# **EXTERIOR LIGHTING SYSTEM**

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# < PRECAUTION > PRECAUTION PRECAUTIONS

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

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 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 ignition ON or engine running, 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 ignition OFF, disconnect the battery, and wait at least 3 minutes before performing any service.

Precautions For Xenon Headlamp Service

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#### WARNING:

Comply with the following warnings to prevent any serious accident.

- Disconnect the battery cable (negative terminal) or the power supply fuse before installing, removing, or touching the xenon headlamp (bulb included). The xenon headlamp contains high-voltage generated parts.
- Never work with wet hands.
- Check the xenon headlamp ON-OFF status after assembling it to the vehicle. Never turn the xenon headlamp ON in other conditions. Connect the power supply to the vehicle-side connector. (Turning it ON outside the lamp case may cause fire or visual impairments.)
- Never touch the bulb glass immediately after turning it OFF. It is extremely hot.

#### CAUTION:

Comply with the following cautions to prevent any error and malfunction.

- Install the xenon bulb securely. (Insufficient bulb socket installation may melt the bulb, the connector, the housing, etc. by high-voltage leakage or corona discharge.)
- Never perform HID circuit inspection with a tester.
- Never touch the xenon bulb glass with hands. Never put oil and grease on it.
- Dispose of the used xenon bulb after packing it in thick vinyl without breaking it.
- Never wipe out dirt and contamination with organic solvent (thinner, gasoline, etc.).

# < PRECAUTION >

# Precautions for Removing Battery Terminal

• When removing the 12V battery terminal, turn OFF the ignition switch and wait at least 30 seconds.

#### NOTE:

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

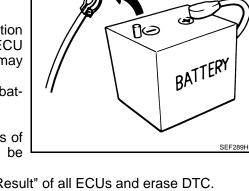
• For vehicles with the 2-batteries, be sure to connect the main battery and the sub battery before turning ON the ignition switch. **NOTE:** 

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

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

PRECAUTIONS

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



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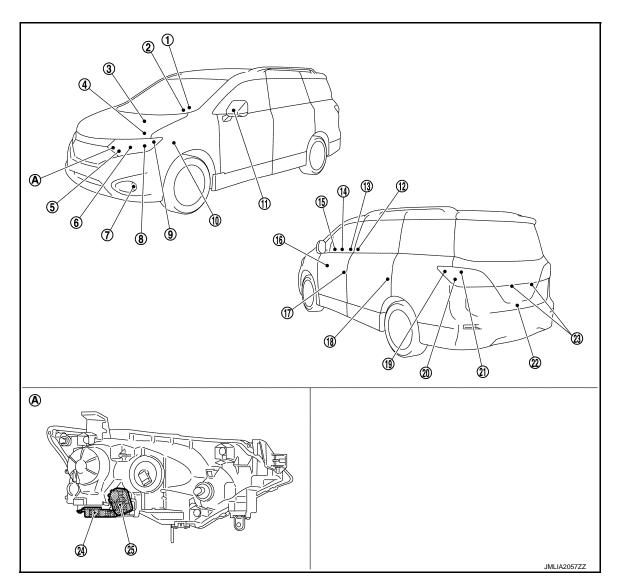
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# SYSTEM DESCRIPTION COMPONENT PARTS

**Component Parts Location** 

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A. Front combination lamp (back)

No.	Part	Function	
1.	Optical sensor	Refer to EXL-9, "Optical Sensor".	
2.	BCM	<ul> <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 (High/Low), tail lamp relay and front fog lamp relay ON to IPDM E/R (via CAN communication)</li> <li>Requests the high beam indicator lamp and tail 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 bright- ness and the vehicle condition.</li> <li>Refer to <u>BCS-4, "BODY CONTROL SYSTEM : Component Parts Location"</u> for detailed installation location.</li> </ul>	

# **COMPONENT PARTS**

#### < SYSTEM DESCRIPTION >

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No.	Part Function				
3.	Daytime running light relay*	Refer to EXL-9, "Daytime Running Light Relay".			
4.	IPDM E/R	<ul> <li>Controls the integrated relay, and supplies voltage to the load according to the request from BCM (via CAN communication).</li> <li>Refer to <u>PCS-4, "IPDM E/R : Component Parts Location"</u> for detailed installatio location.</li> </ul>			
5.	Front turn signal lamp/Parking lamp	Refer to EXL-11, "Bulb Specifications".			
6.	Headlamp HI	Refer to EXL-11, "Bulb Specifications".			
7.	Front fog lamp	Refer to EXL-11, "Bulb Specifications".			
8.	Headlamp LO (Xenon headlamp)	Refer to EXL-9, "Xenon Headlamp".			
9.	Front side marker lamp	Refer to EXL-11, "Bulb Specifications".			
10.	Air bag diagnosis sensor unit	Transmits air bag signal to BCM. Refer to <u>SRC-8. "Component Parts Location"</u> for detailed installation location.			
11.	Side turn signal lamp	Refer to EXL-11, "Bulb Specifications".			
12.	Hazard switch	Refer to EXL-10, "Hazard Switch".			
13.	Push-button ignition switch	Refer to DLK-18, "DOOR LOCK SYSTEM : Component Parts Location".			
14.	Combination meter	<ul> <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 high beam indicator lamp and tail lamp indicator lamp ON according to the request from BCM (via CAN communication).</li> </ul>			
15.	Combination switch (Lighting & turn signal switch)	Refer to BCS-8, "COMBINATION SWITCH READING SYSTEM : System Descrip- tion".			
16.	Headlamp aiming switch	Refer to EXL-10, "Headlamp Aiming Switch".			
17.	Front door switch (driver side)	Refer to DLK-18, "DOOR LOCK SYSTEM : Component Parts Location".			
18.	Slide door switch (LH)	Refer to DLK-18, "DOOR LOCK SYSTEM : Component Parts Location".			
19.	Rear side marker lamp	Refer to EXL-11, "Bulb Specifications".			
20.	Rear turn signal lamp	Refer to EXL-11, "Bulb Specifications".			
21.	Tail lamp	Refer to EXL-11, "Bulb Specifications".			
22.	Back door switch	Refer to DLK-18, "DOOR LOCK SYSTEM : Component Parts Location".			
23.	License plate lamp	Refer to EXL-11, "Bulb Specifications".			
24.	HID control unit	Refer to EXL-10, "HID control unit".			
25.	Headlamp aiming motor	Refer to EXL-10, "Headlamp Aiming Motor".			

\*: With daytime running light system

### **Optical Sensor**

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

#### Daytime Running Light Relay

Headlamp HI ground circuit is switched according to request from IPDM E/R.

# Xenon Headlamp

#### OUTLINE

- The lamp light source is by the arch discharge by applying high voltage into the xenon gas-filled bulb instead of the halogen bulb filament.
- Sight becomes more natural and brighter because the amount of light are gained adequately and the color of light is sunshine-like white.
- The xenon bulb drops the amount of light, repeats blinking, and illuminates in red if the bulb reaches the service life.

#### ILLUMINATION PRINCIPLE

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# **COMPONENT PARTS**

#### < SYSTEM DESCRIPTION >

- 1. Discharging starts in high voltage pulse between bulb electrodes.
- 2. Xenon gas is activated by current between electrodes. Pale light is emitted.
- 3. The luminous tube (bulb) temperature elevates. Evaporated halide is activated by discharge. The color of light changes into white.

#### NOTE:

- Brightness and the color of light may change slightly immediately after the headlamp turned ON until the xenon bulb becomes stable. This is not malfunction.
- Illumination time lag may occur between right and left. This is not malfunction.

#### PRECAUTIONS FOR TROUBLE DIAGNOSIS

Representative malfunction examples are; "Light does not turn ON", "Light blinks", and "Brightness is inadequate." The cause often be the xenon bulb. Such malfunctions, however, are occurred occasionally by HID control unit malfunction or lamp case malfunction. Specify the malfunctioning part with diagnosis procedure.

- WARNING:
- Never touch the harness, HID control unit, the inside and metal part of lamp when turning the headlamp ON or operating the lighting switch.
- Never work with wet hands.

CAUTION:

- Never perform HID control unit circuit diagnosis with a circuit tester or an equivalent, for preventing electrical shock.
- Temporarily install the headlamps on the vehicle. Connect the battery to the connector (vehicle side) when checking ON/OFF status, for preventing electrical shock.
- Disconnect the battery negative terminal before disconnecting the lamp socket connector or the harness connector.
- Check for fusing of the fusible link(s), open around connector, short, disconnection if the symptom is caused by electric error.

NOTE:

- Turn the switch OFF once before turning ON, if the ON/OFF is inoperative.
- The xenon bulb drops the amount of light, repeats blinking, and illuminates in red if the bulb reaches the service life.

#### Hazard Switch

Inputs the hazard switch ON/OFF signal to BCM.

#### Headlamp Aiming Switch

Adjusts height of headlamp aiming.

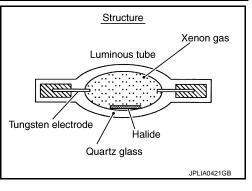
#### HID control unit

Headlamp (LO) circuit is connected to HID control unit integrated in the headlamp. Headlamp (LO) circuit turns xenon headlamp ON.

For the details of HID control unit and the xenon headlamp, refer to EXL-9, "Xenon Headlamp".

#### Headlamp Aiming Motor

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



[XENON TYPE]

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# **COMPONENT PARTS**

# < SYSTEM DESCRIPTION >

# **Bulb Specifications**

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[XENON TYPE]

	Item	Туре	Wattage (W)
	Headlamp (HI)	HB3 (Halogen)	60
	Headlamp (LO)	D2S (Xenon)	35
Front combination lamp	Front turn signal lamp/ Parking lamp	S25 (Amber)	27/8
	Front side marker lamp	W5W	5
Front fog lamp		H8	35
Side turn signal lamp (integ	rated into the door mirror)	LED	_
Rear combination lamp	Stop lamp/ Tail lamp (side marker)	W21/5W	21/5
	Rear turn signal lamp	WY21W (Amber)	21
Back-up lamp		W16W	16
License plate lamp		W5W	5
High-mounted stop lamp		LED	

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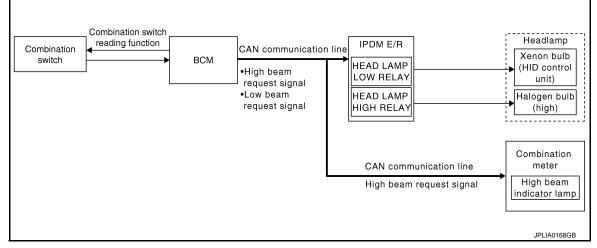
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# SYSTEM HEADLAMP SYSTEM

# HEADLAMP SYSTEM : System Description

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#### 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 PASS
- IPDM E/R turns the integrated headlamp low relay ON, and turns the headlamp ON according to the low beam request signal.

#### HEADLAMP (HI) OPERATION

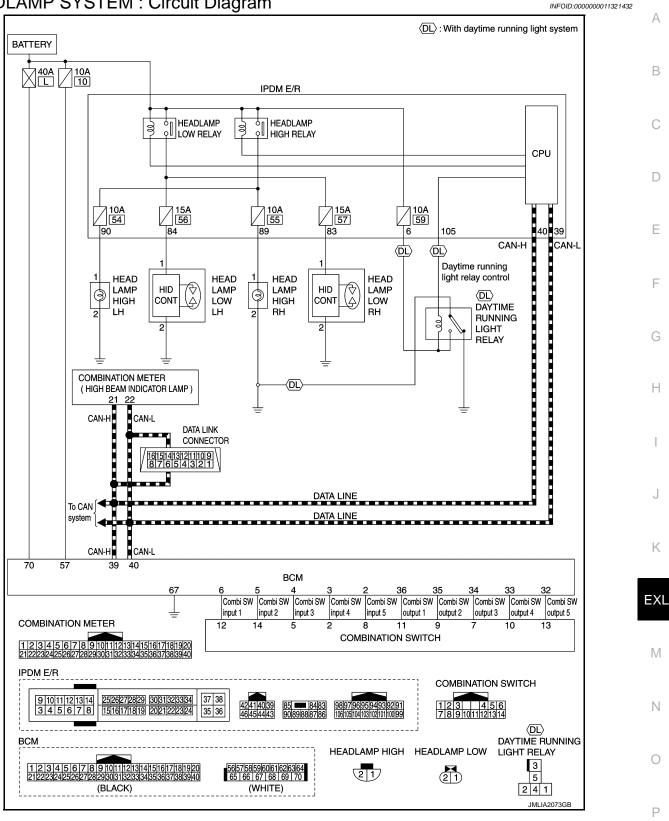
• BCM transmits the high beam request signal to IPDM E/R and the combination meter with CAN communication according to the headlamp (HI) ON condition.

#### Headlamp (HI) ON condition

- Lighting switch HI with the lighting switch 2ND or AUTO (auto light function ON judgment)
- Lighting switch PASS
- 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.

#### < SYSTEM DESCRIPTION >

# HEADLAMP SYSTEM : Circuit Diagram



**HEADLAMP SYSTEM : Fail-safe** 

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#### CAN COMMUNICATION CONTROL

When CAN communication with ECM and 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 DESCRIPTION >

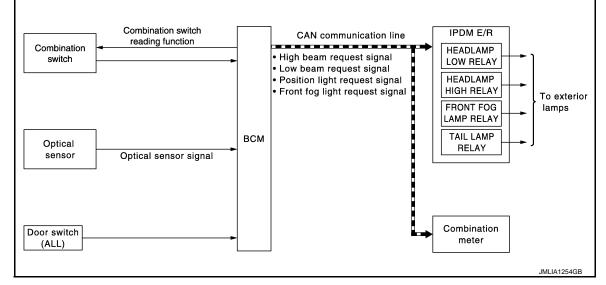
Control part	Fail-safe operation
Headlamp	<ul> <li>Turns ON the headlamp low relay when the ignition switch is turned ON</li> <li>Turns OFF the headlamp low relay when the ignition switch is turned OFF</li> <li>Headlamp high relay OFF</li> </ul>

# AUTO LIGHT SYSTEM (EXCEPT FOR CANADA)

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

INFOID:000000011321434

#### 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 ignition 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.)

#### NOTE:

The settings of the twilight lighting function and the wiper linked auto lighting function can be changed with CONSULT. Refer to <u>EXL-32</u>, "<u>HEADLAMP</u> : <u>CONSULT Function</u> (<u>BCM - HEADLAMP</u>) (Xenon Type Headlamp)".

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

Description

• BCM detects the combination switch condition with the combination switch reading function.

#### **EXL-14**

#### < SYSTEM DESCRIPTION >

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- BCM supplies voltage to the optical sensor when the ignition switch is turned ON or ACC.
- Optical sensor converts outside brightness (lux) to voltage and transmits the optical sensor signal to BCM.
  When ignition switch is turned ON, BCM detects outside brightness from the optical sensor signal and judges ON/OFF condition of the exterior lamp and each illumination, depending on the outside brightness condition (standard or twilight).
- 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 C to EXL-32, "HEADLAMP : CONSULT Function (BCM - HEADLAMP) (Xenon Type Headlamp)".

#### WIPER LINKED AUTO LIGHTING FUNCTION

BCM turns the exterior lamp 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 HI  $\Rightarrow$  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-17, "AUTO LIGHT ADJUSTMENT SYSTEM : System Description".

#### DELAY TIMER FUNCTION

BCM turns the exterior lamp OFF depending on the vehicle condition with the auto light function when the ignition 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 ignition switch ACC or the light switch OFF.
- \*: The preset time is 45 seconds. The timer operating time can be set by CONSULT. Refer to <u>EXL-32</u>, "HEAD-LAMP : CONSULT Function (BCM - HEADLAMP) (Xenon Type Headlamp)".

#### 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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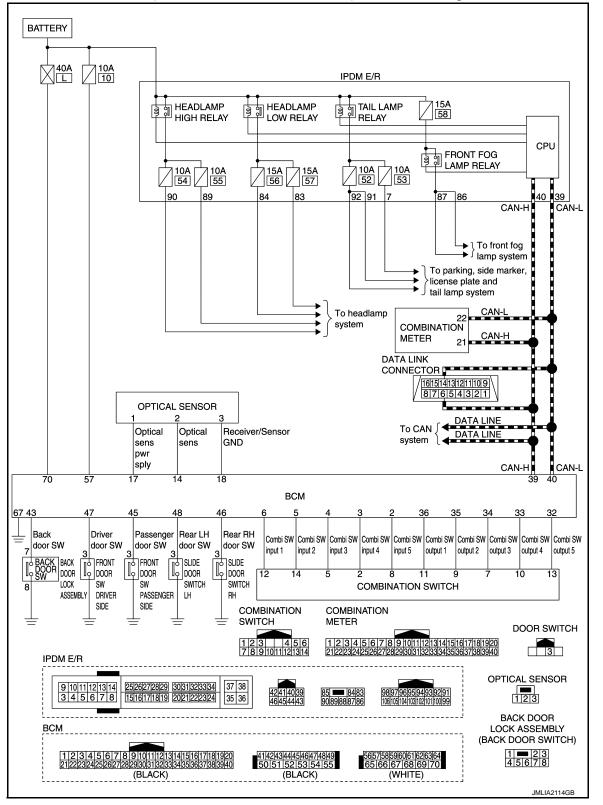
Ρ

#### < SYSTEM DESCRIPTION >

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



INFOID:000000011321435



AUTO LIGHT SYSTEM (FOR CANADA)

#### < SYSTEM DESCRIPTION >

# AUTO LIGHT SYSTEM (FOR CANADA) : System Description

#### [XENON TYPE]

INFOID:000000011321436

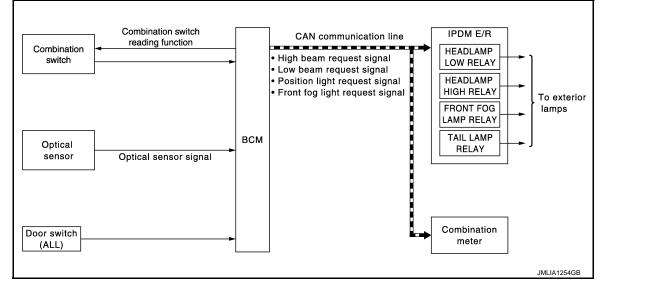
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#### SYSTEM DIAGRAM



#### 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 ignition 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 ignition 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-32, "HEADLAMP : CONSULT Function (BCM - HEADLAMP) (Xenon Type Headlamp)".

#### 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 <u>INL-17, "AUTO LIGHT ADJUSTMENT SYSTEM : System Description"</u>.

#### DELAY TIMER FUNCTION

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#### < SYSTEM DESCRIPTION >

BCM turns the exterior lamp OFF depending on the vehicle condition with the auto light function when the ignition 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 ignition switch ACC or the light switch OFF.

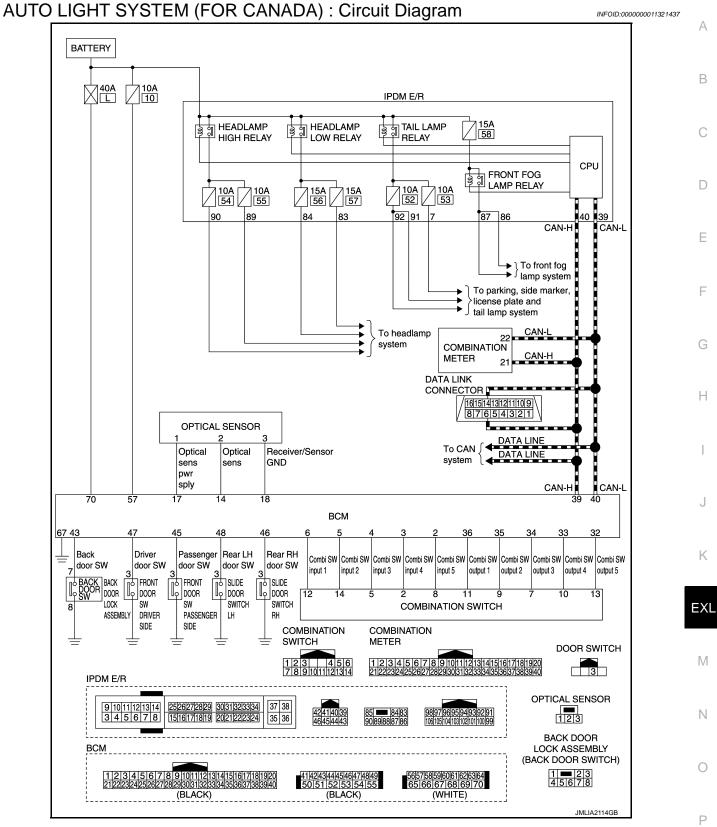
\*: The preset time is 45 seconds. The timer operating time can be set by CONSULT. Refer to <u>EXL-32, "HEAD-LAMP : CONSULT Function (BCM - HEADLAMP) (Xenon Type Headlamp)"</u>.

#### 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 DESCRIPTION >

#### [XENON TYPE]



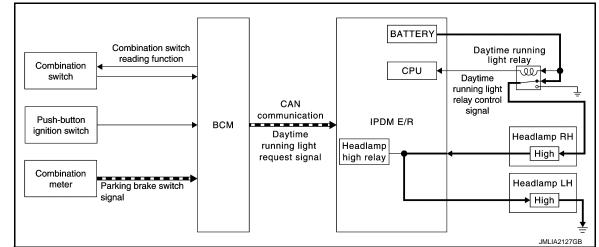
DAYTIME RUNNING LIGHT SYSTEM

#### < SYSTEM DESCRIPTION >

# DAYTIME RUNNING LIGHT SYSTEM : System Description

INFOID:0000000011321438

#### 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

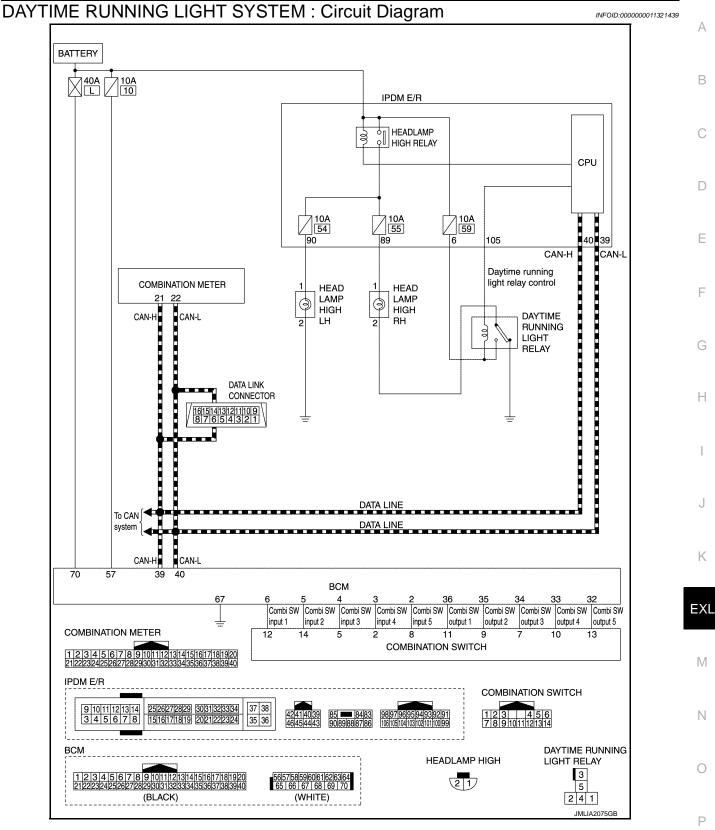
- BCM detects the combination switch condition by the combination switch reading function.
- · BCM detects the engine condition according to push-button ignition switch
- BCM detects the parking brake condition by the parking brake switch signal received from combination meter using CAN communication.
- 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

- Éngine running
- 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 DESCRIPTION >

# [XENON TYPE]



HEADLAMP AIMING CONTROL (MANUAL)

HEADLAMP AIMING CONTROL (MANUAL) : System Description

INFOID:000000011321440

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

# **EXL-21**

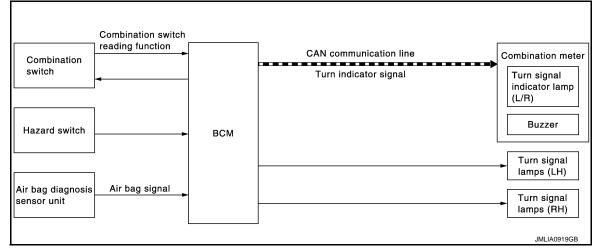
#### < SYSTEM DESCRIPTION >

#### [XENON TYPE]

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

INFOID:0000000011321441

#### SYSTEM DIAGRAM



#### OUTLINE

Turn signal and the hazard warning lamp is controlled by combination switch reading function, flasher control function and auto hazard 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 ignition switch is turned 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 turned ON. BCM blinks the hazard warning lamp.

#### TURN SIGNAL INDICATOR LAMP AND TURN SIGNAL SOUND OPERATION

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

#### AUTO HAZARD FUNCTION

- Air bag diagnosis sensor unit transmits air bag signal to BCM, when air bag diagnosis sensor unit detects strong impact to the vehicle body while ignition switch is ON.
- When air bag signal from air bag diagnosis sensor unit is detected, BCM supplies voltage to each turn signal lamp system and hazard lamp blinks.

#### NOTE:

Auto hazard function may not be operated depending on status of collision.

#### **3-TIME FLASHER FUNCTION**

- By a short touch of the turn signal lever, BCM blinks the turn signal lamps 3 times in the selected direction.
- Cancels the operation when short touch of the turn signal lever in the reverse direction during the 3-time flasher function operation.

#### 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.

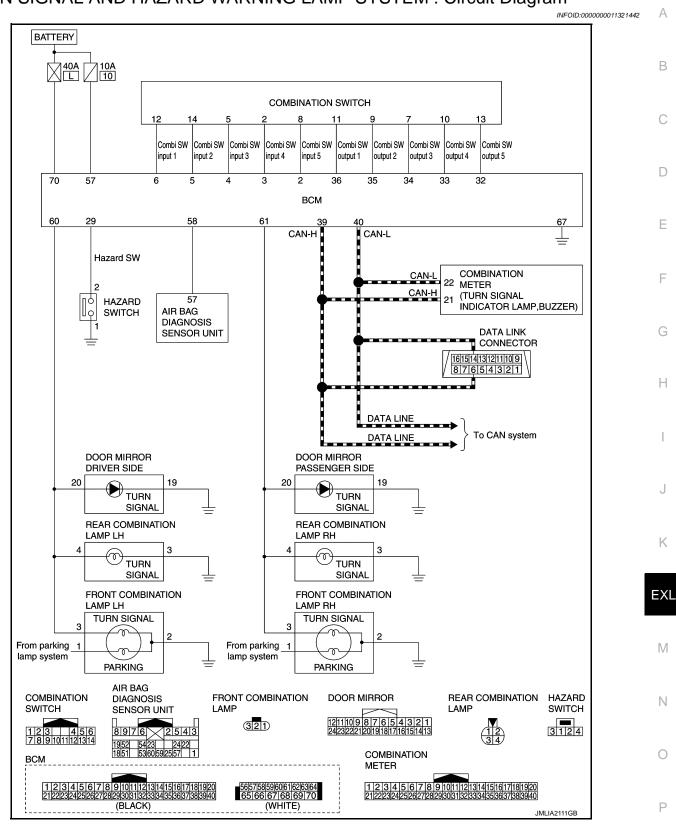
#### NOTE:

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

#### < SYSTEM DESCRIPTION >

#### [XENON TYPE]

# TURN SIGNAL AND HAZARD WARNING LAMP SYSTEM : Circuit Diagram



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

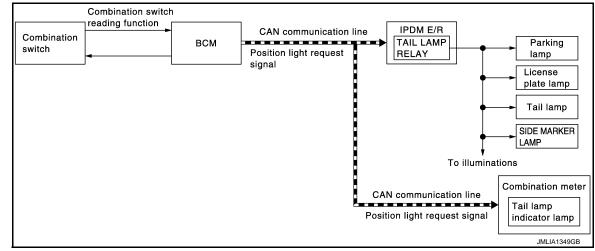
# < SYSTEM DESCRIPTION >

[XENON TYPE]

#### scription

INFOID:0000000011321443

#### 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

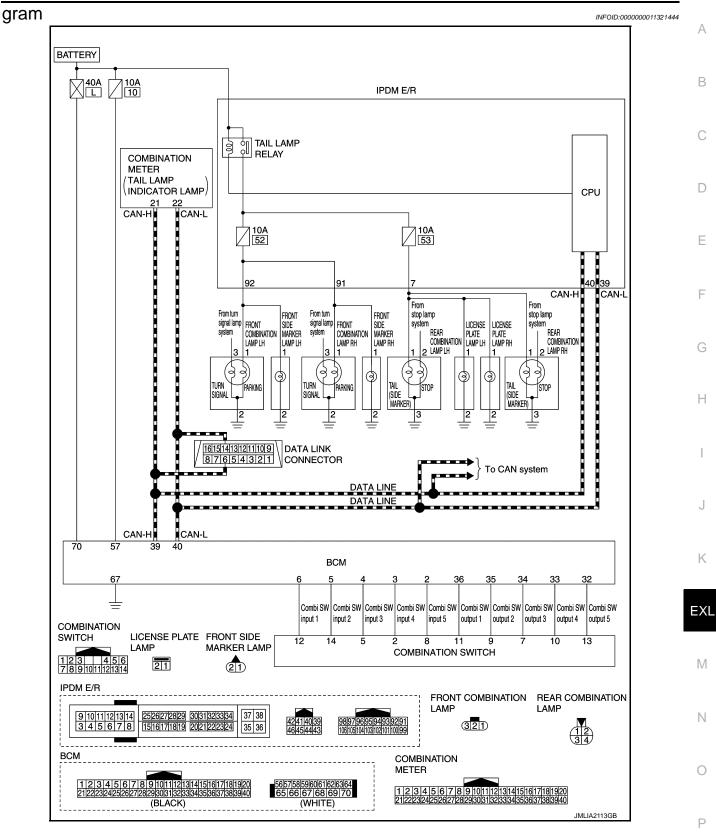
- BCM detects the combination switch condition by the combination switch reading function.
- BCM transmits the position light request signal to IPDM E/R and the combination meter via CAN communication according to the ON/OFF condition of the parking, license plate, side marker and tail lamps.

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.
- 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 DESCRIPTION >



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

#### INFOID:000000011321445

[XENON TYPE]

# CAN COMMUNICATION CONTROL

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

#### < SYSTEM DESCRIPTION >

[XENON TYPE]

#### If No CAN Communication Is Available With BCM

Control part	Fail-safe operation
<ul> <li>Parking lamp</li> <li>License plate lamp</li> <li>Illumination</li> <li>Tail lamp</li> </ul>	<ul> <li>Turns ON the tail lamp relay when the ignition switch is turned ON</li> <li>Turns OFF the tail lamp relay when the ignition switch is turned OFF</li> </ul>

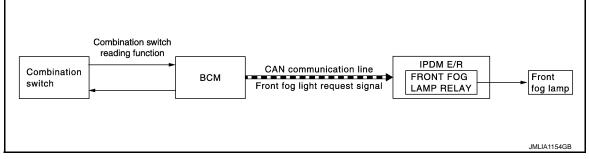
Side marker lamp

# FRONT FOG LAMP SYSTEM

# FRONT FOG LAMP SYSTEM : System Description

INFOID:000000011321446

#### 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 light request signal to IPDM E/R 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

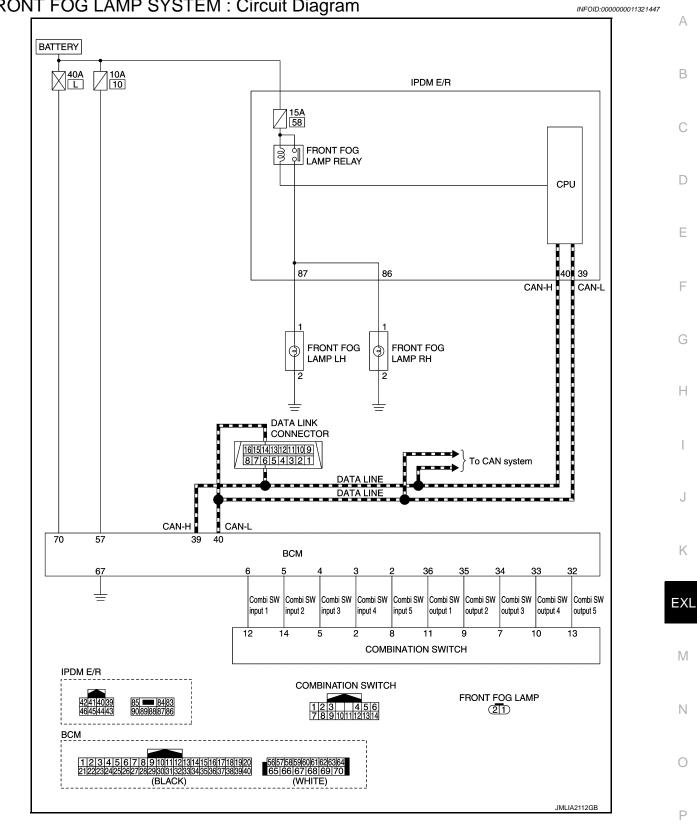
• Lighting switch AUTO (auto light function ON judgment)

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

#### < SYSTEM DESCRIPTION >







FRONT FOG LAMP SYSTEM : Fail-safe

#### INFOID:000000011321448

#### CAN COMMUNICATION CONTROL

When CAN communication with ECM and 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 DESCRIPTION >

Control part Front fog lamp

Front fog lamp relay OFF

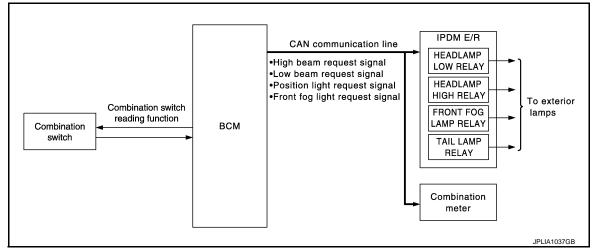
Fail-safe operation

# EXTERIOR LAMP BATTERY SAVER SYSTEM

# EXTERIOR LAMP BATTERY SAVER SYSTEM : System Description

INFOID:000000011321449

#### 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 ignition 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

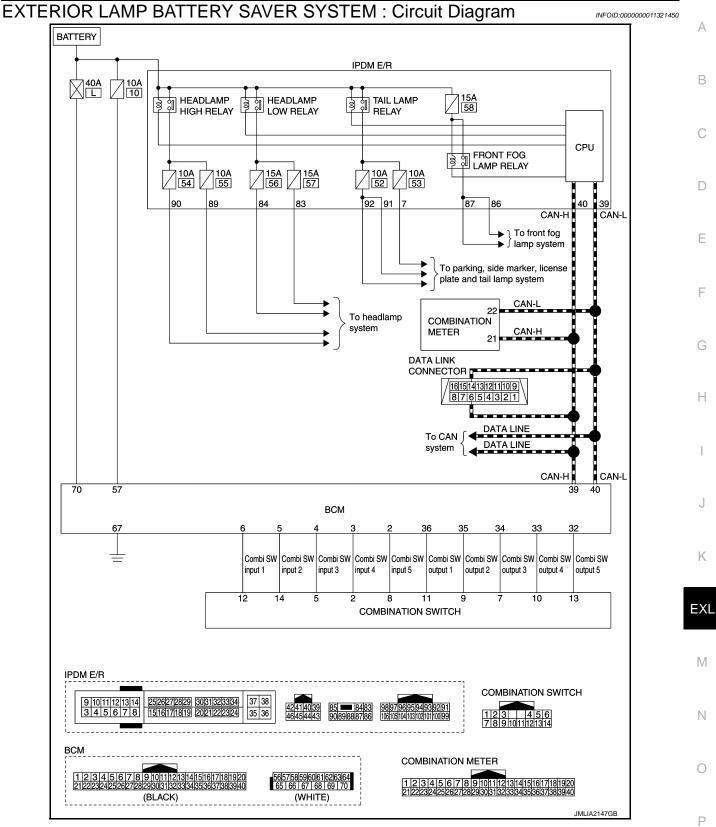
BCM activates the timer and turns the exterior lamp OFF 45 seconds after the ignition switch is turned from  $ON \rightarrow OFF$  with the exterior lamps ON.

#### NOTE:

- Headlamp control function turns the exterior lamps ON normally when the ignition switch is turned ACC or ON (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  $\rightarrow$  1ST or 2ND with the exterior lamps OFF.

#### < SYSTEM DESCRIPTION >

#### [XENON TYPE]



# DIAGNOSIS SYSTEM (BCM) COMMON ITEM

# COMMON ITEM : CONSULT Function (BCM - COMMON ITEM)

INFOID:000000011561137

#### 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><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.

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

#### NOTE:

\*: For models with automatic air conditioning control system, this diagnosis mode is 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.

#### < SYSTEM DESCRIPTION >

#### [XENON TYPE]

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		
	SLEEP>LOCK		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 RUN to ACC (Except emergency stop operation)	
	CRANK>RUN		While turning power supply position from CRANK to RUN	
	RUN>URGENT	Power position status of the moment a particular DTC is detected*	While turning power supply position from RUN to ACC (Emergency stop operation)	
	ACC>OFF		While turning power supply position from ACC to OFF (OFF)	
Vehicle Condition	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 CRANK	
	OFF>SLEEP		While turning BCM status from normal mode [Power supply posi- tion is OFF (OFF)] to low power consumption mode	
	LOCK>SLEEP		While turning BCM status from normal mode [Power supply posi- tion 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 RUN	
	CRANKING		Power supply position is CRANK	
IGN Counter	0 - 39	<ul> <li>The number of times that ignition switch is turned ON after DTC is detected</li> <li>The number is 0 when a malfunction is detected now.</li> <li>The number increases like 1 → 2 → 338 → 39 after returning to the normal condition whenever ignition 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>		

- \*: Refer to the following for details of the power supply position.
- OFF (OFF, LOCK): Ignition switch OFF
- ACC: Ignition switch ACC
- IGN: Ignition switch ON with engine stopped
- · RUN: Ignition switch ON with engine running
- CRANK: At engine cranking

Power supply position shifts to "OFF (LOCK)" from "OFF (OFF)", when ignition 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 push-button ignition switch (push switch) is pushed at "OFF (LOCK)".

**HEADLAMP** 

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#### < SYSTEM DESCRIPTION >

# **DIAGNOSIS SYSTEM (BCM)**

#### [XENON TYPE]

# HEADLAMP : CONSULT Function (BCM - HEADLAMP) (Xenon Type Headlamp)

INFOID:000000011321452

#### WORK SUPPORT

Service item	Setting item	Setting		
	MODE 1* <sup>3</sup>	Normal		
CUSTOM A/LIGHT SET- TING* <sup>1</sup>	MODE 2	More sensitive setting than normal setting (Turns ON earlier than normal operation)		
TING	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* <sup>3</sup>	With the exterior lamp battery saver function		
DATTERT SAVER SET	Off	Without the exterior lamp battery saver function		
	MODE 1* <sup>3</sup>	45 sec.		
	MODE 2	Without the function		
	MODE 3	30 sec.		
ILL DELAY SET* <sup>1</sup>	MODE 4	60 sec.	Sets delay timer function timer operation time. (All doors closed)	
	MODE 5	90 sec.		
	MODE 6	120 sec.		
	MODE 7	150 sec.		
	MODE 8	180 sec.		
	MODE 1* <sup>3</sup>	With twilight ON custom & with wiper INT, LO and HI		
	MODE 2	With twilight ON custom & with wiper LO and HI		
AUTO LIGHT LOGIC SET*2	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		

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

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

#### \*3: Factory setting

#### DATA MONITOR

#### NOTE:

The following table includes information (items) inapplicable to this vehicle. For information (items) applicable to this vehicle, refer to CONSULT display items.

Monitor item [Unit]	Description	
PUSH SW [On/Off]	The switch status input from push-button ignition switch	
ENGINE STATE [Stop/Stall/Crank/Run]	The engine status received from ECM with CAN communication	
VEH SPEED 1 [km/h]	The value of the vehicle speed received from combination meter via CAN communication	

# < SYSTEM DESCRIPTION >

#### [XENON TYPE]

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

\*<sup>1</sup>: For models without auto light system, this item is not displayed.
\*<sup>2</sup>: 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 commu- nication to turn the tail lamp ON
	Off	Stops the tail lamp request signal transmission
	Hi	Transmits the high beam request signal via CAN communication to turn the headlamp (HI)
HEAD LAMP	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* <sup>1</sup>	On	Transmits the front fog light request signal to IPDM E/R via CAN commu- nication to turn the front fog lamp ON
	Off	Stops the front light request signal transmission

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#### < SYSTEM DESCRIPTION >

Test item	Operation	Description
DAYTIME RUNNING LIGHT*2	On	Transmits the daytime running light request signal via CAN communica- tion to IPDM E/R
	Off	Stop the daytime running light request signal transmission
ILL DIM SIGNAL	On	<ul> <li>Transmits the dimmer signal to combination meter via CAN communication and dims combination meter*<sup>3</sup></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.

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

\*<sup>3</sup>: Except for CANADA

#### FLASHER

# FLASHER : CONSULT Function (BCM - FLASHER) (Xenon Type Headlamp)

INFOID:000000011321453

#### WORK SUPPORT

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

\*: Factory setting

#### DATA MONITOR

#### NOTE:

The following table includes information (items) inapplicable to this vehicle. For information (items) applicable to this vehicle, refer to CONSULT display items.

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 push-button ignition switch	
TURN SIGNAL R [On/Off]	<ul> <li>Each switch status that BCM detects from the combination switch reading function</li> </ul>	
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

#### < SYSTEM DESCRIPTION >

### [XENON TYPE]

Test item	Operation	Description	A
	RH	Outputs the voltage to turn on the right side turn signal lamps.	
FLASHER	LH	Outputs the voltage to turn on the left side turn signal lamps.	_
	Off	Stops the voltage to turn the turn signal lamps OFF.	B

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# DIAGNOSIS SYSTEM (IPDM E/R)

# **Diagnosis Description**

AUTO ACTIVE TEST

Description

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

- Oil pressure warning lamp
- Front wiper (LO, HI)
- Parking lamp
- License plate lamp
- Tail lamp
- Side marker lamp
- Front fog lamp
- Headlamp (LO, HI)
- A/C compressor (magnet clutch)
- Cooling fan

**Operation Procedure** 

#### NOTE:

Never perform auto active test in the following condition.

- Passenger door is open.
- CONSULT is connected.
- Close the hood and lift the wiper arms from the windshield. (Prevent windshield damage due to wiper operation) NOTE:

When auto active test is performed with hood opened, sprinkle water on windshield beforehand.

- 2. Turn the ignition switch OFF.
- 3. Turn the ignition switch ON, and within 20 seconds, press the front door switch (driver side) 10 times. Then turn the ignition switch OFF.
- 4. Turn the ignition switch ON within 10 seconds. After that the horn sounds once and the auto active test starts.

NOTE:

Engine starts when ignition switch is turned ON while brake pedal is depressed.

- 5. The oil pressure warning lamp starts blinking when the auto active test starts.
- 6. After a series of the following operations is repeated 3 times, auto active test is completed.

#### NOTE:

- When auto active test has to be cancelled halfway through test, turn the ignition switch OFF.
- When auto active test is not activated, door switch may be the cause. Check door switch. Refer to <u>DLK-241</u>.
   <u>"Component Function Check"</u>.

#### Inspection in Auto Active Test

When auto active test is actuated, the following 6 steps are repeated 3 times.

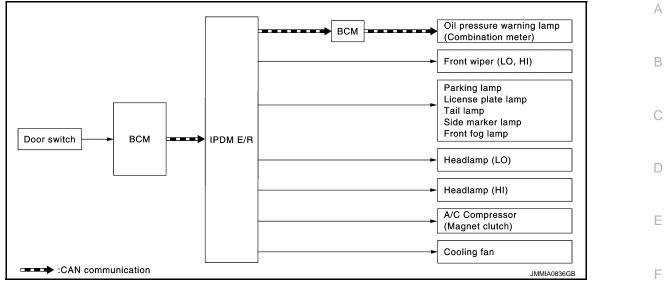
Operation sequence	Inspection location	Operation
1	Oil pressure warning lamp	Blinks continuously during operation of auto active test
2	Front wiper motor	LO for 5 seconds $\rightarrow$ HI for 5 seconds
3	<ul> <li>Parking lamp</li> <li>License plate lamp</li> <li>Tail lamp</li> <li>Side marker lamp</li> <li>Front fog lamp</li> </ul>	10 seconds
4	Headlamp	<ul> <li>LO 10 seconds</li> <li>HI ON ⇔ OFF 5 times</li> </ul>
5	A/C compressor (magnet clutch)	$ON \Leftrightarrow OFF 5 times$
6	Cooling fan	LO for 5 seconds $\rightarrow$ MID for 3 seconds $\rightarrow$ HI for 2 seconds

#### < SYSTEM DESCRIPTION >

### [XENON TYPE]

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#### 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

Symptom	Inspection contents		Possible cause	
Any of the following components do not		YES	BCM signal input circuit	
operate • Parking lamp • License plate lamp • Tail lamp • Side marker lamp • Front fog lamp • Headlamp (HI, LO) • Front wiper motor	Perform auto active test. Does the applicable system op- erate?	NO	<ul> <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>	
A/C compressor does not operate	Perform auto active test. Does the magnet clutch oper-	YES	<ul> <li>Combination meter signal input circuit</li> <li>CAN communication signal between Combination meter and ECM</li> <li>CAN communication signal between ECM and IPDM E/R</li> </ul>	Ε
	ate?	NO	<ul> <li>Magnet clutch</li> <li>Harness or connector between IPDM E/ R and magnet clutch</li> <li>IPDM E/R</li> </ul>	I
	Perform auto active test.	YES	<ul> <li>Harness or connector between IPDM E/ R and oil pressure switch</li> <li>Oil pressure switch</li> <li>IPDM E/R</li> </ul>	(
Oil pressure warning lamp does not operate	Does the oil pressure warning lamp blink?	NO	<ul> <li>CAN communication signal between IPDM E/R and BCM</li> <li>CAN communication signal between BCM and Combination meter</li> <li>Combination meter</li> </ul>	

#### < SYSTEM DESCRIPTION >

### [XENON TYPE]

Symptom	Inspection contents		Possible cause				
		YES	<ul> <li>ECM signal input circuit</li> <li>CAN communication signal between ECM and IPDM E/R</li> </ul>				
Cooling fan does not operate	Perform auto active test. Does the cooling fan operate?	NO	<ul> <li>Cooling fan</li> <li>Harness or connector between cooling fan and cooling fan relay</li> <li>Harness or connector between IPDM E/ R and cooling fan relay</li> <li>Cooling fan relay</li> <li>IPDM E/R</li> </ul>				

# CONSULT Function (IPDM E/R)

INFOID:000000011561142

# 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 <u>PCS-24, "DTC Index"</u>.

### DATA MONITOR

#### NOTE:

The following table includes information (items) inapplicable to this vehicle. For information (items) applicable to this vehicle, refer to CONSULT display items.

Monitor Item [Unit]	MAIN SIG- NALS	Description
MOTOR FAN REQ [1/2/3/4]	×	Displays the value of the cooling fan speed signal received from ECM via CAN com- munication.
AC COMP REQ [Off/On]	×	Displays the status of the A/C compressor request signal received from ECM via CAN communication.
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 com- munication.
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 stop position 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 ignition switch ON signal received from BCM via CAN com- munication.
IGN RLY [Off/On]	×	Displays the status of the ignition relay judged by IPDM E/R.

### < SYSTEM DESCRIPTION >

### [XENON TYPE]

Monitor Item [Unit]	MAIN SIG- NALS	Description
PUSH SW [Off/On]		Displays the status of the push-button ignition switch judged by IPDM E/R.
INTER/NP SW [Off/On]		Displays the status of the shift position judged by IPDM E/R.
ST RLY CONT [Off/On]		Displays the status of the starter relay status signal received from BCM via CAN communication.
IHBT RLY -REQ [Off/On]		Displays the status of the starter control relay signal received from BCM via CAN communication.
ST/INHI RLY [Off/ ST /INHI/UNKWN]		Displays the status of the starter relay and starter control relay judged by IPDM E/R.
DETENT SW [Off/On]		Displays the status of the CVT shift selector (detention switch) judged by IPDM E/R. ${\ensuremath{\mathbb E}}$
S/L RLY -REQ [Off/On]		NOTE: The item is indicated, but not monitored.
S/L STATE [LOCK/UNLK/UNKWN]		NOTE: F 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. NOTE: This item is monitored only on the vehicle with daytime running light system.
OIL P SW [Open/Close]		NOTE: The item is indicated, but not monitored.
HOOD SW [Off/On]		NOTE: The item is indicated, but not monitored.
HL WASHER REQ [Off/On]		NOTE: 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. $\hfill J$
HORN CHIRP [Off/On]		Displays the status of the horn reminder signal received from BCM via CAN commu- nication.
CRNRNG LMP REQ [Off/On]		NOTE: K The item is indicated, but not monitored.

### ACTIVE TEST

Test item

Test item	Operation	Description						
	Off							
CORNERING LAMP	LH	<b>NOTE:</b> The item is indicated, but cannot be tested.						
	RH							
HORN	On	Operates horn relay for 20 ms.						
	Off	OFF						
FRONT WIPER	Lo	Operates the front wiper relay.						
	Hi	Operates the front wiper relay and front wiper high relay.						
	1	OFF						
MOTOR FAN	2	Operates the cooling fan relay-1.						
MUTOR FAIN	3	Operates the cooling fan relay-2.						
	4	Operates the cooling fan relay-2 and cooling fan relay-3.						
HEAD LAMP WASHER	On	<b>NOTE:</b> The item is indicated, but cannot be tested.						

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### < SYSTEM DESCRIPTION >

Test item	Operation	Description
	Off	OFF
	TAIL	Operates the tail lamp relay and the daytime running light relay.
EXTERNAL LAMPS	Lo	Operates the headlamp low relay.
	Hi	Operates the headlamp low relay and ON/OFF the headlamp high relay at 1 sec- ond intervals.
	Fog	Operates the front fog lamp relay.

### < ECU DIAGNOSIS INFORMATION >

# ECU DIAGNOSIS INFORMATION BCM, IPDM E/R

# List of ECU Reference

INFOID:000000011321456 B

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ECU	Reference	
	BCS-40, "Reference Value"	
BCM	BCS-62, "Fail-safe"	
BCM	BCS-62, "DTC Inspection Priority Chart"	
	BCS-63, "DTC Index"	
	PCS-16, "Reference Value"	
IPDM E/R	PCS-23, "Fail-safe"	
	PCS-24, "DTC Index"	

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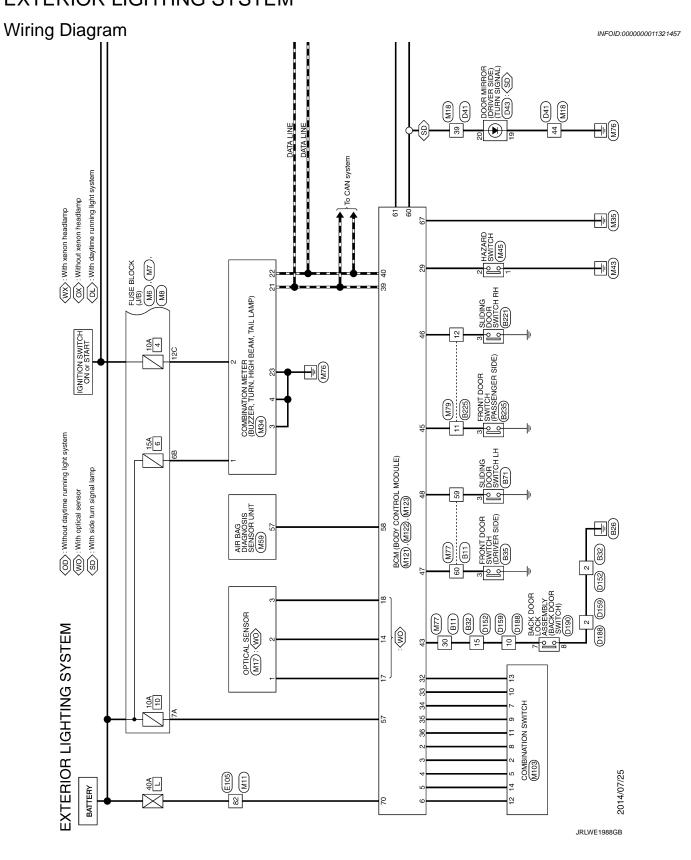
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# WIRING DIAGRAM EXTERIOR LIGHTING SYSTEM



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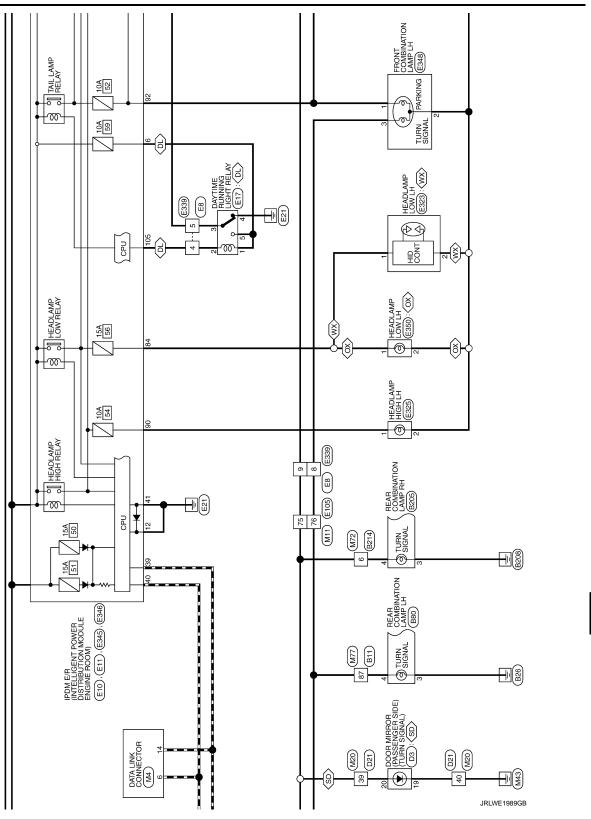
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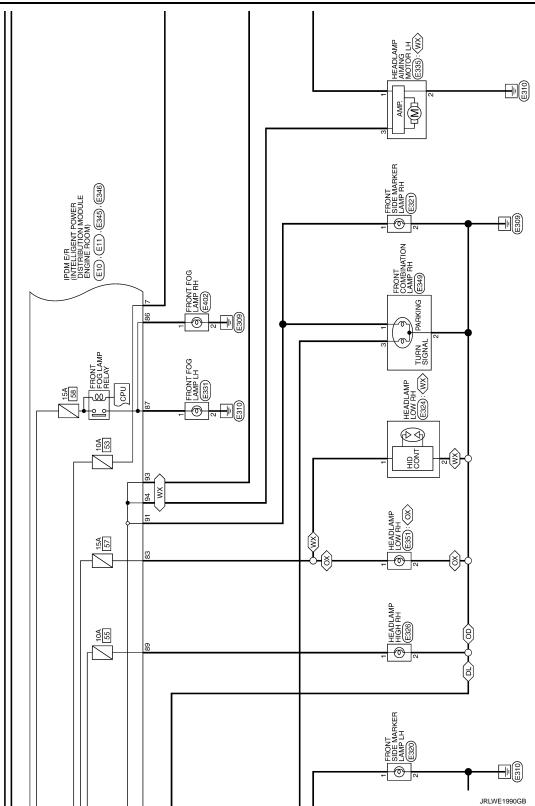
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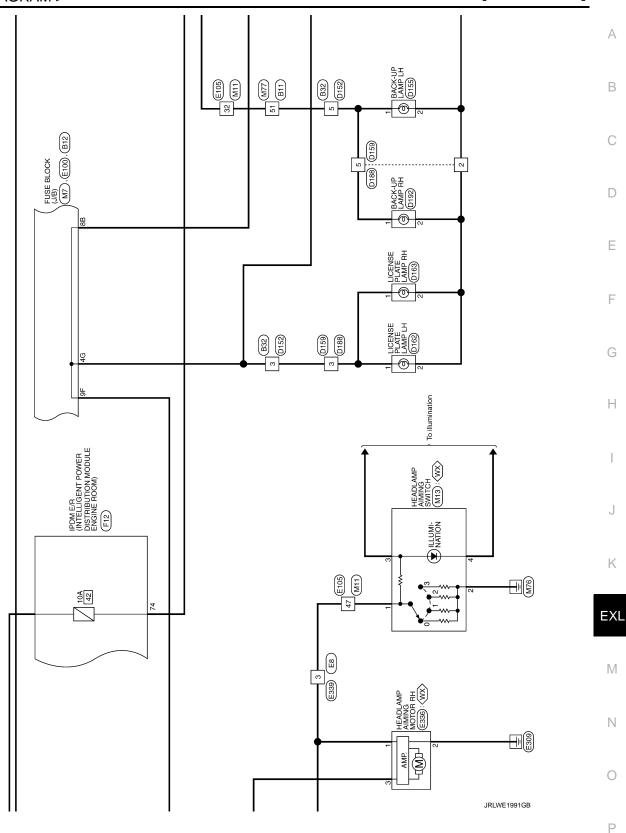
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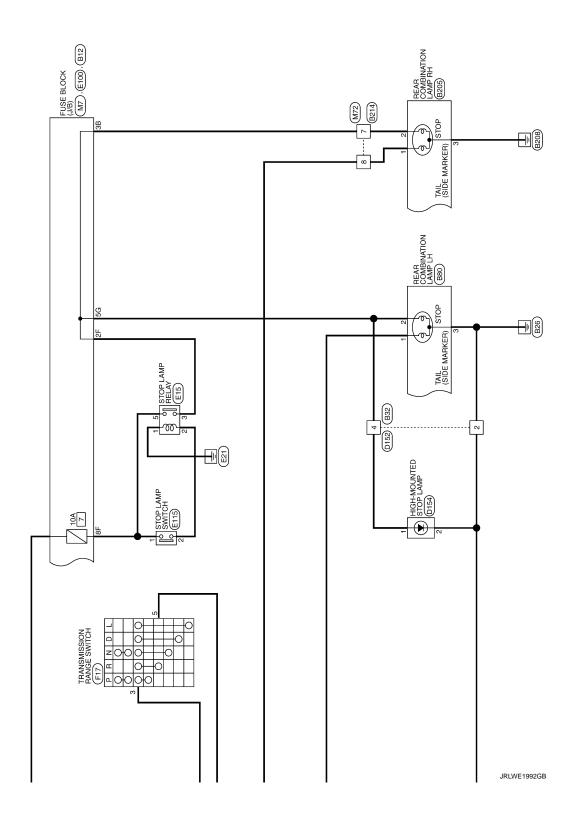
# **EXTERIOR LIGHTING SYSTEM**

< WIRING DIAGRAM >



[XENON TYPE]





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Terminal No.     Color No.     Signal Name [Specification]       1     0     Signal Name [Specification]       2     0     Signal Name [Specification]       3     1     1       4     1     1       9     1     1       10     1     1       11     1     1       12     1     1       13     1     1       14     1     1       15     1     1       16     1     1       17     1     1       18     1     1       19     1     1       10     1     1       11     1     1       12     1     1       13     1     1       14     1     1       15     1     1       16     1     1       17     1     1       18     1     1       19     1     1       10     1     1       11     1     1       12     1     1       13     1     1	
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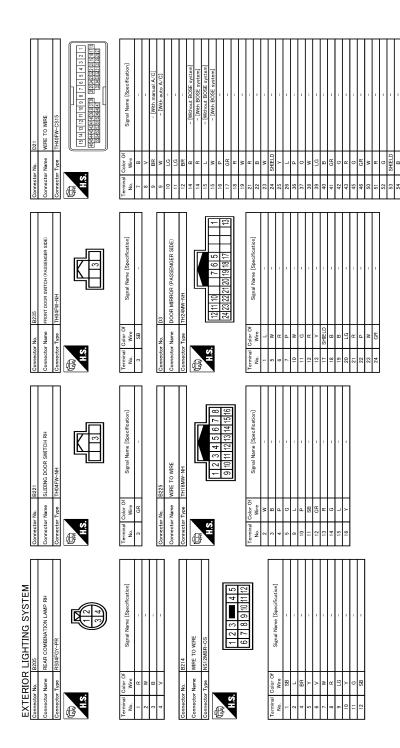
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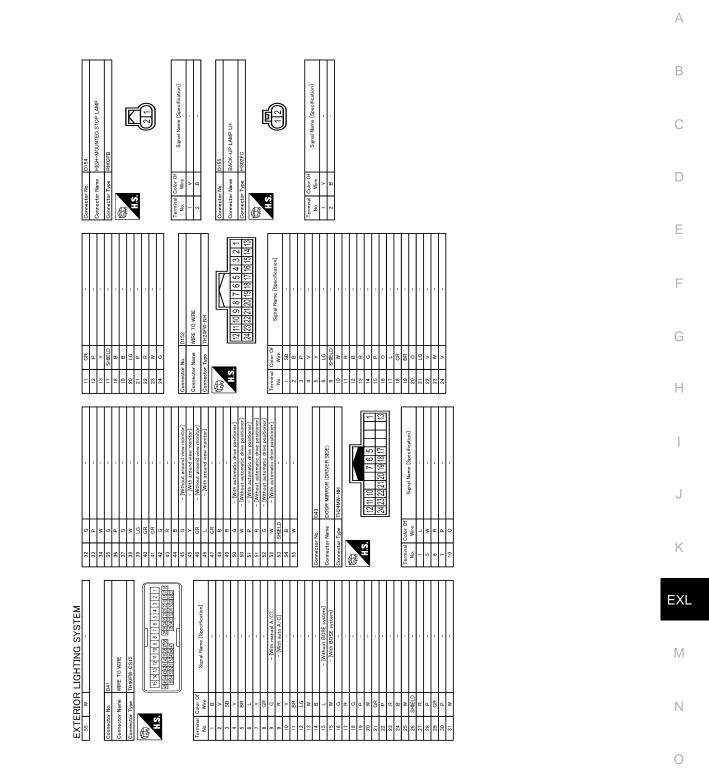
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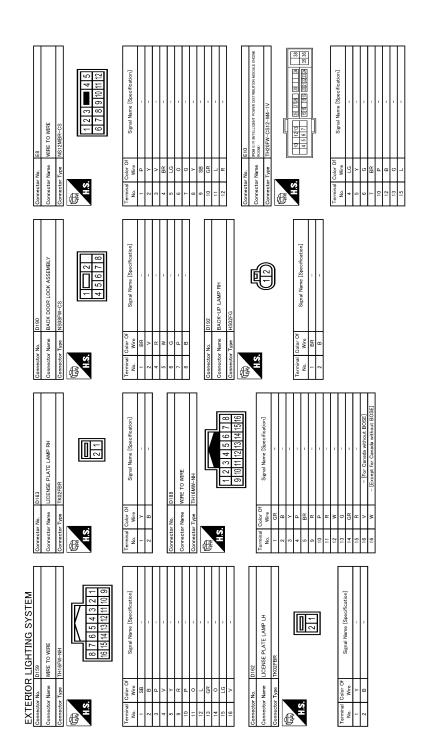
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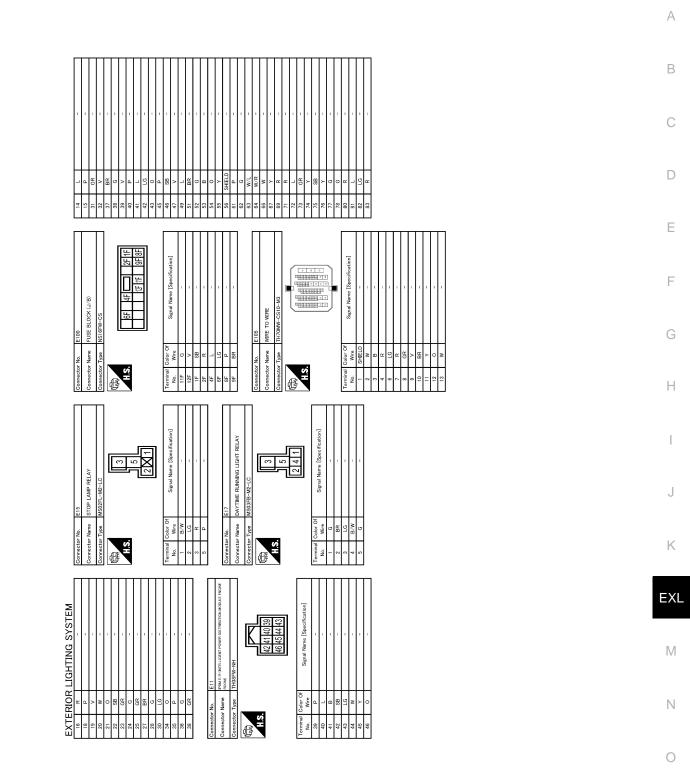
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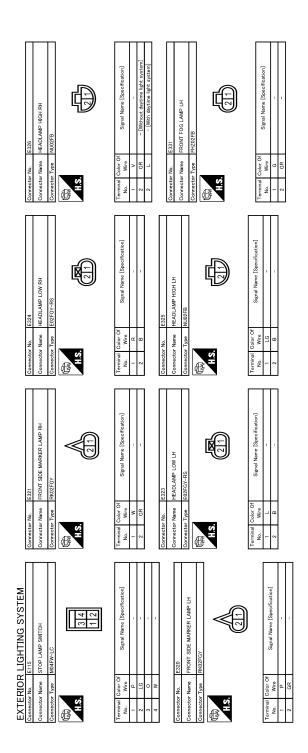


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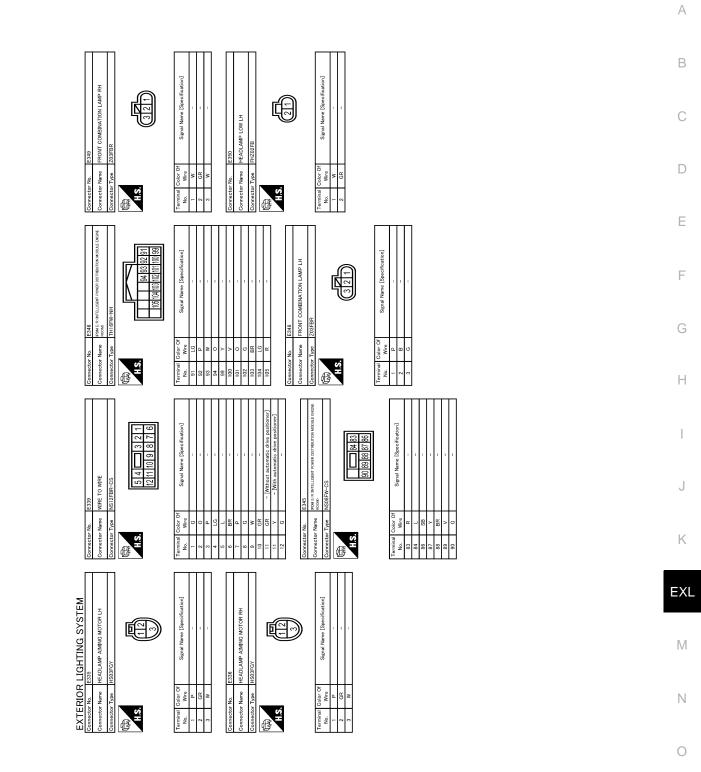


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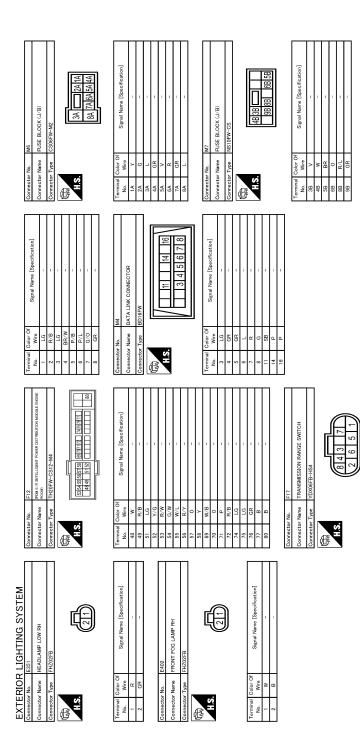


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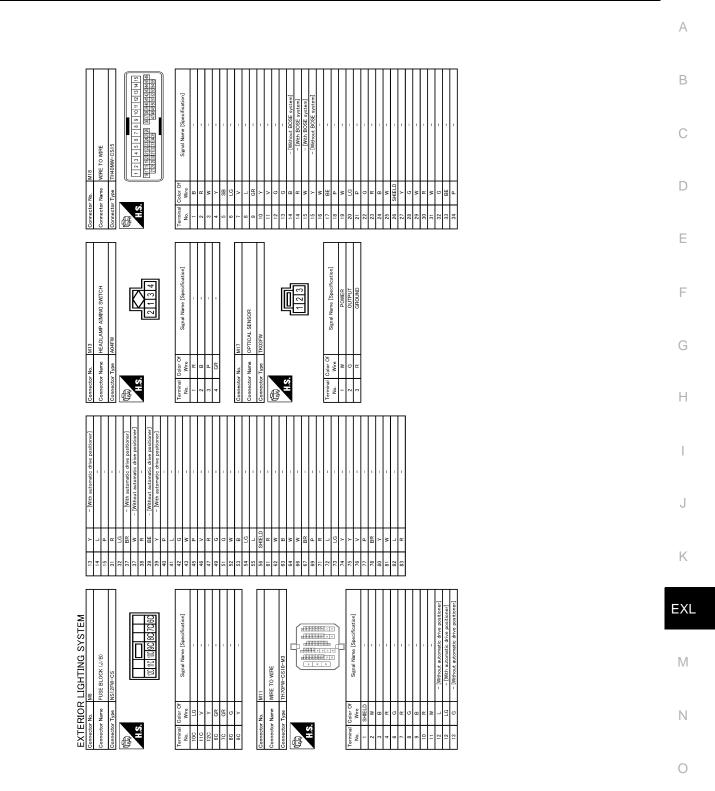


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# EXTERIOR LIGHTING SYSTEM

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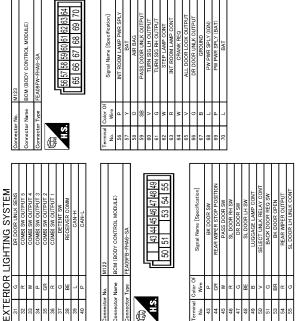
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Signal Name [Specification]	BK DOOR SW	REAR WIPER STOP POSITION	PASS DOOR SW	SL DOOR RH SW	DR DOOR SW	SL DOOR LH SW	LUGGAGE LAMP CONT	SELECT UNLK RELAY CONT	BACK DOOR REQ SW	BK DOOR OPEN	REAR WIPER OUTPUT	SL DOOR LH UNLK CONT	
Color Of Wire	٩.	GR	M	æ	9	BE	8	>	σ	BR	æ	9	
Terminal No.	43	44	45	46	47	48	49	50	51	53	54	55	

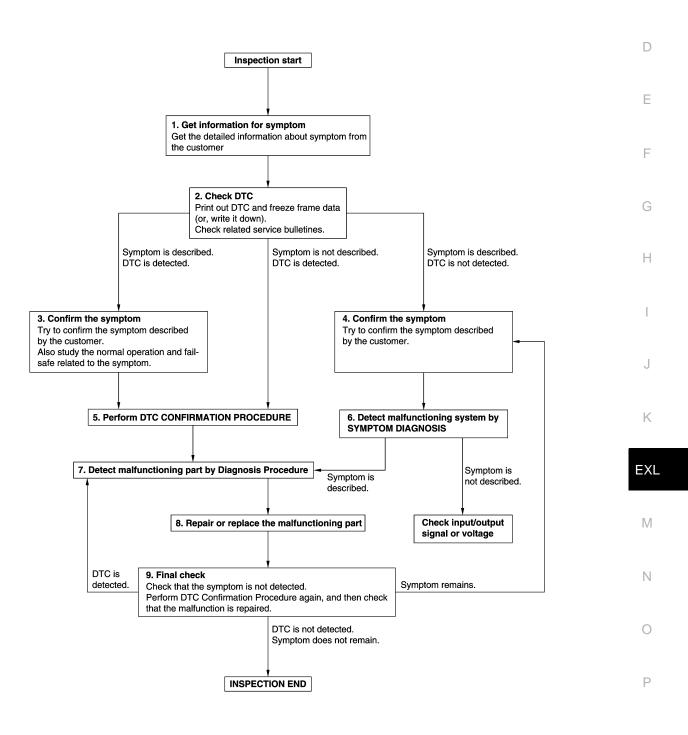
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< BASIC INSPECTION >

# **BASIC INSPECTION** DIAGNOSIS AND REPAIR WORK FLOW

Work Flow

**OVERALL SEQUENCE** 



JMKIA8652GB

DETAILED FLOW

Revision: 2014 August

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[XENON TYPE]

INFOID:000000011321458

< 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 DTC INSPECTION PRIORITY CHART, 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 CONFIR-MATION PROCEDURE.

#### Is DTC detected?

YES >> GO TO 7.

NO >> Check according to <u>GI-42. "Intermittent Incident"</u>.

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 CON-SULT.
- 7. DETECT MALFUNCTIONING PART BY DIAGNOSIS PROCEDURE

# DIAGNOSIS AND REPAIR WORK FLOW

Inspect according to Diagnosis Procedure of the system. Is malfunctioning part detected? YES >> GO TO 8. NO >> Check according to <u>GI-42. "Intermittent Incident"</u> . <b>8</b> .REPAIR OR REPLACE THE MALFUNCTIONING PART 1. Repair or replace the malfunctioning part. 2. Reconnect parts or connectors disconnected during Diagnosis Procedure again after repair and replace- ment. 3. Check DTC. If DTC is detected, erase it. >> GO TO 9. <b>9</b> .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.	< BASIC INSPECTION > [XENON TYPE]	
<ul> <li>YES &gt;&gt; GO TO 8.</li> <li>NO &gt;&gt; Check according to GI-42. "Intermittent Incident".</li> <li>8.REPAIR OR REPLACE THE MALFUNCTIONING PART</li> <li>1. Repair or replace the malfunctioning part.</li> <li>2. Reconnect parts or connectors disconnected during Diagnosis Procedure again after repair and replacement.</li> <li>3. Check DTC. If DTC is detected, erase it.</li> <li>&gt;&gt; GO TO 9.</li> <li>9.FINAL CHECK</li> <li>When DTC is detected in step 2, perform DTC CONFIRMATION PROCEDURE again, and then check that the malfunction is repaired securely.</li> <li>When symptom is described by the customer, refer to confirmed symptom in step 3 or 4, and check that the symptom is not detected.</li> <li>Is DTC detected and does symptom remain?</li> <li>YES-1 &gt;&gt; DTC is detected: GO TO 7.</li> <li>YES-2 &gt;&gt; Symptom remains: GO TO 4.</li> </ul>	Inspect according to Diagnosis Procedure of the system.	
<ul> <li>NO &gt;&gt; Check according to <u>GI-42, "Intermittent Incident"</u>.</li> <li>8.REPAIR OR REPLACE THE MALFUNCTIONING PART</li> <li>1. Repair or replace the malfunctioning part.</li> <li>2. Reconnect parts or connectors disconnected during Diagnosis Procedure again after repair and replacement.</li> <li>3. Check DTC. If DTC is detected, erase it.</li> <li>&gt; GO TO 9.</li> <li>9.FINAL CHECK</li> <li>When DTC is detected in step 2, perform DTC CONFIRMATION PROCEDURE again, and then check that the malfunction is repaired securely.</li> <li>When symptom is described by the customer, refer to confirmed symptom in step 3 or 4, and check that the symptom is not detected.</li> <li>Is DTC detected and does symptom remain?</li> <li>YES-1 &gt;&gt; DTC is detected: GO TO 7.</li> <li>YES-2 &gt;&gt; Symptom remains: GO TO 4.</li> </ul>	Is malfunctioning part detected?	
<ul> <li>8.REPAIR OR REPLACE THE MALFUNCTIONING PART</li> <li>1. Repair or replace the malfunctioning part.</li> <li>2. Reconnect parts or connectors disconnected during Diagnosis Procedure again after repair and replacement.</li> <li>3. Check DTC. If DTC is detected, erase it.</li> <li>&gt; GO TO 9.</li> <li>9.FINAL CHECK</li> <li>When DTC is detected in step 2, perform DTC CONFIRMATION PROCEDURE again, and then check that the malfunction is repaired securely.</li> <li>When symptom is described by the customer, refer to confirmed symptom in step 3 or 4, and check that the symptom is not detected.</li> <li>Is DTC detected and does symptom remain?</li> <li>YES-1 &gt;&gt; DTC is detected: GO TO 7.</li> <li>YES-2 &gt;&gt; Symptom remains: GO TO 4.</li> </ul>		
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>> 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.	2. Reconnect parts or connectors disconnected during Diagnosis Procedure again after repair and replace-	
<ul> <li>9.FINAL CHECK</li> <li>When DTC is detected in step 2, perform DTC CONFIRMATION PROCEDURE again, and then check that the malfunction is repaired securely.</li> <li>When symptom is described by the customer, refer to confirmed symptom in step 3 or 4, and check that the symptom is not detected.</li> <li>Is DTC detected and does symptom remain?</li> <li>YES-1 &gt;&gt; DTC is detected: GO TO 7.</li> <li>YES-2 &gt;&gt; Symptom remains: GO TO 4.</li> </ul>	3. Check DTC. If DTC is detected, erase it.	
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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.	9.FINAL CHECK	
When symptom is described by the customer, refer to confirmed symptom in step 3 or 4, and check that the symptom is not detected. <u>Is DTC detected and does symptom remain?</u> YES-1 >> DTC is detected: GO TO 7. YES-2 >> Symptom remains: GO TO 4.		
YES-1 >> DTC is detected: GO TO 7. YES-2 >> Symptom remains: GO TO 4.	When symptom is described by the customer, refer to confirmed symptom in step 3 or 4, and check that the	
YES-2 >> Symptom remains: GO TO 4.	Is DTC detected and does symptom remain?	
NO >> Before returning the vehicle to the customer, always erase DTC.	YES-2 >> Symptom remains: GO TO 4.	
	NO >> Before returning the vehicle to the customer, always erase DTC.	

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< DTC/CIRCUIT DIAGNOSIS >

HEADLAMP (HI) CIRCUIT

WITHOUT DAYTIME RUNNING LIGHT SYSTEM

WITHOUT DAYTIME RUNNING LIGHT SYSTEM : Component Function Check

INFOID:0000000011321459

**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-62, "WITHOUT DAYTIME RUNNING LIGHT SYSTEM : Diagnosis Procedure".

WITHOUT DAYTIME RUNNING LIGHT SYSTEM : Diagnosis Procedure

INFOID:000000011321460

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

CONSULT ACTIVE TEST

- 1. Turn ignition switch OFF.
- 2. Disconnect headlamp high connector.
- 3. Turn ignition 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.

	(+) IPDM E/R		(-)	Test	titem	Voltage (Approx.)
Cor	nector	Terminal				(Approx.)
RH		80			Hi	Battery voltage
КП	E245	89	Crownd	EXTERNAL	Off	0 V
	E345	00	Ground	LAMPS	Hi	Battery voltage
LH		90			Off	0 V

Is the inspection result normal?

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

NO >> GO IO 3.

2.CHECK HEADLAMP (HI) OPEN CIRCUIT

1. Turn ignition switch OFF.

2. Disconnect IPDM E/R connector.

3. Check continuity between IPDM E/R harness connector and headlamp high harness connector.

	IPDM E/R		Headla	mp high	Continuity
Conr	nector	Terminal	Connector	Terminal	Continuity
RH	E345	89	E326	1	Existed
LH	E345	90	E325		Existed

Is the inspection result normal?

YES >> GO TO 5.

# **HEADLAMP (HI) CIRCUIT**

[XENON TYPE] < DTC/CIRCUIT DIAGNOSIS > NO >> Repair or replace harness. **3.**CHECK HEADLAMP (HI) FUSE А 1. Turn ignition switch OFF. Check that the following fuses are not fusing. 2. В Unit Location Fuse No. Capacity Headlamp HI (RH) #55 IPDM E/R 10 A Headlamp HI (LH) #54 Is the inspection result normal? YES >> Replace IPDM E/R. D NO >> GO TO 4. 4.CHECK HEADLAMP (HI) SHORT CIRCUIT Ε Disconnect IPDM E/R connector. 1. Check continuity between IPDM E/R harness connector and ground. 2. IPDM E/R Continuity Connector Terminal Ground 89 RH E345 Not existed LH 90 Is the inspection result normal? YES >> Replace fuse. (Replace IPDM E/R if the fuse is fusing again.) Н NO >> Repair or replace harness. And then replace the fuse.  ${f 5.}$ CHECK HEADLAMP (HI) GROUND OPEN CIRCUIT 1. Turn ignition switch OFF. 2. Disconnect headlamp high connector. 3. Check continuity between headlamp high harness connector and ground. Headlamp high Continuity Connector Terminal Ground Κ RH F326 2 Existed LH E325 Is the inspection result normal? EXL YES >> Replace headlamp (HI) bulb. (Bulb socket is abnormal.) NO >> Repair or replace harness. WITH DAYTIME RUNNING LIGHT SYSTEM Μ WITH DAYTIME RUNNING LIGHT SYSTEM : Component Function Check INFOID:00000011321461 Ν **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. : Headlamp (HI) ON Hi Ρ : Headlamp (HI) OFF Off NOTE: ON/OFF is repeated 1 second each. Is the inspection result normal? YES >> Headlamp (HI) circuit is normal. NO >> Refer to EXL-64, "WITH DAYTIME RUNNING LIGHT SYSTEM : Diagnosis Procedure".

# **HEADLAMP (HI) CIRCUIT**

### < DTC/CIRCUIT DIAGNOSIS >

# WITH DAYTIME RUNNING LIGHT SYSTEM : Diagnosis Procedure

[XENON TYPE]

INFOID:0000000011321462

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

### CONSULT ACTIVE TEST

- 1. Turn ignition switch OFF.
- 2. Disconnect headlamp high connector.
- 3. Turn ignition 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.

	(+) IPDM E/R		()	Test	item	Voltage (Approx.)
Conr	nector	Terminal				()
RH		89			Hi	Battery voltage
ΝП	E345	89	Ground	EXTERNAL	Off	0 V
LH	E345	90	Giodila	LAMPS	Hi	Battery voltage
		90			Off	0 V

Is the inspection result normal?

YES >> GO TO 2.

NO >> GO TO 3.

# 2.CHECK HEADLAMP (HI) OPEN CIRCUIT

- 1. Turn ignition switch OFF.
- 2. Disconnect IPDM E/R connector.
- 3. Check continuity between IPDM E/R harness connector and headlamp high harness connector.

	IPDM E/R		Headla	mp high	Continuity
Conr	nector	Terminal	Connector	Terminal	Continuity
RH	E345	89	E326	4	Existed
LH	⊏340	90	E325		EXISTED

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair or replace harness.

3.CHECK HEADLAMP (HI) FUSE

### 1. Turn ignition switch OFF.

2. Check that the following fuses are not fusing.

Unit	Location	Fuse No.	Capacity
Headlamp HI (RH)	IPDM E/R	#55	10 A
Headlamp HI (LH)		#54	IV A

#### 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			Continuity
Conr	nector	Terminal	Ground	Continuity
RH	E345	89	Giouna	Not existed
LH	E345	90		NUL EXISTED

< DTC/CIRCUIT DIAGN		DLAMP (HI) CI	RCUIT	[XENON TYPE]
s the inspection result no				
•	. (Replace IPDM E/	R if the fuse is fus	ing again.)	
	lace harness. And t	•	se.	
<b>5.</b> CHECK ILLUMINATIO	N STATUS OF HEA	ADLAMPS		
Check illumination status	of headlamps.			
<u>Which headlamp does no</u>	<u>t turn ON?</u>			
RH >> GO TO 6. LH >> GO TO 8.				
-				
O.CHECK HEADLAMP H				
<ol> <li>Remove daytime run</li> <li>Check continuity bety connector.</li> </ol>		ng light relay harn	ess connector and he	eadlamp high RH harness
Daytime runnin	g light relay	Head	amp high RH	<b>0</b> . it it
Connector	Terminal	Connector	Terminal	Continuity
E17	3	E326	2	Existed
YES >> GO TO 7.	laco harnoss			
NO >> Repair or rep 7.CHECK HEADLAMP H	HI (RH) GROUND C			
NO >> Repair or rep	HI (RH) GROUND C		connector and ground	
NO >> Repair or rep CHECK HEADLAMP F Check continuity between Daytime	H (RH) GROUND C a daytime running lig e running light relay	ght relay harness o		I. Continuity
NO >> Repair or rep CHECK HEADLAMP H Check continuity between Daytime Connector	H (RH) GROUND C daytime running lig e running light relay Termir	ght relay harness o	connector and ground	Continuity
NO >> Repair or rep CHECK HEADLAMP F Check continuity between Daytime Connector E17	HI (RH) GROUND C a daytime running lig e running light relay Termir 4	ght relay harness o		
NO >> Repair or rep CHECK HEADLAMP H Check continuity between Daytime Connector E17 Is the inspection result no	HI (RH) GROUND C daytime running lig e running light relay Termir 4 ormal? dlamp (HI) bulb. (Bu lace harness. HI (LH) GROUND C	ght relay harness of nal ulb socket is abnor DPEN CIRCUIT	Ground	Continuity
NO >> Repair or rep CHECK HEADLAMP H Check continuity between Connector E17 S the inspection result no YES >> Replace head NO >> Repair or rep B.CHECK HEADLAMP H Check continuity between	HI (RH) GROUND C daytime running lig e running light relay Termir 4 ormal? dlamp (HI) bulb. (Bu lace harness. HI (LH) GROUND C	ght relay harness of nal ulb socket is abnor DPEN CIRCUIT	Ground	Continuity Existed
NO >> Repair or rep CHECK HEADLAMP H Check continuity between Connector E17 S the inspection result no YES >> Replace head NO >> Repair or rep B.CHECK HEADLAMP H Check continuity between	HI (RH) GROUND C a daytime running lig e running light relay Termir 4 <u>ormal?</u> dlamp (HI) bulb. (Bu lace harness. HI (LH) GROUND C a headlamp high LH	ght relay harness of hal ulb socket is abnor OPEN CIRCUIT I harness connecto	Ground	Continuity
NO >> Repair or rep CHECK HEADLAMP H Check continuity between Daytim Connector E17 S the inspection result no YES >> Replace head NO >> Repair or rep B.CHECK HEADLAMP H Check continuity between Head	HI (RH) GROUND C a daytime running lig e running light relay Termir 4 ormal? dlamp (HI) bulb. (Bu lace harness. HI (LH) GROUND C a headlamp high LH	ght relay harness of hal ulb socket is abnor OPEN CIRCUIT I harness connecto	Ground	Continuity Existed
NO >> Repair or rep <b>7.</b> CHECK HEADLAMP H Check continuity between Connector E17 S the inspection result no YES >> Replace head NO >> Repair or rep <b>8.</b> CHECK HEADLAMP H Check continuity between Connector E325 S the inspection result no	HI (RH) GROUND C a daytime running lig e running light relay Termir 4 ormal? dlamp (HI) bulb. (Bu lace harness. HI (LH) GROUND C a headlamp high LH adlamp high LH 2 ormal?	ght relay harness of nal ulb socket is abnor OPEN CIRCUIT I harness connector nal	Ground	Continuity Existed Continuity
NO >> Repair or rep <b>7.</b> CHECK HEADLAMP H Check continuity between Connector E17 S the inspection result no YES >> Replace head NO >> Repair or rep <b>8.</b> CHECK HEADLAMP H Check continuity between Connector E325 S the inspection result no	HI (RH) GROUND C a daytime running lig e running light relay Termir 4 ormal? dlamp (HI) bulb. (Bu lace harness. HI (LH) GROUND C a headlamp high LH adlamp high LH Termir 2 ormal? dlamp (HI) bulb. (Bu	ght relay harness of nal ulb socket is abnor OPEN CIRCUIT I harness connector nal	Ground	Continuity Existed Continuity
NO >> Repair or rep <b>7.</b> CHECK HEADLAMP H Check continuity between Connector E17 Is the inspection result not YES >> Replace head NO >> Repair or rep <b>8.</b> CHECK HEADLAMP H Check continuity between Connector E325 Is the inspection result not YES >> Replace head	HI (RH) GROUND C a daytime running lig e running light relay Termir 4 ormal? dlamp (HI) bulb. (Bu lace harness. HI (LH) GROUND C a headlamp high LH adlamp high LH Termir 2 ormal? dlamp (HI) bulb. (Bu	ght relay harness of nal ulb socket is abnor OPEN CIRCUIT I harness connector nal	Ground	Continuity Existed Continuity
NO >> Repair or rep <b>7.</b> CHECK HEADLAMP H Check continuity between Connector E17 Is the inspection result not YES >> Replace head NO >> Repair or rep <b>8.</b> CHECK HEADLAMP H Check continuity between Connector E325 Is the inspection result not YES >> Replace head	HI (RH) GROUND C a daytime running lig e running light relay Termir 4 ormal? dlamp (HI) bulb. (Bu lace harness. HI (LH) GROUND C a headlamp high LH adlamp high LH Termir 2 ormal? dlamp (HI) bulb. (Bu	ght relay harness of nal ulb socket is abnor OPEN CIRCUIT I harness connector nal	Ground	Continuity Existed Continuity
NO >> Repair or rep <b>7.</b> CHECK HEADLAMP H Check continuity between Connector E17 Is the inspection result not YES >> Replace head NO >> Repair or rep <b>8.</b> CHECK HEADLAMP H Check continuity between Connector E325 Is the inspection result not YES >> Replace head	HI (RH) GROUND C a daytime running lig e running light relay Termir 4 ormal? dlamp (HI) bulb. (Bu lace harness. HI (LH) GROUND C a headlamp high LH adlamp high LH Termir 2 ormal? dlamp (HI) bulb. (Bu	ght relay harness of nal ulb socket is abnor OPEN CIRCUIT I harness connector nal	Ground	Continuity Existed Continuity

# HEADLAMP (LO) CIRCUIT

# **Component Function Check**

# **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) is normal.
- NO >> Refer to EXL-66, "Diagnosis Procedure".

### Diagnosis Procedure

INFOID:000000011321464

# 1.CHECK HEADLAMP (LO) OUTPUT VOLTAGE

### CONSULT ACTIVE TEST

#### 1. Turn ignition switch OFF.

- 2. Disconnect headlamp low connector.
- 3. Turn ignition 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.

	(+)					Valtare
	IPDM E/R		(-)	Test	item	Voltage (Approx.)
Conr	nector	Terminal				, , ,
RH		83			Lo	Battery voltage
	E345	00	Ground	EXTERNAL	Off	0 V
LH	E345	84	Giouna	LAMPS	Lo	Battery voltage
LU		04			Off	0 V

Is the inspection result normal?

YES >> GO TO 2.

NO >> GO TO 3.

2.CHECK HEADLAMP (LO) OPEN CIRCUIT

1. Turn ignition switch OFF.

2. Disconnect IPDM E/R connector.

3. Check continuity between IPDM E/R harness connector and headlamp low harness connector.

	IPDM E/R		Headla	amp low	Continuity
Coni	nector	Terminal	Connector	Terminal	Continuity
RH	E345	83	E324	1	Existed
LH	E345	84	E323	I	LAISted

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair or replace harness.

**3.**CHECK HEADLAMP (LO) FUSE

1. Turn ignition switch OFF.

2. Check that the following fuses are not fusing.

INFOID:000000011321463

# **HEADLAMP (LO) CIRCUIT**

### < DTC/CIRCUIT DIAGNOSIS >

# [XENON TYPE]

Headlamp LO (RH)	Lotion	1	Fuse No.	Capacity
	IPDM E/R		#57	15 A
Headlamp LO (LH)			#56	15 A
the inspection result	normal?			
YES >> Replace IF	DM E/R.			
NO >> GO TO 4.				
	P (LO) SHORT CIRC	UII		
<ul> <li>Disconnect IPDM I</li> <li>Check continuity b</li> </ul>	E/R connector. etween IPDM E/R ha	rness connector :	and around	
Check continuity b			and ground.	
	IPDM E/R			Continuity
Con	nector	Terminal	Ground	
RH	E345	83		Not existed
LH		84		
ES >> Replace fu O >> Repair or r CHECK HEADLAM	se. (Replace IPDM E eplace harness. And P (LO) GROUND OPI	then replace the		
NO >> Repair or r CHECK HEADLAM Turn ignition switch Disconnect headla	se. (Replace IPDM E eplace harness. And P (LO) GROUND OPI n OFF. mp low connector. etween headlamp low	then replace the EN CIRCUIT	fuse.	
YES >> Replace fu NO >> Repair or r OCHECK HEADLAM Turn ignition switch Disconnect headla Check continuity b	se. (Replace IPDM E eplace harness. And P (LO) GROUND OPI n OFF. mp low connector. etween headlamp low Headlamp low	then replace the EN CIRCUIT v harness connec	fuse.	Continuity
YES >> Replace fu NO >> Repair or r O.CHECK HEADLAM . Turn ignition switch . Disconnect headla . Check continuity b	se. (Replace IPDM E eplace harness. And P (LO) GROUND OPI n OFF. mp low connector. etween headlamp low Headlamp low	then replace the EN CIRCUIT	fuse.	Continuity
YES >> Replace fu NO >> Repair or r OCHECK HEADLAM Turn ignition switch Disconnect headla Check continuity b	se. (Replace IPDM E eplace harness. And P (LO) GROUND OPI n OFF. mp low connector. etween headlamp low Headlamp low	then replace the EN CIRCUIT v harness connec	fuse.	Continuity Existed

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# DAYTIME RUNNING LIGHT RELAY CIRCUIT

## < DTC/CIRCUIT DIAGNOSIS >

# DAYTIME RUNNING LIGHT RELAY CIRCUIT

## **Component Function Check**

**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-68, "Diagnosis Procedure".

### Diagnosis Procedure

INFOID:000000011321466

# 1.CHECK DAYTIME RUNNING LIGHT RELAY FUSE

#### 1. Turn ignition switch OFF.

2. Check that the following fuse is not fusing.

Unit	Fuse No.	Capacity
Daytime running light relay	#59	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.

	(+) Daytime running light relay		Voltage (Approx.)	
Connector	Terminal		(,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	
E17	1	Ground	Patton	
	5	Ground	Battery voltage	

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace harness.

 $\mathbf{3.}$ CHECK DAYTIME RUNNING LIGHT RELAY

Check daytime running light relay. Refer to EXL-69, "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 ignition 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.

INFOID:000000011321465

# DAYTIME RUNNING LIGHT RELAY CIRCUIT

#### < DTC/CIRCUIT DIAGNOSIS >

[XENON TYPE]

	+)	_				Voltage		
	M E/R	(-)	()	Test item		Test item		(Approx.)
Connector	Terminal				0.5			
E346	105	Ground	DAYTIME R NING LIGHT	-	On Off	0 V Battery voltag		
the inspection rea	ult pormol2				Oli	Ballery Vollag		
-	e running light rel /)>>GO TO 5. ttery voltage) >>F	Replace IPDM E	/R.		PCIJIT			
		INT KELAT CO	INTROL SIGN		RCUIT			
Disconnect IPD	Alten OFF. The running light re M E/R harness c by between IPDM	onnector.	onnector and o	daytime runn	iing light re	lay harness co		
	IPDM E/R		Daytime runni	ng light relay		Questionity		
Connector	Termina	al C	Connector	Termina	al	- Continuity		
E346	105		E17	2		Existed		
YES >> GO TO NO >> Repair CHECK DAYTIM heck continuity be	or replace harnes	HT RELAY CO			CIRCUIT			
NO >> Repair CHECK DAYTIN	or replace harnes IE RUNNING LIG tween IPDM E/R IPDM E/R	HT RELAY CO	ctor and grour	nd.		Continuity		
NO >> Repair CHECK DAYTIN heck continuity be Connecto	or replace harnes IE RUNNING LIG tween IPDM E/R IPDM E/R	HT RELAY CO harness conne	ctor and grour			-		
NO >> Repair CHECK DAYTIN	or replace harnes IE RUNNING LIG itween IPDM E/R IPDM E/R	HT RELAY CO	ctor and grour	nd.		Continuity Not existed		
NO >> Repair CHECK DAYTIN heck continuity be Connecto E346 the inspection res YES >> Replac NO >> Repair Omponent Ins .CHECK DAYTIN Turn the ignitio Remove daytim Apply battery v	or replace harnes IE RUNNING LIG Itween IPDM E/R IPDM E/R r Sult normal? e IPDM E/R. or replace harnes pection IE RUNNING LIG	HT RELAY CO harness conne Terminal 105 SS. HT RELAY Play. running light re	etor and grour	nd. Ground		-		
NO >> Repair CHECK DAYTIN heck continuity be Connecto E346 the inspection res YES >> Replac NO >> Repair COMPONENT INS CHECK DAYTIN Turn the ignitio Remove daytim Apply battery v Check continuit	or replace harnes IE RUNNING LIG tween IPDM E/R IPDM E/R r sult normal? e IPDM E/R. or replace harnes pection IE RUNNING LIG n switch OFF. he running light re oltage to daytime	6HT RELAY CO harness conne Terminal 105 6HT RELAY elay. running light re ne running light	elay- between t relay terminal	nd. Ground Germinals 1 a S.	Ind 2.	Not existed		
NO >> Repair CHECK DAYTIN heck continuity be Connecto E346 the inspection res YES >> Replac NO >> Repair COMPONENT INS CHECK DAYTIN Turn the ignitio Remove daytim Apply battery v Check continuit	or replace harnes IE RUNNING LIG Itween IPDM E/R IPDM E/R r sult normal? e IPDM E/R. or replace harnes pection IE RUNNING LIG n switch OFF. he running light re oltage to daytime by between daytim	6HT RELAY CO harness conne Terminal 105 6HT RELAY elay. running light re ne running light	etor and grour	nd. Ground Germinals 1 a S.	Ind 2.	Not existed		
NO >> Repair CHECK DAYTIN heck continuity be Connecto E346 the inspection res YES >> Replac NO >> Repair COMPONENT INS CHECK DAYTIN Turn the ignitio Remove daytim Apply battery v Check continuit	or replace harnes IE RUNNING LIG IPDM E/R IPDM E/R IPDM E/R IPDM E/R IPDM E/R IPDM E/R IE RUNNING LIG IN Switch OFF. IN SWITCH	6HT RELAY CO harness conne Terminal 105 6HT RELAY elay. running light re ne running light	elay- between t relay terminal	nd. Ground Germinals 1 a S.	Ind 2.	Not existed		
NO >> Repair CHECK DAYTIN heck continuity be Connecto E346 the inspection res YES >> Replac NO >> Repair COMPONENT INS CHECK DAYTIN Turn the ignitio Remove daytim Apply battery v Check continuit	or replace harnes IE RUNNING LIG Itween IPDM E/R IPDM E/R r sult normal? e IPDM E/R. or replace harnes pection IE RUNNING LIG n switch OFF. ne running light re oltage to daytime cy between daytim	6HT RELAY CO harness conne Terminal 105 6HT RELAY elay. running light re ne running light	elay- between t relay terminal	nd. Ground eerminals 1 a s.	ind 2.	Not existed		
NO >> Repair CHECK DAYTIN heck continuity be Connecto E346 the inspection res YES >> Replac NO >> Repair Omponent Ins .CHECK DAYTIN Turn the ignitio Remove daytim Apply battery v Check continuit	or replace harnes IE RUNNING LIG IPDM E/R IPDM E/R IPDM E/R IPDM E/R IPDM E/R IPDM E/R IE RUNNING LIG IN Switch OFF. IN SWITCH	HT RELAY CO harness conne Terminal 105 SS. HT RELAY Play. running light re ne running light	elay- between t relay terminal	nd. Ground eerminals 1 a s. lition Apply	Ind 2.	Not existed		

YES >> Daytime running light relay is normal.

NO >> Replace daytime running light relay.

## < DTC/CIRCUIT DIAGNOSIS >

# XENON HEADLAMP Diagnosis Procedure

INFOID:000000011321468

# 1.CHECK XENON BULB

Install the normal bulb to the applicable headlamp. Check that the lighting switch is turned ON.

Is the headlamp turned ON?

YES >> Replace xenon bulb.

NO >> GO TO 2.

2. CHECK HID CONTROL UNIT

Install the normal HID control unit to the applicable headlamp. Check that the lighting switch is turned ON. <u>Is the headlamp turned ON?</u>

YES >> Replace HID control unit.

NO >> Xenon headlamp is normal. Check headlamp control system.

### Turn ignition switch OFF. Remove headlamp aiming switch.

3. Check resistance among each headlamp aiming switch terminal.

HEADLAMP AIMING SYSTEM (MANUAL)

Headlamp a	Headlamp aiming switch		Resistance
Teri	Terminal		(Approx.)
	2	0	Α: 1000 Ω
		1	Β: 750 Ω
1		2	C: 365 Ω
-		3	D: 221 Ω
	3	_	E: 390 Ω

## Is the inspection result normal?

< DTC/CIRCUIT DIAGNOSIS >

1. CHECK HEADLAMP AIMING SWITCH

**Component Inspection** 

1.

2.

YES >> Headlamp aiming switch is normal.

NO >> Replace the headlamp aiming switch.

## [XENON TYPE]

INFOID:000000011321469

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# PARKING LAMP CIRCUIT

# **Component Function Check**

# **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 <u>EXL-72, "Diagnosis Procedure"</u>.

### Diagnosis Procedure

## **1.**CHECK PARKING LAMP FUSE

#### 1. Turn ignition switch OFF.

2. Check that the following fuse is not fusing.

Unit	Location	Fuse No.	Capacity
<ul><li>Parking lamp</li><li>Front side marker lamp</li></ul>	IPDM E/R	#52	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
- Headlamp aiming motor
- 2. Check continuity between IPDM E/R harness connector and ground.

IPDM E/R			Continuity
Connector	Terminal		Continuity
	91	- Ground	Not existed
E346	92		
	93		
	94	-	

#### 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

INFOID:0000000011321470

INFOID:000000011321471

# PARKING LAMP CIRCUIT

#### < DTC/CIRCUIT DIAGNOSIS >

- 1. Disconnect front combination lamp connector.
- 2. Turn ignition 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.

	(+)						В
IPDM E/R		(–)	Test item		Test item Volta	Voltage (Approx.)	
	Connector	Terminal				(*********	С
БЦ	RHE346	91	Ground	Cround EXTERNAL	TAIL	Battery voltage	
КП					Off	0 V	_
1.11		03		LAMPS	TAIL	Battery voltage	D
LU		92			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 ignition switch OFF.

Disconnect IPDM E/R connector. 2.

Check continuity between IPDM E/R harness connector and front combination lamp harness connector. 3.

IPDM E/R Connector Terminal		Front comb	ination lamp	Continuity		
		Terminal	Connector	Terminal	Continuity	Н
RH	E346	91	E349	1	Existed	
LH	E346 -	92	E348	1	EXISTED	I

Is the inspection result normal?

YES >> GO TO 6.

NO >> Repair or replace harness.

#### $\mathbf{6}$ . CHECK PARKING LAMP GROUND OPEN CIRCUIT

Check continuity between front combination lamp harness connector and ground.

·		·	J		K
	Front combination lamp		Continuity		
Connector		Terminal	Ground	Continuity	
RH	E349	2	Cround	Existed	EXL
LH	E348	2		LAISIEU	

Is the inspection result normal?

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

NO >> Repair or replace harness. А

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< DTC/CIRCUIT DIAGNOSIS >

# FRONT SIDE MARKER LAMP CIRCUIT

**Component Function Check** 

**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 <u>EXL-72, "Component Function Check"</u>.

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-74, "Diagnosis Procedure".

Diagnosis Procedure

**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 ignition 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	Continuity	
Coni	nector	Terminal	Connector	Terminal	Continuity
RH	E246	91	E321	- 1	Existed
LH	E346	92	E320		Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace harness.

 ${f 3.}$ CHECK FRONT SIDE MARKER LAMP GROUND OPEN CIRCUIT

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

Front side marker lamp				Continuity	
Connector		Terminal	Ground	Continuity	
RH	E321	2	2	Giouna	Existed
LH	E320			Existed	

Is the inspection result normal?

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

NO >> Repair or replace harness.

INFOID:0000000011321472

INFOID:000000011321473

# **TAIL LAMP CIRCUIT**

< DTC/CIRCUIT DIAGNO	SIS >		[XENON TYPE]
TAIL LAMP CIRCU	IT		
Table LAMP CIRCUIT         Component Function Check        CHECK TAIL LAMP OPERATION         CONSULT ACTIVE TEST        Select "EXTERNAL LAMPS" of IPDM E/R active test item.        With operating the test items, check that the tail lamp is turned ON.         TAIL : Tail Lamp ON         Off : Tail lamp OFF         s the inspection result normal?         YES >> Tail lamp circuit is normal.         NO >> Refer to EXL-75. "Diagnosis Procedure".         Diagnosis Procedure        CHECK TAIL LAMP FUSE        Turn ignition switch OFF.         Check that the following fuse is not fusing.         Tail lamp         Init       Location         Fail lamp         Init       Location         Fail lamp         Init       Location         Failemp       #53        CHECK TAIL LAMP FUSE        Turn ignition switch OFF.        Check that the following fuse is not fusing.         Tail lamp        CHECK TAIL LAMP SHORT CIRCUIT        Disconnect IPDM E/R connector, licence plate lamp connector and rear combination lamp connect.        Check continuity between IPDM E/R harness connector and ground.         IPDM E/R       Ground       Continuity	INFOID:000000011321474		
1.CHECK TAIL LAMP OPE	ERATION		
1. Select "EXTERNAL LA	MPS" of IPDM E/R active t		
YES >> Tail lamp circuit	is normal.		
			INFOID:00000001132147
Unit	Location	Fuse No.	Capacity
•	IPDM E/R	#53	10 A
NO >> GO TO 2. 2.CHECK TAIL LAMP SHO 1. Disconnect IPDM E/R of	connector, licence plate lan		bination lamp connector.
	-	Ground	Continuity
E10	7	_	Not existed
YES >> Replace fuse. ( NO >> Repair or replace	Replace IPDM E/R if fusin ce harness. And then repla		
Check applicable lamp bulb			
	nal?		
<b>4.</b> CHECK TAIL LAMP OU <sup>-</sup>	TPUT VOLTAGE		
CONSULT ACTIVE TES			
1. Disconnect rear combin	ation lamp connector		

4. With operating the test items, check voltage between IPDM E/R harness connector and ground.

# TAIL LAMP CIRCUIT

#### < DTC/CIRCUIT DIAGNOSIS >

(+) IPDM E/R		()	Test it	em	Voltage (Approx.)	
Connector	Terminal				(	
E10	7	7 Ground EXTERNAL LAMPS	EXTERNAL	TAIL	Battery voltage	
210	/		LAMPS	Off	0 V	

Is the inspection result normal?

YES >> GO TO 5.

NO >> Replace IPDM E/R.

5. CHECK TAIL LAMP OPEN CIRCUIT

1. Turn ignition switch OFF.

2. Disconnect IPDM E/R connector.

3. Check continuity between IPDM E/R harness connector and rear combination lamp harness connector.

IPDM E/R			Rear comb	Continuity	
Conr	Connector		Connector	Terminal	Continuity
RH	E10	7	B205	- 1	Existed
LH	210	1	B80		Existed

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				Continuity	
Connector		Terminal	Ground	Continuity	
RH	B205	2	Giouna	Existed	
LH	B80	5		LAISLEU	

Is the inspection result normal?

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

NO >> Repair or replace harness.

# LICENSE PLATE LAMP CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >				[XENON TYPE]
LICENSE PLATE LAMP (	CIRCUIT			
Component Function Check				INFOID:000000011321476
1. CHECK TAIL LAMP OPERATION	N			
Check that the tail lamp is turned Of	N.			
s the inspection result normal?				
YES >> GO TO 2. NO >> Check tail lamp circuit. I	Pofer to EXL-75	"Component Fund	tion Check"	
CHECK LICENSE PLATE LAMP		<u>component i unc</u>	<u>stion oneck</u> .	
. Select "EXTERNAL LAMPS" of				
. With operating the lighting switc	h, check that the	license plate lamp	o is turned ON.	
TAIL : License plate la	mp ON			
Off : License plate la	mp OFF			
<u>the inspection result normal?</u> YES >> License plate lamp circu	uit in normal			
YES >> License plate lamp circu NO >> Refer to <u>EXL-77, "Diagr</u>				
liagnosis Procedure				INFOID:000000011321477
CHECK LICENSE PLATE LAMP	BULB			
heck the applicable lamp bulb.				
the inspection result normal?				
YES >> GO TO 2. NO >> Replace bulb.				
CHECK LICENSE PLATE LAMP	OPEN CIRCUIT			
. Turn ignition switch OFF.				
<ul> <li>Disconnect IPDM E/R connecto</li> <li>Check continuity between IPDN</li> </ul>				ess connector.
IPDM E/R			plate lamp	
Connector	Terminal	Connector	Terminal	Continuity
RH		D163		
LH E10	7	D162	1	Existed
the inspection result normal?				
YES >> GO TO 3. NO >> Repair or replace harne	SS			
CHECK LICENSE PLATE LAMP		CIRCUIT		
check continuity between license pl			ound.	
License plate	lamp	1		Continuity

	License plate lamp			Continuity	
	Connector	Terminal	Ground	Continuity	D
RH	D163	2	Ground	Existed	P
LH	D162	Ζ		Existed	_

Is the inspection result normal?

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

NO >> Repair or replace harness.

# TURN SIGNAL LAMP CIRCUIT

Component Function Check

### 1.CHECK TURN SIGNAL LAMP

**CONSULT ACTIVE TEST** 

- T. 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-78, "Diagnosis Procedure".

#### Diagnosis Procedure

### **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

#### Which turn signal lamp does not turn ON?

Side turn signal lamp>>GO TO 3.

Other than side turn signal lamp>>GO TO 2.

2.CHECK TURN SIGNAL LAMP BULB

Check the applicable lamp bulb.

Is the inspection result normal?

YES >> GO TO 3.

NO >> Replace bulb.

 $\mathbf{3.}$  CHECK TURN SIGNAL LAMP OUTPUT VOLTAGE

1. Turn ignition switch OFF.

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

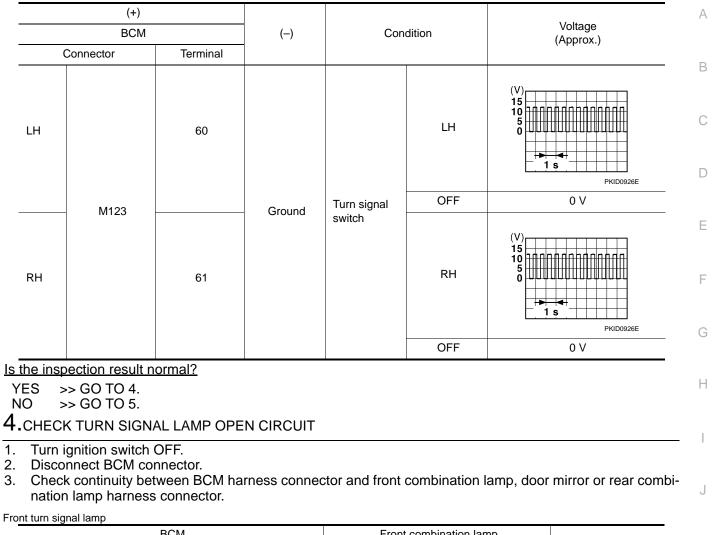
INFOID:000000011321478

INFOID:000000011321479

# **TURN SIGNAL LAMP CIRCUIT**

#### < DTC/CIRCUIT DIAGNOSIS >

[XENON TYPE]



BCM Connector Terminal		Front comb	Continuity			
		Terminal	Connector	Terminal	Continuity	
RH	M123	61	E349	3	Existed	-
LH	M123	60	E348	3	Existed	

Side turn signal lamp

	BCM		Door	mirror	Continuity
Connec	tor	Terminal	Connector	Terminal	Continuity
Passenger side	M123	61	D3	20	Existed
Driver side	101123	60	D43	20	EXISTED

Rear turn signal lamp

	BCM		Rear comb	ination lamp	Continuity	
(	Connector	Terminal	Connector	Terminal	Continuity	0
RH	M123	61	B205	4	Existed	
LH	- 101723	60	B80	- 4	Existed	D

Is the inspection result normal?

YES >> GO TO 6.

NO >> Repair or replace harness.

**5.**CHECK TURN SIGNAL LAMP SHORT CIRCUIT

Check continuity between BCM harness connector and ground.

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# **TURN SIGNAL LAMP CIRCUIT**

#### < DTC/CIRCUIT DIAGNOSIS >

#### [XENON TYPE]

BCM				Continuity
Conr	nector	Terminal	Ground	Continuity
RH	M123	61	Giouna	Not existed
LH	WIZ5	60		Not existed

#### Is the inspection result normal?

- YES-1 >> (When side turn signal lamp does not turn ON) Replace BCM. Refer to <u>BCS-98, "Removal and</u> <u>Installation"</u>.
- YES-2 >> (When lamp other than side turn signal lamp does not turn ON) Check each bulb socket for internal short circuit, and if check result is normal, replace BCM. Refer to <u>BCS-98</u>, "<u>Removal and</u> <u>Installation</u>".
- NO >> Repair or replace harness.

#### **6.**CHECK TURN SIGNAL LAMP GROUND OPEN CIRCUIT

Check continuity between BCM harness connector and front combination lamp, door mirror or rear combination lamp and ground.

Front turn signal lamp

	Front com	bination lamp			Continuity	
Connector Termin		Terminal	Ground	Continuity		
RH	E349		2	Ground	Eviated	
LH	E348		2		Existed	
e turn signal la	mp					
	I	Door mirror			Continuity	
Connector Termin		Terminal	Ground	Continuity		
Passenger s	assenger side D3		19	Ground	Existed	
Driver side		D43	19		Existed	
r turn signal la	amp					
	Rear com	bination lamp			Continuity	
	Connector		Terminal	Ground	Continuity	
RH	B205		3	Ground	Existed	
LH	B80		3		EXISTED	

YES-1 >> (When side turn signal lamp does not turn ON) Replace door mirror assembly.

YES-2 >> (When lamp other than side turn signal lamp does not turn ON) Check corresponding bulb socket and harness. Repair or replace if necessary.

NO >> Repair or replace harness.

# **FRONT FOG LAMP CIRCUIT**

< DTC/CIRCUIT	DIAGNOSIS >						[XENON TYPE]
RONT FOO	G LAMP CI	RCUIT					
Component F	unction Che	ck					INFOID:000000011321480
<b>1.</b> CHECK FROM	IT FOG LAMP C	PERATION					
	TIVE TEST RNAL LAMPS" g the test items,					Ν.	
Fog	: Front fog lam	p ON					
Off	: Front fog lam	p OFF					
Is the measureme	ent normal?						
	fog lamp circuit to <u>EXL-81, "Dia</u>		edure".				
Diagnosis Pro	cedure						INFOID:00000001132148
1.CHECK FROM		BULB					
Check the applica							
s the inspection i							
YES >> GO T NO >> Repla							
NO >> Repla							
	RNAL LAMPS" g the test items					arness connect	or and ground.
	(+)			`	_	Foot itom	Voltage
Conr	IPDM E/R	Terminal	- (	—)		lest item	(Approx.)
						Fog	Battery voltage
RH	50.45	86			EXTERNAL	Off	0 V
LH	E345	87	_ Gro	ound	LAMPS	Fog	Battery voltage
LU		07				Off	0 V
<b>B.</b> CHECK FROM	O 3. ace IPDM E/R. IT FOG LAMP C switch OFF. PDM E/R connect	ctor.					
<ol> <li>Check contin</li> </ol>	uity between IPI						
	IPDM E/R				Front fog		Continuity
	onnector	Term			nnector	Terminal	· · · · · · · · · · · · · · · · · ·
RH	E345	8	6		E402	1	Existed

Is the inspection result normal?

YES >> GO TO 4.

LH

E331

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Existed

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# FRONT FOG LAMP CIRCUIT

#### < DTC/CIRCUIT DIAGNOSIS >

#### NO >> Repair or replace harness.

# 4. CHECK FRONT FOG LAMP GROUND CIRCUIT OPEN CIRCUIT

#### Check continuity between front fog lamp harness connector and ground.

	Front fog lamp			Continuity
Cor	nector	Terminal	Ground	Continuity
RH	E402	2	Giouna	Existed
LH	E331	2		Existed

Is the inspection result normal?

YES >> Refer to GI-42, "Intermittent Incident".

NO >> Repair or replace harness.

# [XENON TYPE]

OPTICAL SENS	tion Charle		
Component Funct	lion Check		INFOID:000000011321482
<b>1.</b> CHECK OPTICAL S	SENSOR SIGNAL	. BY CONSULT	
<ol> <li>Turn ignition switch</li> <li>Select "OPTISEN</li> </ol>		(HEADLAMP) data monitor item.	
3. Turn lighting switch			
4. With the optical se	ensor illuminating,	check the monitor status.	
Monitor item		Condition	Voltage (Approx.)
		When illuminating	3.1 V or more *
OPTISEN (DTCT)	Optical sensor	When shutting off light	0.6 V or less
• Illuminates the ontical ser	sor. The value may be	e less than the standard value if brightnes	
s the inspection result	-		
-	nsor is normal.		
	XL-83, "Diagnosis	<u>s Procedure"</u> .	
Diagnosis Proced	ure		INFOID:000000011321483
			INFOLD.000000011321403
<b>1.</b> CHECK OPTICAL S			
I CHECK OF HOAL		SUPPLY INPUT	
<ol> <li>Turn ignition switc</li> <li>Turn lighting switc</li> </ol>	h ON. h AUTO.		
<ol> <li>Turn ignition switc</li> <li>Turn lighting switc</li> </ol>	h ON. h AUTO.	sor harness connector and ground	L.
<ol> <li>Turn ignition switc</li> <li>Turn lighting switc</li> </ol>	h ON. h AUTO. ween optical sens		l.
<ol> <li>Turn ignition switc</li> <li>Turn lighting switc</li> <li>Check voltage bet</li> </ol>	h ON. h AUTO. ween optical sens (+)	sor harness connector and ground	Voltage
<ol> <li>Turn ignition switc</li> <li>Turn lighting switc</li> <li>Check voltage bet</li> </ol>	h ON. h AUTO. ween optical sens (+) cal sensor	sor harness connector and ground	
<ol> <li>Turn ignition switc</li> <li>Turn lighting switc</li> <li>Check voltage bet</li> <li>Optic</li> </ol>	h ON. h AUTO. ween optical sens (+)	sor harness connector and ground	Voltage
<ol> <li>Turn ignition switc</li> <li>Turn lighting switc</li> <li>Check voltage bet</li> <li>Option</li> <li>Connector</li> <li>M17</li> </ol>	h ON. h AUTO. ween optical sens (+) cal sensor Terminal 1	sor harness connector and ground	Voltage (Approx.)
<ol> <li>Turn ignition switc</li> <li>Turn lighting switc</li> <li>Check voltage bet</li> <li>Option</li> <li>Connector</li> <li>M17</li> <li>Is the inspection result</li> </ol>	h ON. h AUTO. ween optical sens (+) cal sensor Terminal 1	sor harness connector and ground	Voltage (Approx.)
<ol> <li>Turn ignition switc</li> <li>Turn lighting switc</li> <li>Check voltage bet</li> <li>Option</li> <li>Connector</li> <li>M17</li> <li>Is the inspection result</li> </ol>	h ON. h AUTO. ween optical sens (+) cal sensor Terminal 1	sor harness connector and ground	Voltage (Approx.)
1. Turn ignition switc 2. Turn lighting switc 3. Check voltage bet Option Connector M17 Is the inspection result YES >> GO TO 2. NO >> GO TO 4.	h ON. h AUTO. ween optical sens (+) cal sensor Terminal 1 normal?	sor harness connector and ground (-) IGround	Voltage (Approx.)
1. Turn ignition switc 2. Turn lighting switc 3. Check voltage bet Option Connector M17 Is the inspection result YES >> GO TO 2. NO >> GO TO 4. 2.CHECK OPTICAL S	h ON. h AUTO. ween optical sens (+) cal sensor Terminal 1 normal?	Sor harness connector and ground (-) I Ground	Voltage (Approx.)
1. Turn ignition switc 2. Turn lighting switc 3. Check voltage bet Optic Connector M17 Is the inspection result YES >> GO TO 2. NO >> GO TO 4. 2.CHECK OPTICAL S	h ON. h AUTO. ween optical sens (+) cal sensor Terminal 1 normal?	sor harness connector and ground (-) IGround	Voltage (Approx.)
1. Turn ignition switc 2. Turn lighting switc 3. Check voltage bet Optic Connector M17 Is the inspection result YES >> GO TO 2. NO >> GO TO 4. 2.CHECK OPTICAL S	h ON. h AUTO. ween optical sens (+) cal sensor Terminal 1 normal?	Sor harness connector and ground (-) I Ground	Voltage (Approx.) 5 V
1. Turn ignition switc 2. Turn lighting switc 3. Check voltage bet Option Connector M17 Is the inspection result YES >> GO TO 2. NO >> GO TO 4. 2.CHECK OPTICAL S Check voltage between	h ON. h AUTO. ween optical sens (+) cal sensor Terminal 1 normal? SENSOR GROUN	Sor harness connector and ground (-) I Ground	Voltage (Approx.) 5 V
1. Turn ignition switc 2. Turn lighting switc 3. Check voltage bet Option Connector M17 Is the inspection result YES >> GO TO 2. NO >> GO TO 4. 2.CHECK OPTICAL S Check voltage between	h ON. h AUTO. ween optical sens (+) cal sensor Terminal 1 normal? SENSOR GROUN n optical sensor ha	Sor harness connector and ground (-) (-) I Ground ID INPUT arness connector and ground. (-)	Voltage (Approx.) 5 V
1. Turn ignition switc 2. Turn lighting switc 3. Check voltage bet Option Connector M17 Is the inspection result YES >> GO TO 2. NO >> GO TO 2. NO >> GO TO 4. 2.CHECK OPTICAL S Check voltage between Option	h ON. h AUTO. ween optical sens (+) cal sensor Terminal 1 normal? SENSOR GROUN n optical sensor ha (+) cal sensor	Sor harness connector and ground (-) (-) I Ground ID INPUT arness connector and ground. (-)	Voltage (Approx.) 5 V
1. Turn ignition switc 2. Turn lighting switc 3. Check voltage bet Option Connector M17 Is the inspection result YES >> GO TO 2. NO >> GO TO 2. NO >> GO TO 4. 2.CHECK OPTICAL S Check voltage between Option Connector M17	h ON. h AUTO. ween optical sens (+) cal sensor Terminal 1 normal? SENSOR GROUN n optical sensor ha (+) cal sensor (+) cal sensor	sor harness connector and ground (-) (-) I ID INPUT arness connector and ground. (-) I (-) I	Voltage (Approx.) 5 V Voltage (Approx.)
1. Turn ignition switc 2. Turn lighting switc 3. Check voltage bet Optin Connector M17 Is the inspection result YES >> GO TO 2. NO >> GO TO 2. NO >> GO TO 4. 2.CHECK OPTICAL S Check voltage between Optin Connector M17 Is the inspection result	h ON. h AUTO. ween optical sens (+) cal sensor Terminal 1 normal? SENSOR GROUN n optical sensor ha (+) cal sensor (+) cal sensor	sor harness connector and ground (-) (-) I ID INPUT arness connector and ground. (-) I (-) I	Voltage (Approx.) 5 V Voltage (Approx.)
1. Turn ignition switc 2. Turn lighting switc 3. Check voltage bet Option Connector M17 Is the inspection result YES >> GO TO 2. NO >> GO TO 2. NO >> GO TO 4. 2.CHECK OPTICAL S Check voltage between Option Connector M17	h ON. h AUTO. ween optical sens (+) cal sensor Terminal 1 normal? SENSOR GROUN n optical sensor ha (+) cal sensor (+) cal sensor	sor harness connector and ground (-) (-) I ID INPUT arness connector and ground. (-) I (-) I	Voltage (Approx.) 5 V Voltage (Approx.)

< DTC/CIRCUIT DIAGNOSIS >

#### < DTC/CIRCUIT DIAGNOSIS >

(+ Optical s		(-)	Condition		Voltage (Approx.)
Connector	Terminal				
M17	2	Ground	Optical sensor	When illuminating	3.1 V or more *
	2	Ground	Optical sensor	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 ignition switch OFF.

2. Disconnect optical sensor connector and BCM connector.

3. Check continuity between optical sensor harness connector and BCM harness connector.

Optica	l sensor	B	СМ	Continuity
Connector	Terminal	Connector	Terminal	Continuity
M17	1	M121	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			Continuity
Connector	Terminal	Ground Continu	Continuity
M17	1		Not existed

Is the inspection result normal?

YES >> Replace BCM. Refer to <u>BCS-98, "Removal and Installation"</u>.

NO >> Repair or replace harness.

#### ${f 6}.$ CHECK OPTICAL SENSOR GROUND OPEN CIRCUIT

1. Turn ignition switch OFF.

2. Disconnect optical sensor connector and BCM connector.

3. Check continuity between optical sensor harness connector and BCM harness connector.

Optica	l sensor	B	CM	Continuity
Connector	Terminal	Connector	Terminal	Continuity
M17	3	M121	18	Existed

Is the inspection result normal?

YES >> Replace BCM. Refer to <u>BCS-98, "Removal and Installation"</u>.

NO >> Repair or replace harness.

#### 7. CHECK OPTICAL SENSOR SIGNAL OPEN CIRCUIT

1. Turn ignition switch OFF.

2. Disconnect optical sensor connector and BCM connector.

3. Check continuity between optical sensor harness connector and BCM harness connector.

#### < DTC/CIRCUIT DIAGNOSIS >

[XENON TYPE]

			Optical sensor BCM		Continuity	
Connector	Terminal	Connector	Terminal			
M17	2	M121	14	Existed		
		IRCUIT				
eck continuity bet	ween optical sensor h	arness connector and	d ground.			
Ot	otical sensor			Continuity		
Connector	Terminal	G	round	Continuity		
M17	2			Not existed		

### < DTC/CIRCUIT DIAGNOSIS >

# HAZARD SWITCH

# Component Function Check

1.CHECK HAZARD SWITCH SIGNAL BY CONSULT

CONSULT DATA MONITOR

1. Turn ignition switch ON.

2. Select "HAZARD SW" of BCM (FLASHER) data monitor item.

3. With operating the hazard switch, check the monitor status.

Monitor item	Con	Monitor status	
HAZARD SW Haza	Hazard switch	ON	On
	Hazard switch	OFF	Off

Is the inspection result normal?

YES >> Hazard switch circuit is normal.

NO >> Refer to EXL-86, "Diagnosis Procedure".

### Diagnosis Procedure

INFOID:000000011321485

# 1. CHECK HAZARD SWITCH SIGNAL INPUT

1. Turn ignition switch OFF.

- 2. Disconnect hazard switch connector.
- 3. Check voltage between hazard switch connector and ground.

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

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.

Hazaro	Hazard switch		BCM	
Connector	Terminal	Connector	Terminal	Continuity
M45	2	M121	29	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace harness.

 ${
m 3.}$ CHECK HAZARD SWITCH SIGNAL SHORT CIRCUIT

Check continuity between hazard switch harness connector and ground.

Hazard switch			Continuity	
Connector	Terminal	Ground	Continuity	
M45	2		Not existed	

Is the inspection result normal?

YES >> Replace BCM. Refer to <u>BCS-98, "Removal and Installation"</u>.

NO >> Repair or replace harness.

INFOID:000000011321484

# **HAZARD SWITCH**

### < DTC/CIRCUIT DIAGNOSIS >

### [XENON TYPE]

А

# 4. CHECK HAZARD SWITCH GROUND OPEN CIRCUIT

#### Check continuity between hazard switch harness connector and ground.

Hazard switch			Continuity	
Connector	Terminal	Ground	Continuity	
M45	1		Existed	-
e inspection result norn	nal?			-
S >> Replace hazard	d switch.			
>> Repair or repla	ce harness.			

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Revision: 2014 August

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< SYMPTOM DIAGNOSIS >

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

WITHOUT DAYTIME RUNNING LIGHT SYSTEM : Symptom Table

INFOID:000000011321486

#### **CAUTION:**

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

Sym	ptom	Possible cause	Inspection item
Headlamp (HI) is not turned ON.	One side	<ul> <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 <u>EXL-62, "WITHOUT DAY-</u> <u>TIME RUNNING LIGHT SYSTEM :</u> <u>Component Function Check"</u> .
	Both sides	Symptom diagnosis "BOTH SIDE HEADLAMPS (HI) ARE NOT TURNED ON" Refer to EXL-94, "WITHOUT DAYTIME RUNNING LIGHT SYSTEM agnosis Procedure".	
High beam indicator lamp [Headlamp (HI) is turned (		Combination meter	<ul> <li>Combination meter Data monitor "HI-BEAM IND"</li> <li>BCM (HEAD LAMP) Active test "HEADLAMP"</li> </ul>
Headlamp (LO) is not turned ON.	One side	<ul> <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 <u>EXL-66, "Component</u> <u>Function Check"</u> .
	Both sides	Symptom diagnosis "BOTH SIDE HEADLAMPS (LO) ARE NOT TURNED ON" Refer to <u>EXL-96. "Diagnosis Procedure"</u> .	
Each lamp is not turned O	N/OFF with lighting switch	<ul> <li>Combination switch</li> <li>Harness between combination switch and BCM</li> <li>BCM</li> </ul>	Combination switch Refer to <u>BCS-96, "Symptom Table</u> "
AUTO.		<ul> <li>Optical sensor</li> <li>Harness between optical sensor and BCM</li> <li>BCM</li> </ul>	Optical sensor Refer to <u>EXL-83, "Component</u> <u>Function Check"</u> .
Parking lamp is not turned ON.		<ul> <li>Fuse</li> <li>Parking lamp bulb</li> <li>Harness between IPDM E/R and front combination lamp</li> <li>Harness between front combi- nation lamp and ground</li> <li>IPDM E/R</li> </ul>	Parking lamp circuit Refer to <u>EXL-72, "Component</u> <u>Function Check"</u> .
Front side marker lamp is not turned ON.		<ul> <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> </ul>	Front side marker lamp circuit Refer to <u>EXL-74, "Component</u> <u>Function Check"</u> .

# < SYMPTOM DIAGNOSIS >

#### [XENON TYPE]

Symp	otom	Possible cause	Inspection item
Tail lamp (Rear side marker lamp) is not turned ON.		<ul> <li>Fuse</li> <li>Tail lamp bulb</li> <li>Harness between IPDM E/R and rear combination lamp</li> <li>Harness between rear combi- nation lamp and ground</li> <li>IPDM E/R</li> </ul>	Tail lamp circuit Refer to <u>EXL-75, "Component</u> <u>Function Check"</u> .
icense plate lamp is not t	urned ON.	<ul> <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 <u>EXL-77, "Component</u> <u>Function Check"</u> .
Parking lamp, side marker cense plate lamp are not ti		<b>Symptom diagnosis</b> "PARKING, SIDE MARKER, LICEN NOT TURNED ON" Refer to <u>EXL-97, "Diagnosis Proce</u>	NSE PLATE AND TAIL LAMPS ARE
Tail lamp indicator is not tu (Exterior lamps are turned		Combination meter	<ul> <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 nor- mal. (Applicable side per- forms high flasher acti- vation.)	<ul> <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 sig- nal lamp and ground</li> </ul>	Turn signal lamp circuit Refer to <u>EXL-78, "Component</u> <u>Function Check"</u> .
	Indicator lamp is includ- ed.	<ul> <li>Combination switch</li> <li>Harness between combination switch and BCM</li> <li>BCM</li> </ul>	Combination switch Refer to <u>BCS-96, "Symptom Table"</u>
	One side	Combination meter	_
Turn signal indicator lamp does not blink.	Both sides (Always)	<ul> <li>Turn signal indicator lamp signal</li> <li>BCM</li> <li>Combination meter</li> </ul>	<ul> <li>Combination meter Data monitor "TURN IND"</li> <li>BCM (FLASHER) Active test "FLASHER"</li> </ul>
(Turn signal lamp is nor- mal.)	Both sides (Only when activating hazard warning lamp with ignition switch OFF)	<ul> <li>Combination meter power supply and ground circuit</li> <li>Combination meter</li> </ul>	Combination meter Power supply and ground circuit Refer to <u>MWI-71, "COMBINATION</u> <u>METER : Diagnosis Procedure"</u> .
<ul> <li>Hazard warning lamp do</li> <li>Hazard warning lamp co</li> <li>(Turn signal is normal.)</li> </ul>		<ul> <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 <u>EXL-86, "Component</u> <u>Function Check"</u> .
Front fog lamp is not turned ON.	One side	<ul> <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 <u>EXL-81, "Component</u> <u>Function Check"</u> .
	Both sides	Symptom diagnosis "BOTH SIDE FRONT FOG LAMPS Refer to <u>EXL-98</u> , "Diagnosis Proce	

# WITH DAYTIME RUNNING LIGHT SYSTEM

< SYMPTOM DIAGNOSIS >

# WITH DAYTIME RUNNING LIGHT SYSTEM : Symptom Table

[XENON TYPE]

#### **CAUTION:**

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

Sym	ptom	Possible cause	Inspection item	
	One side	<ul> <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 <u>EXL-63, "WITH DAYTIME</u> <u>RUNNING LIGHT SYSTEM : Com-</u> ponent Function Check".	
Headlamp (HI) is not turned ON.		<ul> <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 <u>EXL-68. "Component</u> <u>Function Check"</u> .	
	Both sides	Symptom diagnosis "BOTH SIDE HEADLAMPS (HI) ARE NOT TURNED ON" Refer to EXL-94, "WITH DAYTIME RUNNING LIGHT SYSTEM : Dis nosis Procedure".		
High beam indicator lamp [Headlamp (HI) is turned (		Combination meter	<ul> <li>Combination meter Data monitor "HI-BEAM IND"</li> <li>BCM (HEAD LAMP) Active test "HEADLAMP"</li> </ul>	
Headlamp (LO) is not turned ON.	One side	<ul> <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 <u>EXL-66, "Component</u> <u>Function Check"</u> .	
	Both sides	Symptom diagnosis "BOTH SIDE HEADLAMPS (LO) ARE NOT TURNED ON" Refer to <u>EXL-96, "Diagnosis Procedure"</u> .		
Each lamp is not turned O	N/OFF with lighting switch	<ul> <li>Combination switch</li> <li>Harness between combination switch and BCM</li> <li>BCM</li> </ul>	Combination switch Refer to <u>BCS-96, "Symptom Table"</u> .	
AUTO.		<ul> <li>Optical sensor</li> <li>Harness between optical sensor and BCM</li> <li>BCM</li> </ul>	Optical sensor Refer to <u>EXL-83, "Component</u> <u>Function Check"</u> .	
Daytime running light is not turned ON. [Headlamp (HI) is turned ON.]		<ul> <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> <li>Daytime running light relay circuit Refer to <u>EXL-68</u>. "Component <u>Function Check</u>".</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> <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 <u>EXL-97, "Diagnosis Proce-</u> <u>dure"</u> .	

# < SYMPTOM DIAGNOSIS >

# [XENON TYPE]

Symp	otom	Possible cause	Inspection item
Front side marker lamp is not turned ON.		<ul> <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 <u>EXL-74, "Component</u> <u>Function Check"</u> .
Tail lamp (Rear side marke	er lamp) is not turned ON.	<ul> <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 <u>EXL-75, "Component</u> <u>Function Check"</u> .
License plate lamp is not to	urned ON.	<ul> <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 <u>EXL-77, "Component</u> <u>Function Check"</u> .
Parking lamp, side marker cense plate lamp are not tu		Symptom diagnosis "PARKING, SIDE MARKER, LICEN NOT TURNED ON" Refer to <u>EXL-97, "Diagnosis Proce</u>	NSE PLATE AND TAIL LAMPS ARE
Tail lamp indicator is not turned ON. (Exterior lamps are turned ON.)		Combination meter	<ul> <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 nor- mal. (Applicable side per- forms high flasher acti- vation.)	<ul> <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 sig- nal lamp and ground</li> </ul>	Turn signal lamp circuit Refer to <u>EXL-78, "Component</u> <u>Function Check"</u> .
	Indicator lamp is includ- ed.	<ul> <li>Combination switch</li> <li>Harness between combination switch and BCM</li> <li>BCM</li> </ul>	Combination switch Refer to <u>BCS-96, "Symptom Table"</u>
	One side	Combination meter	_
Turn signal indicator lamp does not blink. (Turn signal lamp is nor- mal.)	Both sides (Always)	<ul> <li>Turn signal indicator lamp signal</li> <li>BCM</li> <li>Combination meter</li> </ul>	<ul> <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> <li>Combination meter power supply and ground circuit</li> <li>Combination meter</li> </ul>	Combination meter Power supply and ground circuit Refer to <u>MWI-71, "COMBINATION</u> <u>METER : Diagnosis Procedure"</u> .
<ul> <li>Hazard warning lamp does not activate.</li> <li>Hazard warning lamp continues activating. (Turn signal is normal.)</li> </ul>		<ul> <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 <u>EXL-86, "Component</u> <u>Function Check"</u> .

#### < SYMPTOM DIAGNOSIS >

#### [XENON TYPE]

Symptom		Possible cause	Inspection item
Front fog lamp is not turned ON.	One side	<ul> <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 <u>EXL-81, "Component</u> <u>Function Check"</u> .
	Both sides	Symptom diagnosis "BOTH SIDE FRONT FOG LAMPS ARE NOT TURNED ON" Refer to <u>EXL-98. "Diagnosis Procedure"</u> .	

# NORMAL OPERATING CONDITION

### Description

#### XENON HEADLAMP

- Brightness and the color of light may change slightly immediately after turning the headlamp ON until the xenon bulb becomes stable. This is normal.
- Illumination time lag may occur between right and left. This is normal.

#### 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 causes for the control difference. This is normal.

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# BOTH SIDE HEADLAMPS (HI) ARE NOT TURNED ON

< SYMPTOM DIAGNOSIS >

# BOTH SIDE HEADLAMPS (HI) ARE NOT TURNED ON WITH DAYTIME RUNNING LIGHT SYSTEM

# WITH DAYTIME RUNNING LIGHT SYSTEM : Description

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:0000000011321490

INFOID-000000011321489

[XENON TYPE]

**1.**COMBINATION SWITCH INSPECTION

Check combination switch. Refer to <u>BCS-96, "Symptom Table"</u>.

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

Is the inspection result normal?

YES >> GO TO 3.

NO >> Replace BCM. Refer to <u>BCS-98</u>, "Removal and Installation".

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

Check headlamp (HI) circuit. Refer to EXL-63, "WITH DAYTIME RUNNING LIGHT SYSTEM : Component Function Check".

Is the inspection result normal?

YES >> Refer to <u>GI-42, "Intermittent Incident"</u>.

NO >> Repair or replace the malfunctioning part.

# WITHOUT DAYTIME RUNNING LIGHT SYSTEM

WITHOUT DAYTIME RUNNING LIGHT SYSTEM : Description

INFOID:000000011321491

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

WITHOUT DAYTIME RUNNING LIGHT SYSTEM : Diagnosis Procedure

**1.**COMBINATION SWITCH INSPECTION

Check combination switch. Refer to <u>BCS-96, "Symptom Table"</u>.

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	HI or PASS	On
	(2ND)	LO	Off

# BOTH SIDE HEADLAMPS (HI) ARE NOT TURNED ON

< SYMPTOM DIAGNOSIS >	[XENON TYPE]
Is the inspection result normal?	
YES >> GO TO 3. NO >> Replace BCM. Refer to <u>BCS-98, "Removal and Installation"</u> .	ŀ
3.HEADLAMP (HI) CIRCUIT INSPECTION	
Check headlamp (HI) circuit. Refer to EXL-62, "WITHOUT DAYTIME RUNNING LIGHT nent Function Check".	T SYSTEM : Compo-
Is the inspection result normal?	(
YES >> Refer to <u>GI-42. "Intermittent Incident"</u> . NO >> Repair or replace the malfunctioning part.	
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# BOTH SIDE HEADLAMPS (LO) ARE NOT TURNED ON

#### < SYMPTOM DIAGNOSIS >

# BOTH SIDE HEADLAMPS (LO) ARE NOT TURNED ON

# Description

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

#### Diagnosis Procedure

**1.**CHECK COMBINATION SWITCH

Check combination switch. Refer to <u>BCS-96, "Symptom Table"</u>.

#### 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	Lighting switch	2ND	On
		OFF	Off

Is the inspection result normal?

YES >> GO TO 3.

NO >> Replace BCM. Refer to <u>BCS-98</u>, "Removal and Installation".

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

Check headlamp (LO) circuit. Refer to EXL-66, "Component Function Check".

Is the inspection result normal?

YES >> Refer to <u>GI-42, "Intermittent Incident"</u>.

NO >> Repair or replace the malfunctioning part.

[XENON TYPE]

INFOID:000000011321493

INFOID:0000000011321494

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

< SYMPTOM DIAGNOSIS > [XENON TYPE] PARKING, LICENSE PLATE, SIDE MARKER AND TAIL LAMPS ARE NOT TURNED ON Description INFOLCO0000011321495 The parking, license plate, side marker, tail lamps and each illumination are not turned ON in any condition. Diagnosis Procedure INFOLCO000011321496 1.COMBINATION SWITCH INSPECTION Check combination switch. Refer to BCS-96, "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

ONSULT DATA MONITOR

T. Select "TAIL & CLR REQ" of IPDM E/R data monitor item.

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

Monitor item	Con	dition	Monitor status	G
TAIL & CLR REQ		1ST	On	
	Lighting switch	OFF	Off	Ц

Is the inspection result normal?

YES >> Replace IPDM E/R.

NO >> Replace BCM. Refer to <u>BCS-98. "Removal and Installation"</u>.

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# BOTH SIDE FRONT FOG LAMPS ARE NOT TURNED ON

#### < SYMPTOM DIAGNOSIS >

# BOTH SIDE FRONT FOG LAMPS ARE NOT TURNED ON

### Description

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

#### **Diagnosis Procedure**

**1.**CHECK FRONT FOG LAMP FUSE

#### 1. Turn ignition switch OFF.

2. Check that the following fuse is not fusing.

Unit	Location	Fuse No.	Capacity
Front fog lamp IPDM E/R		#58	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			Continuity	
Conr	nector	Terminal	- Ground		
RH	E345	86	Ground	Not existed	
LH	E345	87		Not existed	

#### 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.**COMBINATION SWITCH INSPECTION

Check combination switch. Refer to BCS-96, "Symptom Table".

#### Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace the malfunctioning part.

**4.**CHECK FRONT FOG LAMP REQUEST SIGNAL INPUT

#### **CONSULT DATA MONITOR**

T. 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	ON	On
(With lighting switch 2ND)	OFF	Off	

#### Is the item status normal?

YES >> GO TO 5.

NO >> Replace BCM. Refer to <u>BCS-98, "Removal and Installation"</u>.

**5.**FRONT FOG LAMP CIRCUIT INSPECTION

Check the front fog lamp circuit. Refer to EXL-81, "Component Function Check".

Is the inspection result normal?

YES >> Refer to GI-42, "Intermittent Incident".

NO >> Repair or replace the malfunctioning part.

[XENON TYPE]

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# PERIODIC MAINTENANCE HEADLAMP AIMING ADJUSTMENT

# Description

# 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 fuel, engine coolant and each oil.
- Maintain the unloaded vehicle condition. (remove luggage from the passenger compartment and the luggage room.)
   NOTE:

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

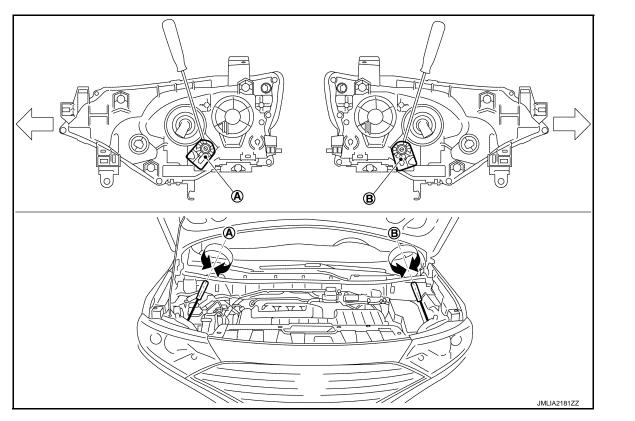
• Wipe out dirt on the headlamp.

#### CAUTION:

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

• Ride alone on the driver seat.

### AIMING ADJUSTMENT SCREW



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

: Vehicle center

# HEADLAMP AIMING ADJUSTMENT

#### < PERIODIC MAINTENANCE >

[XENON TYPE]

	Adjustment screw	Screw driver rotation	Facing direction
Α	Headlamp RH HI/LO (UP/DOWN)	Clockwise	UP
A		Counterclockwise	DOWN
В	Headlamp LH HI/LO (UP/DOWN)	Clockwise	UP
D		Counterclockwise	DOWN

### Aiming Adjustment Procedure

INFOID:000000011321500

- 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 headlamp center and the screen.
- 3. Start the engine. Turn the headlamp (LO) ON. **NOTE:**

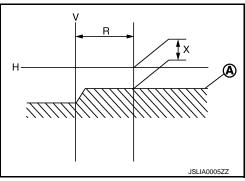
Shut off the headlamp light with the board to prevent from illuminating the adjustment screen. **CAUTION:** 

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

4. 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).

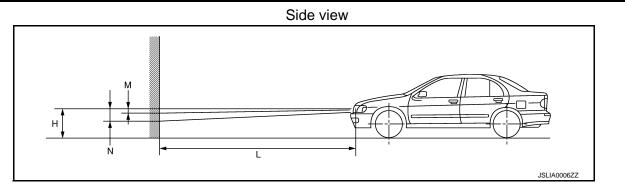
#### Light axis measurement range (R) $\phantom{.0}:$ 350 $\pm$ 175 mm (13.78 $\pm$ 6.89 in)

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)



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

# EXL-100

### FRONT FOG LAMP AIMING ADJUSTMENT

# < PERIODIC MAINTENANCE > FRONT FOG LAMP AIMING ADJUSTMENT

# Description

# 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 front fog lamp assembly has been replaced.

Before performing aiming adjustment, check the following.

- Adjust the tire pressure to the specification.
- Fill with fuel, engine 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 front 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: UP

- B: DOWN
- 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.



- 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 7.63 m (25 ft) between the front fog lamp center and the screen.
- 3. Start the engine. Turn the front fog lamp ON.

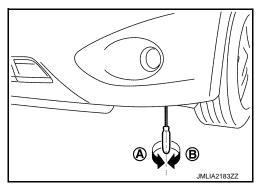
#### NOTE:

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

### 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 100 mm (3.94 in).

**EXL-101** 



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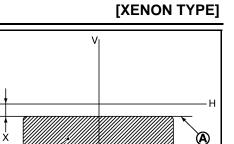
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# FRONT FOG LAMP AIMING ADJUSTMENT

#### < PERIODIC MAINTENANCE >

Front fog lamp light distribution on the screen



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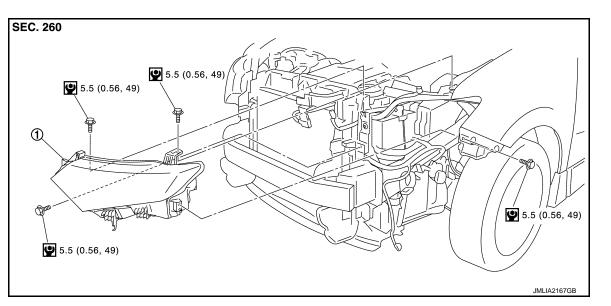
- A : Cutoff line
- B : High illuminance area
- H : Horizontal center line of front fog lamp
- V : Vertical center line of front fog lamp
- X : Cutoff line height

# < REMOVAL AND INSTALLATION >

# **REMOVAL AND INSTALLATION** FRONT COMBINATION LAMP

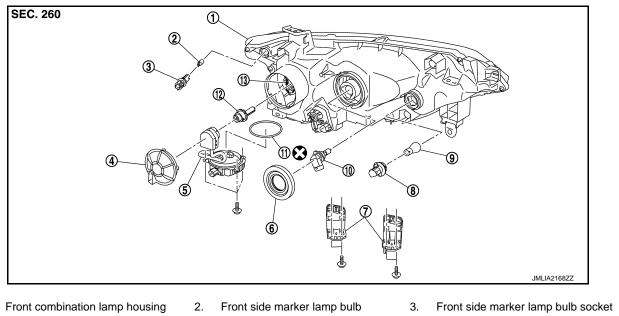
**Exploded View** 

#### REMOVAL



- Front combination lamp 1.
- : N·m (kg-m, in-lb) Q

#### DISASSEMBLY



assembly 4. Resin cap

1.

- 7. Bumper bracket
- 10. Halogen bulb (HI)

- 5. HID control unit assembly
- Front turn signal lamp/parking lamp 8. 9. bulb socket
- Seal packing 11.

- 6. Back cover
  - Front turn signal lamp/parking lamp bulb
- 12. Xenon bulb (LO)

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#### < REMOVAL AND INSTALLATION >

INFOID:000000011321504

INFOID:000000011321505

13. Retaining spring

Always replace after every disassembly.

#### Removal and Installation

#### CAUTION:

#### Disconnect the battery negative terminal or the fuse.

#### REMOVAL

- 1. Remove front bumper fascia. Refer to EXT-12, "Removal and Installation".
- 2. Remove front combination lamp mounting bolts.
- 3. Pull out the front combination lamp forward the vehicle, and then disconnect the connector.
- 4. Remove front combination lamp.

#### INSTALLATION

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

#### CAUTION:

- After installation, perform aiming adjustment. Refer to <u>EXL-99, "Description"</u>.
- After installation, check that headlamp lighting. Refer to <u>EXL-105, "Inspection After Installation (HID Control Unit)"</u>.

#### Replacement

#### **CAUTION:**

- Disconnect the battery negative terminal or the fuse.
- 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.
- · 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.

#### HEADLAMP BULB (HI)

- 1. Disconnect the halogen bulb connector.
- 2. Rotate the halogen bulb socket counterclockwise and unlock it.
- 3. Remove halogen bulb socket from the front combination lamp housing assembly.

#### HEADLAMP BULB (LO)

- 1. Rotate the resin cap counterclockwise and unlock it.
- 2. Rotate the xenon bulb socket counterclockwise and unlock it.
- 3. Remove retaining spring lock, and then remove xenon bulb from the front combination lamp housing assembly.

#### **CAUTION:**

#### Never break the xenon bulb ceramic tube when replacing the bulb.

#### FRONT TURN SIGNAL LAMP/PARKING LAMP BULB

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

#### FRONT SIDE MARKER LAMP BULB

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

#### Disassembly and Assembly

#### DISASSEMBLY

- 1. Rotate the resin cap counterclockwise and unlock it.
- 2. Rotate the xenon bulb socket counterclockwise and unlock it.
- 3. Remove the retaining spring lock, and then remove the xenon bulb.

INFOID:000000011321506

### EXL-104

# FRONT COMBINATION LAMP

< REMOVAL AND INSTALLATION > [XENON TYPE]
4. Rotate the halogen bulb socket counterclockwise and unlock it.
5. Remove halogen bulb socket from the front combination lamp assembly.
6. Rotate the front turn signal lamp/parking lamp bulb socket counterclockwise and unlock it.
7. Remove front turn signal lamp/parking lamp bulb.
8. Rotate the front side marker lamp bulb socket counterclockwise and unlock it.
9. Remove the bulb from the front side marker lamp bulb socket.
ASSEMBLY
Assemble in the reverse order of disassembly. CAUTION:
After installing the bulb, install the resin cap, back cover and the bulb socket securely for watertight- ness.
Inspection After Installation (HID Control Unit)
<b>CAUTION:</b> Temporarily install the headlamp on the vehicle. Connect the battery to the connector (vehicle side) when checking ON/OFF status.
XENON HEADLAMP LIGHTING CHECK
<ul> <li>When recycled HID Control Unit, check the following, when there is abnormality replace the HID Control Unit.</li> <li>1. Xenon bulb is cold condition (turn OFF more than 10 minutes), and repetition does headlamp turned ON/ OFF, check that a headlamp illuminated it surely.</li> </ul>
<ol> <li>Headlamp is turn ON until the xenon bulb becomes stable condition (for about 5 minutes) from cold condition, check that there are not on and off light, abnormality such as blinking.</li> </ol>
3. Xenon bulb is warm condition (turn ON more than 15 minutes and turn OFF for 1 minute), and repetition does headlamp turned ON/OFF, check that a headlamp illuminated it surely.
4. Headlamp is turn ON for about 30 minutes, check that there are not on and off light, abnormality such as blinking whether brightness of right and left does not have a difference.

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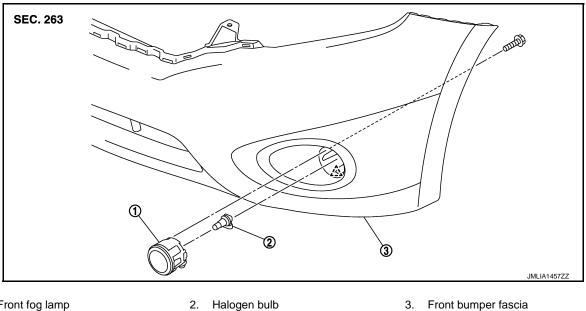
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# < REMOVAL AND INSTALLATION >

# FRONT FOG LAMP

Exploded View

INFOID:000000011321508



1. Front fog lamp

八:Pawl

# Removal and Installation

INFOID:000000011321509

#### **CAUTION:**

#### Disconnect the battery negative terminal or the fuse.

#### REMOVAL

- 1. Remove front fender protector (front) fixing screws and clips, and then keep a service area. Refer to EXT-23, "Removal and Installation".
- 2. Disconnect front fog lamp connector.
- 3. Remove front fog lamp mounting bolt.
- Disengage fixing pawl, and then remove front fog lamp. 4.

#### INSTALLATION

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

#### **CAUTION:**

After installation, perform aiming adjustment. Refer to EXL-101, "Description".

#### Replacement

INFOID:0000000011321510

#### **CAUTION:**

- Disconnect the battery negative terminal or the fuse.
- 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.

#### FRONT FOG LAMP BULB

1. Remove front fender protector (front) fixing screws and clips, and then keep a service area. Refer to EXT-23, "Removal and Installation".

# **EXL-106**

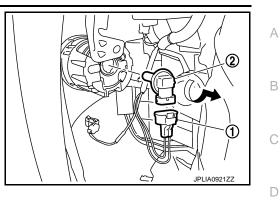
# FRONT FOG LAMP

#### < REMOVAL AND INSTALLATION >

#### 2. Disconnect front fog lamp bulb connector (1).

3. Rotate the bulb (2) counterclockwise and unlock it.

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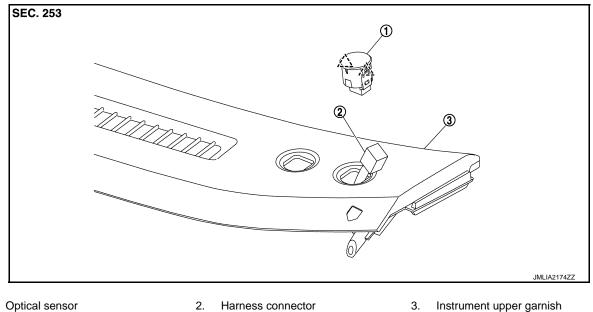
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# < REMOVAL AND INSTALLATION >

# **OPTICAL SENSOR**

**Exploded View** 

INFOID:000000011321511



- Optical sensor 2. Harness connector 1. 3.
- 2 : Pawl

# Removal and Installation

INFOID:000000011321512

#### REMOVAL

- Insert an appropriate tool between the optical sensor and the instrument upper garnish. Pull out the opti-1. cal sensor upward.
- Disconnect the optical sensor connector, and then remove optical sensor. 2.

#### INSTALLATION

Install in the reverse order of removal.

# LIGHTING & TURN SIGNAL SWITCH [XENON TYPE] LIGHTING & TURN SIGNAL SWITCH PRODUCTION STATUTED Exploded View PRODUCTION STATUS The lighting & turn signal switch is integrated in the combination switch. Refer to <u>BCS-99</u>, "<u>Exploded View</u>". B C D Explose C

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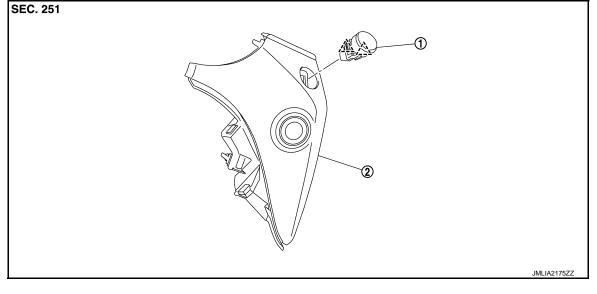
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# < REMOVAL AND INSTALLATION >

# HAZARD SWITCH

Exploded View

INFOID:000000011321514



1. Hazard switch

2. Instrument finisher A

∠\_\_\_ : Pawl

# Removal and Installation

INFOID:000000011321515

# REMOVAL

- 1. Remove instrument finisher A. Refer to IP-14, "Removal and Installation".
- 2. Disengage fixing pawls, and then remove hazard switch from instrument finisher A.

# INSTALLATION

Install in the reverse order of removal.

# **HEADLAMP AIMING SWITCH**

# < REMOVAL AND INSTALLATION >

# HEADLAMP AIMING SWITCH

# **Exploded View**

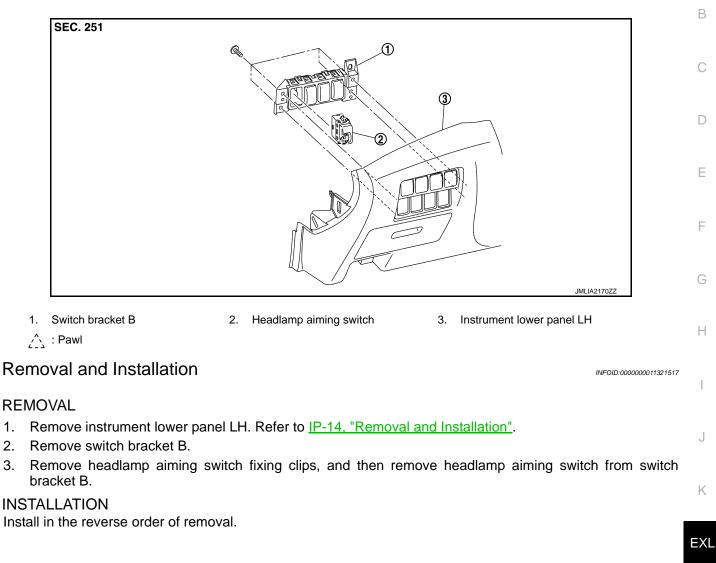
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[XENON TYPE]



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< REMOVAL AND INSTALLATION >

SIDE TURN SIGNAL LAMP

# Exploded View

Side turn signal lamp is integrated in the door mirror. Refer to MIR-31, "Exploded View".

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# **REAR COMBINATION LAMP**

# < REMOVAL AND INSTALLATION >

REAR COMBINATION LAMP

# **Exploded View**

# REMOVAL

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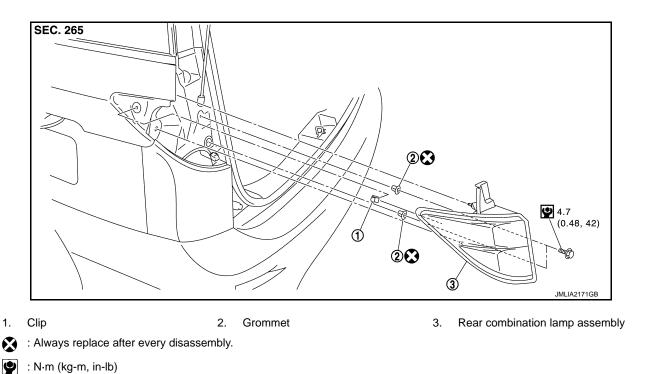
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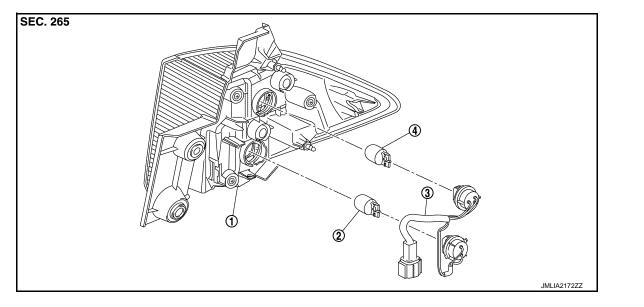
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#### DISASSEMBLY



- 1. Rear combination lamp housing assembly
- Rear turn signal lamp bulb 3. Bulb socket assembly

4. Tail lamp/stop lamp bulb

# Removal and Installation

# CAUTION:

**Disconnect the battery negative terminal or the fuse.** REMOVAL

2.

INFOID:000000011321520

# **REAR COMBINATION LAMP**

#### < REMOVAL AND INSTALLATION >

- 1. Fully open back door.
- 2. Remove rear combination lamp assembly mounting bolts.
- 3. Pull the rear combination lamp assembly toward rear of the vehicle, and then remove rear combination lamp assembly.
- 4. Disconnect the rear combination lamp connector.

#### INSTALLATION

Install in the reverse order of removal.

#### Replacement

INFOID:000000011321521

#### **CAUTION:**

- Disconnect the battery negative terminal or the fuse.
- 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.

#### REAR TURN SIGNAL LAMP BULB

- 1. Remove rear combination lamp assembly. Refer to EXL-113. "Removal and Installation".
- 2. Rotate rear turn signal lamp bulb socket counterclockwise, and then remove rear turn signal lamp bulb socket.
- 3. Remove rear turn signal lamp bulb from rear turn signal lamp bulb socket.

#### TAIL LAMP/STOP LAMP BULB

- 1. Remove rear combination lamp assembly. Refer to EXL-113, "Removal and Installation".
- 2. Rotate tail lamp/stop lamp bulb socket counterclockwise, and then remove tail lamp/stop lamp bulb socket.
- 3. Remove tail lamp/stop lamp bulb from tail lamp/stop lamp bulb socket.

# < REMOVAL AND INSTALLATION >

# BACK-UP LAMP

# Exploded View

# REMOVAL

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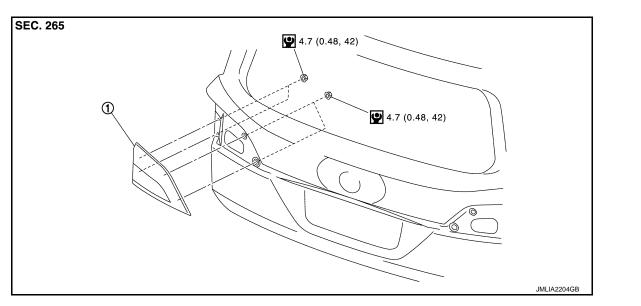
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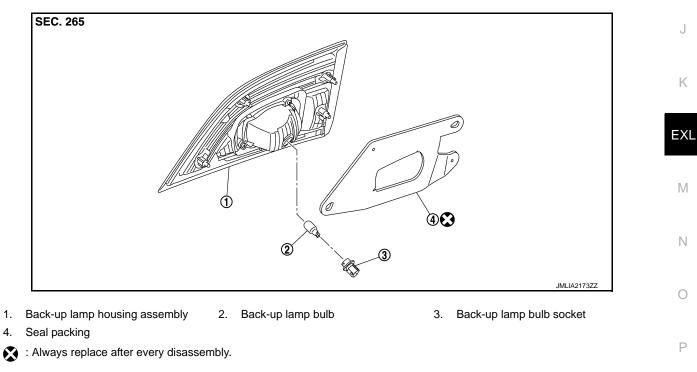
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1. Back-up lamp assembly

**!** : N·m (kg-m, in-lb)

# DISASSEMBLY



Removal and Installation

# **CAUTION:**

# Disconnect the battery negative terminal or the fuse. REMOVAL

INFOID:000000011321523

# BACK-UP LAMP

#### < REMOVAL AND INSTALLATION >

- 1. Remove touch sensor (with automatic back door). Refer to <u>DLK-470, "TOUCH SENSOR : Removal and</u> <u>Installation"</u>.
- 2. Remove back door lower finisher. Refer to <u>INT-48</u>, "BACK DOOR LOWER FINISHER : Removal and <u>Installation</u>".
- 3. Disconnect back-up lamp connector.
- 4. Remove back-up lamp mounting nuts, and then remove back-up lamp.
- 5. Remove seal packing

#### INSTALLATION

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

#### CAUTION:

#### Seal packing cannot be reused.

### Replacement

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[XENON TYPE]

#### **CAUTION:**

- Disconnect the battery negative terminal or the fuse.
- 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.

#### BACK-UP LAMP BULB

- 1. Remove back door lower finisher. Refer to <u>INT-48</u>, "BACK DOOR LOWER FINISHER : Removal and <u>Installation"</u>.
- 2. Rotate back-up lamp bulb socket counterclockwise, and then remove back-up lamp bulb socket.
- 3. Remove back-up lamp bulb from back-up lamp bulb socket.

# **HIGH-MOUNTED STOP LAMP**

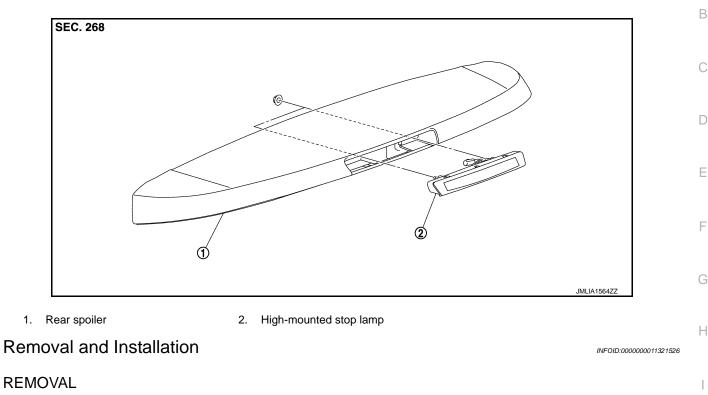
# < REMOVAL AND INSTALLATION >

# HIGH-MOUNTED STOP LAMP

# **Exploded View**

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- 1. Remove rear spoiler. Refer to EXT-45, "Removal and Installation".
- 2. Remove high-mounted stop lamp mounting nuts.
- 3. Remove high-mounted stop lamp from rear spoiler.

#### **INSTALLATION**

Install in the reverse order of removal.

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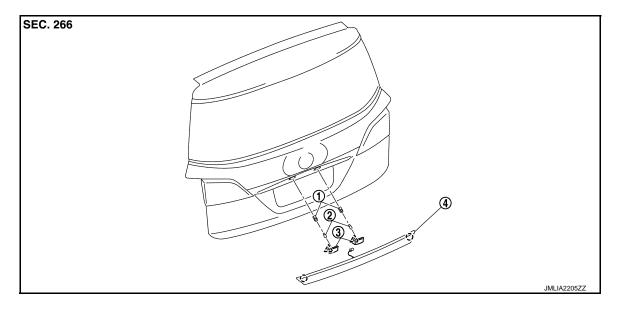
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# < REMOVAL AND INSTALLATION >

# LICENSE PLATE LAMP

# Exploded View

INFOID:000000011321527



License plate lamp bulb

- 1. License plate lamp bulb socket
- 4. Back door finisher
- ( ) : Clip
- 八:Pawl

# Removal and Installation

#### **CAUTION:**

#### Disconnect the battery negative terminal or the fuse.

#### REMOVAL

1. Remove back door lower finisher. Refer to EXT-47, "Removal and Installation".

2.

- 2. Disconnect license plate lamp connector.
- 3. Remove license plate lamp while pushing a resin clip, and then remove license plate lamp.

#### INSTALLATION

Install in the reverse order of removal.

# Replacement

#### **CAUTION:**

- Disconnect the battery negative terminal or the fuse.
- 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.

#### LICENSE PLATE LAMP BULB

- 1. Remove back door lower finisher. Refer to EXT-47. "Removal and Installation".
- 2. Disconnect license plate lamp connector.
- 3. Rotate license plate lamp bulb socket counterclockwise and unlock it.
- 4. Remove license plate lamp bulb from license plate lamp bulb socket.

# EXL-118

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License plate lamp housing

3.

[XENON TYPE]

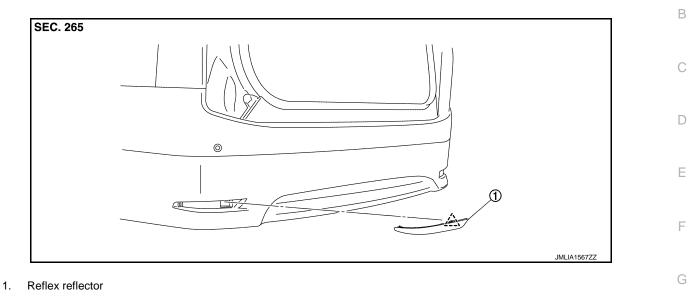
# **REFLEX REFLECTOR**

# < REMOVAL AND INSTALLATION >

# REFLEX REFLECTOR

# **Exploded View**

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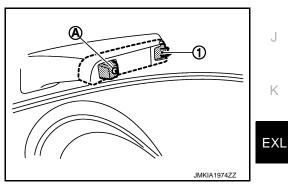


: Pawl

# Removal and Installation

## REMOVAL

- 1. Remove rear bumper fascia assembly. Refer to EXT-16, "REAR BUMPER : Removal and Installation".
- 2. Remove reflex reflector (1) fixing screws (A) (LH and RH), and then remove reflex reflector (LH and RH).



INSTALLATION Install in the reverse order of removal.

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[XENON TYPE]

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# < SERVICE DATA AND SPECIFICATIONS (SDS)

# SERVICE DATA AND SPECIFICATIONS (SDS) SERVICE DATA AND SPECIFICATIONS (SDS)

# **Bulb Specifications**

INFOID:000000011321532

	Item	Туре	Wattage (W)	
	Headlamp (HI)	HB3 (Halogen)	60	
	Headlamp (LO)	D2S (Xenon)	35	
Front combination lamp	Front turn signal lamp/ Parking lamp	S25 (Amber)	27/8	
	Front side marker lamp	W5W	5	
Front fog lamp		H8	35	
Side turn signal lamp (integrated into the door mirror)		LED	_	
Rear combination lamp	Stop lamp/ Tail lamp (side marker)	W21/5W	21/5	
	Rear turn signal lamp	WY21W (Amber)	21	
Back-up lamp		W16W	16	
License plate lamp		W5W	5	
High-mounted stop lamp		LED	_	

[XENON TYPE]

# < PRECAUTION > PRECAUTION PRECAUTIONS

Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER" INFOID:000000011321533

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 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. D 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 ignition ON or engine running, 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 ignition OFF, disconnect the battery, and wait at least 3 minutes before performing any service.

# Precautions for Removing Battery Terminal

• When removing the 12V battery terminal, turn OFF the ignition switch and wait at least 30 seconds. NOTE:

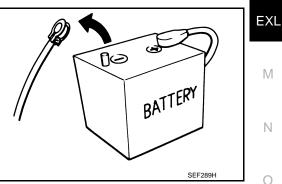
ECU may be active for several tens of seconds after the ignition switch is turned OFF. If the battery terminal is removed before ECU stops, then a DTC detection error or ECU data corruption may occur.

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

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

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

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



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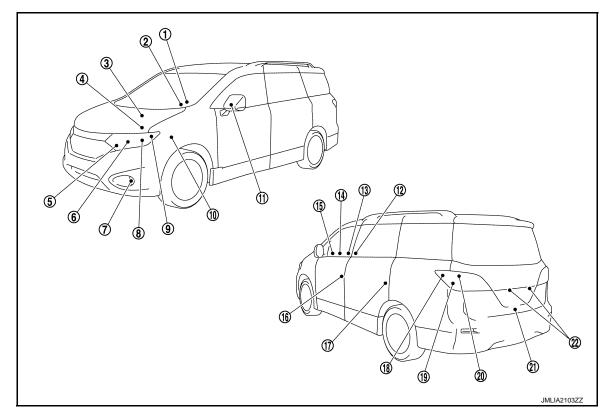
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INFOID:000000011321534

# < SYSTEM DESCRIPTION > SYSTEM DESCRIPTION COMPONENT PARTS

**Component Parts Location** 

INFOID:000000011321535



No.	Part	Function
1.	Optical sensor	Refer to EXL-123, "Optical Sensor".
2.	BCM	<ul> <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 (High/Low), tail lamp relay and front fog lamp relay ON to IPDM E/R (via CAN communication)</li> <li>Requests the high beam indicator lamp and tail 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 <u>BCS-4. "BODY CONTROL SYSTEM : Component Parts Location"</u> for detailed installation location.</li> </ul>
3.	Daytime running light relay <sup>*</sup>	Refer to EXL-123, "Daytime Running Light Relay".
4.	IPDM E/R	<ul> <li>Controls the integrated relay, and supplies voltage to the load according to the request from BCM (via CAN communication).</li> <li>Refer to <u>PCS-4</u>, "IPDM E/R : Component Parts Location" for detailed installation location.</li> </ul>
5.	Front turn signal lamp/Parking lamp	Refer to EXL-123, "Bulb Specifications".
6.	Headlamp HI	Refer to EXL-123, "Bulb Specifications".
7.	Front fog lamp	Refer to EXL-123, "Bulb Specifications".
8.	Headlamp LO	Refer to EXL-123, "Bulb Specifications".
9.	Front side marker lamp	Refer to EXL-123, "Bulb Specifications".

# **COMPONENT PARTS**

#### < SYSTEM DESCRIPTION >

# [HALOGEN TYPE]

No.	Part	Function	
10.	Air bag diagnosis sensor unit	Transmits air bag signal to BCM. Refer to <u>SRC-8, "Component Parts Location"</u> for detailed installation location.	
11.	Side turn signal lamp	Refer to EXL-123, "Bulb Specifications".	
12.	Hazard switch	Refer to EXL-123, "Hazard Switch".	
13.	Push-button ignition switch	Refer to DLK-18, "DOOR LOCK SYSTEM : Component Parts Location".	
14.	Combination meter	<ul> <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 communica tion).</li> <li>Turns the high beam indicator lamp and tail lamp indicator lamp ON according to the request from BCM (via CAN communication).</li> </ul>	
15.	Combination switch (Lighting & turn signal switch)	Refer to <u>BCS-8</u> , "COMBINATION SWITCH READING SYSTEM : System Descrip- tion".	
16.	Front door switch (driver side)	Refer to DLK-18, "DOOR LOCK SYSTEM : Component Parts Location".	
17.	Slide door switch (LH)	Refer to DLK-18, "DOOR LOCK SYSTEM : Component Parts Location".	
18.	Rear side marker lamp	Refer to EXL-123, "Bulb Specifications".	
19.	Rear turn signal lamp	Refer to EXL-123, "Bulb Specifications".	
20.	Tail lamp	Refer to EXL-123, "Bulb Specifications".	
21.	Back door switch	Refer to DLK-18, "DOOR LOCK SYSTEM : Component Parts Location".	
22.	License plate lamp	Refer to EXL-123, "Bulb Specifications".	

\*: With daytime running light system

# **Optical Sensor**

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

# Daytime Running Light Relay

Headlamp HI ground circuit is switched according to request from IPDM E/R.

# Hazard Switch

Inputs the hazard switch ON/OFF signal to BCM.

# **Bulb Specifications**

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INFOID:0000000011321539

	Item	Туре	Wattage (W)	
	Headlamp (HI)	HB3 (Halogen)	60	_
	Headlamp (LO)	H11 (Halogen)	55	
Front combination lamp	Front turn signal lamp/ Parking lamp	S25	27/8	
	Front side marker lamp.	W5W	5	
Front fog lamp		H8	35	
Side turn signal lamp (integrated into the door mirror)		LED	_	
Rear combination lamp	Stop lamp/ Tail lamp (side marker lamp)	W21/5W	21/5	
	Rear turn signal lamp	WY21W (Amber)	21	
Back-up lamp		W16W	16	
License plate lamp		W5W	5	
High-mounted stop lamp		LED	—	

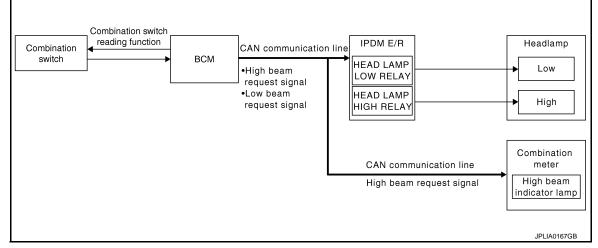
Revision: 2014 August

# SYSTEM HEADLAMP SYSTEM

# HEADLAMP SYSTEM : System Description

INFOID:000000011321540

# 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 PASS
- IPDM E/R turns the integrated headlamp low relay ON, and turns the headlamp ON according to the low beam request signal.

# HEADLAMP (HI) OPERATION

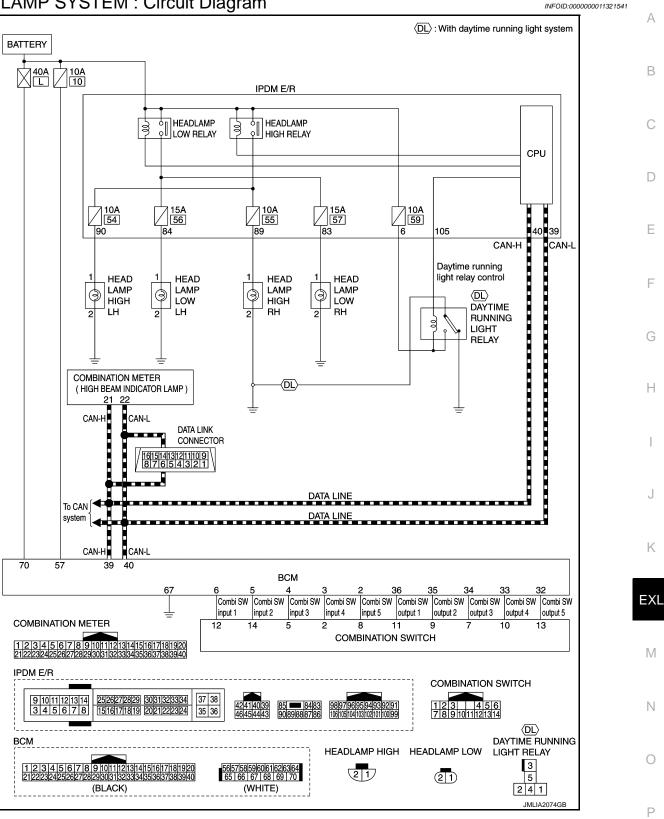
• BCM transmits the high beam request signal to IPDM E/R and the combination meter with CAN communication according to the headlamp (HI) ON condition.

#### Headlamp (HI) ON condition

- Lighting switch HI with the lighting switch 2ND or AUTO (auto light function ON judgment)
- Lighting switch PASS
- 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.

# < SYSTEM DESCRIPTION >

# HEADLAMP SYSTEM : Circuit Diagram



**HEADLAMP SYSTEM : Fail-safe** 

INFOID:000000011321542

# CAN COMMUNICATION CONTROL

When CAN communication with ECM and 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

#### Revision: 2014 August

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# < SYSTEM DESCRIPTION >

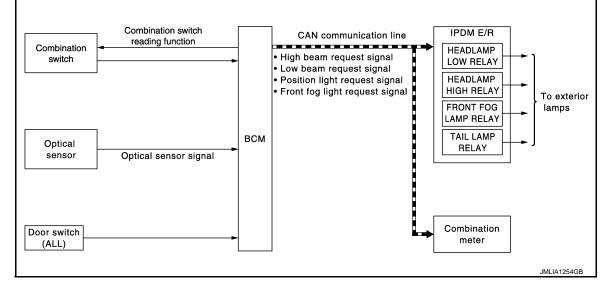
Control part	Fail-safe operation
Headlamp	<ul> <li>Turns ON the headlamp low relay when the ignition switch is turned ON</li> <li>Turns OFF the headlamp low relay when the ignition switch is turned OFF</li> <li>Headlamp high relay OFF</li> </ul>

# AUTO LIGHT SYSTEM (EXCEPT FOR CANADA)

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

INFOID:000000011321543

# 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 ignition 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.)

#### NOTE:

The settings of the twilight lighting function and the wiper linked auto lighting function can be changed with CONSULT. Refer to <u>EXL-144</u>, "<u>HEADLAMP</u> : <u>CONSULT Function</u> (<u>BCM - HEADLAMP</u>) (<u>Halogen Type Head-lamp</u>)".

AUTO LIGHT FUNCTION (WITH TWILIGHT LIGHTING FUNCTION)

Description

• BCM detects the combination switch condition with the combination switch reading function.

#### < SYSTEM DESCRIPTION >

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- BCM supplies voltage to the optical sensor when the ignition switch is turned ON or ACC.
- Optical sensor converts outside brightness (lux) to voltage and transmits the optical sensor signal to BCM.
  When ignition switch is turned ON, BCM detects outside brightness from the optical sensor signal and judges ON/OFF condition of the exterior lamp and each illumination, depending on the outside brightness condition (standard or twilight).
- 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 C to EXL-144, "HEADLAMP : CONSULT Function (BCM - HEADLAMP) (Halogen Type Headlamp)".

#### WIPER LINKED AUTO LIGHTING FUNCTION

BCM turns the exterior lamp 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 HI  $\Rightarrow$  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-17, "AUTO LIGHT ADJUSTMENT SYSTEM : System Description".

#### DELAY TIMER FUNCTION

BCM turns the exterior lamp OFF depending on the vehicle condition with the auto light function when the ignition 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 ignition switch ACC or the light switch OFF.
- \*: The preset time is 45 seconds. The timer operating time can be set by CONSULT. Refer to <u>EXL-144</u>, <u>"HEADLAMP : CONSULT Function (BCM HEADLAMP) (Halogen Type Headlamp)"</u>.

#### 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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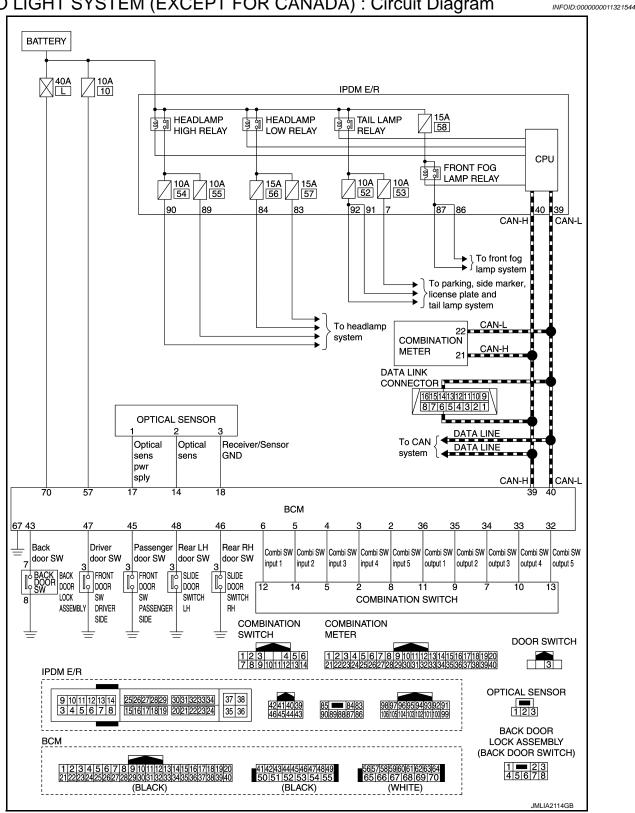
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# < SYSTEM DESCRIPTION >

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





AUTO LIGHT SYSTEM (FOR CANADA)

#### < SYSTEM DESCRIPTION >

# AUTO LIGHT SYSTEM (FOR CANADA) : System Description

# [HALOGEN TYPE]

INFOID:000000011321545

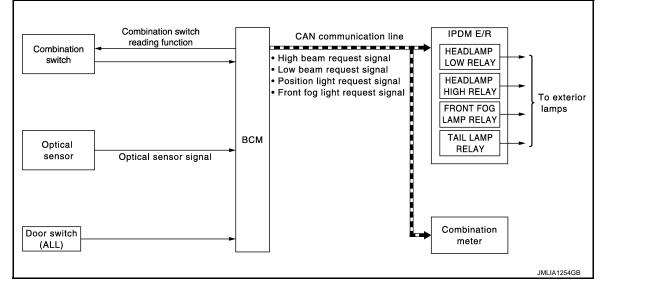
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# SYSTEM DIAGRAM



#### 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 ignition 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 ignition 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-144, "HEADLAMP : CONSULT Function (BCM - HEADLAMP) (Halogen Type Headlamp)".

#### 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 <u>INL-17, "AUTO LIGHT ADJUSTMENT SYSTEM : System Description"</u>.

#### DELAY TIMER FUNCTION

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#### < SYSTEM DESCRIPTION >

BCM turns the exterior lamp OFF depending on the vehicle condition with the auto light function when the ignition 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 ignition switch ACC or the light switch OFF.

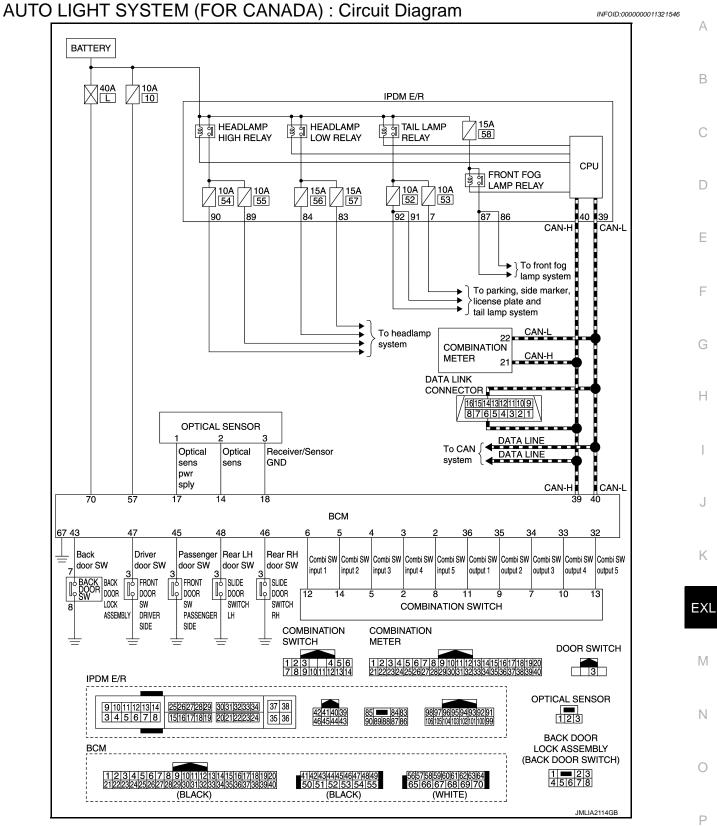
\*: The preset time is 45 seconds. The timer operating time can be set by CONSULT. Refer to <u>EXL-144</u>, <u>"HEADLAMP : CONSULT Function (BCM - HEADLAMP) (Halogen Type Headlamp)"</u>.

#### 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 DESCRIPTION >

# [HALOGEN TYPE]



DAYTIME RUNNING LIGHT SYSTEM

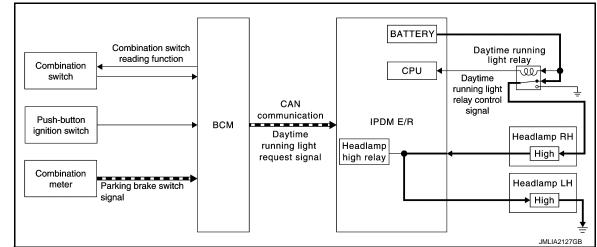
# < SYSTEM DESCRIPTION >

# [HALOGEN TYPE]

# DAYTIME RUNNING LIGHT SYSTEM : System Description

INFOID:000000011321547

#### 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

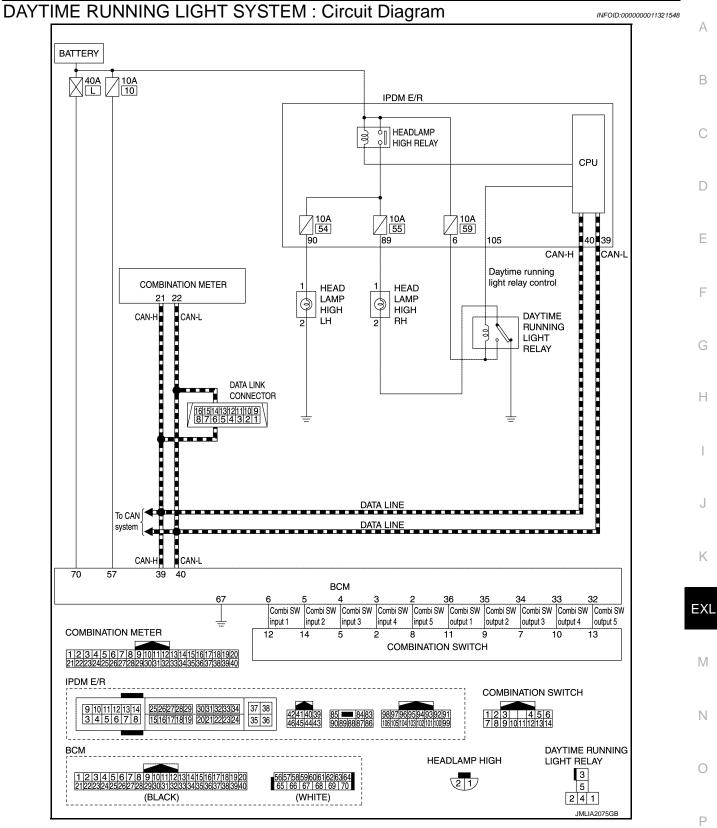
- BCM detects the combination switch condition by the combination switch reading function.
- · BCM detects the engine condition according to push-button ignition switch
- BCM detects the parking brake condition by the parking brake switch signal received from combination meter using CAN communication.
- 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

- Éngine running
- 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 DESCRIPTION >

# [HALOGEN TYPE]



TURN SIGNAL AND HAZARD WARNING LAMP SYSTEM

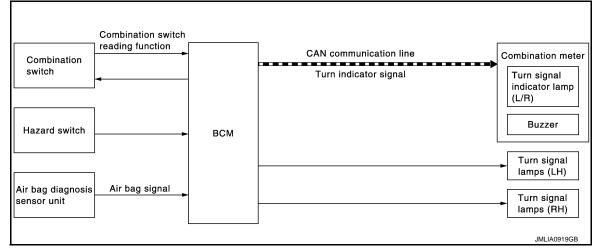
# < SYSTEM DESCRIPTION >

# [HALOGEN TYPE]

# TURN SIGNAL AND HAZARD WARNING LAMP SYSTEM : System Description

INFOID:0000000011321549

#### SYSTEM DIAGRAM



#### OUTLINE

Turn signal and the hazard warning lamp is controlled by combination switch reading function, flasher control function and auto hazard 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 ignition switch is turned 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 turned ON. BCM blinks the hazard warning lamp.

#### TURN SIGNAL INDICATOR LAMP AND TURN SIGNAL SOUND OPERATION

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

#### AUTO HAZARD FUNCTION

- Air bag diagnosis sensor unit transmits air bag signal to BCM, when air bag diagnosis sensor unit detects strong impact to the vehicle body while ignition switch is ON.
- When air bag signal from air bag diagnosis sensor unit is detected, BCM supplies voltage to each turn signal lamp system and hazard lamp blinks.

#### NOTE:

Auto hazard function may not be operated depending on status of collision.

#### **3-TIME FLASHER FUNCTION**

- By a short touch of the turn signal lever, BCM blinks the turn signal lamps 3 times in the selected direction.
- Cancels the operation when short touch of the turn signal lever in the reverse direction during the 3-time flasher function operation.

#### HIGH FLASHER OPERATION

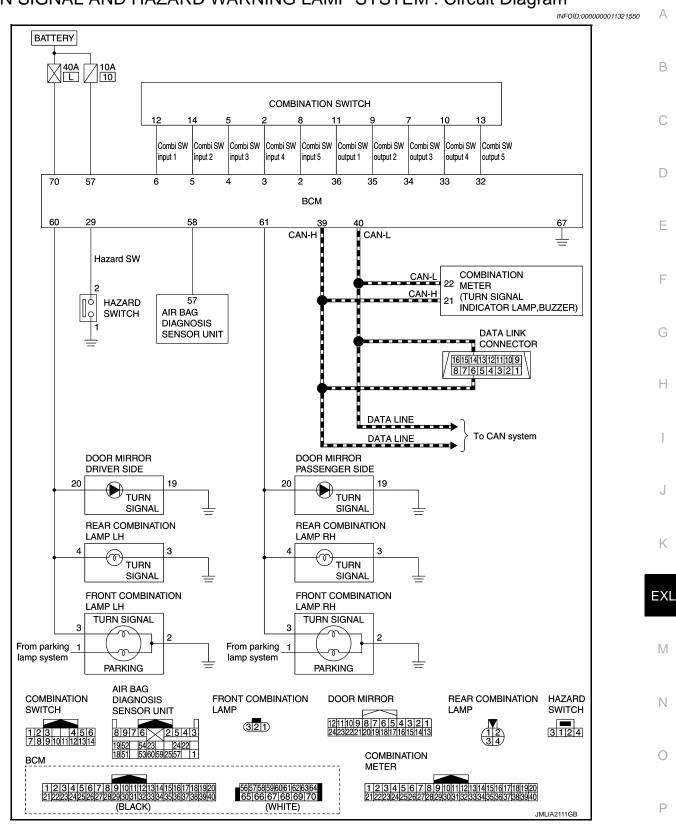
- BCM detects the turn signal lamp circuit status from the current value.
- BCM increases the turn signal lamp blinking speed if the bulb or harness open is detected with the turn signal lamp operating.

#### NOTE:

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

# [HALOGEN TYPE]

# TURN SIGNAL AND HAZARD WARNING LAMP SYSTEM : Circuit Diagram



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

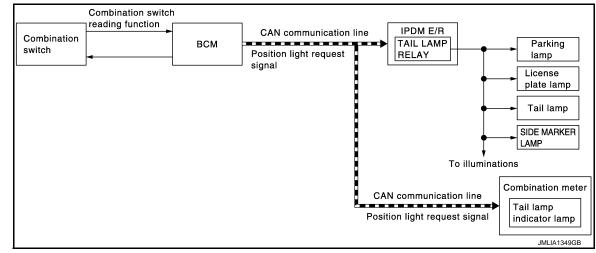
# < SYSTEM DESCRIPTION >

# [HALOGEN TYPE]

INFOID:0000000011321551

#### SYSTEM DIAGRAM

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#### 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

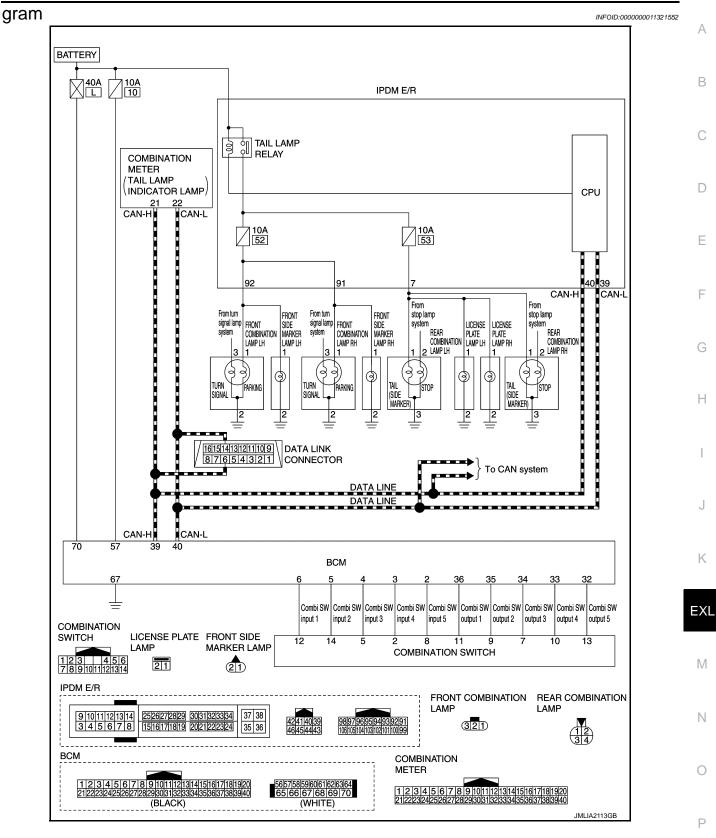
- BCM detects the combination switch condition by the combination switch reading function.
- BCM transmits the position light request signal to IPDM E/R and the combination meter via CAN communication according to the ON/OFF condition of the parking, license plate, side marker and tail lamps.

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.
- 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 DESCRIPTION >



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

INFOID:0000000011321553

[HALOGEN TYPE]

# CAN COMMUNICATION CONTROL

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

### < SYSTEM DESCRIPTION >

[HALOGEN TYPE]

If No CAN Communication Is Available With BCM

Control part	Fail-safe operation
<ul> <li>Parking lamp</li> <li>License plate lamp</li> <li>Illumination</li> <li>Tail lamp</li> </ul>	<ul> <li>Turns ON the tail lamp relay when the ignition switch is turned ON</li> <li>Turns OFF the tail lamp relay when the ignition switch is turned OFF</li> </ul>

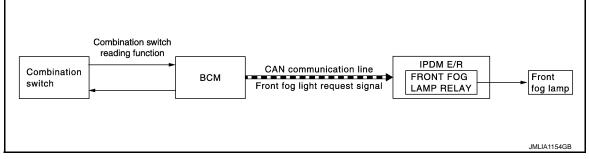
Side marker lamp

# FRONT FOG LAMP SYSTEM

# FRONT FOG LAMP SYSTEM : System Description

INFOID:000000011321554

# 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 light request signal to IPDM E/R 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

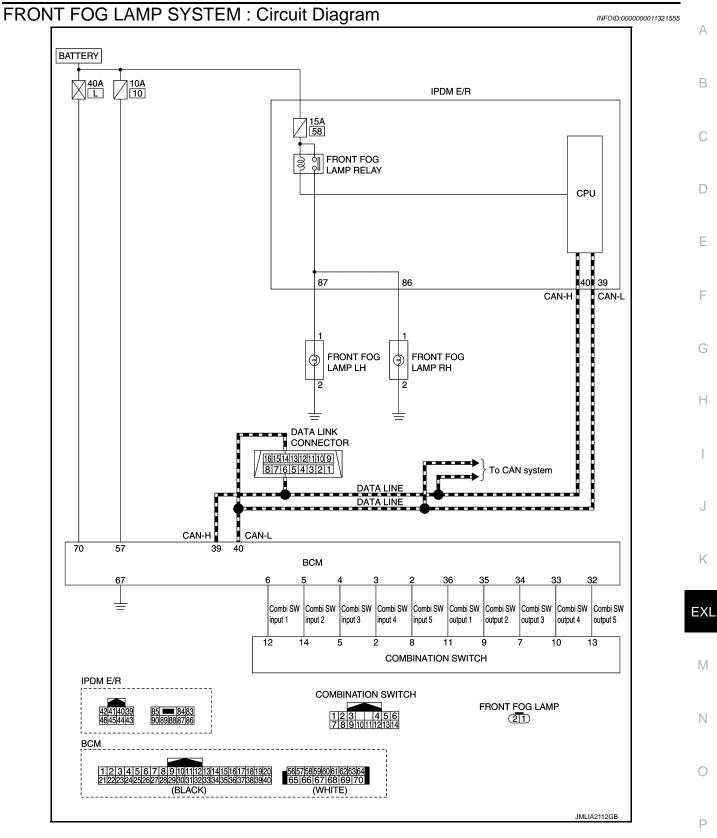
• Lighting switch AUTO (auto light function ON judgment)

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

### < SYSTEM DESCRIPTION >



[HALOGEN TYPE]



FRONT FOG LAMP SYSTEM : Fail-safe

INFOID:000000011321556

# CAN COMMUNICATION CONTROL

When CAN communication with ECM and 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 DESCRIPTION >

Control part Front fog lamp

Front fog lamp relay OFF

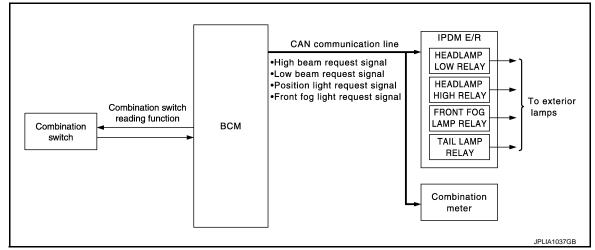
Fail-safe operation

# EXTERIOR LAMP BATTERY SAVER SYSTEM

# EXTERIOR LAMP BATTERY SAVER SYSTEM : System Description

INFOID:000000011321557

#### 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 ignition 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

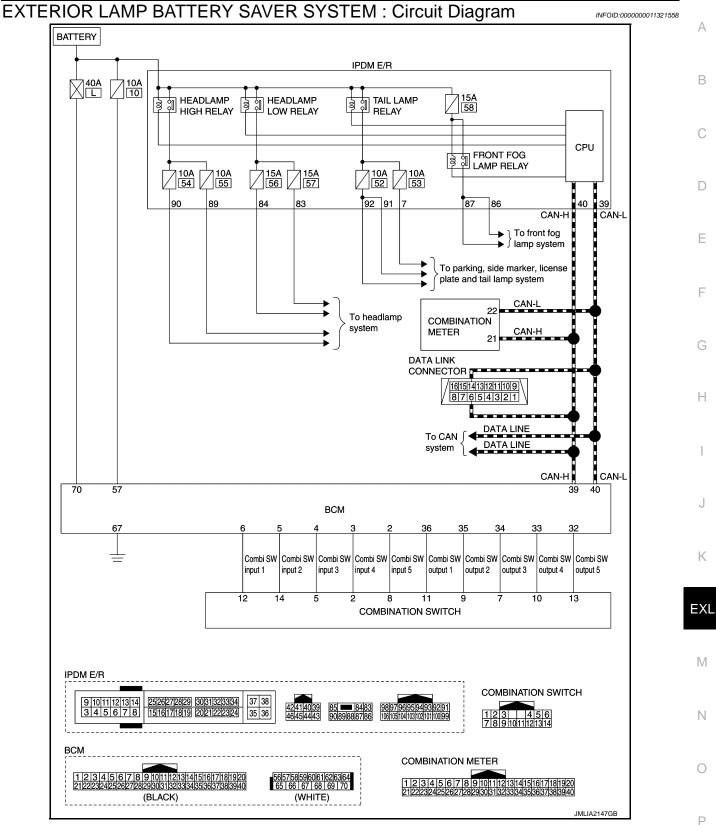
BCM activates the timer and turns the exterior lamp OFF 45 seconds after the ignition switch is turned from  $ON \rightarrow OFF$  with the exterior lamps ON.

#### NOTE:

- Headlamp control function turns the exterior lamps ON normally when the ignition switch is turned ACC or ON (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  $\rightarrow$  1ST or 2ND with the exterior lamps OFF.

# < SYSTEM DESCRIPTION >

# [HALOGEN TYPE]



# DIAGNOSIS SYSTEM (BCM) COMMON ITEM

# COMMON ITEM : CONSULT Function (BCM - COMMON ITEM)

INFOID:000000011561138

[HALOGEN TYPE]

# 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><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.

Suster	Out austan a la stien item	Diagnosis mode		
System	Sub system selection item	Work Support	Data Monitor	Active Test
Door lock	DOOR LOCK	×	×	×
Rear window defogger	REAR DEFOGGER		×	×
Warning chime	BUZZER		×	×
Interior room lamp control system	INT LAMP	×	×	×
Exterior lamp	HEAD LAMP	×	×	×
Wiper and washer	WIPER	×	×	×
Turn signal and hazard warning lamps	FLASHER	×	×	×
Air conditioning control system	AIR CONDITONER		×	×*
<ul><li>Intelligent Key system</li><li>Engine start system</li></ul>	INTELLIGENT KEY	×	×	×
Combination switch	COMB SW		×	
Body control system	BCM	×		
NVIS	IMMU	×	×	×
Interior room lamp battery saver	BATTERY SAVER	×	×	×
Back door open	TRUNK		×	
Vehicle security system	THEFT ALM	×	×	×
RAP system	RETAINED PWR		×	
Signal buffer system	SIGNAL BUFFER		×	×
TPMS	AIR PRESSURE MONITOR	×	×	×

#### NOTE:

\*: For models with automatic air conditioning control system, this diagnosis mode is 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.

# EXL-142

# **DIAGNOSIS SYSTEM (BCM)**

#### < SYSTEM DESCRIPTION >

# [HALOGEN TYPE]

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		
	SLEEP>LOCK	-	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 RUN to ACC (Except emergency stop operation)	
	CRANK>RUN		While turning power supply position from CRANK to RUN	
	RUN>URGENT	Power position status of the moment a particular DTC is detected*	While turning power supply position from RUN to ACC (Emergency stop operation)	
	ACC>OFF		While turning power supply position from ACC to OFF (OFF)	
Vehicle Condition	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 CRANK	
	OFF>SLEEP		While turning BCM status from normal mode [Power supply posi- tion is OFF (OFF)] to low power consumption mode	
	LOCK>SLEEP		While turning BCM status from normal mode [Power supply posi- tion 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 RUN	
	CRANKING		Power supply position is CRANK	
IGN Counter	0 - 39	<ul> <li>The number of times that ignition switch is turned ON after DTC is detected</li> <li>The number is 0 when a malfunction is detected now.</li> <li>The number increases like 1 → 2 → 338 → 39 after returning to the normal condition whenever ignition 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>		

- \*: Refer to the following for details of the power supply position.
- OFF (OFF, LOCK): Ignition switch OFF
- ACC: Ignition switch ACC
- IGN: Ignition switch ON with engine stopped
- · RUN: Ignition switch ON with engine running
- CRANK: At engine cranking

Power supply position shifts to "OFF (LOCK)" from "OFF (OFF)", when ignition 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 push-button ignition switch (push switch) is pushed at "OFF (LOCK)".

**HEADLAMP** 

# **EXL-143**

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#### < SYSTEM DESCRIPTION >

# **DIAGNOSIS SYSTEM (BCM)**

#### [HALOGEN TYPE]

# HEADLAMP : CONSULT Function (BCM - HEADLAMP) (Halogen Type Headlamp)

INFOID:000000011321560

#### WORK SUPPORT

Service item	Setting item	Setting			
	MODE 1* <sup>3</sup>	Normal			
CUSTOM A/LIGHT SET- TING* <sup>1</sup>	MODE 2	More sensitiv	More sensitive setting than normal setting (Turns ON earlier than normal opera- tion)		
TING	MODE 3	More sensitiv	More sensitive setting than MODE 2 (Turns ON earlier than MODE 2)		
	MODE 4	Less sensitiv	Less sensitive setting than normal setting (Turns ON later than normal operation.)		
BATTERY SAVER SET	On* <sup>3</sup>	With the exte	rior lamp battery saver function		
BATTERT SAVER SET	Off	Without the exterior lamp battery saver function			
	MODE 1* <sup>3</sup>	45 sec.			
	MODE 2	Without the function			
	MODE 3	30 sec.			
ILL DELAY SET* <sup>1</sup>	MODE 4	60 sec.	Sets delay timer function timer operation time. (All doors closed)		
	MODE 5	90 sec.			
	MODE 6	120 sec.			
	MODE 7	150 sec.			
	MODE 8	180 sec.			
	MODE 1* <sup>3</sup>	With twilight ON custom & with wiper INT, LO and HI			
	MODE 2	With twilight ON custom & with wiper LO and HI			
AUTO LIGHT LOGIC SET*2	MODE 3	With twilight ON custom & without			
AUTO LIGHT LUGIC SET	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 twilig	ht ON custom & without		

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

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

# \*3: Factory setting

#### DATA MONITOR

#### NOTE:

The following table includes information (items) inapplicable to this vehicle. For information (items) applicable to this vehicle, refer to CONSULT display items.

Monitor item [Unit]	Description	
PUSH SW [On/Off]	The switch status input from push-button ignition switch	
ENGINE STATE [Stop/Stall/Crank/Run]	The engine status received from ECM with CAN communication	
VEH SPEED 1 [km/h]	The value of the vehicle speed received from combination meter via CAN communi- cation	

# **DIAGNOSIS SYSTEM (BCM)**

#### < SYSTEM DESCRIPTION >

### [HALOGEN TYPE]

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

\*<sup>1</sup>: For models without auto light system, this item is not displayed.
\*<sup>2</sup>: 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 commu- nication to turn the tail lamp ON
	Off	Stops the tail lamp request signal transmission
	Hi	Transmits the high beam request signal via CAN communication to turn the headlamp (HI)
HEAD LAMP	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* <sup>1</sup>	On	Transmits the front fog light request signal to IPDM E/R via CAN commu- nication to turn the front fog lamp ON
	Off	Stops the front light request signal transmission

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# **DIAGNOSIS SYSTEM (BCM)**

#### < SYSTEM DESCRIPTION >

[HALOGEN	TYPE]
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Test item	Operation	Description
DAYTIME RUNNING LIGHT*2	On	Transmits the daytime running light request signal via CAN communica- tion to IPDM E/R
	Off	Stop the daytime running light request signal transmission
ILL DIM SIGNAL	On	<ul> <li>Transmits the dimmer signal to combination meter via CAN communication and dims combination meter*<sup>3</sup></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.

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

\*<sup>3</sup>: Except for CANADA

### FLASHER

# FLASHER : CONSULT Function (BCM - FLASHER) (Halagen Type Headlamp)

INFOID:000000011321561

### WORK SUPPORT

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

\*: Factory setting

#### DATA MONITOR

#### NOTE:

The following table includes information (items) inapplicable to this vehicle. For information (items) applicable to this vehicle, refer to CONSULT display items.

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 push-button ignition switch
TURN SIGNAL R [On/Off]	Each quitch status that PCM detects from the combination quitch reading function
TURN SIGNAL L [On/Off]	<ul> <li>Each switch status that BCM detects from the combination switch reading function</li> </ul>
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

# **DIAGNOSIS SYSTEM (BCM)**

### < SYSTEM DESCRIPTION >

### [HALOGEN TYPE]

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

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## **Diagnosis Description**

AUTO ACTIVE TEST

Description

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

- Oil pressure warning lamp
- Front wiper (LO, HI)
- Parking lamp
- License plate lamp
- Tail lamp
- Side marker lamp
- Front fog lamp
- Headlamp (LO, HI)
- A/C compressor (magnet clutch)
- Cooling fan

**Operation Procedure** 

#### NOTE:

Never perform auto active test in the following condition.

- Passenger door is open.
- CONSULT is connected.
- Close the hood and lift the wiper arms from the windshield. (Prevent windshield damage due to wiper operation) NOTE:

When auto active test is performed with hood opened, sprinkle water on windshield beforehand.

- 2. Turn the ignition switch OFF.
- 3. Turn the ignition switch ON, and within 20 seconds, press the front door switch (driver side) 10 times. Then turn the ignition switch OFF.
- 4. Turn the ignition switch ON within 10 seconds. After that the horn sounds once and the auto active test starts.

NOTE:

Engine starts when ignition switch is turned ON while brake pedal is depressed.

- 5. The oil pressure warning lamp starts blinking when the auto active test starts.
- 6. After a series of the following operations is repeated 3 times, auto active test is completed.

#### NOTE:

- When auto active test has to be cancelled halfway through test, turn the ignition switch OFF.
- When auto active test is not activated, door switch may be the cause. Check door switch. Refer to <u>DLK-241</u>.
   <u>"Component Function Check"</u>.

#### Inspection in Auto Active Test

When auto active test is actuated, the following 6 steps are repeated 3 times.

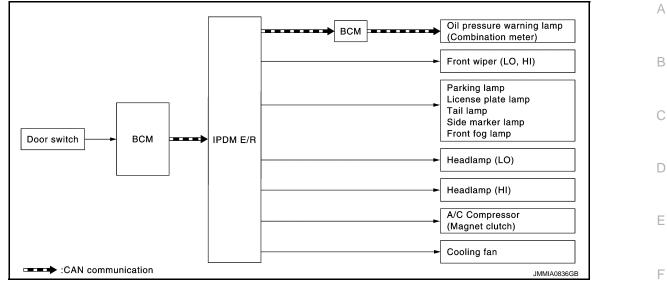
Operation sequence	Inspection location	Operation
1	Oil pressure warning lamp	Blinks continuously during operation of auto active test
2	Front wiper motor	LO for 5 seconds $\rightarrow$ HI for 5 seconds
3	<ul> <li>Parking lamp</li> <li>License plate lamp</li> <li>Tail lamp</li> <li>Side marker lamp</li> <li>Front fog lamp</li> </ul>	10 seconds
4	Headlamp	<ul> <li>LO 10 seconds</li> <li>HI ON ⇔ OFF 5 times</li> </ul>
5	A/C compressor (magnet clutch)	$ON \Leftrightarrow OFF 5 times$
6	Cooling fan	LO for 5 seconds $\rightarrow$ MID for 3 seconds $\rightarrow$ HI for 2 seconds

#### < SYSTEM DESCRIPTION >

### [HALOGEN TYPE]

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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

Symptom	Inspection contents		Possible cause	
Any of the following components do not		YES	BCM signal input circuit	
operate • Parking lamp • License plate lamp • Tail lamp • Side marker lamp • Front fog lamp • Headlamp (HI, LO) • Front wiper motor	Perform auto active test. Does the applicable system op- erate?	NO	<ul> <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>	
A/C compressor does not operate	Perform auto active test. Does the magnet clutch oper-	YES	<ul> <li>Combination meter signal input circuit</li> <li>CAN communication signal between Combination meter and ECM</li> <li>CAN communication signal between ECM and IPDM E/R</li> </ul>	Ε
	ate?	NO	<ul> <li>Magnet clutch</li> <li>Harness or connector between IPDM E/ R and magnet clutch</li> <li>IPDM E/R</li> </ul>	I
	Perform auto active test.	YES	<ul> <li>Harness or connector between IPDM E/ R and oil pressure switch</li> <li>Oil pressure switch</li> <li>IPDM E/R</li> </ul>	(
Oil pressure warning lamp does not operate	Does the oil pressure warning lamp blink?	NO	<ul> <li>CAN communication signal between IPDM E/R and BCM</li> <li>CAN communication signal between BCM and Combination meter</li> <li>Combination meter</li> </ul>	

#### < SYSTEM DESCRIPTION >

### [HALOGEN TYPE]

Symptom	Inspection contents		Possible cause	
		YES	<ul> <li>ECM signal input circuit</li> <li>CAN communication signal between ECM and IPDM E/R</li> </ul>	
Cooling fan does not operate	Perform auto active test. Does the cooling fan operate?	NO	<ul> <li>Cooling fan</li> <li>Harness or connector between cooling fan and cooling fan relay</li> <li>Harness or connector between IPDM E/ R and cooling fan relay</li> <li>Cooling fan relay</li> <li>IPDM E/R</li> </ul>	

# CONSULT Function (IPDM E/R)

INFOID:000000011561140

### 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 <u>PCS-24, "DTC Index"</u>.

### DATA MONITOR

#### NOTE:

The following table includes information (items) inapplicable to this vehicle. For information (items) applicable to this vehicle, refer to CONSULT display items.

Monitor Item [Unit]	MAIN SIG- NALS	Description
MOTOR FAN REQ [1/2/3/4]	×	Displays the value of the cooling fan speed signal received from ECM via CAN com- munication.
AC COMP REQ [Off/On]	×	Displays the status of the A/C compressor request signal received from ECM via CAN communication.
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 com- munication.
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 stop position 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 ignition switch ON signal received from BCM via CAN com- munication.
IGN RLY [Off/On]	×	Displays the status of the ignition relay judged by IPDM E/R.

### < SYSTEM DESCRIPTION >

### [HALOGEN TYPE]

Monitor Item [Unit]	MAIN SIG- NALS	Description
PUSH SW [Off/On]		Displays the status of the push-button ignition switch judged by IPDM E/R.
INTER/NP SW [Off/On]		Displays the status of the shift position judged by IPDM E/R.
ST RLY CONT [Off/On]		Displays the status of the starter relay status signal received from BCM via CAN communication.
IHBT RLY -REQ [Off/On]		Displays the status of the starter control relay signal received from BCM via CAN communication.
ST/INHI RLY [Off/ ST /INHI/UNKWN]		Displays the status of the starter relay and starter control relay judged by IPDM E/R.
DETENT SW [Off/On]		Displays the status of the CVT shift selector (detention switch) judged by IPDM E/R.
S/L RLY -REQ [Off/On]		NOTE: The item is indicated, but not monitored.
S/L STATE [LOCK/UNLK/UNKWN]		NOTE: 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 on the vehicle with daytime running light system.
OIL P SW [Open/Close]		NOTE:     The item is indicated, but not monitored.
HOOD SW [Off/On]		NOTE: The item is indicated, but not monitored.
HL WASHER REQ [Off/On]		NOTE: 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 commu- nication.
CRNRNG LMP REQ [Off/On]		NOTE: The item is indicated, but not monitored.

### ACTIVE TEST

Test item

Test item	Operation	Description	N
	Off		IV
CORNERING LAMP	LH	<b>NOTE:</b> The item is indicated, but cannot be tested.	
	RH		Ν
HORN	On	Operates horn relay for 20 ms.	
	Off	OFF	
FRONT WIPER	Lo	Operates the front wiper relay.	0
	Hi	Operates the front wiper relay and front wiper high relay.	
	1	OFF	P
MOTOR FAN	2	Operates the cooling fan relay-1.	
MOTOR FAIN	3	Operates the cooling fan relay-2.	
	4	Operates the cooling fan relay-2 and cooling fan relay-3.	
HEAD LAMP WASHER	On	<b>NOTE:</b> The item is indicated, but cannot be tested.	

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### < SYSTEM DESCRIPTION >

### [HALOGEN TYPE]

Test item	Operation	Description
	Off	OFF
	TAIL	Operates the tail lamp relay and the daytime running light relay.
EXTERNAL LAMPS	Lo	Operates the headlamp low relay.
	Hi	Operates the headlamp low relay and ON/OFF the headlamp high relay at 1 sec- ond intervals.
	Fog	Operates the front fog lamp relay.

### < ECU DIAGNOSIS INFORMATION >

# ECU DIAGNOSIS INFORMATION BCM, IPDM E/R

# List of ECU Reference

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ECU	Reference	
	BCS-40, "Reference Value"	
ВСМ	BCS-62, "Fail-safe"	
	BCS-62, "DTC Inspection Priority Chart"	
	BCS-63, "DTC Index"	
	PCS-16, "Reference Value"	
IPDM E/R	PCS-23, "Fail-safe"	
	PCS-24, "DTC Index"	

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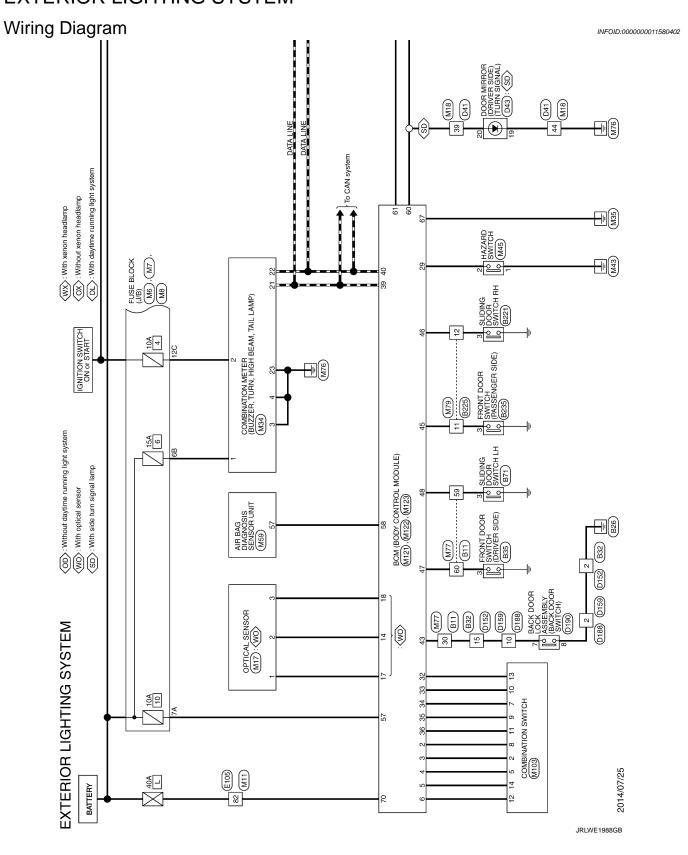
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Revision: 2014 August

# WIRING DIAGRAM EXTERIOR LIGHTING SYSTEM



### [HALOGEN TYPE]

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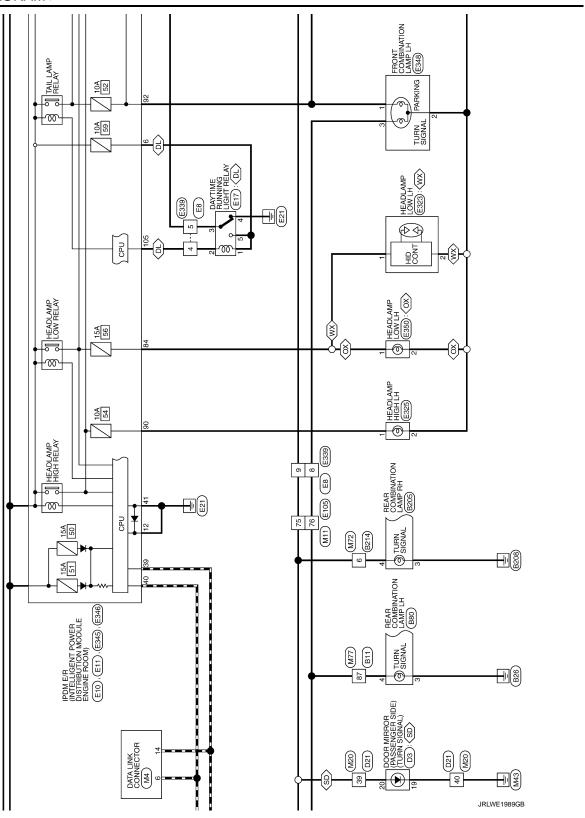
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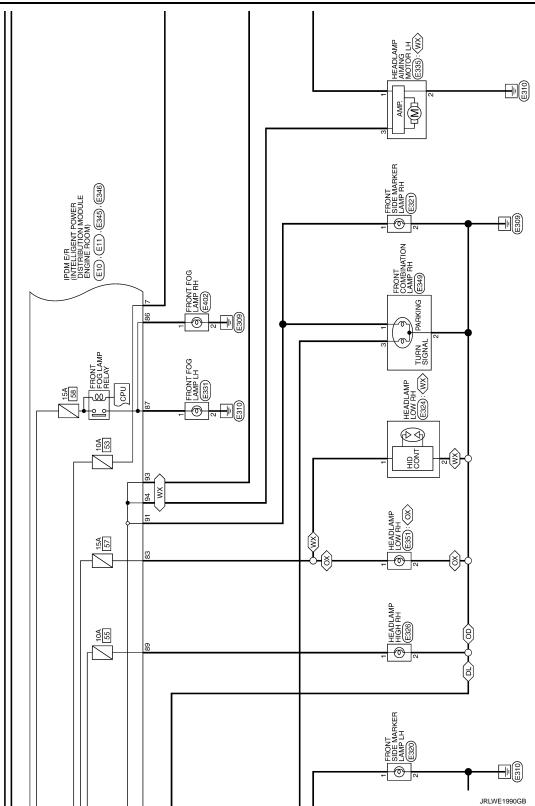
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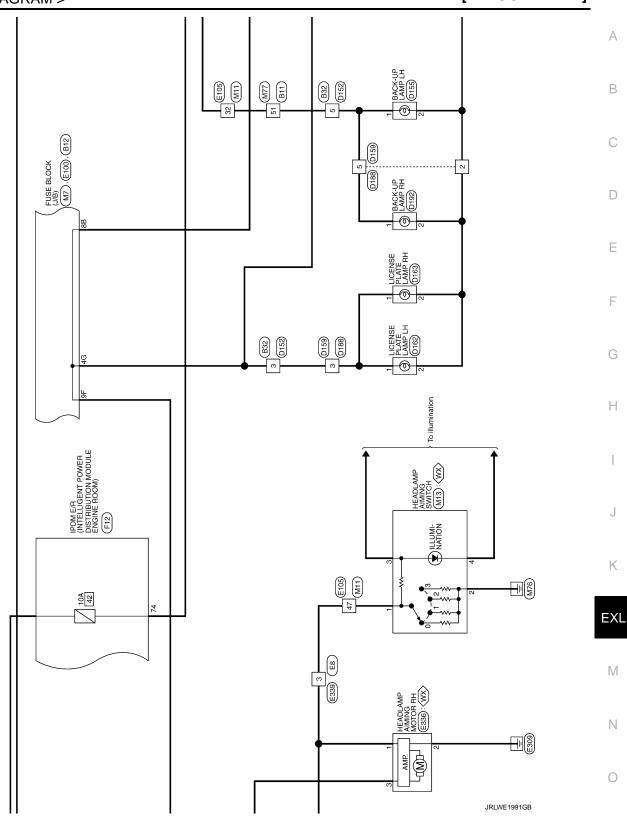


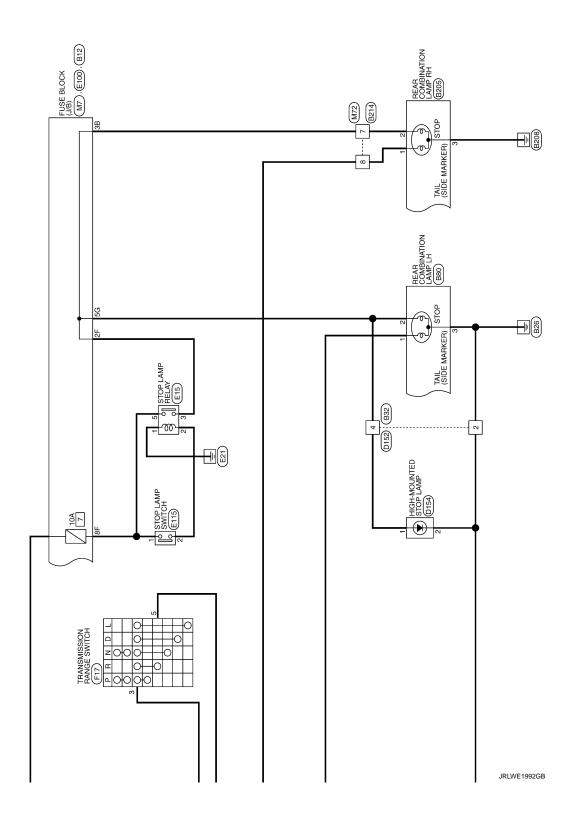
Revision: 2014 August

# **EXTERIOR LIGHTING SYSTEM**

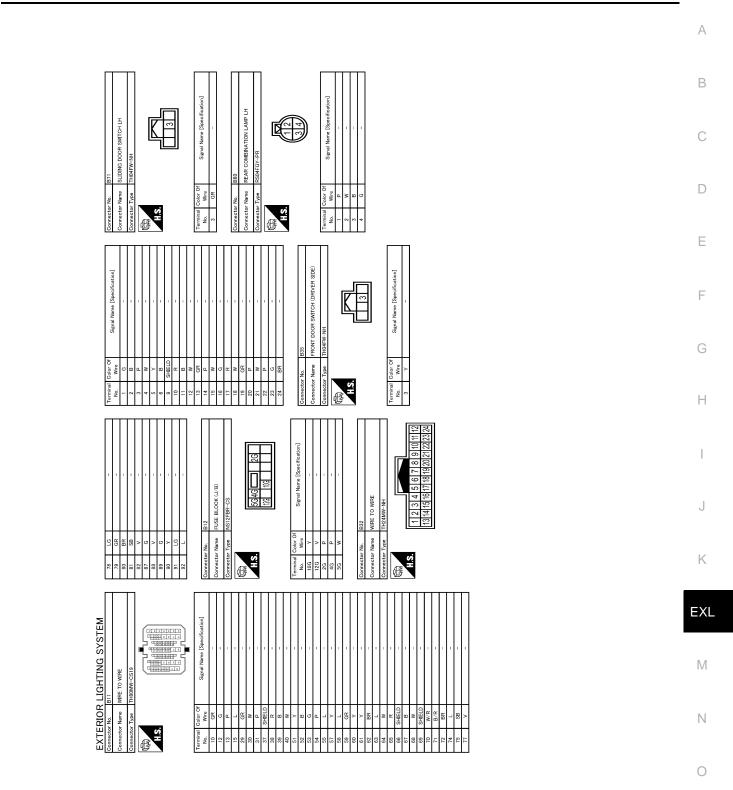
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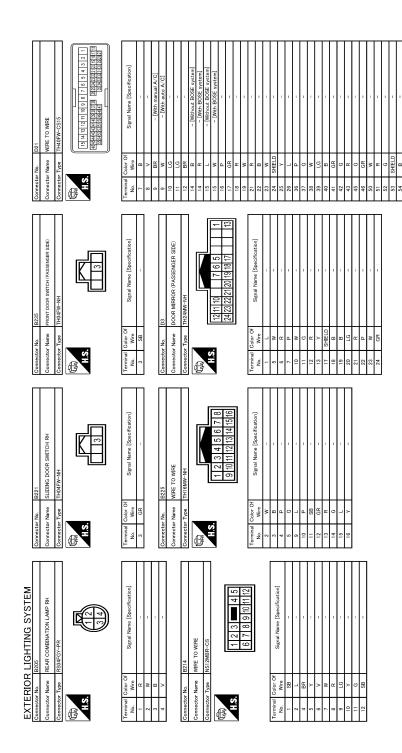




# **EXTERIOR LIGHTING SYSTEM**

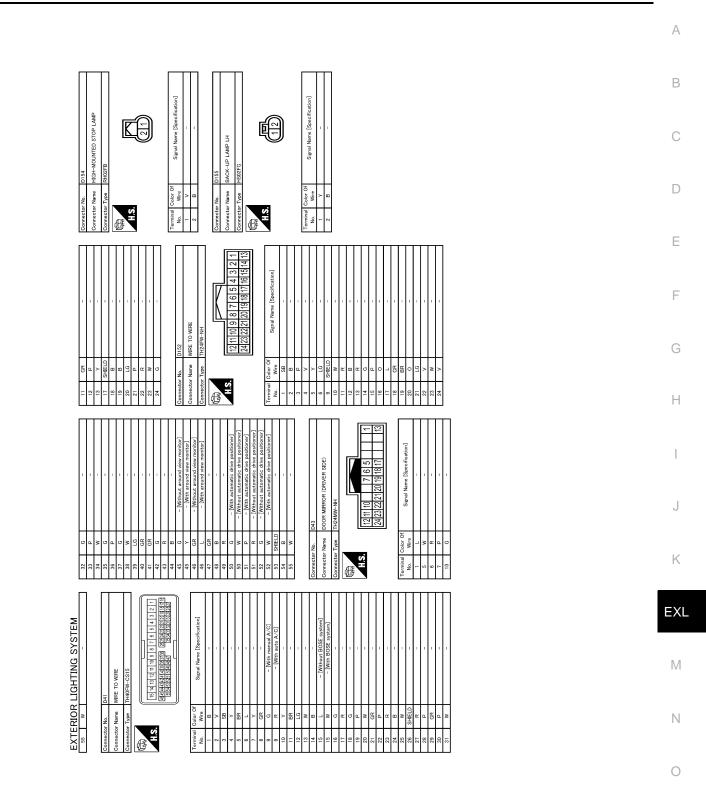


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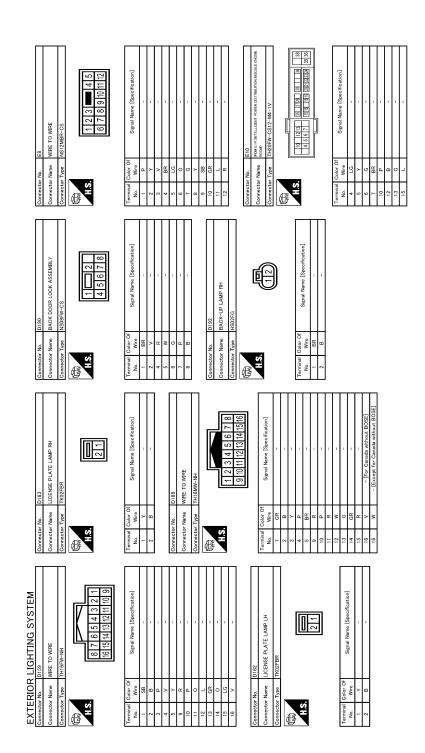


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# **EXTERIOR LIGHTING SYSTEM**

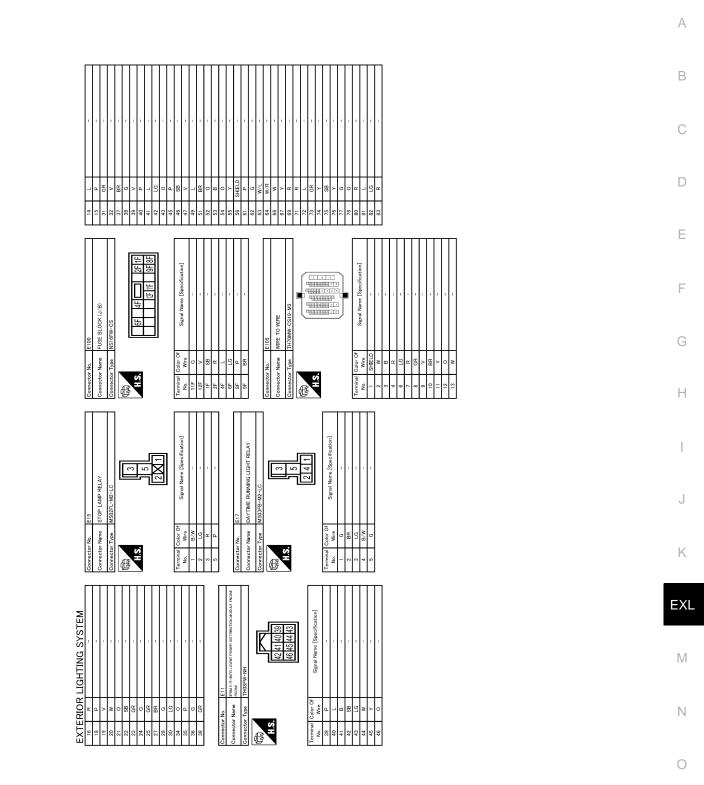


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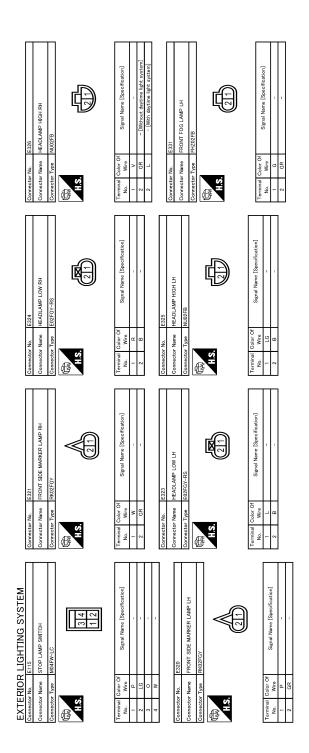


JRLWE1996GB

# **EXTERIOR LIGHTING SYSTEM**

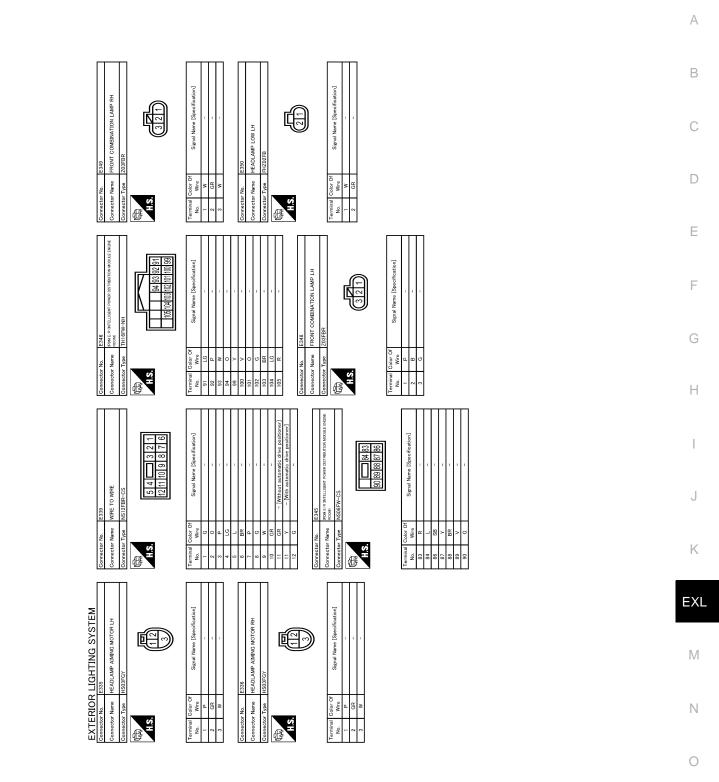


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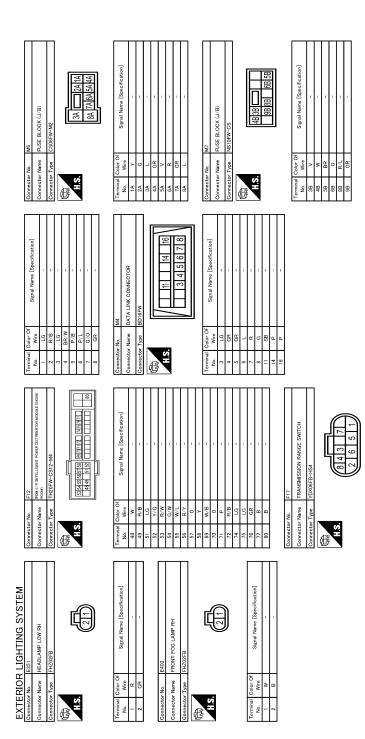


JRLWE1998GB

# EXTERIOR LIGHTING SYSTEM

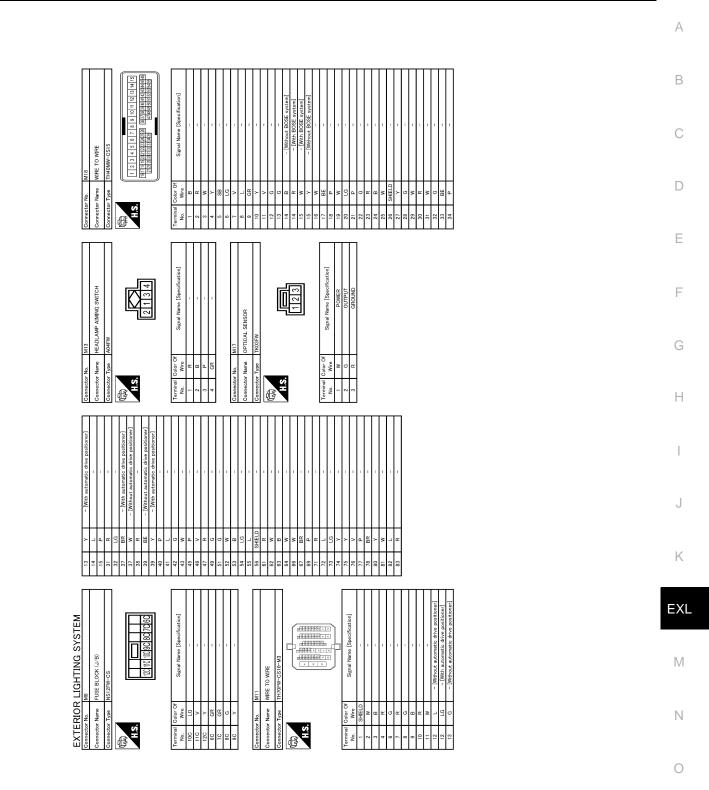


JRLWE1999GB



JRLWE2000GB

# **EXTERIOR LIGHTING SYSTEM**



JRLWE2001GB

[HAI	LUGEN	I TYPE]

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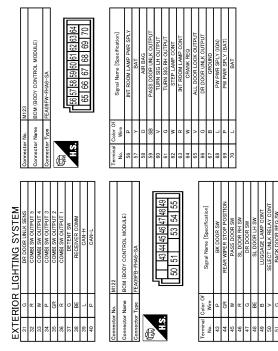
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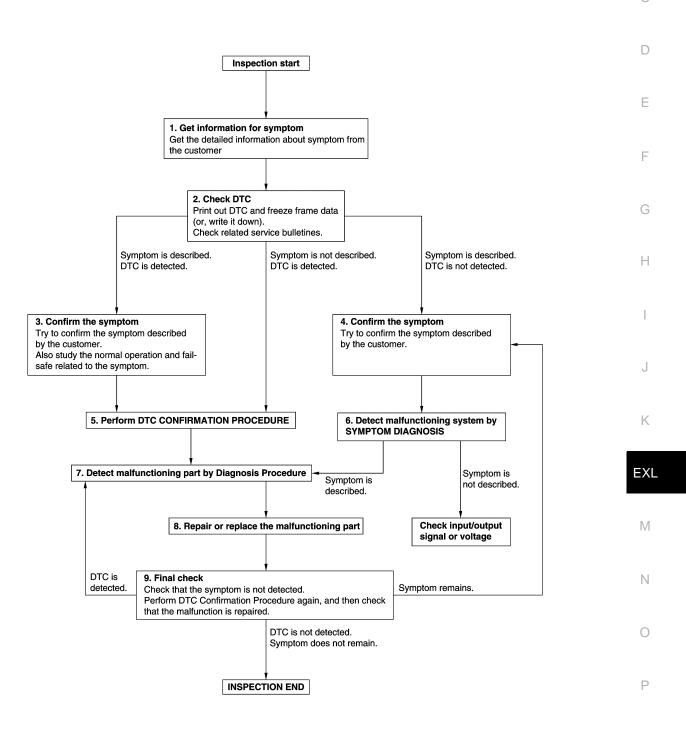
JRLWE2004GB

< BASIC INSPECTION >

# BASIC INSPECTION DIAGNOSIS AND REPAIR WORK FLOW

Work Flow

OVERALL SEQUENCE



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DETAILED FLOW

INFOID:000000011321566

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< 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 DTC INSPECTION PRIORITY CHART, 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 CONFIR-MATION PROCEDURE.

#### Is DTC detected?

YES >> GO TO 7.

NO >> Check according to <u>GI-42. "Intermittent Incident"</u>.

**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 CON-SULT.
- 7. DETECT MALFUNCTIONING PART BY DIAGNOSIS PROCEDURE

# DIAGNOSIS AND REPAIR WORK FLOW

< BASIC INSPECTION >	[HALOGEN TYPE]
Inspect according to Diagnosis Procedure of the system.	
Is malfunctioning part detected?	
YES >> GO TO 8.	
NO >> Check according to <u>GI-42, "Intermittent Incident"</u> .	
8.REPAIR OR REPLACE THE MALFUNCTIONING PART	
<ol> <li>Repair or replace the malfunctioning part.</li> <li>Reconnect parts or connectors disconnected during Diagnosis Procedure again a ment.</li> </ol>	fter repair and replace-
3. Check DTC. If DTC is detected, erase it.	
>> GO TO 9. <b>9.</b> FINAL CHECK	
When DTC is detected in step 2, perform DTC CONFIRMATION PROCEDURE again, a	and then check that the
malfunction is repaired securely.	
When symptom is described by the customer, refer to confirmed symptom in step 3 o	r 4, and check that the
symptom is not detected.	
<u>Is DTC detected and does symptom remain?</u> YES-1 >> DTC is detected: GO TO 7.	
YES-1 >> Symptom remains: GO TO 4.	
NO >> Before returning the vehicle to the customer, always erase DTC.	

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< DTC/CIRCUIT DIAGNOSIS >

# DTC/CIRCUIT DIAGNOSIS

HEADLAMP (HI) CIRCUIT

WITHOUT DAYTIME RUNNING LIGHT SYSTEM

WITHOUT DAYTIME RUNNING LIGHT SYSTEM : Component Function Check

INFOID:000000011321567

**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-174, "WITHOUT DAYTIME RUNNING LIGHT SYSTEM : Diagnosis Procedure".

WITHOUT DAYTIME RUNNING LIGHT SYSTEM : Diagnosis Procedure

INFOID:000000011321568

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

CONSULT ACTIVE TEST

- 1. Turn ignition switch OFF.
- 2. Disconnect headlamp high connector.
- 3. Turn ignition 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.

	(+) IPDM E/R		(—)	Tes	Voltage (Approx.)	
Со	nnector	Terminal	•			(/ (pprox.)
DU		00			Hi	Battery voltage
RH	F245	89	Crownd	EXTERNAL	Off	0 V
	– E345	00	Ground	LAMPS	Hi	Battery voltage
LH		90			Off	0 V

Is the inspection result normal?

NO >> GO TO 3.

2. CHECK HEADLAMP (HI) OPEN CIRCUIT

- 1. Turn ignition switch OFF.
- 2. Disconnect IPDM E/R connector.
- 3. Check continuity between IPDM E/R harness connector and headlamp high harness connector.

	IPDM E/R		Headla	mp high	Continuity	
Conr	nector	Terminal	Connector	Terminal	Continuity	
RH	E345	89	E326	1	Existed	
LH	E345	90	E325		EXISTED	

Is the inspection result normal?

YES >> GO TO 5.

# **HEADLAMP (HI) CIRCUIT**

[HALOGEN TYPE] < DTC/CIRCUIT DIAGNOSIS > NO >> Repair or replace harness. **3.**CHECK HEADLAMP (HI) FUSE А 1. Turn ignition switch OFF. Check that the following fuses are not fusing. 2. В Unit Location Fuse No. Capacity Headlamp HI (RH) #55 IPDM E/R 10 A Headlamp HI (LH) #54 Is the inspection result normal? YES >> Replace IPDM E/R. D NO >> GO TO 4. 4.CHECK HEADLAMP (HI) SHORT CIRCUIT Ε Disconnect IPDM E/R connector. 1. Check continuity between IPDM E/R harness connector and ground. 2. IPDM E/R Continuity Connector Terminal Ground 89 RH E345 Not existed LH 90 Is the inspection result normal? YES >> Replace fuse. (Replace IPDM E/R if the fuse is fusing again.) Н NO >> Repair or replace harness. And then replace the fuse.  ${f 5.}$ CHECK HEADLAMP (HI) GROUND OPEN CIRCUIT 1. Turn ignition switch OFF. 2. Disconnect headlamp high connector. 3. Check continuity between headlamp high harness connector and ground. Headlamp high Continuity Connector Terminal Ground Κ RH F326 2 Existed LH E325 Is the inspection result normal? EXL YES >> Replace headlamp (HI) bulb. (Bulb socket is abnormal.) NO >> Repair or replace harness. WITH DAYTIME RUNNING LIGHT SYSTEM Μ WITH DAYTIME RUNNING LIGHT SYSTEM : Component Function Check INFOID:000000011321569 Ν **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. : Headlamp (HI) ON Hi Ρ : Headlamp (HI) OFF Off NOTE: ON/OFF is repeated 1 second each. Is the inspection result normal? YES >> Headlamp (HI) circuit is normal.

NO

## EXL-175

>> Refer to EXL-176, "WITH DAYTIME RUNNING LIGHT SYSTEM : Diagnosis Procedure".

# **HEADLAMP (HI) CIRCUIT**

### < DTC/CIRCUIT DIAGNOSIS >

### WITH DAYTIME RUNNING LIGHT SYSTEM : Diagnosis Procedure

[HALOGEN TYPE]

INFOID:000000011321570

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

### CONSULT ACTIVE TEST

- 1. Turn ignition switch OFF.
- 2. Disconnect headlamp high connector.
- 3. Turn ignition 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.

	(+) IPDM E/R		()	Test	Voltage (Approx.)	
Conr	nector	Terminal				()
RH		89			Hi	Battery voltage
ΝП	E345	89	Ground	EXTERNAL	Off	0 V
LH	E345	90	Giodila	LAMPS	Hi	Battery voltage
		90			Off	0 V

Is the inspection result normal?

YES >> GO TO 2.

NO >> GO TO 3.

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

- 1. Turn ignition switch OFF.
- 2. Disconnect IPDM E/R connector.
- 3. Check continuity between IPDM E/R harness connector and headlamp high harness connector.

	IPDM E/R		Headla	Continuity		
Conr	nector	Terminal	Connector	Terminal	Continuity	
RH	E345	89	E326	1	Existed	
LH	E345	90	E325		EXISTED	

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair or replace harness.

3.CHECK HEADLAMP (HI) FUSE

### 1. Turn ignition switch OFF.

2. Check that the following fuses are not fusing.

Unit	Location	Fuse No.	Capacity
Headlamp HI (RH)	IPDM E/R	#55	10 A
Headlamp HI (LH)		#54	10 A

#### 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				Continuity	
Connector		Terminal	Ground	Continuity	
RH	E345	89	Giouna	Not existed	
LH	E345	90		NUL EXISTED	

YES >> Replace fuse. (Replace IPDM E/R if the fuse is fusing again.) NO >> Repair or replace harness. And then replace the fuse. <b>5.</b> CHECK ILLUMINATION STATUS OF HEADLAMPS	[HALOGEN TYPE]
NO >> Repair or replace harness. And then replace the fuse. 5.CHECK ILLUMINATION STATUS OF HEADLAMPS	
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	
<ol> <li>Remove daytime running light relay.</li> <li>Check continuity between daytime running light relay harness connector a connector.</li> </ol>	and headlamp high RH harness
Daytime running light relay Headlamp high RH	Continuity
Connector Terminal Connector Termin	nal
E17 3 E326 2	Existed
Check continuity between daytime running light relay harness connector and g	
Connector Terminal Ground	Continuity
E17 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 headlamp high LH harness connector and ground.	
Headlamp high LH	
Connector Terminal Ground	Continuity
E325 2	Existed
Is the inspection result normal?	
YES >> Replace headlamp (HI) bulb. (Bulb socket is abnormal.) NO >> Repair or replace harness.	

# HEADLAMP (LO) CIRCUIT

## **Component Function Check**

# **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) is normal.
- NO >> Refer to <u>EXL-178</u>, "Diagnosis Procedure".

### Diagnosis Procedure

INFOID:000000011321572

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

### CONSULT ACTIVE TEST

#### 1. Turn ignition switch OFF.

- 2. Disconnect headlamp low connector.
- 3. Turn ignition 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.

(+) IPDM E/R		(-)	Test item		Voltage (Approx.)	
						Conr
RH		83			Lo	Battery voltage
КП	E245	03	Ground	EXTERNAL LAMPS	Off	0 V
LH	E345	94	Ground		Lo	Battery voltage
LN		84			Off	0 V

Is the inspection result normal?

YES >> GO TO 2.

NO >> GO TO 3.

2.CHECK HEADLAMP (LO) OPEN CIRCUIT

1. Turn ignition switch OFF.

2. Disconnect IPDM E/R connector.

3. Check continuity between IPDM E/R harness connector and headlamp low harness connector.

IPDM E/R			Headlamp low		Continuity	
Conr	nector	Terminal	Connector	Terminal	Continuity	
RH	E345	83	E351	1	Existed	
LH	L345	84	E350	I		

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair or replace harness.

**3.**CHECK HEADLAMP (LO) FUSE

1. Turn ignition switch OFF.

2. Check that the following fuses are not fusing.

# EXL-178

[HALOGEN TYPE]

# HEADLAMP (LO) CIRCUIT

#### < DTC/CIRCUIT DIAGNOSIS >

## [HALOGEN TYPE]

	Lo	tion	Fuse No.	Capacity
Headlamp LO (R			#57	
Headlamp LO (Ll	H)		#56	15 A
0 >> GÓ 1	ace IPDM E/R.			
Disconnect II	PDM E/R connector. uity between IPDM E/R		and ground.	
	IPDM E/R			Continuity
	Connector	Terminal	Ground	Continuity
RH	E345	83	Ground	Not existed
LH	E345	84		NOT EXISTED
	uity between headlamp			Continuity
	Connector	Terminal		
			Ground	
RH	E351	2	Ground	Existed
RH LH the inspection	E350		Ground	Existed
LH ne inspection S >> Repla	E350	2		

## DAYTIME RUNNING LIGHT RELAY CIRCUIT

### < DTC/CIRCUIT DIAGNOSIS >

# DAYTIME RUNNING LIGHT RELAY CIRCUIT

### **Component Function Check**

**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 <u>EXL-180, "Diagnosis Procedure"</u>.

### Diagnosis Procedure

INFOID:000000011321574

# 1.CHECK DAYTIME RUNNING LIGHT RELAY FUSE

#### 1. Turn ignition switch OFF.

2. Check that the following fuse is not fusing.

Unit	Fuse No.	Capacity
Daytime running light relay	#59	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.

(+) Daytime running light relay		(-)	Voltage (Approx.)	
Connector	Terminal		(	
E17	1 5	Ground	Battery voltage	

#### Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace harness.

 ${\it 3.}$ CHECK DAYTIME RUNNING LIGHT RELAY

Check daytime running light relay. Refer to EXL-181, "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 ignition 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.

## EXL-180

INFOID:0000000011321573

## DAYTIME RUNNING LIGHT RELAY CIRCUIT

### < DTC/CIRCUIT DIAGNOSIS >

[HALOGEN TYPE]

	(+)					Voltage
	M E/R	(-)		Test iten	n	(Approx
Connector	Terminal					
E346	105	Ground	DAYTIME I NING LIGH	-	On Off	0 V Battery vol
ne inspection re	cult pormal?				011	Dattery vor
S >> Daytim -1 (Fixed at 0 ' -2 (Fixed at ba HECK DAYTIN Turn ignition sv Remove daytin Disconnect IPI	ie running light r V)>>GO TO 5. ttery voltage) >> ME RUNNING LI witch OFF. ne running light DM E/R harness ty between IPDI IPDM E/R Termi 105	connector. M E/R harness o	E/R. ONTROL SIGN	daytime ru ning light rela Terr	unning light	relay harness Continuity Existed
S >> GO TC >> Repair	) 6. or replace harn		ONTROL SIGI	NAL SHOR	T CIRCUIT	-
ES >> GO TC O >> Repair CHECK DAYTIN	06. or replace harn /IE RUNNING LI	IGHT RELAY CO			T CIRCUIT	
ES >> GO TC O >> Repair CHECK DAYTIN	0 6. or replace harn /E RUNNING LI etween IPDM E/ IPDM E/R	IGHT RELAY CO				Continuity
O >> Repair CHECK DAYTIN eck continuity be	0 6. or replace harn /E RUNNING LI etween IPDM E/ IPDM E/R	IGHT RELAY CO R harness conn		und.		
ES >> GO TC O >> Repair CHECK DAYTIN eck continuity be Connecto E346 the inspection re ES >> Replac O >> Repair Omponent Ins CHECK DAYTIN Turn the ignitic Remove daytir Apply battery v	0 6. or replace harno //E RUNNING LI etween IPDM E/ IPDM E/R or sult normal? se IPDM E/R. or replace harno spection //E RUNNING LI n switch OFF. ne running light roltage to daytim	IGHT RELAY CO R harness conn Terminal 105 ess.	ector and grou	Ground		Continuity
ES >> GO TO O >> Repair CHECK DAYTIN eck continuity be Connecto E346 he inspection re ES >> Replac O >> Repair Omponent Ins CHECK DAYTIN Turn the ignitic Remove daytir Apply battery v Check continui	0 6. or replace harned /E RUNNING LI etween IPDM E/ IPDM E/R or <u>sult normal?</u> ise IPDM E/R. or replace harned spection /E RUNNING LI in switch OFF. ne running light roltage to daytim ty between dayt	IGHT RELAY CO R harness conn Terminal 105 ess. IGHT RELAY relay. he running light r ime running light r	ector and grou	und. Ground		Continuity Not existed
ES >> GO TO O >> Repair CHECK DAYTIN eck continuity be Connecto E346 he inspection re ES >> Replac O >> Repair Omponent Ins CHECK DAYTIN Turn the ignitic Remove daytir Apply battery v Check continui	0 6. or replace harned /E RUNNING LI etween IPDM E/ IPDM E/R or sult normal? se IPDM E/R. or replace harned spection /E RUNNING LI in switch OFF. ne running light roltage to daytim	IGHT RELAY CO R harness conn Terminal 105 ess. IGHT RELAY relay. he running light r ime running light r	ector and grou	Ground		Continuity Not existed
ES >> GO TC O >> Repair CHECK DAYTIN eck continuity be Connecto E346 he inspection re ES >> Replac O >> Repair omponent Ins CHECK DAYTIN Turn the ignitic Remove daytir Apply battery v Check continui	0 6. or replace harno /E RUNNING LI etween IPDM E/ IPDM E/R or sult normal? se IPDM E/R. or replace harno spection /E RUNNING LI in switch OFF. ne running light roltage to daytim ty between dayt	IGHT RELAY CO R harness conn Terminal 105 ess. IGHT RELAY relay. he running light r ime running light r	ector and grou	Ind. Ground terminals als.		Continuity Not existed
ES >> GO TC O >> Repair CHECK DAYTIN eck continuity be Connecto E346 he inspection re ES >> Replac O >> Repair omponent Ins CHECK DAYTIN Turn the ignitic Remove daytir Apply battery v Check continui	0 6. or replace harno /E RUNNING LI etween IPDM E/ IPDM E/R or sult normal? se IPDM E/R. or replace harno spection /E RUNNING LI in switch OFF. ne running light roltage to daytim ty between dayt	IGHT RELAY CO R harness conn Terminal 105 ess. IGHT RELAY relay. he running light r ime running light	elay- between t relay termina	und. Ground	1 and 2.	Continuity Not existed
ES >> GO TC O >> Repair CHECK DAYTIN eck continuity be Connecto E346 he inspection re ES >> Replac O >> Repair omponent Ins CHECK DAYTIN Turn the ignitic Remove daytir Apply battery v Check continui	0 6. or replace harno /E RUNNING LI etween IPDM E/ IPDM E/R or sult normal? se IPDM E/R. or replace harno spection /E RUNNING LI in switch OFF. ne running light roltage to daytim ty between dayt	IGHT RELAY CO R harness conn Terminal 105 ess. IGHT RELAY relay. he running light r ime running light r	ector and grou	and. Ground terminals als. adition	1 and 2.	Continuity Not existed INFOID:000

YES >> Daytime running light relay is normal. >> Replace daytime running light relay.

NO

## PARKING LAMP CIRCUIT

## Component Function Check

## **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 <u>EXL-182</u>, "Diagnosis Procedure".

## Diagnosis Procedure

## **1.**CHECK PARKING LAMP FUSE

### 1. Turn ignition switch OFF.

2. Check that the following fuse is not fusing.

Unit	Location	Fuse No.	Capacity
<ul><li>Parking lamp</li><li>Front side marker lamp</li></ul>	IPDM E/R	#52	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
- 2. Check continuity between IPDM E/R harness connector and ground.

IPD	M E/R		Continuity
Connector	Terminal	Ground	Continuity
E346	91	Ground	Not existed
L'340	92		

### 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**

- 1. Disconnect front combination lamp connector.
- 2. Turn ignition 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.

## **EXL-182**

## PARKING LAMP CIRCUIT

## < DTC/CIRCUIT DIAGNOSIS >

## [HALOGEN TYPE]

Connector	5. IPDM E/R. 6 LAMP OPE tch OFF. /I E/R conne between IPI IPDM E/R	ctor.			Test item TAIL Off TAIL Off TAIL Off	(Approx.) Battery voltage 0 V Battery voltage 0 V	
H inspection results inspection results S >> GO TO & >> Replace HECK PARKING Furn ignition swi Disconnect IPDM Check continuity Connect	Ilt normal? 5. IPDM E/R. 6 LAMP OPE tch OFF. 1 E/R conner between IPI IPDM E/R	91 92 EN CIRCUI	T	d LAMPS	L Off TAIL	0 V Battery voltage	
H inspection results S >> GO TO 5 >> Replace HECK PARKING Furn ignition swi Disconnect IPDN Check continuity Connect H	Ilt normal? 5. IPDM E/R. 6 LAMP OPE tch OFF. 1 E/R conner between IPI IPDM E/R	92 EN CIRCUI	T	d LAMPS	TAIL	Battery voltage	
H e inspection results >> GO TO S >> Replace HECK PARKING Furn ignition swith Disconnect IPDM Check continuity Conner H	Ilt normal? 5. IPDM E/R. 6 LAMP OPE tch OFF. 1 E/R conner between IPI IPDM E/R	EN CIRCUI	T				
e inspection resu S >> GO TO & >> Replace HECK PARKING Furn ignition swi Disconnect IPDN Check continuity Conne H	5. IPDM E/R. 6 LAMP OPE tch OFF. /I E/R conne between IPI IPDM E/R	EN CIRCUI		ector and front	Off	0 V	
S >> GO TO S >> Replace HECK PARKING Furn ignition swi Disconnect IPDN Check continuity Conne	5. IPDM E/R. 6 LAMP OPE tch OFF. /I E/R conne between IPI IPDM E/R	ctor.		ector and front			
Conne	IPDM E/R	2,17110			combination lam	o harness connec	
Н					mbination lamp		
	ector	Te	erminal	Connector	Terminal	Continuity	
4	5240		91	E349			
	E346		92	E348	1	Existed	
k continuity bet		ombination	lamp harne	ess connector a	ind ground.		
	onnector		Term	ninal		Continuity	
<u> </u>		349			Ground		
		348	- 2	2		Existed	
			et and harn	ess. Repair or	replace if necess	ary.	

## FRONT SIDE MARKER LAMP CIRCUIT

**Component Function Check** 

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 <u>EXL-182</u>, "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-184, "Diagnosis Procedure".

Diagnosis Procedure

**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 ignition 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	Continuity	
Conr	nector	Terminal	Connector	Terminal	Continuity
RH	E246	91	E321	1	Existed
LH	E346	92	E320		LAISteu

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace harness.

 ${
m 3.}$ CHECK FRONT SIDE MARKER LAMP GROUND OPEN CIRCUIT

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

Front side marker lamp				Continuity	
Connector		Terminal	Ground	Continuity	
RH	E321	2	Ground	Existed	
LH	E320	2		Existed	

Is the inspection result normal?

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

NO >> Repair or replace harness.

INFOID:000000011321578

< DIG/GIRCOIT DIAGNOS	10 /		[····]
TAIL LAMP CIRCUI	Т		
Component Function (	Check		INFOID:000000011321580
1.CHECK TAIL LAMP OPE	RATION		
	IPS" of IPDM E/R active to ems, check that the tail la		
TAIL : Tail Lamp	ON		
Off : Tail lamp	OFF		
Is the inspection result normal           YES         >> Tail lamp circuit in           NO         >> Refer to EXL-18			
Diagnosis Procedure			INFOID:000000011321581
1.CHECK TAIL LAMP FUSE			
<ol> <li>Turn ignition switch OFF</li> <li>Check that the following</li> </ol>			
Unit	Location	Fuse No.	Capacity
<ul><li>Tail lamp</li><li>license plate lamp</li></ul>	IPDM E/R	#53	10 A
		p connector and rear com nector and ground.	bination lamp connector.
IPDN	/ E/R		
Connector	Terminal	Ground	Continuity
E10	7		Not existed
NO >> Repair or replace 3.CHECK TAIL LAMP BULE Check applicable lamp bulb.	Replace IPDM E/R if fusing e harness. And then replace 3		
Is the inspection result normalYES>> GO TO 4.NO>> Replace bulb.	<u>al?</u>		
4. CHECK TAIL LAMP OUT	PUT VOLTAGE		
<ul> <li>CONSULT ACTIVE TEST</li> <li>Disconnect rear combina</li> <li>Turn ignition switch ON.</li> <li>Select "EXTERNAL LAW</li> </ul>	IPS" of IPDM E/R active te	est item.	

4. With operating the test items, check voltage between IPDM E/R harness connector and ground.

< DTC/CIRCUIT DIAGNOSIS >

## TAIL LAMP CIRCUIT

## < DTC/CIRCUIT DIAGNOSIS >

(+) IPDM	(+) IPDM E/R		Test item		Voltage (Approx.)	
Connector	Terminal				()	
E10	7	Ground	EXTERNAL	TAIL	Battery voltage	
E10	I	Ground	LAMPS	Off	0 V	

Is the inspection result normal?

YES >> GO TO 5.

NO >> Replace IPDM E/R.

5. CHECK TAIL LAMP OPEN CIRCUIT

1. Turn ignition switch OFF.

2. Disconnect IPDM E/R connector.

3. Check continuity between IPDM E/R harness connector and rear combination lamp harness connector.

IPDM E/R			Rear comb	Continuity	
Conr	nector	Terminal	Connector	Terminal	Continuity
RH	E10	7	B205	1	Existed
LH	E10	7	B80		LAISteu

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				Continuity	
Con	Connector		Ground	Continuity	
RH	B205	3	Giouna	Existed	
LH	B80	3		LAISLEU	

Is the inspection result normal?

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

NO >> Repair or replace harness.

## LICENSE PLATE LAMP CIRCUIT

< DTC/CIRCUIT DI	AGNOSIS >				[HALOGEN TYPE]
LICENSE PLA	TE LAMP	CIRCUIT			
Component Fur	nction Check	< C			INFOID:000000011321582
1.CHECK TAIL LAI	MP OPERATIO	N			
Check that the tail la	amp is turned C	N.			
Is the inspection res					
YES >> GO TO					
-			, "Component Fur	nction Check".	
2.CHECK LICENS	E PLATE LAMF	P OPERATION			
	NAL LAMPS" of	f IPDM E/R active ch, check that the	test item. license plate lamp	o is turned ON.	
TAIL : L	icense plate la	amp ON			
Off : L	icense plate la	mp OFF			
Is the inspection res	ult normal?				
	plate lamp circ	uit is normal. gnosis Procedure	п		
Diagnosis Proce					INFOID:000000011321583
1.CHECK LICENS	E PLATE LAMF	P BULB			
Check the applicable	e lamp bulb.				
ls the inspection res	•				
YES >> GO TO	2.				
NO >> Replace					
2. CHECK LICENS	E PLATE LAMF	POPEN CIRCUIT			
<ol> <li>Turn ignition sw</li> <li>Disconnect IPD</li> <li>Check continuit</li> </ol>	M E/R connected	or and license plat M E/R harness co	te lamp connector. nnector and licens	e plate lamp ha	rness connector.
	IPDM E/R		License p	olate lamp	Quality
Conne	ctor	Terminal	Connector	Terminal	Continuity
			D163		
RH	E10	7	D103	1	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace harness.

 $\mathbf{3.}$ CHECK LICENSE PLATE LAMP GROUND OPEN CIRCUIT

Check continuity between license plate lamp harness connector and ground.

	License plate lan	np		Continuity	-	
	Connector	Terminal	Ground	Continuity	B	
RH	D163	2	Giouna	Eviptod	— P	
LH	D162	Ζ		Existed		

Is the inspection result normal?

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

NO >> Repair or replace harness. Ν

## TURN SIGNAL LAMP CIRCUIT

Component Function Check

## 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-188, "Diagnosis Procedure".

## Diagnosis Procedure

**1.**CHECK TURN SIGNAL LAMP

(E)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

### Which turn signal lamp does not turn ON?

Side turn signal lamp>>GO TO 3.

Other than side turn signal lamp>>GO TO 2.

2.CHECK TURN SIGNAL LAMP BULB

Check the applicable lamp bulb.

Is the inspection result normal?

YES >> GO TO 3.

NO >> Replace bulb.

 $\mathbf{3.}$  CHECK TURN SIGNAL LAMP OUTPUT VOLTAGE

1. Turn ignition switch OFF.

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

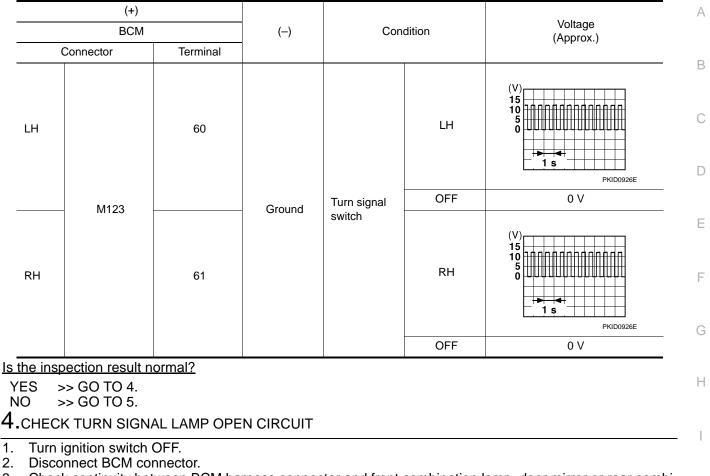
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## **TURN SIGNAL LAMP CIRCUIT**

### < DTC/CIRCUIT DIAGNOSIS >

[HALOGEN TYPE]



3. Check continuity between BCM harness connector and front combination lamp, door mirror or rear combination lamp harness connector.

Front turn signal lamp

BCM			Front comb	ination lamp	Continuity	K
C	Connector	Terminal	Connector	Terminal	Continuity	IX.
RH	M123	61	E349	2	Existed	
LH	101123	60	E348		Existed	EXL

Side turn signal lamp

BCM			Door	Door mirror		-
Connector		Terminal	Connector	Terminal	Continuity	
Passenger side	M123	61	D3	20	Existed	-
Driver side	101123	60	D43	20	Existed	_

Rear turn signal lamp

	BCM	Rear combination lamp		Continuity	•	
	Connector	Terminal	Connector	Terminal	Continuity	С
RH	M123	61	B205	4	Existed	-
LH	IVI123	60	B80	4	Existed	

Is the inspection result normal?

YES >> GO TO 6.

NO >> Repair or replace harness.

5. CHECK TURN SIGNAL LAMP SHORT CIRCUIT

Check continuity between BCM harness connector and ground.

J

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## **TURN SIGNAL LAMP CIRCUIT**

### < DTC/CIRCUIT DIAGNOSIS >

## [HALOGEN TYPE]

	BCM		Continuity	
Conr	nector	Terminal	Ground	Continuity
RH	M123	61	Giouna	Not existed
LH	WIT25	60		Not existed

## Is the inspection result normal?

- YES-1 >> (When side turn signal lamp does not turn ON) Replace BCM. Refer to <u>BCS-98, "Removal and</u> <u>Installation"</u>.
- YES-2 >> (When lamp other than side turn signal lamp does not turn ON) Check each bulb socket for internal short circuit, and if check result is normal, replace BCM. Refer to <u>BCS-98</u>, "<u>Removal and</u> <u>Installation</u>".
- NO >> Repair or replace harness.

### **6.**CHECK TURN SIGNAL LAMP GROUND OPEN CIRCUIT

Check continuity between BCM harness connector and front combination lamp, door mirror or rear combination lamp and ground.

Front turn signal lamp

	Front con	nbination lamp			Continuity	
Connector			Terminal	Ground	Continuity	
RH	E349		2	Ground	Eviated	
LH E348			2		Existed	
turn signal la	amp					
		Door mirror			Continuity	
Connector			Terminal	Ground	Continuity	
Passenger side D3		D3		Giouna	Existed	
Driver side		D43	19		Existed	
r turn signal la	amp					
	Rear con	nbination lamp			Continuity	
Connector		Terminal	Ground	Continuity		
RH B205		3	Ground	Evistod		
LH B80		3		Existed		

YES-1 >> (When side turn signal lamp does not turn ON) Replace door mirror assembly.

YES-2 >> (When lamp other than side turn signal lamp does not turn ON) Check corresponding bulb socket and harness. Repair or replace if necessary.

NO >> Repair or replace harness.

## FRONT FOG LAMP CIRCUIT

RONT FO						
omponent F	Function Che	eck				INFOID:000000011321586
.CHECK FRO	NT FOG LAMP	OPERATION				
	TIVE TEST ERNAL LAMPS ng the test items				I.	
Fog Off	: Front fog lan : Front fog lan	-				
the measurem YES >> Fron NO >> Refe	i <u>ent normal?</u> It fog lamp circu er to <u>EXL-191, "I</u>	it is normal. Diagnosis Proce	edure".			
iagnosis Pro						INFOID:000000011321587
.CHECK FRO	NT FOG LAMP	BULB				
theck the applic the inspection YES >> GO						
	lace bulb. NT FOG LAMP	OUTPUT VOLT	AGE			
CONSULT AC	TIVE TEST					
CONSULT AC Turn ignition Disconnect f Turn ignition Select "EXT	TIVE TEST switch OFF. front fog lamp co	" of IPDM E/R a			ness connect	or and ground.
CONSULT AC Turn ignition Disconnect f Turn ignition Select "EXT	TIVE TEST switch OFF. ront fog lamp co switch ON. ERNAL LAMPS	" of IPDM E/R a			ness connect	
CONSULT AC Turn ignition Disconnect f Turn ignition Select "EXT With operation	CTIVE TEST switch OFF. front fog lamp co switch ON. ERNAL LAMPS ng the test items (+) IPDM E/R	" of IPDM E/R a s, check the vol		IPDM E/R har	ness connect	or and ground. Voltage (Approx.)
CONSULT AC Turn ignition Disconnect f Turn ignition Select "EXT With operation	TIVE TEST switch OFF. front fog lamp co switch ON. ERNAL LAMPS ng the test items (+)	" of IPDM E/R a	tage between	IPDM E/R har	st item	Voltage (Approx.)
CONSULT AC Turn ignition Disconnect f Turn ignition Select "EXT With operation	CTIVE TEST switch OFF. front fog lamp co switch ON. ERNAL LAMPS ng the test items (+) IPDM E/R	" of IPDM E/R a s, check the vol	tage between	IPDM E/R har		Voltage (Approx.) Battery voltage
CONSULT AC Turn ignition Disconnect f Turn ignition Select "EXT With operation Con	CTIVE TEST switch OFF. front fog lamp co switch ON. ERNAL LAMPS ng the test items (+) IPDM E/R	" of IPDM E/R a s, check the vol Terminal 86	tage between	IPDM E/R har	st item Fog Off	Voltage (Approx.)
CONSULT AC Turn ignition Disconnect f Turn ignition Select "EXT With operation	CTIVE TEST switch OFF. iront fog lamp cc switch ON. ERNAL LAMPS ng the test items (+) IPDM E/R	" of IPDM E/R a s, check the vol	tage between	EXTERNAL	st item	Voltage (Approx.) Battery voltage 0 V
CONSULT AC Turn ignition Disconnect f Turn ignition Select "EXT With operation RH LH LH YES >> GO NO >> Rep	TIVE TEST switch OFF. front fog lamp cc switch ON. ERNAL LAMPS ing the test items (+) IPDM E/R nector E345 result normal? TO 3. lace IPDM E/R. NT FOG LAMP	" of IPDM E/R a s, check the vol Terminal 86 87	(-) Ground	EXTERNAL	st item Fog Off Fog	Voltage (Approx.) Battery voltage 0 V Battery voltage
CONSULT AC Turn ignition Disconnect f Turn ignition Select "EXT With operation With operation Con RH LH LH LH the inspection YES >> GO NO >> Rep CHECK FRO	TIVE TEST switch OFF. front fog lamp co switch ON. ERNAL LAMPS ing the test items (+) IPDM E/R nector E345 result normal? TO 3. lace IPDM E/R. NT FOG LAMP switch OFF. PDM E/R conne nuity between IF	" of IPDM E/R a s, check the vol Terminal 86 87 OPEN CIRCUI PDM E/R harnes	(-) Ground	EXTERNAL LAMPS	st item Fog Off Fog Off	Voltage (Approx.)       Battery voltage       0 V       Battery voltage       0 V
CONSULT AC Turn ignition Disconnect f Turn ignition Select "EXT With operation With operation RH LH LH the inspection YES >> GO NO >> Rep CHECK FRO	TIVE TEST switch OFF. front fog lamp cc switch ON. ERNAL LAMPS ing the test items (+) IPDM E/R mector E345 E345 result normal? TO 3. lace IPDM E/R. NT FOG LAMP switch OFF. PDM E/R conne nuity between IF	of IPDM E/R a s, check the vol Terminal 86 87 OPEN CIRCUI ector. DM E/R harnes	(-) Ground	A IPDM E/R har	st item Fog Off Fog Off Off mp harness o	Voltage (Approx.)       Battery voltage       0 V       Battery voltage       0 V
CONSULT AC Turn ignition Disconnect f Turn ignition Select "EXT With operation RH LH LH the inspection YES >> GO NO >> Rep CHECK FRO Disconnect I Check contin	TIVE TEST switch OFF. front fog lamp co switch ON. ERNAL LAMPS ing the test items (+) IPDM E/R nector E345 result normal? TO 3. lace IPDM E/R. NT FOG LAMP switch OFF. PDM E/R conne nuity between IF	of IPDM E/R a s, check the vol Terminal 86 87 OPEN CIRCUI ector. DM E/R harnes Commentational PDM E/R harnes	(-) Ground	A IPDM E/R har	st item Fog Off Fog Off Off	Voltage (Approx.) Battery voltage 0 V Battery voltage 0 V
CONSULT AC Turn ignition Disconnect f Turn ignition Select "EXT With operation With operation RH LH LH the inspection YES >> GO NO >> Rep CHECK FRO	TIVE TEST switch OFF. front fog lamp cc switch ON. ERNAL LAMPS ing the test items (+) IPDM E/R mector E345 E345 result normal? TO 3. lace IPDM E/R. NT FOG LAMP switch OFF. PDM E/R conne nuity between IF	of IPDM E/R a s, check the vol Terminal 86 87 OPEN CIRCUI ector. DM E/R harnes	(-) Ground	A IPDM E/R har	st item Fog Off Fog Off Off mp harness o	Voltage (Approx.) Battery voltage 0 V Battery voltage 0 V

Revision: 2014 August

< DTC/CIRCUIT DIAGNOSIS >

## FRONT FOG LAMP CIRCUIT

## < DTC/CIRCUIT DIAGNOSIS >

### NO >> Repair or replace harness.

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

### Check continuity between front fog lamp harness connector and ground.

	Front fog lamp		Continuity		
Con	nector	Terminal	Ground	Continuity	
RH	E402	2	Gibuna	Existed	
LH	E331	Ζ.		Existed	

Is the inspection result normal?

YES >> Refer to GI-42, "Intermittent Incident".

NO >> Repair or replace harness.

## **OPTICAL SENSOR**

## [HALOGEN TYPE]

< DTC/CIRCUIT DIAG			[HALOGEN TYPE
OPTICAL SENS			L
_	_		
Component Funct			INFOID:0000000113218
<b>1.</b> CHECK OPTICAL S	SENSOR SIGNAL	BY CONSULT	
<ol> <li>Turn ignition switch</li> <li>Select "OPTISEN (</li> </ol>		HEADLAMP) data monitor item.	
<ol> <li>Turn lighting switch</li> <li>With the optical se</li> </ol>		check the monitor status.	
	risor murminating, t		
Monitor item		Condition	Voltage (Approx.)
OPTISEN (DTCT)	Optical sensor	When illuminating	3.1 V or more *
OF HSEN (DICT)	Optical sensor	When shutting off light	0.6 V or less
		e less than the standard value if brightne	ess is weak.
s the inspection result			
	nsor is normal. XL-193, "Diagnosi	is Procedure".	
Diagnosis Proced	-	<u></u> .	
	uie		INFOID:000000011321
<b>1.</b> CHECK OPTICAL S	SENSOR POWER	SUPPLY INPUT	
1. Turn ignition switch	h ON.		
5 5			
5 5		or harness connector and groun	d.
5 5	ween optical sense	or harness connector and groun	d.
<ol> <li>Check voltage betw</li> </ol>	(+)		Voltage
3. Check voltage betv	ween optical sense	(-)	
<ol> <li>Check voltage betv</li> <li>Optic</li> </ol>	(+) cal sensor	(-)	Voltage
3. Check voltage betv Optic	(+) cal sensor Terminal	(-)	Voltage (Approx.)
3. Check voltage betw Optic Connector M17 s the inspection result YES >> GO TO 2.	(+) cal sensor Terminal	(-)	Voltage (Approx.)
3. Check voltage betw Optic Connector M17 <u>s the inspection result</u> YES >> GO TO 2. NO >> GO TO 4.	ween optical sense (+) cal sensor Terminal 1 normal?	(–) Ground	Voltage (Approx.)
3. Check voltage betw Optic Connector M17 <u>s the inspection result</u> YES >> GO TO 2. NO >> GO TO 4. 2.CHECK OPTICAL S	ween optical sense (+) cal sensor Terminal 1 normal? SENSOR GROUN	(-) Ground	Voltage (Approx.)
3. Check voltage betw Optic Connector M17 <u>s the inspection result</u> YES >> GO TO 2. NO >> GO TO 4. 2.CHECK OPTICAL S	ween optical sense (+) cal sensor Terminal 1 normal? SENSOR GROUN	(–) Ground	Voltage (Approx.)
3. Check voltage betw Optic Connector M17 <u>s the inspection result</u> YES >> GO TO 2. NO >> GO TO 4. 2.CHECK OPTICAL S	ween optical sense (+) cal sensor Terminal 1 normal? SENSOR GROUN n optical sensor ha	(-) Ground	Voltage (Approx.)
3. Check voltage betw Optic Connector M17 s the inspection result YES >> GO TO 2. NO >> GO TO 4. 2.CHECK OPTICAL S Check voltage betweer	ween optical sense (+) cal sensor Terminal 1 normal? SENSOR GROUN n optical sensor ha (+)	(-) Ground D INPUT arness connector and ground.	Voltage (Approx.) 5 V
3. Check voltage betw Optic Connector M17 s the inspection result YES >> GO TO 2. NO >> GO TO 4. 2.CHECK OPTICAL S Check voltage betweer	ween optical sense (+) cal sensor Terminal 1 normal? SENSOR GROUN n optical sensor ha	(-) Ground D INPUT arness connector and ground.	Voltage (Approx.) 5 V
3. Check voltage betw Option Connector M17 S the inspection result YES >> GO TO 2. NO >> GO TO 4. 2.CHECK OPTICAL S Check voltage betweer Option	ween optical sense (+) cal sensor Terminal 1 normal? SENSOR GROUN n optical sensor ha (+) cal sensor	(-) Ground D INPUT arness connector and ground.	Voltage (Approx.) 5 V
3. Check voltage betw Option Connector M17 S the inspection result YES >> GO TO 2. NO >> GO TO 2. NO >> GO TO 4. 2.CHECK OPTICAL S Check voltage betweer Option Connector M17	ween optical sense (+) cal sensor Terminal 1 normal? SENSOR GROUN n optical sensor ha (+) cal sensor (+) cal sensor Terminal 3	(-) Ground D INPUT arness connector and ground.	Voltage (Approx.) 5 V Voltage (Approx.)
3. Check voltage betw Optic Connector M17 s the inspection result YES >> GO TO 2. NO >> GO TO 4. 2.CHECK OPTICAL S Check voltage betweer Optic Connector	ween optical sense (+) cal sensor Terminal 1 normal? SENSOR GROUN n optical sensor ha (+) cal sensor (+) cal sensor Terminal 3	(-) Ground D INPUT arness connector and ground.	Voltage (Approx.) 5 V Voltage (Approx.)
3. Check voltage betw Optic Connector M17 <u>s the inspection result</u> YES >> GO TO 2. NO >> GO TO 2. NO >> GO TO 4. <b>2.</b> CHECK OPTICAL S Check voltage betweer Optic Connector M17 <u>s the inspection result</u> YES >> GO TO 3. NO >> GO TO 6.	ween optical sense (+) cal sensor Terminal 1 normal? SENSOR GROUN n optical sensor ha (+) cal sensor (+) cal sensor Terminal 3 normal?	(-) Ground D INPUT arness connector and ground. (-) Ground	Voltage (Approx.) 5 V Voltage (Approx.)
3. Check voltage betw Optic Connector M17 s the inspection result YES >> GO TO 2. NO >> GO TO 4. 2.CHECK OPTICAL S Check voltage betweer Optic Connector M17 s the inspection result YES >> GO TO 3.	ween optical sense (+) cal sensor Terminal 1 normal? SENSOR GROUN n optical sensor ha (+) cal sensor (+) cal sensor Terminal 3 normal?	(-) Ground D INPUT arness connector and ground. (-) Ground	Voltage (Approx.) 5 V Voltage (Approx.)

## **OPTICAL SENSOR**

## < DTC/CIRCUIT DIAGNOSIS >

	(+) Optical sensor		Condition		Voltage (Approx.)	
Connector	Terminal				(, , , , , , , , , , , , , , , , , , ,	
M17	2	Ground	Optical sensor	When illuminating	3.1 V or more *	
11117	2	Ground	Optical sensor	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 ignition switch OFF.

2. Disconnect optical sensor connector and BCM connector.

3. Check continuity between optical sensor harness connector and BCM harness connector.

Optica	l sensor	B	Continuity		
Connector	Terminal	Connector	Terminal	Continuity	
M17	1	M121	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		Continuity
Connector	Connector Terminal		Continuity
M17	1		Not existed

Is the inspection result normal?

YES >> Replace BCM. Refer to <u>BCS-98, "Removal and Installation"</u>.

NO >> Repair or replace harness.

## $\mathbf{6}.$ CHECK OPTICAL SENSOR GROUND OPEN CIRCUIT

1. Turn ignition switch OFF.

2. Disconnect optical sensor connector and BCM connector.

3. Check continuity between optical sensor harness connector and BCM harness connector.

Optica	Optical sensor		BCM		
Connector	Terminal	Connector Terminal		Continuity	
M17	3	M121	18	Existed	

Is the inspection result normal?

YES >> Replace BCM. Refer to <u>BCS-98, "Removal and Installation"</u>.

NO >> Repair or replace harness.

## 7. CHECK OPTICAL SENSOR SIGNAL OPEN CIRCUIT

1. Turn ignition 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 >

## [HALOGEN TYPE]

Connector	Optical sensor BCM		Μ	Continuity	
Connector	Terminal	Connector	Terminal	Continuity	
M17	2	M121	14	Existed	
IECK OPTICAL	replace harness. SENSOR SHORT C	IRCUIT	l ground.		
Opt	ical sensor				
Connector	Terminal	G	round	Continuity	
M17	2			Not existed	
nspection resul					

## < DTC/CIRCUIT DIAGNOSIS >

## HAZARD SWITCH

## Component Function Check

1.CHECK HAZARD SWITCH SIGNAL BY CONSULT

CONSULT DATA MONITOR

1. Turn ignition switch ON.

2. Select "HAZARD SW" of BCM (FLASHER) data monitor item.

3. With operating the hazard switch, check the monitor status.

Monitor item	Con	Monitor status	
HAZARD SW H	Hazard switch	ON	On
		OFF	Off

Is the inspection result normal?

YES >> Hazard switch circuit is normal.

NO >> Refer to <u>EXL-196</u>, "Diagnosis Procedure".

## Diagnosis Procedure

INFOID:000000011321591

## 1. CHECK HAZARD SWITCH SIGNAL INPUT

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

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

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.

Hazaro	d switch	BCM		Continuity
Connector	Terminal	Connector	Terminal	Continuity
M45	2	M121	29	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace harness.

 ${
m 3.}$ CHECK HAZARD SWITCH SIGNAL SHORT CIRCUIT

Check continuity between hazard switch harness connector and ground.

Hazard switch			Continuity
Connector	Terminal	Ground	Continuity
M45	2		Not existed

Is the inspection result normal?

YES >> Replace BCM. Refer to <u>BCS-98, "Removal and Installation"</u>.

NO >> Repair or replace harness.

## < DTC/CIRCUIT DIAGNOSIS >

## [HALOGEN TYPE]

## 4. CHECK HAZARD SWITCH GROUND OPEN CIRCUIT

## Check continuity between hazard switch harness connector and ground.

Hazard switch			Orantinuitu
Connector	Terminal	Ground	Continuity
M45	1		Existed
the inspection result norr	mal?		
YES >> Replace hazar NO >> Repair or repla	d switch. Ice harness.		

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< SYMPTOM DIAGNOSIS >

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

WITHOUT DAYTIME RUNNING LIGHT SYSTEM : Symptom Table

INFOID:000000011321592

### **CAUTION:**

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

Sym	ptom	Possible cause	Inspection item	
Headlamp (HI) is not turned ON.	One side	<ul> <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 <u>EXL-174, "WITHOUT DAY</u> <u>TIME RUNNING LIGHT SYSTEM :</u> <u>Component Function Check"</u> .	
	Both sides	Symptom diagnosis "BOTH SIDE HEADLAMPS (HI) ARE NOT TURNED ON" Refer to EXL-204. "WITHOUT DAYTIME RUNNING LIGHT SYS Diagnosis Procedure".		
High beam indicator lamp [Headlamp (HI) is turned (		Combination meter	<ul> <li>Combination meter Data monitor "HI-BEAM IND"</li> <li>BCM (HEAD LAMP) Active test "HEADLAMP"</li> </ul>	
Headlamp (LO) is not turned ON.	One side	<ul> <li>Fuse</li> <li>Halogen 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 <u>EXL-178, "Component</u> <u>Function Check"</u> .	
	Both sides	Symptom diagnosis "BOTH SIDE HEADLAMPS (LO) ARE NOT TURNED ON" Refer to <u>EXL-206, "Diagnosis Procedure"</u> .		
Each lamp is not turned O	N/OFF with lighting switch	<ul> <li>Combination switch</li> <li>Harness between combination switch and BCM</li> <li>BCM</li> </ul>	Combination switch Refer to <u>BCS-96, "Symptom Table"</u>	
AUTO.		<ul> <li>Optical sensor</li> <li>Harness between optical sensor and BCM</li> <li>BCM</li> </ul>	Optical sensor Refer to <u>EXL-193, "Component</u> <u>Function Check"</u> .	
Parking lamp is not turned ON.		<ul> <li>Fuse</li> <li>Parking lamp bulb</li> <li>Harness between IPDM E/R and front combination lamp</li> <li>Harness between front combi- nation lamp and ground</li> <li>IPDM E/R</li> </ul>	Parking lamp circuit Refer to <u>EXL-182, "Component</u> <u>Function Check"</u> .	
Front side marker lamp is not turned ON.		<ul> <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> </ul>	Front side marker lamp circuit Refer to <u>EXL-184, "Component</u> <u>Function Check"</u> .	

### < SYMPTOM DIAGNOSIS >

## [HALOGEN TYPE]

Symp	otom	Possible cause	Inspection item
Tail lamp (Rear side marke	er lamp) is not turned ON.	<ul> <li>Fuse</li> <li>Tail lamp bulb</li> <li>Harness between IPDM E/R and rear combination lamp</li> <li>Harness between rear combi- nation lamp and ground</li> <li>IPDM E/R</li> </ul>	Tail lamp circuit Refer to <u>EXL-185, "Component</u> <u>Function Check"</u> .
License plate lamp is not to	urned ON.	<ul> <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 <u>EXL-187, "Component</u> <u>Function Check"</u> .
Parking lamp, side marker cense plate lamp are not tr		Symptom diagnosis "PARKING, SIDE MARKER, LICEN NOT TURNED ON" Refer to <u>EXL-207, "Diagnosis Proc</u>	NSE PLATE AND TAIL LAMPS ARE
Tail lamp indicator is not tu (Exterior lamps are turned		Combination meter	<ul> <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 nor- mal. (Applicable side per- forms high flasher acti- vation.)	<ul> <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 sig- nal lamp and ground</li> </ul>	Turn signal lamp circuit Refer to <u>EXL-188, "Component</u> <u>Function Check"</u> .
	Indicator lamp is includ- ed.	<ul> <li>Combination switch</li> <li>Harness between combination switch and BCM</li> <li>BCM</li> </ul>	Combination switch Refer to <u>BCS-96, "Symptom Table"</u>
	One side	Combination meter	
Turn signal indicator lamp does not blink.	Both sides (Always)	<ul> <li>Turn signal indicator lamp signal</li> <li>BCM</li> <li>Combination meter</li> </ul>	<ul> <li>Combination meter Data monitor "TURN IND"</li> <li>BCM (FLASHER) Active test "FLASHER"</li> </ul>
(Turn signal lamp is nor- mal.)	Both sides (Only when activating hazard warning lamp with ignition switch OFF)	<ul> <li>Combination meter power supply and ground circuit</li> <li>Combination meter</li> </ul>	Combination meter Power supply and ground circuit Refer to <u>MWI-71, "COMBINATION</u> <u>METER : Diagnosis Procedure"</u> .
<ul> <li>Hazard warning lamp do</li> <li>Hazard warning lamp co</li> <li>(Turn signal is normal.)</li> </ul>		<ul> <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 <u>EXL-196, "Component</u> <u>Function Check"</u> .
Front fog lamp is not turned ON.	One side	<ul> <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 <u>EXL-191, "Component</u> <u>Function Check"</u> .
	Both sides	Symptom diagnosis "BOTH SIDE FRONT FOG LAMPS Refer to <u>EXL-208, "Description"</u> .	S ARE NOT TURNED ON"

## WITH DAYTIME RUNNING LIGHT SYSTEM

< SYMPTOM DIAGNOSIS >

## WITH DAYTIME RUNNING LIGHT SYSTEM : Symptom Table

[HALOGEN TYPE]

#### INFOID:000000011321593

### **CAUTION:**

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

Sym	ptom	Possible cause	Inspection item	
	One side	<ul> <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 <u>EXL-175, "WITH DAYTIME</u> <u>RUNNING LIGHT SYSTEM : Com-</u> ponent Function Check".	
Headlamp (HI) is not turned ON.		<ul> <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 <u>EXL-180, "Component</u> <u>Function Check"</u> .	
	Both sides	Symptom diagnosis "BOTH SIDE HEADLAMPS (HI) ARE NOT TURNED ON" Refer to EXL-204, "WITH DAYTIME RUNNING LIGHT SYSTEM nosis Procedure".		
High beam indicator lamp [Headlamp (HI) is turned		Combination meter	<ul> <li>Combination meter Data monitor "HI-BEAM IND"</li> <li>BCM (HEAD LAMP) Active test "HEADLAMP"</li> </ul>	
Headlamp (LO) is not turned ON.	One side	<ul> <li>Fuse</li> <li>Halogen 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 <u>EXL-180, "Component</u> <u>Function Check"</u> .	
	Both sides	Symptom diagnosis "BOTH SIDE HEADLAMPS (LO) ARE NOT TURNED ON" Refer to EXL-206, "Diagnosis Procedure".		
Each lamp is not turned O	N/OFF with lighting switch	<ul> <li>Combination switch</li> <li>Harness between combination switch and BCM</li> <li>BCM</li> </ul>	Combination switch Refer to <u>BCS-96, "Symptom Table"</u>	
AUTO.		<ul> <li>Optical sensor</li> <li>Harness between optical sensor and BCM</li> <li>BCM</li> </ul>	Optical sensor Refer to EXL-193, "Component Function Check".	
Daytime running light is not turned ON. [Headlamp (HI) is turned ON.]		<ul> <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> <li>Daytime running light relay circuit Refer to <u>EXL-180, "Component</u> <u>Function Check"</u>.</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> <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 <u>EXL-182, "Component</u> <u>Function Check"</u> .	

## < SYMPTOM DIAGNOSIS >

## [HALOGEN TYPE]

Symp	tom	Possible cause	Inspection item
Front side marker lamp is not turned ON.		<ul> <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 <u>EXL-184. "Component</u> <u>Function Check"</u> .
Tail lamp (Rear side marke	r lamp) is not turned ON.	<ul> <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 <u>EXL-185, "Component</u> <u>Function Check"</u> .
License plate lamp is not tu	irned ON.	<ul> <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 <u>EXL-187, "Component</u> <u>Function Check"</u> .
Parking lamp, side marker cense plate lamp are not tu		Symptom diagnosis "PARKING, SIDE MARKER, LICEN NOT TURNED ON" Refer to <u>EXL-207, "Diagnosis Proc</u>	NSE PLATE AND TAIL LAMPS ARE
Tail lamp indicator is not tu (Exterior lamps are turned		Combination meter	<ul> <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 nor- mal. (Applicable side per- forms high flasher acti- vation.)	<ul> <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 sig- nal lamp and ground</li> </ul>	Turn signal lamp circuit Refer to <u>EXL-188, "Component</u> <u>Function Check"</u> .
	Indicator lamp is includ- ed.	<ul> <li>Combination switch</li> <li>Harness between combination switch and BCM</li> <li>BCM</li> </ul>	Combination switch Refer to <u>BCS-96, "Symptom Table"</u> .
	One side	Combination meter	_
Turn signal indicator lamp does not blink.	Both sides (Always)	<ul> <li>Turn signal indicator lamp signal</li> <li>BCM</li> <li>Combination meter</li> </ul>	<ul> <li>Combination meter Data monitor "TURN IND"</li> <li>BCM (FLASHER) Active test "FLASHER"</li> </ul>
(Turn signal lamp is nor- mal.)	Both sides (Only when activating hazard warning lamp with ignition switch OFF)	<ul> <li>Combination meter power supply and ground circuit</li> <li>Combination meter</li> </ul>	Combination meter Power supply and ground circuit Refer to <u>MWI-71, "COMBINATION</u> <u>METER : Diagnosis Procedure"</u> .
<ul> <li>Hazard warning lamp does not activate.</li> <li>Hazard warning lamp continues activating. (Turn signal is normal.)</li> </ul>		<ul> <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 <u>EXL-196, "Component</u> <u>Function Check"</u> .

## < SYMPTOM DIAGNOSIS >

## [HALOGEN TYPE]

Symptom		Possible cause	Inspection item
Front fog lamp is not turned ON.	One side	<ul> <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 <u>EXL-191, "Component</u> <u>Function Check"</u> .
	Both sides	Symptom diagnosis "BOTH SIDE FRONT FOG LAMPS ARE NOT TURNED ON" Refer to <u>EXL-208, "Diagnosis Procedure"</u> .	

## < SYMPTOM DIAGNOSIS > NORMAL OPERATING CONDITION

## Description

## 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 causes for the control difference. This is normal.

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

< SYMPTOM DIAGNOSIS >

# BOTH SIDE HEADLAMPS (HI) ARE NOT TURNED ON WITH DAYTIME RUNNING LIGHT SYSTEM

## WITH DAYTIME RUNNING LIGHT SYSTEM : Description

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

WITH DAYTIME RUNNING LIGHT SYSTEM : Diagnosis Procedure

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[HALOGEN TYPE]

**1**.COMBINATION SWITCH INSPECTION

Check combination switch. Refer to <u>BCS-96, "Symptom Table"</u>.

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

T. 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	HI or PASS	On
	(2ND)	LO	Off

Is the inspection result normal?

YES >> GO TO 3.

NO >> Replace BCM. Refer to <u>BCS-98</u>, "Removal and Installation".

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

Check headlamp (HI) circuit. Refer to EXL-175, "WITH DAYTIME RUNNING LIGHT SYSTEM : Component Function Check".

Is the inspection result normal?

YES >> Refer to <u>GI-42, "Intermittent Incident"</u>.

NO >> Repair or replace the malfunctioning part.

## WITHOUT DAYTIME RUNNING LIGHT SYSTEM

## WITHOUT DAYTIME RUNNING LIGHT SYSTEM : Description

INFOID:0000000011321597

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

WITHOUT DAYTIME RUNNING LIGHT SYSTEM : Diagnosis Procedure

**1.**COMBINATION SWITCH INSPECTION

Check combination switch. Refer to <u>BCS-96, "Symptom Table"</u>.

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	HI or PASS	On
	(2ND)	LO	Off

BOTH SIDE HEADLAMPS (HI) ARE NOT TUF	
< SYMPTOM DIAGNOSIS >	[HALOGEN TYPE]
Is the inspection result normal?	
YES >> GO TO 3. NO >> Replace BCM. Refer to <u>BCS-98, "Removal and Installation"</u> .	A
<b>3.</b> HEADLAMP (HI) CIRCUIT INSPECTION	
Check headlamp (HI) circuit. Refer to <u>EXL-174, "WITHOUT DAYTIME RUNNI</u> nent Function Check".	NG LIGHT SYSTEM : Compo-
Is the inspection result normal?	С
YES >> Refer to <u>GI-42, "Intermittent Incident"</u> . NO >> Repair or replace the malfunctioning part.	0
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## BOTH SIDE HEADLAMPS (LO) ARE NOT TURNED ON

### < SYMPTOM DIAGNOSIS >

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

## Description

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

## Diagnosis Procedure

**1.**CHECK COMBINATION SWITCH

Check combination switch. Refer to <u>BCS-96, "Symptom Table"</u>.

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 Lighti	Lighting switch	2ND	On
		OFF	Off

Is the inspection result normal?

YES >> GO TO 3.

NO >> Replace BCM. Refer to <u>BCS-98</u>, "Removal and Installation".

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

Check headlamp (LO) circuit. Refer to EXL-178, "Component Function Check".

Is the inspection result normal?

YES >> Refer to <u>GI-42, "Intermittent Incident"</u>.

NO >> Repair or replace the malfunctioning part.

[HALOGEN TYPE]

INFOID:000000011321599

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

# <u>SYMPTOM DIAGNOSIS > [HALOGEN TYPE]</u> PARKING, LICENSE PLATE, SIDE MARKER AND TAIL LAMPS ARE NOT TURNED ON

Description	В
The parking, license plate, side marker, tail lamps and each illumination are not turned ON in any condition.	
Diagnosis Procedure	С
1.COMBINATION SWITCH INSPECTION	
Check combination switch. Refer to <u>BCS-96, "Symptom Table"</u> . Is the combination switch normal?	D
YES >> GO TO 2. NO >> Repair or replace the malfunctioning part. 2.CHECK TAIL LAMP RELAY REQUEST SIGNAL INPUT	E

(E)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	G
TAIL & CLR REQ	Lighting switch	1ST	On	
	Lighting switch	OFF	Off	Ц

Is the inspection result normal?

YES >> Replace IPDM E/R.

NO >> Replace BCM. Refer to <u>BCS-98. "Removal and Installation"</u>.

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## BOTH SIDE FRONT FOG LAMPS ARE NOT TURNED ON

## < SYMPTOM DIAGNOSIS >

## BOTH SIDE FRONT FOG LAMPS ARE NOT TURNED ON

## Description

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

## **Diagnosis Procedure**

**1.**CHECK FRONT FOG LAMP FUSE

### 1. Turn ignition switch OFF.

2. Check that the following fuse is not fusing.

Unit	Location	Fuse No.	Capacity
Front fog lamp	IPDM E/R	#58	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			Continuity	
Conr	nector	Terminal	Ground	Continuity
RH	E345	86	Giouna	Not existed
LH	E345	87	]	NUL EXISTED

### 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.**COMBINATION SWITCH INSPECTION

Check combination switch. Refer to BCS-96, "Symptom Table".

### Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace the malfunctioning part.

**4.**CHECK FRONT FOG LAMP REQUEST SIGNAL INPUT

### **(E)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	ON	On
	(With lighting switch 2ND)	OFF	Off

### Is the item status normal?

YES >> GO TO 5.

NO >> Replace BCM. Refer to <u>BCS-98, "Removal and Installation"</u>.

## **5.**FRONT FOG LAMP CIRCUIT INSPECTION

Check the front fog lamp circuit. Refer to EXL-191, "Component Function Check".

Is the inspection result normal?

YES >> Refer to GI-42, "Intermittent Incident".

NO >> Repair or replace the malfunctioning part.

[HALOGEN TYPE]

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# < PERIODIC MAINTENANCE > PERIODIC MAINTENANCE HEADLAMP AIMING ADJUSTMENT

## Description

## 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 front combination lamp assembly has been replaced.

### Before performing aiming adjustment, check the following.

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

NOTE:

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

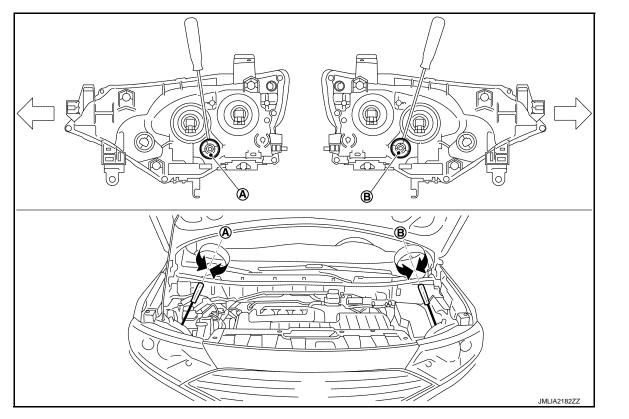
• Wipe out dirt on the headlamp.

## 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

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

## HEADLAMP AIMING ADJUSTMENT

### < PERIODIC MAINTENANCE >

## [HALOGEN TYPE]

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

## Aiming Adjustment Procedure

INFOID:000000011321606

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 headlamp bulb center and the screen.
- 3. Start the engine. Turn the headlamp (LO) ON.
  - NOTE:

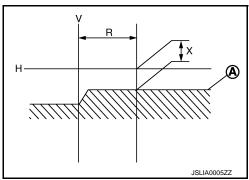
Shut off the headlamp light with the board to prevent from illuminating the adjustment screen. **CAUTION:** 

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

4. 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).

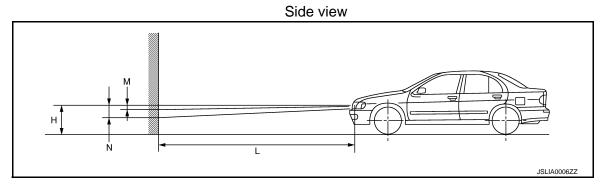
### Light axis measurement range (R) $: 350 \pm 175 \text{ mm} (13.78 \pm 6.89 \text{ in})$

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)



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

## FRONT FOG LAMP AIMING ADJUSTMENT

Revision: 2014 August

## FRONT FOG LAMP AIMING ADJUSTMENT

< PERIODIC MAINTENANCE >

## Description

## 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 front fog lamp assembly has been replaced.

Before performing aiming adjustment, check the following.

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

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

- Wipe out dirt on the front 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: UP

- B: DOWN
- 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.



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 7.62 m (25 ft) between the front fog lamp center and the screen.
- 3. Start the engine. Illuminate the front fog lamp.

### **CAUTION:**

### Never cover the lens surface with a tape etc. The lens is made of resin. NOTE:

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

 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 100 mm (3.94 in).

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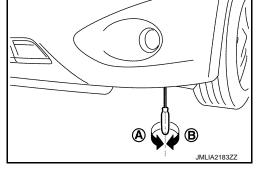
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[HALOGEN TYPE]

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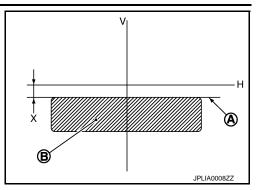


## FRONT FOG LAMP AIMING ADJUSTMENT

## < PERIODIC MAINTENANCE >

Front fog lamp light distribution on the screen

## [HALOGEN TYPE]

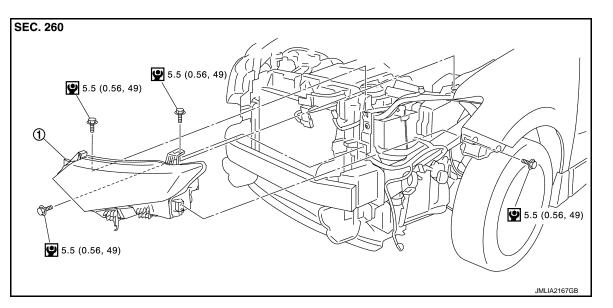


- A : Cutoff line
- B : High illuminance area
- H : Horizontal center line of front fog lamp
- V : Vertical center line of front fog lamp
- X : Cutoff line height

## **REMOVAL AND INSTALLATION** FRONT COMBINATION LAMP

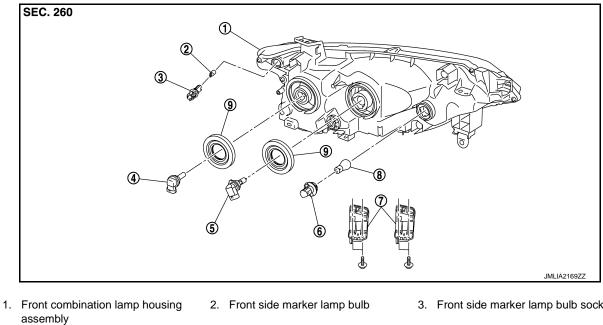
**Exploded View** 

## REMOVAL



- Front combination lamp 1.
- : N·m (kg-m, in-lb) Q

## DISASSEMBLY



- 4. Halogen bulb (LO)
- 7. Bumper bracket
- 8. Front turn signal lamp/parking lamp 9. Back cover bulb

5. Halogen bulb (HI)

- 3. Front side marker lamp bulb socket
- 6. Front turn signal lamp/parking lamp bulb socket

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[HALOGEN TYPE]

## Removal and Installation

### **CAUTION:**

### Disconnect the battery negative terminal or the fuse.

### REMOVAL

- 1. Remove front bumper fascia. Refer to EXT-12, "Removal and Installation".
- 2. Remove front combination lamp mounting bolts.
- 3. Pull out the front combination lamp forward the vehicle, and then disconnect the connector.
- 4. Remove front combination lamp.

### INSTALLATION

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

### **CAUTION:**

### After installation, perform aiming adjustment. Refer to EXL-209, "Description".

### Replacement

INFOID:0000000011321611

### CAUTION:

- Disconnect the battery negative terminal or the fuse.
- 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.
- 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.

### HEADLAMP BULB (HI)

- 1. Disconnect the halogen bulb connector.
- 2. Rotate the halogen bulb socket counterclockwise and unlock it.
- 3. Remove halogen bulb socket from the front combination lamp housing assembly.

### HEADLAMP BULB (LO)

- 1. Disconnect the halogen bulb connector.
- 2. Rotate the halogen bulb socket counterclockwise and unlock it.
- 3. Remove halogen bulb socket from the front combination lamp housing assembly.

### FRONT TURN SIGNAL LAMP/PARKING LAMP BULB

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

### FRONT SIDE MARKER LAMP BULB

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

### **Disassembly and Assembly**

### DISASSEMBLY

- 1. Rotate the halogen bulb (LO) socket counterclockwise and unlock it.
- 2. Remove halogen bulb (LO) socket from the front combination lamp assembly.
- 3. Rotate the halogen bulb (HI) socket counterclockwise and unlock it.
- 4. Remove halogen bulb (HI) socket from the front combination lamp assembly.
- 5. Rotate the front turn signal lamp/parking lamp bulb socket counterclockwise and unlock it.
- 6. Remove front turn signal lamp/parking lamp bulb.
- 7. Rotate the front side marker lamp bulb socket counterclockwise and unlock it.
- 8. Remove the bulb from the front side marker lamp bulb socket.

### ASSEMBLY

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

Revision: 2014 August

## **EXL-214**

[HALOGEN TYPE]

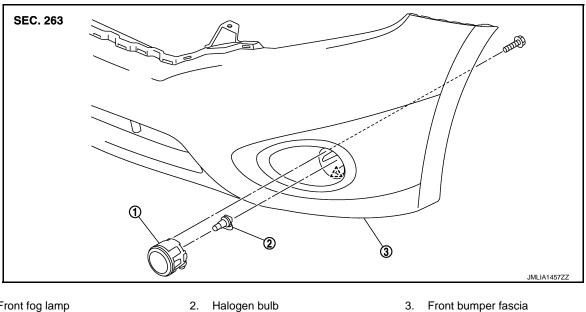
After installing the bulb, install the back cover and the bulb socket securely for watertightness.	А
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## FRONT FOG LAMP

**Exploded View** 

INFOID:000000011321613

[HALOGEN TYPE]



1. Front fog lamp

八:Pawl

## **Removal and Installation**

INFOID:000000011321614

### **CAUTION:**

### Disconnect the battery negative terminal or the fuse.

### REMOVAL

- 1. Remove front fender protector (front) fixing screws and clips, and then keep a service area. Refer to EXT-23, "Removal and Installation".
- 2. Disconnect front fog lamp connector.
- 3. Remove front fog lamp mounting bolt.
- Disengage fixing pawl, and then remove front fog lamp. 4.

### INSTALLATION

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

### **CAUTION:**

After installation, perform aiming adjustment. Refer to EXL-211, "Description".

### Replacement

INFOID:000000011321615

### **CAUTION:**

- Disconnect the battery negative terminal or the fuse.
- 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.

### FRONT FOG LAMP BULB

1. Remove front fender protector (front) fixing screws and clips, and then keep a service area. Refer to EXT-23, "Removal and Installation".

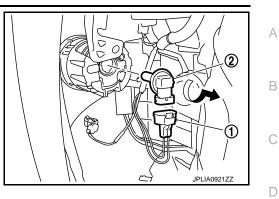
## **EXL-216**

## FRONT FOG LAMP

#### < REMOVAL AND INSTALLATION >

- 2. Disconnect front fog lamp bulb connector (1).
- 3. Rotate the bulb (2) counterclockwise and unlock it.

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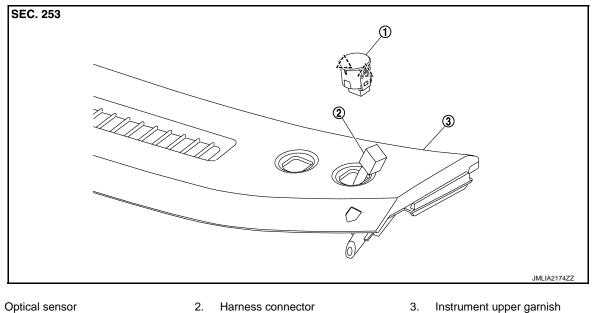
#### **OPTICAL SENSOR**

#### < REMOVAL AND INSTALLATION >

# **OPTICAL SENSOR**

**Exploded View** 

INFOID:000000011321616



Optical sensor 1.

∠\_\_\_\_: Pawl

#### Removal and Installation

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#### REMOVAL

- Insert an appropriate tool between the optical sensor and the instrument upper garnish. Pull out the opti-1. cal sensor upward.
- Disconnect the optical sensor connector, and then remove optical sensor. 2.

#### INSTALLATION

Install in the reverse order of removal.

# LIGHTING & TURN SIGNAL SWITCH

# Exploded View

The lighting & turn signal switch is integrated in the combination switch. Refer to <u>BCS-99, "Exploded View"</u>.

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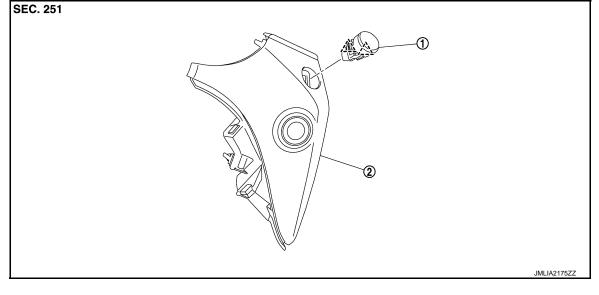
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# HAZARD SWITCH Exploded View

INFOID:000000011321619

[HALOGEN TYPE]



1. Hazard switch

2. Instrument finisher A

کے : Pawl

#### Removal and Installation

INFOID:000000011321620

#### REMOVAL

- 1. Remove instrument finisher A. Refer to IP-14, "Removal and Installation".
- 2. Disengage fixing pawls, and then remove hazard switch from instrument finisher A.

#### INSTALLATION

Install in the reverse order of removal.

### SIDE TURN SIGNAL LAMP

#### [HALOGEN TYPE]

# < REMOVAL AND INSTALLATION > SIDE TURN SIGNAL LAMP А Exploded View INFOID:000000011321621 Side turn signal lamp is integrated in the door mirror. Refer to MIR-31, "Exploded View". В С D Е F G Н J Κ EXL Μ Ν Ο Ρ

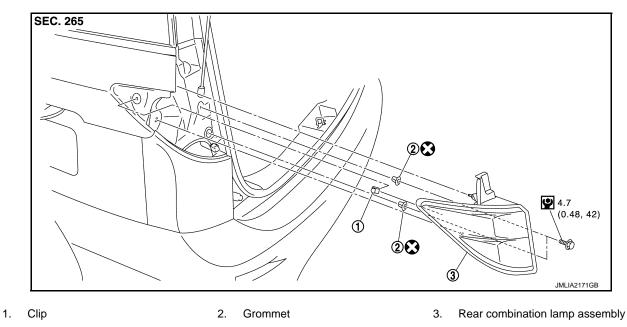
REAR COMBINATION LAMP

# Exploded View

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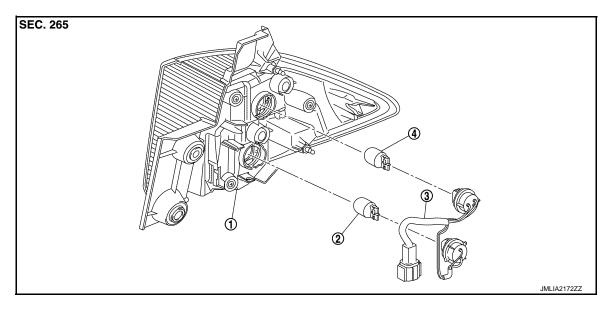
[HALOGEN TYPE]

#### REMOVAL



- : Always replace after every disassembly.
- . N·m (kg-m, in-lb)





- 1. Rear combination lamp housing assembly
- 2. Rear turn signal lamp bulb 3. Bulb socket assembly

4. Tail lamp/stop lamp bulb

# Removal and Installation

#### **CAUTION:**

Disconnect the battery negative terminal or the fuse. REMOVAL INFOID:000000011321623

#### **REAR COMBINATION LAMP**

#### < REMOVAL AND INSTALLATION >

- 1. Fully open back door.
- 2. Remove rear combination lamp assembly mounting bolts.
- 3. Pull the rear combination lamp assembly toward rear of the vehicle, and then remove rear combination lamp assembly.
- 4. Disconnect the rear combination lamp connector.

#### INSTALLATION

Install in the reverse order of removal.

#### Replacement

#### **CAUTION:**

- Disconnect the battery negative terminal or the fuse.
- 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
   <sup>E</sup>
   the performance of lamp. When replacing bulb, be sure to replace it with new one.

#### REAR TURN SIGNAL LAMP BULB

- 1. Remove rear combination lamp assembly. Refer to EXL-222, "Removal and Installation".
- Rotate rear turn signal lamp bulb socket counterclockwise, and then remove rear turn signal lamp bulb socket.
- 3. Remove rear turn signal lamp bulb from rear turn signal lamp bulb socket.

#### TAIL LAMP/STOP LAMP BULB

- 1. Remove rear combination lamp assembly. Refer to EXL-222, "Removal and Installation".
- 2. Rotate tail lamp/stop lamp bulb socket counterclockwise, and then remove tail lamp/stop lamp bulb socket.
- 3. Remove tail lamp/stop lamp bulb from tail lamp/stop lamp bulb socket.

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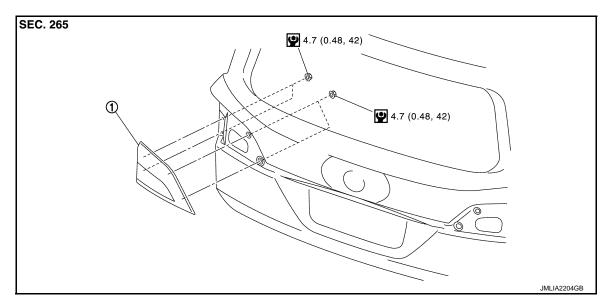
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# BACK-UP LAMP

**Exploded View** 

REMOVAL

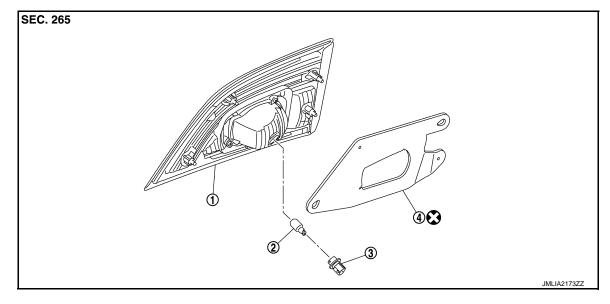
INFOID:000000011321625



1. Back-up lamp assembly

. N⋅m (kg-m, in-lb)

#### DISASSEMBLY



- 1. Back-up lamp housing assembly 2. Back-up lamp bulb
- 4. Seal packing
- Always replace after every disassembly.

#### Removal and Installation

#### **CAUTION:**

#### Disconnect the battery negative terminal or the fuse. REMOVAL

INFOID:000000011321626

3. Back-up lamp bulb socket

### **BACK-UP LAMP**

< R	EMOVAL AND INSTALLATION >	[HALOGEN TYPE]	
1.	Remove touch sensor (with automatic back door). Refer to <u>DLK-470. "TOUCH SENSOR : Removal ar</u> Installation".		А
2.	Remove back door lower finisher. Refer to <u>INT-48, "BACK DOOR LOWER FINIS</u> Installation".	HER : Removal and	
3.	Disconnect back-up lamp connector.		В
4.	Remove back-up lamp mounting nuts, and then remove back-up lamp.		
5.	Remove seal packing		
INS	STALLATION		С
	te the following item, and then install in the reverse order of removal.		
-	UTION:		D
	al packing cannot be reused.		
Re	placement	INFOID:000000011321627	
CA	UTION:		Ε
• N • N • N	isconnect the battery negative terminal or the fuse. lever touch the glass of bulb directly by hand. Keep grease and other oily matter lever touch bulb by hand while it is lit or right after being turned off. lever leave bulb out of lamp reflector for a long time because dust, moisture sm he performance of lamp. When replacing bulb, be sure to replace it with new one	E terminal or the fuse. Firectly by hand. Keep grease and other oily matters away from it. to it is lit or right after being turned off. Filector for a long time because dust, moisture smoke, etc. may affect	
BA	BACK-UP LAMP BULB		
1.	Remove back door lower finisher. Refer to <u>INT-48, "BACK DOOR LOWER FINIS</u> Installation".	HER : Removal and	
2.	Rotate back-up lamp bulb socket counterclockwise, and then remove back-up lamp b	oulb socket.	Н
3.	Remove back-up lamp bulb from back-up lamp bulb socket.		

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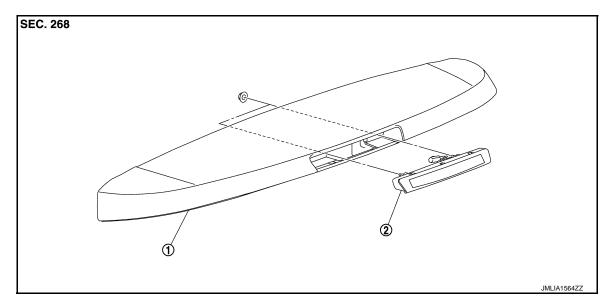
#### **HIGH-MOUNTED STOP LAMP**

# < REMOVAL AND INSTALLATION >

# HIGH-MOUNTED STOP LAMP

#### Exploded View

INFOID:000000011321628



1. Rear spoiler

2. High-mounted stop lamp

#### Removal and Installation

#### REMOVAL

- 1. Remove rear spoiler. Refer to EXT-45, "Removal and Installation".
- 2. Remove high-mounted stop lamp mounting nuts.
- 3. Remove high-mounted stop lamp from rear spoiler.

#### **INSTALLATION**

Install in the reverse order of removal.

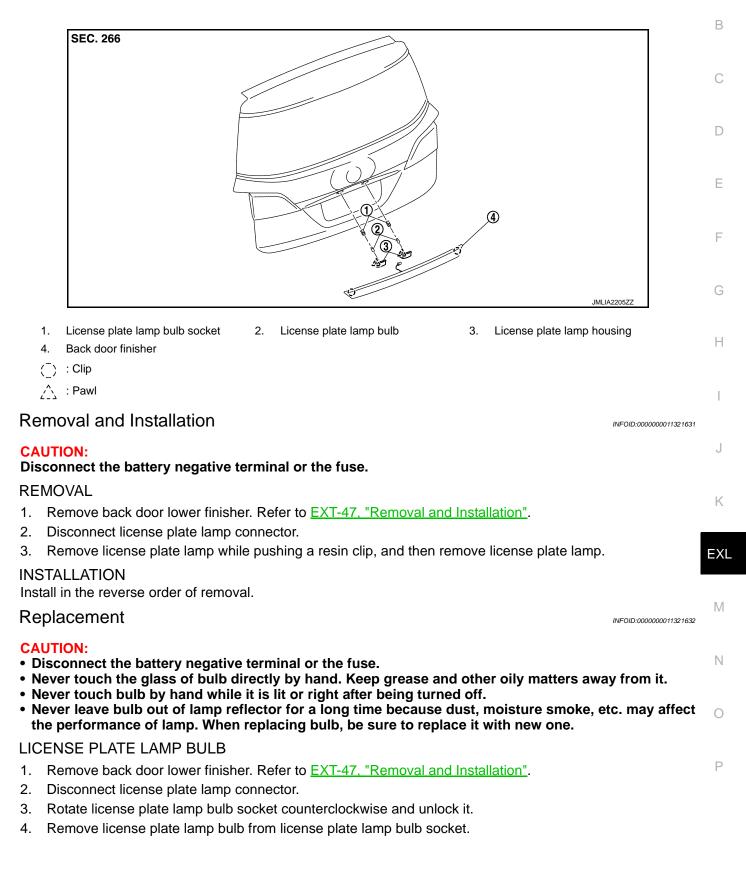
INFOID:000000011321629

# LICENSE PLATE LAMP

#### **Exploded View**

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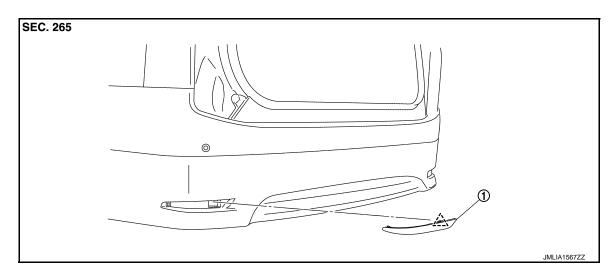
# **REFLEX REFLECTOR**

# < REMOVAL AND INSTALLATION >

# **REFLEX REFLECTOR**

#### **Exploded View**

INFOID:000000011321633



1. Reflex reflector

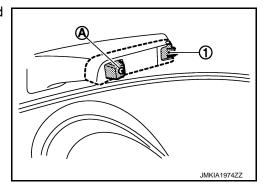
. : Pawl

### Removal and Installation

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#### REMOVAL

- 1. Remove rear bumper fascia assembly. Refer to EXT-16, "REAR BUMPER : Removal and Installation".
- 2. Remove reflex reflector (1) fixing screws (A) (LH and RH), and then remove reflex reflector (LH and RH).



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**

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[HALOGEN TYPE]

Item		Туре	Wattage (W)
	Headlamp (HI)	HB3 (Halogen)	60
	Headlamp (LO)	H11 (Halogen)	55
Front combination lamp	Front turn signal lamp/ Parking lamp	S25	27/8
	Front side marker lamp.	W5W	5
Front fog lamp		H8	35
Side turn signal lamp (integ	rated into the door mirror)	LED	_
Rear combination lamp	Stop lamp/ Tail lamp (side marker lamp)	W21/5W	21/5
	Rear turn signal lamp	WY21W (Amber)	21
Back-up lamp		W16W	16
License plate lamp		W5W	5
High-mounted stop lamp		LED	_

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Revision: 2014 August

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