connector.
4. Rotate bulb counterclockwise and unlock it.

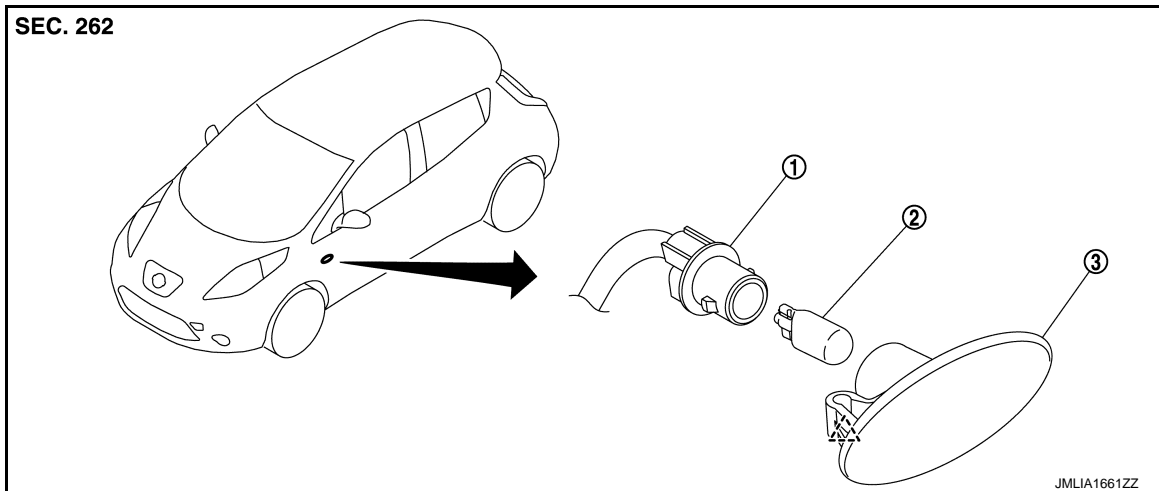
# SIDE TURN SIGNAL LAMP

< REMOVAL AND INSTALLATION >


## SIDE TURN SIGNAL LAMP

Exploded View

INFOID:000000007635359



1. Side turn signal lamp bulb socket
2. Side turn signal lamp bulb
3. Side turn signal lamp housing

 : Pawl

### Removal and Installation



INFOID:000000007635360

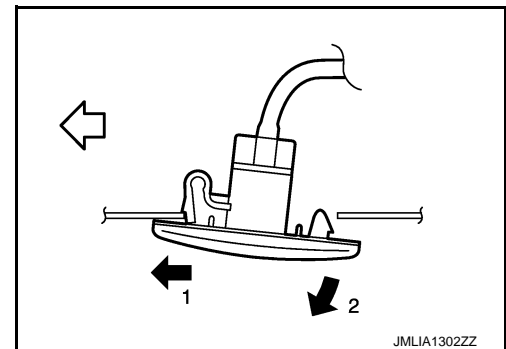
#### CAUTION:

Disconnect the 12V battery negative terminal or remove the fuse to electric leakage. Refer to [EXL-5, "Precautions for Removing Battery Terminal"](#).

#### REMOVAL

1. Remove the side turn signal lamp in numerical order shown in the figure.
2. Rotate the bulb socket counterclockwise and unlock it.

 : Vehicle front (LH side)  
 : Vehicle rear (RH side)



#### INSTALLATION

Install in the reverse order of removal.

## LIGHTING & TURN SIGNAL SWITCH

< REMOVAL AND INSTALLATION >

---

### LIGHTING & TURN SIGNAL SWITCH

#### Exploded View

INFOID:000000007635361

The lighting & turn signal switch is integrated in the combination switch. Refer to [BCS-78, "Removal and Installation"](#).

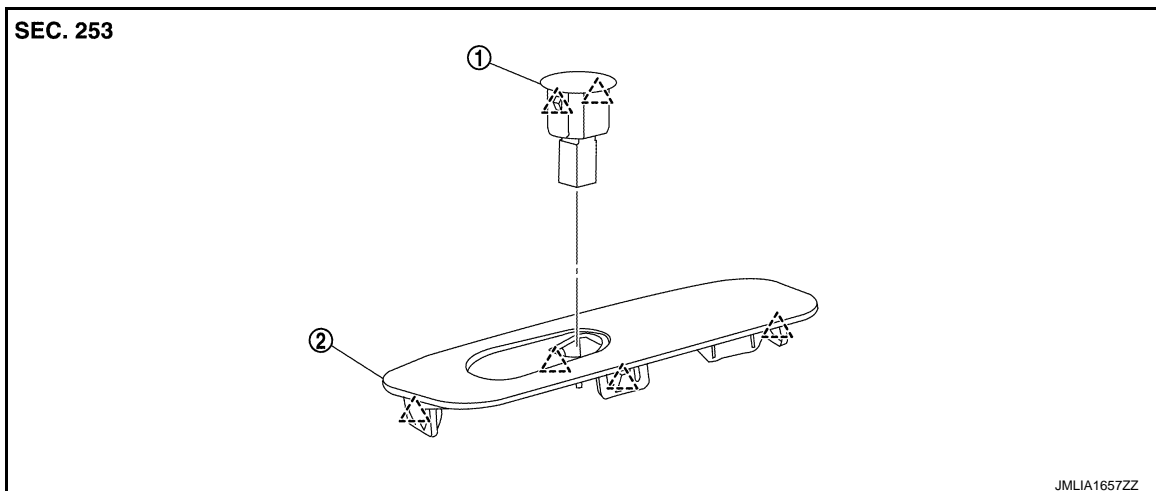
# OPTICAL SENSOR

< REMOVAL AND INSTALLATION >

## OPTICAL SENSOR


### Exploded View

INFOID:000000007635362



1. Optical sensor

2. Switch panel

 : Pawl

### Removal and Installation

INFOID:000000007635363

#### REMOVAL

1. Insert an appropriate tool between the switch panel and the instrument upper panel. Pull out the optical sensor upward.
2. Disconnect the optical sensor connector.
3. Remove optical sensor from switch panel.

#### INSTALLATION

Install in the reverse order of removal.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K

EXL

M  
N  
O  
P

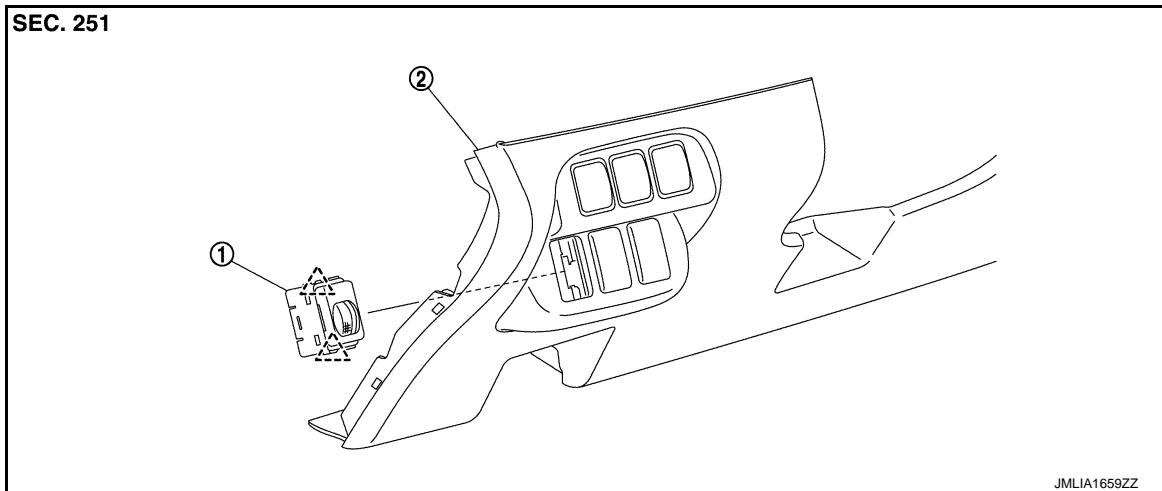
# HEADLAMP AIMING SWITCH

< REMOVAL AND INSTALLATION >


## HEADLAMP AIMING SWITCH

Exploded View

INFOID:000000007635364



1. Headlamp aiming switch
2. Instrument lower panel

 : Pawl

## Removal and Installation

INFOID:000000007635365

### REMOVAL

1. Remove the instrument lower panel LH. Refer to [JP-13. "Exploded View"](#).
2. Disengage headlamp aiming switch pawls, and then remove headlamp aiming switch.

### INSTALLATION

Install in the reverse order of removal.



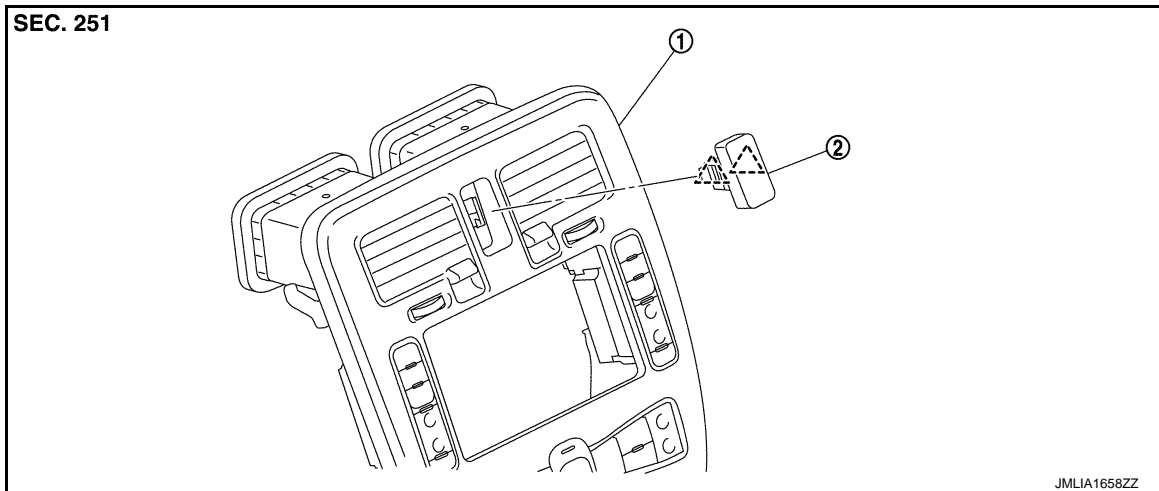
# HAZARD SWITCH

< REMOVAL AND INSTALLATION >

## HAZARD SWITCH

Exploded View

INFOID:000000007635366



1. Cluster lid C

2. Hazard switch

△ : Pawl

### Removal and Installation

INFOID:000000007635367

#### REMOVAL

1. Remove cluster lid C. Refer to [IP-14, "Removal and Installation"](#).
2. Disengage hazard switch fixing pawls, and then remove hazard switch.

#### INSTALLATION

Install in the reverse order of removal.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
O  
P

EXL

# REAR COMBINATION LAMP

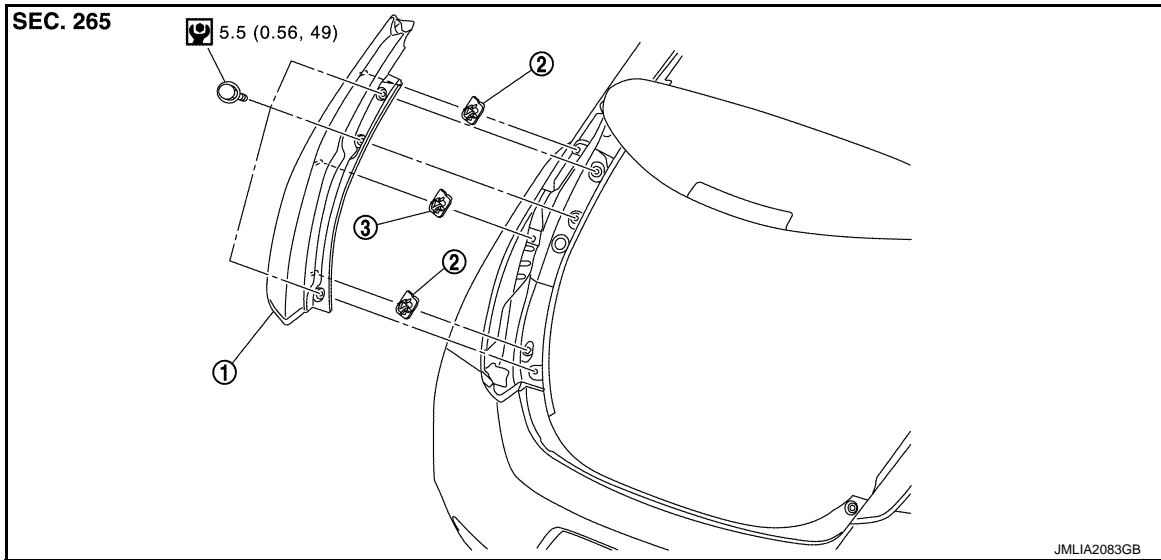
< REMOVAL AND INSTALLATION >

## REAR COMBINATION LAMP

Exploded View

INFOID:000000007635368


### REMOVAL



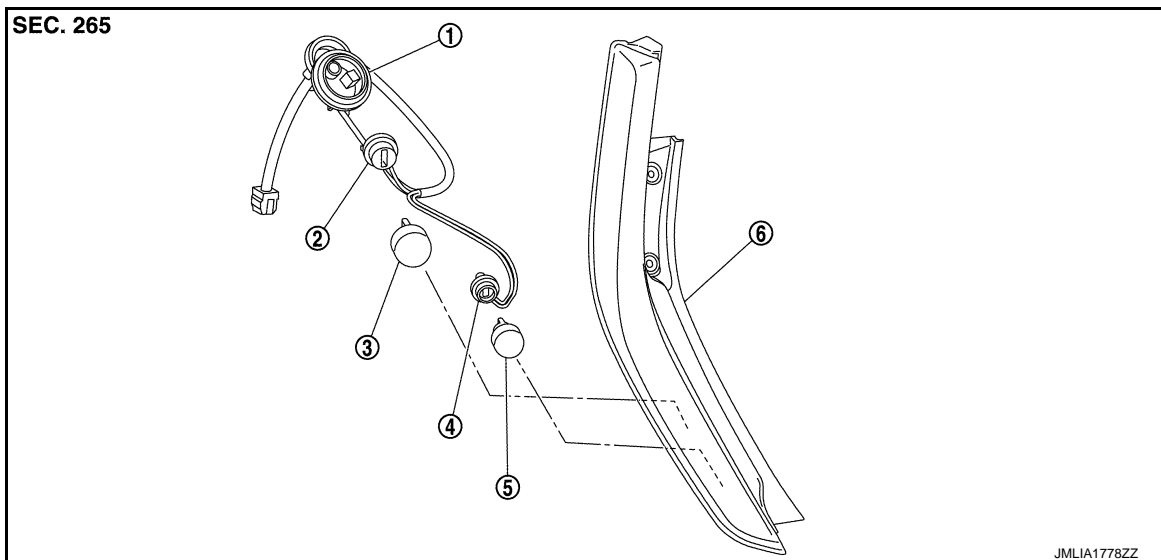
1. Rear combination lamp

2. Grommet A

3. Grommet B

 : N·m (kg-m, in-lb)

### DISASSEMBLY



1. Rear combination lamp harness

2. Rear turn signal bulb socket

3. Rear turn signal bulb

4. Buck-up lamp bulb socket

5. Buck-up lamp bulb

6. Rear combination lamp housing assembly

### Removal and Installation

INFOID:000000007635369

#### CAUTION:

- Disconnect the 12V battery negative terminal or remove the fuse. Refer to [EXL-5, "Precautions for Removing Battery Terminal"](#).
- Wrap the tools with a shop cloth or tape to prevent damage when using the tools during removal.

# REAR COMBINATION LAMP

## < REMOVAL AND INSTALLATION >

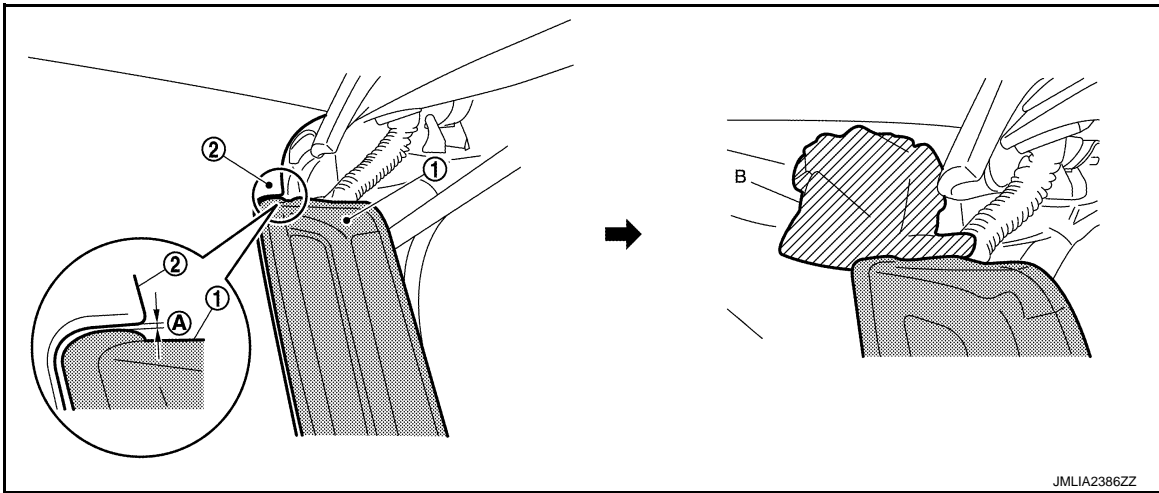
- Fogging of rear combination lamp inside is not a malfunction. Never replace parts. Fogging is a symptom in which inner surface of lens becomes whitely clouded, without there being visible water drops or water spots, as if lens is made of frosted-glass.

### REMOVAL


1. Remove luggage side lower finisher. Refer to [INT-38. "LUGGAGE SIDE LOWER FINISHER : Removal and Installation"](#).
2. Disconnect rear combination lamp connector.
3. Remove rear combination lamp mounting bolts.
4. Insert a shop cloth (B) into clearance (A) between rear combination lamp (1) and rear fender panel (2), or apply protective tape.

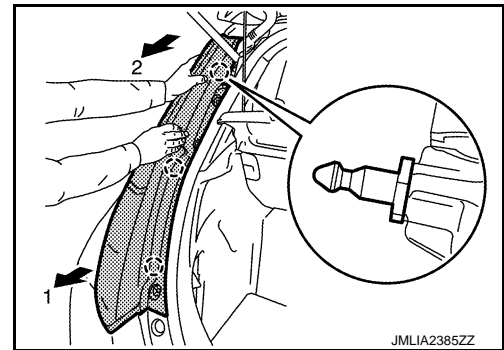
#### CAUTION:

- To prevent rear fender panel paint surface from being damaged, always apply protection using a shop cloth or protective tape.
- When using protective tape, apply protective tape to both rear fender panel and rear combination lamp.



5. Pull rear combination lamp toward vehicle rear side, as shown by the arrow in the figure.

 : Clip



6. Remove rear combination lamp.

### INSTALLATION

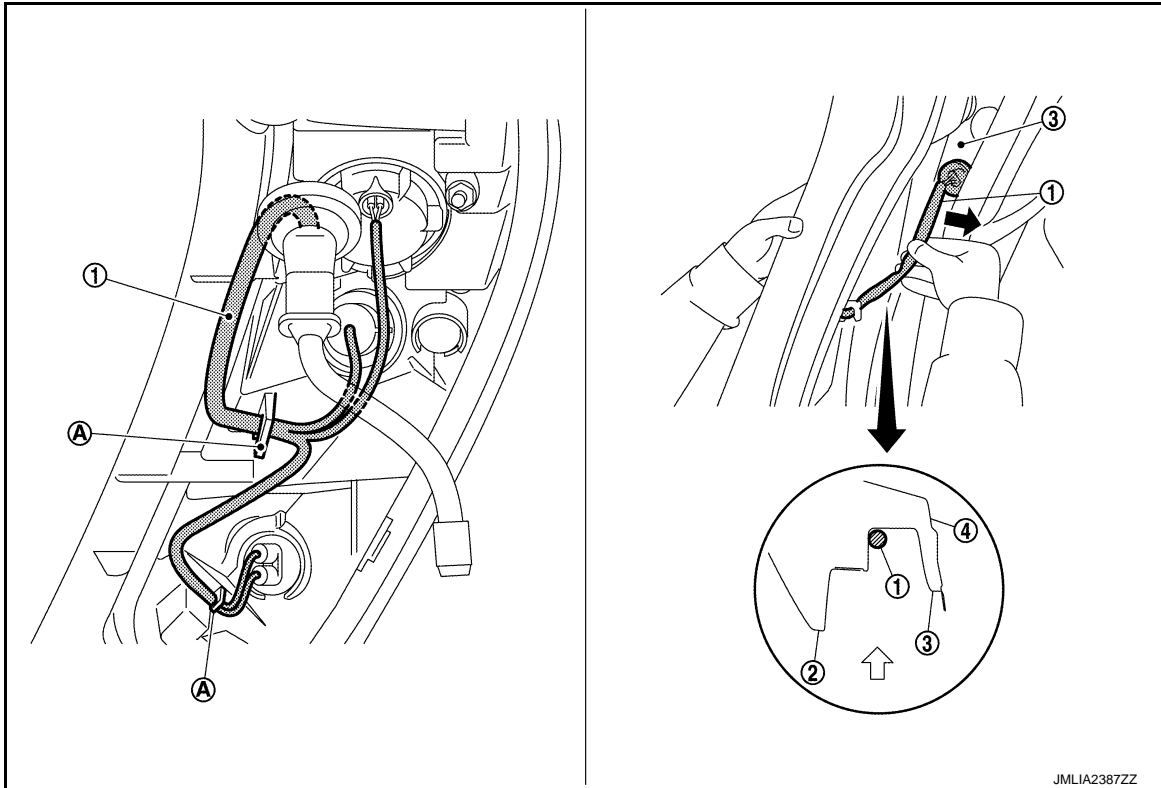
Note the following item, and then install in the reverse order of removal.

#### CAUTION:

# REAR COMBINATION LAMP

## < REMOVAL AND INSTALLATION >

When installing rear combination lamp, fix harness using harness fixing hook (A) on backside of rear combination lamp housing and place harness toward vehicle inside so that harness is not pinched by rear fender panel.



1. Harness  
2. Rear fender panel  
3. Rear fender extension  
4. Rear inner panel  
← : Vehicle front

## Replacement

INFOID:000000007635370

### CAUTION:

- Disconnect the 12V battery negative terminal or remove the fuse. Refer to [EXL-5, "Precautions for Removing Battery Terminal"](#).
- Never touch the glass of bulb directly by hand. Keep grease and other oily matters away from it. Never touch bulb by hand while it is lit or right after being turned off.
- Never leave bulb out of lamp reflector for a long time because dust, moisture smoke, etc. may affect the performance of lamp. When replacing bulb, be sure to replace it with new one.

### STOP/TAIL LAMP BULB

LED is used for stop/tail lamp bulb. Always replace rear combination lamp assembly as a unit, when bulb is to be replaced because of malfunction.

### REAR TURN SIGNAL LAMP BULB

1. Remove rear combination lamp mounting bolts.
2. Insert a shop cloth (B) into clearance (A) between rear combination lamp (1) and rear fender panel (2), or apply protective tape.

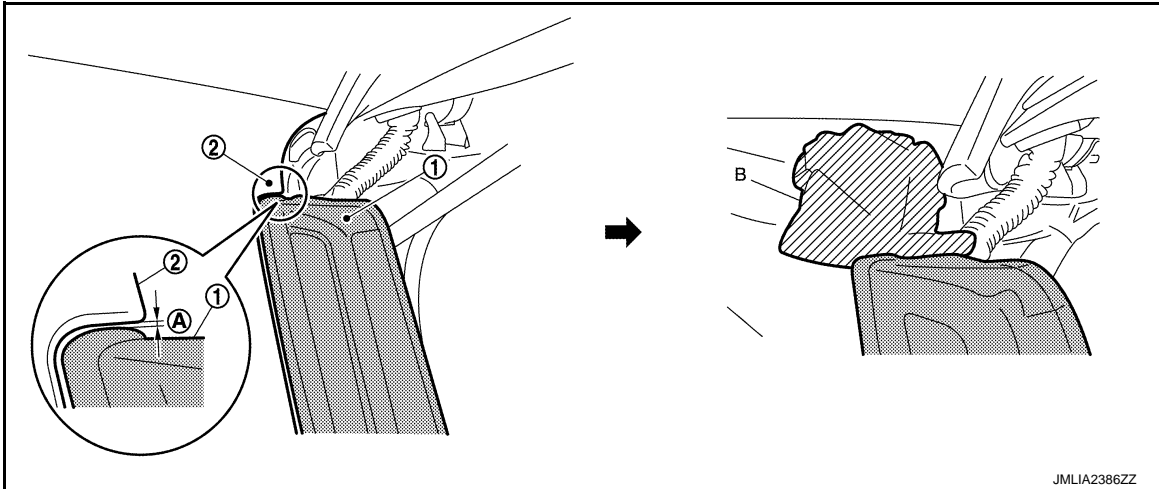
### CAUTION:

- To prevent rear fender panel paint surface from being damaged, always apply protection using a shop cloth or protective tape.

# REAR COMBINATION LAMP

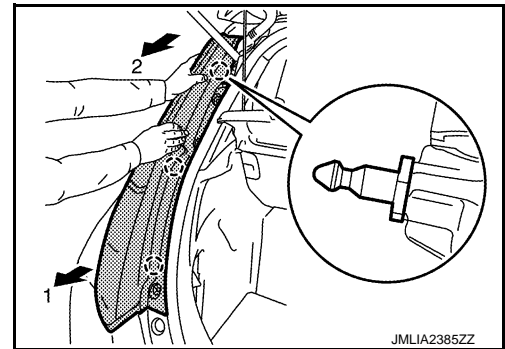
## < REMOVAL AND INSTALLATION >

- When using protective tape, apply protective tape to both rear fender panel and rear combination lamp.



3. Pull rear combination lamp toward vehicle rear side, as shown by the arrow in the figure.

○ : Clip



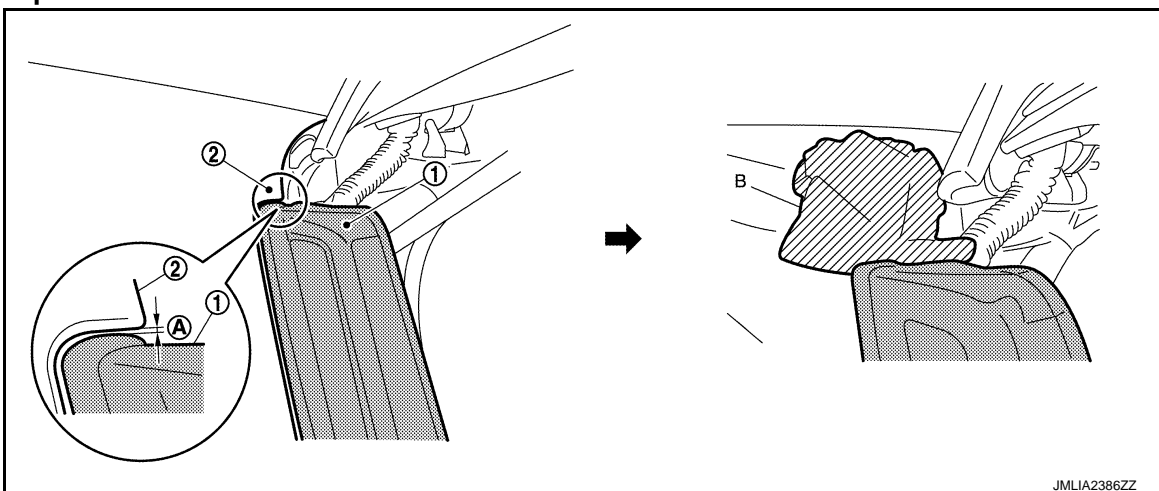
4. Rotate bulb socket counterclockwise and unlock it.
5. Remove bulb from the socket.

## BACK-UP LAMP BULB

1. Remove rear combination lamp mounting bolts.
2. Insert a shop cloth (B) into clearance (A) between rear combination lamp (1) and rear fender panel (2), and apply protective tape.

### CAUTION:


- To prevent rear fender panel paint surface from being damaged, always apply protection using a shop cloth or protective tape.
- When using protective tape, apply protective tape to both rear fender panel and rear combination lamp.

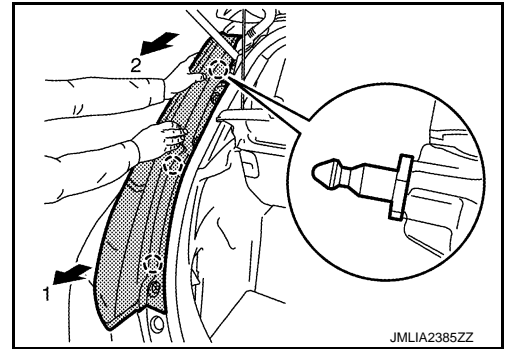


## REAR COMBINATION LAMP

### < REMOVAL AND INSTALLATION >

3. Pull rear combination lamp toward vehicle rear side, as shown by the arrow in the figure.

 : Clip



4. Rotate bulb socket counterclockwise and unlock it.
5. Remove bulb from the socket.

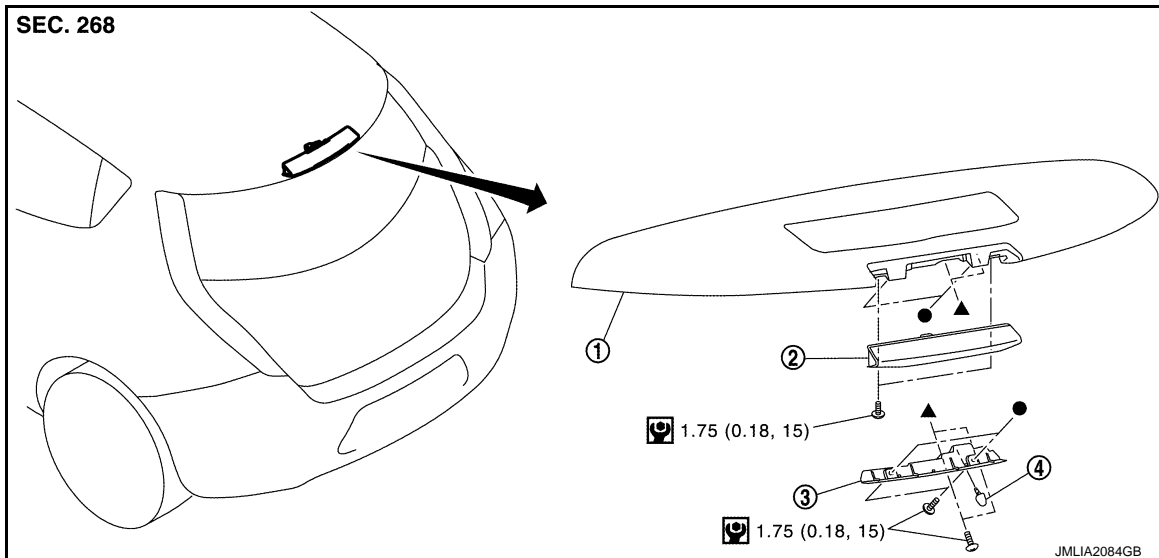
# HIGH-MOUNTED STOP LAMP

< REMOVAL AND INSTALLATION >


## HIGH-MOUNTED STOP LAMP

Exploded View

INFOID:000000007635371



1. Rear spoiler
2. High-mounted stop lamp
3. High-mounted stop lamp cover
4. Rear washer nozzle

 : N·m (kg·m, in·lb)

●,▲: Indicates that the part is connected at points with same symbol in actual vehicle.

## Removal and Installation

INFOID:000000007635372

### REMOVAL

1. Remove rear spoiler. Refer to [EXT-36, "Removal and Installation"](#).
2. Remove high-mounted stop lamp cover mounting screws, and then remove high-mounted stop lamp cover.
3. Remove high-mounted stop lamp mounting screws.
4. Disconnect high-mounted stop lamp harness connector.
5. Remove high-mounted stop lamp.

### INSTALLATION

Install in the reverse order of removal.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
EXL  
M  
N  
O  
P

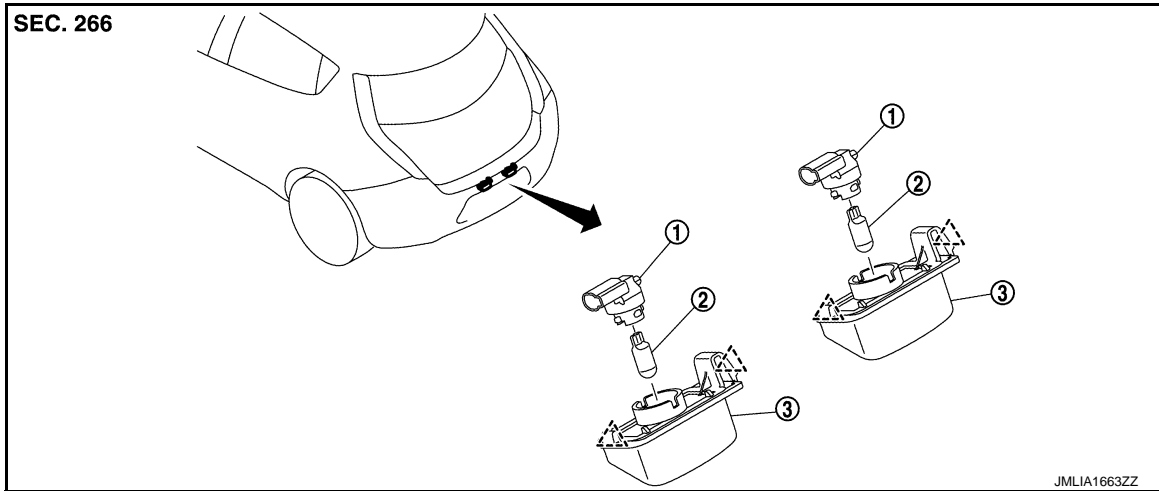
# LICENSE PLATE LAMP

< REMOVAL AND INSTALLATION >


## LICENSE PLATE LAMP

Exploded View

INFOID:000000007635373



1. License plate lamp bulb socket      2. License plate lamp bulb      3. License plate lamp housing

 : Pawl

## Removal and Installation

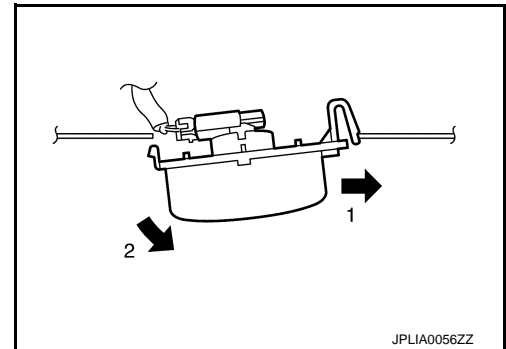
INFOID:000000007635374

### CAUTION:

Disconnect the 12V battery negative terminal or remove the fuse to electric leakage. Refer to [EXL-5, "Precautions for Removing Battery Terminal"](#).

### REMOVAL

1. Remove license plate lamp in numerical order shown in the figure.



2. Disconnect license plate lamp connector, and then remove license plate lamp.

### INSTALLATION

Install in the reverse order of removal.

### Replacement

INFOID:000000007635375

### CAUTION:

- Disconnect the 12V battery negative terminal or remove the fuse to electric leakage. Refer to [EXL-5, "Precautions for Removing Battery Terminal"](#).
- Never touch the glass of bulb directly by hand. Keep grease and other oily matters away from it to prevent damage to the bulb.
- Never touch bulb by hand while it is lit or right after being turned off to prevent a burns.
- Never leave bulb out of lamp reflector for a long time because dust, moisture smoke, etc. may affect the performance of lamp. When replacing bulb, be sure to replace it with new one.

### LICENSE PLATE LAMP BULB



## LICENSE PLATE LAMP

### < REMOVAL AND INSTALLATION >

---

1. Remove license plate lamp.
2. Turn the bulb socket counterclockwise and unlock it.
3. Remove the bulb from the socket.

A

B

C

D

E

F

G

H

I

J

K

**EXL**

M

N

O

P

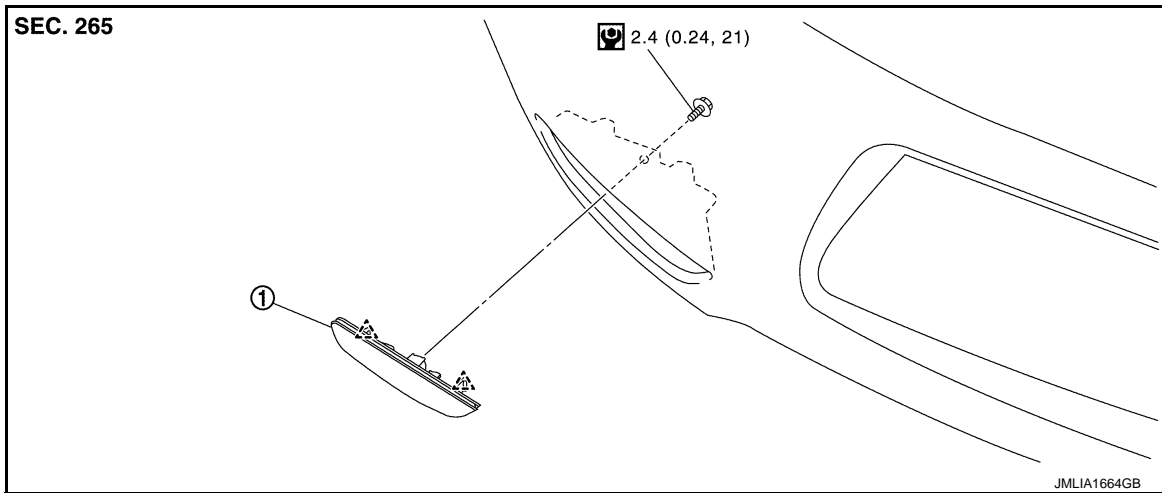
# REAR REFLEX REFLECTOR

< REMOVAL AND INSTALLATION >

## REAR REFLEX REFLECTOR

Exploded View

INFOID:000000007635376



1. Reflex refractor



: Pawl



: N·m (kg·m, in·lb)

## Removal and Installation

INFOID:000000007635377

### REMOVAL

1. Remove rear bumper fascia. Refer to [EXT-17, "Removal and Installation"](#).
2. Remove rear reflex reflector fixing screws and disengage fixing pawls, and then remove rear reflex reflector.

### INSTALLATION

Install in the reverse order of removal.

# SERVICE DATA AND SPECIFICATIONS (SDS)

< SERVICE DATA AND SPECIFICATIONS (SDS)

## SERVICE DATA AND SPECIFICATIONS (SDS)

### SERVICE DATA AND SPECIFICATIONS (SDS)

#### Bulb Specifications

INFOID:000000007635378

Item	Type	Wattage (W)
Front combination lamp	Headlamp (HI)	H9 (Halogen) 65
	Headlamp (LO)	LED —
	Front turn signal lamp	3457NAK (Amber) 21
	Parking lamp	W5W 5
Front side maker lamp	W5W 5	
Front fog lamp	H11 55	
Side turn signal lamp	WY5W (Amber) 5	
Rear combination lamp	Stop lamp/Tail lamp	LED —
	Rear turn signal lamp	WY21W (Amber) 21
	Back-up lamp	W16W 16
	Rear side maker lamp	LED —
License plate lamp	W5W 5	
High-mounted stop lamp	LED —	

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
O  
P

EXL